Draft Water Quality Management Plan

Powder River Basin - Total Maximum Daily Load for Bacteria

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State of Oregon
DEQ Department of Environmental Quality

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1. Introduction

This Water Quality Management Plan was developed to guide implementation of the Powder River Basin bacteria Total Maximum Daily Load. A WQMP is an element of a TMDL, as described by OAR 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 Powder River Basin WQMP was adopted by Oregon's Environmental Quality Commission, by reference, into rule as OAR 340-042-0090(xx). 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 Powder River Basin.

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 Powder River Basin with a problem description. There are assessment units in the Powder River Basin listed as Category 5 (impaired) for bacteria, dissolved oxygen, pH, chlorophyll a and phosphorus in Oregon's 2022 Integrated Report, which was approved by US Environmental Protection Agency on September 1, 2022.

As required by Section 303(d) of the federal Clean Water Act, DEQ developed Total Maximum Daily Loads for pollutants causing bacteria water quality impairments of waters within the Powder River Basin. This TMDL addresses E.coli and fecal coliform bacteria and applies to all perennial and intermittent streams within the Powder River Basin. TMDLs to address dissolved oxygen, pH, chlorophyll a and phosphorus are scheduled for development and are not discussed further in this document.

Bacteria impairment of streams poses risk of illness for people, livestock and wildlife beneficially using the waters within the basin for recreational contact, ingestion and irrigation. Further information is available in Section 3 of the Powder River Basin TMDL 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 TMDL implementation to achieve and maintain the E. coli bacteria water quality standard within the Powder River Basin.

The primary objectives of this WQMP are to describe: responsibilities for implementing the TMDL; 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 Powder River Basin.

2. Proposed management strategies

As required by OAR 340-042-0040(l)(C), the following section presents management strategies, by pollutant source, that can be designed to meet the load and wasteload allocations required by the Powder River Basin bacteria TMDL.

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 2.0a includes proven strategies (and practices within the strategies) summarized by pollutant source. The majority of the strategies and practices are adapted from published sources, including US Department of Agriculture Natural Resources Conservation Service. DEQ used the categories and language 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 2.0a are supported by Oregon Department of Agriculture, Oregon State University Extension Service and others.

Table 2.0a: Management strategies by sources

Sources		Percent Reductions Needed	Management Strategies (and practices)
Nonpoint and background	Irrigation return water and stormwater runoff in contact with livestock grazing areas and roadways	40% - 95%[2]	Irrigation system improvement to reduce runoff (irrigation pipeline, microirrigation, sprinkler irrigation, irrigation tailwater recovery) Runoff management; road/collection system cleaning/maintenance; surface drainage improvement
	Livestock and wildlife[1] in and around streams (including reservoirs during dry down)		Livestock management; upland erosion control techniques; riparian fencing (or other livestock exclusion or management methods); crossing improvements (culverts, structures, fords removed or replaced with bridge or ford); water gap development; livestock stream access/crossing (creation or improvement); livestock off channel watering/shade
	Failing or improper septic systems	unknown, but minimal	Identify any needed septic system repairs or upgrades, eliminate illicit discharges
Point	Permitted Wastewater Treatment Systems	none, must meet standard	Compliance with NPDES permits; Plan, fund and implement system upgrades
	ODOT MS4 permit	unknown, but minimal[3]	Compliance with MS4 permit; maintain road/collection system

Note: [1]Minor, seasonal wildlife bacteria contributions are considered background sources and were not separated from other nonpoint sources in the TMDL analyses. [2]By stream reach in TMDL Table 8.0, some reaches do not require reductions. [3]ODOT roadway runoff was not separated from all nonpoint and background sources, but is allocated 1% of the loading capacity.

Practices applied in the Malheur River Basin demonstrated to reduce bacterial inputs are listed in Table 2.0b and further information on them is available by contacting the Oregon State University Malheur Experiment Station, the Oregon Department of Agriculture and the Malheur Soil Water Conservation District. Grants from the Oregon Watershed Enhancement Board along with significant matching from landowners, National Resource Conservation Service, irrigation districts, watershed councils and other partners and Clean Water State Revolving Fund loans, which can include principle forgiveness, can all be leveraged to make these types of projects possible. More information on funding options is available in Section 5.3.6 and its associate resources.

Table 2.0b: Applicable proven bacteria reduction practices for nonpoint sources

Malheur River Basin Proven Practices
Irrigation Schedule Optimization
Sediment Basin and Tail Water Recovery (Pump-Back Systems)
Polyacrylamide (PAM)
Mechanical Straw Mulching
Water Conservation Methods
Filter Strips
Gated Pipe
Surge Irrigation
Laser Leveling
Turbulent Fountain Weed Screens
Underground Outlets for Field Tail Water
Nutrient Management
Improved Confined Animal Feeding Operation Practices
Constructed wetlands

With input from local land owners/operators, DEQ's source assessment identified the strategies in Table 2.0a and 2.0b, as appropriate for the conditions and sources within the basin. Therefore, these are considered priority strategies and practices that should receive special focus during implementation plan development.

DEQ's source assessment, detailed in Section 7 of the Powder River Basin TMDL Report and Section 5 of the TMDL Technical Support Document, concluded that the primary pathways for bacteria to enter waters of the state are through erosion and runoff from irrigated farmlands and pastures; direct deposition of livestock manure; and transport and delivery of sediment and organic matter containing bacteria. Therefore, the primary management strategies for reducing bacteria inputs into streams include:

- Irrigation improvements and erosion control techniques that have been widely applied in eastern Oregon with success in reducing bacteria concentrations, as well as reducing nutrient and sediment pollution:
    - Conversion of flood irrigation to sprinkler or drip irrigation;
    - Installation of concrete-lined irrigation ditches and piped water delivery systems;
    - Construction of wetlands, ponds or other sediment trapping systems.

- Implement additional best management practices for livestock manure and management of grazed areas and reduce livestock access to streams to reduce organic matter mobilization in runoff and direct deposition into surface waters;
- Improve pastures and riparian zones to reduce surface erosion and provide adequate filtration capacity for organic matter and nutrients;
- Assess onsite septic systems to identify those at the highest risk of malfunction or failure.

DEQ expects that entities identified in Section 4.1 will develop implementation plans that include strategies and practices from Tables 2.0a and 2.0b and in the tables, if any, within entity-specific sections that follow. Implementation plans must include specifics on where and when priority and other strategies will be applied, along with measurable objectives and milestones for ensuring their implementation and gaging their effectiveness.

DEQ determined the areas within the Powder River Basin shown in Table 2.0c should be prioritized for implementation projects to reduce bacteria loads, particularly from irrigated farmlands and pastures (including rangelands) with the potential for overland flows to reach waterbodies. Table 2.0c also shows the jurisdictional responsibility for land use practices in these areas. DEQ prioritized these locations based on land use, land cover and water quality criteria exceedances. Further information is available in Section 7 of the Powder River Basin TMDL Report and Section 5 of the TMDL Technical Support Document.

Table 2.0c: Priority locations for implementation of bacteria reduction strategies

River reaches	Designated Management Agency
North Powder River from USFS Boundary to confluence with Powder River	Oregon Department of Agriculture
Burnt River from Unity Reservoir to Clarks Creek Rd	Oregon Department of Agriculture, US Bureau of Land Management
South Fork Burnt River	Oregon Department of Agriculture, US Bureau of Land Management
Powder River from Thief Valley Reservoir to Richland	Oregon Department of Agriculture, US Bureau of Land Management
Eagle Creek from New Bridge to Brownlee Reservoir	Oregon Department of Agriculture, US Bureau of Land Management, US Forest Service
Thief Valley Reservoir, due to trespass cattle during the dry season	US Bureau of Reclamation, Oregon Department of Agriculture, US Bureau of Land Management

3. Timelines for implementing strategies

OAR 340-042-0040(l)(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 is discussed separately. Figure 3 presents a typified timeline for TMDL implementation in a five-year increment.

Figure 3: Powder River Basin Bacteria TMDL implementation timelines

3.1 DEQ Permit revisions

NPDES permits are typically re-evaluated on five-year cycles. ODOT's statewide MS4 stormwater NPDES permit was last issued in 2020 and is anticipated to be renewed in 2025. The Powder River Basin Bacteria TMDL allocation will be implemented in ODOT's permit at renewal. NPDES permits issued to the cities of Huntington and North Powder do not require further modification at renewal as they currently implement the E. coli criteria as permit limits, which are the bacteria wasteload allocations assigned by this TMDL.

3.2 Management strategies implemented by responsible persons

DEQ's analyses (DEQ, 2022) 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 DMAs, as shown in tables in subsections of Section 5.1. DEQ expects responsible persons to consider these timelines as they specify the management strategies and practices, along with 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. Attaining water quality standards

Based on the analyses completed for this TMDL, achieving the excess load reductions identified (in Table 8.0 of the TMDL Rule) will result in attainment of water quality standards. Management strategies identified in this WQMP and included in implementation plans represent a system of measures and practices that will collectively reduce pollutant loads and improve water quality in the Powder River Basin.

4.1 How priority management strategies support attainment of bacteria water quality criteria

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

4.2 Timelines for attaining bacteria water quality criteria

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

Based on DEQ's source assessment and TMDLs analysis (DEQ, 2022), nonpoint sources contribute nearly all of the pollutant loading associated with water quality impairments in the Powder River Basin. Therefore, it is critical for nonpoint sources to make timely progress toward reducing anthropogenic pollutant loads to meet the TMDL load allocations.

The timeline for water quality standard attainment will vary substantially across the basin, with some portions of the basin at or near the attainment of water quality standards and other portions severely degraded. Currently there is a fair amount of local support for irrigation system improvements that will enhance control of water application, reduce bacteria loading to streams, and improve crop yields. Local projects have been funded by OWEB with contributions from NRCS and landowners. More financial support through grants and staff time will be needed for continued implementation of similar projects and best management practices.

In the nearby Malheur River and Owyhee Basins the rate of irrigation system improvement and piping projects has accelerated over the last 10-15 years and significant improvements in water quality have been measured. As landowners see neighbors achieve better crop yields and environmental benefits, more of them join in the process. Best Management Practices for irrigated agriculture have been developed and implemented on a wide scale (see Tables 2.0a and 2.0b). For example, irrigation systems have been improved by installing concrete-lined irrigation ditches and piped water delivery systems. Wetlands and sediment ponds have been

constructed to trap sediment and reduce nutrient and bacteria concentrations. These actions have resulted measurable reductions in sediment and bacteria concentrations in surface waters.

It is reasonable to assume that similar gains in water quality improvement could happen in the Powder River Basin through implementation of similar management strategies, with a possible 50% decline in bacteria loading over 10-15 years and attainment of water quality standards in 20 - 30 years. For substantial and timely improvements to water quality, projects should be focused on areas listed in Table 2.0c.

5. 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)(l)(G) requires identification of persons, including DMAs, responsible for developing and revising implementation plans. OAR 340-042-0040(4)(l)(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. Therefore, for purposes of this Powder River Basin WQMP, for implementation of the bacteria TMDL, ‘responsible person’ is defined as any entity responsible for any source of pollution addressed by the TMDL. Unless otherwise specified, all responsible persons, including DMAs, are required to develop, submit, implement and revise, as needed, an implementation plan specific to the Powder River Basin TMDL 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. Table 5.1 contains the list of these responsible persons.

Table 5.1: Entities responsible for implementing bacteria management strategies and developing implementation plans for the Powder River Basin

Designated Management Agency or responsible person	Area of Jurisdiction
Oregon Department of Agriculture	Agricultural and associated rural residential lands
Oregon Department of Fish and Wildlife	ODFW managed lands including the Elkhorn Wildlife Area
Oregon Department of Forestry*	Private forest lands
US Forest Service	Wallowa-Whitman National Forest managed lands
US Bureau of Land Management	BLM Vale District managed lands
Baker County	County roads along subbasin perennial tributaries, drainage ditches within county service districts, Sumpter Valley lands (Baker); and improperly functioning septic systems, when encountered
Union County	
US Bureau of Reclamation	Management of reservoir lands
Baker Valley Irrigation District	Irrigation systems operated by water management district
Powder Valley Water Control District	
Lower Powder Irrigation District	
Burnt River Irrigation District	
Baker City	Municipal stormwater control, maintenance and enhancement of riparian vegetation areas
Oregon Department of Environmental Quality*	NPDES permits implementation and enforcement
Oregon Department of Transportation	Stormwater and other nonpoint sources from highways and facilities
NOTE: * DEQ and ODF will not prepare implementation plans. DEQ will incorporate waste load allocations into NPDES permit requirements and ODF will implement the Forest Practices Act.	

Table 5.1 is not an exhaustive list of every individual that bears responsibility for improving water quality in the Powder River Basin. All people that live, work and recreate in the watershed can 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. The Oregon Department of Agriculture has jurisdiction on about 38 percent of the land area in the basin. Jurisdictional areas of the US Forest Service and Bureau of Land Management are approximately 32 percent and 18 percent, respectively. DEQ calculated Oregon Department of Transportation jurisdictional area in the basin to be approximately 0.1 percent. Other mapped entities also have less than one percent of the area under their jurisdiction or ownership. DEQ determined that most of these small jurisdiction entities do not conduct activities that are sources of bacteria and did not assign them as responsible persons in Table 5.1.

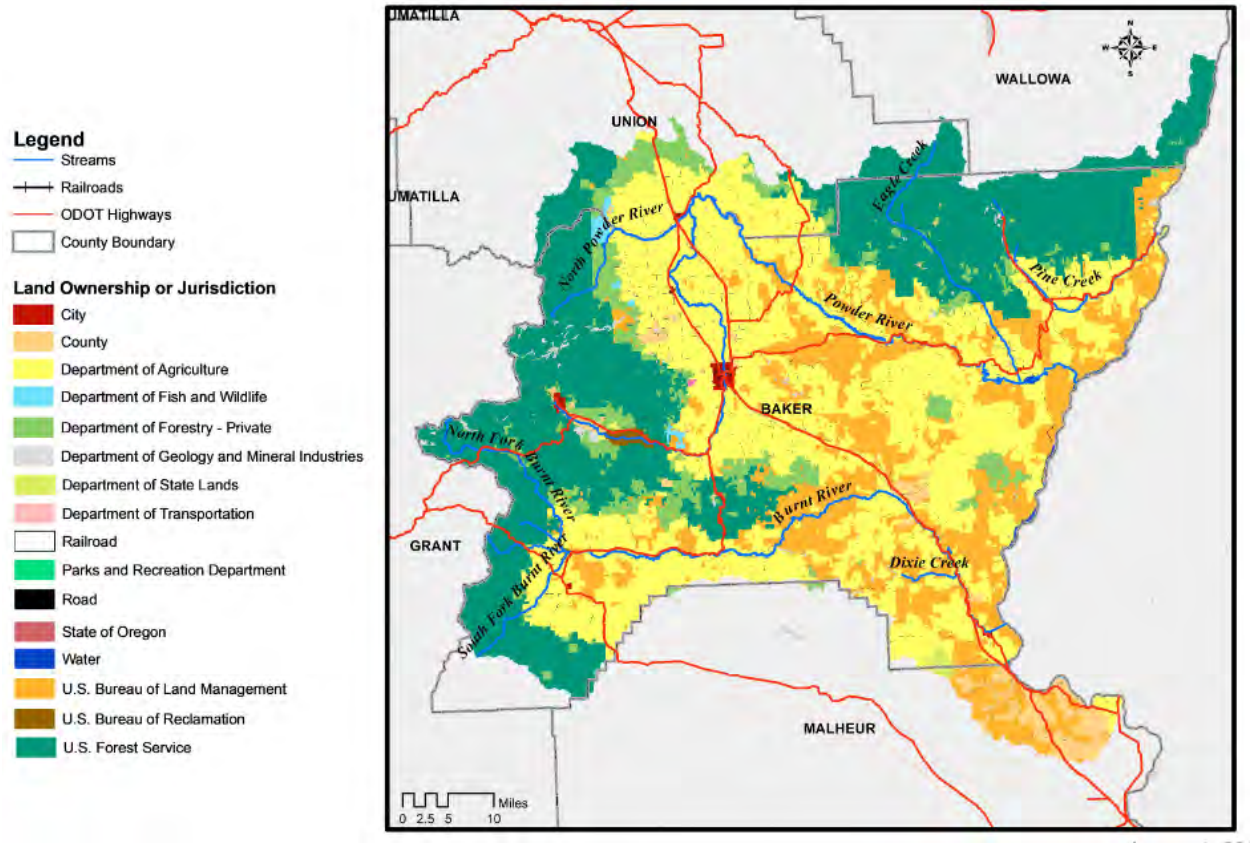

Figure 5.1: Powder River Basin land ownership or jurisdiction

5.1.1 Land management agencies

5.1.1.1 Oregon Department of Agriculture

The Oregon Department of Agriculture is responsible for regulating agricultural activities on private lands that affect water quality in Oregon. Approximately 38 percent of lands in the Powder River Basin are under ODA jurisdiction. In addition to ODA's implementation of the Oregon Agricultural Water Quality program (Area Rules and Powder-Brownlee and the Burnt River Area Plans), DEQ determined in Section 5.2.2 that ODA must develop a TMDL implementation plan, in order to meet the Powder River Basin agricultural sector load allocations for bacteria. ODA's implementation plan must include the required elements described in Section 5.3 and be submitted according to the schedule in Section 5.4. The plan must include priority management strategies from Tables 2.0a, 2.0b and 5.1.1.1 or other strategies that ODA documents are appropriate to agricultural land and activity-related conditions in the subbasin, to address gaps between the current bacteria loading under existing Area Rules and Area Plans 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 and schedule for conducting assessment of land conditions and current practices within ODA's jurisdictional areas of the Powder River Basin. 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 priority management strategies from Tables 2.0a, 2.0b and 5.1.1.1 and in consideration of the priority areas identified in Table 2.0c.

To date, ODA has conducted land condition assessments, has or will address identified Area Rule violations, and included monitoring as part of the Lower Powder and South Fork Burnt River SIAs. ODA's implementation plan must describe how ongoing or completed work has already addressed, aligns with, or can be built upon to advance the goals of this TMDL and WQMP. 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 be in compliance 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 any SIA evaluation areas.

DEQ recognizes ODA's existing collaborative process with the Powder and Burnt Local Advisory Committees to encourage landowners to implement voluntary practices identified in the Area Plans. This, along with subbasin area specific collaboration with other DMAs, should be described in ODA's implementation plan to fulfill the education and outreach component described in Section 5.3.4.

Table 5.1.1.1: ODA-specific management strategies and timelines that would be effective in achieving load allocations for bacteria

Source or activity	Management Strategy	Timeline
Agricultural land condition	Work collaboratively with DMA's and local and regional partners to develop a schedule of grant proposals to fund the assessment, prioritization, outreach and implementation of bacteria management measures. Prioritize assessment and planned implementation for high bacteria loading areas noted in Section 2	Submit with TMDL implementation plan
	Describe plan to assess land condition for surface and bank erosion; ensure that roads and livestock access to streams include BMPs to minimize erosion and sediment delivery to waters of the state	
	Describe plan to assess manure management (storage, distribution) and make a plan to ensure BMPs to prevent runoff are in place	
	Describe plan to identify locations and assess patterns of livestock access to streams in the watershed	
	Complete assessment of agricultural land conditions and domestic livestock land use	Years 1 – 3 after TMDL issuance
Domestic livestock -	Alter animal stocking rate or timing if necessary to reduce manure near streams	

Source or activity	Management Strategy	Timeline
grazing and manure management	Utilize rotational grazing and other techniques to minimize overgrazing	Years 1-10 after TMDL issuance
	Provide off-channel livestock water	
	Conduct livestock management training	
	Minimize direct livestock stream access (livestock exclusion through fencing or other practices)	
	Ensure adequate riparian vegetated filter strip and buffer zone	
Agricultural runoff	Implement irrigation system improvements to reduce or prevent runoff	

5.1.1.2 Oregon Department of Forestry

The Oregon Department of Forestry has jurisdiction over forest operations on private forested lands in the Powder River Basin, including ensuring water protection under the Forest Practices Act. Private forestry activities are not a source of bacteria loading to surface waters in the Powder River Basin and ODA has jurisdiction over grazing activity on non-federal forestlands in Oregon. ODF must meet the waterway protection measures identified in the Oregon Forest Practices Act and any amendments (see Section 5.2.1). DEQ consideres ODF to be meeting the requirements of a TMDL implementation plan by following the Oregon Forest Practices Act and any amendments.

5.1.1.3 Oregon Department of Fish and Wildlife

ODFW has jurisdiction over approximately 8,836 acres of land along the east slope of the Elkhorn Mountains, known as the Elkhorn Wildlife Area. The wildlife area is managed to provide winter range for elk and deer with limited livestock grazing and timber harvest (see also section 5.2.5). Wildlife are a natural background source of bacteria loading to waterbodies with the potential to be particularly problematic where larger groups accumulate, such as at artificial feeding locations. At the time of the TMDL assessment, the wildlife area elk feeding stations were not found to be significant sources of bacteria to surface waterbodies during the winter season but may be contributing to criteria exceedances during the livestock grazing period (May through October). To ensure that the elk feeding stations do not become an increased source of bacteria and to reduce the impact from livestock grazing, ODFW must develop a TMDL implementation plan for the Elkhorn Wildlife Area.

ODFW's implementation plan must include the required elements described in Section 5.3 and be submitted according to the schedule in Section 5.4. The implementation plan must include strategies listed in Tables 2.0a, 2.0b and 5.1.1.3, or other strategies that ODFW documents are appropriate to wildlife area land and activity-related conditions in the basin, to address gaps between current bacterial loading under the existing Elkhorn Wildlife Area Management Plan (additional details in Section 5.2.5) and the applicable TMDL load allocations. Any alternative strategies or timelines in Table 5.1.1.3 must be documented in the implementation plan. Specific management strategies and controls to address gaps in pollution controls or prevention should be documented in revisions to the existing wildlife area management plan during the next update, as appropriate.

Table 5.1.1.3: ODFW-specific management strategies and timelines that would be effective in achieving load allocations for bacteria

Source or activity	Management Strategy	Timeline
Assessment - elk, deer and livestock grazing	Assess livestock/wildlife use patterns and manure management (storage, distribution)	Years 1-2 after TMDL issuance
Assessment – land condition	Assess manure management (storage, distribution); identify locations and assess patterns of livestock access to streams in the Elkhorn Wildlife Area	
Manure and runoff management	Implement BMPs to prevent runoff in high grazing areas	Years 3-5 after TMDL issuance
	Ensure adequate riparian vegetated filter strip and buffer zone	
	Minimize direct livestock stream access (livestock exclusion through fencing or other practices)	

5.1.1.4 Oregon Department of Transportation

The Oregon Department of Transportation is responsible for managing runoff from highways under a statewide Phase I Municipal Separate Storm Sewer System (or MS4) permit. According to calculations made for this TMDL, ODOT has jurisdiction over approximately 3,350-acres as roadway rights-of-way in the Powder River Basin (0.1 percent of the total basin area). ODOT is required to include Powder River Basin bacteria TMDL in their statewide TMDL implementation plan. However, DEQ expects that maintaining compliance with ODOT's MS4 permit will be adequate to meet ODOT's waste load allocation for bacteria and the need for and additional bacteria nonpoint source controls associated with ODOT facilities will be minimal. Amendment of ODOT's statewide TMDL implementation plan must follow the schedule for submittal in Section 5.4.

5.1.1.5 US Bureau of Land Management and US Forest Service

The US Department of the Interior Bureau of Land Management and US Department of Agriculture Forest Service responsible for management and regulation of certain forest and range lands owned by the federal government. Approximately 18 percent of lands in the Powder River Basin are under jurisdiction of the BLM Vale District Office. Approximately 33% (740,400 acres) of the total land area in the Powder River Basin is forested, the majority of which is publicly owned and under the management of the Wallowa-Whitman National Forest by the US Forest Service (USFS). Livestock are known to graze on BLM and USFS lands, which has the potential to impact riparian conditions and cause E. coli contamination of surface waters.

BLM and USFS must develop and implement Powder River Basin bacteria TMDL implementation plans. Each implementation plan must include the required elements described in Section 5.3 and be submitted according to the schedule in Section 5.4. The plans must include strategies from Tables 2.0a, 2.0 b and 5.1.1.5 and with focus on the priority locations for implementation of bacteria reductions in Table 2.0c. The plan should reference any relevant Resource Management and Water Quality Restoration Plans, as discussed in Sections 5.2.3 and 5.3.4. If additional assessment of land conditions or current practices is needed to

determine these details, the process to obtain that information will be identified in the implementation plan and the annual report or other agreed-upon mechanism.

Table 5.1.1.5: BLM and USFS-specific management strategies and timelines that would be effective in achieving load allocations for bacteria

Source or activity	Management Strategy	Timeline
Pasture use – livestock grazing and manure management	Assess land condition for surface and bank erosion; ensure that roads in grazed areas (current or past) include BMPs to minimize erosion and sediment/manure delivery to waters of the state	Years 1-3 after TMDL issuance
	Identify locations and assess patterns of livestock access to streams in the watershed and ensure BMPs to prevent erosion and runoff are in place	
	Alter animal stocking rate or timing if necessary to reduce manure near streams	Years 1-10 after TMDL issuance
	Utilize rotational grazing and other techniques to minimize overgrazing	
	Provide off-channel livestock water	
	Conduct livestock management training	
	Minimize direct livestock stream access (livestock exclusion through fencing or other practices)	
	Ensure adequate riparian vegetated filter strip and buffer zone	

5.1.1.6 US Bureau of Reclamation

The US Bureau of Reclamation is responsible for the federally owned and/or operated water delivery and drainage facilities in the Powder River Basin. These facilities include Mason Dam/Phillips Reservoir, Thief Valley Dam/Reservoir on the Powder River and Unity Dam/Reservoir on the Burnt River, as shown in Figures 5.1.1.6a, 5.1.1.6b and 5.1.1.6c.

Although there are no grazing allotments within these reservoir lands, trespass cattle have been observed within the dewatered footprint of Thief Valley Reservoir on several occasions during the last decade and as recently as August 2022. Cattle manure is a source of E. coli which contribute to exceedances of water quality standards within the Powder River Basin. Accumulated manure from summer cattle grazing is flooded over and discharged downstream when Thief Valley Reservoir fills during the winter and spring.

The USBR must develop a Powder River Basin bacteria TMDL implementation plan to address sources of E. coli at the above mentioned federal dam and reservoir projects. The implementation plan must include the required elements described in Section 5.3 and be submitted according to the schedule in Section 5.4. Management strategies that must be addressed in the TMDL implementation plan are included in Table 5.1.1.6; additional strategies may be found in Tables 2.0a and 2.0b.

Within six months of TMDL issuance, USBR must conduct and submit the results of an assessment of landscape conditions and current practices at the federal dam and reservoir project areas, with focus on the priority locations for implementation of bacteria reductions in Table 2.0c. The assessment 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 immediate implementation of effective priority strategies, such as restricting livestock trespass and

managing manure. The results of this assessment and any management strategies implemented within 18 months of TMDL issuance must be included in USBR's implementation plan submittal to DEQ.

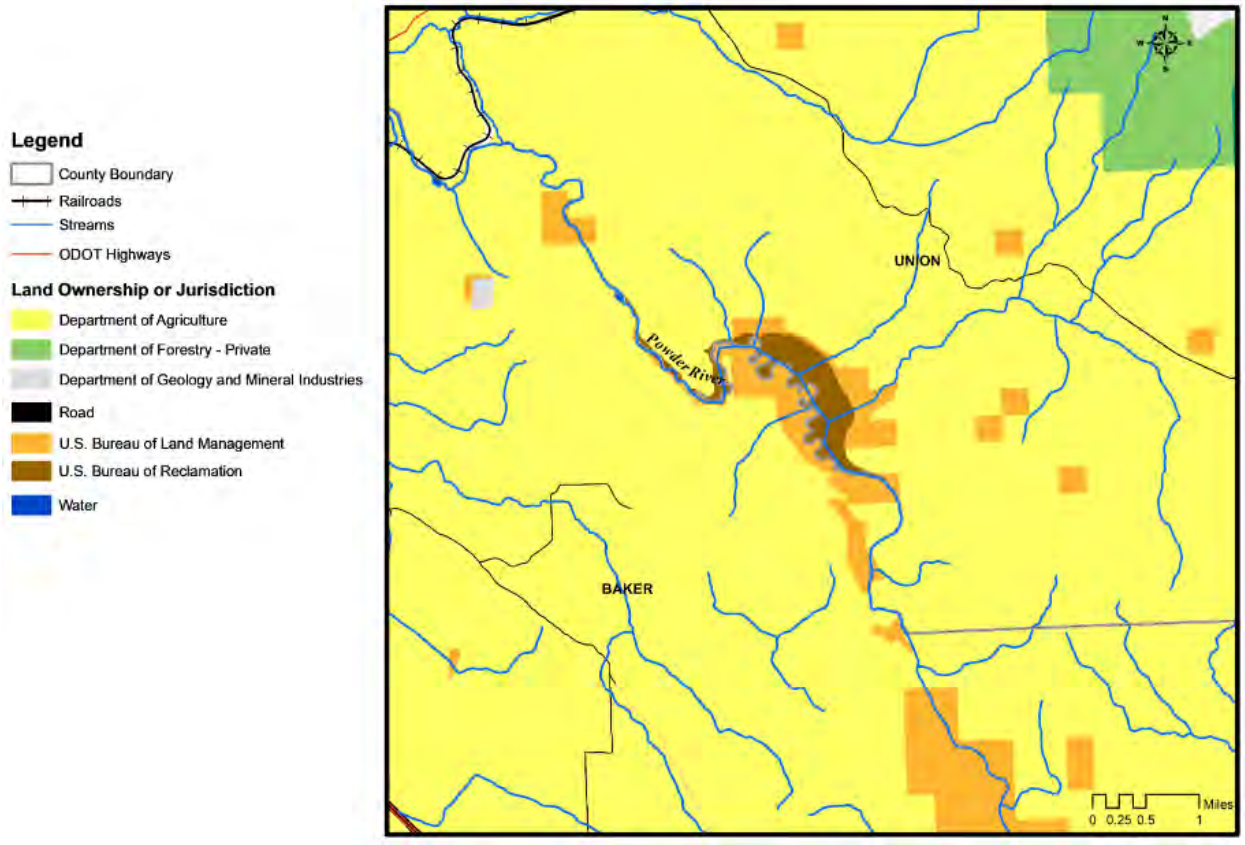

Figure 5.1.1.6a: Thief Valley Reservoir Land Ownership or Jurisdiction

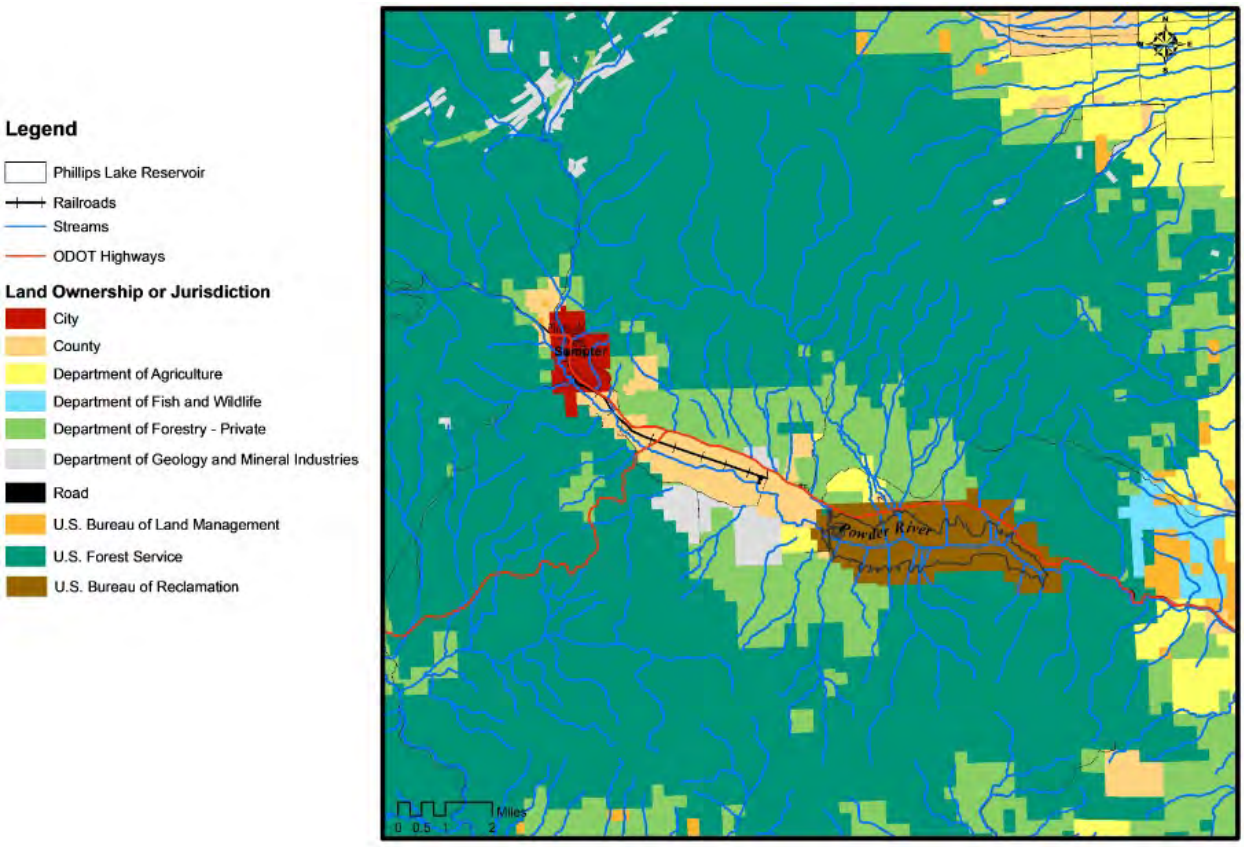

Figure 5.1.1.6b: Phillips Lake Land Ownership or Jurisdiction

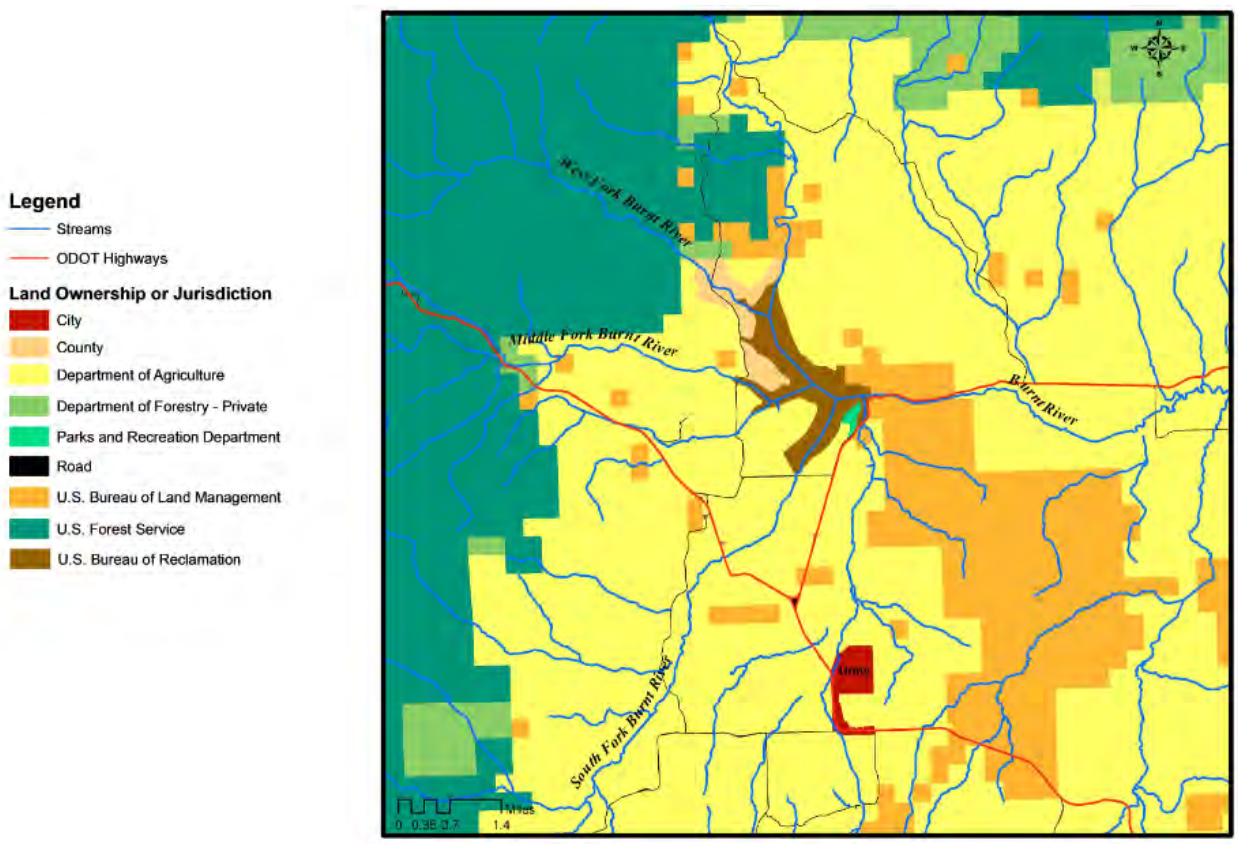

Figure 5.1.1.6c: Unity Reservoir Land Ownership or Jurisdiction

Table 5.1.1.6: USBR-specific management strategies and timelines that would be effective in achieving load allocations for bacteria

Source or activity	Management Strategy	Timeline
Livestock use of reservoir footprint and/or adjacent lands	Implement a protocol to assess and monitor livestock use and manure on reservoir lands	Within 6 months of TMDL issuance
	Coordinate with other land owners/operators to exclude trespassing livestock from Thief Valley Reservoir	Years 1-5 after TMDL issuance
	Manage potential livestock impacts at Phillips and Unity Reservoirs	
	Develop a manure management strategy to meet bacteria TMDL load allocations and plan for future nutrient TMDLs	

5.1.2 Irrigation districts

Irrigation and drainage districts are responsible persons and are required to develop either a unified or district-specific TMDL implementation plan to address load allocations associated with non-federal water storage, delivery and drainage systems in the Powder River Basin. Irrigation and water control districts with jurisdiction in the Powder River Basin are described below.

The implementation plan(s) must include the required elements described in Section 5.3 and be submitted according to the schedule in Section 5.4. Implementation plan(s) should include management strategies found in Tables 2.0a, 2.0b and 5.1.2. DEQ will assist the districts in preparing a plan that complies with OAR 340-042-0080(3). The implementation plan(s) must include specifics on where and when priority and other strategies will be applied, along with measurable objectives and milestones for ensuring their implementation and gaging their effectiveness.

5.1.2.1 Baker Valley Irrigation District

The Upper Division of the Baker Project supplies irrigation water sourced from Phillips Reservoir to land along the Powder River north of Baker City. Phillips Reservoir is impounded by Mason Dam; maintenance and operation of these facilities is managed by the Baker Valley Irrigation District.

5.1.2.2 Powder Valley Water Control District

Wolf Creek and Pilcher Creek Reservoirs, often referred to as the Wolf Creek Reservoir Complex, are owned and operated by the Powder Valley Water Control District. The projects are a source of irrigation water for lands in the North Powder and northern Baker Valleys near the City of North Powder.

5.1.2.3 Lower Powder River Irrigation District

Operation of the Thief Valley Dam and Lower Division facilities of the Baker Project is managed by the Lower Powder River Irrigation District. Water is released as a supplemental water supply to land along the Powder River in the Keating Valley.

5.1.2.4 Burnt River Irrigation District

Irrigation in the Burnt River Subbasin is managed by the Burnt River Irrigation District. This includes operation of Unity Dam and Reservoir, located on the upper Burnt River. The project primarily provides irrigation water to lands downstream of the reservoir, near Hereford, Bridgeport, Durkee, Weatherby, Dixie, Lime and Huntington, but also serves some land upstream of Unity Reservoir.

Table 5.1.2: Irrigation district-specific management strategies and timelines that would be effective in achieving load allocations for bacteria

Source or activity	Management Strategy	Timeline
Irrigation system management; return water in contact with livestock and wildlife grazing areas	Inventory and map system and assess and prioritize locations where irrigation improvements and optimization are most needed to improve water quality	Years 1-5 after TMDL issuance
	Implement irrigation system improvements	Years 2-10 after TMDL issuance
	Implement irrigation schedule optimization	
	Implement water conservation methods	
	Implement sediment basin and tail water recovery	

5.1.3 Counties and municipalities

Baker County, Union County and Baker City are designated management agencies that must each develop a Powder River Basin bacteria TMDL Implementation Plan that includes priority management strategies listed in Tables 2a, b and Table 5.1.3 below. Each implementation plan must include the required elements described in Section 5.3 and be submitted according to the schedule in Section 5.4.

5.1.3.1 Baker County

Baker County comprises approximately 87 percent of the land area in the Powder River Basin. The majority (68 percent) of Baker County residents live in areas serviced by municipal sewage systems. Old or impaired septic systems were determined not to be a significant source of E. coli contamination to surface waters of the Powder River Basin at this time. However, the county has jurisdiction over rural residential septic system use and must ensure management strategies are in place to maintain the integrity of onsite wastewater treatment systems. Baker County also has jurisdiction over rural roadways and lands in the Sumpter dredge area, adjacent to surface waters.

5.1.3.2 Union County

Union County comprises approximately 8 percent of the land area in the Powder River Basin. The county is responsible for management of rural roads adjacent to waterbodies and manages the park located at Thief Valley Reservoir.

5.1.3.3 Baker City

Baker City's jurisdictional area makes up less than 1 percent of the land area within the Powder Rivr Basin. Baker City operates a non-permitted municipal separate stormwater sewerage system within the City limits and manages parks and other property along riparian areas.

Table 5.1.3: County and municipality-specific management strategies and timelines that would be effective in achieving load allocations for bacteria

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 and rank systems based on risk of failure	Years 1-3 after TMDL issuance: Evaluation and rank systems Years 3-5 after TMDL issuance 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 and management	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.	Independent of 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 Powder River Basin TMDL. However, some statewide or federal rules and programs related to forestry, agriculture or other sectors are in place and are intended, in part, to reduce or control nonpoint sources of pollution, like a sector-specific implementation plan.

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 be in compliance with water quality standards. Private forestry activities are not a source of bacteria loading to surface waters in the Powder River Basin and the ODA has jurisdiction over grazing activity on non-federal forestlands in Oregon.

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. There are two agricultural water quality areas in the Powder River Basin: the Powder-Brownlee and the Burnt River. ODA established the Powder-Brownlee rules and plan in 2004. The plan was most recently updated in 2018 and a light biennial review that resulted in no changes to the plan was completed in March 2021. The Burnt River rules and plan were established in 2005; the plan was last updated in 2018 and received a light biennial review in 2021. Despite implementation and biennial review of the area plans, periodic revision of the area rules and implementation of other voluntary agricultural initiatives and funding programs, significant water quality impairments continue in the Powder River Basin.

ODA, through coordination with agency and local partners, identified two Strategic Implementation Areas in the Powder River Basin, located on the Lower Powder and South Fork Burnt Rivers. The SIA process includes an assessment and compliance evaluation of agricultural lands, outreach to landowners, technical assistance, monitoring of water quality and land conditions, and landowner follow up as needed. The Lower Powder SIA was established several years ago and review of monitoring data is forthcoming. The South Fork Burnt SIA was more recently established, and landowner outreach began in fall 2022. Outcomes from both SIAs will contribute to the goals of the Powder River Basin bacteria TMDL in the areas covered by the SIAs.

Based on DEQ's analyses for this TMDL, livestock, and specifically cattle, were identified as the primary source of E. coli contamination in river reaches that exceeded the loading capacity. Exceedances of water quality criteria for E. coli occurred most frequently during the irrigation season and in areas where surrounding land use was dominated by irrigated pastures and fields. Based on the source assessment, water quality impairments for bacteria continue due to uncontrolled livestock manure deposition in contact with waters directly or through reservoir filling, irrigation return water and stormwater runoff. Livestock land use areas dominate the

basin and bacteria impairments are caused by insufficient implementation of AgWQMP requirements for livestock exclusion from waterways and control and treatment of irrigation return water.

DEQ concluded that AgWQ program area rules combined with the area plan voluntary measures are either not fully implemented throughout the basin or are not adequate to meet bacteria load allocations and achieve the E.coli water quality criteria in all areas of the Powder River Basin. Therefore, ODA is required to develop a TMDL implementation plan to be submitted to DEQ for review and approval.

5.2.3 BLM Resource Management and Water Quality Restoration Plans

US Bureau of Land Management develops geographically-specific Resource Management Plans and amendments, project-level plans and Water Quality Restoration Plans to meet applicable water quality standards. Per previous Memorandums of Understanding between BLM and DEQ, RMPs and WQRPs 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.

Currently there are no WQRPs for BLM managed lands in the Powder River Basin. BLM must develop and implement a TMDL implementation plan to support attainment of the bacteria load allocation. This plan can be incorporated into a statewide TMDL implementation plan and a Powder River Basin WQRP.

5.2.4 USFS Resource Management and Water Quality Restoration Plans

USFS signed an MOU with DEQ that defines how water quality rules and regulations regarding TMDLs will be met. USFS generally responds to TMDLs by developing and implementing WQRPs, which have served as the equivalent of TMDL implementation plans. As MOUs are updated, DEQ anticipates that USFS will develop statewide TMDL implementation plans that cover all effective TMDLs in Oregon.

Currently there are no WQRPs for USFS managed lands in the Powder River Basin. USFS must develop and implement a TMDL implementation plan to support attainment of the bacteria load allocation. This plan can be incorporated into a statewide TMDL implementation plan and a Powder River Basin WQRP.

5.2.5 ODFW Elkhorn Wildlife Area Management Plan

The ODFW is responsible for management of the Elkhorn Wildlife Area, which consists of approximately 8,836 acres located along the east slope of the Elkhorn Mountains. The wildlife area is a mix of lands owned by ODFW, USFS, BLM and leased private land. ODFW manages wildlife grazing, livestock grazing and timber harvest on these lands by means of an existing Elkhorn Wildlife Area Management Plan, completed in October 2006 and updated in October 2017. Ten winter (December 1 through approximately mid-March or April) feeding locations are maintained in order to keep up to 1,400 elk and 800 deer from wintering and feeding on agricultural lands in the Baker Valley. Two of the stations are located adjacent to perennial waterways (i.e., Anthony Creek and North Powder River). Both feeding sites are located on a

contiguous tract of property owned by ODFW. The feeding sites on this property are located along Anthony Creek (Anthony Creek Site) on the north side of the tract and the North Powder River (North Powder Site) on the south end of the tract. Rotational livestock grazing (May 1 – October 1) is used to manage and condition forage for winter use by wildlife. Small-scale timber harvests are used to manage tree stands. Small irrigated fields are maintained to provide forage. All riparian areas used for livestock grazing are fenced to protect and maintain woody vegetation.

The ODFW's Elkhorn Wildlife Management Area Plan includes strategies to protect riparian areas, maintain habitat, and manage elk and livestock. The management plan is updated every 10 years, with the last update in 2017. Because the existing management plan does not specifically address the requirements of the Powder River Basin bacteria TMDL and WQMP, ODFW must develop a TMDL implementation plan to be submitted to DEQ for review and approval.

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 plan; and,
- Any other analyses or information specified in the WQMP.

The following subsections provide detail 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 Tables 2.0a and 2.0b, strategies listed in entity specific subsections of Section 5.1 and potentially other practices and actions appropriate for operations and landscape conditions specific to the entities' pollutant sources or source sectors.

DEQ expects implementation plans to identify all areas within an entity's jurisdiction or responsibility and discuss where management strategy implementation should be targeted, as well as areas that might not need action. In some cases, completion of a comprehensive inventory of the area of responsibility may be needed as an initial step for understanding where management actions are needed and when they 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, forest land or transportation activities, this inventory should focus on assessment of

land conditions. Land condition assessment includes evaluation of infrastructure condition (pastures, roads and drainage networks), significant changes in amount of exposed or bare earth and disturbed soils, mass wasting events and other factors that are indicators of erosion and sources of fine sediment.

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 demonstrate 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. 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 must be reported to the OWRI database and noted in annual reports to DEQ. 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 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 actions tracked and effectiveness evaluations 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 measures
- Monitoring, data analysis and plan revisions
- Public education and outreach efforts
- Ordinance development

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 Powder River Basin.

Table 5.3.6: Partial list of funding programs available in the Powder River Basin

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
Drinking Water Source Protection Fund	These funds allow states to provide loans for certain source water assessment implementation activities, including source water protection land acquisition and other types of incentive-based source water quality protection measures.	Oregon Health Authority
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 hrealth damaged by natural disasters.	USDA, ODF
Environmental Protection Agency Section 319 Grants	Fund projects that 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

Program	General Description	Contact
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
Forestry 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 numerous links to 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 Powder River Basin Bacteria TMDL 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 TMDL, or documentation that an entity is not a source of pollution or does not discharge pollutants to a waterbody within the scope of this particular TMDL.

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. 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 create overarching water column sampling and analysis plans to finalize the first iteration of the Powder River Basin Monitoring Strategy, after the issuance of the TMDLs and WQMP. DEQ will continue to work with partners to implement the sampling and analysis and iteratively refine the strategy.

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 ODA and USFS 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 its 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 are 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 anticipates that monitoring efforts may consist of the following activities:

- Reports on the numbers, types and locations of projects, management strategies and practices and educational activities completed;
- Monitoring of bacteria concentrations in surface water;
- Monitoring riparian vegetation communities that function as pollutant buffers for streams; and,
- Monitoring for compliance with ODA Agricultural Water Quality Rules and to assess Strategic Implementation Areas.

6.1.1 Powder River Basin Long Term Monitoring Plan

In 2021, the Powder River Basin Watershed Council received a monitoring grant from the Oregon Watershed Enhancement Board. Powder River Basin stakeholders including community members and agency partners collaborated on development of the monitoring plan, which serves as an excellent example of a basin-wide approach to water quality monitoring. This effort is an extension of monitoring conducted over several previous years with active participation of the PBWC, along with community volunteers, schools, local agricultural organizations and state and federal agencies. PBWC initiated the monitoring plan in Spring 2022 and plan to complete it in 2024. Plan objectives will contribute to future TMDL development and implementation for dissolved oxygen, pH and phosphorus, and will provide direct support for implementation of the bacteria TMDL.

As stated in the plan objectives, the PBWC intends to monitor surface waters for a suite of parameters, including temperature, dissolved oxygen, pH, conductivity, turbidity and streamflow. The plan provides additional details about selected locations for specific parameters and measurement methods. For example, select sites will be monitored continuously for dissolve oxygen during the redband and bull trout spawning seasons.

E. coli and total phosphorus will be monitored twice a month throughout the irrigation season (May-October) from 2022-2024 to establish current concentrations of these parameters in the Burnt River. Monitoring sites for E. coli and total phosphorus were selected collaboratively by the Burnt River Local Advisory Committee, Burnt River Irrigation District, DEQ, ODA, Burnt River SWCD and the PBWC, and resultant data will be shared with DEQ. This data will be particularly helpful to DEQ for status and trends analysis, assessment of bacteria TMDL implementation and for analysis in the forthcoming phosphorus TMDL.

The plan has the potential for significant stakeholder engagement, as the PBWC intends to assemble a stakeholder group from Ag. Water Quality LAC, BRID, BLM, USFS, ODA, DEQ, WRD, ODFW and the local SWCDs to meet annually for review of data and to provide input on the past years sampling. Monitoring data and results are intended to be shared with the community and stakeholders via a final report after conclusion of the monitoring program.

6.1.2 DEQ Recommendations for Additional Monitoring

DEQ is supportive of the local monitoring plans that have been implemented as well as those that are planned for 2023-2024. DEQ recommends that local partners continue to coordinate with DEQ during the implementation of the bacteria TMDL and future development and implementation of TMDLs for dissolved oxygen, nutrients and temperature.

DEQ recommends the consideration of an additional monitoring site for bacteria and phosphorus in the Powder River between Baker City and Haines, and also at Bidwell Road, which is located above the confluence with the North Powder River. DEQ recommends that sites in the lower Powder River include the DEQ ambient monitoring site below Keating (sampled by DEQ every other month), at the flow gage above Richland, and the Snake River Road crossing below Richland. DEQ also recommends a monitoring site in lower Eagle Creek at the Snake River Road crossing.

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

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.

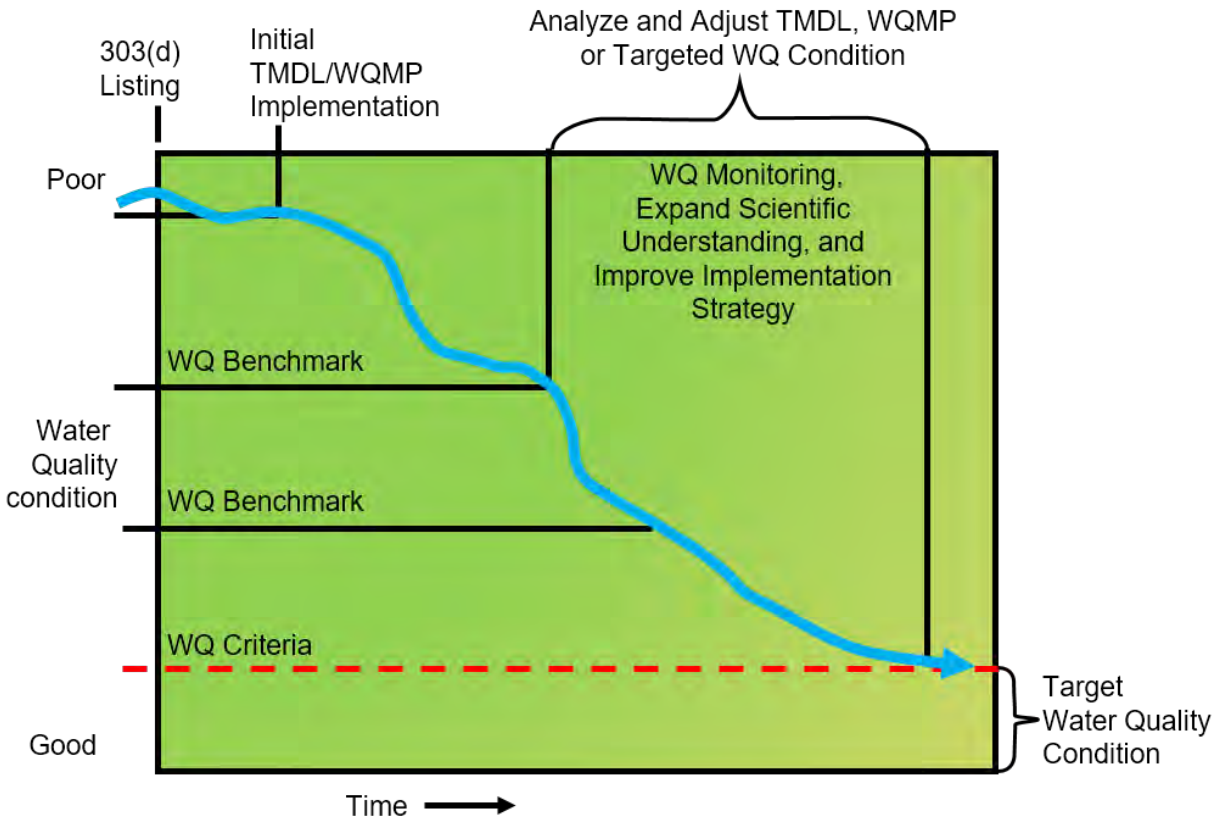

Figure 6.2: Conceptual representation of adaptive management

DEQ considers entities complying with DEQ-approved TMDL implementation plans to be in compliance with the TMDLs. The information generated by each of the DMAs or other entities compiling annual reports and gathering data in the Powder River Basin 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 Powder River Basin 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, including convening a local technical or rulemaking advisory committee to provide input, on TMDL revisions.

7. 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.

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)].

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)]. 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,” which is also consistent with EPA past practice and guidance.

Where a TMDL is developed for waters impaired by both point and nonpoint sources, it is the state’s and EPA’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 Powder River Basin Bacteria TMDL was 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. 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 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. 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 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 basin and demonstrate reduced pollutant loading. These strategies are technically feasible at an appropriate scale in order 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.

The Designated Management Agencies, responsible for implementation of pollutant reduction strategies are identified in Section 5.1. General timelines for implementing management strategies and attaining the E. coli water quality criterion are provided in Sections 3 and 4,

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 agencies 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 implementating pollutant reduction strategies to track the management strategies 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 10 or raise issues to the Environmental Quality Commission, as provided in OAR 340-042-0080.

DEQ tracks water quality status and trends concurrently as management strategies are implemented. DEQ relies on a system of interconnected evaluations, which include DMAs and responsible persons 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 Powder River Basin, as presented in Section 6. DEQ regularly prepares Status and Trends reports and conducts water quality assessments on status of all waterways 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 discharges 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 many targeted management practices across the entire basin to reduce anthropogenic pollutants, regardless of source origination.

Because the nonpoint sources of bacteria in the basin include a less significant portion of background sources and the management practices that can be employed are distributed over a wide area and among many DMAs, there is some uncertainty about the pace of achieving adequate reductions in bacteria loading to basin waters. 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 to meet state and federal requirements and attain the goals of the TMDL.

8. 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.

USACE 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 chosen 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 management strategies.

9. References

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