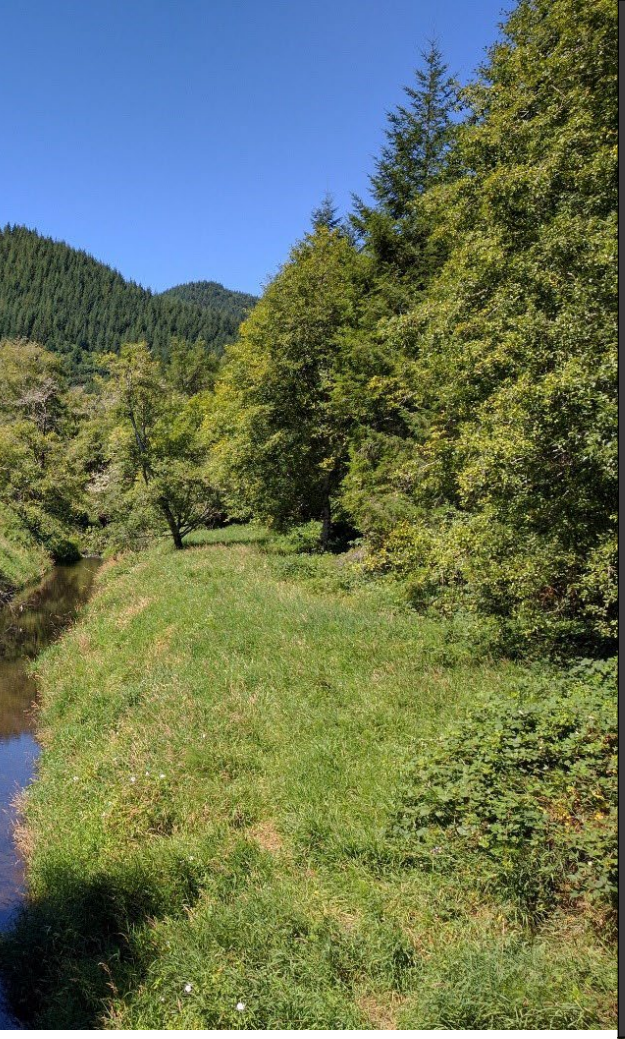

Water Quality Management Plan:

Upper Yaquina River Watershed TMDLs – Mid Coast Basin

Bacteria and Dissolved Oxygen

September 2023

State of Oregon
DEQ Department of Environmental Quality

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1.0 Introduction

This Water Quality Management Plan was developed to guide implementation of the Upper Yaquina River Watershed bacteria and dissolved oxygen Total Maximum Daily Loads. A WQMP is an element of a TMDL, as described by Oregon Administrative Rule 340-042-0040(4)(l), which provides the framework for management strategies to attain and maintain water quality standards and is designed to work in conjunction with detailed implementation plans prepared by persons responsible for TMDL implementation.

This Upper Yaquina River Watershed WQMP was adopted by Oregon's Environmental Quality Commission, by reference, into rule as OAR 340-042-0090(1)(b) on September 15, 2023. This WQMP is intended to provide comprehensive information for implementation of all relevant TMDLs, so will be amended, as needed, upon issuance of any future developed or revised TMDLs for the Upper Yaquina River Watershed. Any subsequently amended or renumbered rules cited in this document are intended to apply.

1.1 Condition assessment and problem description

The first element of the WQMP, per OAR 340-042-0040(l)(A), is an assessment of water quality conditions in the Upper Yaquina Watershed and a problem description. There are freshwater assessment units in the Upper Yaquina River Watershed listed as category 5 (impaired) for bacteria (E. coli) and dissolved oxygen (designated spawning period) in Oregon's 2022 Integrated Report, which was approved by the US Environmental Protection Agency on September 1, 2022. In addition, DEQ's detailed TMDLs data analysis identified excursions of applicable dissolved oxygen criteria during the year-round (salmonid rearing and migration) period.

As required by Section 303(d) of the federal Clean Water Act, DEQ developed Total Maximum Daily Loads for the pollutants causing bacteria and dissolved oxygen water quality impairments of waters within the Upper Yaquina Watershed. These pollutants include E. coli bacteria, which is an indicator of human pathogens and exceeds the recreational water contact criterion, and solar radiation and phosphorus, which contribute to impairments of dissolved oxygen criteria established to support aquatic life beneficial uses.

Bacteria impairment of streams poses risk of illness for people, livestock and wildlife beneficially using the waters within the basin for recreational contact and ingestion. Levels of dissolved oxygen below state criteria impair physiological health and survival of aquatic species, including the native cold-water fishes like the threatened Oregon coast coho.

Detailed information on the Integrated Report results and Assessment Unit status is presented in Section 3 of the Upper Yaquina River Watershed TMDLs and Section 3 of the TMDL Technical Support Document.

1.2 Goals and objectives

OAR 340-042-0040(4)(l)(B) requires identification of the goals and objectives of the WQMP.

The goal of this WQMP is to provide the framework for TMDLs implementation to attain and maintain the E. coli bacteria and dissolved oxygen water quality standards, including narrative criteria, and meet antidegradation requirements within the Upper Yaquina River Watershed.

The primary objectives of this WQMP are to describe: responsibilities for implementing the TMDLs; management strategies and actions necessary to reduce excess pollutant loads in order to meet the TMDL allocations; and, a strategy to evaluate progress towards attaining water quality standards throughout the Upper Yaquina River Watershed.

2.0 Proposed management strategies

As required by OAR 340-042-0040(l)(C), the following section presents proposed management strategies, by pollutant source or category, that are designed to meet the load and wasteload allocations required by the Upper Yaquina River Watershed bacteria and dissolved oxygen TMDLs.

OAR 340-042-0030(6) defines management strategies as “measures to control the addition of pollutants to waters of the state and includes application of pollutant control practices, technologies, processes, siting criteria, operating methods, best management practices or other alternatives.”

Table 2.0 includes proven strategies (and practices within the strategies) summarized by pollutant source. These strategies and practices are adapted from published sources, including the US Department of Agriculture Natural Resources Conservation Service. DEQ used the categories and terminology from Oregon Watershed Enhancement Board's Oregon Aquatic Habitat Restoration and Enhancement Guide and Oregon Watershed Restoration Inventory Online List of Treatments. Additional strategies included in Table 2.0 are supported by Oregon Department of Agriculture, Oregon State University Extension Service and other publicly available published sources. With input from the Local Stakeholder Advisory Committee Technical Working Groups, DEQ identified the strategies in Table 2.0 as appropriate for the conditions and sources within the watershed. Therefore, these are considered priority strategies and practices that should receive special focus during implementation plan development. Additional information specific to implementation of these strategies within the Upper Yaquina Watershed is provided in this section of the WQMP.

DEQ expects that entities identified in Section 5.1 will develop implementation plans that incorporate the strategies and practices in Table 2.0, as well as strategies (if any) presented within entity-specific subsections of Sections 5.1 and 5.2. Implementation plans must include specifics on where and when priority and other strategies and practices will be applied, along with measurable objectives and milestones for documenting their implementation and gaging their effectiveness. Following issuance of the TMDLs, DEQ will post a web-based map of jurisdictional responsibility (see Section 5) and layers for shade gaps and phosphorus loading rate (see Sections 2.1 and 2.2) on DEQ’s website to assist DMAs and other responsible persons in planning, prioritizing and tracking implementation activities. The web maps can be periodically revised as new information is collected.

Table 2.0: Management strategies by sources

<table>
<tr><th>Pollutant</th><th>Source</th><th>Reduction needed</th><th>Management Strategies</th></tr>
<tr><td>Solar Radiation</td><td>Insufficient height and density of riparian vegetation; altered bank and channel topography</td><td>76%</td><td>Riparian tree planting (conifer and hardwood); riparian vegetation planting (shrub or herbaceous cover); riparian vegetation management (invasive thinning, removal or other treatment); voluntary riparian tree retention; riparian invasive plant control; riparian fencing (or other livestock exclusion or management methods); placement of large wood; reestablishment of beaver *</td></tr>
<tr><td rowspan="3">Total Phosphorus</td><td>Poorly functioning or failing septic systems</td><td rowspan="3">50%</td><td>On-site systems assessment, inspections repairs/upgrades; eliminate illicit discharges</td></tr>
<tr><td>Livestock grazing and management</td><td rowspan="3">Livestock management; upland erosion control techniques; riparian fencing (or other livestock exclusion methods); stream crossing improvements (culverts/structures/fords removed or replaced with bridge or hardened ford); water gap development; livestock stream access/crossing (creation or improvement); livestock off channel watering/shade; livestock sacrifice area improvements; elk management for natural seasonal movements; Incorporate nutrient loading and nutrient management plans into Agricultural Area Plan</td></tr>
<tr><td>Runoff from roadways, silviculture and background**</td></tr>
<tr><td rowspan="2">Bacteria</td><td>Runoff* in contact with roadways, poorly functioning septic systems and livestock grazing areas</td><td rowspan="2">83%</td></tr>
<tr><td>Livestock and wildlife* in and around streams</td></tr>
<tr><td colspan="4">Notes: * See Section 6.4 of the Technical Support Document
** Background atmospheric deposition, native soil leaching and erosion and wildlife included in the general nonpoint sources</td></tr>
</table>

The following are the Natural Resource Conservation Service conservation practice names (and codes) that coincide with the OWRI terminology used in Table 2.0: Comprehensive Nutrient Management Plan (102); Riparian Forest Buffer (391); Tree/Shrub Site Preparation (490); Conservation Cover (327); Wildlife Habitat Planting (420); Brush Management (314); Herbaceous Weed Treatment (315); Restoration of Rare or Declining Natural Communities (643); Fence (382); Prescribed Grazing (528); Stream Crossing (578); Watering Facility (614); Livestock Pipeline (516); Pumping Plant (533); Heavy Use Area Protection (561); Roof Runoff Structure (558); Roofs and Covers (367); Composting Facility (317); Underground Outlet (620); Structure for Water Control (587).

2.1 Streamside vegetation management strategies

DEQ's water quality analysis and modeling concluded that, along with phosphorus reduction, riparian vegetation planting and management are the strategies necessary to improve dissolved oxygen levels and meet water quality criteria in the impaired sections of the Yaquina River and its perennial tributaries. This is because protecting and restoring streamside overstory vegetation reduces solar radiation loads to the streams by providing the effective shade necessary to achieve the TMDL surrogate measure allocations. More information about the physical and ecological factors affecting effective shade and associated management strategies can be found in Section 6.1 of the TMDL Technical Support Document.

The primary riparian vegetation planting and management strategies are summarized as follows:

- Vegetation planting and establishment: This strategy addresses locations that have little or no shade producing overstory vegetation and are therefore important locations for riparian tree and shrub planting projects. These sites may currently be dominated by invasive species.
- Vegetation protection (enhancement, maintenance and growth): This strategy addresses streamside areas that have existing vegetation that needs to be protected from removal to maintain current shade levels. In some cases, protection is needed because full restored condition shade can only be achieved with additional growth. Protecting and maintaining existing vegetation ensures that it can grow and mature, enhancing vegetation success and survival and provide for optimal ecological conditions.
- Vegetation thinning and management: This strategy addresses streamside areas that might need vegetation density reduction to achieve optimal benefits of shade. Current site conditions are overly dense with trees and need thinning to promote development of a healthy mature riparian forest or are dominated by invasive species that inhibit a healthy riparian community. This strategy recognizes that riparian plant communities may require that these activities be routinely conducted to ensure survival, health and optimal growth of the desired vegetation.

Location-specific methods for determining whether effective shade allocations along the impaired Yaquina River and Little Elk Creek are met include any of the following (see Section 6.1.1 in the TMDLs Technical Support Document for additional information):

1. Measure effective shade at the stream surface using standard stream monitoring equipment, such as the Solar Pathfinder™, or advanced methods using hemispherical imagery. Determine vegetation type, canopy density, stream width and stream orientation. Compare these results to Table 9.1b in the TMDLs.
2. Confirm and protect or establish overstory, woody vegetation in a 100-foot width zone from the stream bank.
3. Conduct shade modeling using the Heat Source model (as used in this TMDL) or another model approved by DEQ (through the implementation plan process) with the most recent remote sensing data (LiDAR) or using manual digitization of vegetation.
4. Another shade assessment method approved by DEQ (through the implementation plan process).

DEQ expects entities responsible for implementing vegetation management strategies to use one of the following comparisons to prioritize areas for restoration of overstory riparian vegetation to achieve the solar load allocation within their jurisdiction, ownership or project area:

(a) The shade gap, which is the percent difference between current effective shade and restored condition; or,
(b) Current vegetation characteristics and the restored condition characteristics.

DEQ conducted a vegetation height and shade gaps analysis within approximately 100-ft of each bank of the Yaquina River from Clem Road to Trapp Creek, as detailed in Section 6.1 of the TMDL Technical Support Document. Results from this analysis are summarized in Table 2.1, which shows minimum acreages of riparian vegetation (three feet in height or less) and stream miles where increases in effective shade are needed to attain shade allocations, summarized by jurisdictions of responsible persons. Responsible persons, including Designated

Management Agencies, are listed in Section 5.1 and entity specific requirements are presented in the subsections of Section 5.1.

Table 2.1: Entity-specific estimated jurisdictional acreages and stream miles with deficient riparian vegetation – Yaquina River

Designated Management Agency or responsible person	Estimated acres of vegetation height ≤ 3 ft	Estimated stream miles adjacent to vegetation height ≤ 3 ft
Oregon Department of Agriculture	121.0	10.2
Oregon Department of Forestry - Private Forestland	63.0	6.1
Lincoln County	39.4	2.8
Portland & Western Railroad	14.9	1.0
Oregon Department of Transportation	6.9	0.3
U.S. Bureau of Land Management	2.8	<0.1
Total	**247.9**	**20.4**

Figures 2.1a-c present static maps of jurisdictional responsibility and shade gap percentage ranges along the Yaquina River in the three following segments in relation to DEQ monitoring stations and approximate length in river miles:

- Segment 1: between 34454-ORDEQ and 33112-ORDEQ; 11.0 river miles
- Segment 2: between 33112-ORDEQ and 12301-ORDEQ; 2.8 river miles
- Segment 3: between 12301-ORDEQ and 11476-ORDEQ; 7.2 river miles

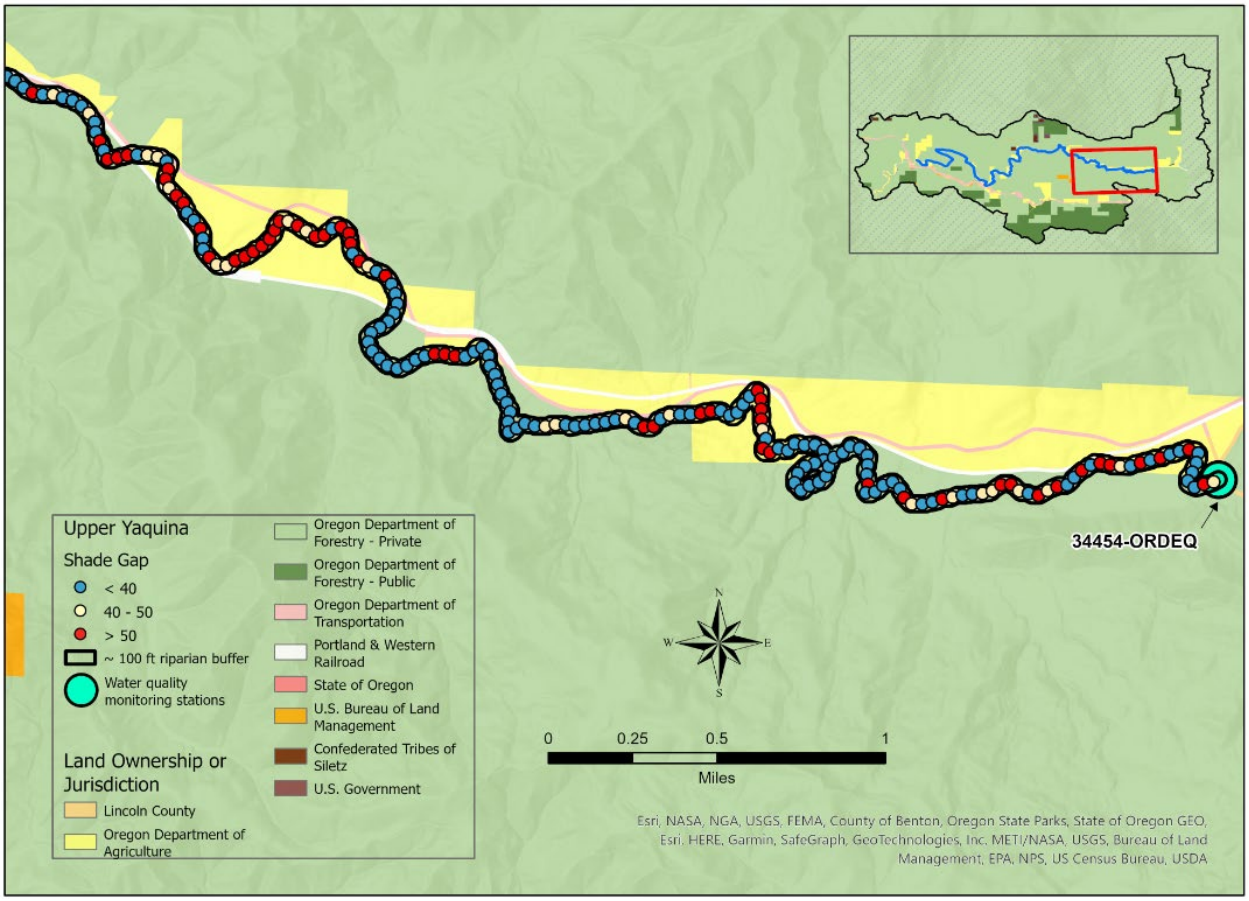

Figure 2.1a: Yaquina River Segment 1 jurisdictions and shade gap percentages

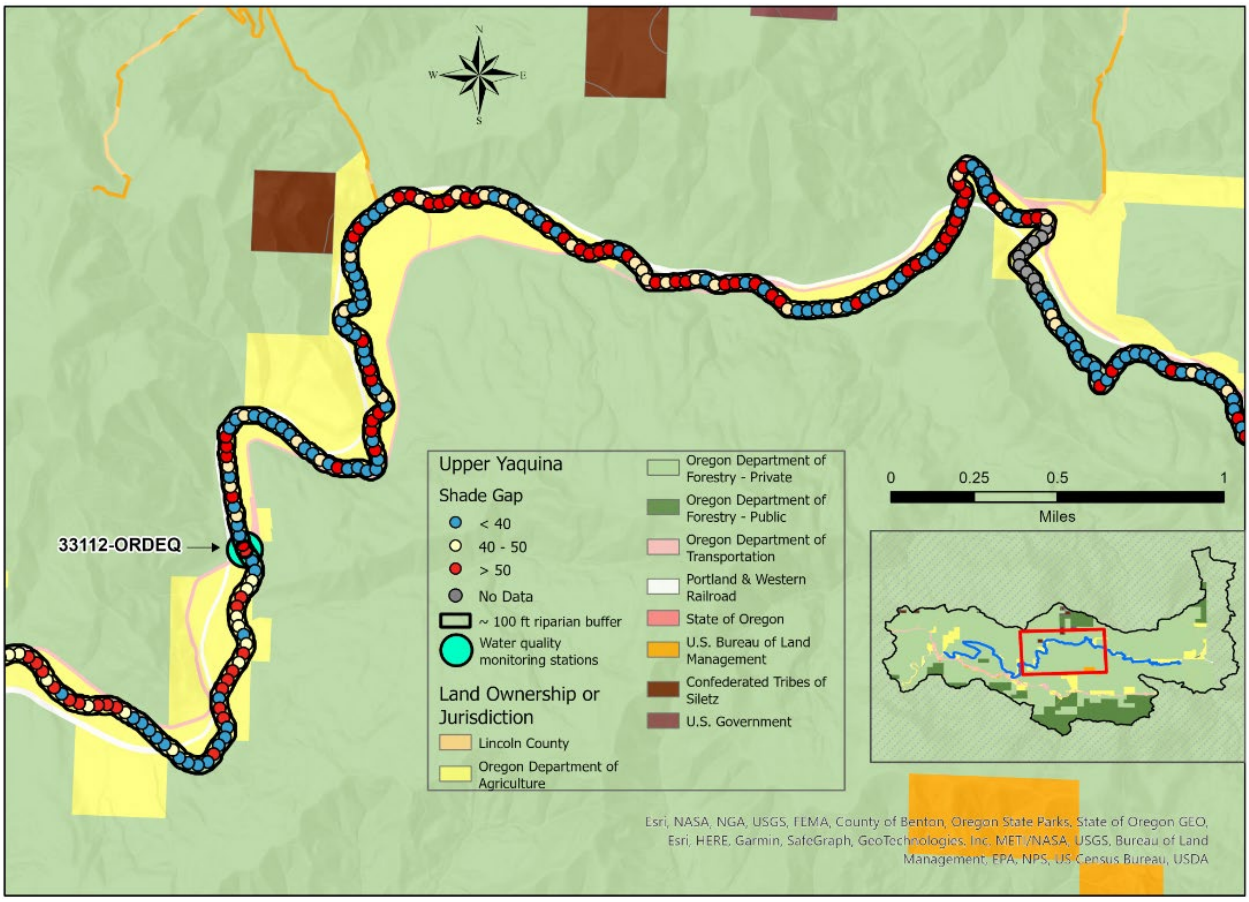

Figure 2.1b: Yaquina River Segment 2 jurisdictions and shade gap percentages

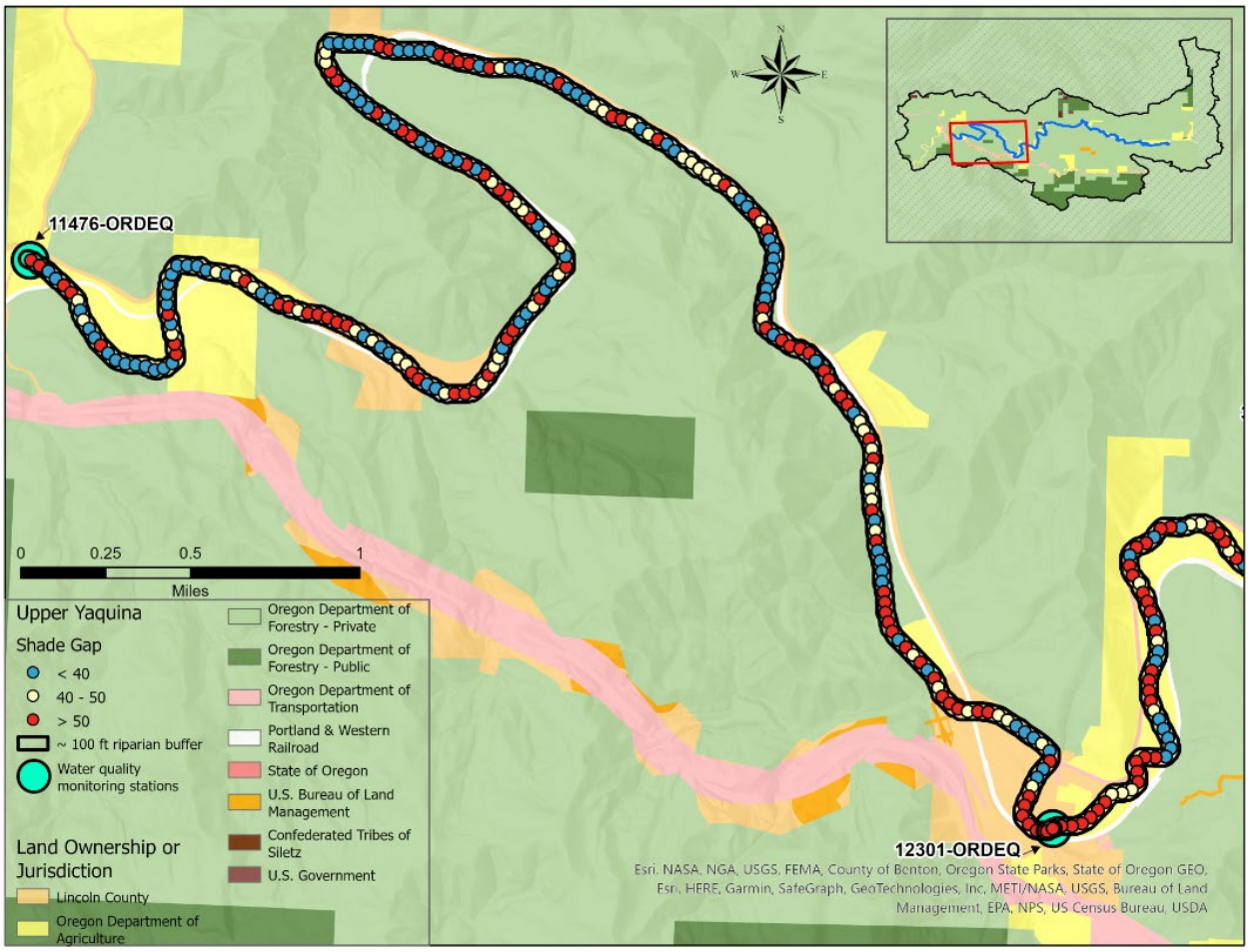

Figure 2.1c: Yaquina River Segment 3 jurisdictions and shade gap percentages

2.2 Phosphorus and bacteria reduction management strategies

DEQ's source assessment, detailed in the Upper Yaquina Watershed TMDLs Report and Technical Support Document, concluded that the primary pathways for phosphorus and bacteria to enter waters of the state are through erosion and runoff from pastures; transport and delivery of sediment and organic matter containing phosphorus or bacteria; and direct deposition of livestock manure. In addition, the fate and transport of phosphorus from silvicultural application of the herbicide glyphosate is a potential landscape-wide source that is poorly understood and documented. A locally significant source of phosphorus and bacteria can be failing residential septic systems. Therefore, the primary management strategies for reducing phosphorus and bacteria inputs into streams include:

- Implement additional best management practices for livestock manure and pasture management to control and minimize livestock access to streams to reduce organic matter mobilization in runoff and direct deposition into surface waters;
- Reduce sources of total phosphorus in sediment through runoff and erosion control management strategies across all land uses, thereby reducing the total amount of phosphorus available for transport to the river;

- Improve pastures and riparian zones to reduce surface erosion and provide adequate filtration capacity for organic matter and nutrients; and,
- Assess onsite septic systems to identify those at the highest risk of malfunction or failure.

DEQ's analyses, as detailed in Section 5.3 of the TMDL Technical Support Document, indicates high priority for implementation of bacteria reductions in three of the six evaluated source areas. As shown in Figure 2.2, DEQ expects that the above strategies will be applied at specific sites within high priority source areas #2, #4 and #6, as specified in the subsections of Section 5.1, which describes specific implementation responsibilities.

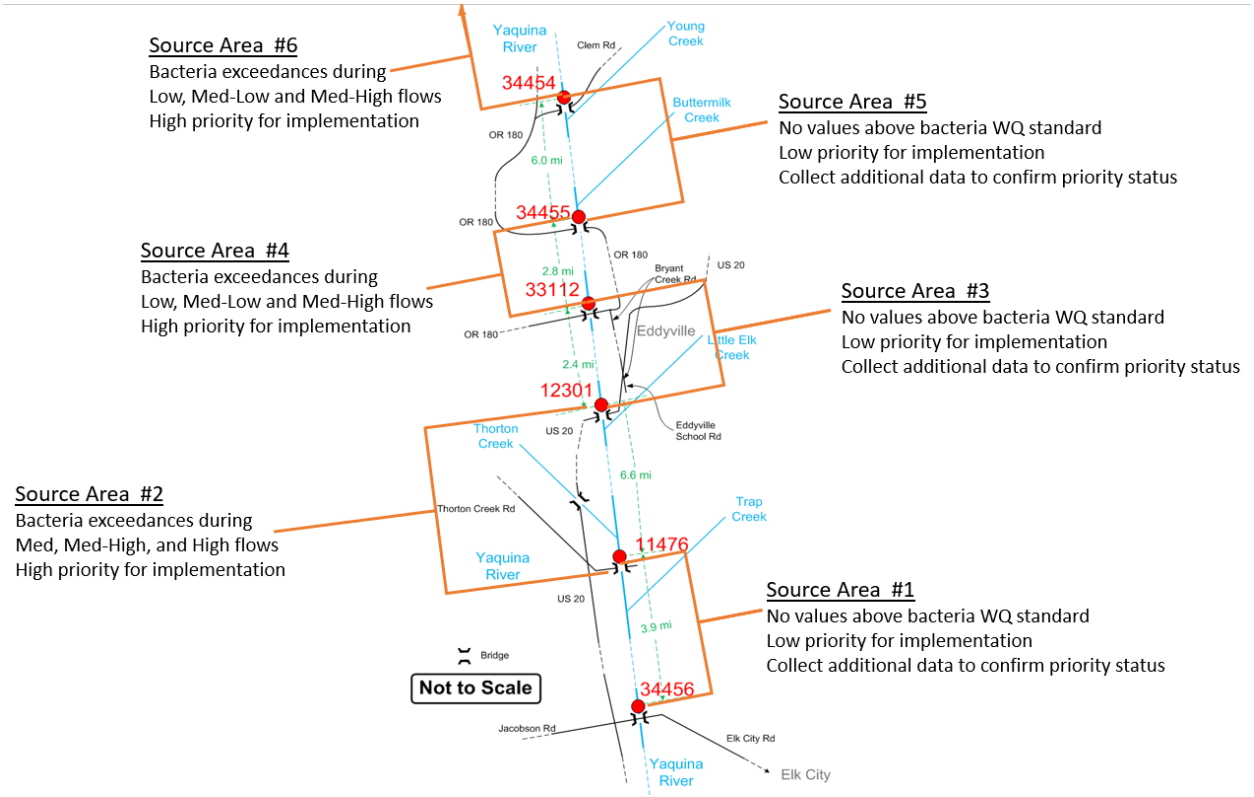

Figure 2.2: Bacteria source areas and priorities for the Upper Yaquina Watershed

Because exceedances of bacteria water quality standards were observed during surface runoff conditions in source areas #2, #4 and #6, restriction of livestock access to streams and riparian areas is the priority bacteria reduction strategy for these source areas.

Exceedances of bacteria water quality standards during non-runoff conditions in source areas #4 and #6 could indicate releases from septic systems or other direct discharges including livestock in streams during low flow periods. In addition to livestock stream access control and restrictions, septic system evaluations must be prioritized in source areas #4 and #6.

3.0 Timelines for implementing strategies

OAR 340-042-0040(I)(D) requires schedules for implementing management strategies including permit revisions, achieving appropriate incremental and measurable water quality targets, implementing control actions and completing measurable milestones. DEQ's water quality permitting program has responsibility for revising permits to comply with TMDLs. Timelines for implementation of management strategies by responsible persons are discussed separately. Figure 3.0 presents a typified timeline for TMDL implementation in a five-year increment.

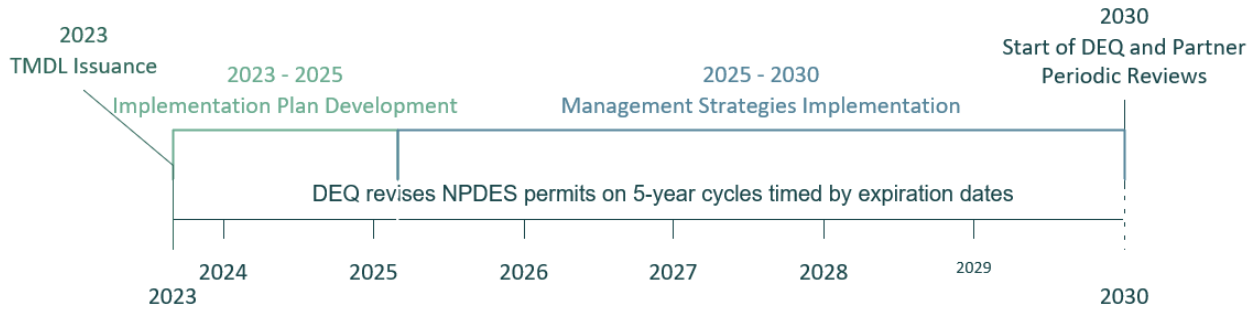

Figure 3.0: Upper Yaquina River Watershed TMDLs implementation timelines

3.1 DEQ Permit revisions

NPDES permits have five-year terms. ODOT's statewide NPDES MS4 permit covering highway stormwater discharges is the only water quality permit that must be revised to fully implement these TMDLs. The permit was last reissued in 2020. Upper Yaquina River Watershed TMDL wasteload allocations for bacteria and total phosphorus will be incorporated into this permit when it is renewed (currently projected for 2025).

3.2 Management strategies implemented by responsible persons

Based on analyses (DEQ, 2023a), DEQ estimated timelines to attain excess pollutant load reductions. These are presented in Section 4.2 as the schedule for achieving appropriate incremental and measurable water quality targets. DEQ also estimated reasonable timelines for implementation of some priority management strategies specific to certain responsible persons, including designated management agencies, as shown in Table 5.1.1, 5.1.2a and 5.1.6. DEQ expects responsible persons, including designated management agencies, to consider these timelines as they specify the management measures and schedules with measurable milestones in implementation plans, as required in Section 5.3.

As discussed in Section 6, DEQ evaluates completion of implementation schedules and measurable milestones during review of annual reports and gages progress toward TMDL goals during periodic evaluation of all available monitoring data and information, typically in five-year increments.

4.0 Attaining water quality standards

Based on the TMDLs analyses, achieving the excess load reductions identified will result in attainment. Each management strategy identified in this WQMP and in responsible persons' implementation plans represents part of a system of measures and practices that collectively reduce pollutant loads and improve water quality.

4.1 How management strategies support attainment of water quality standards

OAR 340-042-0040(l)(E) requires an explanation of how implementing the proposed management strategies will result in attainment of water quality standards.

4.1.1 Implementation of vegetation management strategies for solar radiation reduction

Based on the excess solar radiation and shade deficit calculated along the Yaquina River (see Section 4.5.1 of the TMDL Technical Support Document), DEQ identified the priority management strategies and specific practices in Table 2.0 and Section 2.1 to increase site effective shade. DEQ focused on the three vegetation strategies described in Section 2.1 to estimate reasonable timelines for achieving surrogate effective shade targets, and by extension solar radiation load reductions to dissolved oxygen levels.

The effective shade curves (Figures 4.5.2a-h in the TMDL Technical Support Document) and effective shade allocations table (Table 9.1b in the TMDL Report) identify the relations between stream width and restored condition effective shade for the specific vegetation types and characteristics identified (see Table 4.5.2a in the TMDL Technical Support Document).

Landowners, foresters, restoration professionals and horticulturists have individual and collective expertise and experience needed to develop site-specific planting prescriptions that will ensure the best combination of species are planted and determine the maintenance activities necessary for trees to become established (free to grow) and produce a fully functioning riparian zone consistent with established literature and practice (e.g., NRCS). DEQ provided jurisdictional shade gap analysis in Section 2.1 to help responsible persons assess and prioritize areas to optimize implementation effectiveness.

Site-specific riparian planting prescriptions developed by qualified and experienced practitioners will typically contain a higher diversity of shrub and overstory species than the vegetation types used in developing the shade tables and curves. However, the effective shade outcomes for either the conifer or a mix of native hardwood and conifer species are expected to be similar

when a buffer zone of 100-feet or consistent with Table 9.1b is fully established. These streamside vegetation buffer characteristics provides shade and other functions consistent with the Natural Resources Conservation Service' Conservation Practice Standard - Riparian Forest Buffer, CODE 391, and other published guidelines and literature. These riparian vegetation strategies are also consistent with the long-term objectives of Oregon Plan for Salmon and Watersheds, the Oregon Coast Coho Conservation Plan (ODFW, 2007), and the Coastal Coho Recovery Plan (NMFS, 2016) to provide other important watershed functions, including a natural source of large woody debris.

4.1.2 Implementation of phosphorus and bacteria reduction management strategies

As detailed in Sections 4.5.1 and 5.4 of the TMDL Technical Support Document, reductions in loads of phosphorus and bacteria are needed to attain dissolved oxygen and bacteria water quality criteria. As noted in Section 2, the priority management strategies identified for implementation by responsible persons are proven to be effective in reducing phosphorus and bacteria, as supported by the available literature.

Landowners, foresters, restoration professionals and horticulturists have individual and collective expertise and experience needed to develop site-specific approaches in response to assessments by responsible persons of areas within their jurisdictions. In Sections 2.2 and 5.1.2, DEQ used existing data and information to prioritize areas within the watershed to help focus implementation of bacteria and phosphorus reduction strategies, as well as providing entity-specific strategies throughout Section 5.1.

4.2 Timelines for attaining dissolved oxygen and bacteria water quality standards

OAR 340-042-0040(l)(F) requires an estimated timeline for attaining water quality standards through implementation of the TMDL, WQMP and associated TMDL implementation plans.

Based on DEQ's source assessment and TMDLs analyses (DEQ, 2023a), nonpoint sources contribute nearly all of the excess pollutant loading associated with water quality impairments in the Upper Yaquina River Watershed. Therefore, it is critical for nonpoint sources to make timely progress toward reducing anthropogenic pollutant loads to meet the TMDLs load allocations.

As further explained in Section 6.2 of the TMDL Technical Support Document, DEQ evaluated multiple scenarios and assumptions to estimate reasonable timelines for achieving the needed reductions in solar radiation, phosphorus and bacteria. DEQ expects persons responsible for developing implementation plans to consider the timeline projections and interim targets presented below in establishing commitments for vegetation management and other actions, in order to identify measurable objectives, milestones and implementation timelines.

Timelines for attainment of water quality standards (i.e., numeric criteria) are based on estimated timelines for excess pollutant load reduction and meeting surrogate targets.

Table 4.2a: Projected timelines for solar radiation excess load reductions to the modeled reach of the Yaquina River in 10-year increments

Assessment Year	Cumulative excess solar radiation load reduction milestone ranges (%)
2034	8 - 14
2044	22 - 37
2054	38 - 60
2064	55 - 76
2074	65 - 86
2084	74 - 91
2094	81 - 95
2104	86 - 97

With focus on the vegetation management strategies in Table 2.0, an appropriate interim target is for substantial solar load reduction to occur within 25 to 30 years of commencing the strategies listed in Section 2.

Table 4.2b: Projected timelines for total phosphorus excess load reductions to the modeled reach of the Yaquina River in five-year increments

Assessment Year	Cumulative excess total phosphorus load reduction milestone ranges (%)
5 (from 2024) = 2029	30 - 41
10 (from 2024) = 2034	55 – 65
15 (from 2024) = 2039	79 – 80
20 (from 2024) = 2044	88 - 100

Table 4.2c: Projected timelines for bacteria excess load reductions to the modeled reach of the Yaquina River in five-year increments

Assessment Year	Cumulative excess E. coli load reduction milestone ranges (%)
5 (from 2024) = 2029	15 - 60
10 (from 2024) = 2034	40 - 90
15 (from 2024) = 2039	50 - 95
20 (from 2024) = 2044	60 - 98

An appropriate interim target to meet the phosphorus and bacteria load allocations is within 10 years of commencing the strategies listed in Section 2.

5.0 Implementation responsibilities and schedule

5.1 Identification of implementation responsibilities

OARs 340-042-0040(4)(I)(G) and 340-042-0080(1) require identification of persons, including Designated Management Agencies, responsible for implementing management strategies and preparing and revising implementation plans.

OAR 340-042-0030(2) defines Designated Management Agency as a federal, state or local governmental agency that has legal authority over a sector or source contributing pollutants and is identified as such by DEQ in a TMDL.

The TMDL rule provides numerous mentions of the term 'responsible person' with associated requirements. OAR 340-042-0025(2) indicates that responsible sources must meet TMDL load allocations through strategies developed in implementation plans. OAR 340-042-0030(9) defines 'reasonable assurance' as a demonstration of TMDL implementation by governments or individuals. OARs 340-042-0040(4)(I)(G) requires identification of persons, including DMAs, responsible for developing and revising implementation plans. OAR 340-042-0040(4)(I)(I) requires a schedule for submittal and revision of implementation plans by responsible persons, including DMAs. And OAR 340-042-0080(4) reiterates the requirement for persons, including DMAs, responsible for development, submittal and revision of implementation plans, along with the required elements of those plans. For purposes of this Upper Yaquina River Watershed WQMP, for implementation of the bacteria and dissolved oxygen TMDLs, 'responsible person' is defined as any entity responsible for any source of pollution addressed by the TMDLs.

Unless otherwise specified, all responsible persons are required to develop, submit, implement and revise, as needed, an implementation plan specific to the Upper Yaquina River Watershed TMDLs that includes: management strategies; timelines for implementation; a schedule for achieving milestones; and a performance monitoring component with a plan for periodic review and plan revision, as detailed in Section 5.3. Submittal of each plan must follow the schedule as described in Section 5.4. Table 5.1a contains the list of these responsible persons.

Table 5.1a: Persons responsible for developing implementation plans and implementing management strategies

Entity	Jurisdiction
Oregon Department of Forestry	Non-federal forestlands: Public and private forest operations, practices and activities (including roads)
Oregon Department of Agriculture	Agricultural lands and activities
Oregon Department of Transportation	Highways, rights-of-way and facilities
Oregon Department of State Lands	Beds and banks of streams; removal-fill activities for waterways and wetlands
Lincoln County	County-owned lands, county roads and rural land use
Benton County	County-owned lands, county roads and rural land use
US Bureau of Land Management	BLM and O&C managed lands and roads
Portland & Western Railroad, Inc	Rail lines and rights-of-way

The Oregon Department of Environmental Quality is the DMA for implementing point source wasteload allocations. DEQ is not included in Table 5.1a because DEQ implements waste load allocations through issuance of NPDES permits, which does not require preparation of an implementation plan.

Table 5.1a is not an exhaustive list of every individual that bears responsibility for improving water quality in the Upper Yaquina River Watershed. It may be necessary for all people that live, work and recreate in the watershed to take steps to reduce pollution and protect or restore water quality to attain standards and designated beneficial uses. Active participation may be needed to achieve long-term water quality improvements throughout the watershed.

Figure 5.1 is a map of the watershed showing areas by land use, ownership or jurisdiction with responsibility for implementation of management strategies by the entities indicated. Based on a combination of zoning, land use and ownership, the Oregon Department of Forestry (non-federal public and private forestland) has jurisdiction for about 90% of the acreage within the watershed. The Oregon Department of Agriculture represents about 6% of the jurisdictional responsibility, followed by a small overall percentage in the transportation sector (ODOT and county roads and railroads) and there are several entities with less than 1% of the area under their jurisdiction or ownership, depending on the activities.

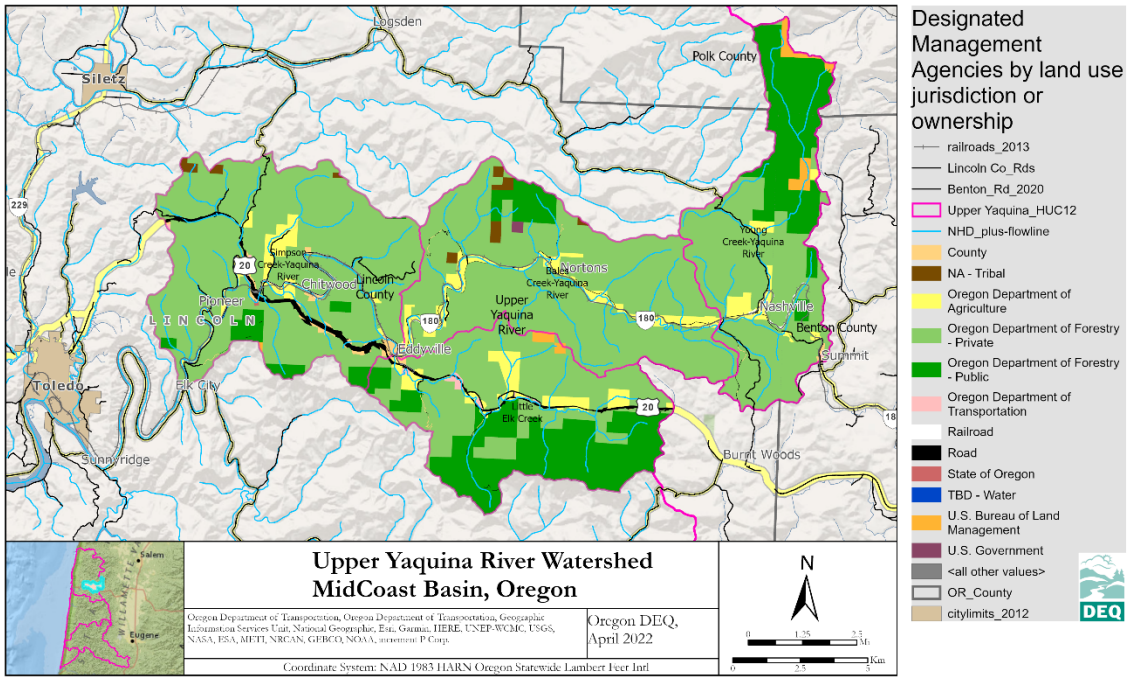

Figure 5.1: Upper Yaquina River Watershed land use jurisdiction or ownership

In addition to considering overall acreage, DEQ evaluated the jurisdiction or ownership acreages and percentages of lands within an approximate 100-foot buffer zone from the banks of the freshwater mainstem Yaquina River from Clem Road to Sloop Creek (approximately 21 miles). As shown in Table 5.1b, the primary responsibilities for near-stream management and water protection along the impaired segments of the mainstem Yaquina River in Lincoln County are ODA (41%) and ODF (39%). Entities with rural land use jurisdiction and/or transportation

right-of-way within the buffer are with Lincoln County (11%), ODOT (2.4%) and Portland & Western Railroad (6%). During implementation planning, DEQ expects these entities to identify and confirm their jurisdictional responsibilities using geographic information systems methods and include that information in any required implementation plan.

Table 5.1b: Responsible person jurisdictional acreage and percentages of land within approximately 100-feet of the freshwater mainstem Yaquina River

Responsible Person	Approximate riparian acreage within 100-feet of Yaquina River	Approximate Percentage of Area
Oregon Department of Agriculture	336	41.2%
Oregon Department of Forestry - Private	315	38.6%
Lincoln County	90	11.0%
Portland & Western Railroad	50	6.1%
Oregon Department of Transportation	20	2.4%
U.S. Bureau of Land Management	6	0.7%
Total	816	100.0%

5.1.1 Oregon Department of Forestry

As noted in Section 5.1, DEQ estimated that ODF has jurisdiction over approximately 39 percent of the streamside acreage adjacent to the mainstem Yaquina River below the confluence with Little Yaquina River. In addition to ODF's implementation of the Oregon Forest Practices Act and any amendments, DEQ determined in Section 5.2.1 that ODF must develop a TMDL implementation plan to ensure the forestry sector meets the Upper Yaquina River watershed load allocations for phosphorus and solar radiation. ODF's implementation plan must include the required elements described in Section 5.3 and plan submittal must follow the schedule in Section 5.4. The plan must include priority management strategies from Table 2.0 and Table 5.1.1 or others that ODF documents are appropriate for operations and land conditions on non-federal forestlands in the watershed to address effective shade gaps between the Forest Practices Rules and the TMDL allocations applicable to the forestry sector. The plan must identify a combination of protection strategies to maintain conditions where forestry sector allocations are being met and ways to promote and assist with active restoration strategies in areas where forestry sector allocations are not being met.

As required under OAR 629-605-0140, forest operators working on non-federal forestlands must use ODF's department reporting and notification system to submit notification to the State Forester for road construction, harvest, herbicide and fertilizer operations. Where ODF relies on implementation of rules or other relevant programs, that differ from DEQ specified management strategies, ODF's implementation plan must document how TMDL goals will be met.

ODF must perform an assessment of land and riparian conditions within ODF's jurisdictional areas, as presented in Table 2.1 and with consideration of the shade gap areas DEQ identified in Figures 2.1a-c, to determine these details and facilitate prioritization and implementation of selected management strategies. The assessment may be conducted in collaboration with other DMAs and local partners and should be conducted as described in Section 5.3.1 and used in determining the details of the implementation plan, as well as identifying locations for implementation of priority strategies. The results of this assessment and any alterations to strategies or timelines from Table 5.1.1 must be included in ODF's implementation plan submittal to DEQ.

DEQ expects ODF's implementation plan to include an outreach and education component to private landowners to encourage implementation of voluntary practices identified in the document: Private Forest Landowners and the Oregon Plan (ODF, 2012); and, when applicable, reporting these actions to Oregon Watershed Enhancement Board's OWRI database.

Table 5.1.1: ODF-specific management strategies and timelines that would be effective in achieving load allocations for pollutants affecting dissolved oxygen

Source or activity	Management Strategy	Timeline
Silvicultural chemical application: anthropogenic inputs of nutrients to forested landscape from pesticides and fertilizers	Coordinate with DEQ and partners on monitoring strategy to quantify total phosphorus and TSS load reaching Yaquina River and major tributaries.	Years 1-5 after TMDL issuance: Following evaluation of ODF completed notifications
	Summarize estimated annual total phosphorus loads to the landscape in the Upper Yaquina watershed using ODF completed notifications and reported chemical application rates or rates from the literature.	
	Review required statutory written plans received for both herbicide and fertilizer completed notifications. For fertilizer application: Assess whether operators are applying nutrients at agronomic rates in western Oregon's coast range using required chemical application reporting, OSU Extension guidance and other resources. Provide summary of this evaluation in annual reports.	
Anthropogenic nutrient (total phosphorus) loads in fine sediment and particulate organic matter: phosphate sorbed to soil particles or incorporated into soil organic matter	Implement ODF road and harvesting rules that address preventing, minimizing or reducing soil erosion and stream sedimentation (OAR 629-607-0300, OAR 629-625-0000 through 629-625-0925) and new riparian buffers rules (OAR 629-643-0000 through 629-643-0500).	Years 1-5 after TMDL issuance – and on-going
Excess solar radiation due to riparian vegetation canopy cover significantly below restored condition vegetation	Work collaboratively with DMAs and local and regional partners to develop grant proposals to fund the assessment, prioritization, outreach and implementation of riparian restoration along the freshwater Yaquina River and Little Elk Creek reaches to increase site effective shade (combination of vegetation height, buffer width and canopy density) through streamside vegetation management strategies using regulatory programs and voluntary activities, including incentive-based projects. As opportunities present themselves ODF Stewardship Foresters and staff will assist working group with gathering field information that will help inform the collaborative assessment.	Years 1-5 after TMDL issuance: Identify highest priority sites for planting riparian vegetation, Perform planting years 2-5, 5-10, 10-20, etc. Track establishment progress; monitor survival rates for 10 – 20 years at selected sites
	Assist partners and landowners with voluntary incentive planting plans and annual OWRI reporting.	
	For projects to meet forestry sector shade allocation, work cooperatively with partners and landowners to support maintenance of plants until free to grow and monitoring of survival rates	
Water quality impairment and improvement education and outreach	Work with DMAs and local and regional partners to develop a coordinated education and outreach strategy to inform landowners on local surface water quality	Years 1-2 following approval

Source or activity	Management Strategy	Timeline
	impairments and improvement programs and periodic opportunities.	of implementation plan
	Develop targeted outreach messages for basin via social media, local newspapers, signs and direct mailings.	
	Highlight efforts and progress using success stories and other avenues, including media outlets	Years 3-5 following approval of implementation plan

5.1.2 Oregon Department of Agriculture

As noted in Section 5.1, ODA's jurisdiction covers approximately 41 percent of the streamside areas along the upper mainstem Yaquina River (AUs 10591 and 10593) and approximately 35 percent of Little Elk Creek (AU 10590). In addition to ODA's implementation of the Oregon Agricultural Water Quality program (Mid Coast Area Rules and 2019 Mid Coast Agricultural Water Quality Management Area Plan), DEQ determined in Section 5.2.2 that ODA must develop a TMDL implementation plan that will meet the Upper Yaquina River Watershed agricultural sector load allocations for bacteria, phosphorus and solar radiation. ODA's implementation plan must include the required elements described in Section 5.3 and plan submittal must follow the schedule in Section 5.4. The plan must include priority management strategies from Table 2.0, Table 5.1.2a or others that ODA documents are appropriate to agricultural land and activity-related conditions in the watershed, to address gaps between the current pollutant loading under existing Area Rules and Mid Coast Area Plan and the TMDL allocations applicable to agriculture. Any alternative strategies or timelines in Table 5.1.2a must be documented in the implementation plan.

ODA's implementation plan must identify a combination of protection strategies to maintain conditions where agricultural sector allocations are being met and ways to promote and assist with active restoration strategies in areas where agricultural sector allocations are not being met. Specific management strategies and controls to address gaps in pollution controls or prevention should be documented in revisions to the Area Rules or Area Plan, as appropriate.

As part of developing the implementation plan, ODA must include an effective methodology for conducting assessment of land conditions and current practices within ODA's jurisdictional areas of the Upper Yaquina River Watershed. ODA's land assessment methodology must address factors described in Section 5.3.1 in determining the details of the implementation plan and include a process for determining locations for implementation of management strategies. ODA's assessment methodology could build on existing Strategic Implementation Area evaluation methods and ODA's Agricultural Focus Area process to identify and address land conditions or practices, including those that may comply with Area Rules, but individually or collectively prevent attainment of agricultural sector load allocations. This strategy should also include evaluation of compliance with Area Rules in areas of the watershed outside the 2021 SIA evaluation area.

For effective shade, ODA's assessment must consider and prioritize the effective shade gap areas DEQ identified in Figures 2.1a-c. ODA may utilize and document other sources of information on riparian vegetation condition to inform the prioritization of strategies to improve effective shade on agricultural lands.

For bacteria, ODA's assessment must identify and prioritize management practices including controls for access to streams and riparian areas at locations within the source areas #2, #4 and #6, identified in Section 2.2 and Figure 2.2. ODA may utilize and document other sources of information on bacteria sources, including water column monitoring data, to inform the prioritization of strategies and locations to reduce agricultural sector bacteria loads.

For phosphorus, ODA's assessment must prioritize phosphorus reduction efforts in priority areas indicated by Catchments 6 and 7 on Figure 5.1.2 and supported by Table 5.1.2b, as discussed below.

ODA's implementation plan must include a quality assurance project plan for collection of bacteria data or reference an existing QAPP, at a minimum, at established monitoring locations (Station IDs 34454, 33112, 36912 and 11476), and data collection to evaluate effectiveness of bacteria, phosphorus and solar radiation management strategies.

DEQ recognizes ODA's existing collaborative process with the Local Advisory Committee to encourage landowners to implement voluntary practices identified in the Mid Coast Area Plan (last revised in 2019). This strategy, along with collaboration with other DMAs in the watershed, could be described in ODA's implementation plan to fulfill the education and outreach component described in Section 5.3.4.

Table 5.1.2a: ODA-specific management strategies and timelines that would be effective in achieving load allocations for bacteria and pollutants affecting dissolved oxygen

Source or activity	Management strategy	Timeline
Domestic Livestock - Pasture grazing management	Identify locations and assess patterns of livestock access to streams in the watershed	Submit assessment methodology with TMDL implementation plan; Complete assessment in Years 1-3 after plan approval
	Minimize direct livestock stream access (livestock exclusion through fencing or other practices)	Years 1-5 after TMDL issuance
	Alter animal stocking rate or timing if necessary to reduce manure near streams	
	Utilize rotational grazing and other techniques to minimize overgrazing	
	Provide off-channel livestock water	
	Ensure adequate riparian vegetated filter strip and buffer zone conditions to control capture, store, and safely release precipitation, thereby reducing the potential runoff of soil or pollutants	
Domestic livestock – Manure management and runoff management	Assess manure management (storage, distribution) for areas outside the 2021 SIA boundaries and ensure BMPs to prevent polluted runoff are in place	Submit assessment methodology with TMDL implementation plan; Complete assessment in Years 1-3 after plan approval
	Ensure adequate riparian vegetated filter strip and buffer zone conditions to control capture, store, and	

Source or activity	Management strategy	Timeline
	safely release precipitation, thereby reducing the potential runoff of soil or pollutants	Years 1-5 after TMDL issuance
	For pastures that receive fertilization beyond manure, identify explicit revisions to the Area Plan and other mechanisms to encourage development of nutrient management plans and following of established guidance for agronomic rates in western Oregon and coast range (e.g., using OSU Extension guidance and ODA's Landowner Guide to the Ag WQ Program (ODA, 2020)).	
Agricultural land condition	Assess upland and near stream land condition for surface and bank erosion; identify areas of soil erosion and prioritize remedial actions to achieve goals of Area Rules and Plans	Submit assessment methodology with TMDL implementation plan; Complete assessment in Years 1-3 after plan approval
	Ensure that roads and livestock access to streams include controls and practices to minimize erosion and sediment delivery to waters of the state	Years 1-5 after TMDL issuance
For Riparian Areas (within 100-feet of stream bank): Excess solar radiation due to riparian vegetation canopy cover significantly below restored condition vegetation target	Work collaboratively with DMAs and local and regional partners to develop grant proposals to fund the assessment, prioritization, outreach and implementation of riparian restoration to increase site effective shade (combination of vegetation height, buffer width and canopy density) through streamside vegetation management strategies using regulatory programs and voluntary activities, including incentive-based projects	Identify highest priority sites for planting riparian vegetation in Years 1-3 after implementation plan approval, perform planting Years 2-5, 5-10, 10-20, etc. Track establishment progress; monitor survival rates for 10 – 20 years at selected sites
	Evaluate current riparian condition and effective shade within ODA jurisdiction using assessment methods identified in ODA's implementation plan. Identify areas where invasive species are preventing site capable vegetation from establishing and growing, or appropriate vegetation is established and growing, but is not mature enough to provide the water quality functions of site capable vegetation.	
	Work cooperatively with partners and landowners to support maintenance of plants until free to grow and monitoring of survival rates	

The numbered catchments shown on Figure 5.1.2 are the hydrologic response units modeled in the HSPF analysis described in Appendix 1 of the Upper Yaquina River Watershed TMDLs Technical Support Document. Catchments 6 and 7 are the areas where modeling and analysis indicated that the highest levels of organic phosphorus reach the Yaquina River. These areas should be targeted for phosphorus controls first, followed by areas of next highest phosphorus contribution, as indicated in Table 5.1.2b.

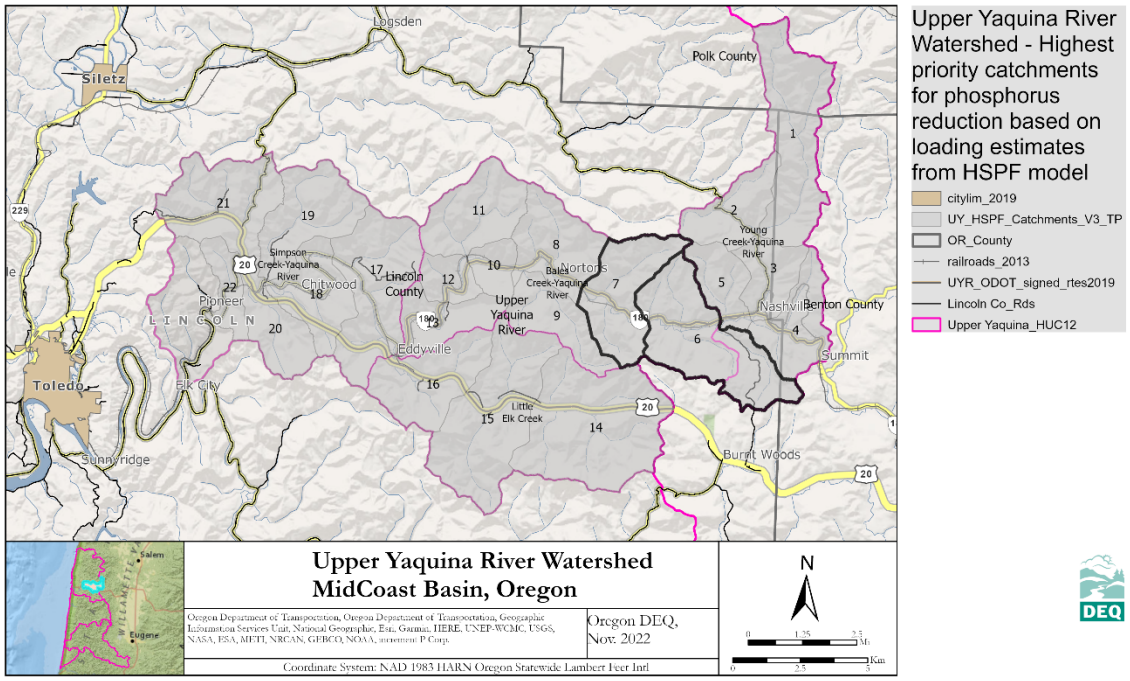

Figure 5.1.2: Upper Yaquina River Watershed priority catchments for organic phosphorus reduction strategies

Table 5.1.2b: Relative organic phosphorus loading estimates from cow-calf sources to the Yaquina River for catchments

Catchment number	Relative organic phosphorus loading rate to the Yaquina River
6, 7	High
16, 15, 14, 19, 8, 1, 2, 18, 20, 3, 12, 5	Medium
9, 17, 4, 13, 21, 22, 10, 11	Low

5.1.3 Oregon Department of Transportation

Based on a GIS layer of the current road systems, ODOT is responsible for approximately 29.8 miles of state highway in the watershed. As described in Section 5.6.1 of the TMDL Technical Support Document (DEQ, 2023a), DEQ calculated the ODOT jurisdictional area to be approximately 0.4 percent of the watershed land area. As noted in Table 5.1b, ODOT's implementation focus must be on their jurisdictional area of approximately 2.4 percent of the streamside areas along the upper mainstem Yaquina River. Roads are included in the transportation sector which is combined with all nonpoint sources and collectively allocated a 50% reduction in total phosphorus loading to the Yaquina River and the effective shade allocation, as shown in TMDL Table 9.1b, and allocated 1% of the watershed wide loading capacity for bacteria, as shown in TMDL Table 9.2a. Phosphorus and bacteria are addressed through ODOT's MS4 permit as point source wasteload allocations. Therefore, ODOT is responsible for preparing and submitting an Upper Yaquina River Watershed TMDLs Implementation Plan or amendment to a statewide plan that includes the required elements described in Section 5.3 and follows the submittal schedule in Section 5.4. The plan must

include priority vegetation management strategies from Table 2.0 and Table 5.1.3 or others that ODOT documents to be appropriate to road transportation related conditions in the watershed.

DEQ anticipates that additional assessment of landscape conditions, including in jurisdictional shade gap areas presented on Figures 2.1a-c, and any current practices will be needed to identify and prioritize strategies and determine other implementation plan details. ODOT's assessment should be conducted as described in Section 5.3.1 and must be identified in the implementation plan and the annual report or other agreed-upon mechanism. The process for implementation plan development and implementation may be conducted in collaboration with other DMAs and local partners.

Table 5.1.3: ODOT-specific management strategies and timelines that would be effective in achieving load allocations for effective shade

Source or activity	Management Strategy	Timeline
For Riparian Areas (within 100-feet of stream bank): Excess solar radiation due to riparian vegetation canopy cover significantly below restored condition vegetation target	Follow ODOT's Routine Road Maintenance – Water Quality and Habitat Guide – Best Management Practices - 12.1 Tree/Brush Cutting by Hand (Activity 133) Control invasive species and roadside treatments in accordance with ODOT Integrated Vegetation Management Statewide Plan	Years 1-3 after TMDL issuance: Identify highest priority sites for planting riparian vegetation, Perform planting Years 2-5, 5-10, 10-20, etc. Track establishment progress; monitor survival rates for 10 – 20 years at selected sites
	For right-of-way within watershed: confirm current riparian condition and effective shade within jurisdiction	
	Identify opportunities to increase site effective shade (combination of vegetation height, buffer width and canopy density) through streamside vegetation management strategies using regulatory programs and voluntary activities. This may include allowing planting efforts within highway right-of-way, when feasible in consideration of highway maintenance, operation and safety. Work cooperatively with partners and landowners to support maintenance of plants until free to grow and monitoring of survival rates.	

5.1.4 Oregon Department of State Lands

The bed and banks of the Yaquina River and its tributaries are publicly owned from the mouth to the headwaters. DSL holds these lands in trust for the public for management in the public's best interests. DSL protects and conserves waterways and wetlands through administration of Oregon's Removal-Fill Law, Scenic Waterways Law and the Wetland Conservation Program. DSL regulates disturbance of stream beds and banks below ordinary high water through removal-fill permits and is responsible for leasing range and agricultural land and waterways for a variety of activities. These roles and responsibilities are implemented through the Aquatic Resource Management Program and include the Compensatory Mitigation for Wetlands and Tidal Waters.

Certain activities regulated by DSL are designed to result in longer-term improvements to near-stream land condition, channel morphology or aquatic habitat, as classified by Oregon Watershed Enhancement Board under the Oregon Plan for Salmon. DSL regulates some

activities, but also explicitly exempts some maintenance activities that may contribute to excess solar radiation or phosphorus (via fine sediment).

While DSL is identified as a designated management agency for the Upper Yaquina River Watershed TMDL, DSL is not required to develop a TMDL implementation plan. Instead, water protection strategies will be addressed through existing DSL regulatory programs, in consultation with DEQ.

5.1.5 Oregon Department of Fish and Wildlife

The Oregon Department of Fish and Wildlife is charged by statute to protect and propagate fish and to manage wildlife in the state. This includes direct responsibility (ORS 506.036) for regulating harvest of fish, protection of fish, enhancement of fish populations through habitat improvement and the rearing and release of fish into public waters. ODFW's Wildlife Division is directly responsible for monitoring the numbers and health of wildlife species, setting population conservation and management objectives, overseeing wildlife habitat restoration and maintenance, and regulating harvest of game animals.

Elk herds may congregate in pastures near water at certain times of the year in the Upper Yaquina River Watershed. ODFW periodically surveys and re-evaluates elk population numbers as part of the Elk Management plan for Alsea Unit 18, which includes the Upper Yaquina River Watershed. ODFW does not conduct watershed-specific monitoring in the watershed.
Elk behavior and management also has a human dimension, in that movement is affected by hazing by agricultural landowners to discourage elk from congregating in livestock or hay pastures. In contrast, some landowners do not discourage elk and may actively attract them.

Elk manure is a background source of bacteria and phosphorus, which DEQ determined to be only a minor component of the nonpoint sources addressed in the Upper Yaquina River Watershed TMDLs. Because ODFW does not own or manage lands in the watershed for elk production, ODFW is not named as a designated management agency, nor required to develop a TMDL implementation plan. However, DEQ expects ODFW to be a partner in TMDL implementation, by sharing wildlife management expertise and educating landowners and responsible persons and facilitating conservation strategies. ODFW should consider engaging local landowners in monitoring elk numbers and movements using citizen-based monitoring identified in the Oregon Conservation Strategy (ODFW, 2016). ODFW is guiding restoration efforts to improve channel morphology, fish habitat and riparian areas, under the Oregon Coastal Coho Conservation Plan (ODFW, 2007), described in Section 5.2.3.

5.1.6 Lincoln and Benton Counties

As noted in Section 5.1, Lincoln County has jurisdiction of approximately 11 percent of the streamside areas along the upper mainstem Yaquina River. Lincoln and Benton Counties each must develop an Upper Yaquina River Watershed TMDLs implementation plan that includes priority management strategies from Table 2.0 and Table 5.1.6 and others appropriate to land and roads under county land use jurisdiction in the watershed.

Lincoln County must prioritize septic system inspections and funding opportunities for residences located within the high priority bacteria source areas # 4 and #6 presented in Section 2.2 and Figure 2.2.

Each implementation plan must include the required elements described in Section 5.3 and follow the submittal schedule in Section 5.4. DEQ anticipates the need for a systematic

assessment of landscape conditions (conducted as described in Section 5.3.1), including jurisdictional shade gap areas presented in Figures 2.1a-c, and an inventory of current practices and status of regulated activities to determine implementation plan details. The process to obtain that information will be identified in each county's implementation plan and described in the annual reports or other agreed-upon mechanism.

Table 5.1.6: Lincoln and Benton Counties-specific management strategies and timelines that would be effective in achieving load allocations for bacteria and pollutants affecting dissolved oxygen

Source or activity	Management Strategy	Timeline
Onsite Wastewater Treatment Systems and septic systems	Conduct assessment of near-stream septic systems (age, tank type, condition) to evaluate potential failure risk.	Years 1-3 after TMDL issuance: Perform evaluation and rank systems based on risk of failure Years 3-5 and annually thereafter: Conduct outreach on inspection and repair and replacement funding
	Identify onsite system data sources and tools, including County records, GIS and other available information.	
	Prioritize tax lots for education and outreach, inspection and repair assistance based on results of analyses. Offer free or subsidized septic inspections to highest priority properties.	
	Participate in developing and facilitating financial assistance mechanisms (e.g., Craft3, community low interest loan program).	
Land development	Fully enforce land use, development and building codes and plans that require best management practices BMPs to minimize erosion and sediment delivery to waters of the state from land development and building activities. Incorporate post-construction stormwater management strategies into implementation plan and local codes following DEQ's Guidance for Including Post-Construction Elements in TMDL Implementation Plans (DEQ 2014)	Independent of approval of TMDL implementation plan; on-going. With submission of implementation plan: identify administrative process for developing these strategies and timeframe for incorporation into planning and development code.
Transportation network – unsurfaced County roads and associated road drainage network	Assess current road network for hydrological connection and sediment sources to waters of the state. Identify higher risk road segments and features. For culvert assessment and prioritization: Review and report on status of culvert upgrades related to fish passage and sediment identified in Limiting Factors Assessment and Restoration Plan Buttermilk, Spilde, and Yaquina Headwaters Sixth-field Tributaries to the Yaquina Basin, prepared by Bio-Surveys, LLC in 2007.	Years 1-3 after TMDL issuance: Perform evaluation and rank following approval of TMDL implementation plan; on-going thereafter
	Ensure road system management standard operating procedures (construction, maintenance and repairs) include BMPs to minimize erosion and sediment delivery to waters of the state. Revise SOPs as necessary.	

Source or activity	Management Strategy	Timeline
For Riparian Areas (within 100-feet of stream bank): Excess solar radiation due to riparian vegetation canopy cover significantly below restored condition vegetation target	Increase site effective shade (combination of vegetation height, buffer width and canopy density) through streamside vegetation management strategies using regulatory programs and voluntary activities, including incentive-based projects.	Years 1-3 after implementation plan approval: Identify highest priority sites for planting riparian vegetation. Actively promote and support riparian planting at priority sites in years 2-5, 5-10, and successive five-year increments until vegetation shade targets are estimated to be met. Track progress; monitor survival rates for 10 – 20 years at selected sites.
	Evaluate current riparian condition and effective shade within County jurisdiction and identify tax lots or stream segments that exhibit effective shade 25% lower than restored condition targets using current conditions shade gaps (Figures 2.1a-c, above) and comparisons with shade curves in TSD Section 5.4.1. Develop and/or enforce riparian code/ordinance to ensure streamside native vegetation and intact bank conditions are protected or restored following rural residential site development.	
	Work cooperatively with partners and landowners to support maintenance of plants until free to grow and monitoring of survival rates.	

5.1.7 Bureau of Land Management

The U.S. Department of the Interior Bureau of Land Management is responsible for management and regulation of certain forest and range lands owned by the federal government. In western Oregon these are primarily forestlands. Based on tax lot data, BLM manages less than one percent of the land in the Upper Yaquina River watershed. Activities on BLM lands that potentially increase solar radiation and contribute fine sediment and associated phosphorus to waters of the state include: transportation system management; recreation; and forest management and silvicultural activities.

DEQ concluded that BLM's current practices are likely sufficient to meet its portion of the nonpoint source forestry sector load allocations for solar radiation and phosphorus and BLM land management is not a source of excess bacteria. DEQ requires BLM to prepare and submit an implementation plan, which may be part of a statewide implementation plan to identify management strategies, actions and timelines to ensure solar radiation and phosphorus loads are met for the federal forestry sector. The plan must include the required elements described in Section 5.3 and follow the submittal schedule in Section 5.4. The plan must include priority management strategies from Table 2.0 and Table 5.1.7 and others appropriate to land and roads under BLM jurisdiction in the watershed, informed by an assessment of land and riparian conditions, as needed, and conducted as described in Section 5.3.1. The plan should reference relevant Resource Management and Water Quality Restoration Plans, as discussed in Section 5.2.4 as existing implementation plans.

BLM's 2016 Resource Management Plan provides a list of typical best management practices that the BLM uses to protect or restore water quality. DEQ expects that BLM will design site-specific best management practices when necessary to address conditions that have the potential to negatively affect water quality. DEQ expects that BLM will continue to evaluate the effects of its management practices at the watershed scale in western Oregon. Table 5.1.7 identifies sediment, erosion and runoff control best management practices that address activities that occur on BLM lands and summarizes BLM's riparian protection strategy.

Table 5.1.7: Current BLM strategies and timelines that would be effective in achieving load allocations for bacteria and pollutants affecting dissolved oxygen

Source or activity	Management strategies and practices	Timeline
Transportation network – unsurfaced roads and associated road drainage network	Design stream crossings to minimize diversion potential in the event that the crossing is blocked by debris during storm events. This protection could include hardening crossings, armoring fills, dipping grades, oversizing culverts, hardening inlets and outlets, and lowering the fill height.	Years 1-3 after TMDL issuance: Perform evaluation and rank following approval of TMDL implementation plan; on-going thereafter
	Disconnect road runoff to the stream channel by out-sloping the road approach.	
	Suspend ground-disturbing activity if forecasted rain will saturate soils to the extent that there is potential for movement of sediment from the road to wetlands, floodplains, and waters of the State.	
	Road closure and decommissioning: After tilling the road surface, pull back unstable road fill and end-haul or contour to the natural slopes.	
	Place residual slash on severely burned areas, where there is potential for sediment delivery into waterbodies, floodplains and wetlands.	
	Emergency stabilization or rehabilitation BMPs related to wildfire	
	Water bar spacing requirements by percent gradient and erosion class	
	Implement erosion control measures at recreation sites to stabilize exposed soils where water flows or sediment, may reach waterbodies.	
	Locate new Off Highway Vehicle trails on stable locations (for example, ridge tops, benches, and gentle-to-moderate side slopes). Minimize trail construction on steep slopes where runoff could channel to a waterbody.	
	Use erosion-reduction practices, such as seeding, mulching, silt fences, and woody debris placement, to limit erosion and transport of sediment to streams from quarries.	
For Riparian Areas: Prevention of excess solar radiation due to riparian vegetation canopy cover significantly below restored condition vegetation target	Establish the Riparian Reserve along all intermittent and perennial streams, lakes, natural ponds, wetland, springs, seeps, impoundments and unstable areas that are adjacent to stream channels and are likely to deliver material to the stream in the event of a failure. The Riparian Reserve is a BLM land use allocation with specific management requirements to improve or maintain aquatic habitat and function.	Years 1-3 after TMDL issuance: Identify highest priority sites for planting riparian vegetation. Actively promote and support riparian planting at priority sites in years 2-5, 5-10, and successive 5-year increments until vegetation shade targets are estimated to be met. Track progress; monitor survival rates for 10 – 20 years at selected sites.
	On perennial and fish bearing streams, a minimum 120 ft no-harvest stream buffer to preserve stream shade. Between 120 and 210 feet (still Riparian Reserve) on perennial and fish bearing streams, trees could be felled, but only to promote large wood development. On intermittent streams, a minimum 50 ft no-harvest stream buffer to prevent erosion and sedimentation. Between 0 and 50 feet, the only timber felling would be for adding instream structure. A full suite of road and timber harvest BMPs support this basic guidance.	

5.1.8 Portland & Western Railroad, Inc.

Portland & Western Railroad is a subsidiary of Genesee & Wyoming Railroad Services, Inc., that operates an active rail line of about 36.5 miles in the watershed (based on a map of the current rail systems). Rail is included in the transportation sector, which is combined with all nonpoint sources. Collectively, nonpoint sources are allocated a 50 percent reduction in total phosphorus loading to the Yaquina River and the effective shade allocation shown in Table 9.1b of the TMDL Report. PNWR is therefore responsible for preparing and submitting an implementation plan and participating in the TMDL five-year review described in Section 6.2. The plan must include the required elements described in Section 5.3 and follow the submittal schedule in Section 5.4.

As noted in Section 5.1, PNWR has jurisdiction of approximately 3.6 percent of the streamside areas of the upper mainstem Yaquina River. A significant portion of the PNWR line is close to the Yaquina River or its tributaries or intersects these streams at multiple stream crossings (railroad bridges). Rail sector management strategies focus on the following water protection areas: vegetation management, maintenance waste management and sediment control. These strategies are described further below and in Table 5.1.8. DEQ expects PNWR's implementation plan to include priority management strategies from Table 2.0 and Table 5.1.8 and potentially others appropriate to transportation-related conditions in the watershed, informed by an assessment of land and riparian conditions, as needed.

- Rail maintenance-of-way program: DEQ expects PNWR to perform activities in a manner that prevents sediment or wastes from rail line maintenance, repair and replacement activities from potentially entering waters of the state. Strategies must include preventing placement of sediment or waste materials, including discarded railroad ties, in any location where these materials could come into contact with waters of the state or be transported into waters of the state (e.g., drainages, riverbanks or below ordinary high water).

- Right-of-way vegetation management and solar radiation loading: In locations where the right-of-way for the PNWR rail line is adjacent to or crosses the Yaquina River or its tributaries, PNWR's implementation plan is expected to identify areas where streamside vegetation can be protected or restored to provide restored condition effective riparian shade as defined in this TMDL. Overstory vegetation that provides shade to perennial streams should only be removed in locations where it is a potential public safety issue or rail line hazard or substantively interferes with the PNWR Rail maintenance-of-way program.

Table 5.1.8: PNWR transportation sector management strategies and timelines that would be effective in achieving load allocations for bacteria and pollutants affecting dissolved oxygen

Source or activity	Management Strategy	Timeline
For riparian areas (within 100 feet of stream bank): Excess solar radiation due to riparian vegetation canopy cover significantly below restored condition vegetation target	Right-of-way vegetation management: Evaluate current riparian condition and effective shade within jurisdiction or ownership.	Years 1-3 after TMDL issuance: Identify highest priority sites for planting riparian vegetation, perform planting Years 2-5, 5-10, 10-20, etc. Track establishment progress; monitor survival rates for 10 – 20 years at selected sites.
	Increase site effective shade (combination of vegetation height, buffer width and canopy density) through streamside vegetation management strategies identified in Section 2.1 and voluntary activities, including incentive-based projects.	
Anthropogenic nutrient (total phosphorus) loads in fine sediment and particulate organic matter or waste materials: phosphate sorbed to soil particles or incorporated into soil organic matter	Rail maintenance-of-way program: Perform rail line maintenance, repair and replacement activities in a manner that prevents sediment or wastes from entering waters of the state. Strategies must address placement of sediment or waste materials, including discarded railroad ties, in any location where these materials could come into contact with waters of the state or be transported into waters of the state (e.g., drainages, riverbanks or below ordinary high water).	Assess maintenance-of-way program and update SOPs and BMPs as needed following approval of TMDL implementation plan. On-going.

5.2 Existing implementation plans

OAR 340-042-0040(l)(H) requires identification of any source or sector-specific implementation plans available at the time of TMDL issuance. No implementation plans were developed prior to issuance of the Upper Yaquina River Watershed TMDLs. However, certain statewide rules, programs and management plans for the forestry, agricultural and other sectors are in place and are intended, in part, to reduce or control nonpoint sources of pollution. The programs described in OAR 340-042-0080(2)&(3) respectively represent existing sector-specific implementation plans for non-federal forest and agricultural lands, and their sufficiency is discussed below.

5.2.1 Adequacy of Forest Practices Act to meet TMDL load allocations

Waterway protection measures were established in 1994 for state and private forest practices in Oregon, as codified in Oregon Revised Statutes 527.610 through 527.992, Oregon's Forest Practices Act (OAR 629-600 through 629-665) and Oregon's Plan for Salmon and Watersheds (Executive Order 99-01). As provided in ORS 527.770, forest operations conducted in accordance with the Forest Practices Act and other voluntary measures, are generally considered to comply with water quality standards. However, as provided in OAR 340-042-0080(2), revisions to the Forest Practices Act rules may be required when DEQ determines that these rules are not adequate to implement load allocations in an approved TMDL. Periodic revisions to these rules occurred from the 1990s through 2022, with studies by ODF and DEQ showing that the rules adopted prior to 2022 were not adequate to meet the Oregon temperature criterion for protecting cold water. More information is provided in Sections 6.1.1 and 6.2.1 of the TMDL Technical Support Document. DEQ determined in this TMDL that the

generally applicable Forest Practices Act rules in effect prior to 2022 were not adequate to implement the TMDL load allocations for excess solar radiation loading on small and medium fish-bearing streams to meet the dissolved oxygen criteria.

With the publication of the Private Forest Accord Report and subsequent passage of Senate Bill 1501, 1502 and HB 4055, Forest Practices Act rule revisions were adopted by the Board of Forestry in October 2022 and additional amendments are anticipated through 2025. Implementation of these rules, which include increased riparian widths and additional tree retention, may be effective at meeting shade allocations. In addition, as revised rules become effective, implementation of more stringent measures to protect water quality on private forestlands are anticipated to be applied, including in the Upper Yaquina River Watershed. These rules are not expected to result in after-the-fact restoration of riparian areas harvested under previous rules. Therefore, effective shade is likely to be deficient for those riparian areas adjacent to small and medium salmon, steelhead and bull trout streams that were harvested prior to implementation of the new rules. The trajectory for providing future riparian shade on these streams is highly variable because it is based on the rules in effect at the time of harvest and the date of replanting. Multiple years will be needed for potential water quality improvements to be realized so that DEQ can evaluate adequacy of the revised rules in meeting the load allocations and surrogate measures required by the Upper Yaquina River Watershed TMDLs.

For these reasons, ODF is required to develop a TMDL implementation plan to be submitted to DEQ for review and approval.

As documented in the 2021 Memorandum of Understanding between DEQ and ODF, DEQ will work with ODF to identify additional regulatory or non-regulatory measures that could be implemented by rule revisions, stewardship agreements, incentive programs or other means to provide reasonable assurance of achieving TMDL solar radiation load allocations. Collaboration on these additional measures will occur during development of ODF's implementation plan.

5.2.2 Adequacy of Agricultural Water Quality Management Area Rules and Plans to meet TMDL load allocations

The Agricultural Water Quality Management Program was established in 1993 under ORS 568.900 to 568.933 and ORS 561.191 and OAR chapter 603, divisions 90 and 95. Oregon Department of Agriculture led development of 38 watershed-based Agricultural Water Quality Area Rules and Area Plans intended to implement the rules, with the Mid Coast Basin rules and plan established in 2002. Despite implementation of the Ag WQ program, including biennial review and revision of the Area Plan and implementation of other voluntary agricultural initiatives and funding programs, water quality impairments continue in the Mid Coast Basin. Specifically in the Upper Yaquina River Watershed, water temperatures and dissolved oxygen levels continue to be identified as impaired on Oregon's Section 303d list. In the Yaquina River this is due, in part, to extensive riparian areas that are deficient in providing the function of shading along streams adjacent to agricultural land use and activities. ODA's 2021 Strategic Implementation Area evaluation found that certain riparian areas in the valley bottoms of the watershed are dominated by invasive species rather than native overstory vegetation. The majority of the private lands adjacent to the Yaquina River downstream of the headwaters and several primary tributaries (Little Elk Creek and Thornton Creek) are zoned agricultural - exclusive farm use.

The current Mid-Coast Area Rules and Area Plan guidance for riparian buffers in this agricultural management area does not identify quantitative targets for effective shade based on site specific factors, including stream width or orientation.

Based on information detailed in Section 6.1.1 of the TMDL Technical Support Document, DEQ concluded that the Area Plan voluntary measures for riparian areas are not adequate and are not being widely implemented in the Upper Yaquina River watershed. Existing landowner assistance programs are significantly under-utilized, including USDA Natural Resource Conservation Service Conservation Reserve Enhancement and Environmental Quality Incentives programs, Oregon Watershed Enhancement Board and other public programs developed to address watershed improvements. Progress towards achieving functioning riparian areas under the Oregon Plan for Salmon and Watersheds slowed substantially in the past 10 to 15 years, based on riparian improvement projects reported in the OWEB OWRI database in the Siletz-Yaquina subbasin from 2000 to 2019.

DEQ concluded that current Ag WQ program Area Rules combined with the Area Plan voluntary measures implementation are not adequate in all locations to meet the bacteria and phosphorus allocations and meet water quality criteria, or to provide the riparian vegetation protection, planting and establishment requirements and targets necessary to meet TMDL effective shade allocations and achieve dissolved oxygen water quality criteria in the Upper Yaquina watershed. Therefore, ODA is required to develop a TMDL implementation plan to be submitted to DEQ for review and approval.

5.2.3 Oregon Coast Coho Conservation Plan

In 2007, the Oregon Department of Fish and Wildlife, in partnership with state and federal natural resource agencies, published the Oregon Coast Coho Conservation Plan, which is available on ODFW's website. The assessment of Oregon coastal coho status concluded that a significant reduction of high-quality, complex stream habitat is the primary limiting factor for most of the populations, including the Yaquina population and the secondary factor limiting recovery of this population is water quality (page 25). The OCCC Plan established Population-Based Habitat Restoration: Interim Goals and Funding Needs for the Yaquina. Efforts to complete the improvements and track progress towards achieving restoration goals are consistent with the information needed to track certain water quality improvements, including improvements in channel condition and complexity or morphology, reduced erosion and fine sediment delivery, and improvements in riparian vegetation condition to provide effective shade to reduce solar loading. DEQ determined that the Oregon Coast Coho Conservation Plan represents an existing plan.

The National Marine Fisheries Service concluded that the Oregon Coast Coho salmon evolutionarily significant unit should remain listed under the ESA as threatened (NMFS, 2016). The Upper Yaquina watershed is within the Yaquina population. ODFW is the lead agency for implementation of the Oregon Coast Coho Conservation Plan (ODFW, 2007) which contains reference watershed-specific targets and activities, along with estimates of funding needed to attain the habitat targets.

ODFW developed high-quality habitat targets for each population within the Oregon Coast Coho evolutionarily significant unit. Implementing the strategy supports the viability of the evolutionarily significant unit and will help achieve the desired status of high-quality habitat across the evolutionarily significant unit.

The amount of high-quality habitat across all fresh water and estuarine life stages is one of the Measurable Criteria used to evaluate achievement of the desired status for the Oregon Coast Coho evolutionarily significant unit in the Oregon Coast Coho Conservation Plan (page 22). The definition of high-quality habitat is habitat capable of producing 2,800 coho smolts per mile (page 23).

The key assumptions used to estimate the miles of high-quality habitat and new miles of high-quality habitat needed in the Yaquina on page 33 and 34. Based on the 2019 OC Coho Conservation Plan 12-year Assessment (ODFW, 2019), the habitat trend for the Mid-Coast shows no trends or decreasing trends for the measurable criteria (see Habitat Trends pages 52-58). These results indicate that a significant amount of opportunity exists to improve aquatic habitat including the condition and function of riparian overstory vegetation.

5.2.4 BLM Resource Management and Water Quality Restoration Plans

BLM develops geographically-specific Resource Management Plans and amendments, project-level plans and Water Quality Restoration Plans to meet applicable water quality standards. The Resource Management Plans for western Oregon were updated in 2016. Per previous Memoranda of Understanding between BLM and DEQ, Resource Management Plans and Water Quality Restoration Plans have served as BLM's implementation plan to meet TMDL requirements for specific geographic areas. Previous MOUs also require monitoring to ensure that practices are properly designed and applied to determine the effectiveness of practices in meeting water quality standards and to provide for adjustment of best management practices when it is found that water quality standards are not being protected. As MOUs are updated, DEQ anticipates that BLM will develop statewide TMDL implementation plans that cover all effective TMDLs in Oregon.

5.3 Implementation plan requirements

As required in OAR 340-042-0080(4)(a)(A)-(E), implementation plans must include:

- Management strategies that the entity will use to achieve load allocations and reduce pollutant loading;
- Timeline for strategy implementation and a schedule for completing measurable milestones;
- Performance monitoring and a plan for periodic review and revision of implementation plans; and,
- Any other analyses or information specified in the WQMP.

The following subsections provide details on each component required by this WQMP to be included in implementation plans. DEQ will work with each entity required to develop a TMDL implementation plan to ensure that all required elements are included with sufficient detail for the plan to be approved on the schedule required in Section 5.4 below. To enhance eligibility for grant-funded restoration opportunities, DEQ will also work with entities to ensure that implementation plans align with the nine key elements for watershed-based plans, as described in EPA's Handbook for Developing Watershed Plans to Restore and Protect Our Waters (EPA, 2008).

5.3.1 Management strategies

Each entity required to develop a TMDL implementation plan is expected to include applicable priority management strategies from Table 2.0, strategies listed in entity specific subsections of

Section 5.1 and potentially other practices and actions with documentation that they are appropriate for activities and landscape conditions specific to the entities' pollutant sources or source sectors.

DEQ expects each entity's implementation plan to identify all areas or activities within an entity's jurisdiction or responsibility and identify locations where management strategies should be implemented to prevent or reduce pollutant loading, as well as areas that might not need action beyond protection. Completion of a comprehensive inventory of the area of responsibility serves as an initial step for understanding where management actions are needed and when these can be implemented. Selection of management strategies that differ from those identified by DEQ to be effective in achieving load allocations should include an explanation of their effectiveness. For sources associated with agricultural and forestry activities and transportation corridors this inventory should focus on assessment of land condition and specifically riparian conditions and near-stream activities and practices.

Land condition assessment includes evaluation of infrastructure condition (roads and drainage networks), exposed or bare earth and disturbed soils that lack stabilizing measures, mass wasting events and shallow landslide high risk areas, and other factors that are indicators of erosion and sources of fine sediment. Riparian condition assessment includes categorizing riparian vegetation presence, type characteristics and effective shade, along with bank conditions for comparison to effective shade targets in TMDL Table 9.1b and determining whether other riparian functions are being provided or are limited. Assessment methods include Oregon Riparian Assessment Framework (OWEB 2004), Stream Function Assessment Method (DSL, EPA 2020), used for assessing the functions and values of wadable, non-tidal streams for the purposes of Oregon's Removal-Fill Law, as well as purposes related to Section 404 of the federal Clean Water Act, the Oregon Aquatic Habitat Restoration and Enhancement Guide (OWEB, 1999), Stream Visual Assessment Protocol Version 2 (NRCS, 2009) or other appropriate assessment methodologies. Specific shade assessment methods are identified in Section 2.1 of this document.

5.3.2 Timeline and schedule

Each implementation plan must include commitment to enact specific management strategies on a reasonable timeline, with a schedule specified for meeting measurable milestones to document progress. To meet the intent of this requirement and be useful for the requirement to track and report progress, entities should develop management strategies using the SMART elements: Specific, Measurable, Achievable, Relevant, Time-bound (Doran, 1981).

Timelines and milestone schedules should be informed by the comprehensive inventory of the area of jurisdiction and control, as described in Section 5.3.1 above, and consideration of all relevant factors of the entity's specific situation. Identification of management strategy implementation timelines that differ from those estimated by DEQ to be effective in achieving load allocations must include an explanation of why the revised timelines are reasonable and how the timelines will be met.

5.3.3 Reporting on performance monitoring and plan review and revision

5.3.3.1 Reporting on performance monitoring

Each implementation plan must include a commitment to prepare annual reports on performance monitoring and a date by which they will be submitted to DEQ. With justification, another reporting timeline to coincide with existing program reporting or other considerations

can be proposed. These reports must include implementation tracking for each of the identified management strategies, progress toward timelines and measurable milestones specified in the implementation plan and evaluation of the effectiveness of the strategies.

Implementation actions should be tracked by accounting for the numbers, types and locations of projects, best management practices, education activities or other actions taken to improve or protect water quality. Implementation of conservation practices that are listed in the OWEB's OWRI Online List of Treatments should be reported to the OWRI database and noted in annual reports to DEQ to document progress and track implementation actions over time. Because DEQ utilizes OWRI's database to track implementation of many voluntary management practices, unreported actions may not be able to be credited in evaluating progress on TMDL implementation.

Implementation plans must include periodic assessment of whether implementation activities, which may include structural and non-structural best management practices or BMPs, are effective in reducing pollutant loading, improving management practices, land condition or sector community behaviors. Annual reports should summarize the status and results of these evaluations on the relevant time scale. Reports on year five must summarize implementation and effectiveness over the proceeding four years.

5.3.3.2 Implementation plan review and revision

Implementation plans must be reviewed, revised as appropriate, and approved by DEQ every five years. DEQ will use the annual reports of activities tracked and effectiveness evaluations, combined with the results of environmental monitoring, for this review. If implementation plan revisions are needed to correct deficiencies or otherwise ensure the plan is effective following the year five review, DEQ will identify a date for submission of the revised plan for DEQ approval.

5.3.4 Implementation public involvement

As required in OAR 340-042-0040(l)(L), implementation plans prepared by designated management agencies must include a plan to involve the public in implementation of management strategies. Public engagement and education must be included to align this component with the nine key elements for watershed-based plans, as described in EPA's Handbook for Developing Watershed Plans to Restore and Protect Our Waters (EPA, 2008). Implementation plans and future amended versions must be posted to a publicly accessible website.

5.3.5 Maintenance of strategies over time

As required in OAR 340-042-0040(l)(M), implementation plans prepared by responsible persons, including designated management agencies, should include discussion of planned efforts to maintain management strategies over time.

5.3.6 Implementation costs and funding

As required in OAR 340-042-0040(l)(N), this section provides a general discussion of costs and funding for implementing management strategies. Implementation of management strategies to reduce or prevent pollution into waters of the state may incur financial capital or operating costs. These costs vary in relation to pollutant sources and loading, proximity to waterways and type or extent of preventative controls already in place. Certain management practices, such as

preventative infrastructure maintenance, may result in long-term cost savings to DMAs or landowners.

OAR 340-042-0040(l)(N) also indicates that sector-specific or source-specific implementation plans may provide more detailed analyses of costs and funding for specific management strategies in the plan. DEQ requires each DMA to provide a fiscal analysis of the resources needed to develop, execute and maintain the programs and projects described in implementation plans to the extent that these costs can be accounted for or estimated. DEQ recommends that all responsible persons prepare the following level of economic analysis. This analysis should be in five-year increments to estimate costs, demonstrate sufficient funding is available to begin implementation and identify potential future funding sources to sustain management strategy implementation. Factors, as relevant, to consider include:

- Staff salaries, supplies, volunteer coordination, regulatory fees
- Installation, operation and maintenance of management and control measures
- Monitoring, data analysis, reporting and plan revisions
- Public education and outreach efforts
- Ordinance development (if needed to implement a management strategy)

There are multiple sources of local, state and federal funds available for implementation of pollutant management strategies and control practices. Table 5.3.6 provides a partial list of funding and assistance programs available in Oregon that may be used to support planning and implementation activities that improve water quality in the Upper Yaquina Watershed.

Table 5.3.6: Partial list of funding programs available in the Upper Yaquina Watershed

Program	General Description	Contact
Clean Water State Revolving Fund	Loan program for below-market rate loans for planning, design, and construction of various water pollution control activities.	DEQ
Conservation Reserve Enhancement Program (CREP)	Provides annual rent to landowners who enroll agricultural lands along streams. Also cost-shares conservation practices such as riparian tree planting, livestock watering facilities, and riparian fencing.	NRCS, SWCDs, ODF
Conservation Reserve Program (CRP)	Competitive CRP provides annual rent to landowners who enroll highly erodible lands. Continuous CRP provides annual rent to landowners who enroll agricultural lands along seasonal or perennial streams. Also cost-shares conservation practices such as riparian plantings.	NRCS, SWCDs
Conservation Stewardship Program (CSP)	Provides cost-share and incentive payments to landowners who have attained a certain level of stewardship and are willing to implement additional conservation practices.	NRCS, SWCDs
Emergency Watershed Protection Program (EWP)	Available through the USDA-Natural Resources Conservation Service. Provides federal funds for emergency protection measures to safeguard lives and property from floods and the products of erosion created by natural disasters that cause a sudden impairment to a watershed.	NRCS, SWCDs
Emergency Forest Restoration Program (EFRP)	Available through the USDA-Natural Resources Conservation Service. Helps owners of non-industrial private forests restore forest health damaged by natural disasters.	USDA, ODF

Program	General Description	Contact
Oregon 319 Nonpoint Source Implementation Grants	Fund projects that reduce nonpoint source pollution, improve watershed functions and protect the quality of surface and groundwater, including restoration and education projects.	DEQ, SWCDs, Watershed Councils
Environmental Quality Incentives Program (EQIP)	Cost-shares water quality and wildlife habitat improvement activities, including conservation tillage, nutrient and manure management, fish habitat improvements, and riparian plantings.	NRCS, SWCDs
Agriculture Water Quality Support Grant	Provides capacity to support voluntary agricultural water quality work in small watersheds and to meet the goals of the Agricultural Water Quality Management Area Plans and the SIA initiative.	ODA
Farm and Ranchland Protection Program (FRPP)	Cost-shares purchases of agricultural conservation easements to protect agricultural land from development.	NRCS, SWCDs, ODF
Federal Reforestation Tax Credit	Provides federal tax credit as incentive to plant trees.	Internal Revenue Service
Grassland Reserve Program (GRP)	Provides incentives to landowners to protect and restore pastureland, rangeland, and certain other grasslands.	NRCS, Farm Service Agency, SWCDs
Landowner Incentive Program (LIP)	Provides funds to enhance existing incentive programs for fish and wildlife habitat improvements.	U.S. Fish and Wildlife Service, ODFW
Oregon Watershed Enhancement Board (OWEB)	Provides grants for a variety of restoration, assessment, monitoring, and education projects, as well as watershed council staff support. 25 percent local match requirement on all grants.	SWCDs, Watershed Councils, OWEB
Oregon Watershed Enhancement Board Small Grant Program	Provides grants up to $10,000 for priority watershed enhancement projects identified by local focus group.	SWCDs, Watershed Councils, OWEB
Partners for Wildlife Program	Provides financial and technical assistance to private and non-federal landowners to restore and improve wetlands, riparian areas, and upland habitats in partnership with the U.S. Fish and Wildlife Service and other cooperating groups.	U.S. Fish and Wildlife Service, NRCS, SWCDs
Public Law 566 Watershed Program	Program available to state agencies and other eligible organizations for planning and implementing watershed improvement and management projects. Projects should reduce erosion, siltation, and flooding; provide for agricultural water management; or improve fish and wildlife resources.	NRCS, SWCDs
Resource Conservation & Development (RC & D) Grants	Provides assistance to organizations within RC & D areas in accessing and managing grants.	Resource Conservation and Development
ODF Small Forestland Investment in Stream Habitat (SFISH) Grants	Provides funding for Small Forestland Owners (SFO's) to improve road conditions and stream crossings as part of forest operations.	ODF, ODFW
State Forestation Tax Credit	Provides for reforestation of under-productive forestland not covered under the Oregon Forest Practices Act. Situations include brush and pasture conversions, fire damage areas, and insect and disease areas.	ODF

Program	General Description	Contact
Forest Stewardship Program	Provides cost share dollars through USFS funds to family forest landowners to have management plans developed.	ODF
Western Bark Beetle Mitigation	ODF administers a cost share program for forest management practices pertaining to bark beetle mitigation for forest health and is funded through the USFS.	ODF, USFS
State Tax Credit for Fish Habitat Improvements	Provides tax credit for part of the costs of voluntary fish habitat improvements and required fish screening devices.	ODFW
Wetlands Reserve Program (WRP)	Provides cost-sharing to landowners who restore wetlands on agricultural lands.	NRCS, SWCDs
Wildlife Habitat Tax Deferral Program	Maintains farm or forestry deferral for landowners who develop a wildlife management plan with the approval of the Oregon Department of Fish and Wildlife.	ODFW, SWCDs, NRCS
Funding Resources for Watershed Protection and Restoration	EPA's Funding Resources for Watershed Protection and Restoration (EPA, 2023) contains links to multiple funding sources	various

5.4 Schedule for implementation plan submittal

OAR 340-042-0040(4)(l)(I) specifies that the WQMP contain a schedule for submittal of implementation plans. As stated in OAR 340-042-0080(4)(a), entities identified in the WQMP with responsibility for developing implementation plans are required to prepare and submit an implementation plan for DEQ approval according to the schedule in the WQMP.

Within 18 months of issuance of the Upper Yaquina River Watershed TMDLs and WQMP, persons, including DMAs, responsible for developing implementation plans must submit implementation plans to DEQ for review and approval.

OAR 340-012-0055(e) identifies failure to timely submit or implement a TMDL implementation plan, as required by DEQ order or rule, as a Class II violation. OAR 340-012-0053(1) identifies failure to report by the reporting deadline, as required by DEQ order or rule, as a Class I violation.

Should a sector or sector-wide DMA fail to submit an approvable TMDL implementation plan, DEQ may pursue enforcement under OAR 340-012-0055(e) or identify individual sources (landowners/operators) as persons responsible for developing and implementing TMDL implementation plans to address the load allocations relevant for the sector. DEQ may revise the WQMP or issue individual orders to identify additional responsible persons and notify them of the required schedule for submitting source-specific implementation plans.

Following the issuance of the TMDL and this WQMP, DEQ may determine that nonpoint source implementation plans are not necessary for certain entities identified in the WQMP based on available information or new information provided by those entities. For these entities, DEQ will provide a written determination why a plan is not necessary. This determination could be based on a variety of factors, such as inaccurate identification within the geographic scope of the TMDLs, or documentation that an entity is not a source of pollution or does not discharge pollutants to a waterbody within the scope of these particular TMDLs.

Once approved, DEQ expects implementation plans to be fully implemented according to the timelines and schedules for achieving measurable milestones specified within the plans. As required in Section 5.3 above, reports on tracking and evaluation of implementation progress must be submitted annually on the date specified in the approved implementation plan. And implementation plans must be reviewed and revised as appropriate for DEQ approval every five years, submitted on the date specified in the approved implementation plan.

6.0 Monitoring and evaluation of progress

OAR 340-042-0040(4)(l)(K) requires that the WQMP include a plan to monitor and evaluate progress toward achieving the TMDL allocations and associated water quality standards for the impairments addressed in the TMDL. Additional objectives of monitoring efforts are to assess progress towards reducing excess pollutant loads and to better understand variability associated with environmental or anthropogenic factors. This section summarizes DEQ's approach, including the required elements of identification of monitoring responsibilities and the plan and schedule for reviewing monitoring information to make TMDL revisions, as appropriate.

There are two fundamental components to DEQ's approach to monitoring and evaluating TMDL progress: 1) tracking the implementation and effectiveness of activities committed to by responsible persons in DEQ-approved implementation plans, and 2) periodically monitoring the physical, chemical and biological parameters necessary to assess water quality status and trends for the impairments that constitute the basis for these TMDLs.

With input from partners, DEQ will develop overarching water column sampling and analysis plans to finalize the first iteration of the Upper Yaquina River Watershed Monitoring Strategy, after the issuance of the TMDLs and WQMP. DEQ will continue to work with partners to implement the sampling and analysis and periodically refine the strategy as needed.

6.1 Persons responsible for monitoring

Section 5.1 identifies the Designated Management Agencies and other persons responsible for developing TMDL implementation plans and implementing the management strategies described on the timelines committed to in approved plans. Section 5.3 details the content required in implementation plans and annual reports, as well as the schedules for their submittal. This required reporting from each responsible entity on tracking of management actions implemented, milestones met and periodic evaluation of performance monitoring, fulfills the first fundamental component of DEQ's approach and makes up the primary monitoring information DEQ reviews in gaging progress toward meeting TMDL goals.

DEQ also expects some of the responsible persons named in Section 5.1 to undertake monitoring actions in areas within their jurisdiction or ownership to help determine the status of instream water quality and landscape conditions associated with water quality. This effort will be progressive, starting with review of existing data and monitoring locations, then adjusted as

needed to improve understanding of current water quality status and develop a trend monitoring network.

As guidance for developing a monitoring program in individual implementation plans, the objectives of the monitoring and assessment portion of the implementation plan include, but are not limited to:

1. Provide information necessary to determine locations for applying management strategies or to assess the effectiveness of those strategies.
2. Refine information on source-specific or sector-specific pollutant loading.
3. Provide information necessary to demonstrate progress towards meeting load allocations.
4. Provide information used to identify roles and participate in collaborative effort among responsible persons to characterize water quality status and trends.
5. Provide information integral to an adaptive management approach to inform and adjust management strategies over time.

Some DMAs may also perform certain types of monitoring for administration of a regulatory or voluntary program, separately from activities conducted under elements of a TMDL implementation plan. These DMAs should provide information from those activities in their annual reporting to DEQ that is relevant to the above objectives.

Environmental media and water column monitoring activities conducted by DMAs to meet TMDL objectives, data collection and management must be performed in adherence to Quality Control procedures and Quality Assurance protocols established by U.S. EPA or other appropriate organizations. This requirement will be met through developing or adapting Quality Assurance Project Plans and/or project-specific Sampling and Analysis Plans.

For water column monitoring, QA/QC documentation must be submitted to DEQ for review and approval based on a schedule in the approved TMDL implementation plan. Existing QAPPs or SAPs may be revised as needed. Alternatively, responsible persons can agree to participate in a collaborative monitoring plan under an umbrella QAPP. DEQ staff will coordinate QAPP development with responsible persons upon request in advance of submission. Resources for developing quality assurance project plans and sampling and analysis plans are available on DEQ's water quality monitoring website (DEQ, 2023c).

DEQ, ODA and the Lincoln Soil Water Conservation District are currently working with local partners to develop the Strategic Implementation Area monitoring plan for a large portion of the watershed. This monitoring strategy will be used to assess water quality status and trends and track effectiveness of agricultural implementation strategies during the SIA period (currently five years). DEQ and ODA will involve stakeholders in the process of developing the final monitoring strategy using the current ODA-SIA framework, under the guidance of the Monitoring and Assessment Group that currently includes OWEB, ODA, ODFW, and DEQ.

ODF will be invited to participate or collaborate with other DMAs and partners to develop a water column monitoring plan. The SIA monitoring information will also be used for assessing water quality status and trends associated with other land uses and assessing progress towards achieving excess pollutant load reductions.

6.2 Plan and schedule for reviewing monitoring information and revising the TMDLs

DEQ recognizes that it will take time before management practices identified in a WQMP are fully implemented and effective in reducing and controlling pollution. DEQ also recognizes that despite best efforts, natural events beyond the control of humans may interfere with or delay attainment of the TMDL. Such events include, but are not limited to, floods, fire, insect infestations, and drought. In addition, DEQ recognizes that technology and practices for controlling nonpoint source pollution will continue to develop and improve over time. As implementation, technology and knowledge about these approaches progress, DEQ will use adaptive management to refine implementation.

Adaptive management is a process that acknowledges and incorporates improved technologies and practices over time in order to refine implementation. A conceptual representation of the TMDL adaptive management process is presented in Figure 6.2.

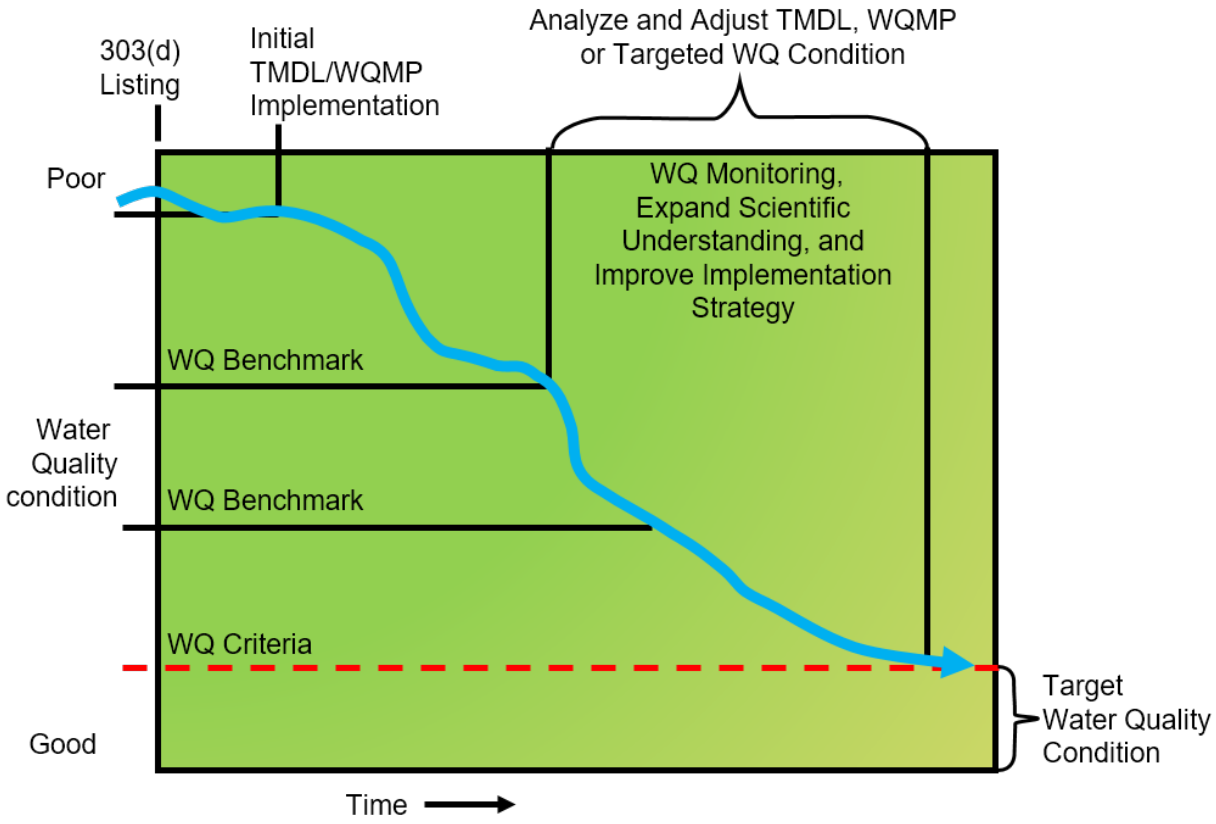

Figure 6.2: Conceptual representation of adaptive management

DEQ considers entities complying with DEQ-approved TMDL implementation plans to be in compliance with their respective requirements contained in the TMDLs. The information generated by each of the DMAs or other entities compiling annual reports and gathering data in the Upper Yaquina River Watershed will be evaluated individually and collectively to determine

whether management actions are supporting progress towards TMDL objectives, or if changes in management actions and/or TMDLs are needed.

Annually, DEQ will review annual reports, participate with DMAs and other responsible persons in review of monitoring information and participate in implementing the Upper Yaquina River Watershed Monitoring Strategy.

Every five years, DEQ will collectively evaluate annual reports and all available monitoring data and information to assess progress on meeting the goals of the TMDLs and WQMP.

- Where DEQ determines that implementation plans or effectiveness of management strategies are inadequate, DEQ will require DMAs and responsible persons to revise the components of their implementation plans to address these deficiencies.
- Where progress toward meeting Monitoring Strategy objectives is not being made, DEQ and partners will revise sampling and analysis plans or other aspects of the Monitoring Strategy.
- If DEQ's evaluation of water monitoring data and supporting information indicate that the TMDL load allocations for a given pollutant-impairment combination are insufficient to meet state numeric or narrative criteria or protect the designated beneficial uses DEQ will consider TMDL revisions. Per OAR 340-042-0040(7), DEQ will follow all public participation requirements for TMDL revisions, including convening a local technical or rulemaking advisory committee to provide input.

7.0 Reasonable assurance of implementation

OAR 340-042-0030(9) defines Reasonable Assurance as "a demonstration that a TMDL will be implemented by federal, state or local governments or individuals through regulatory or voluntary actions including management strategies or other controls." OAR 340-042-0040(4)(l)(J) requires a description of reasonable assurance that management strategies and sector-specific or source-specific implementation plans will be carried out through regulatory or voluntary actions. And as a factor in consideration of allocation distribution among sources, OAR 340-042-0040(6)(g) states that "to establish reasonable assurance that the TMDL's load allocations will be achieved requires determination that practices capable of reducing the specified pollutant load: (1) exist; (2) are technically feasible at a level required to meet allocations; and (3) have a high likelihood of implementation." This three-point test is consistent with EPA past practice on determining reasonable assurance in the Chesapeake Bay TMDL (EPA, 2010) and supports federal antidegradation rules and Oregon's antidegradation policy (OAR 340-041-0004).

The Clean Water Act section 303(d) requires that a TMDL be "established at a level necessary to implement the applicable water quality standard." Federal regulations define a TMDL as "the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources and natural background" [40 CFR 130.2(i)]. For TMDL approval, EPA guidance documents and memos on the TMDL process requires determinations that allocations are appropriate to implement water quality standards and reasonable assurance that nonpoint

source controls will achieve load reductions, when WLAs are based on an assumption that nonpoint source load reductions will occur (EPA, 1991, 2002 and 2012).

Although TMDL implementation is anticipated to improve rather than lower water quality, federal antidegradation rules at 40 CFR 131.12(a)(2), require states to “assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and cost-effective and reasonable best management practices for nonpoint source control,” when allowing any lowering of water quality.

When a TMDL is developed for waters impaired by point sources only, the existence of the NPDES regulatory program and the issuance of NPDES permits provide the reasonable assurance that the wasteload allocations in the TMDL will be achieved. That is because federal regulations implementing the Clean Water Act require that water quality-based effluent limits in permits be consistent with “the assumptions and requirements of any available [wasteload allocation]” in an approved TMDL [40 CFR 122.44(d)(1)(vii)(B)].

Where a TMDL is developed for waters impaired by both point and nonpoint sources, it is the state’s best professional judgment as to the three-point test in OAR 340-042-0040(6)(g) on reasonable assurance that the TMDL’s load allocations will be achieved.

Where there is a demonstration that nonpoint source load reductions can and will be achieved; a determination that reasonable assurance exists and allocation of greater loads to point sources is appropriate. Without a demonstration of reasonable assurance that relied-upon nonpoint source reductions will occur, reductions to point sources wasteload allocations are needed.

The Upper Yaquina River Watershed TMDLs were developed to address both point and nonpoint sources with load reduction allocations proportional to estimated source contributions and in consideration of opportunities for effective measures to reduce those contributions. There are several elements that combine to provide the reasonable assurance to meet federal and state requirements, including for antidegradation. Education, outreach, technical and financial assistance, permit administration, permit enforcement, responsible person’s implementation and DEQ enforcement of TMDL implementation plans will all be used to ensure that the goals of this TMDL are met.

7.1 Accountability Framework

Reasonable assurance that needed load reductions will be achieved for nonpoint sources and antidegradation requirements and narrative water quality criteria will be met is based primarily on an accountability framework incorporated into the WQMP, together with the implementation plans of persons responsible for implementation. This approach is similar to the accountability framework adopted by EPA for the Chesapeake Bay TMDL, which was adopted in 2010 (EPA, 2010). Figure 7.1 presents the accountability framework elements, which are intended to work in concert to demonstrate reasonable assurance of implementation.

Figure 7.1 Representation of the Reasonable Assurance Accountability Framework Led by DEQ

Pollutant reduction strategies are identified in Section 2 and more specific strategies, practices and actions will be detailed in each required implementation plan, to be submitted per the timelines in Section 5.4. These strategies and actions are comprehensively implemented through a variety of regulatory and non-regulatory programs. Many of these are existing strategies and actions that are already being implemented within the watershed and demonstrate reduced pollutant loading. These strategies are technically feasible at an appropriate scale to meet the allocations. A high likelihood of implementation is demonstrated because DEQ reviews the individual implementation plans and proposed actions for adequacy and establishes a monitoring and reporting system to track implementation and respond to any inadequacies. In Oregon, forestry and agricultural related nonpoint source best management strategies are actualized through implementation of state Forest Practices Act and agricultural Water Quality Management Area Plans and Rules. In Sections 5.2.1 and 5.2.2 DEQ determined that ODF and ODA must also develop and implement TMDL implementation plans that describe strategies specific to the Upper Yaquina River Watershed. This adds to the accountability for implementation of cost-effective and reasonable best management and further assures that antidegradation requirements and narrative criteria will be met.

The persons, including Designated Management Agencies, responsible for implementation of pollutant reduction strategies are identified in Section 2. General timelines for implementing management strategies and attaining the relevant water quality criteria are provided in Sections 3 and 4.2, respectively. More specific timelines, milestones and measurable objectives will be specified in each required implementation plan. These elements support timely action by both DEQ and other entities responsible for implementation so that enforcement and adaptive management actions can be triggered and evaluation of attainment of TMDL goals occurs.

DEQ periodically reviews reporting by persons and agencies responsible for implementing pollutant reduction strategies to track the management strategies and actions being implemented and evaluate achievements against established timelines and milestones.

Following up on reviews to track progress of implementation plans, DEQ will take appropriate action if the DMAs or responsible persons fail to develop or effectively implement their implementation plan or fulfill milestones. DEQ's actions can take two tracks, enforcement or engagement in voluntary initiatives. DEQ uses both, as appropriate within the process, to achieve optimal pollutant reductions. In some cases, DEQ can assist in facilitating the availability of incentives for meeting voluntary initiatives or providing education. DEQ will also take enforcement actions where necessary based on authorities listed in Section 8 or raise issues to the Environmental Quality Commission, as provided in OAR 340-042-0080.

DEQ tracks water quality status and trends concurrently with implementation of management strategies. DEQ relies on a system of interconnected evaluations, which include DMAs meeting measurable objectives, effectiveness demonstration of pollutant management strategies, accountability of implementation, periodically assessing progress on Oregon's Nonpoint Source Program Five-Year Plan Goals (approved by EPA), discharge monitoring and instream monitoring. DEQ also periodically evaluates water quality data collected through ambient and specific monitoring programs, including monitoring plans developed specifically for the Mid Coast Basin, as presented in Section 6. DEQ regularly prepares Status and Trends reports and conducts water quality assessments on status of all waterways with adequate data in Oregon every two years, as required by the Clean Water Act for submittal to EPA for approval as DEQ's Integrated Report. Together, these data and evaluations allow refinement of focus on specific geographic areas or water quality issues and appropriate implementation of adaptive management actions to attain, over time, the objectives of the TMDL.

7.2 Reasonable Assurance Conclusions

DEQ's implementation approach is multi-faceted and requires targeted and sustained management strategies and practices across the watershed to reduce levels of anthropogenic pollutants, regardless of source origination.

The nonpoint sources of bacteria, phosphorus and solar radiation associated with water quality impairments in the watershed include some contributions from background sources. The management strategies and practices that must be employed are spatially distributed and involve multiple responsible persons. Also, highly variable lag times are anticipated following the establishment of shade-producing vegetation to decrease solar radiation reaching streams. For these reasons, there is some uncertainty about the pace of achieving reductions in excess bacteria, phosphorus and solar radiation loading to the Upper Yaquina River watershed necessary to attain water quality criteria. DEQ's WQMP addresses this uncertainty by including an extensive monitoring, reporting and adaptive component that is designed to match the accountability framework used by EPA in its Chesapeake Bay TMDL (2010).

The rationale described in this document stems from robust evaluations, implements an accountability framework and provides opportunities for adaptive management to maximize pollutant reductions. Together this approach provides reasonable assurance of implementation

to meet state and federal requirements, including for antidegradation, and attain the goals of the TMDL.

8.0 Legal Authorities

As required in Oregon Administrative Rule 340-042-0040(4)(l)(O), this section cites legal authorities relating to implementation of management strategies.

Clean Water Act, Section 303(d)

The DEQ is the Oregon state agency responsible for implementing the Clean Water Act in Oregon. 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. These waters are referred to as “water quality limited.” Water quality limited waterbodies must be identified by the EPA or by a state agency which has this authority. In Oregon, the responsibility to delegate water quality limited waterbodies rests with DEQ and DEQ’s list of water quality limited waters is updated every two years. The list is referred to as the 303(d) list. Section 303 of the Clean Water Act further requires that TMDLs be developed for all waters on the 303(d) list. The Oregon Environmental Quality Commission granted DEQ authority to implement TMDLs through OAR 340-042, with special provisions for agricultural lands and nonfederal forestland as governed by the Agriculture Water Quality Management Act and the Forest Practices Act, respectively. The EPA has the authority under the Clean Water Act to approve or disapprove TMDLs that states submit. When a TMDL is officially submitted by a state to EPA, EPA has 30 days to take action on the TMDL. In the case where EPA disapproves a TMDL, EPA must issue a TMDL within 30 days. A TMDL defines the amount of pollution that can be present in the waterbody without causing water quality standards to be violated. A WQMP is developed to describe a strategy for reducing water pollution to the level of the load allocations and waste load allocations prescribed in the TMDL, which is designed to restore the water quality and result in compliance with the water quality standards. In this way, the designated beneficial uses of the water will be protected for all users.

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 the National Marine Fisheries Service to list the activities that could result in a “take” of species they are charged with protecting. With regard to this TMDL, NMFS’ protected species are salmonid fish. NMFS 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 limit are listed below:

1. Avoid inappropriate areas such as unstable slopes, wetlands, and areas of high habitat value;

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

Oregon Revised Statute Chapter 468B

DEQ is authorized by law to prevent and abate water pollution within the State of Oregon. Particularly relevant provisions of this chapter include:

ORS 468B.020 Prevention of pollution

(A) 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.

(B) In order to carry out the public policy set forth in ORS 468B.015, the Department of Environmental Quality 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.110 provides DEQ and the EQC with authority to take actions necessary to achieve and maintain water quality standards, including issuing TMDLs and establishing wasteload allocations and load allocations.

NPDES and WPCF Permits

DEQ 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 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.

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 DEQ 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.

U.S. Army Corps of Engineers Dam Operation and Management

In association with other federal statues, including House Document No. 531 Volume V, the River and Harbor Act, the Flood Control Act, and the Water Resources Development Act, the USACE is charged with operating its projects in compliance with the federal Clean Water Act, and in accordance with all federal, State, interstate and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water quality pollution as per Title 1 Section 313 (33 U.S.C. 1323).

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 (ORS 527.610 to 527.992, and OAR 629 Divisions 600 through 665). The Board of Forestry has adopted water protection rules, including but not limited to OAR Chapter 629, Divisions 625, 630, and 635-660, which describe best management practices for forest operations. The Oregon Environmental Quality Commission, Board of Forestry, DEQ, and ODF have agreed that these pollution control measures will primarily be relied upon to result in achievement of state water quality standards. 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, OAR 629-035-0100, and OAR 340-042-0080.

Agricultural Water Quality Management Act

The Oregon Department of Agriculture is responsible for the prevention and control of water pollution from agricultural activities as directed and authorized through the Agricultural Water Quality Management Act, adopted by the Oregon legislature in 1993 (ORS 568.900 to ORS 568.933). It is the lead state agency for regulating agriculture for water quality (ORS 561.191). 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. Water Quality area rules for areas within the Willamette Basin include OAR 603-095-2100 to 1160, OAR 603-095-2300 to 2360, OAR 603-095-2600 to 2660, and OAR 603-095-3700 to 3760.

Local Ordinances

Local governments are expected to describe in their implementation plans their specific legal authorities to carry out the management strategies necessary to meet the TMDL allocations. If new or modified local codes or ordinances are required to implement the plan, the DMA will identify code development as a management strategy. Legal authority to enforce the provisions of a city's NPDES permit would be a specific example of legal authority to carry out specific management strategies.

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