OREGON DEPARTMENT OF AGRICULTURE

North and Middle Forks John Day River Agricultural Water Quality Management Area Plan

July 2025

Developed by the

Oregon Department of Agriculture

and the

North and Middle Forks John Day River Local Advisory Committee

with support from the

Monument Soil and Water Conservation District

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Table of Contents

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Acronyms and Terms

Ag Water Quality Program – Agricultural Water Quality Program
Area Plan – Agricultural Water Quality Management Area Plan
Area Rules – Agricultural Water Quality Management Area Rules
CAFO – Confined Animal Feeding Operation
CWA – Clean Water Act
DEQ – Oregon Department of Environmental Quality
GWMA – Groundwater Management Area
HUC – Hydrologic Unit Code
LAC – Local Advisory Committee
LMA – Local Management Agency
Management Area – Agricultural Water Quality Management Area
NRCS – Natural Resources Conservation Service
OAR – Oregon Administrative Rules
ODA – Oregon Department of Agriculture
ORS – Oregon Revised Statute
OWEB – Oregon Watershed Enhancement Board
OWRI – Oregon Watershed Restoration Inventory
PSP – Pesticide Stewardship Partnership
SIA – Strategic Implementation Area
SWCD – Soil and Water Conservation District
TMDL – Total Maximum Daily Load
US EPA – United States Environmental Protection Agency

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Foreword

This Agricultural Water Quality Management Area Plan (Area Plan) provides guidance for addressing water quality related to agricultural activities in the Agricultural Water Quality Management Area (Management Area). The Area Plan identifies strategies to prevent and control water pollution from agricultural lands through a combination of outreach programs, suggested land treatments, management activities, compliance, and monitoring.

The Area Plan is neither regulatory nor enforceable (Oregon Revised Statute (ORS) 568.912(1)). The Area Plan refers to associated Agricultural Water Quality Management Area Rules (Area Rules). The Area Rules are Oregon Administrative Rules (OARs) and are enforced by the Oregon Department of Agriculture (ODA).

Required Elements of Area Plans

Area Plans must describe a program to achieve the water quality goals and standards necessary to protect designated beneficial uses related to water quality as required by federal and state law (OAR 603-090-0030(1)).

Plan Content

Chapter 1: Agricultural Water Quality Program Purpose and Background. Presents consistent and accurate information about the Ag Water Quality Program.

Chapter 2: Local Background. Provides the local geographic, water quality, and agricultural context for the Management Area. Describes the water quality issues, Area Rules, and potential practices to address water quality issues.

Chapter 3: Implementation Strategies. Describes activities to make and track progress towards the goals of the Area Plan. Presents goals, measurable objectives, strategic initiatives, proposed activities, and monitoring efforts.

Chapter 4: Progress and Adaptive Management. Describes progress toward achieving Area Plan goals and measurable objectives by summarizing accomplishments and monitoring results.

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Chapter 1: Agricultural Water Quality Program

1.1 Purpose of Agricultural Water Quality Program and Applicability of Area Plans

As part of Oregon's Agricultural Water Quality Program (Ag Water Quality Program), the Area Plan guides landowners and partners such as Soil and Water Conservation Districts (SWCDs) in addressing water quality issues related to agricultural activities. The Area Plan identifies strategies to prevent and control "water pollution from agricultural activities and soil erosion" (ORS 568.909(2)) on agricultural and rural lands within the boundaries of this Management Area (OAR 603-090-0000(3)) and to achieve and maintain water quality standards (ORS 561.191(2)). The Area Plan has been developed and revised by ODA and the Local Advisory Committee (LAC), with support and input from the SWCD and the Oregon Department of Environmental Quality (DEQ). The Area Plan is implemented using a combination of outreach, conservation and management activities, compliance with Area Rules, monitoring, evaluation, and adaptive management.

The provisions of the Area Plan do not establish legal requirements or prohibitions (ORS 568.912(1)).

Each Area Plan is accompanied by Area Rules that describe local agricultural water quality regulatory requirements. ODA will exercise its regulatory authority for the prevention and control of water pollution from agricultural activities under the Ag Water Quality Program's general regulations (OAR 603-090-0000 to 603-090-0120) and under the Area Rules for this Management Area (OAR 603-095-1000). The general regulations guide the Ag Water Quality Program, and the Area Rules for the Management Area are the regulations with which landowners must comply. Landowners are encouraged through outreach and education to implement conservation and management activities.

The Area Plan and Area Rules apply to all agricultural activities on non-federal and non-Tribal Trust land within this Management Area including:

- Farms and ranches,
- Rural residential properties grazing animals or raising crops,
- Agricultural lands that lay idle or on which management has been deferred,
- Agricultural activities in urban areas,
- Agricultural activities on land subject to the Forest Practices Act (ORS 527.610).

Water quality on federal land in Oregon is regulated by DEQ and on Tribal Trust land by the respective tribe, with oversight by the United States Environmental Protection Agency (US EPA).

1.2 History of the Ag Water Quality Program

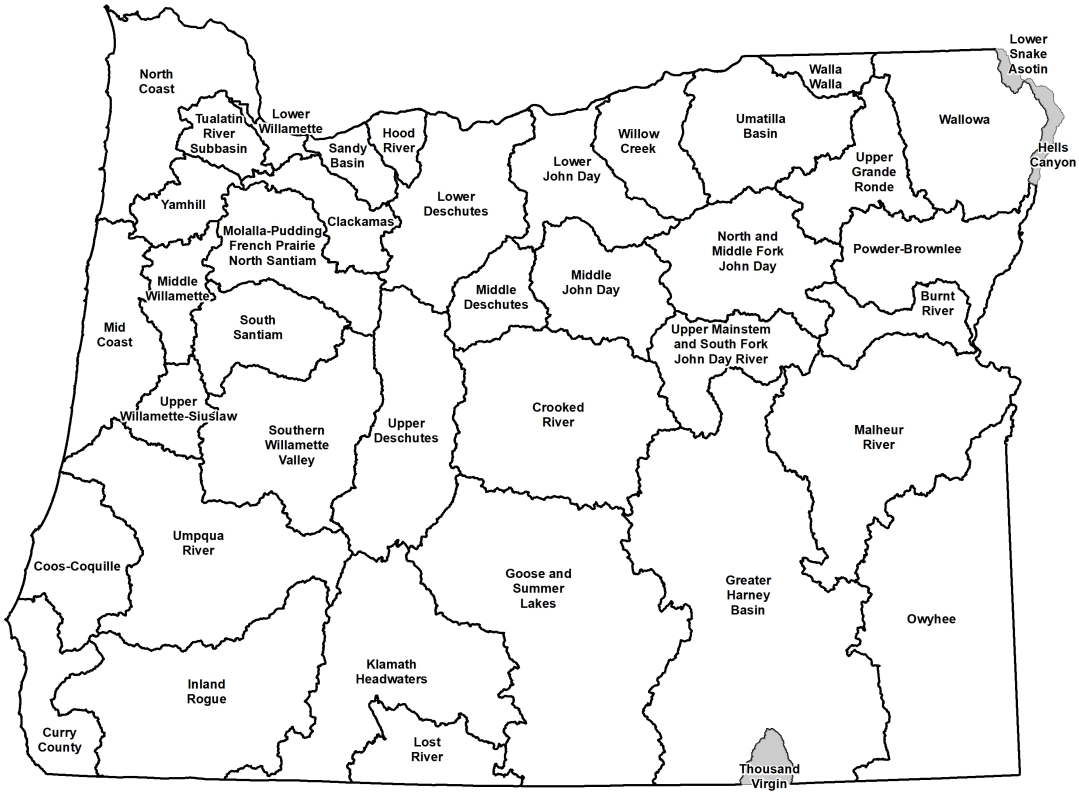
In 1993, the Oregon Legislature passed the Agricultural Water Quality Management Act directing ODA to develop plans to prevent and control water pollution from agricultural activities and soil erosion and achieve water quality standards and to adopt rules as necessary (ORS 568.900 through ORS 568.933). The Oregon Legislature passed additional legislation in 1995 to clarify that ODA is the lead agency for regulating agriculture with respect to water quality (ORS

561.191). The Area Plan and Area Rules were developed and subsequently revised pursuant to these statutes.

Between 1997 and 2004, ODA worked with LACs and SWCDs to develop Area Plans and Area Rules in 38 watershed-based Management Areas across Oregon (Figure 1.2). Since 2004, ODA, LACs, SWCDs, and other partners have focused on implementation including:

- Providing education, outreach, and technical assistance to landowners,
- Implementing projects to improve agricultural water quality,
- Investigating complaints of potential violations of Area Rules,
- Conducting biennial reviews of Area Plans and Area Rules,
- Monitoring, evaluation, and adaptive management,
- Developing partnerships with state and federal agencies, tribes, watershed councils, and others.

Figure 1.2 Map of 38 Agricultural Water Quality Management Areas*



*Gray areas are not included in Ag Water Quality Management Areas

1.3 Roles and Responsibilities

1.3.1 Oregon Department of Agriculture

ODA is the agency responsible for implementing the Ag Water Quality Program (ORS 568.900 to 568.933, ORS 561.191, OAR 603-090, and OAR 603-095). The Ag Water Quality Program

was established to develop and implement water quality management plans for the prevention and control of water pollution from agricultural activities and soil erosion. State and federal laws that drive the establishment of an Area Plan include:

- State water quality standards,
- Load allocations for agricultural or nonpoint source pollution assigned under Total Maximum Daily Loads (TMDLs) issued pursuant to the federal Clean Water Act (CWA), Section 303(d),
- Approved management measures for Coastal Zone Act Reauthorization Amendments (CZARA),
- Agricultural activities detailed in a Groundwater Management Area (GWMA) Action Plan (if DEQ has established a GWMA in the Management Area and an Action Plan has been developed).

ODA bases Area Plans and Area Rules on scientific information (ORS 568.909). ODA works in partnership with SWCDs, LACs, DEQ, and other partners to implement, evaluate, and update the Area Plans and Area Rules. When other governmental policies, programs, or rules conflict with the Area Plan or Area Rules, ODA will consult with the appropriate agencies to resolve the conflict in a reasonable manner.

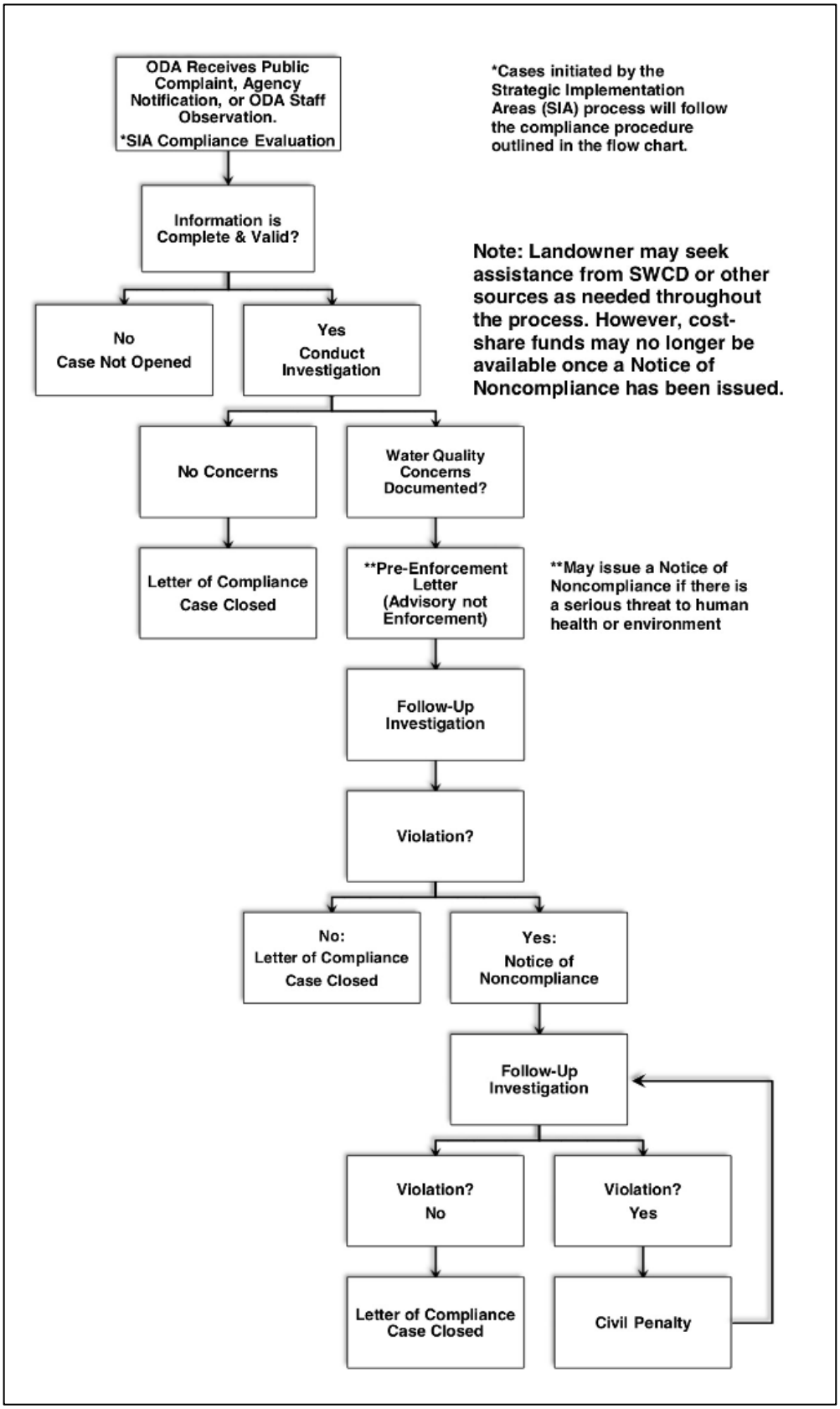
1.3.1.1 ODA Compliance Process

ODA is responsible for any actions related to enforcement or determination of noncompliance with Area Rules (OAR 603-090-0080 through OAR 603-090-0120). ORS 568.912(1) and ORS 568.912(2) give ODA the authority to adopt rules that require landowners to perform actions necessary to prevent and control pollution from agricultural activities and soil erosion.

The Area Rules are a set of standards that landowners must meet on all agricultural or rural lands. “Landowner” includes any landowner, land occupier, or operator per OAR 603-95-0010(24). All landowners must comply with the Area Rules. ODA will use enforcement where appropriate and necessary to achieve compliance with Area Rules. Figure 1.3.1 outlines ODA’s compliance process. ODA will pursue enforcement action only when reasonable attempts at voluntary solutions have failed (OAR 603-090-0000(5)(e)). If a violation is documented, ODA may issue a pre-enforcement notification or an enforcement order such as a Notice of Noncompliance. If a Notice of Noncompliance is issued, ODA will direct the landowner to remedy any conditions through required corrective actions under the provisions of the enforcement procedures outlined in OAR 603-090-060 through OAR 603-090-120. If a landowner does not implement the required corrective actions, ODA may assess civil penalties for continued violation of the Area Rules.

Any member of the public may file a complaint, and any public agency may file a notification of a potential violation of the Area Rules. ODA also may initiate an investigation based on its own observation or from cases initiated through the Strategic Implementation Area process (See Figure 1.3.1.1).

Figure 1.3.1.1 Compliance Flow Chart



1.3.2 Local Management Agency

A Local Management Agency (LMA) is an organization designated by ODA to assist with the implementation of an Area Plan (OAR 603-090-0010). The Oregon Legislature intended that SWCDs be LMAs to the fullest extent practical, consistent with the timely and effective implementation of Area Plans (ORS 568.906). SWCDs have a long history of effectively assisting landowners to voluntarily address natural resource concerns. Currently, all LMAs in Oregon are SWCDs.

The day-to-day implementation of the Area Plan is accomplished through an Intergovernmental Grant Agreement between ODA and each SWCD. Every two years, each SWCD submits a scope of work to ODA to receive funding to implement the Area Plan. Each SWCD implements the Area Plan by providing outreach and technical assistance to landowners. SWCDs also work with ODA and the LAC to establish implementation priorities, evaluate progress toward meeting Area Plan goals and objectives, and revise the Area Plan and Area Rules as needed.

1.3.3 Local Advisory Committee

For each Management Area, the director of ODA appoints an LAC (OAR 603-090-0020) with up to 12 members. The LAC serves in an advisory role to the director of ODA and to the Board of Agriculture. The role of the LAC is to provide a high level of citizen involvement and support the development, implementation, and biennial reviews of the Area Plan and Area Rules. The LAC's primary role is to advise ODA and the LMA on local agricultural water quality issues as well as evaluate the progress toward achieving the goals and objectives of the Area Plan. LACs are composed primarily of agricultural landowners in the Management Area and must reflect a balance of affected persons.

The LAC is convened at the time of the biennial review; however, the LAC may meet as frequently as necessary to carry out its responsibilities, which include but are not limited to:

- Participate in the development and subsequent revisions of the Area Plan and Area Rules,
- Recommend strategies necessary to achieve the goals and objectives in the Area Plan,
- Participate in biennial reviews of the progress of implementation of the Area Plan and Area Rules,
- Submit written biennial reports to the Board of Agriculture and the ODA director.

1.3.4 Agricultural Landowners

The emphasis of the Area Plan is on voluntary action by landowners to control the factors affecting water quality in the Management Area. In addition, each landowner in the Management Area is required to comply with the Area Rules. To achieve water quality goals or compliance, landowners may need to select and implement an appropriate suite of measures. The actions of each landowner will collectively contribute toward achievement of water quality standards.

Technical assistance, and often financial assistance, is available to landowners who want to work with SWCDs or other local partners, such as watershed councils, to achieve land conditions that contribute to good water quality. Landowners may also choose to improve their land conditions without assistance.

Under the Area Plan and Area Rules, agricultural landowners are not responsible for mitigating or addressing factors that are caused by non-agricultural activities or sources, such as:

- Hot springs, glacial melt water, unusual weather events, and climate change,
- Wildfires and other natural disasters,
- Septic systems and other sources of human waste,
- Public roadways, culverts, roadside ditches, and shoulders,
- Dams, dam removal, hydroelectric plants, and non-agricultural impoundments,
- Housing and other development in agricultural areas,
- Impacts on water quality and streamside vegetation from wildlife such as waterfowl, elk, and feral horses,
- Other circumstances not within the reasonable control of the landowner.

However, agricultural landowners may be responsible for some of these impacts under other legal authorities.

1.3.5 Public Participation

The public was encouraged to participate when ODA, LACs, and SWCDs initially developed the Area Plan and Area Rules. In each Management Area, ODA and the LAC held public information meetings, a formal public comment period, and a formal public hearing. ODA and the LACs modified the Area Plan and Area Rules, as needed, to address comments received. The director of ODA adopted the Area Plan and Area Rules in consultation with the Board of Agriculture.

ODA, LACs, and LMAs conduct biennial reviews of the Area Plan and Area Rules. Partners, stakeholders, and the general public are invited to participate in the process. Any revisions to the Area Rules will include a formal public comment period and a formal public hearing.

1.4 Agricultural Water Quality

The federal CWA directs states to designate beneficial uses related to water quality, decide on parameters to measure to determine whether beneficial uses are being met, and set water quality standards based on the beneficial uses and parameters.

1.4.1 Point and Nonpoint Sources of Water Pollution

There are two types of water pollution. Point source water pollution emanates from clearly identifiable discharge points or pipes. Point sources are required to obtain permits that specify their pollutant limits. Agricultural operations regulated as point sources include permitted Confined Animal Feeding Operations (CAFOs), and all permitted CAFOs are subject to ODA's CAFO Program requirements. Irrigation return flow from agricultural fields may drain through a defined outlet but is exempt under the CWA and does not currently require a permit.

Nonpoint-source water pollution originates from the general landscape and is difficult to trace to a single source. Nonpoint water pollution sources include runoff from agricultural and forest lands, urban and suburban areas, roads, and natural sources. In addition, groundwater can be polluted by nonpoint sources including agricultural amendments (fertilizers and manure).

1.4.2 Beneficial Uses and Parameters of Concern

Beneficial uses related to water quality are defined by DEQ for each basin. The most sensitive beneficial uses usually are fish and aquatic life, water contact recreation, and public and private domestic water supply. These uses generally are the first to be impaired because they are affected at lower levels of pollution. While there may not be severe impacts on water quality from a single source or sector, the combined effects from all sources can contribute to the impairment of beneficial uses in the Management Area. Beneficial uses that have the potential to be impaired in this Management Area are summarized in Chapter 2.4.1.1.

Many waterbodies throughout Oregon do not meet state water quality standards. The most common water quality concerns statewide related to agricultural activities are temperature, bacteria, biological criteria, sediment, turbidity, phosphorous, nitrates, algae, pH, dissolved oxygen, harmful algal blooms, pesticides, and mercury. Water quality impairments vary across the state; they are summarized for this Management Area in Chapter 2.4.

1.4.3 Impaired Waterbodies and Total Maximum Daily Loads

Every two years, DEQ is required by the CWA to assess water quality in Oregon, resulting in the "Integrated Report." CWA Section 303(d) requires DEQ to identify "impaired" waters that do not meet water quality standards. The resulting list is commonly referred to as the "303(d) list" (http://www.oregon.gov/deq/wq/Pages/WQ-Assessment.aspx). In accordance with the CWA, DEQ must establish TMDLs for pollutants on the 303(d) list. For more information, visit www.oregon.gov/deq/wq/tmdls/Pages/default.aspx.

In accordance with the CWA, DEQ must establish TMDLs for pollutants on the 303(d) list (www.oregon.gov/deq/wq/tmdls/Pages/default.aspx). DEQ has issued TMDLs for a portion of these waterbodies that identify pollutant reductions needed to meet Oregon's water quality standards. The associated water quality management plans identify responsible entities and document management strategies needed to meet pollutant reduction targets.

A TMDL includes an assessment of conditions (based on water quality data, land condition data, and/or computer modeling) and describes a plan to achieve water quality standards. TMDLs specify the daily amount of pollution a waterbody can receive and still meet water quality standards. TMDLs generally apply to an entire basin or subbasin, not just to an individual waterbody on the 303(d) list. Water bodies are categorized as achieving water quality standards when data show the standards have been consistently attained.

In the TMDL, point sources are assigned waste load allocations that are then incorporated into National Pollutant Discharge Elimination System permits. Nonpoint sources (agriculture, forestry, and urban) are assigned a load allocation to achieve. The agricultural sector is responsible for helping achieve the pollution limit by achieving the load allocation assigned to agriculture specifically, or to nonpoint sources in general, depending on how the TMDL was written.

As part of the TMDL issuance process, DEQ identifies Designated Management Agencies and Responsible Persons, which are parties responsible for submitting TMDL implementation plans. For the agricultural sector, ODA is the Local Management Agency, and the local Area Plans are recognized as the implementation plan for the TMDL. Biennial reviews and revisions to the Area

Plan and Area Rules must address agricultural or nonpoint source load allocations from relevant TMDLs.
The 303(d) list, the TMDLs, and the agricultural load allocations for the TMDLs that apply to this Management Area are summarized in Chapter 2.4.1.

1.4.4 Oregon Water Pollution Control Law – ORS 468B.025 and 468B.050

In 1995, the Oregon Legislature passed ORS 561.191. This statute states that any program or rules adopted by ODA "shall be designed to assure achievement and maintenance of water quality standards adopted by the Environmental Quality Commission."

To implement the intent of ORS 561.191, ODA incorporated ORS 468B.025 and 468B.050 into all 38 sets of Area Rules.

ORS 468B.025 (prohibited activities) states that:
"(1) Except as provided in ORS 468B.050 or 468B.053, no person shall:
(a) Cause pollution of any waters of the state or place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means.
(b) Discharge any wastes into the waters of the state if the discharge reduces the quality of such waters below the water quality standards established by rule for such waters by the Environmental Quality Commission.
(2) No person shall violate the conditions of any waste discharge permit issued under ORS 468B.050."

ORS 468B.050 identifies the conditions when a permit is required. A permit is required for CAFOs that meet minimum criteria for confinement periods and have large animal numbers or have wastewater facilities. The portions of ORS 468B.050 that apply to the Ag Water Quality Program state that:
"(1) Except as provided in ORS 468B.053 or 468B.215, without holding a permit from the Director of the Department of Environmental Quality or the State Department of Agriculture, which permit shall specify applicable effluent limitations, a person may not:
(a) Discharge any wastes into the waters of the state from any industrial or commercial establishment or activity or any disposal system."

Definitions used in ORS 468B.025 and 468B.050:

" 'Pollution' or 'water pollution' means such alteration of the physical, chemical, or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state, which will or tends to, either by itself or in connection with any other substance, create a public nuisance or which will or tends to render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses or to livestock, wildlife, fish or other aquatic life or the habitat thereof" (ORS 468B.005(5)).

" 'Water' or 'the waters of the state' include lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters

which do not combine or affect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction" (ORS 468B.005(10)).

" 'Wastes' means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive or other substances, which will or may cause pollution or tend to cause pollution of any waters of the state.' (ORS 468B.005(9)). Additionally, the definition of 'wastes' given in OAR 603-095-0010(53) "includes but is not limited to commercial fertilizers, soil amendments, composts, animal wastes, vegetative materials or any other wastes."

1.4.5 Streamside Vegetation and Agricultural Water Quality

Across Oregon, the Ag Water Quality Program emphasizes streamside vegetation protection and enhancement. Streamside vegetation can provide three primary water quality functions: shade to reduce stream temperature warming from solar radiation, streambank stability, and filtration of pollutants. Other water quality functions from streamside vegetation include water storage in the soil for cooler and later season flows, sediment trapping that can build streambanks and floodplains, narrowing and deepening of channels, and biological uptake of sediment, organic material, nutrients, and pesticides. In addition, streamside vegetation provides habitat for numerous species of fish and wildlife. Streamside vegetation conditions can be monitored to track progress toward achieving conditions that support water quality.

Site-Capable Vegetation

The Ag Water Quality Program uses the concept of "site-capable vegetation" to describe the streamside vegetation that can be expected to grow at a particular site, given natural site factors (e.g., elevation, soils, climate, hydrology, wildlife, fire, floods) and historical and current human influences that are beyond the program's statutory authority (e.g., channelization, roads, modified flows, previous land management). Site-capable vegetation can be determined for a specific site based on current streamside vegetation at the site, streamside vegetation at nearby reference sites with similar natural characteristics, Natural Resources Conservation Service (NRCS) soil surveys and ecological site descriptions, and/or local or regional scientific research.

The goal for Oregon's agricultural landowners is to provide the water quality functions (e.g., shade, streambank stability, and filtration of pollutants) produced by site-capable vegetation along streams on agricultural lands. The Area Rules for each Management Area require that agricultural activities allow for the establishment and growth of streamside vegetation to provide the water quality functions equivalent to what site-capable vegetation would provide.

Occasionally, mature site-capable vegetation such as tall trees may not be needed along narrow streams. For example, shrubs and grass may provide shade, protect streambanks, and filter pollutants. However, on larger streams, mature site-capable vegetation is needed to provide the water quality functions.

In many cases, invasive, non-native plants, such as introduced varieties of blackberry and reed canary grass, grow in streamside areas. This type of vegetation has established throughout much of Oregon due to historic and human influences and may provide some of the water quality functions of site-capable vegetation. ODA's statutory authority does not require the removal of invasive, non-native plants, however, ODA encourages landowners to remove these plants voluntarily. In addition, the Oregon State Weed Board identifies invasive plants that can impair watersheds. Public and private landowners are responsible for eliminating or intensively

controlling noxious weeds, as described in state and local laws. For more information, visit www.oregon.gov/ODA/programs/weeds.

1.4.6 Soil Health and Agricultural Water Quality

An increasingly important concept in Oregon and across the United States is soil health. The Ag Water Quality Program promotes soil health to reduce erosion and keep sediment out of surface waters, thereby helping to maintain and improve water quality. Healthy soils have relatively high organic matter and well-formed soil structure. These characteristics may resist erosion and increase water infiltration, leading to less surface runoff and greater groundwater recharge; the resultant groundwater flows in some cases can help moderate stream water temperatures. (Note that the beneficial effects on water quality vary based on factors such as soil type and ecoregion.) According to the NRCS and others, there are four soil health principles that together build highly productive and resilient soils: minimize disturbance; and maximize cover, continuous living roots, and diversity above and below the surface.

Building soil health increases resiliency to extreme weather, protects water quality, and helps keep farms and ranches viable. Incorporating soil health practices can help landowners adapt and reduce risks. For more information, visit www.nrcs.usda.gov/wps/portal/nrcs/detail/or/soils/health.

1.5 Other Water Quality Programs

The following programs complement the Ag Water Quality Program and are described here to recognize their link to agricultural lands.

1.5.1 Confined Animal Feeding Operation Program

ODA is the lead state agency for the CAFO Program, which was developed to ensure that operators do not contaminate ground or surface water with animal manure or process wastewater. The CAFO Program coordinates with DEQ to issue permits. These permits require the registrant to operate according to a site-specific, ODA-approved, Animal Waste Management Plan that is incorporated into the CAFO permit by reference. For more information, visit oda.direct/CAFO.

1.5.2 Groundwater Management Areas

Groundwater Management Areas (GWMAs) are designated by DEQ where groundwater is polluted from, at least in part, nonpoint sources. After designating a GWMA, DEQ forms a local groundwater management committee comprised of affected and interested parties. The committee works with and advises the state agencies that are required to develop an action plan to reduce groundwater contamination in the area.

Oregon DEQ has designated three GWMAs because of elevated nitrate concentrations in groundwater: Lower Umatilla Basin, Northern Malheur County, and Southern Willamette Valley. Each GWMA has a voluntary action plan to reduce nitrates in groundwater. After a scheduled evaluation period, if DEQ determines that voluntary efforts are not effective, mandatory requirements may become necessary.

Any GWMA in this Management Area is described in Chapter 2.4.1.5. Any Measurable Objectives for the GWMA will be described in Chapter 3.1.5.

1.5.3 The Oregon Plan for Salmon and Watersheds

In 1997, Oregonians began implementing the Oregon Plan for Salmon and Watersheds, referred to as the Oregon Plan (www.oregon-plan.org). The Oregon Plan seeks to restore native fish populations, improve watershed health, and support communities throughout Oregon. The Oregon Plan has a strong focus on salmonids because of their great cultural, economic, and recreational importance to Oregonians, and because they are important indicators of watershed health. ODA's commitment to the Oregon Plan is to develop and implement Area Plans and Area Rules throughout Oregon.

1.5.4 Pesticide Management and Stewardship

ODA's Pesticides Program holds the primary responsibility for registering pesticides and regulating their use in Oregon under the Federal Insecticide, Fungicide, and Rodenticide Act. ODA's Pesticide Program administers regulations relating to pesticide sales, use, and distribution, including pesticide operator and applicator licensing as well as proper application of pesticides, pesticide labeling, and registration.

In 2007, Oregon formed the interagency Water Quality Pesticide Management Team to expand efforts to improve water quality in Oregon related to pesticide use. This team facilitates and coordinates activities such as monitoring, analysis and interpretation of data, effective response measures, and management solutions. The team relies on monitoring data from the Pesticide Stewardship Partnership (PSP) program and other federal, state, and local monitoring programs to assess the possible impact of pesticides on Oregon's water quality. Pesticide detections in Oregon's streams can be addressed through multiple programs and partners, including the PSP.

Through the PSP, state agencies and local partners work together to monitor pesticides in streams and to improve water quality (www.oregon.gov/ODA/programs/Pesticides/Water/Pages/PesticideStewardship.aspx). ODA, DEQ, and Oregon State University Extension Service work with landowners, SWCDs, watershed councils, and other local partners to voluntarily reduce pesticide levels while improving water quality and crop management. Since 2000, the PSPs have made noteworthy progress in reducing pesticide concentrations and detections.

Any PSPs in this Management Area are described in Chapter 3.1.4.

ODA led the development and implementation of a Pesticides Management Plan (PMP) for the state of Oregon (www.oregon.gov/ODA/programs/Pesticides/water/pages/AboutWaterPesticides.aspx). The PMP, completed in 2011, strives to protect drinking water supplies and the environment from pesticide contamination, while recognizing the important role that pesticides have in maintaining a strong state economy, managing natural resources, and preventing human disease. By managing the pesticides that are approved for use

by the US EPA and Oregon in agricultural and non-agricultural settings, the PMP sets forth a process for preventing and responding to pesticide detections in Oregon's ground and surface water.

1.5.5 Drinking Water Source Protection

Oregon implements its drinking water protection program through a partnership between DEQ and the Oregon Health Authority. The program provides individuals and communities with information on how to protect the quality of Oregon's drinking water. DEQ and the Oregon Health Authority encourage preventive management strategies to ensure that all public drinking water resources are kept safe from current and future contamination. For more information, visit www.oregon.gov/deq/wq/programs/Pages/dwp.aspx.

1.6 Partner Agencies and Organizations

1.6.1 Oregon Department of Environmental Quality

The US EPA delegated authority to DEQ to implement the federal CWA in Oregon. DEQ is the lead state agency with overall authority to implement the CWA in Oregon. DEQ works with other state agencies, including ODA and the Oregon Department of Forestry to meet the requirements of the CWA. DEQ sets water quality standards and develops TMDLs for impaired waterbodies, which ultimately are approved or disapproved by the US EPA. In addition, DEQ develops and coordinates programs to address water quality including National Pollutant Discharge Elimination System permits for point sources, the CWA Section 319 grant program, the Source Water Protection Program (in partnership with the Oregon Health Authority), the CWA Section 401 Water Quality Certification, and Oregon's Groundwater Management Program. DEQ also coordinates with ODA to help ensure successful implementation of Area Plans.

A Memorandum of Agreement between DEQ and ODA recognizes that ODA is the state agency responsible for implementing the Ag Water Quality Program. ODA and DEQ updated the Memorandum of Agreement in 2023 (www.oregon.gov/oda/shared/Documents/Publications/NaturalResources/WaterQualityGoalsMOA.pdf).

The Environmental Quality Commission, which serves as DEQ's policy and rulemaking board, may petition ODA for a review of part or all of any Area Plan or Area Rules. The petition must allege, with reasonable specificity, that the Area Plan or Area Rules are not adequate to achieve applicable state and federal water quality standards (ORS 568.930(3)(a)).

1.6.2 Other Partners

ODA and SWCDs work in close partnership with local, state, and federal agencies and other organizations, including: DEQ (as described above), the NRCS and United States Department of Agriculture Farm Service Agency, watershed councils, Oregon State University Agricultural Experiment Stations and Extension Service, tribes, livestock and commodity organizations, conservation organizations, and local businesses. As resources allow, SWCDs and local partners provide technical, financial, and educational assistance to individual landowners for the design, installation, and maintenance of effective management strategies to prevent and control agricultural water pollution and to achieve water quality goals.

1.7 Measuring Progress

Agricultural landowners have been implementing effective conservation projects and management activities throughout Oregon to improve water quality for many years. However, it has been challenging for ODA, SWCDs, and LACs to measure progress toward improved water quality. ODA is working with SWCDs, LACs, and other partners to develop and implement strategies that will produce measurable outcomes. ODA is also working with partners to develop monitoring methods to document progress.

1.7.1 Measurable Objectives

A measurable objective is a numeric long-term desired outcome to achieve by a specified date. Milestones are the interim steps needed to make progress toward the measurable objective and consist of numeric short-term targets to reach by specific dates. Together, the milestones define the timeline and progress needed to achieve the measurable objective.

The Ag Water Quality Program is working throughout Oregon with SWCDs and LACs toward establishing long-term measurable objectives to achieve desired conditions. ODA, the LAC, and the SWCD will establish measurable objectives and associated milestones for each Area Plan. Many of these measurable objectives relate to land conditions and primarily are developed for focused work in small geographic areas (Chapter 1.7.3). ODA's longer-term goal is to develop measurable objectives, milestones, and monitoring methods at the Management Area scale.

The State of Oregon continues to improve its ability to use remote-sensing technology to measure current streamside vegetation conditions and compare these to the conditions needed to meet stream shade targets. As the State's use of this technology moves forward, ODA will use the information to help LACs and LMAs set measurable objectives for streamside vegetation. These measurable objectives will be achieved through implementing the Area Plan, with an emphasis on voluntary incentive programs.

At each biennial review, ODA and its partners will evaluate progress toward measurable objectives and milestone(s) and why they were or were not achieved. ODA, the LAC, and LMA will evaluate whether changes are needed to continue making progress toward the measurable objective(s) and will revise strategies to address obstacles and challenges.

The measurable objective(s) and associated milestone(s) within the Management Area are in Chapter 3.1 and progress toward achieving the measurable objective(s) and milestone(s) is summarized in Chapter 4.1.

1.7.2 Land Conditions and Water Quality

Land conditions can serve as useful surrogates (indicators) for water quality parameters. For example, because shade blocks solar radiation from warming the stream, streamside vegetation, or its associated shade, generally is used as a surrogate for water temperature. In some cases, sediment can be used as a surrogate for pesticides or phosphorus, which often adhere to sediment particles.

The Ag Water Quality Program focuses on land conditions, in addition to water quality data, for several reasons:

- Landowners can see land conditions and have direct control over them,

- Improved land conditions can be documented immediately,
- Water quality impairments from agricultural activities are primarily due to changes in land conditions and management activities,
- It can be difficult to separate agriculture's influence on water quality from other land uses,
- There is generally a lag time between changes on the landscape and the resulting improvements in water quality,
- Extensive monitoring of water quality would be needed to evaluate progress, which would be expensive and may not demonstrate improvements in the short term.

Water quality monitoring data will help ODA and partners to measure progress or identify problem areas in implementing Area Plans. However, as described above, water quality monitoring may be slower to document changes than land condition monitoring.

1.7.3 Focused Implementation in Small Geographic Areas

Focus Areas

A Focus Area is a small watershed with water quality concerns associated with agriculture. The Focus Area process is SWCD-led, with ODA oversight. The SWCD delivers systematic, concentrated outreach and technical assistance. A key component is measuring conditions before and after implementation to document the progress made with available resources. The Focus Area approach is consistent with other agencies' and organizations' efforts to work proactively in small watersheds.

Focus Areas have the following advantages: a proactive approach that addresses the most significant water quality concerns, multiple partners that coordinate and align technical and financial resources, a higher density of projects that may lead to increased connectivity of projects, and a more effective and efficient use of limited resources.

Any Focus Areas in this Management Area are described in Chapter 3.1.2. SWCDs will also continue to provide outreach and technical assistance to the entire Management Area.

Strategic Implementation Areas

Strategic Implementation Areas (SIAs) are small watersheds selected by ODA, in consultation with partners, based on a statewide review of water quality data and other available information. ODA conducts an evaluation of likely compliance with Area Rules and contacts landowners with the results and next steps. The Oregon Watershed Enhancement Board (OWEB) and other partners make funding and technical assistance available to support conservation and restoration projects. These efforts should result in greater ecological benefit than relying solely on compliance and enforcement. Landowners have the option of working with the SWCD or other partners to voluntarily address water quality concerns. ODA follows up, as needed, to enforce the Area Rules. Finally, ODA completes a post-evaluation to document progress in the SIA.

Any SIAs in this Management Area are described in Chapter 3.1.3.

1.8 Progress and Adaptive Management

1.8.1 Biennial Reviews

The ODA, LAC, LMA, and partners evaluate progress of Area Plan implementation through the biennial review process. At each biennial review, they discuss: 1) Progress toward meeting measurable objectives and implementing strategies, 2) Local monitoring data from other agencies and organizations, including agricultural land conditions and water quality, and 3) ODA compliance activities. As a result of these discussions, ODA and partners revise implementation strategies and measurable objectives in Chapter 3 as needed.

ODA provides information from the Oregon Watershed Restoration Inventory (OWRI) on restoration project funding and accomplishments at biennial reviews and uses the information for statewide reporting. The majority of OWRI entries represent voluntary actions of private landowners who have worked in partnership with federal, state, and local groups to improve aquatic habitat and water quality conditions. OWRI is the single largest restoration information database in the western United States. For more information, visit www.oregon.gov/oweb/data-reporting/Pages/owri.aspx.

1.8.2 Agricultural Water Quality Monitoring

In addition to monitoring land conditions, ODA relies on water quality monitoring data where available. These data may be provided by other state or federal agencies or local entities; ODA seldom collects water quality samples outside of compliance cases.

As part of monitoring water quality status and trends, DEQ regularly collects water samples every other month throughout the year at more than 130 sites on more than 50 rivers and streams across the state. Sites are located across the major land uses (forestry, agriculture, rural residential, and urban/suburban). Parameters measured include alkalinity, biochemical oxygen demand, chlorophyll a, specific conductance, dissolved oxygen, bacteria (*E. coli)*, ammonia, nitrate and nitrite, pH, total phosphorus, total solids, temperature, and turbidity.

DEQ provides status and trends reports for selected parameters in relation to water quality standards. ODA will continue to work with DEQ to summarize the data results and how they apply to agricultural activities.

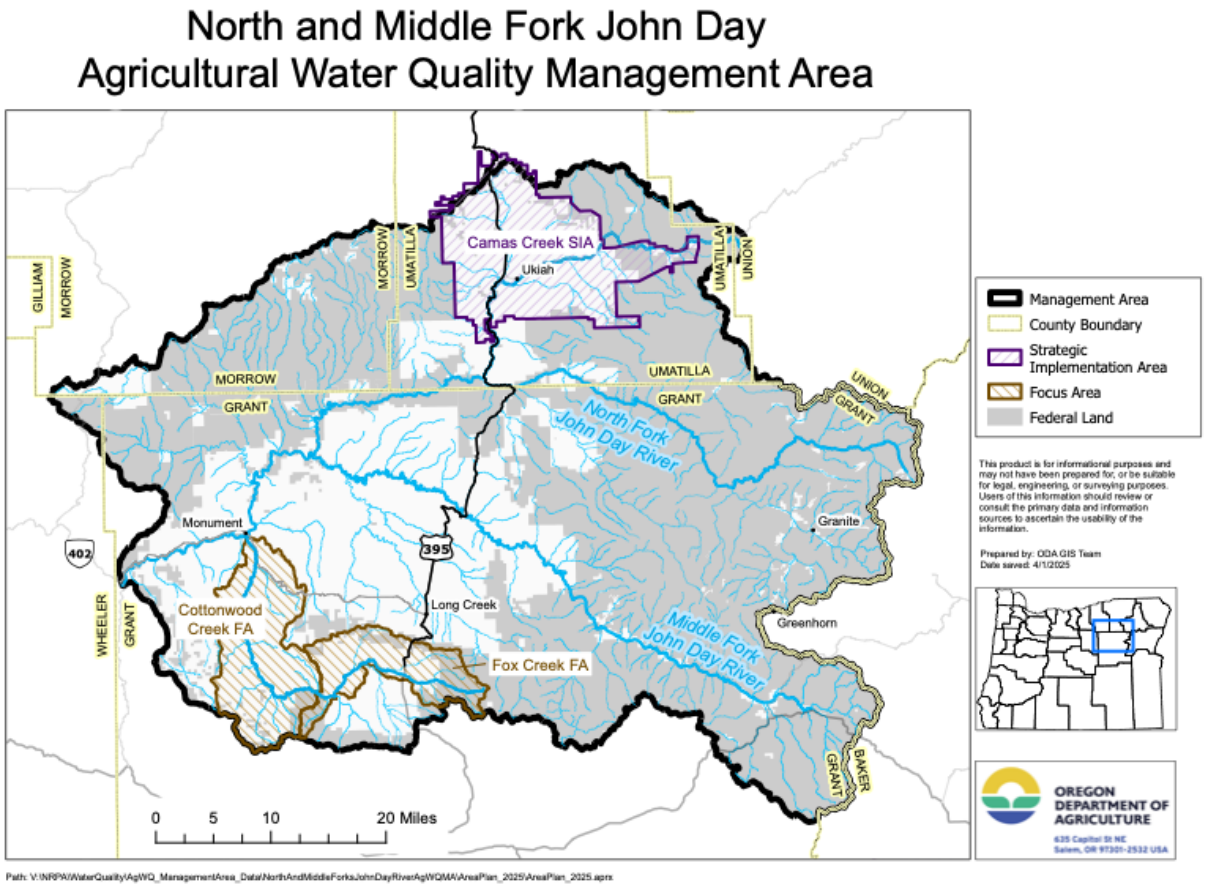
Water quality monitoring efforts in this Management Area are described in Chapter 3, and the data are summarized in Chapter 4.

Chapter 2: Local Background

Chapter 2 provides the local geographic, water quality, and agricultural context for the Management Area. It also describes the water quality issues, Area Rules, and potential practices to address water quality issues.

The North and Middle Forks John Day River Agricultural Water Quality Management Area includes the area that drains into the North and Middle Forks of the John Day River upstream from the confluence with the mainstem John Day River near Kimberly. The physical boundaries of the Management Area are indicated on the map below.

Figure 2. North and Middle Forks John Day River Management Area



2.1 Local Roles

2.1.1 Local Advisory Committee

The LAC was formed to assist with the development of the Area Plan and Area Rules and with subsequent biennial reviews. Table 2.1.1 lists the current members of the LAC.

Table 2.1.1 Current LAC members

Name	Geographic Representation	Description
Gary Adams	Lower Cottonwood Creek, Monument	Rancher
Jeff Thomas	North Fork John Day River, Kimberly	Kimberly Orchard
Jim Bahrenburg	North Fork John Day River, Kimberly	Farmer, Monument SWCD director
Rick Henslee	Long Creek, Management Area	Rancher, Grant SWCD board member
John Zakrajsek	North Fork John Day River	Confederated Tribes of the Umatilla Indian Reservation (habitat biologist), North Fork John Day Watershed Council
Jarred Livingston	Long Creek	Rancher
Zach Cunningham	Management Area	Confederated Tribes of Warms Springs (conservation area manager)
Andy Watkins	Management Area	Rancher, Monument SWCD Chair
Mike Titus	Management Area	Board Member of North Fork Watershed Council and Ritter Land Management
Shirley Titus	Management Area	Treasurer of North Fork Watershed Council and Board Member Ritter Land Management
Kristen Walz	Management Area	North Fork Watershed Council Executive Director, President of NOWC

2.1.2 Local Management Agency

SWCDs implement Area Plans through OWEB capacity grants, with details negotiated between ODA and each SWCD. The resulting Scopes of Work define the SWCDs as the LMAs for implementation of the Ag Water Quality Program in specific Management Areas. The LMA for this Management Area is Monument SWCD. This SWCD was also involved in development of the Area Plan and Area Rules.

The LMA implements the Area Plan by conducting activities detailed in Chapter 3, which are intended to achieve the goals and objectives of the Area Plan.

2.2 Area Plan and Area Rules: Development and History

The director of ODA approved the initial Area Plan and Area Rules in 2002. Since approval, the LAC has met biennially to review the Area Plan and Area Rules. The biennial review process includes an assessment of progress toward achieving the goals and objectives in the Area Plan.

2.3 Geographical and Physical Setting

The John Day River Basin covers an 8,100-square-mile drainage area, making it the fourth-largest basin in Oregon. The river originates in the Blue Mountains and flows generally westward before turning northward for approximately 284 miles discharging into the Columbia River east of Rufus at river mile 218. The John Day River is one of the longest undammed rivers in the United States. The basin experiences a continental climate, characterized by cold winters, hot summers, low average annual precipitation, and dry summer conditions. Precipitation varies significantly across the basin, ranging from approximately nine inches at the river's mouth to over 40 inches in its upper reaches.

The Management Area consists of two subbasins. The North Fork John Day River Subbasin drains approximately 1,800 square miles and flows westward for over 100 miles before entering the mainstem John Day River at Kimberly (river mile 184.2). It spans parts of Grant, Umatilla, Morrow, Union, and Wheeler counties. Elevations range from 1,830 feet at the mouth to over 8,300 feet in the Blue Mountains. The climate varies from semi-arid near the mouth to relatively moist at higher elevations, with annual precipitation ranging from just over 13 inches at Monument to more than 40 inches, primarily as snow, in the upper Blue Mountains.

The Middle Fork John Day River Subbasin, a tributary of the North Fork John Day River, drains approximately 806 square miles and flows for about 75 miles before joining the North Fork at river mile 32.2, just above Monument. This subbasin is located entirely within Grant County, with elevations ranging from 2,200 feet at the mouth to over 8,100 feet in the headwaters.

Most of the Management Area lies within the John Day Ecological Province, which is characterized by extensive areas of steep, dissected hills interspersed with isolated buttes, expansive plateaus, and both large and small valleys. The hills primarily consist of geologically eroded ancient lacustrine materials, while the plateaus and buttes are capped with igneous or tuffaceous rock. Soil composition is directly influenced by these geological formations, serving as the parent material in which the soils have developed.

According to *The Ecological Provinces of Oregon (1998)*, the upper North Fork is located within the Blue Mountain Province, an area defined by rugged mountain groups, steep canyons, and broad plateaus divided by dendritic-pattern drainages. Basalt is the dominant bedrock underlying the mountains and plateaus, and soils in this region can be classified based on their associated natural vegetation.

Water Yield

The North Fork John Day River contributes approximately 60 percent of the annual discharge of the John Day River Basin. Its flow is primarily derived from melting snowpack, with late summer flows sustained by groundwater. Since 1925, the average annual discharge at Monument has been recorded at 904,200 acre-feet (AF). Peak discharge typically occurs between March and early June, while the lowest flows generally occur during July, August, and September.
The Middle Fork John Day River contributes about 25 percent of the North Fork's total flow. The average annual measured discharge at Ritter is 168,464 AF, with an estimated annual discharge of approximately 268,000 AF at its mouth.

Land Use

Forest covers 73 percent of the land area, while range and pasture make up 24 percent, cropland accounts for two percent, and other uses comprise one percent. Grazing is the

predominant land use, covering 95 percent of the area. In 1985, approximately 40 percent of the cropland was irrigated. Mining claims create small private enclaves, primarily within federally managed land.

Urban areas occupy only a small portion of the Management Area. The incorporated cities of Long Creek, Monument, Ukiah, and Granite have a combined population of 534 as of the 2020 U.S Census.

Special management areas include the North Fork John Day River Wilderness, spanning 122,000 acres, and designated sections of the federal Wild and Scenic River System, which include 27.8 miles of Wild River, 10.5 miles of Scenic River, and 15.8 miles of Recreational River. State Scenic Waterways include 53 miles of Accessible Natural River, three miles of Recreational River, 11 miles of Natural River, and 60 miles of Scenic River. Additionally, the area features the 29,285-acre US Forest Service Greenhorn Mountains Scenic Area and the 12,800-acre Oregon Department of Fish and Wildlife Bridge Creek Wildlife Management Area. The history of mining in the John Day River Basin, particularly around the Canyon City area, is significant due to the gold discoveries made in the 1860s. The use of hydraulic mining, which involved washing away soil and gravel to uncover gold ore, was one of the key methods employed at the time. Additionally, dredges were used in the streams to extract the gold from gravel deposits.

The Oregon Department of Geology and Mineral Industries' estimates suggest that at least 13 million cubic yards of material were processed along the North Fork-Granite Creek-Clear Creek system, with another 4.2 million cubic yards processed on the Middle Fork-Vincent Creek systems. The scale of mining operations, as indicated by the millions of cubic yards of material moved, highlight the extensive nature of the mining operations and the impact they likely had on the landscape of the John Day River Basin. The remnants of mining operations, including tailing piles and dredge ponds can still be visible in the area and can contribute to soil erosion, dredge ponds, and may affect water quality.

Wildlands Fires

Over the past three decades, the North and Middle Fork John Day River basins have experienced repeated wildfires, many of which burned through sensitive headwater areas. These high severity events, including the 2024 Battle Mountain Complex (approximately 183,000 acres) and Court Rock Fire (approximately 20,000 acres), have caused lasting damage to watershed health. Extensive canopy loss, soil exposure, and damage to riparian areas have significantly increased erosion risks, sedimentation, and elevated stream temperatures, particularly in tributaries already impacted by earlier fire events. Notable past fires include the 1996 Tower, Summit, and Sloans Ridge Fires, along with the 2007 Red Hill and Monument Complex Fires, all of which burned headwater habitats.

The cumulative impacts of these wildfires pose long term challenges to meeting stream temperature standards, restoring riparian vegetation, and achieving water quality goals outlined in the Management Area’s strategies. Continued recovery will require sustained investment in post fire restoration, long term monitoring, and adaptive management.

Land Ownership

Approximately 65% of the land in the Management Area is publicly owned and managed by the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) under the U.S. Department of the Interior. USFS lands are primarily located in the eastern and northern

headwater regions, while BLM lands are dispersed throughout the western portion of the Management Area and along stream corridors.

Private ownership is concentrated in the lower elevations, along streams, and in intermediate upland areas. Additionally, the state of Oregon owns scattered tracts of land throughout the Management Area, totaling approximately 15,000 acres, including the Bridge Creek Management Area.

Agriculture

Agriculture is the primary private-sector economic activity in the Management Area, with alfalfa, meadow hay, and beef cattle as the leading agricultural products. Most of the hay produced is used for winter cattle feed, and cattle production accounts for over 70% of agricultural income. Range forage provides more than half of the year-round cattle feed, while hay and pasture supply the remainder. Approximately half of the cattle operations utilize BLM or USFS rangelands through permit-based access.

The North Fork Subbasin contains approximately 24,000 acres of cropland, evenly divided between irrigated and non-irrigated land. The primary crops include grain hay, meadow hay, and pasture, with smaller-scale production of alfalfa and orchards. The Middle Fork Subbasin has around 10,600 acres of cropland, one-third of which is irrigated. Key crops in this area include alfalfa, meadow and grass hay, pasture, grain, and grain hay.

In 2022, Grant County's total market value of agricultural products sold was $29,563,000. Since 1988, gross farm sales have fluctuated between approximately $16 million and $45 million. According to the 2022 Oregon Agripedia, the county currently has 32,019 cattle and 41,779 acres of harvested cropland, primarily dedicated to hay production.

Early livestock operations in the region focused on cattle and horses. However, in the 1880s, many cattle herds were sold and replaced with sheep, leading Grant County to become a major wool producer. Assessment records from 1893 list 17,631 cattle and 158,355 sheep. Sheep numbers began to decline in the 1930s as cattle production increased. Farming in the area dates back to the 1860s, with some stock ranches gradually transitioning to crop production in valley regions.

Water Use

The North Fork Subbasin has water rights administered by the Oregon Water Resources Department (WRD) totaling 536.0 cubic feet per second (cfs), primarily allocated for irrigation (291.5 cfs) and mining (202.2 cfs). Each year, approximately 13,400 acres are irrigated—mostly using sprinkler systems—requiring 17,800 acre-feet (AF) of water. Minimum stream flows were established in 1962 at Monument (55 cfs) and Dale (30 cfs). Additionally, some water may be diverted from the North Fork to the Umatilla Basin (25–28 cfs) and the North Fork Burnt River (22 cfs) for irrigation. There are 22 instream water rights in the subbasin.

The Middle Fork Subbasin has water rights totaling 146.7 cfs, allocated for irrigation (88.5 cfs) and mining (49.5 cfs). Most mining rights are junior, dating later than 1970. Irrigation—primarily flood irrigation near Long Creek and upstream of Galena—covers approximately 4,900 acres. From May to September, about 5,100 AF (44 cfs) of water is required. Minimum stream flows were established in 1962 at Ritter (10 cfs) to support aquatic life. The subbasin contains seven instream water rights.

Instream water rights, approved by WRD, serve purposes such as fish protection, pollution mitigation, and maintaining recreational uses. These rights have priority dates and are regulated in the same manner as other water rights, meaning they cannot impact uses with senior priority dates.

The John Day River Basin has no major impoundments. Over the years, multiple reservoir sites have been proposed in both subbasins for upstream water storage. However, all identified sites were determined to have potentially adverse effects on anadromous fish runs and were deemed economically unjustifiable under federal agency evaluation criteria at the time.

Applications have been submitted to WRD to reserve water in the Management Area for future irrigation needs or to meet adopted minimum perennial streamflow levels. Decisions on these reservations are still pending.

Fisheries and Wildlife Resources

The John Day River Subbasin supports anadromous runs of wild spring Chinook salmon and Endangered Species Act (ESA)-listed threatened summer steelhead. Summer steelhead are widely distributed throughout the subbasin. The John Day River summer steelhead major population group (MPG) is one of four MPGs within the Middle Columbia River Steelhead Distinct Population Segment (Mid-C Steelhead DPS) and the only MPG located entirely within Oregon. Additionally, anadromous Pacific lamprey (classified as “Oregon-sensitive”) are found throughout the basin. Other focal native fish species include ESA-listed threatened bull trout, and interior redband trout (resident Oncorhynchus mykiss). Bull trout inhabit the upper reaches of both the North Fork and Middle Fork, with populations consisting of both fluvial and resident life histories.

The basin is home to an estimated 27 fish species, 17 of which are native. Smallmouth bass, an introduced warmwater game fish, also contribute to a significant and economically important fishery in the lower John Day River. Current fish management policies emphasize maintaining native fish stocks and addressing factors that threaten their genetic integrity.

Native fish populations in the John Day Basin face significant challenges, including habitat loss, irrigation diversions, migration barriers, elevated water temperatures, and low streamflow. In the Cottonwood-Fox Creek watershed, the replacement of many gravity irrigation diversions has significantly improved fish passage, allowing greater access to the upper watershed. Despite these advancements, high water temperatures and reduced streamflow continue to severely restrict the distribution and productivity of cold-water fish species.

The riparian and upland habitats in the Management Area support a diverse range of terrestrial wildlife, including mule deer, elk, small mammals, migratory birds, reptiles, and amphibians. Mule deer are considered a key indicator of upland ecosystem health and are a management priority for the Oregon Department of Fish and Wildlife (ODFW) through its Oregon Mule Deer Initiative. ODFW has also designated Cottonwood - Fox Creek watershed as a Beaver Emphasis Area, focusing efforts on surveying beaver presence, implementing beaver-based habitat restoration, and reducing human beaver conflicts.

2.4 Agricultural Water Quality

2.4.1 Water Quality Issues

According to the *John Day River Basin Report* (November 1986), the North Fork Subbasin produces the highest quality water in management area chemically, physically, and biologically within the John Day River Basin. However, water distribution presents challenges due to high winter flows and low summer flows. Adverse weather conditions, such as high snowpack years leading to spring melt, can negatively affect streambanks and riparian vegetation. High flows can carry sediment, resulting in localized erosion and sedimentation, while low flows, coupled with a lack of vegetation and other factors, can lead to elevated water temperatures. Additionally, the subbasin contains several geothermal hot springs, but their total water flow and impact on stream temperatures are not fully understood, according to the *John Day River Basin Report* (1986).

Stream pollution in the basin is closely linked to land use. Approximately 45 percent of the land is forested, and more than 50 percent is used for agriculture. Other land uses, such as urban, rural residential, and parkland, account for small portions of the basin's area. According to the Oregon Department of Environmental Quality, *Total Maximum Daily Load (TMDL)* planning applies to all land uses contributing to pollution in the basin's streams and rivers.

2.4.1.1 Beneficial Uses

Water in the John Day Basin should be managed to protect its recognized beneficial uses. Among these, the most sensitive use is the spawning and rearing of cold-water fisheries in the John Day River Basin.

Designated beneficial uses in the John Day Basin include public and private domestic water supply, industrial water supply, irrigation, livestock watering, fish and aquatic life, wildlife and hunting, fishing, boating, water contact recreation, and aesthetic quality (OAR 340-41-0170, Table 170A) (www.oregon.gov/deq/wq/Pages/WQ-Standards-Uses.aspx).

While individual sources or activities may not significantly impact water quality, their cumulative effects, combined with impacts from other land uses and activities, contribute to the impairment of beneficial uses of the John Day River and its tributaries

2.4.1.2 Water Quality Parameters of Concern

There are several water quality concerns for agriculture listed in the 2022 Integrated Report (https://www.oregon.gov/deq/wq/Pages/epaApprovedIR.aspx).

The following discussion of water quality parameters of concern addresses the standards established for the protection of beneficial uses listed in OAR 340-41-0170.

Temperature

According to the 2022 Integrated Report, water temperature is the most widespread concern in the basin. Stream heating can result from various factors, including excess solar radiation, reduced groundwater interaction, and diminished instream flow. These issues may arise from both natural disturbances and human-related stream modifications such as vegetation disturbance, irrigation withdrawal, and channel straightening. Elevated water temperatures negatively impact the survival of aquatic species. The purpose of temperature criteria is to

protect designated temperature-sensitive beneficial uses, including specific salmonid life cycle stages in the state's waters.

For nonpoint sources of stream heating, such as vegetation disturbance and stream channel alteration attributed to agriculture and rural lands, the temperature TMDL establishes thermal goals aimed at achieving more natural stream temperature patterns. The TMDL recovery targets include restoring natural shade-producing vegetation along all streams in the plan area and addressing stressors that hinder the attainment of natural vegetative and channel geometry conditions. In some areas, shade-producing riparian vegetation may not be suitable due to local site conditions. Site-specific determinations will be made by the Oregon Department of Agriculture.

Bacteria

Bacteria levels, particularly *Escherichia coli* (*E. coli*) can pose a threat to the health of water contact recreation users and domestic water supplies. Potential sources of these bacteria include animal manure and septic systems.

The DEQ bacteria standard (OAR 340-41-0009(1)(a) states that organisms of the coliform group commonly associated with fecal sources shall not exceed a 30-day log mean of 126 *E. coli* organisms per 100 ml, based on a minimum of five samples and no single sample shall exceed 406 *E. coli* organisms per 100 ml.

As an alternative to estimating the load allocation directly, the bacteria TMDL establishes a surrogate measure expressed in a phased bacteria level reduction until the numeric standard above is achieved. An interim percent load reduction of 69 percent is suggested as an initial target for implementation, with a prioritization on the Upper Mainstem of the John Day River. If the numeric standard is not achieved after reaching this target, an 83 percent reduction would then be pursued.

Sediment

Sediment includes fine silt and organic particles suspended in the water column, settled particles, and larger gravel and boulders that move at high flows. Sediment movement and deposition is a natural occurrence, but high levels of sediment can degrade fish habitat by filling pools, creating a wider and shallower channel, and covering spawning gravels. Suspended sediment or turbidity in the water can cause physical damage to fish and other aquatic life, modify behavior, and increase temperature by absorbing incoming sunlight. Sediment comes from erosion on range, forestland and croplands, erosion from streambanks and streambeds, and runoff from roads and developed areas. Nutrients, pesticides, and toxic substances can also be attached to sediment particles.

Dissolved Oxygen

Low levels of dissolved oxygen can harm fish and other aquatic life. The availability of nutrients, warm temperatures, and light stimulate aquatic plant and algae growth that reduces the oxygen content of water when these plants die and decay. Domestic and wildlife feces and other organic wastes break down and remove oxygen from water.

The dissolved oxygen TMDL targets the DEQ standard (OAR 340-041-0016(3)) for water bodies identified as providing cool-water aquatic life habitats.

The standard states*, "For waters identified by DEQ as providing cool-water aquatic life, the dissolved oxygen may not be less than 6.5 mg/l as an absolute minimum."*

The dissolved oxygen TMDL establishes that implementation of the temperature TMDL will sufficiently address the dissolved oxygen impairment identified in the plan area.

Biocriteria

Biocriteria refer to the support of plants and animals which live at least part of their life cycle in water. Factors that affect biocriteria are stream disturbances, excessive heat inputs, and excessive sediment.

The standard states, "*Waters of the state shall be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities (OAR 340-41-0011).*"

The biocriteria TMDL establishes that biological impairment is addressed through the temperature TMDL. While stressors other than temperature are identified as causes of biological impairment in the Basin, they are addressed directly or indirectly through the temperature TMDL implementation measures.

2.4.1.3 TMDLs and Agricultural Load Allocations

Table 2.4.1.3: Pollutants with Approved TMDLs and Load Allocations for the Management Area
Bacteria: Applies to all waterbodies in the John Day Subbasin with emphasis placed on the upper John Day River. **Load Allocation:** 83 percent reduction of *E. coli* organisms entering streams via runoff and direct deposition. **TMDL:** John Day River Basin TMDL and Water Quality Management Plan (EPA; approved 2010) • For more information: http://www.oregon.gov/deq/FilterDocs/jdTMDLwqmp.pdf
Temperature: Applies to all waterbodies in the John Day Subbasin. **Load Allocation:** The daily sum of the natural background solar heat load, throughout the basin stream network, and the heat load corresponding to the additional 0.1ºC human use allowance (HUA). **Load Allocation Surrogate:** Effective shade, the percent of potential daily solar radiation flux that is blocked by vegetation and topography. Channel morphology and instream flow are additional surrogates due to their importance in moderating temperature. **TMDL:** John Day Basin TMDL and Water Quality Management Plan (EPA; approved 2010) • For more information: http://www.oregon.gov/deq/FilterDocs/jdTMDLwqmp.pdf
Dissolved Oxygen: Addresses summer dissolved oxygen concerns. **Load Allocation:** Dissolved oxygen standards are expected to be met through Temperature TMDL load allocations **TMDL:** John Day River Basin TMDL and Water Quality Management Plan (EPA: approved 2010) • For more information: http://www.oregon.gov/deq/FilterDocs/jdTMDLwqmp.pdf

Biocriteria: Addresses biocriteria.

Load Allocation: Biocriteria standards are expected to be met through Temperature TMDL load allocations

TMDL: John Day River Basin TMDL and Water Quality Management Plan (EPA; approved 2010)

- For more information: http://www.oregon.gov/deq/FilterDocs/jdTMDLwqmp.pdf

2.4.1.4 Drinking Water

The Oregon Department of Environmental Quality (DEQ) provides drinking water assessments for each Management Area ahead of the Oregon Department of Agriculture's (ODA) biennial reviews. The full report is accessible at DEQ's Nonpoint Source Implementation webpage: https://www.oregon.gov/deq/wq/programs/Pages/Nonpoint-Implementation.aspx. In December 2024, DEQ submitted a drinking water assessment for the North and Middle Fork John Day River Agricultural Water Quality Management Area. Below is a summary of the report.

The Management Area is served by six public drinking water systems, providing water to approximately 581 people through groundwater and surface water sources. Over the past ten years, these systems have not faced any alerts or violations for E. coli or nitrate contamination from the Oregon Health Authority. DEQ recommends that public water systems adopt Source Water Protection Practices to prevent contamination and enhance resilience. Resources for managing risks to drinking water supplies are available in the Groundwater and Surface Water Resource Guides. The area includes three Community public water systems serving 545 people, primarily through groundwater wells, springs, and surface water intakes, as well as two active Oregon Very Small systems serving 32 people.

DEQ emphasizes implementing Source Water Protection Practices to reduce contamination risks and improve water resiliency. Resources like the Groundwater and Surface Water Resource Guides are available to support water quality management efforts. (https://www.oregon.gov/deq/FilterDocs/gwresguide.pdf) (https://www.oregon.gov/deq/FilterDocs/SurfaceWaterResourceGuide.pdf)

Land use in the Management Area consists primarily of private rural lands and federal property managed by the United States Forest Service and BLM. DEQ encourages ODA to adopt measurable objectives for strategies that protect drinking water source areas. Proactive steps, such as pollutant reduction tools and soil assessments, are critical to safeguarding drinking water. Additional guidance and resources are available through DEQ's Drinking Water Protection Program. (https://www.oregon.gov/deq/wq/dwp/Pages/dwpcontacts.aspx)

2.4.2 Sources of Impairment

Probable sources of pollution in the John Day Basin include erosion from agricultural, rural, and forest lands; streambank erosion; and runoff and erosion from roads, urban areas, and agricultural operations. Both natural and human-caused erosion contribute to these issues. Pollutants are transported to surface water or groundwater through rainfall, snowmelt, irrigation, urban runoff, and seepage. A significant cause of water quality impairment is increased heat input, primarily due to the removal of shade-providing vegetation, along with changes to seasonal flows, channel shape, and floodplain functions.

While there may not be severe impacts on water quality from a single source or activity, the combined effects from all sources contribute, along with impacts from other land uses and activities, to the impairment of beneficial uses of the John Day River.

2.5 Regulatory and Voluntary Measures

2.5.1 Area Rules

A landowner's or operator's responsibility under this Area Plan is to implement measures that prevent and control the sources of water pollution associated with agricultural and rural lands and activities. A landowner or operator is not responsible for conditions caused by other landowners or for circumstances not within their reasonable control including unusual weather events.

The sections that follow describe more detailed information related to potential agricultural water quality concerns, provide definitions of commonly used terms, and provide some exemptions to the rules.

North and Middle Forks John Day River
OAR 603-095-1040

Prevention and Control Measures

(1) Limitations:
(a) All landowners or operators conducting activities on agricultural lands are provided the following exemptions from the requirements of OAR 603-095-1040 (Prevention and Control Measure).
(A) A landowner or operator shall be responsible for water quality resulting from conditions caused by the management of the landowner or operator.
(B) Rules do not apply to conditions resulting from unusual weather events or other circumstances not within the reasonable control of the landowner or operator. Reasonable control of the landowner means that technically sound and economically feasible measures must be available to address conditions described in Prevention and Control Measures.
(b) Rule implementation schedule:
(A) OAR 603-095-1040(2) is effective upon adoption;
(B) OAR 603-095-1040 (3) through (6) are effective January 1, 2006;
(C) Effective upon adoption of these rules, all landowners or operators should immediately begin technically sound, economically feasible efforts where needed to achieve measurable progress towards compliance with these rules.
(c) These rules may be modified as a result of the biennial review of the progress of implementation of the North and Middle Forks John Day River Agricultural Water Quality Management Area Plan.

(2) Waste Management: Effective on rule adoption, no person subject to these rules shall violate any provision of (ORS 468B.025 or 468B.050).

(3) Uplands Management:
(a) Cropland, rangeland and pasture condition must allow, within the capability of the site, vegetation sufficient to protect water quality.

(b) Private roads and farmsteads must be in a condition that protects water quality by controlling soil erosion and suspended sediment concentrations in runoff.

(4) Riparian Area Management: Riparian area condition must allow the establishment, growth and active recruitment of riparian vegetation, consistent with the vegetative capability of the site, for protection of water quality.

(5) Irrigation Management: Irrigation must be done in a manner that limits the amount of pollutants in the runoff from the irrigated area.

(6) Livestock Management:
(a) Livestock confinement areas must have an adequate runoff control system or equally effective pollution control practice sufficient to control runoff of sediment and animal waste.
(b) OAR 603-095-1040(6)(a) applies to all livestock confinement areas except those required to have a permit under ORS 468B.050.

2.5.2 Voluntary Measures

A landowner's or operator's responsibility under this Area Plan is to implement measures that prevent and control the sources of water pollution associated with agricultural and rural lands and activities. A landowner or operator is not responsible for conditions caused by other landowners or for circumstances not within their reasonable control including unusual weather events.

The sections that follow describe more detailed information related to potential agricultural water quality concerns, provide definitions of commonly used terms, and provide some exemptions to the rules.

2.5.2.1 Nutrients and Manure Management

A landowner or operator's responsibility under this Area Plan is to prevent the introduction of waste materials into nearby bodies of water. There are existing, applicable statutes and rules that regulate water quality.

2.5.2.2 Riparian/Streamside Area Management

A landowner or operator's responsibility under this Area Plan is to implement measures that prevent and control water pollution from agricultural activities. Areas near waterbodies are especially important to water quality and sensitive to management activities.
OAR 690-4000-0019(14): "Riparian Area" means the zone of transition from an aquatic ecosystem to a terrestrial ecosystem, dependent upon surface or subsurface water, that reveals through the zone's existing or potential soil-vegetation complex, the influence of such surface or subsurface water. A riparian area may be located adjacent to a lake, reservoir, estuary, pothole, bog, wet meadow, muskeg, or ephemeral, intermittent or perennial stream.

Water is the distinguishing characteristic of riparian areas, but soil, vegetation, and landform also exert strong influence on these systems. In a healthy riparian ecosystem, these four components interact to produce a wide variety of conditions. Healthy riparian areas provide several important ecological functions. These include:

- Dissipation of stream energy associated with high flows and thus influencing the transport of sediment,

- Capturing suspended sediment and bedload that builds streambanks and develops floodplain function,
- Retaining floodwater and recharging ground water,
- Stabilizing streambanks through plant root mass,
- Developing diverse channel characteristics providing pool depth, cover, and variations in water velocity necessary for fish production,
- Supporting biodiversity,
- Shade for moderation of solar heat input,
- Recruitment of large woody debris for aquatic habitat.

Indicators to determine improvement of this condition include:

- Recruitment of desirable riparian plant species,
- Maintenance of established beneficial vegetation,
- Maintenance or recruitment of woody vegetation -- both trees and shrubs,
- Streambank integrity capable of withstanding 25-year flood events.

Factors used to evaluate improvement of the riparian area condition could include:

- Expansion of riparian area as evidenced by development of riparian vegetation and plant vigor,
- Reduction in actively eroding streambank length beyond that expected of a dynamic stream system,
- Community composition changes reflecting an upward trend in riparian condition (Increases in grass-sedge-rush, shrubs, and litter, and decreases in bare ground),
- Plant community composition reflecting an upward trend as indicated by decreases in noxious plant species,
- Stream channel characteristics show upward trend consistent with landscape position (i.e. a decrease of width to depth ratio of the channel),
- Shade patterns consistent with site capability,
- Stubble height of herbaceous species and leader growth of shrubs and trees.

Riparian area management addresses the water quality parameters of concern. Streamside vegetation influences water temperature through shade, stream width-to-depth ratio, groundwater recharge and discharge, and other hydrological factors. Sediment reductions improve fish and invertebrate habitat. Healthy riparian conditions improve biological criteria and habitat by reducing stream disturbances, preventing excessive heat and contaminant inputs, and adding to stream habitat complexity.

Riparian area health may be directly influenced by management. This Area Plan does not prescribe specific practices to landowners for management of riparian areas. Site specific recommendations for management to protect water quality, including buffer width, vegetation types, and grazing timing, can be obtained from sources listed in the Implementation Strategies section (3.2.4) of this Area Plan.

The LAC requests that the county governments include a description of strategies to improve and maintain riparian vegetation along rivers, streams, and springs in their comprehensive land use planning documents. The natural features provided by riparian areas have extensive economic, social, and environmental benefits to the county residents. Coordination of county and state programs addressing riparian condition may be provided by the local SWCDs.

2.5.2.3 Upland Management

A landowner or operator's responsibility under this Area Plan is to implement measures that prevent and control water pollution from agricultural activities and soil erosion. This includes agricultural and rural lands that may not be in close proximity to waterbodies but have the potential to contribute to water quality degradation.

Upland areas are the rangelands, forests, and croplands upslope from the riparian areas. These areas extend to the ridge tops of watersheds. With a protective cover of grass (herbs), shrubs, or trees, consistent with site capability, these areas will capture, store, and safely release precipitation thereby reducing the potential of excessive soil erosion or delivery of soil or pollutants to the receiving stream or other body of water. Proper management of upland vegetation considers physical and biological conditions of the management area, controls soil erosion, and minimizes transport of soil and nutrients to the stream. Upland management also simultaneously considers livestock production interests and protection of fish and wildlife habitat.

Vegetation and soils are distinguishing characteristics of upland areas. Adequate vegetative cover can prevent or reduce soil erosion, minimize pollutant transport, improve water infiltration and storage, and protect fish and wildlife habitat. Vegetation is dependent on physical characteristics including soil, geology, landform, water, and other climate factors. In a healthy upland environment, management will provide a balance of these characteristics.

Upland productivity varies depending on the characteristics listed above as well as biological and management factors. This productivity supports a wide variety of wildlife and forage for livestock. Healthy uplands maintain productivity over time and are resilient to stresses caused by variations in physical conditions such as climatic changes.

To implement proper management practices and ensure an area is healthy or functioning properly, the capability and potential of a site must be understood. Capability is the highest ecological status a site can attain given political, social, or economic constraints or limiting factors. Potential is the highest ecological status a site can attain given no political, social, or economic constraints and is often referred to as the "potential natural community." Examples of constraints would include local ordinances, location of roads or homes, and the costs of management changes.

Healthy upland areas provide several important ecological functions. These include:

- Capture, storage, and safe release of precipitation,
- Provide for plant health and diversity that support habitat (cover and forage) for wildlife and livestock,
- Filtration of sediment,
- Filtration of polluted runoff,
- Provide for plant growth that increases root mass that utilizes nutrients and stabilizes soil against erosion.

Indicators of these conditions include:

- Recruitment of beneficial plant species,
- Ground cover to limit runoff of nutrients and sediment,
- Cropland cover that is sufficient to limit movement of nutrients and sediment,

- Roads and related structures designed, constructed, and maintained to limit sediment delivery to streams,
- Noxious weed and insect pest populations contained (see State weed laws and county weed control regulations to determine weed species that must be controlled).

Factors to evaluate upland area condition may include:

- Vegetation utilization through stubble height measurements,
- Plant species composition to measure plant health and diversity,
- Ground cover (live plants, standing plant litter, and ground litter) as a measure of potential erosion,
- Evidence of overland flow (pattern and quantity),
- Site productivity (domestic livestock and wildlife carrying capacity),
- Soil erosion potential through prediction models available through NRCS.

Upland management addresses a water quality parameter of concern identified in the 303(d) list as sedimentation. This Area Plan does not prescribe specific practices to landowners for management of upland areas to reduce runoff of sediment and other wastes. Site specific recommendations for management to protect water quality, including grazing management systems, desirable vegetation types, and road construction/maintenance, can be obtained from sources listed in the Implementation Strategies section (3.2.4) of this Area Plan.

2.5.2.4 Irrigated Lands Management

A landowner or operator's responsibility under this Area Plan is to implement measures that prevent and control water pollution from irrigation. This includes pollution to groundwater and surface water. Diversion of water for irrigation or other uses and the return of that water to the surface or groundwater are activities that have potential for contributing to water quality problems.

Irrigated lands are either riparian, floodplain, or upland upon which water is applied for the purpose of growing crops. Diversion of water from a waterbody to be applied on land for the purpose of growing crops/livestock is a recognized beneficial use of water. Irrigation water use is regulated by the OWRD in the form of water rights, which specify the rate, duty, and season that water can be applied to a particular parcel of land. Refer to OWRD Rules (OAR 690 and ORS 536 through 543) for more details.

Irrigation in this basin is primarily conducted through flooding or sprinkler systems. Water is typically drawn from surface sources, such as streams or ponds, as well as from groundwater. These withdrawals can affect stream flows and, consequently, impact water quality. To minimize adverse effects on stream flows, water withdrawals should comply with legal water rights and consider surface water characteristics and diversion methods. Effective irrigation depends on applying water at the right time and in the right amount, tailored to crop needs. This can be achieved by monitoring soil moisture levels, using crop water use budgets, or employing other tracking tools to optimize application.

In general, flood irrigation utilizes 50 percent more water than a sprinkler system; an effort to increase the conversion from flood to sprinkler irrigation should be encouraged due to increased water temperatures and availability.

All irrigators within the region should have an irrigation management plan to match irrigation application quantities, rates to the crop, soil type, and environmental demands. A companion nutrient management plan should match fertilizer and nutrient applications to agronomic demand.

Irrigation management aims at increasing food production and contributes to economic development through improvements in performance, productivity, and sustainability of irrigated agriculture and irrigation systems.

An irrigation management plan should consist of:

- Soil types and map
- Crop types, acreage, schedules, and critical moisture period
- Irrigation system types, efficiencies
- Estimated water use (evapotranspiration-ET) and peak ET, weekly
- Irrigation rate, frequency and total, weekly

Characteristics of an irrigation system that has minimal effect on water quality include:

- Operation based on an irrigation and nutrient management plan
- Efficient delivery of water to the land within legal water rights
- Minimal overland return flows
- Return flow routing that provides for settling, filtering, and infiltration
- Minimal effect on stability of streambanks and minimal soil erosion
- Appropriate scheduling of water application to the site including consideration of soil conditions, crop needs, climate, and topography
- Diversion structures that are installed and managed to control erosion and sediment delivery and protect the stability of streambanks. If funding becomes available, temporary diversions, which must be reinstalled every year, should be replaced with suitable permanent diversions (i.e. pumping stations, infiltration galleries, dams).
- Diversions that are adequately for fish protection and provide for fish passage (refer to ORS 498.301).

Effective water quality management practices for prevention and control of impacts from irrigation:

- Irrigation scheduling based on crop needs, soil type, climate, topography, and infiltration rates
- Irrigation system efficiency and uniformity monitoring
- Diversion maintenance including push-up dam management, screens, and fish passage
- Return flow management to prevent pollution from entering streams
- Backflow devices to prevent well contamination
- Flow measuring devices to assure legal and efficient water usage
- Cover crops to reduce soil erosion.

2.5.2.5 Livestock Management

A landowner or operator's responsibility under this Area Plan is to implement measures that prevent and control water pollution from livestock operations. Livestock production is the most common agricultural activity in the management area. Careful management of areas used for grazing, feeding, and handling is critical to the success of livestock operations and have potential to affect water quality.

Livestock management can be done in a manner that limits soil erosion and minimizes the delivery of sediment and animal wastes to nearby streams. A grazing management system should promote and maintain adequate vegetative cover for protection of water quality by consideration of intensity, frequency, duration, and season of grazing.

Grazing near streams should be managed to prevent negative impacts to streambank stability, allow for recovery of plants, and leave adequate vegetative cover to ensure protection of riparian functions, including shade and habitat. Off stream watering systems, upland water developments, feed, salt, and mineral placement are examples of methods to be considered as ways to reduce impacts of livestock to streamside areas.

Factors used to evaluate effectiveness of management may include:

- Safe diversion of runoff,
- Protection of clean water sources,
- Off stream watering systems,
- Lot maintenance; smoothing, mounding, seeding,
- Structural measures i.e.; filter strips, catch basins, berms,
- Waste collection, storage and application methods.

Chapter 3: Implementation Strategies

Chapter 3 describes efforts to make and track progress toward the goals of the Area Plan. It presents the goals, measurable objectives, strategic initiatives, proposed activities, and monitoring efforts.

Goal
Prevent and control water pollution from agricultural activities and soil erosion, and achieve applicable water quality standards.

Objective
Maximize agriculture's beneficial impact on water quality within the Management Area by identifying and controlling factors that contribute to pollution originating on agricultural and rural lands.

3.1 Measurable Objectives and Strategic Initiatives

Measurable objectives allow the Ag Water Quality Program to evaluate progress toward meeting water quality standards and TMDL load allocations. Any measurable objectives are stated here. Progress is reported in Chapter 4.1.

3.1.1 Management Area

ODA is collaborating with SWCDs and LACs across Oregon to establish long-term measurable objectives to achieve desired water quality conditions.

Pollutant of concern:
Heat

Strategy:
Ensure adequate riparian vegetation for filtration of pollutants, stream shading, and streambank stability consistent with site capability.

Water Quality Criteria:
Temperature (solar radiation) Many streams in the Management Area are listed as impaired for temperature and have an approved TMDL.

Data:
Streamside vegetation conditions within the agriculture lands of the Management Area, as assessed by Monument SWCD.

Table 3.1.1.1 Measurable Objective #1 NFMF JDR Riparian Assessment

Objective 1: Conduct a comprehensive riparian assessment across the Management Area on agriculture land. This evaluation will identify areas with underperforming riparian vegetation, assess canopy cover, and analyze vegetation health. The results will help prioritize restoration efforts to enhance habitat quality and support long-term watershed management planning (dependent on funding).
Assessment Method: Evaluate streamside vegetation conditions using available digital resources, including recent LiDAR datasets, aerial imagery, and other remote sensing tools

Milestones:

- By December 2026, compile digital resources to evaluate riparian conditions, including recent LiDAR datasets, aerial photography, and any other available raster layers.
- By February 2027, develop a GIS-based tool in AGOL using collated digital resources. Through working group meetings, evaluate the draft tool with MSWCD partner organizations and ODA staff.
- By August 2027, Integrate and publish the AGOL Riparian Condition Tools within the John Day Basin Partnership's ATLAS Aquatic Resource Prioritization Framework for the NFMFJDR watersheds.
- By December 2027, Develop and finalize a guiding document outlining tool assumptions, metadata, creation process, and user instructions for the evaluation tools.
- By May 2028, Present the finalized GIS-based tool and guiding document at the John Day Basin Partnership's in-person meeting to share results and encourage adoption of the final products.
- By August 2028, provide project completion report.

3.1.2 Focus Areas and Other Coordinated Efforts in Small Watersheds

3.1.2.1 Cottonwood Creek Focus Area

Cottonwood Creek, a tributary of the North Fork John Day River, is vital for ESA-listed Mid-Columbia River steelhead and agricultural irrigation. Spanning 149,061 acres, the 2020–2023 Focus Area covers 43,201 acres with 18.5 perennial and 66.5 intermittent stream miles. Monument SWCD has implemented conservation measures, but sediment loads, and turbidity remain concerns. With OWEB funding, partners are monitoring steelhead populations, water temperatures, and flows to develop a predictive model and explore irrigation curtailment. The Cottonwood Creek Sediment Control Project is in Phase II, focusing on landowner engagement and sediment reduction. Continued efforts include upland improvements, habitat protection, and the Water Quality Land Condition Assessment (WQLC).

Monument SWCD closed the Focus Area in 2023 after more than 10 years of focusing on the Cottonwood drainage. While the proposed assessment method guided restoration efforts, it addressed second-tier priorities for the basin and district. Monument SWCD will collaborate with ODA in the next biennium to assess the condition of the MA, building knowledge to guide future work by the SWCD and local conservation partners. Water temperature and quantity are expected to remain the highest priority conservation needs moving forward.

The focus of the assessment shifted from turbidity in Cottonwood Creek, which is mostly natural, to addressing water temperature and quantity issues. Projects will now focus on improving riparian zones, adding in-stream structures, supporting beavers, reducing forest stand density, and increasing infiltration to mitigate wildfire risks across the North Fork-Middle Fork John Day River Basins.

Table 3.1.2.1 Class I, II, III Results in Acres

Water Quality Land Conditions (WQLC) assessment categories:

- Class I – land conditions and agricultural use that are protective of water quality
- Class II – land conditions that may impact water quality due to vegetation cover/composition or agricultural use concerns
- Class III – land conditions likely to impact water quality due to vegetation cover/composition or agricultural land use concerns

Class	2018: WQLC GIS Model Pre-Assessment	2020: WQLC Ground Truthing Assessment	2021-23: Not Assessed
I	36029.3	33735.0	
II	28205.8	36409.9	
III	8885.9	2976.1	
Total	**73,121**	**73,121**	

Note: The focus area has about 8.6% 'Not Ag' lands. The assessment divides the area into catchments, which are small watersheds. Three natural boundaries do not distinguish between 'Ag' and 'Not Ag' lands, making it impossible to exclude the 'Not Ag' lands from the assessment.

3.1.2.2 Fox Creek Focus Area

The Fox Creek Focus Area spans approximately 44,000 acres across the Lower and Upper Fox Creek watershed, containing 35 miles of perennial streams and 113 miles of intermittent and streams. An assessment of key hydrological, ecological, and environmental factors will be conducted within this area, with the scope limited by available LiDAR data defining the study's boundaries. This will provide critical insights into the watershed's condition and management needs.

Grant SWCD is conducting the monitoring and stream/riparian restoration work within the focus area. The District is also leading a stream habitat and restoration water quality improvement project, currently in the design phase, with implementation expected in 2026. Since 2017, the District has used LiDAR to monitor riparian growth in the project area, which revealed significant vegetation impacts from beaver activity. The District plans to continue this monitoring but is unsure when the next LiDAR flight will occur. In the meantime, they have added a second monitoring effort to assess the effectiveness of temporary enclosures in mitigating herbivory impacts. Additionally, the District is exploring various remote sensing methods to track changes in riparian canopy cover and other project elements to build on past efforts.

Table 3.1.2.2a Streamside Biomass Assessment (SBA) Results – In Cubic Feet

SBA Class Category	2015: Pre-Assessment (or Conditions at Beginning of Biennium)*	2018: Interim-Assessment	Post-Assessment
Herbaceous Biomass Volume (0' to 3')	5,789,835 CuFt	5,732,566 CuFt	To be conducted when new LiDAR is available
Shrub Biomass Volume (3'-20')	560,352 CuFt	406,841 CuFt	
Tree Biomass Volume (>20')	1,830,606 CuFt	1,684,610 CuFt	
Total Biomass Volume	8,180,793 CuFt	7,824,016 CuFt	

Table 3.1.2.2b Use of Temporary Enclosures to Protect Streamside Vegetation in High Herbivorous Mammal Areas – feet

Enclosure	2023: Pre-assessment	2024: Post-assessment
1	Limited willow and rose survival; no reed canary grass or herbivory.	Good willow survival, reed canary grass now dominant, no herbivory.
2	Good willow and alder survival; 2% reed canary grass. No herbivory.	Healthy willows and alder, minor herbivory, reed canary grass unchanged.
3	Good willow survival; 25% reed canary grass. No herbivory.	Willows thriving, reed canary grass increased to 95%. No herbivory.
4	Limited willow and rose survival; 5% reed canary grass. No herbivory.	Survival remains low, 100% reed canary grass. No herbivory.
5	Good willow and rose survival; 100% reed canary grass. No herbivory.	Good survival, herbivory on willow, reed canary grass unchanged.
6	Good willow and alder survival; 100% reed canary grass. No herbivory.	Willow growth continued, reed canary grass dominant, herbivory near fence.
7	Poor willow survival; 100% reed canary grass. No herbivory.	Limited species survival, reed canary grass remains dominant. No herbivory.
8	Limited willow, rose, and elderberry survival; 50% reed canary grass. No herbivory.	Willow and rose survival low, reed canary grass increased to 70%. No herbivory.
9	Poor willow and rose survival; 100% reed canary grass. No herbivory.	Poor survival of all species, reed canary grass dominates. No herbivory.
10	Good willow, rose, and currant survival; no reed canary grass. No herbivory.	Plant growth continues, reed canary grass and Canada thistle observed, herbivory noted.

Key Findings (2023 Pre-Assessment vs. 2024 Post-Assessment)

- **Willow survival:** Generally good in most enclosures, with continued growth in areas with initial survival. Enclosures with low willow survival showed little improvement.
- **Herbivory:** Initially absent but observed in some enclosures post-assessment.
- **Reed canary grass:** Increased in nearly all sites.
- **Alder and rose:** exhibited moderate survival

Table 3.1.2.2c Focus Area Milestone and Measurable Objective

Streamside Biomass Assessment	***Response:***
A. Assessment class(es) that will be used to show progress (include "Increase" or "Decrease"):	Shrub Biomass Tree Biomass
Conditions in 2023: Reassessment is pending availability of new LiDAR data or suitable alternative. B. Amount (with units): C. Percent of total ag area assessed:	Condition in 2018 B. Shrub = 406,841 CuFt Tree = 1,684,610 CuFt C. 26.7%
Long-term measurable objective: D. Year (how long do you hope to work in this FA?): E. Long-term amount to achieve (with units): F. Long-term percent to achieve:	 2041 Shrub = 414,978 Cuft (2%) Tree = 1,701,456 Cuft (1%) 27.2%
First milestone toward long-term measurable objective: G. Milestone year (e.g., end of 2023-2025 biennium, next revision of Area Plan, or other; 2-5 years in future): H. Amount to achieve (with units): J. Percent to achieve:	 <2031 Shrub = 410,909 Cuft (1%) Tree = 1,693,033 Cuft (0.5%) 27%

3.1.3 Strategic Implementation Areas (SIA)

Camas Creek SIA (Initiated 2024)

The 2024 Camas Creek SIA ODA evaluated 99,099 acres of agricultural land and 653 miles of agricultural streams to assess water quality concerns and conservation opportunities. The evaluation considered the condition of streamside vegetation, areas of bare ground, and potential livestock impacts (including manure management). The process involved both a remote evaluation and field verification from publicly accessible areas.

The purpose of the SIA initiative is to ensure compliance with Oregon's agricultural water quality regulations, promote voluntary conservation efforts, monitor water quality and land conditions, and foster locally led collaborative partnerships to address water quality issues. This initiative provides valuable insights into agricultural water quality concerns and helps guide conservation efforts within the Camas Creek watershed.

Agriculture in the area primarily consists of summer cattle pastures, with some year-round cattle operations and haying. Key agricultural concerns include livestock impacts on streamside vegetation, head cuts in meadows, and stream downcutting, which leads to floodplain disconnection.

For more information see: www.oregon.gov/oda/shared/Documents/Publications/NaturalResources/SIAProgressReport.pdf

Measurable Objectives:
By September 4, 2028, all 3 tax lots identified as a Compliance Opportunity will be downgraded to Restoration Opportunity or Likely in Compliance.
By September 4, 2027, all 27 landowners of tax lots identified as a Restoration Opportunity will be contacted regarding potential restoration or management improvements.

SIA Monitoring Plan Summary
The SIA monitoring will evaluate water quality conditions in agricultural areas, focusing on water temperature and bio criteria impairments identified on the Oregon 303(d) list.

Objectives:

- Monitor temperature trends to establish baseline conditions and determine whether impairments identified by the TMDL are localized or widespread.
- Assess E. coli levels to identify potential water quality concerns. If elevated levels are detected, determine the primary source using Environmental DNA (eDNA) testing protocols.

Duration: 3 years

- Stations: monitoring sites located on Snipe Creek, Pine Creek, Camas Creek, Owens Creek, and Cable Creek at publicly accessible locations.

3.1.4 Pesticide Stewardship Partnerships (PSP)

There are no PSPs in this Management Area.

3.1.5 Groundwater Management Area (GWMA)

There is no GWMA in this Management Area.

3.2 Proposed Activities

ODA, the LAC, the LMA, and other partners have identified the following priority activities to track progress toward meeting the goals and objectives of the Area Plan (Table 3.2).

Table 3.2 Planned Activities for 2025-2030 throughout the Management Area by Monument, Grant, Umatilla SWCD's and NFJDWC

Activity	6-year Target	Description
Landowner Engagement		
# events that actively engage landowners (workshops, demonstrations, tours)	33	Annual grass treatment tours, private land tours, native plants, post-fire outreach coordination, SIA engagement, and watershed specific landowner coordination.
# landowners participating in active events	345	
Technical Assistance (TA)		
# landowners provided with TA (via phone/walk-in/email/booth/site visit)	665	Herbicide sales, firewise USA, native plant guidance, fire recovery, SIA, range seeding, and noxious weeds.
# site visits	181	Riparian habitat, diversions, firewise, herbicide treatments, project scoping and development.
# conservation plans written*	17	Stewardship planning.
On-the-ground Project Funding		
# funding applications submitted	84	In-channel habitat, irrigation improvement, riparian fence, herbicide treatments, riparian planting, juniper treatments, spring developments, post-fire recovery, water quality/quantity, forest management, cattle management, and noxious weeds.
* Definition: any written management plan to address agricultural water quality concerns, such as: nutrients, soil health, grazing, irrigation, and streamside vegetation. Can include farm and ranch plans (including small acreages) and NRCS-certified plans. Excludes projects with weak connection to agricultural water quality.		

3.3 Additional Agricultural Water Quality and Land Condition Monitoring

3.3.1 Water Quality

DEQ monitors water quality in the Management Area as part of its ambient monitoring network.

3.3.2 Land Conditions

There is no additional land condition monitoring.

Results of these additional monitoring activities are presented in Chapter 4.3.

Chapter 4: Progress and Adaptive Management

Chapter 4 describes progress toward achieving Area Plan goals and measurable objectives by summarizing accomplishments and monitoring results. Tracking activities is straightforward; monitoring water quality or land conditions takes more effort; relating changes in land conditions to changes in water quality is important but more challenging.

4.1 Measurable Objectives and Strategic Initiatives

The following tables provide the assessment results and progress toward measurable objectives and milestones in the past six years (2019-2024). See Chapter 3.1 for background and assessment methods.

4.1.1 Management Area

During the 2019-2024 period, we have lacked the necessary resources and expertise to develop and implement measurable objectives across the management area. The ODA, LMAs, and LAC continue to explore opportunities to establish and implement measurable objectives as resources permit. Meanwhile, we rely on defining and tracking milestones within our Focus Areas.

Table 4.1.1 Management Area Results

There are currently no measurable objectives to report on for the management area.

4.1.2 Focus Areas and Other Focused Efforts in Small Watersheds

Table 4.1.2 Cottonwood Creek Focus Area

Measurable Objective	
Decrease class II & III land condition assessment categories Long-term 2041 38% of agriculture land conditions classified as II & III	
Milestones	
• 1 2021 assess agricultural land conditions and classify. Total II & III 54% (Baseline conditions) • 2 2023 53% of agricultural land conditions classified as II and III	
Current Conditions	
Progress Toward Measurable Objectives and Milestones N/A no changes were detected between the 2018 pre-assessment and the 2023 assessment.	
Activities and Accomplishments	
Community and Landowner Engagement	
# active events that target landowners/ operators	2
# landowners/operators participating in active events	7
Technical Assistance (TA)	
# landowners/operators provided with TA	43
# site visits	27
# conservation plans written	0

Ag Water Quality Practices Implemented in the Focus Area	
Herbaceous Weed Treatment	47.1 acres
Aquatic Organism Passage	25 miles
Riparian Forest Buffer	.1 acre
Juniper removal	1,032 acres 19-21
Comments:	
Adaptive Management Discussion	
The district's focus is shifting in the next biennium, driven by a better understanding of water quality challenges. While Cottonwood Creek's high turbidity was initially a concern, it is now recognized as a natural occurrence rather than an agricultural issue. The district is prioritizing water temperature and quantity as key concerns and expanding efforts to assess the entire Management Area under the local Area Plan. Future projects will focus on riparian restoration, in-stream structure enhancements, beaver support, and forest management to improve water infiltration and reduce wildfire risks.	

Table 4.1.2.1 Fox Creek Focus Area

Measurable Objective	
Streamside Biomass Assessment (SBA)	
Milestones	
• 1 SBA pe-assessment completed in 2015. • 2 SBA Interim assessment completed in 2018. • 3 Post assessment to be completed when LiDAR is available, currently unknown.	
Current Conditions	
Progress Toward Measurable Objectives and Milestones No updates to report	
Activities and Accomplishments	
Community and Landowner Engagement	
# active events that target landowners/ operators	0
# landowners/operators participating in active events	0
Technical Assistance (TA)	
# landowners/operators provided with TA	43
# site visits	27
# of fund applications submitted for landowner projects	6
# of fund applications awarded for landowner project	7
# conservation plans written	0
Ag Water Quality Practices Implemented in the Focus Area	
Streamside Habitat Improvement and Management	.5 acre
Aquatic Organism Passage	.75 mile
Irrigation Pipeline	400 feet
Irrigation Water Management	132 acres
Livestock Pipeline	1,098 feet
Pumping Plant	1
Stream Crossing	2
Channel Bed Stabilization	470 feet
Water Facility	2
Streambank and Shoreline Protection	1,350 feet
Wetland Enhancement	4.7 acres
Tree Shrub Establishment	.1 acre
Fence – Riparian Plant Enclosures	850 feet
Comments:	

Adaptive Management Discussion
New LiDAR data was unavailable for conducting another SBA between 2019 and 2024. We will continue seeking opportunities to secure LiDAR information for the project area. However, we have added a second monitoring component for the 2023-25 biennium, which can be conducted concurrently with our LiDAR analysis. The Focus Area will continue, incorporating an additional monitoring component to evaluate alternative methods for riparian plant protection. Additionally, we have proposed other large-scale projects to enhance water quality in Fox Creek.

4.1.3 Strategic Implementation Areas

Table 4.1.3 2024 Camas Creek SIA

Evaluation Results		
As of September 4, 2024, 7 tax lots were identified as either a Potential Violation or a Compliance Opportunity. PV = 0, CO = 7, RO = 27, LC = 275		
Measurable Objective		
By September 4, 2028, all 7 tax lots identified as a Potential Violation, or a Compliance Opportunity will be downgraded to Restoration Opportunity or Likely in Compliance.		
Adaptive Management Discussion		
The SIA is open, and work is ongoing. An adaptive management discussion will be included in the next biennial review.		
Monitoring Activities		
Activity	**Accomplishment**	**Description**
ODA		
# acres evaluated	98,944	
# stream miles evaluated	653	
# landowners at Open House		
# landowners receiving outreach materials		
SWCD and Conservation Partners		
# landowners provided with technical assistance		
# site visits		
# conservation plans written		
SIA and Project Funding		
# funding applications submitted	1	$125,000 OWEB SIA TA
# funding applications awarded	1	$125,000 OWEB SIA TA

4.1.4 Pesticide Stewardship Partnerships

No PSPs are present in this Management Area.

4.1.5 Groundwater Management Area

There is no GWMA in this Management Area.

4.2 Activities and Accomplishments

ODA, the LAC, the LMA, and other partners identified the following priority activities to track progress toward meeting the goals and objectives of the Area Plan.

Future Area Plans will compare results and targets in Table 4.2a.

Table 4.2a Activities conducted in 2019-2024 throughout the Management Area by Monument, Grant, and Umatilla SWCD's, NRCS, and NFJDWC

Activity	6-year results	Description
Landowner Engagement		
# events that actively engage landowners (workshops, demonstrations, tours)	22	Rudio Creek legislative tour, Rudio Creek landowner meeting, native plant materials, post fire recovery resource meetings, and restoration project meetings.
# landowners participating in active events	407	
Technical Assistance (TA)		
# landowners provided with TA (via phone/walk-in/email/booth/site visit)*	678	Riparian fence, culvert replacements, in-stream restoration, noxious weeds.
# site visits	622	Riparian fence, culvert replacements, stream restoration projects, juniper removal, noxious weed, and upland improvement.
# conservation plans written**	140	Property stewardship and conservation.
On-the-ground Project Funding		
# funding applications submitted	314	In-stream habitat, noxious weed, district capacity, culvert replacements, water developments, juniper removal and upland improvements.
# funding applications awarded	179	In-stream habitat, noxious weed, district capacity, culvert replacements, water developments, juniper removal and upland improvements.

* Number reported likely double counts some landowners due to tracking methods.
** Definition: any written management plan to address agricultural water quality concerns, such as: nutrients, soil health, grazing, irrigation, and streamside vegetation. Can include farm and ranch plans (including small acreages) and NRCS-certified plans. Excludes projects with weak connection to agricultural water quality.

Table 4.2b and 4.2c summarize information from the OWRI on restoration project funding and accomplishments on agricultural lands in the Management Area. The majority of OWRI entries represent voluntary actions of private landowners who have worked in partnership with federal, state, and local groups to improve aquatic habitat and water quality conditions. OWRI results are provided annually in January after a year of proofing and GIS management.

Table 4.2b Implementation funding (cash and in-kind) for projects on agricultural lands reported 1997-2023 (OWRI data include most, but not all projects, implemented in the Management Area.)

Landowners	OWEB	DEQ	NRCS*	BPA	Tribal**	BOR	All other sources***
$2,017,297	$10,684,868	$25,500	$319,430	$6,961,382	$3,332,846	$2,125,490	$4,641,667
						TOTAL	**$30,108,480**

Acronyms: OWEB (Oregon Watershed Enhancement Board); DEQ (Oregon Department of Environmental Quality); NRCS (Natural Resources Conservation Service); BPA (Bonneville Power Administration); BOR (U.S. Bureau of Reclamation

* This table may not include all NRCS funding due to privacy concerns.

** Confederated Tribes of the Warm Springs Reservation, Confederated Tribes of the Umatilla Indian Reservation, and Columbia River Inter-Tribal Fish Commission

***Includes city, county, tribal, other state and federal programs, and non-profit organizations. There were too many entities to list.

Table 4.2c Miles and acres treated on agricultural lands reported 1997-2023 (OWRI data include most, but not all projects, implemented in the Management Area.)

Activity Type*	Miles	Acres	Count**	Activity Description
Upland		97,873		
Road	4		39	
Streamside Vegetation	211	3,773		
Wetland		261		
Instream Habitat	44			
Instream Flow	52		15 cfs	
Fish Passage	326		33	
TOTAL	**637**	**101,907**	**72**	

* This table may not include all NRCS projects due to privacy concerns.

** # hardened crossings, culverts, etc.

4.3 Additional Agricultural Water Quality and Land Condition Monitoring

4.3.1 Water Quality

DEQ analyzed data for dissolved oxygen, *E. coli*, pH, total phosphorus, temperature, and total suspended solids in the Management Area. (DEQ. 2022). Oregon Water Quality Status and Trends Report; https://www.oregon.gov/deq/wq/programs/Pages/wqstatustrends.aspx).

Data are from DEQ, US EPA, and USGS databases for 2001 through 2020. DEQ determined status for stations in five-year periods and trends for stations with at least eight years of data collected at the same time of year. The following locations have sufficient data to calculate recent status and trends and are most likely to help characterize agricultural water quality (Table 4.3.1).

Table 4.3.1 Agricultural Water Quality Concerns: Surface Water

Site Description	Parameter					
	E. coli	pH	Dissolved Oxygen	Temperature	Total Phosphorus (mg/L)	Total Suspended Solids (mg/L)
	Attainment Status and Trend				median; maximum[1]	median; maximum[2]
NF John Day at Kimberly. 11017-ORDEQ	No ⁻	Yes	Yes	N/A	0.02;0.12	3;74

[1] DEQ has no benchmark for total phosphorus in this Management Area; ODA benchmark for potential water quality concerns = 0.08 mg/L

[2] DEQ has no benchmark for total suspended solids in this Management Area

⁻ Statistically significant improving trend

⁻ Statistically significant degrading trend

There is only one ambient stream monitoring station in the region at NF John Day above Kimberly, with enough data for a trend assessment. This station has a degrading trend in E. coli and stable pH and DO. E. coli in agricultural regions comes from livestock manure either directly or indirectly through erosion and runoff or irrigation water.

Temperature is the most monitored stream parameter in the area and is generally not attaining water quality standards. Of 28 stations on the MF John Day, 4 are attaining the temperature standard. Of 16 stations on the NF John Day and near tributaries, 1 is attaining standards, 4 are not attaining but are improving, and 1 is not attaining and declining.

4.4 Biennial Reviews and Adaptive Management

ODA, the LAC, the LMA, and other partners met on July 10 2025 to review implementation of the Area Plan and provided recommendations for the future (Tables 4.4a and 4.4b).

Table 4.4a Summary of biennial review discussion

Progress
Monument Soil and Water Conservation District • The 2024 Court Rock Fire burned approximately 20,000 acres, advancing up to 4 miles in a single day. Healthy riparian areas within the burn perimeter experienced only light impacts. • The SWCD is serving as the post-wildfire recovery fiscal sponsor for the John Day Basin partners affected by the 2024 fire season, with funding from Oregon Watershed Enhancement Board (OWEB). • Restoration projects identified from post-wildfire assessments will prioritize riparian restoration and erosion control to protect water quality. • An Area Plan measurable objective has been established to assess riparian areas on private ag lands throughout the Management Area, helping to identify and prioritize future restoration work. • In the Cottonwood and Fox watersheds, planning is underway for 12 miles of instream habitat and riparian restoration, combined with upland improvements such as juniper removal. To date, 5,000 upland acres have been treated. • Strong partnerships have been essential to the success of restoration projects. **Natural Resources Conservation Service** • Funding from NRCS has been instrumental in supporting wildfire recovery efforts on private lands affected by the Battle Mountain Complex, Court Rock, Rail Ridge, and Fall fires. **Other** The John Day Partnership has successfully built capacity and completed numerous restoration and monitoring projects with funding from the OWEB Focused Investment Partnership (FIP) program. The Partnership is now preparing to apply for a second FIP grant to continue and expand these efforts.
Impediments
• The 2024 wildfires burned upland and riparian vegetation on both private agricultural and public lands, likely degrading water quality through increased sediment runoff and elevated stream temperatures due to the loss of riparian vegetation. Heavily burned areas may take decades to fully recover. State and federal permitting and compliance processes, both regulatory and cultural, are taking significantly longer, delaying stream restoration projects by two to three times compared to recent years. These delays stall critical water quality improvements. Streamlining the process is essential to maintain momentum and support accelerated recovery.

Recommended Modifications and Adaptive Management
• Additional information, including assessment and ongoing monitoring, is needed to evaluate the 2024 wildfire impacts on water quality on private agricultural lands. Documenting impacts such as sedimentation, riparian loss, and stream temperature changes is essential to guide next steps for wildfire recovery. Expanded water temperature monitoring is needed throughout the Management Area to better understand if, and how, agriculture impacts water quality.

Table 4.4b Number of ODA compliance activities in 2019-2024

Location	Cases		Site Visits	Agency Actions				
				Letter of Compliance		Pre-Enforcement Notification	Notice of Noncompliance	Civil Penalty
	New	Closed		Already in compliance	Brought into compliance			
Outside SIA	0	0	0	0	0	0	0	0
Within SIA	0	0	0	0	0	0	0	0