Water Quality Management Plan

Powder River Basin - Total Maximum Daily Load for *E. coli*

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State of Oregon
DEQ Department of Environmental Quality

This document was prepared by
Vanessa Rose, Daniel Sobota, John Dadoly, Alex Liverman

Oregon Department of Environmental Quality
Watersheds Management
700 NE Multnomah Street, Suite 600
Portland Oregon, 97232

Contact: Vanessa Rose
Powder River Basin Coordinator
Phone: 971-284-7882
www.oregon.gov/deq

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1. Introduction

Oregon's administrative rules, OAR 340-042-0030 and OAR 340-042-0040 identify the Water Quality Management Plan (WQMP) as the element of a Total Maximum Daily Load (TMDL) that provides the framework of management strategies to attain and maintain water quality standards. The framework is designed to work in conjunction with detailed plans and analyses provided in sector-specific or source-specific implementation plans.

This WQMP serves to guide implementation of the Powder River Basin TMDL for *E. coli* (also referred to as the Powder River Basin Bacteria TMDL). The WQMP identifies the entities responsible for implementing pollution reduction strategies, timelines for implementing those strategies, and approaches to gage progress in meeting TMDL targets, including periodic reporting and monitoring. The WQMP also identifies tools, resources, and approaches that Designated Management Agencies (DMAs) and other persons responsible for TMDL implementation can use to formulate monitoring and WQ protection and restoration strategies.

The WQMP for the Powder River Basin Bacteria TMDL will be proposed for adoption by Oregon's Environmental Quality Commission, by reference, into rule in OAR 340-042-0090 and will be amended as needed for issuance of any new or amended TMDLs for the Powder River Basin.

1.1 Condition assessment and problem description

An element of the WQMP provided in OAR 340-042-0040(4)(l)(A) is an assessment of water quality conditions and problem description. Oregon's 2022 Integrated Report, approved by US Environmental Protection Agency on September 1, 2022, provides assessment units in the Powder River Basin that are listed as Category 5 (impaired) for *E. coli* or fecal coliform, dissolved oxygen, pH, temperature, and phosphorus (DEQ 2022a).

As required by Section 303(d) of the federal Clean Water Act, DEQ developed a TMDL for *E. coli* water quality impairments in the Powder River Basin. The TMDL addresses *E. coli* and applies to all perennial and intermittent streams in the Powder River Basin. TMDLs addressing additional water quality impairments will be developed in the future.

The public policy of the State of Oregon is to protect, maintain, and improve the quality of waters of the state for beneficial uses and to provide for prevention, abatement, and control of water pollution. *E. coli* impairment of streams poses risk of illness for people, pets, livestock, and wildlife that use the waters within the basin for recreational contact, consumption, and irrigation. Information about the risks associated with *E. coli* and fecal contamination is described in Section 3 of the Powder River Basin Bacteria TMDL document and Section 3 of the associated 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 the WQMP is to provide the framework for implementing this TMDL to achieve and

maintain fecal bacteria (*E. coli*) water quality standards in the Powder River Basin. The objectives of the WQMP are to describe responsibilities for implementing TMDL management strategies and actions necessary to reduce excess pollutant loads to meet TMDL allocations, and to provide a strategy to evaluate progress towards attaining water quality standards in surface waters of the Powder River Basin.

2. Proposed management strategies

As required by OAR 340-042-0040(4)(l)(C), the following section presents management strategies by pollutant source that can be used 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 1 includes water protection and pollutant reduction strategies summarized by possible sources of *E. coli*. Strategies and practices are adapted from published sources, including US Department of Agriculture Natural Resources Conservation Service Field Office Technical Guide, the Oregon Department of Agriculture, Oregon State University Extension Service, and the State Index of Conservation Practice Standards for Oregon (NRCS 2022). DEQ used the categories and language from the Oregon Watershed Enhancement Board (OWEB) Oregon Aquatic Habitat Restoration and Enhancement Guide, and Oregon Watershed Restoration Inventory Online List of Treatments.

Table 1: Priority management strategies by sources of *E. coli*

Sources		Percent Reductions Needed	Water Protection and Reduction Management Strategies (and practices)
Nonpoint and background	Stormwater runoff from non-agricultural lands, agricultural stormwater, snowmelt runoff, and irrigation return water in contact with fecal matter	40% - 95%[1]	Irrigation system improvement to reduce runoff (irrigation pipeline, microirrigation, sprinkler irrigation, irrigation tailwater recovery); improved irrigation efficiency runoff management; road/collection system cleaning/maintenance; surface drainage improvement
	Animals, including livestock, pets, and wildlife in and around streams		Agricultural management; upland erosion control techniques; riparian fencing (or other animal 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; riparian area restoration or enhancement; city ordinances for pet waste cleanup
	Failing or improper septic systems	unknown	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[2]	Compliance with MS4 permit; maintain road/collection system
Note: [1]For individual stream reaches identified Table 9 of the TMDL; note that not all reaches require reductions. [2]ODOT roadway runoff has a wasteload allocation of 1% of the loading capacity.			

Practices applied in the Malheur River Basin to reduce *E. coli* inputs from flood irrigated lands are listed in Table 2. Further information is available by contacting the Oregon State University Malheur Experiment Station, the Oregon Department of Agriculture, the Malheur Soil Water Conservation District, and the USDA Natural Resources Conservation Service. These types of projects can be funded through grants from the Oregon Watershed Enhancement Board, with match provided by land owners, USDA Natural Resources Conservation Service, irrigation districts, watershed councils and other partners, and Clean Water State Revolving Fund loans for public entities (which can include principal forgiveness). Information on potential funding options is available in Section 5.3.6 and the associated resources.

Table 2: Applicable *E. coli* reduction practices for nonpoint sources

Best Management Practices for Flood Irrigated Lands
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

DEQ's source assessment suggests that runoff from areas contaminated by fecal material can contribute to excess *E. coli* loading to surface waters (DEQ 2024a; DEQ 2024b). Management strategies for reducing *E. coli* loads include:

- Irrigation modernization practices and erosion control techniques:
    - Flood irrigation to sprinkler or drip irrigation.
    - Concrete-lined irrigation ditches and piped water delivery systems.
    - Wetlands, ponds, or other sediment trapping systems.
- Best management practices for livestock manure management and management of grazed areas to reduce land surface runoff and direct deposition of manure to surface waters.
- Enhancement and protection of riparian zones to provide adequate filtration capacity for organic matter and nutrients.
- Inspection of onsite septic systems to identify those currently or at highest risk of malfunctioning.

DEQ expects entities identified in Section 4.1 to develop implementation plans that include, but are not limited to, strategies and practices listed in Tables 1, 2, and tables within section 5, as needed. At a minimum, implementation plans must include:

- Location and timing of strategies.
- Measurable objectives.
- Milestones for gaging implementation progress.
- Interim and final implementation targets for evaluating effectiveness.

Based on the analysis of available water quality data (DEQ 2024b), DEQ has identified areas in Table 3 as ones of initial focus for implementation projects to reduce *E. coli* loads. Table 3 also shows the DMAs and persons responsible for managing lands and practices in these areas. However, water quality data and other information acquired during TMDL implementation may shift or expand the focus to other areas in the basin.

Table 3: Initial focus areas for implementation of *E. coli* reduction strategies

Focus area	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 Baker City to confluence with the Snake River	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	US Bureau of Reclamation, Oregon Department of Agriculture, US Bureau of Land Management

3. Timelines for implementing strategies

OAR 340-042-0040(4)(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.

The DEQ Water Quality Permit Program has responsibility for revising permits to comply with TMDLs. Other responsible persons (RPs) and DMAs have responsibilities for developing timelines for implementation of management strategies to address nonpoint sources of pollution. Figure 1 represents an anticipated timeline for TMDL implementation in five-year increments.

Figure 1: Powder River Basin Bacteria TMDL implementation timelines

3.1 DEQ permit revision cycle

NPDES permits undergo re-evaluation on five-year cycles. ODOT was issued a statewide MS4 stormwater NPDES permit in 2020. The Powder River Basin Bacteria TMDL allocation will be implemented in the permit upon renewal. NPDES permits issued to Baker City, Huntington, and North Powder do not require further modification because these facilities currently implement permit limits that meet the *E. coli* wasteload allocations required in the TMDL.

3.2 Management strategies implemented by responsible persons

Based on analyses (DEQ 2024a), DEQ estimated timelines to attain excess pollutant load reductions. These are presented in Section 4.2 as the schedule for achieving appropriate incremental and measurable water quality targets. DEQ also estimated reasonable timelines for implementation of several priority management strategies specific to DMAs and RPs, shown in tables in subsections of Section 5.1. DEQ expects these entities to consider the timelines presented in Section 5.1 when establishing commitments for management strategies and actions in TMDL implementation plans.

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

4. Attaining water quality standards

Based on the DEQ analysis (DEQ 2024a), achieving the allocations presented in Tables 10-14 in the TMDL document will result in attainment of Oregon's water quality standards for *E. coli*. Management strategies identified in the WQMP and included in implementation plans provide measures and practices intended to reduce *E. coli* loads in the Powder River Basin.

4.1 How priority management strategies support attainment of *E. coli* water quality criteria

OAR 340-042-0040(4)(l)(E) requires an explanation of how implementing the proposed management strategies will result in attainment of water quality standards. Section 4.5 of the Technical Support Document identifies reductions in loads needed to attain Oregon's water quality standards for *E. coli*. Recommended management strategies for reduction of *E. coli* loads are included in Section 2.

Landowners, land managers, producers, conservation professionals, RPs and DMAs have the individual and collective expertise for managing site-specific conditions and practices to meet water quality standards. In Sections 2 and 5, DEQ used available information to identify focal areas in the basin for expanded *E. coli* monitoring and initial TMDL implementation by DMAs and RPs. As more information on current practices, strategies, and monitoring becomes available, focal areas may be expanded or shifted.

4.2 Timelines for attaining *E. coli* water quality criteria

OAR 340-042-0040(4)(l)(F) requires an estimated timeline for attaining water quality standards through implementation of the TMDL, WQMP, and required TMDL implementation plans.

Based on the TMDL analysis (DEQ 2024a), nonpoint sources contribute most of *E. coli* loading to surface waters in the Powder River Basin. Therefore, management should focus on nonpoint sources to meet TMDL allocations.

The timeline for water quality standard attainment will probably vary across the basin. Portions of the basin already attain *E. coli* water quality standards while other areas may need additional efforts to reduce loads. Local irrigation system improvements and other conservation projects have been funded by OWEB with contributions from NRCS and landowners. Financial and technical support from state and federal programs can support future implementation of related projects and best management practices (Section 5).

In the neighboring Malheur River and Owyhee Basins, the rate of irrigation system improvement and piping projects has accelerated over the last 10 to 15 years and improvements in water quality have been documented (DEQ 2022b). Examples of Best Management Practices for flood irrigated lands that have been used in the Malheur and Owyhee River basins are listed in Table 2.

DEQ recognizes that irrigation projects have been completed recently or are currently under way in the Powder River Basin. These projects will be considered part of implementation of the TMDL. DEQ expects improvements to water quality in the Powder River Basin through continued and expanded implementation of these types of projects over the next 10 to 15 years. Table 3 provides a list of areas that can be initially scoped for implementation; others may be identified through continued monitoring or community feedback.

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 DMAs, responsible for implementing management strategies and preparing and revising implementation plans.

OAR 340-042-0030(2) defines DMA 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” (abbreviated throughout this document as RP) with associated requirements. OAR 340-042-0025(2) indicates that responsible sources must meet TMDL load and wasteload allocations through compliance with discharge permits or other strategies developed in implementation plans. OAR 340-042-0030(9) defines “reasonable assurance” as a demonstration of TMDL implementation by governments or individuals. OAR 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 RPs, including DMAs. OAR 340-042-0080(4) reiterates the requirement of RPs, including DMAs, to develop, submit, and revise implementation plans.

For the WQMP guiding implementation of the Powder River Basin Bacteria TMDL, RP refers to an entity responsible for a possible source of *E. coli* to surface waters in the basin. Unless otherwise specified, all RPs, including DMAs, must develop, submit, implement, and revise, as needed, an implementation plan specific to the Powder River Basin Bacteria TMDL. These plans must include, but are not limited to, management strategies, timelines for implementation, a schedule for achieving milestones, a performance monitoring component, and a schedule for review and plan revision, as detailed in Section 5.3. Submittal of each plan must follow the schedule described in Section 5.4. Table 4 contains the list of these responsible persons.

Table 4: Entities responsible for development and implementation of management strategies for *E. coli* in the Powder River Basin

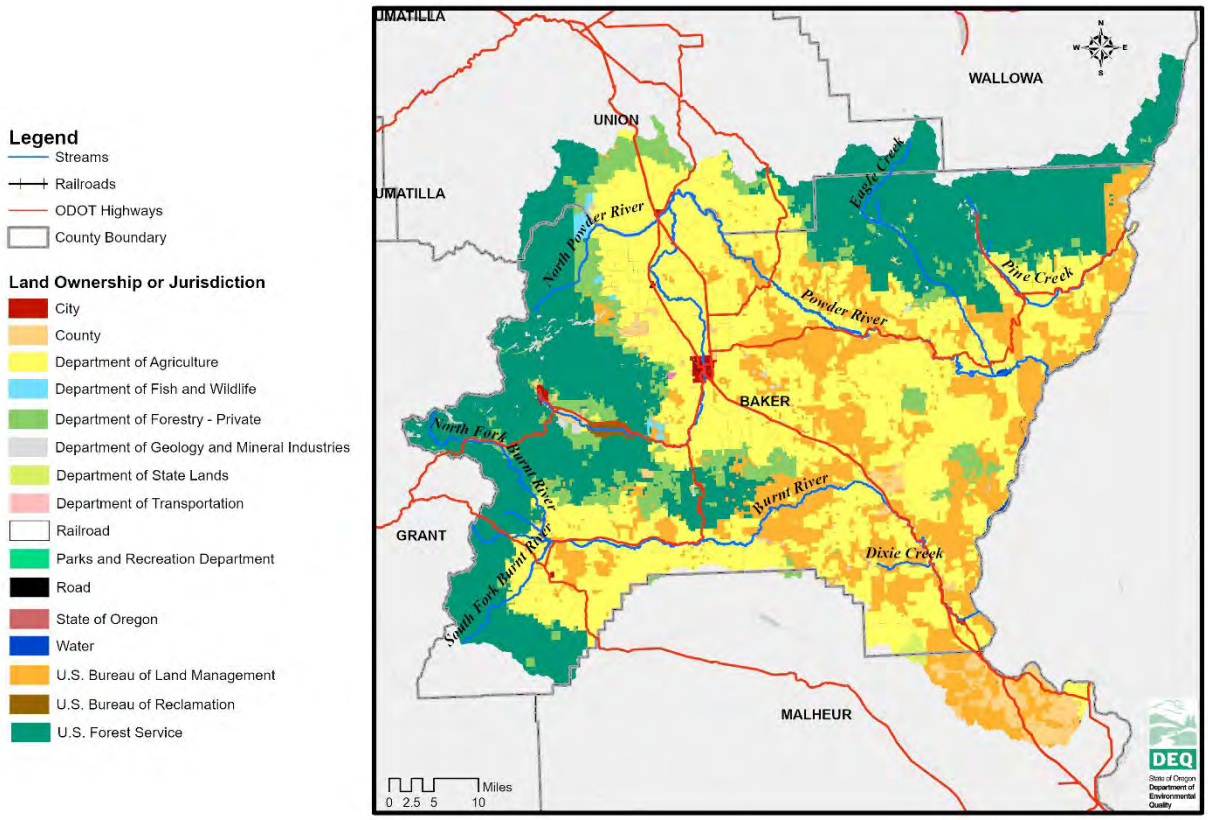
Designated Management Agency or responsible person	Jurisdiction
Oregon Department of Agriculture	Agricultural lands and activities
Oregon Department of Fish and Wildlife	ODFW managed lands and activities
Oregon Department of Forestry*	Non-federal forest lands
US Forest Service	Wallowa-Whitman National Forest managed lands
US Dept of Interior, Bureau of Land Management	BLM Vale District managed lands
Baker County	Planning and Development (zoning and rural land use), Building permits and inspections, County-

Designated Management Agency or responsible person	Jurisdiction
Union County	owned lands and roads and rights-of-way along subbasin perennial tributaries, drainage ditches within county service districts, Sumpter Valley lands (Baker), Environmental Health
US Bureau of Reclamation Columbia-Pacific Northwest Regional Office	Management of reservoir lands
Baker Valley Irrigation District	Water management, conveyance and 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, city-owned and/or managed property and facilities, maintenance, and enhancement of riparian areas within city land use jurisdiction
Oregon Department of Environmental Quality*	NPDES and WPCF permits implementation and enforcement. Statewide Onsite Wastewater Program.
Oregon Department of Transportation	Stormwater and other nonpoint sources from highways, rights-of-way, 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.	

In addition to the DMAs and RPs listed in Table 4, all people who live, work, and visit the basin can take steps to protect and restore water quality. Achievement of long-term water quality improvements in the basin will only be accomplished with leadership from local communities.

Figure 2 displays areas of land use, ownership, and jurisdiction in the Powder River Basin. The Oregon Department of Agriculture has jurisdiction for 38% of the land area in the basin. Jurisdictional areas of the US Forest Service and Bureau of Land Management are 32% and 18%, respectively. DEQ calculated Oregon Department of Transportation jurisdictional area in the basin to be <0.1%. Other entities have <1% of the area under their jurisdiction or ownership. DEQ determined that these entities have existing permit requirements or lack authorization to discharge *E. coli*.

Figure 2: Powder River Basin land ownership and jurisdiction



5.1.1 Land management and land use agencies

5.1.1.1 Oregon Department of Agriculture

The Oregon Department of Agriculture (ODA) regulates agricultural activities on private lands that can affect water quality in Oregon surface waters. ODA supervises 38% of lands in the Powder River Basin. 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 expects ODA to submit a TMDL implementation plan for the Powder River Basin. The 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 may include management strategies from Tables 1, 2, and 5, and others selected by ODA for TMDL implementation. Strategies or timelines selected as alternative to those presented in Table 5 must be documented in the implementation plan. Management strategies and practices to address gaps in pollution controls or prevention may be documented in revisions to the Area Rules or Area Plan as needed.

DEQ expects ODA to include methods and schedules to assess land conditions and current management practices in its jurisdictional areas in the implementation plan. DEQ expects ODA's assessment methods to address factors described in Section 5.3.1 in the implementation

plan, include a process for determining locations for implementation of management strategies, and consider focus areas identified in Table 3.

ODA has conducted land condition assessments to address identified Area Rule violations and included monitoring as part of the Lower Powder and South Fork Burnt River, Strategic Implementation Areas (SIA). ODA's assessment methods may build on existing SIA evaluation methods and Focus Areas to address areas with inadequate practices to manage *E. coli* loading to surface waters. The implementation plan may include descriptions of these processes for evaluation of compliance with ODA's area rules outside SIA evaluation areas.

ODA administers the Confined Animal Feeding Operation (CAFO) Program and conducts inspections of permitted CAFOs in the Powder River Basin. This information can be included in ODA's TMDL implementation plan. DEQ recognizes ODA's existing collaborative process with the Powder-Brownlee and Burnt Local Advisory Committees to encourage landowners to implement voluntary practices identified in the Area Plans. This collaboration, along with subbasin area specific collaboration with other DMAs, may be described in ODA's implementation plan.

Table 5: ODA management strategies and timelines for TMDL Implementation

Source or activity	Management Strategy	Timeline
Agricultural land condition	Work collaboratively with DMAs and local and regional partners to develop a schedule of grant proposals to fund assessment, prioritization, outreach, and implementation of *E. coli* management measures. Prioritize assessment and planned implementation for priority 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 plan to ensure BMPs to prevent runoff are in place	
	Describe plan to identify locations and assess patterns of livestock access to streams across the basin	
	Complete assessment of agricultural land conditions and domestic livestock land use	Years 1 – 3 after EQC adoption of the TMDL rule
Domestic livestock - grazing and manure management	Alter animal stocking rate or timing if necessary to reduce manure near streams	Years 1–10 after EQC adoption of the TMDL rule
	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	
Agricultural runoff	Implement irrigation system improvements and modernize water conservation practices to reduce or prevent runoff. Encourage	

Source or activity	Management Strategy	Timeline
	agricultural producers to coordinate with irrigation districts and other agricultural water suppliers to develop and implement Agricultural Water Management and Conservation Plans (WMCPs) Online: https://www.oregon.gov/owrd/programs/planning/wmcp/pages/agriculturalwatermanagement.aspx	

5.1.1.2 Oregon Department of Forestry

The Oregon Department of Forestry (ODF) has jurisdiction over forest operations on private forested lands in the Powder River Basin. ODF ensures water protection through the Forest Practices Act. DEQ's analysis does not suggest that private forestry activities are source of excess *E. coli* loading to surface waters in the Powder River Basin. ODA has jurisdiction over agricultural activities on non-federal forestlands in Oregon. ODF must meet the waterway protection measures identified in the Oregon Forest Practices Act, the associated administrative rules, and any amendments (see Section 5.2.1). DEQ considers ODF to be meeting the requirements of a TMDL implementation plan for *E. coli* by following the Oregon Forest Practices Act and any amendments.

5.1.1.3 Oregon Department of Fish and Wildlife

ODFW manages 8,836 acres in the Elkhorn Wildlife Area under the Elkhorn Wildlife Area Management Plan (ODFW 2017). The wildlife area is managed to provide winter range for elk and deer, with limited livestock grazing and timber harvest (ODFW 2017). Wildlife may be a source of *E. coli* loading to waterbodies in congregation areas, such as winter feeding stations in the Elkhorn Wildlife Area. ODFW must develop a TMDL implementation plan for the Elkhorn Wildlife Area that includes the required elements described in Section 5.3 and is submitted according to the schedule in Section 5.4. The implementation plan may include strategies listed in Tables 1, 2, and 6, or other strategies selected by ODFW for the Elkhorn Wildlife Area. Alternative strategies or timelines in Table 6 must be documented in the implementation plan. Revisions to management strategies may be documented in future updates to the existing wildlife area management plan as needed.

Table 6: ODFW management strategies and timelines for TMDL implementation

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 EQC adoption of the TMDL rule
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 and/or filter runoff in high use grazing areas	Years 3-5 after EQC adoption of the TMDL rule
	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 3,350-acres as roadway rights-of-way in the Powder River Basin (0.1% of the total basin area). ODOT is required to include Powder River Basin *E. coli* 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 wasteload allocation for *E. coli*. DEQ also expects that the need for and additional *E. coli* 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 (BLM) and US Department of Agriculture Forest Service (USFS) are responsible for management and regulation of certain forest and range lands owned by the federal government. BLM supervises 18% of lands in the Powder River Basin from the Vale District Office. Forest comprises 33% (740,400 acres) of the land area in the Powder River Basin, most of which falls under the management of the Wallowa-Whitman National Forest by USFS. Livestock graze on BLM and USFS lands through a fee-based permit system that may impact riparian conditions and cause fecal contamination of surface waters. As of May 2024, there were 93 term grazing permits issued on 110 grazing allotments on the Wallowa-Whitman National Forest and provided forage for approximately 23,800 head of cattle and 3,300 head of sheep (USFS 2024).

BLM and USFS must develop implementation plans that include the required elements described in Section 5.3 and be submitted according to the schedule in Section 5.4. The plans may include management strategies from Tables 1, 2 and 7, or practices selected by the respective agency. Plans may also consider the focus areas for implementation listed in Table 3. The plan may reference any relevant resource management and water quality restoration plans as discussed in Sections 5.2.3 and 5.2.4. If additional assessment of land conditions or current practices is needed to determine details of the plan, the process to complete the assessment will be identified in the implementation plan, the annual report, or other agreed-upon mechanism.

Table 7: BLM and USFS management strategies for TMDL implementation

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 EQC adoption of the TMDL rule
	Identify locations and assess patterns of livestock access to streams in the basin and ensure BMPs to prevent erosion and runoff are in place	

Source or activity	Management Strategy	Timeline
	Evaluate current grazing permits for animal stocking rate and timing. Alter animal stocking rate or timing if necessary to reduce manure near streams. Enforce permit requirements.	Years 1-10 after EQC adoption of the TMDL rule
	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 operated water delivery and drainage facilities in the Powder River Basin. These facilities include Mason Dam/Phillips Reservoir (Powder River), Thief Valley Dam/Reservoir (Powder River), and Unity Dam/Reservoir (Burnt River) (Figures 3, 4 and 5).

Although there are no grazing allotments within these reservoir lands, trespass cattle have been observed within the dewatered footprint of Thief Valley Reservoir on multiple occasions in recent years. USBR must develop an implementation plan to address sources of *E. coli* at the federal dam and reservoirs in the Powder River Basin. The 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 may include management strategies listed in Tables 1, 2, and 8, or other appropriate practices.

USBR must conduct and submit the results of an assessment of livestock use, landscape conditions, and current practices at the federal dam and reservoir project areas, with focus on the locations listed in Table 3. The assessment must be conducted as described in Section 5.3.1 and used to determine implementation of management strategies. The results of this assessment must be included in USBR's implementation plan submitted to DEQ within 18 months of TMDL adoption by the Environmental Quality Commission.

Figure 3: Thief Valley Reservoir Land Ownership or Jurisdiction

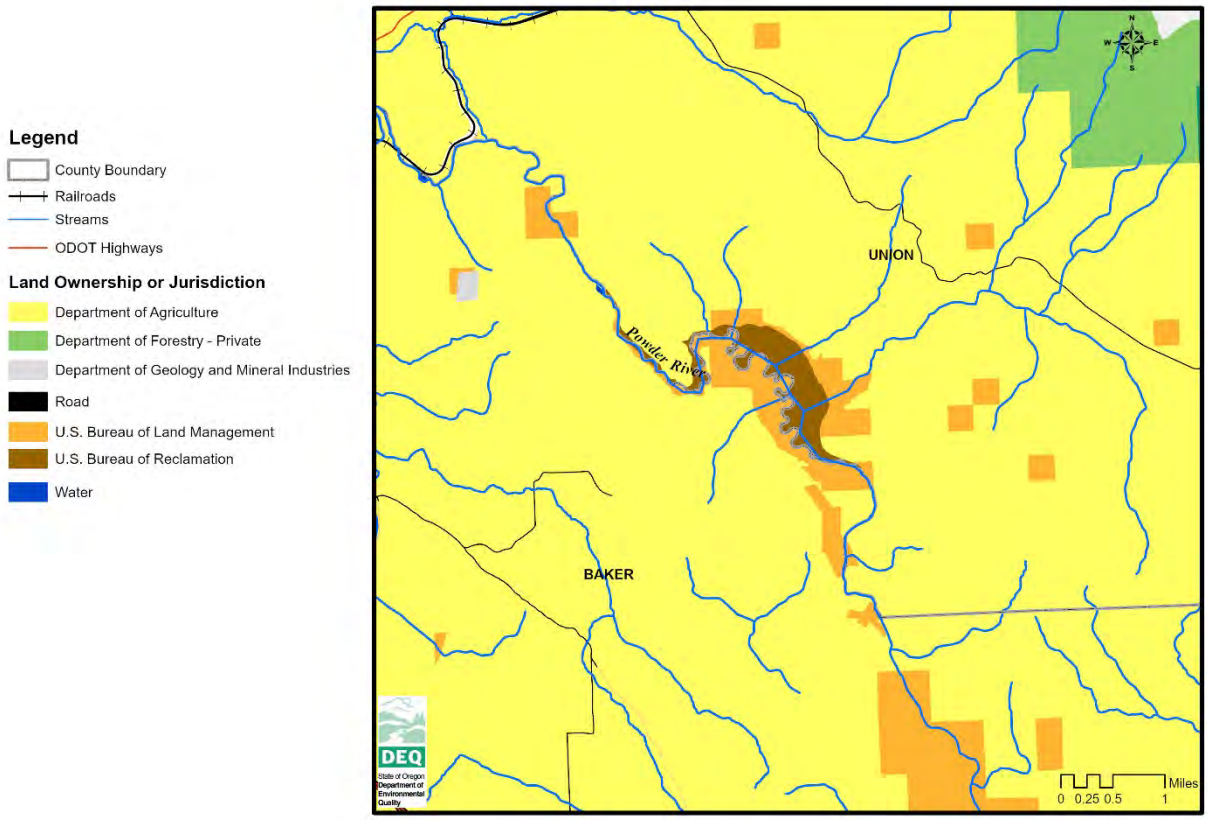


Figure 4: Phillips Lake Land Ownership or Jurisdiction

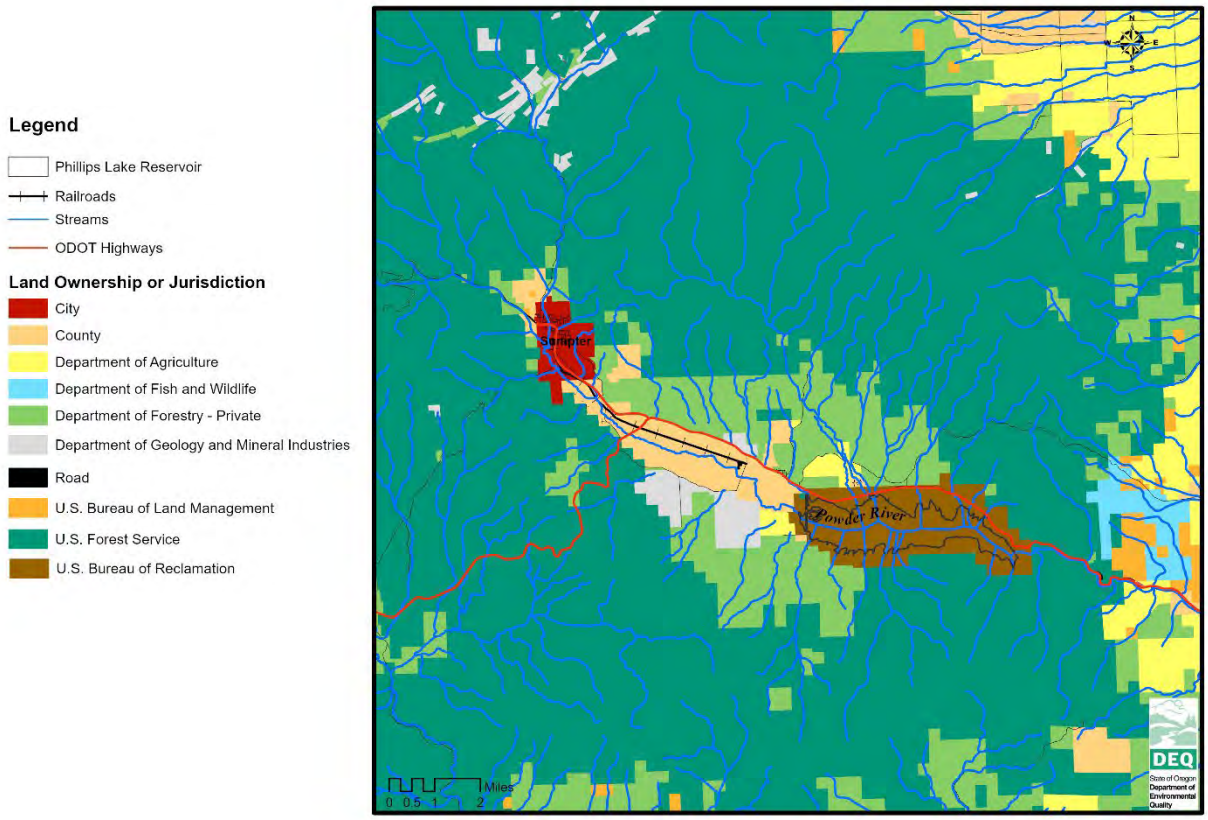


Figure 5: Unity Reservoir Land Ownership or Jurisdiction

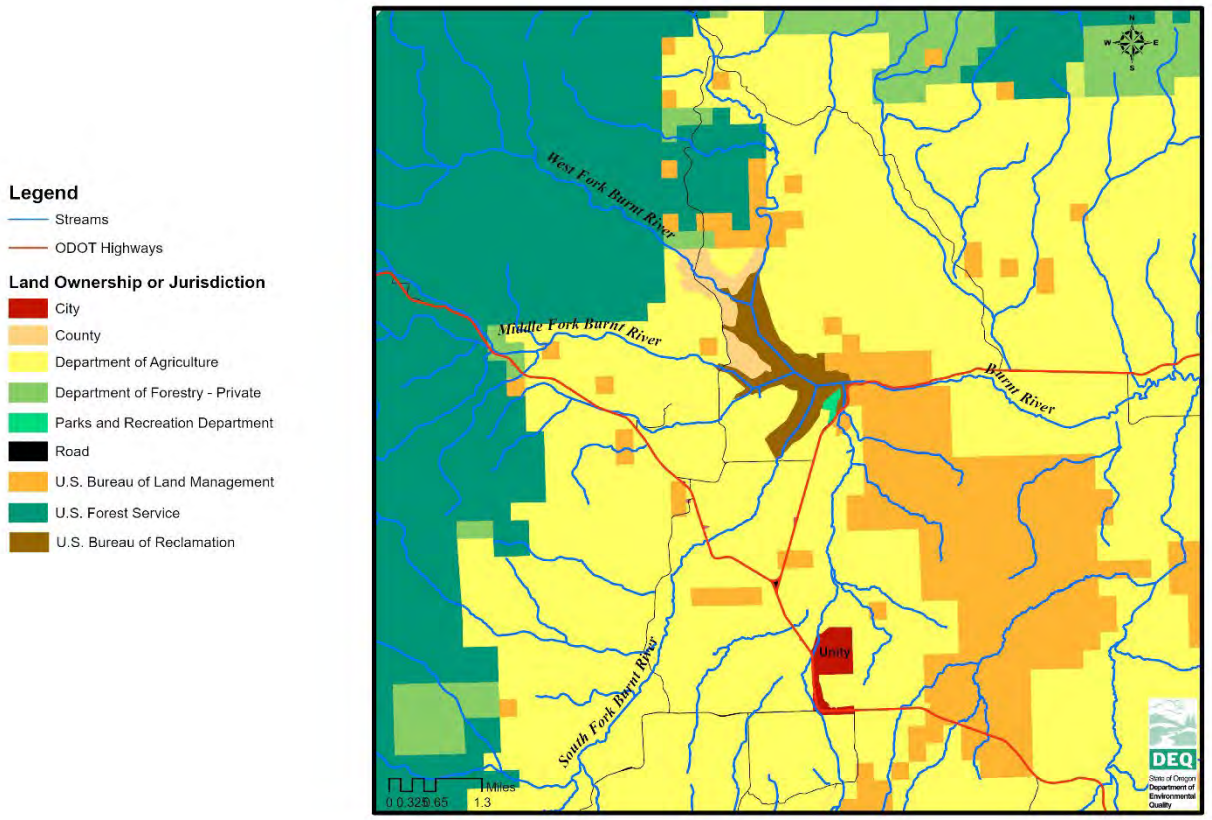


Table 8: USBR management strategies for TMDL implementation

Source or activity	Management Strategy	Timeline
Livestock use of reservoir footprint and/or adjacent lands	Assess and monitor livestock use and manure on reservoir lands	Within 18 months of EQC adoption of the TMDL rule
	Coordinate with other landowners/operators to exclude trespassing livestock from Thief Valley Reservoir	Years 1-5 after EQC adoption of the TMDL rule
	Manage potential livestock impacts at Phillips and Unity Reservoirs	
	Develop a manure management strategy to meet *E. coli* TMDL load allocations	

5.1.2 Irrigation districts

Irrigation and drainage districts are RPs required to develop unified or district-specific TMDL implementation plans to manage *E. coli* loading 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) may include management strategies found in Tables 1, 2, and 9. 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 and measurable objectives and milestones for ensuring implementation and gaging 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 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 are 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 9: Irrigation district management strategies for TMDL implementation

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. Develop and maintain GIS-based spatial data of systems that can be periodically updated.	Years 1-5 after EQC adoption of the TMDL rule
	Implement irrigation system improvements	Years 2-10 after EQC adoption of the TMDL rule
	Implement irrigation schedule optimization	
	Implement water conservation methods	
	Implement sediment basin and tail water recovery	
	Prepare a water management and conservation plan (WMCP) if one is not required by OWRD in existing water rights permit.	

5.1.3 Counties and municipalities

Baker County, Union County, and Baker City are identified as DMAs that each must develop a Powder River Basin *E. coli* TMDL Implementation Plan. These plans may include management strategies listed in Tables 1, 2, and 10 or selected by the county or municipality. 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 87% of the land area in the Powder River Basin. Baker County has authority for planning and development through zoning, land use requirements, and building permits and inspections. These programs have requirements that are intended to prevent public health and safety risks through respective codes and ordinances. Baker County has jurisdiction over county-owned and maintained roads and rights- of-way as well as lands in the Sumpter dredge area, adjacent to surface waters.

The County is expected to ensure that its roads and facilities programs have best management practices in place to detect or prevent wastes from human activities from entering waters of the state through county-maintained properties and stormwater conveyances.

Sixty-eight percent of Baker County residents live in areas serviced by municipal sewage systems. In areas not serviced, aging or poorly maintained septic systems are a potential source of *E. coli* and other pathogens (Hoghoogh et al 2021, Verhougstraete et al 2015). DEQ concluded in the source assessment for bacteria and *E. coli* (TSD, Section 5.2.2 Residential septic systems) that septic systems were a possible source of *E. coli* contamination to surface waters of the Powder River Basin. Since periodic system failures occur due to a variety of factors, further evaluation of the systems that pose higher risk of failure is warranted.

As rural housing across the state and in the Basin ages, it is likely that many onsite wastewater treatment systems reach or near the end of service. The number and location of the at-risk systems cannot be determined without a more thorough evaluation based on the factors identified in the source assessment, including system age, materials of construction, repair, and maintenance history.

Under OAR 340-071-0120, Oregon DEQ has entered into agreements with relevant Oregon counties authorizing those counties to become DEQ's agents for permitting onsite systems. Currently, DEQ administers the Onsite Program in Baker County. The county may enter into an agreement with DEQ to be the Onsite Program agent in the future. In administering the program, DEQ is responsible for regulating the siting, design, installation, and ongoing operation and maintenance of onsite septic systems. The regulatory programs in place at DEQ are intended ensure onsite systems are properly sited, installed, and maintained to prevent causing or contributing to water quality violations, and onsite systems are designed to produce no bacteria loads to surface waters. For systems that may be at the end of service life, several septic system funding options are identified in Table 11 (below) including the State of Oregon, Craft3, and national financing programs available through US EPA, the US Department of Agriculture (USDA), as well as other agencies.

Baker County is expected to coordinate with DEQ on developing an assessment process to identify Onsite systems at higher-risk of failure and in assisting lower-income property owners in the identification of funding strategies for system that need repairs or replacement.

5.1.3.2 Union County

Union County comprises 8% of the land area in the Powder River Basin. Union County has authority for planning and development through zoning, land use requirements, and building permits and inspections. These programs have requirements that are intended to prevent public health and safety risks through respective codes and ordinances.

Union County has jurisdiction over county-owned and maintained roads and rights of way adjacent to waters of the state and manages the park located at Thief Valley Reservoir. The County is expected to ensure that its roads and facilities programs have best management practices in place to detect and prevent wastes from human activities from entering the surface waters through county-maintained properties and stormwater conveyances.

Based on DEQ's source assessment, septic systems are a possible source of *E. coli* and other pathogens to surface waters (Section 5.1.3.1). Currently, DEQ administers the Onsite Program in Union County and is responsible for regulating the siting, design, installation, and ongoing operation and maintenance of onsite septic systems. The county may enter into an agreement with DEQ to be the Onsite Program agent in the future. The regulatory programs in place at DEQ are intended ensure onsite systems are properly sited, installed, and maintained to prevent water quality violations. Onsite systems are designed to produce no bacteria loads to surface waters.

Union County is expected to coordinate with DEQ on developing an assessment process to identify Onsite systems at higher-risk of failure and in assisting lower-income property owners in the identification of funding strategies for system that need repairs or replacement.

5.1.3.3 Baker City

Baker City's jurisdictional area makes up less than 1% of the land area within the Powder River Basin. Baker City operates a non-permitted municipal separate stormwater sewerage system (MS4) within the City limits and manages parks and other property along riparian areas including the Powder River. Activities on city-owned or managed property and facilities (e.g., parks, roads, rights-of-way) represent a possible source of *E. coli* and other pathogens to surface waters. Therefore, DEQ has identified the city as a municipal (urban) DMA and identified basic strategies to ensure that its municipal programs have best management practices in place to prevent wastes from entering the surface waters via city-maintained facilities and stormwater conveyances.

Table 10: County and municipality management strategies for TMDL implementation

Source or activity	Management Strategy	Timeline
Onsite Wastewater Treatment Systems and septic systems	Coordinate with DEQ on developing an assessment of near-stream septic systems (age, tank type, condition) to evaluate potential failure risk and rank systems for review based on risk of failure	Years 3-5 after EQC adoption of the TMDL rule and annually thereafter: Evaluation and rank systems; Conduct outreach on
	Identify onsite system data sources and tools, including County records (such as year-built), spatial data, and other available information	

Source or activity	Management Strategy	Timeline
	Coordinate with DEQ to prioritize tax lots for education and outreach, inspection and/or repair assistance based on results of analyses Offer free or subsidized septic system inspections to highest priority properties	inspection and repair and replacement funding
	Participate in developing and facilitating financial assistance mechanisms (e.g., Craft3, community low interest loan program)	
Land use/ development and land management Local codes and ordinances; municipal operations	Fully enforce local land use, development, and building codes and plans that require best management practices to ensure setbacks and riparian protections are in place to filter fecal matter and minimize erosion and sediment delivery to waters of the state from land development and building activities. Develop or revise codes or voluntary programs as needed to prevent fecal contamination. Enforce pet waste clean-up ordinances. Evaluate activities in city-owned and managed parks, roads and rights-of-way for potential sources of fecal contamination and identify strategies and actions to mitigate water pollution from these sources through compliance with local codes.	Independent of approval of TMDL implementation plan; on-going Submit list of relevant codes with Implementation plan. Identify dates for code revisions, if needed; Years 3-5 after EQC adoption of the TMDL rule

5.2 Existing implementation plans

OAR 340-042-0040(4)(l)(H) requires identification of any source or sector-specific implementation plans available at the time of TMDL adoption by the Environmental Quality Commission. Implementation plans were not developed prior to adoption by the Environmental Quality Commission 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.

5.2.1 Adequacy of Forest Practices Act for TMDL implementation

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 administrative rules along with voluntary measures, are generally considered to compliant with water quality standards. Private forestry activities have not been identified as a source of excess *E. coli* loading to surface waters in the Powder River Basin. ODA has jurisdiction over agricultural activities including grazing on non-federal forestlands in Oregon.

5.2.2 Adequacy of Agricultural Water Quality Management Area Rules and Plans for TMDL implementation

The Agricultural Water Quality Management Program was established in 1993 under ORS 568.900 through 568.933, 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 recently updated in 2018 and a 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 biennial review in 2021. ODA signed a MOU with DEQ that defines how water quality rules and regulations regarding TMDLs will be met.

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 initiated in 2018 and the South Fork Burnt SIA was initiated in 2021. Outcomes from both SIAs will contribute to the goals of the Powder River Basin *E. coli* TMDL in the areas covered by the SIAs.

Based on DEQ's source assessment, agricultural areas were identified as a source of *E. coli* loading in stream reaches with excess loads. Exceedances of water quality criteria for *E. coli* occurred in areas with irrigated pastures and fields. Powder River Basin streams continue to be identified as impaired for *E. coli* on Oregon's Integrated Report 303(d) list (DEQ 2022a). Fecal contamination of waters draining agricultural lands may be contributing to these ongoing impairments.

DEQ concluded that the ODA Water Quality program area rules combined with the area plan voluntary measures may not reduce *E. coli* loading at all locations. Therefore, ODA is expected to develop a TMDL implementation plan to be submitted to DEQ for review and approval within 18 months of TMDL adoption by the Environmental Quality Commission.

5.2.3 BLM Resource Management and Water Quality Restoration Plans

US Bureau of Land Management develops geographically specific Resource Management Plans (RMPs) and amendments, project-level plans, and Water Quality Restoration Plans (WQRPs) to meet applicable water quality standards. In previous Memorandums of Understanding (MOUs) between BLM and DEQ, RMPs and WQRPs served as BLM's implementation plan to meet TMDL requirements for specific geographic areas. Previous MOUs also required monitoring to ensure that practices were effective in meeting water quality standards and could be adjusted if water quality standards were not achieved. As MOUs are updated, DEQ anticipates that BLM will develop statewide TMDL implementation plans that cover all effective TMDLs in Oregon.

Currently WQRPs for BLM managed lands in the Powder River Basin do not exist. BLM must develop and implement a TMDL implementation plan to attain *E. coli* water quality criteria. This plan may 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 a 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 WQRPs for USFS managed lands in the Powder River Basin do not exist. USFS must develop and implement a TMDL implementation plan to attain *E. coli* water quality criteria. This plan may be incorporated into a statewide TMDL implementation plan and a Powder River Basin WQRP.

5.2.5 ODFW Elkhorn Wildlife Area Management Plan

ODFW is responsible for management of the Elkhorn Wildlife Area, which consists of 8,836 acres on the east slope of the Elkhorn Mountains. ODFW manages wildlife grazing, livestock grazing, and timber harvest on these lands by means of an existing Elkhorn Wildlife Area Management Plan (ODFW 2017). Ten winter feeding locations are maintained to the numbers of elk and deer from feeding on agricultural lands in the Baker Valley. Rotational livestock grazing (May 1-October 1) is used to manage and condition forage for winter use by wildlife.

The ODFW's Elkhorn Wildlife Management Area Plan (ODFW 2017) includes strategies to protect riparian areas, maintain habitat, and manage elk and livestock. Because the existing management plan does not address the requirements of the Powder River Basin *E. coli* TMDL and WQMP, ODFW must submit an implementation plan to DEQ for review and approval within 18 months of TMDL adoption by the EQC.

5.3 Implementation plan requirements

As required in OAR 340-042-0080, 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.
- Any other analyses or information specified in the WQMP.

The following subsections outline components required by the WQMP to be included in implementation plans. DEQ expects to work with each entity required to develop a TMDL implementation plan to ensure that 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 expects to 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 (USEPA 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 1 and 2, strategies listed in entity specific subsections of Section 5.1, and other practices and actions appropriate for operations and landscape conditions specific to the entities' jurisdictions.

DEQ expects implementation plans to identify all areas in an entity's jurisdiction, priority implementation areas, and low priority areas. Completion of an inventory of the jurisdiction area may be needed to identify areas in need of management actions and timing of implementation. Selection of management strategies that differ from those identified by DEQ must include an explanation of the strategy. Sources associated with agriculture, forestland, or transportation activities may focus on assessment of land conditions in an inventory. Land condition assessment includes evaluation of infrastructure condition (pastures, roads, and drainage networks), changes in amount of bare earth and disturbed soils, mass wasting events, and other factors that indicate erosion.

5.3.2 Timeline and schedule

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

Timelines and milestones may be informed by the inventory of the area of jurisdiction (Section 5.3.1). Each entity must consider of all relevant factors. Selection of management strategy implementation timelines that differ from those put forth by DEQ must include an explanation justifying the choice.

5.3.3 Reporting on performance monitoring and plan review and revision

5.3.3.1 Reporting on performance monitoring

Implementation plans must include a commitment to prepare annual reports on performance monitoring and submission dates 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 effectiveness.
The numbers, types, and locations of projects, best management practices, education activities, and other actions must be tracked to assess implementation actions. 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 voluntary management practices, unreported actions may not count toward evaluation of TMDL implementation progress.

Implementation plans must include periodic assessment of the effectiveness of implementation activities in improving management practices, land condition, or community actions. Annual reports must summarize the status and results of these evaluations. 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 needed, and approved by DEQ every five years. DEQ will use the annual reports of actions tracked and effectiveness evaluations for reviews. If implementation plan revisions are needed 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(4)(l)(L), implementation plans prepared by DMAs 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 described in EPA's Handbook for Developing Watershed Plans to Restore and Protect Our Waters (USEPA 2008). Implementation plans and amended versions must be posted to a publicly accessible website or made available in hard copy upon request.

5.3.5 Maintenance of strategies over time

As required in OAR 340-042-0040(4)(l)(M), implementation plans prepared by RPs and DMAs may 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(4)(l)(N), this section provides a general discussion of costs and funding for implementing management strategies. Implementation of management strategies to reduce and 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. Management practices, such as preventative infrastructure maintenance, may result in long-term cost savings to DMAs or landowners.

OAR 340-042-0040(4)(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 RPs prepare the following level of economic analysis. The analysis may 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. Considerations include, but are not limited to:

- 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 financial incentives, technical assistance programs, grant funding and low interest loans for public entities and with principal forgiveness available in Oregon that may be used to support implementation of assessment, pollution controls and watershed restoration actions or land condition improvements that improve water quality in the Powder River Basin.

Table 11: 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, depending on eligibility to receive CWSRF assistance	Oregon DEQ Clean Water State Revolving Fund https://www.oregon.gov/deq/wq/cwsrf/Pages/CWSRF-Contacts.aspx
DEQ Onsite Septic Financial Aid Program and Craft3 Statewide Project	Several types of financial resources are available depending on eligibility	Oregon DEQ Onsite Septic Program onsiteseptic.info@deq.oregon.gov.
Conservation Reserve Enhancement Program (CREP)	Provides annual rent to landowners who enroll eligible agricultural lands along streams. Also cost-shares conservation practices such as riparian tree planting, livestock watering facilities, and riparian fencing.	NRCS-Farm Services Agency, 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

Program	General Description	Contact
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 health 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,	NRCS, SWCDs

Program	General Description	Contact
	nutrient and manure management, fish habitat improvements, and riparian plantings.	
Agriculture Water Quality Support Grant	Provides capacity to support voluntary agricultural water quality work in small watersheds and to meet the goals of the Agricultural Water Quality Management Area Plans and the SIA initiative.	ODA
Farm and Ranchland Protection Program (FRPP)	Cost-shares purchases of agricultural conservation easements to protect agricultural land from development.	NRCS, SWCDs, ODF
Federal Reforestation Tax Credit	Provides federal tax credit as incentive to plant trees.	Internal Revenue Service
Grassland Reserve Program (GRP)	Provides incentives to landowners to protect and restore pastureland, rangeland, and certain other grasslands.	NRCS, Farm Service Agency, SWCDs
Landowner Incentive Program (LIP)	Provides funds to enhance existing incentive programs for fish and wildlife habitat improvements.	US 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
OWEB – Oregon Agricultural Heritage Program (OAHP)	Program provides voluntary incentives to farmers and ranchers to support practices that maintain or enhance both agriculture and	OWEB (Program Coordinator) https://www.oregon.gov/oweb/grants/oahp/Pages/oahp.aspx

Program	General Description	Contact
	natural resources such as fish and wildlife on agricultural lands.	
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 US Fish and Wildlife Service and other cooperating groups.	US 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 may 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 https://narcdc.org/find-your-local-rcd/
ODF Small Forestland Investment in Stream Habitat (SFISH) Grants	Provides funding for Small Forestland Owners (SFO's) to improve road conditions and stream crossings as part of forest operations.	ODF, ODFW
State Forestation Tax Credit	Provides for reforestation of under-productive forestland not covered under the Oregon Forest Practices Act. Situations include brush and pasture conversions, fire damage areas, and insect and disease areas.	ODF

Program	General Description	Contact
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
ODFW Riparian Lands Tax Incentive Program	offers a property tax incentive to property owners for improving or maintaining qualifying riparian lands which can include up to 100 feet from a waterway.	ODFW: https://www.dfw.state.or.us/lands/tax_overview.asp
Funding Resources for Watershed Protection and Restoration	EPA's Funding Resources for Watershed Protection and Restoration (USEPA 2023) contains numerous links to funding sources	US EPA 2023
Septic System Funding	Links to various septic system grant or loan programs	DEQ: https://www.oregon.gov/deq/Residential/Pages/Onsite.aspx EPA: https://www.epa.gov/septic/frequent-questions-septic-systems#maintaining

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 adoption of the Powder River Basin Bacteria TMDL and WQMP by the EQC, RPs and DMAs must submit implementation plans to DEQ for review and approval.

OAR-340-012-0055(1)(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 identifies failure to report by the reporting deadline, as required by DEQ order or rule, as a Class I violation.

If a DMA or RP fails to submit an TMDL implementation plan for approval, DEQ may pursue enforcement under OAR 340-012-0055(1)(e) or identify individual sources (landowners/operators) as persons responsible for developing and implementing TMDL implementation plans. DEQ may revise the WQMP or issue individual orders to identify additional RPs and notify them of the required schedule for submitting implementation plans.

Following the adoption of the TMDL and WQMP, DEQ may determine that 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 of why a plan is not necessary. The determination may be based on a variety of factors such as inaccurate identification within the geographic scope of the TMDL, documentation that an entity is not a source of pollution, or the entity does not discharge pollutants to a waterbody within the scope of this TMDL.

Once approved, DEQ expects implementation plans to be executed according to the timelines and schedules for achieving measurable milestones specified in 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. 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.

DEQ will engage with DMAs, RPs, and local partners to encourage coordination of monitoring activities in the Powder River Basin and participation in development of a Monitoring Strategy for the TMDL. With input from these parties, DEQ will develop overarching water column sampling and analysis plan(s) to finalize the first iteration of the Powder River Basin Monitoring Strategy, after the adoption of the TMDL and WQMP. DEQ will continue to work with partners to implement the sampling and analysis plan(s), review the results and iteratively refine the strategy, as appropriate.

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 the 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, BLM, and USFS to conduct monitoring in their respective jurisdictional areas and ownerships to determine the status of instream water quality and landscape conditions. DEQ expects efforts to be incremental, 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.

A DMA may also monitor administration of its regulatory or voluntary program separately from activities conducted under elements of a TMDL implementation plan. These DMAs may include information from the activities in the annual reporting to DEQ that are relevant to the objectives listed above.

Environmental media and water column monitoring activities conducted by DMAs to meet TMDL objectives and the collection and management of data need to adhere to Quality Control procedures and Quality Assurance protocols established by US EPA or other appropriate organizations such as DEQ's Volunteer Monitoring Program. 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 2023).

The use of bacterial/DNA source tracking (BST) methods can also facilitate TMDL implementation by clarifying the presence and relative importance of sources of fecal bacteria (such as human vs. animal) and refine selection of appropriate management strategies. BST methods are particularly helpful when used as supplemental to traditional methods of water quality monitoring for *E. coli*. DEQ supports the use of EPA-endorsed BST methods (USEPA 2011) in implementation of the Powder River Basin *E. coli* TMDL.

DEQ anticipates that monitoring and reporting 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 *E. coli* concentrations in surface water.
- Monitoring riparian vegetation communities that function as pollutant buffers for streams.
- 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 (PBWC) received a monitoring grant from the Oregon Watershed Enhancement Board. Interested parties in the Powder River Basin, including community members and agency partners, collaborated on development of the monitoring plan, which represents a basin-wide approach to water quality monitoring. 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 *E. coli* TMDL. Resultant data will be shared with DEQ and will be useful for the statewide water quality status and trends analysis project, assessment of *E. coli* TMDL implementation effectiveness, and for analysis in determining phosphorus conditions in surface waters across the Basin.

The plan also represents opportunities for significant agency and community engagement, as the PBWC intends to assemble a group of representatives 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 interested parties via a final report after conclusion of the monitoring program.

6.1.2 DEQ Recommendations for Additional Monitoring

DEQ supports the local monitoring plans that have been implemented and planned for the future. DEQ recommends that local partners continue to coordinate with DEQ during the implementation of the *E. coli* TMDL and participate in future development and implementation of TMDLs for dissolved oxygen, nutrients, and temperature.

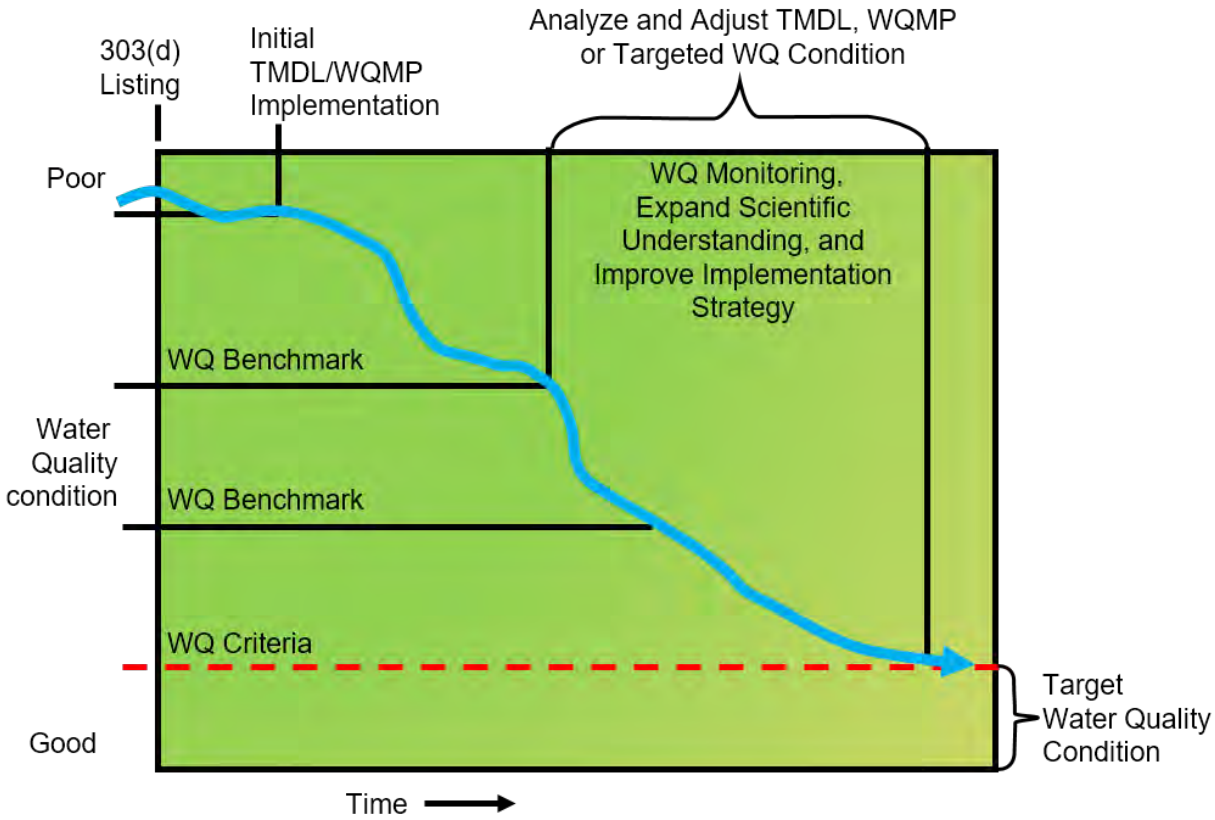
DEQ recommends the consideration of additional monitoring site(s) for *E. coli* and phosphorus in the Powder River between Baker City and Haines and at Bidwell Road, located above the confluence with the North Powder River. DEQ recommends that sites in the lower Powder River include the DEQ ambient monitoring site below Keating (sampled by DEQ every other month), at the OWRD 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 monitoring and management strategies identified in a WQMP and the approved implementation plans are fully implemented and effective in reducing and controlling pollution. DEQ also recognizes that despite best efforts, natural disturbances may interfere with or delay attainment of the TMDL. Such events include, but are not limited to, floods, large fires, 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 to refine plans and actions. A conceptual representation of the TMDL adaptive management process is presented in Figure 6.

Figure 6: Conceptual representation of adaptive management



DEQ considers entities that are executing their DEQ approved TMDL implementation plans to be in compliance with TMDL and WQMP rules or orders. The annual reports and Year Five Reviews submitted to DEQ by each of the RPs, including DMAs, in the Powder River Basin will be evaluated individually and collectively. DEQ will use this information to determine whether management actions are supporting progress towards TMDL objectives, or if changes in management actions and/or TMDLs are needed.

DEQ will review annual reports, participate with DMAs and other RPs 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. Monitoring data that is submitted to DEQ by RPs or other monitoring groups and meets DEQ's quality control standards will be included in these evaluations.

- If 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.
- If 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 whether revisions to the TMDL are warranted. 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 proposed TMDL revisions.
- If DEQ collects or receives additional data and analyses show that substantive changes may be made to the *E. coli* TMDL point source and/or nonpoint source allocations, DEQ will schedule a date for revisions to the Powder River Basin *E. coli* TMDL in the statewide TMDL workplan.

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. 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.

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" in 40 CFR 130.2(i). For TMDL approval, EPA guidance on the TMDL process requires determinations that allocations are appropriate to implement water quality standards and reasonable assurance that nonpoint source controls will achieve load reductions whereas WLAs are based on an assumption that nonpoint source load reductions will occur (USEPA 1991, 2002a and 2012).

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

Where a TMDL is developed for waters impaired by both point and nonpoint sources, OAR 340-042-0040(6)(g) provides for reasonable assurance that the TMDL's load allocations will be achieved.

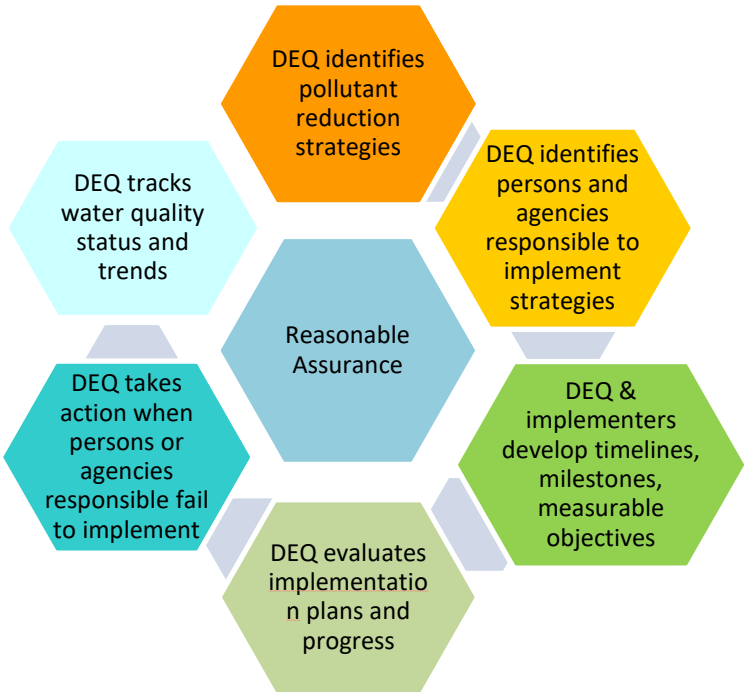
Where there is a demonstration that nonpoint source load reductions can and will be achieved, a determination that reasonable assurance exists; and allocation of greater loads to point sources is appropriate. Without a demonstration of reasonable assurance that relied upon nonpoint source reductions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

The Powder River Basin *E. coli* 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 the needed reductions in nonpoint sources will be achieved relies on the accountability framework in the WQMP and implementation plans developed by RPs and DMAs. The approach mimics the one adopted by EPA for the Chesapeake Bay TMDL in 2010. Figure 7 presents the accountability framework elements, which are intended to work in concert to demonstrate reasonable assurance of implementation.

Figure 7: 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 according to 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 already being implemented within the basin and demonstrate reduced pollutant loading. These strategies are technically feasible at an appropriate scale to meet the allocations. A high likelihood of implementation is demonstrated because DEQ reviews the individual implementation plans and proposed actions for adequacy and establishes a monitoring and reporting system to track implementation and respond to any inadequacies.

The DMAs 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. Specific timelines, milestones, and measurable objectives will be specified in each required implementation plan. These elements support timely action by DEQ and other DMAs responsible for implementation.

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

Following implementation plan reviews, DEQ will take appropriate action if the DMAs or RPs fail to develop or effectively implement their implementation plan or fulfill milestones. DEQ's actions can take two tracks, 1) enforcement or 2) engagement in voluntary initiatives. DEQ uses both tracks, 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 periodically evaluates water quality status and trends as management strategies are implemented. DEQ relies on a system of interconnected evaluations that include DMAs and RPs meeting measurable objectives, demonstration of effective 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 its ambient and project-specific monitoring programs, including monitoring plans developed specifically for the Powder River Basin described in Section 6. DEQ periodically prepares Status and Trends reports and conducts water quality assessments on status of all waterways in Oregon approximately every two years, as required for submittal to EPA for approval as Oregon's Integrated Report, Section 303(d) List of Category 5 Water Quality Limited Waters. Together, these data and evaluations allow refinement of focus on specific geographic areas or pollutants 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 *E. coli* in the basin include a 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 calculated reductions in *E. coli* 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

Oregon Administrative Rule 340-042-0040(4)(l)(O), provides for citation of 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 to approve or disapprove 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 that is designed to restore the water quality, and to be 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. Regarding 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 a rule in response to Section 4(d) in July of 2000 (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 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.
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) 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, 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 provided in ORS 468B.050, that are: 1) NPDES permits for waste discharge into waters of the United States, and 2) 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 through 468B.047; and OAR 340-048.

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 DMA 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 through 660 that 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 in 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 basin that need to be addressed and outline ways to correct the problems. Agricultural Water Quality area rules for areas within the Powder Basin include Powder-Brownlee in OAR 603-095-3600 to 3660 and the Burnt River in OAR 603-095-3200 to 3260.

Municipal Local Ordinances

Local governments are expected to describe in their implementation plans 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. Acknowledgements

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