



Staff Report

TO: Water Resources Commission

FROM: Ivan Gall, Director

DATE: September 11, 2025

SUBJECT: Agenda Item A
Water Resources Commission

CONSIDERATION FOR ADOPTION – OREGON’S 2025 INTEGRATED WATER RESOURCES STRATEGY

I. Introduction

During this agenda item, the Commission will consider adoption of the 2025 Integrated Water Resources Strategy (Strategy).

II. Integrated Water Resources Strategy Recommended Action

- 13.A – Fund Development and Implementation of Oregon’s Integrated Water Resources Strategy

III. Background

The first Strategy was developed in 2012 and the second in 2017. The authorizing statute (ORS 536.220) was revised in 2023 to require an update to the Strategy no more than every eight years.

The Department has discussed updates to the Strategy at previous Commission meetings since November 2022. Materials from these meetings can be found on our website for the Commission: www.oregon.gov/owrd/aboutus/Commission.

Draft 1 was released for public review and comment in March 2024. Draft 2 was released for public review and comment in April 2025. The final draft of the 2025 Strategy (Attachment 1) reflects public comment and contributions from the state interagency project team, other natural resource, economic development, and public health state agencies, and the federal liaison team. The interagency project team included staff from the Departments of Agriculture, Environmental Quality, Fish and Wildlife, Land Conservation and Development, and the Oregon Watershed Enhancement Board.

Pursuant to ORS 536.220, the Oregon Board of Agriculture, Oregon Environmental Quality Commission, and the Fish and Wildlife Commission were notified of the proposed adoption.

IV. Updates to the Strategy

The 2025 Strategy carries forward the goals, objectives, guiding principles, and actions of the two prior strategies. The Strategy continues to provide a framework to better understand and meet Oregon's instream and out-of-stream needs, including water quantity, water quality, and ecosystem needs.

Attachment 2 includes all public comments received on Draft 2 of the 2025 Strategy and agency responses indicating how the comment was addressed for the final draft. A combination of sovereign Tribal nations, organizations, and individuals submitted comments.

Appendix C in the 2025 Strategy provides a crosswalk of changes to critical issue titles, action language, and action numbers between the 2017 and 2025 Strategies. The 2025 Strategy proposes two new actions:

- Action 2C Develop Instream and Ecosystem Water Need Forecasts
- Action 9D Lead Meaningful Community Engagement

V. Review and Discussion of the Adoption Resolution

The Department has drafted an Adoption Resolution for the Commission's consideration, please see Attachment 3. The Commission will have an opportunity to discuss whether any changes need to be made to the Adoption Resolution.

VI. Adoption of the 2025 Strategy

The Commission will be asked to formally adopt the 2025 Integrated Water Resources Strategy. The Commission may also consider public testimony during this portion of the meeting. The Commission may consider the following options:

Option 1: Adopt the 2025 Strategy as proposed in Attachment 1.

Option 2: Adopt the 2025 Strategy as proposed in Attachment 1, with modifications.

Option 3: Do not adopt the 2025 Strategy, directing staff to return at a later time with a revised 2025 Strategy for the Commissions' consideration.

VII. Recommendation

The Director recommends Option 1: Adopt the 2025 Strategy as included in Attachment 1.

Attachments:

1. Final (August 2025) draft of the 2025 Strategy
2. Public Comments and Agency Responses for Draft 2 of the 2025 Strategy
3. Draft Adoption Resolution

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Oregon's 2025 Integrated Water Resources Strategy



Office of Governor
TINA KOTEK



A Message from Governor Kotek

Dear Oregonians:

There is no more essential public resource than water.

Access to safe, clean drinking water should be a given for all Oregonians in every part of the state. The reality of growing water scarcity requires increased urgency in addressing water management and policy.

Our most vulnerable communities, our working and natural lands, our fish and wildlife, and our rivers, lakes and streams all face an existential threat, as the relentless march of climate change and other challenges test our resolve to protect that which sustains us.

Our state's Integrated Water Resources Strategy is the roadmap to both increasing our understanding of our water resources and improving the State's capacity to manage water. With water allocation and management policies in particular, there are many challenges – both with resource limitations, and with long-held practices and expectations that are now colliding with very real constraints on our existing water supply.

In the face of these pressing challenges, we must act—decisively, urgently, and in true partnership to protect and sustainably manage our surface- and groundwater reserves for generations to come. This Strategy charts a proactive pathway forward to advance strategic actions that will improve management of Oregon's water resources for the benefit of our communities, environment and the economy.

As stewards of our air, water, and landscapes, we cannot stand idly by and watch our beautiful and productive landscapes deteriorate in front of us. It is incumbent on us to act boldly, embrace creative, new solutions, and take strong action to enhance the resiliency of our natural resources and communities. The actions laid out in this Strategy are critical to achieving our shared goals and advancing water security for all Oregonians.

Governor Tina Kotek



The Integrated Water Resources Strategy

Water is a public resource essential to Oregon's communities, ecosystems, and economy. In 2009, the Oregon Legislature recognized that the protection and management of water and responsible use of public funds requires an integrated strategy, and directed the state to develop an Integrated Water Resources Strategy (Strategy).

The first Strategy, released in 2012, inspired many improvements in water resources data collection, management, planning, and funding for water projects.

The impact of climate change on our water has grown exponentially since 2012. **The 2025 Strategy elevates the role of climate change and identifies actions needed for mitigation, adaptation and resilience.**

The fundamental purpose of the Strategy remains the same: to better understand and meet Oregon's instream and out-of-stream water needs — environmental and consumptive — including water quantity, water quality, and ecosystem needs. The 2025 Strategy updates the wording of some objectives, critical issues, and adds two new actions, identifying areas where incentives or new policies could serve as powerful tools for progress.

This document serves as the introduction of the state's 2025 Integrated Water Resources Strategy.



KEY MILESTONES

2009

State directed to develop Strategy

2012

State releases first Strategy

2017

State releases second Strategy

2025

State releases third Strategy



The Future of Oregon's Water

The state of Oregon faces water shortages, declining water quality, and increasing climate impacts. This threatens our ability to have enough clean water for our people, our economy, and our environment, now and for generations to come.

The choices we make today will determine the legacy we leave for future generations.

For the long-term health and sustainability of Oregon's communities, ecosystems, and economy, we must act in thoughtful coordination on the immediate steps we can take today in preparation for a future of water scarcity.

100,000
miles of rivers
and streams

360
miles of
coastline

95%
of fresh water is
groundwater



An Outcomes-Driven Approach

To make progress in a resource-constrained environment, we must focus on a select number of actions.

Governor Kotek directed the 2025 Strategy to articulate clear outcomes that will best serve the water needs and interests of all Oregonians.

State agencies identified three priority areas, inspired by recent conversations with federally recognized sovereign tribal nations, communities impacted by groundwater contamination in the Umatilla Basin, dry domestic well issues in several basins, increasing water scarcity that impacts people, species, and ecosystems, and statewide effects of climate change.

Each priority area includes several tasks that require coordination across multiple agencies. There are 15 priority tasks summarized below, with more detail provided in Appendix E.

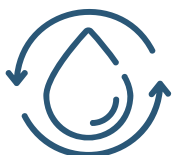
Priority Actions: *Act, Assist, and Adapt*



Priority 1: Act with Urgency to Protect Instream and Out-of-Stream Uses



Priority 2: Assist the State and Communities to Prepare for Water Scarcity



Priority 3: Adapt to Water Scarcity by Stretching our Water Supplies



A Future of Water Security

Key: IWRS Actions Appendix Reference



Act with Urgency to Protect Instream and Out-of-Stream Uses



Assist the State and Communities to Prepare for Water Scarcity



Adapt to Water Scarcity

by Stretching our Water
Supplies

- | | |
|--|--------------------------------|
| P1.1 Reduce unauthorized water use and gain compliance with other water laws | 8C, 10E, 10F, 13B |
| P1.2 Provide guidance for what constitutes reasonable use of water | 8C, 10F, 13B |
| P1.3 Increase the use of and develop protections for priority waters and/or watersheds | 10F, 11A-E, 13B-C |
| P1.4 Expand efforts to protect the quality of surface and groundwater sources that provide drinking water | 11A-4E, 12A-C, 13B, 13C |
| P1.5 Implement improvements to water permitting processes for transparency, efficiency, and effectiveness | 10F, 13B |
| P2.1 Increase quality and accessibility of water availability, water use, and water demand information | 1A, 3A, 13B |
| P2.2 Modernize water data systems and website user interfaces to facilitate wider data sharing | 1C, 13B |
| P2.3 Improve understanding of instream and out-of-stream needs through increased completed basin assessments, instream flow studies, and clean water plans | 1A-D, 2A-C, 13B |
| P2.4 Increase the number of communities and Tribes that have completed or are participating in water planning efforts | 9A, 9E, 13B |
| P2.5 Increase involvement of OWRD in advisory committees for Economic Opportunity Analyses to better align land use planning with water resource goals | 6A, 13B |
| P3.1 Increase the pace and scale of water reuse and aquifer storage, recovery and recharge projects that support resilience and protect the environment | 10B, 10C, 10F, 13B, 13C |
| P3.2 Increase the number of water users that are planning/implementing water conservation, efficiency, or modernization efforts | 7A, 9A, 10A, 13B, 13C |
| P3.3 Align existing and future agency funding to further instream flow restoration, groundwater recharge, source water protection, and water quality and habitat improvements | 11A-E, 12A, 13B, 13C |
| P3.4 Identify priority areas for new above and below ground storage | 10C |
| P3.5 Improve water right transfer processing times for lower risk transfers to facilitate the movement of water to high-priority use | 10F, 13B |

Oregon's 2025 Integrated Water Resources Strategy



Butte Falls, Marion County, Oregon. Credit: Laura Tesler Photography

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Appendix B – Water Laws, Policies, and Regulations

Appendix C - Crosswalk of 2017 Strategy and 2025 Strategy Actions

Appendix D – Strategy Framework and Action Summary Sheets

Appendix E – Agency Priorities 2025-2033

Appendix F – 100-Year Water Vision and Related Strategy Actions



A Message from the Water Resources Department

Fellow Oregonians,

Everyone needs cold, clean, and abundant water. As communities grapple with an era of water challenges, we must think differently and act urgently.

The 2025 Integrated Water Resources Strategy (Strategy) aims to meet the moment. It brings together Oregon's natural resources, economic development, conservation, and health agencies to address these issues head-on through coordinated action. It is a roadmap for addressing water challenges that affect our entire state, from our abundant agricultural lands to our vital watersheds, from our Tribal partners to urban centers and rural communities.

With climate change driving warmer temperatures, declining snowpacks and precipitation shifts, the 2025 Strategy places this reality front and center, with concrete actions to help us mitigate and adapt.

This Strategy strongly supports enhanced data collection, helping us better understand how much water is available, assess water quality, and determine the needs of people and ecosystems most affected by water challenges.

I am very proud that the 2025 Strategy incorporates feedback from diverse voices across Oregon. We listened to opinions and concerns from residents of all 36 counties, including making a survey available in nine languages and hosting numerous community conversations. Oregon's Tribal sovereign nations were invited to provide their expertise and experience, and the Strategy reflects the priorities we heard throughout this process.

And importantly, this Strategy recognizes that our success depends on collaboration at every level. When communities come together with local, state, and federal agencies early and often, we can identify emerging issues and address them proactively. As we build relationships, we create the trust necessary for finding solutions.

The path forward won't be easy. There have been and will be difficult conversations about priorities and tradeoffs. We're facing real uncertainty around federal funding and policy changes that could affect water management and resource allocation moving forward.

But with the best available science, a collaborative approach, and our shared commitment to Oregon's future, we can work through these challenges together.

A handwritten signature in blue ink that reads "Ivan Gall".

Ivan Gall

Director, Oregon Water Resources Department

Executive Summary

Water is a public resource, essential to our communities, ecosystems, and economic activities. Protection, conservation, and management of our shared public resource and responsible use of public funds requires an integrated strategy based on rigorous data and analysis. In 2009, the Legislature recognized the need to develop a statewide Integrated Water Resources Strategy (IWRS or from here forward referred to as the “Strategy”) to coordinate water management efforts by many agencies and partners. The Strategy is needed to carry out two goals: to **improve our understanding of Oregon’s water resources** and to **meet our state’s instream and out-of-stream water resource needs**. The first two Strategies (2012 and 2017), inspired many improvements in water resources data collection, management, planning, and funding for water projects.

“Instream” as defined in ORS 537.332 “means within the natural stream channel or lakebed or place where water naturally flows or occurs”

“Out-of-Stream” – water withdrawn or diverted from a groundwater or surface water source for a beneficial use

The 2025 Strategy places an emphasis on the need for data, collaboration, voluntary, and regulatory efforts. It identifies areas where incentives or new policies could serve as powerful tools for progress. It also identifies where public and private partnerships could stretch our dollars and further instream and out-of-stream efforts. Just as importantly, **the Strategy does not remove or jeopardize existing water rights or other local, state, tribal, and federal authorizations. The Strategy does not itself change any existing authorities. It is the platform for prioritized investments in the coming years.**

In 2019, former Governor Brown initiated the [100-Year Water Vision](#) (Vision), a community engagement process to elevate water concerns of Oregonians and call for strategic investments to address these challenges. Completed in 2020, the Vision called for Oregonians to “invest strategically in infrastructure and ecosystems across all regions to support resilient communities, vibrant local economies, and a healthy environment for all who live here.” The 2021 Oregon Legislature made historic investments in Oregon’s water resources by passing a \$538 million water package distributed among many natural resource agencies. This funding allowed state agencies to make progress toward addressing water issues identified in both the Vision and 2017 Strategy. Vision participants called for the Vision findings to be applied to the next Strategy. The 2025 Strategy highlights where Vision challenges and opportunities align with Strategy actions. **To streamline Oregon’s water initiatives, the 2025 Strategy will be the single statewide water planning effort carried forward.**

Document Vocabulary

Since 2012, the Strategy has used specific language to explain and organize goals, objectives, critical issues, and actions. The Strategy’s organizational terms are provided below.

- **Framework** – describes the overall structure of the Strategy. The Framework shows how the goals, objectives, critical issues, and actions relate to one another. The Framework is included in Appendix D.
- **Goal** – The Strategy was designed to meet two overarching goals: to improve our understanding of Oregon’s water resources, and to meet Oregon’s instream and out-of-stream needs. Strategy objectives and actions support meeting these goals.
- **Objective** – Statute ([536.220](#)) requires that the Strategy describe objectives of the Strategy and actions designed to achieve those objectives. The Strategy has four objectives, carried forward from the 2012 Strategy.
- **Critical Issue** – Critical issues describe specific water challenges under each objective. Critical issues are the headings for groupings of related actions.
- **Action** – Actions are identified to address a critical issue. Actions are directed to both agencies and others, recognizing many people have a role to play in managing our water. There are 48 actions in the 2025 Strategy.
- **Example Actions** – Each action includes a list of example actions to show how to implement the action. Example actions are distributed throughout the chapters and included on the action summary sheets in Appendix D.

Document Organization

The 2025 Strategy has four objectives. Each objective is separated into its own chapter, Chapters 1 through 4. Within each chapter, the narrative describes critical water issues, actions, and example actions. Several Appendices have been created to provide additional information and support Strategy implementation.

- **Appendix A** - summaries of tribal, state and federal agency roles and responsibilities regarding water
- **Appendix B** - water laws, policies, and regulations guiding management of instream and out-of-stream uses
- **Appendix C** - comparison of wording and numbering updates between the 2017 Strategy and the 2025 Strategy
- **Appendix D** – includes the Framework and action summary sheets for each of the 48 actions. Each action summary sheet provides a quick reference regarding who might take this action, examples of how to implement the action, and current resources including existing workgroups or funding programs, if known.
- **Appendix E** – agency action priorities for the next 6 years, 2025-2031
- **Appendix F** – the key challenges and opportunities identified in the 100-Year Water Vision and the relevant 2025 Strategy actions

Changes from the 2017 Edition

The 2025 Strategy updates the wording of some objectives, critical issues, and adds two new actions. Appendix C provides a crosswalk to review these updates. The 2025 Strategy provides an opportunity to address equity, climate change, and increase agency accountability throughout the document.

- **Equity** – A centerpiece of pursuing water equity requires bringing more voices to the table to meaningfully address the disparities regarding access to clean water across the state. The 2020 [Oregon Water Futures Project Report](#), the 2020 100-Year Water Vision effort, the 2022 [State of Water Justice Report](#), the 2022 [Oregon Water Justice Framework](#), and the 2023 [Secretary of State Water Advisory Report 2023-04](#) all document water insecurities and inequities in Oregon. A new action has been added to identify the need for meaningful community engagement. Equity and environmental justice considerations have been added throughout the Strategy example actions.
- **Climate Change** – Climate change is a pervasive part of life, more so than in 2012 when the first Strategy was published. The 2025 edition provides an opportunity to introduce climate change as the first critical issue in Chapter 3. The 2025 Strategy explains how many actions address climate mitigation, adaptation and resilience. References to climate change have been increased throughout the document.
- **Agency Accountability** – New for the 2025 Strategy, each action is presented in a summary sheet (Appendix D) that identifies the need for the action and detailed information to assist in implementation, including the likely lead and supporting state or federal agencies and partners contributing to the action. Resources, such as funding sources are also provided, if known. Also new for 2025, the Strategy includes agency priority actions for the next 6 years (Appendix E).

Biennial Workplan

In line with previous Strategies, implementation occurs after the Strategy has been adopted by the Water Resources Commission. The statute guiding the development and implementation of the Strategy was updated in 2023 to require a two-year workplan. Following the adoption of the 2025 Strategy by the Water Resources Commission, the Water Resources Department will work with agencies to develop the first biennial workplan that reflects the agency priorities and the legislatively adopted budget for the 2025-27 biennium. Future workplans will include engagement with agencies, water partners, and the public in advance of biennial agency budget processes and legislative concept development to adequately support Strategy implementation. Workplan development provides an opportunity to coordinate work across many agencies and partners and must be done in a way that protects the public interest and balances instream and out-of-stream needs.

Guiding Principles

Development and implementation of the Strategy is guided by a set of principles, including accountability, a balanced approach, collaboration, employing an open and transparent public process, reasonable cost, science-based approaches, streamlining, and other principles memorialized as part of the Strategy's development. The guiding principles developed by the first Policy Advisory Group (2012) still apply today.

Accountable and Enforceable Actions

Ensure that actions comply with existing water laws and policies. Actions should include better measurement and enforcement tools to ensure desired results.

Balance

The Strategy must balance current and future instream and out-of-stream needs supplied by all water systems (above ground and below ground). Actions should consider and balance tradeoffs between ecosystem benefits and traditional management of water supplies.

Collaboration

Support formation of regional, coordinated, and collaborative partnerships that include representatives of all levels of government, private and non-profit sectors, tribes, stakeholders, and the public. Collaborate in ways that help agencies cut across silos.

Conflict Resolution

Be cognizant of and work to address longstanding conflicts.

Facilitation by the State

The State should provide direction and maintain authority for local planning and implementation. Where appropriate, the State sets the framework, provides tools, and defines the direction.

Incentives

Where appropriate, utilize incentive-based approaches. These could be funding, technical assistance, partnerships/shared resources, regulatory flexibility, or other incentives.

Implementation

Actions should empower Oregonians to implement local solutions; recognize regional differences, while supporting the statewide strategy and resources. Take into account the success of existing plans, tools, data, and programs; do not lose commonsense approach;

develop actions that are measurable, attainable, and effective.

Interconnection/Integration

Recognize that many actions (e.g., land-use actions) in some way affect water resources (quality and/or quantity); recognize the relationship between water quantity and water quality; integrate participation of agencies and parties.

Public Process

Employ an open, transparent process that fosters public participation and supports social equity, fairness, and environmental justice. Advocate for all Oregonians.

Reasonable Cost

Weigh the cost of an approach with its benefits to determine whether one approach is better than another, or whether an approach is worth pursuing at all. Actions should focus on reducing the costs of delivering services to the state's residents, without neglecting social and environmental costs.

Science-Based, Flexible Approaches

Base decisions on best available science and local input. Employ an iterative process that includes "lessons learned" from the previous round. Establish a policy framework that is flexible. Build in mechanisms that allow for learning, adaptation, and innovative ideas or approaches.

Streamlining

Streamline processes without circumventing the law or cutting corners. Avoid recommendations that are overly complicated, legalistic, or administrative.

Sustainability

Ensure that actions sustain water resources by balancing the needs of Oregon's environment, economy, and communities.

CHAPTER 1

Objective 1: Understand Oregon's Water Resources

Water is one of our most precious natural resources. With more than 100,000 miles of rivers and streams, 360 miles of coastline, and more than 1,400 named lakes, Oregon is renowned for its water.

While progress has been made in recent years, Oregon has a continuing need to understand its water resources. This includes how climate change impacts the form and timing of precipitation, the amount and timing of streamflow, the location and volume of groundwater, water quality, the condition of our ecosystems, and overall accessibility of water to communities and the environment.

The 2025 Strategy continues to be a forum for interagency collaboration. This includes a commitment to thoughtful, collaborative, and robust data collection, analysis, and sharing information with the public and those engaged in water management and decision-making.



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Chapter 1 Actions at a Glance

Objective 1: Understand Oregon's Water Resources

Critical Issue - Water Resource/Supply Information

- 1A Improve Water Resource Data Collection and Monitoring
- 1B Conduct Additional Groundwater Basin Investigations
- 1C Enhance Interagency Data Coordination
- 1D Support Basin-Scale Climate Change Research

Critical Issue**Water Resource/Supply Information**

Oregon needs to understand the quantity and quality of available water to meet instream and out-of-stream water needs in a changing climate. Improving our knowledge of water resources requires investments in interagency work, analytical methods and approaches, scientific modeling tools, and platforms to share information with the public and other partners. This section includes Actions 1A-1D which address acquiring and sharing water resource quality, quantity, and ecosystem information. Chapter 2 covers data needs for defining instream water needs (Actions 2A-2C) and out-of-stream water needs (Actions 3A-3B).

Oregon's surface water and groundwater resources, by their very nature, are ever-changing. By day, month, and year, water and natural resource managers need up-to-date information to manage the resource and make sound decisions. This requires measurement of baseline conditions, trends over time, and evaluating the effectiveness of water monitoring programs.

State agencies need to maintain and add to their monitoring networks to augment the long-term record, fulfill day-to-day management responsibilities, and identify trends. Installing and maintaining additional monitoring stations for water supply and water use will need to be done in strategic locations to answer a growing list of questions. Monitoring stations include observation wells, streamflow gages, flowmeters, temperature probes, rain gages, snow survey equipment, soil moisture sensors, and AgriMet weather stations.

**Action
1A****Improve Water Resource Data Collection and Monitoring**

The Water Resources Department (OWRD) uses the [2016 Oregon Water Resources Monitoring Strategy](#)¹ to identify their monitoring priorities (e.g., climate change, groundwater protection), for both surface and groundwater resources. The Department of Environmental Quality (ODEQ) uses the [2020 Water Quality Monitoring Strategy](#) to propose, evaluate, prioritize, and implement monitoring activities.² The 2017 [Monitoring Strategy for Oregon's Waters, An Interagency Approach](#) helps natural resource agency scientists identify and collect the right information to inform policy-makers about emerging water issues, the status and trends of Oregon's waters, and the effectiveness of current agency actions.³ The Department of Fish and Wildlife (ODFW) has several monitoring programs. Their State Wildlife Action Plan (previously known as the 2016 Oregon Conservation Strategy) outlines monitoring strategies for priority species and habitats.

Monitor and Evaluate Surface Water Flows

A gage is a structure installed in a stream that includes equipment to measure water levels. Gages can also measure other parameters such as stream temperature. Scientists use water level information to calculate streamflow and water quality information to determine the health of waterways. The OWRD operates about 260 gages on streams, canals, and reservoirs throughout the state, maintaining an extensive long-term record for about 70 of them. About 240 of these gages are operated as near real-time, transmitting data once every hour. As shown in Figure 1-1, the OWRD also provides access to data from an additional 365 gages, primarily operated by the U.S. Geological Survey (USGS).

Approximately 10,000 river miles in Oregon are covered by an instream water right, but the state has limited capacity to monitor whether instream water rights are being met. While the state has taken steps to enhance measurement activities, only about 200 instream water rights have an associated stream gage in place to monitor whether the instream flows are being met. Approximately 497 of 2,000 instream water rights were monitored in 2024.

Operating a gage network requires trained hydrologic technicians to keep the equipment operating properly, to conduct regular measurements and/or observations at gages, and to input the collected information into a central database. Hydrographers review and analyze the data, make corrections based on field conditions, and finalize the records to meet computation standards established by the USGS.

An expansive network of gages is essential for planning, permitting, and the management of Oregon's surface water and groundwater resources, and the existing network is not sufficient. The data is used by a variety of agencies, water users, and other entities for making daily decisions, distributing water, protecting and monitoring instream flows, forecasting floods, and designing infrastructure such as bridges and culverts. The data is also useful for planning recreational activities, better understanding how much water is available for new uses, and tracking long-term trends such as climate change and drought. The ODEQ uses streamflow data to calculate the loading capacity of certain pollutants during development of Total Maximum Daily Load (TMDL) plans to improve water quality.

Since the early 1990's, the state has lacked sufficient capacity to maintain and process data from its existing network of stream gages in a timely fashion. This has resulted in a backlog of unprocessed records and has hindered the OWRD's ability to share valuable water resources information. The public can access these records in their provisional state, but they are subject to change until they undergo final review and are published. Expanding the network will require additional resources to process data in a timely fashion.

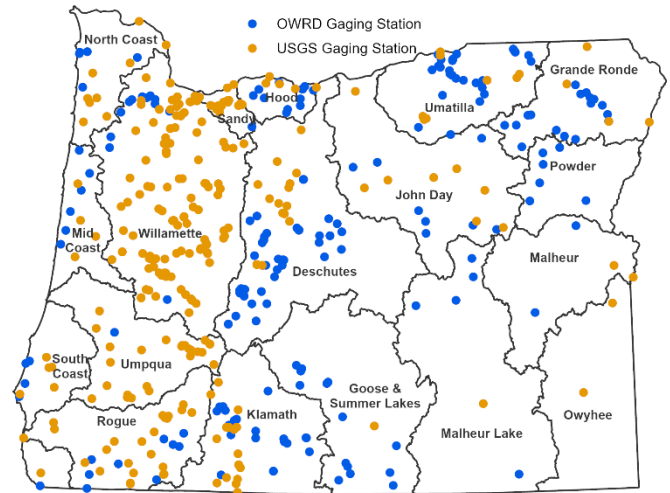
Surface Water Availability

The OWRD maintains the Water Availability Reporting System (WARS), a decision tool for determining the amount of water available for new water right applications for most surface waters in the state. The WARS database includes stream flow data, water right information, landscape and climate characteristics, and water use data. The goal of WARS is to quantify water availability and limit appropriations such that Oregon's water supplies can sufficiently meet supply demands of water users, including both instream and out-of-stream uses. In the current iteration of WARS, water availability was calculated based on streamflow conditions representative of 1958 to 1987. Estimates of water demands were calculated based on information and research developed in the early 1990s.

"Good data is the foundation of wise and coordinated decisions. We can work across agencies at all levels, with tribes, and with the private sector to improve access to accurate, relevant, trusted, and current water data and infrastructure condition. We can also use science and information to anticipate future trends. Access to quality information will help communities strategically plan for and invest in their water future."

-100-Year Water Vision (2020)

Figure 1-1: Active Surface Water Gaging Stations
July 2025



With funding provided in 2023, the OWRD is developing the [Surface Water Information Modeling System \(SWIMS\)](#) to update and replace WARS. The update is focused on calculating water availability to better align with today's climate and practices in water resources management. This work includes designing a system that permits more frequent updates to SWIMS, incorporating more recently collected stream flow data, and utilizing technological advances in recent decades (e.g., satellite-based remote sensing data) to better understand water use and demands. The OWRD is also evaluating existing policies and determining policy needs to support decision making related to water allocation.

Action 1A

Improve Water Resource Data Collection and Monitoring

Examples of how to implement this action:

- Use agencies' monitoring strategies, or similar methods, to design, expand, and maintain real-time monitoring networks for surface water and groundwater quality and quantity
- Prioritize basins for data collection and monitoring by centering the needs of people and ecosystems most affected by water quantity or quality challenges
- Expand gage network associated with monitoring instream water rights
- Improve agency capacity to collect, share, analyze, and report data, bringing records to final form and make them available to the public
- Implement statewide groundwater quality monitoring programs and assure responsiveness to community health
- Update water quality standards and develop additional TMDL's (also see Action 12C)
- Increase the number of stream gages with reportable water temperature data to support water quality programs
- Increase resources to help disadvantaged homeowners and renters access water quality testing in private drinking water wells; update real estate transaction database
- Monitor habitat and watershed conditions and evaluate the effectiveness of restoration efforts (e.g., OWEB restoration inventory)
- Establish methods for measuring ecosystem services and incorporate results into planning efforts, when useful
- Increase monitoring and evaluate the effectiveness of pollution control plan implementation
- Identify and address gaps in staffing or process that prevent agencies from sharing in the collection of, or already collected, data (e.g., temperature data)
- Work with BOR and irrigation districts to help fund state agency staffing to improve measurement of water use and water storage
- Work with state, federal, and local monitoring partners (e.g., USGS) to analyze gage network to identify and address gaps

Information from this new system is expected to be available in January 2030.

Future updates to SWIMS would benefit from improved understanding of surface water-groundwater interactions to better account for the impacts of groundwater pumping on surface water availability. Additionally, the current coverage of SWIMS is limited by lack of data in some areas of the state. This effort could be supported by additional staff to conduct research, perform data analysis, maintain and monitor the OWRD's monitoring network (including stream gages and groundwater wells), and develop decision-support tools. While SWIMS supports the OWRD's programs and operations, other agencies (i.e., ODFW, ODEQ, and OPRD) and planning groups depend upon database information to make recommendations and planning decisions.

Administrative rules prescribe how the OWRD determines whether water is available for monthly natural flow based on water being available 80 percent of the time (80% exceedance), and for storage, 50 percent of the time (50% exceedance). Protections for water quality and habitat for sensitive, threatened, and endangered fish species are also considered when evaluating new water right applications through the OWRD's Division 33 Rules and review process in partnership with the ODEQ and ODFW. Figure 1-2 shows (in shades of purple) where water is potentially available for natural flow allocation during the month of August, the month most representative of low summer flows and high out-of-stream demands. With some exceptions, the mostly tan map indicates that throughout the state, very little surface water is available to allocate for new uses during August. Figure 1-3 illustrates (in shades of purple) modeled water availability for new uses during the month of January. Many water rights authorize storage of surface water during the winter and early spring to supplement summer water supplies.

In addition to water availability, other administrative rules are used to determine whether a new water right can be approved for a beneficial use. For example, although surface water is available in portions of the Willamette River Basin, many uses of water are not classified or allowable during the summer months for several reasons.

Increasingly, water users are relying on tools such as water conservation, reuse, water right transfers, and water storage to meet their needs during the summer months. Some of these tools are designed to benefit instream flow. See Chapter 4 and Strategy Actions 10A-10C, 11B, and 11E.

Figure 1-2: Available Streamflow in August
(calculated at 80 percent exceedance)
July 2025

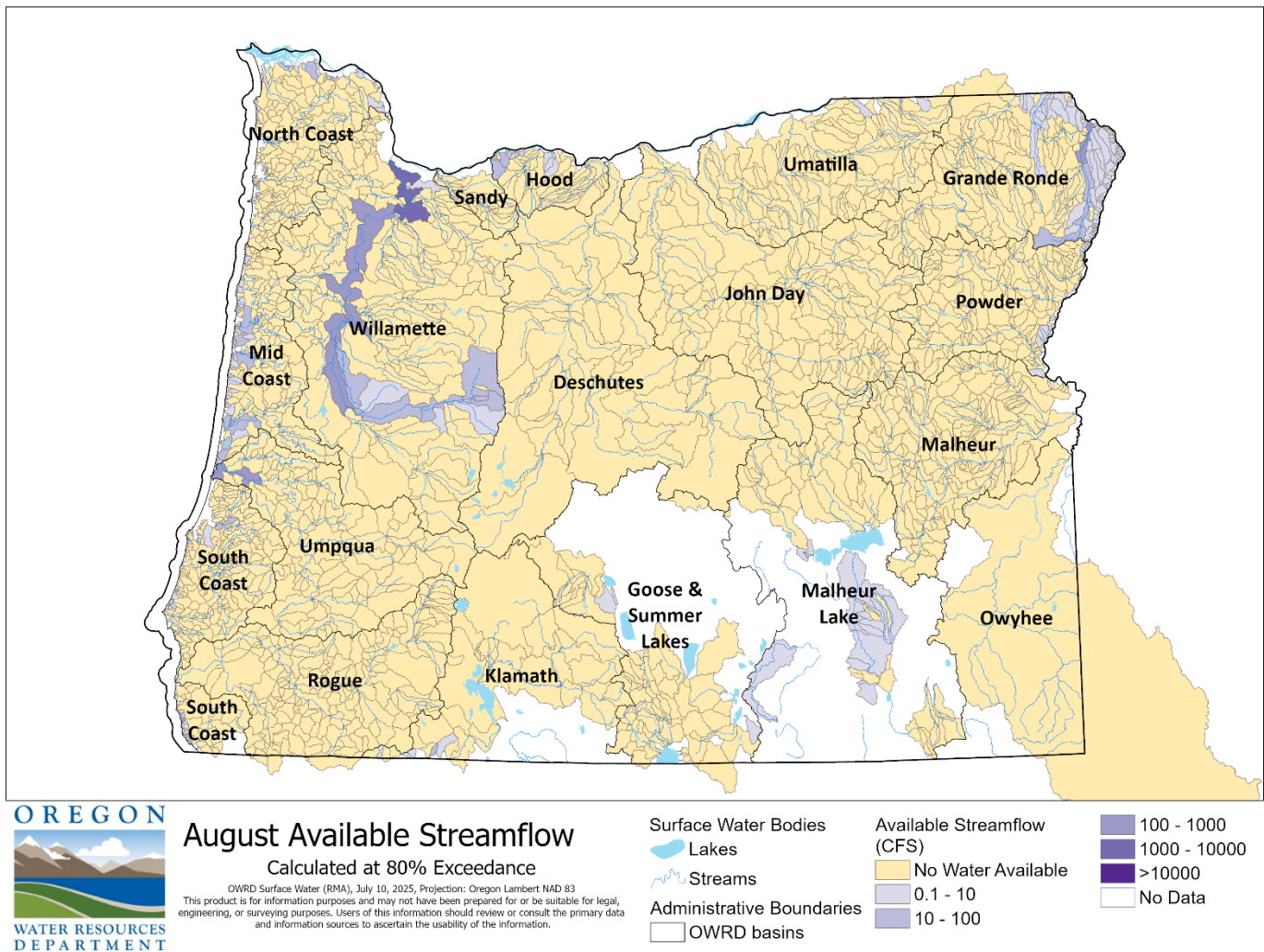
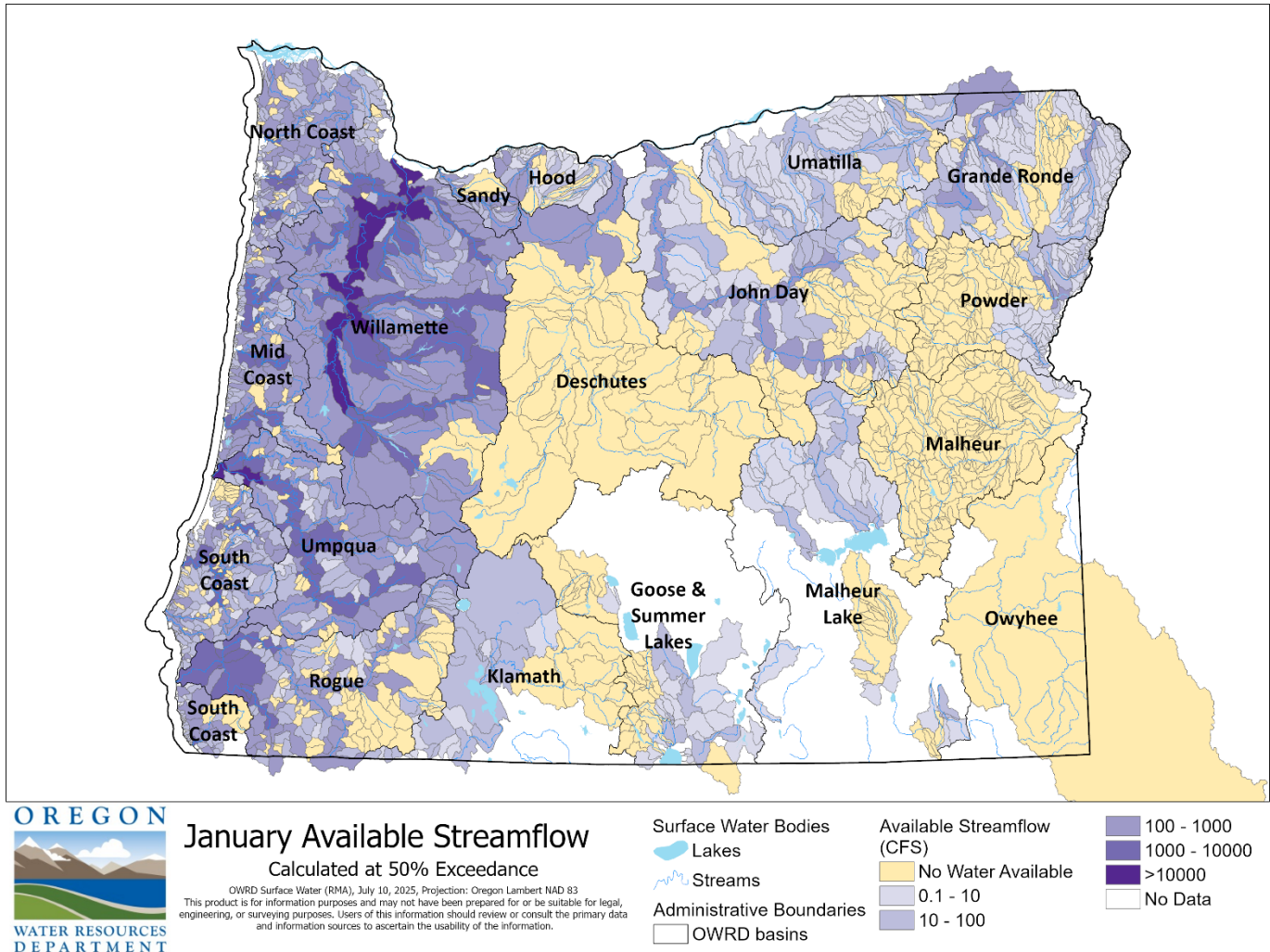


Figure 1-3: Available Streamflow in January
(calculated at 50 percent exceedance)
July 2025



Groundwater – Surface Water Interaction

Groundwater is connected to surface water in various ways. Oregon water law recognizes this important connection, managing these resources as one. This is called conjunctive management.

The hydraulic connection of groundwater to surface water can inform the Potential for Substantial Interference which indicates that the use of groundwater can deplete streamflow and reduce important cold-water discharge. This depletion is often difficult to measure due to delayed effect and natural variability, making conjunctive management a challenge. Climate change, including multi-year droughts, intensifies this challenge. However, there are some locations where the OWRD and the USGS have conducted detailed studies and are able to quantify these connections.

Generally, the OWRD denies or limits new groundwater applications in instances where use from an aquifer could substantially interfere with a surface water source that is already fully appropriated. One example of conjunctive management stems from a [2001 study](#)⁴ conducted by the OWRD and USGS that quantified the hydraulic connection between groundwater and surface water within portions of the Deschutes River Basin. Because of this connection, the OWRD established the Deschutes Basin Groundwater Mitigation Program and rules around

protecting Scenic Waterway flows and instream rights within the basin. This program allows for the development of new groundwater uses within the Deschutes Basin Groundwater Study Area, that would not otherwise be allowed, by requiring the purchase of mitigation credits or the implementation of a mitigation project to mitigate for their impacts on surface water flows.

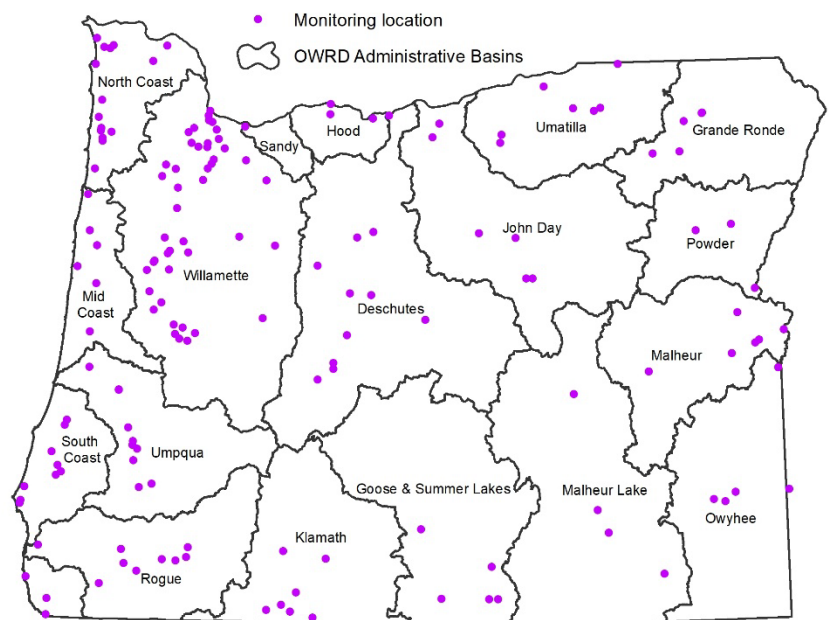
Monitor and Evaluate Surface Water Quality

Water quality standards are established by the state pursuant to Section 401 of the Clean Water Act to ensure that our lakes and streams support multiple beneficial uses, including domestic water supplies, recreational activity, and fish and wildlife needs. Water quality monitoring data and information on status and trends define the priorities and set the direction for programs and activities aimed at protecting and restoring water quality. State agencies and partners utilize water quality monitoring data to update water quality standards, determine causes of impairment, develop water quality improvement plans (Total Maximum Daily Loads and Water Quality Management Plans), establish permit limits and restrictions to limit further impairment, notify the public of health advisories, measure project and program effectiveness, and modify program strategies as needed to improve water quality outcomes.

The ODEQ monitors and evaluates water quality through a variety of programs. Some of these activities are statewide assessments of water quality, whereas others focus on geographically specific assessments of water quality or narrow categories of pollutants and/or beneficial uses. Established monitoring programs and projects at the ODEQ include:

- Ambient Monitoring Network and [Oregon Water Quality Index \(OWQI\)](#) (See Fig 1-4)
- Oregon beach monitoring (with Oregon Health Authority)
- Cyanotoxin monitoring (with Oregon Health Authority)
- Biomonitoring
- Groundwater monitoring
- Pesticide Stewardship Partnership
- Watershed monitoring (TMDLs)
- Toxics monitoring
- Volunteer water quality monitoring
- National aquatic resource surveys
- Other special projects

Figure 1-4: Ambient Water Quality Monitoring Stations
July 2025



Harmful Algal Blooms (HABs) - An overgrowth of cyanobacteria in lakes, rivers, and ponds can result in the development of a harmful algal bloom (HAB), which can produce extremely dangerous toxins (cyanotoxins) that can sicken or kill people and animals. Historically, the ODEQ only sampled active HABs in support of Oregon Health Authority's (OHA) recreational advisory program. During the 2021-23

biennium, the ODEQ received legislative direction to start actively monitoring Oregon waterbodies to promote early detection. Starting in 2024 active field monitoring for HABs was expanded to 40 high recreation use water bodies across the state. This active monitoring approach is in addition to ongoing recreational response monitoring which uses satellite imagery to identify HABs and prompt visual inspections. The results of satellite monitoring are published [and updated](#) regularly.

Fish and Shellfish Monitoring – Water quality impacts the organisms living and feeding in the water, including fish and shellfish that humans consume, for subsistence, recreation, or commercial purposes. The Oregon Department of Agriculture monitors and reports the status of shellfish for toxin levels, as part of their Food Safety Program.

The ODEQ conducts fish and shellfish monitoring as part of their water quality toxics monitoring efforts.

Water Quality Impairments and Oregon’s Integrated Report - The Federal Clean Water Act requires the ODEQ to report on the quality of Oregon’s surface waters every two years. Oregon’s surface waters are assessed to determine if they contain pollutants at levels that exceed protective water quality standards. The results are published in the Integrated Report which combines the Clean Water Act requirements for a list of impaired water bodies and a status report, sections 303(d) and 305(b).

The [2024 Integrated Report](#) identified more than 87-percent of assessed water bodies as impaired and not meeting water quality standards for one or more parameters, including more than 130 lakes and reservoirs, and about 1,700 stream/river segments and watershed units. Additional information regarding the 2024 Integrated Report can be found on the ODEQ’s website, including a story map, web map, and downloadable database.⁵

Monitor and Evaluate Groundwater Levels

Accurate well location information and water-level data are critical for assessing groundwater resources and the connections to surface water. Prior to conducting detailed groundwater studies in a basin (See Action 1B), it is necessary to establish long-term, water-level data sets suitable to evaluate climatic, seasonal, and groundwater development impacts on the aquifers. Today, there are more than 400 active state observation wells, and in the past five years, the OWRD has measured more than 1,300 other wells at least annually. Since 2013, the Oregon Legislature has provided funds to help expand the OWRD’s network of dedicated observation wells, providing staff with suitable wells for deployment of automated data recording instruments that provide high-frequency, year-round water level records. The process of siting these wells is spelled out in more detail in the OWRD’s [2016 Monitoring Strategy](#).



Claire Sturdy measuring Lost Creek in the Klamath Basin. Credit: Garrett Steensland

Groundwater Availability

Groundwater development has occurred primarily in areas where the geologic conditions are favorable or where additional surface water is no longer available for new allocations. In most locations, groundwater aquifers are no longer capable of sustaining additional development without leading to declining supplies for existing water users and reducing streamflows where surface water and groundwater are hydraulically connected. Groundwater quality can also limit use. Detailed geologic maps are needed to accurately map the depth and capacity of aquifers across Oregon. Geologic maps are essential for siting wells and bringing a scientific basis to groundwater management.

A recent increase in complaints to OWRD from people experiencing dry domestic wells has elevated awareness regarding declining groundwater levels associated with climate change, consecutive years of drought, wildfire damage, and groundwater pumping. The state needs adequate data to better anticipate and respond to groundwater issues and possibly designate additional Groundwater Administrative Areas.

Evaluate Groundwater Administrative Areas - The OWRD oversees 22 Groundwater Administrative Areas (Figure 1-5, below) designated to limit further water level declines or groundwater interference with surface water. As hydrological conditions change with climate change and the cumulative impacts of appropriation to consumptive uses, groundwater data may reveal the need to designate additional Groundwater Administrative Areas and Management Areas.

Specific rules apply to each Groundwater Administrative Area, but they all fit in the following categories:

- **Withdrawn** – prevents new allocation in specified areas or aquifers.
- **Classified and Limited** – limits new allocations for specified uses and areas or aquifers through Basin Program Rules (OAR 690-5XX) to address groundwater supply and quality.
- **Critical** – curtails existing uses, to address groundwater supply, quality, or thermal issues.
- **Mitigation** – requires mitigation for new uses to offset impacts to hydraulically connected surface water.
- **Serious Water Management Problem Areas** – requires measurement and reporting of water use authorized under existing rights.
- **ODEQ Groundwater Management Area** – related to groundwater quality and described in further detail below.

Monitor and Evaluate Groundwater Quality

Groundwater contamination is also a serious issue in some areas of Oregon. Private domestic wells may face contamination issues from agricultural or industrial sources, failing septic systems, or from surface water and groundwater interactions. Naturally occurring elements such as arsenic, uranium, and boron can also make water supplies unsuitable for some uses. Testing the water quality of private domestic wells falls outside of state agency authority in most cases. The OHA requires that private domestic wells are tested for nitrate, bacteria, and arsenic before a home is sold, and the data be provided to the real estate transaction database.

The ODEQ implements a Statewide Groundwater Monitoring Program to monitor groundwater for contaminants of concern, including nitrates and pesticides. From 2015 to 2017, the ODEQ was able to monitor two geographic regions per year. Funding and staffing reductions now only allow for monitoring in one region every other year, in addition to regular sampling in the three Groundwater Management Areas. The monitoring data are used to determine areas of the state that are especially vulnerable to groundwater contamination, long term trends in groundwater quality, status of ambient groundwater quality, emerging groundwater quality problems, and potential risks from contamination. Increased resources for groundwater monitoring can help protect public health.

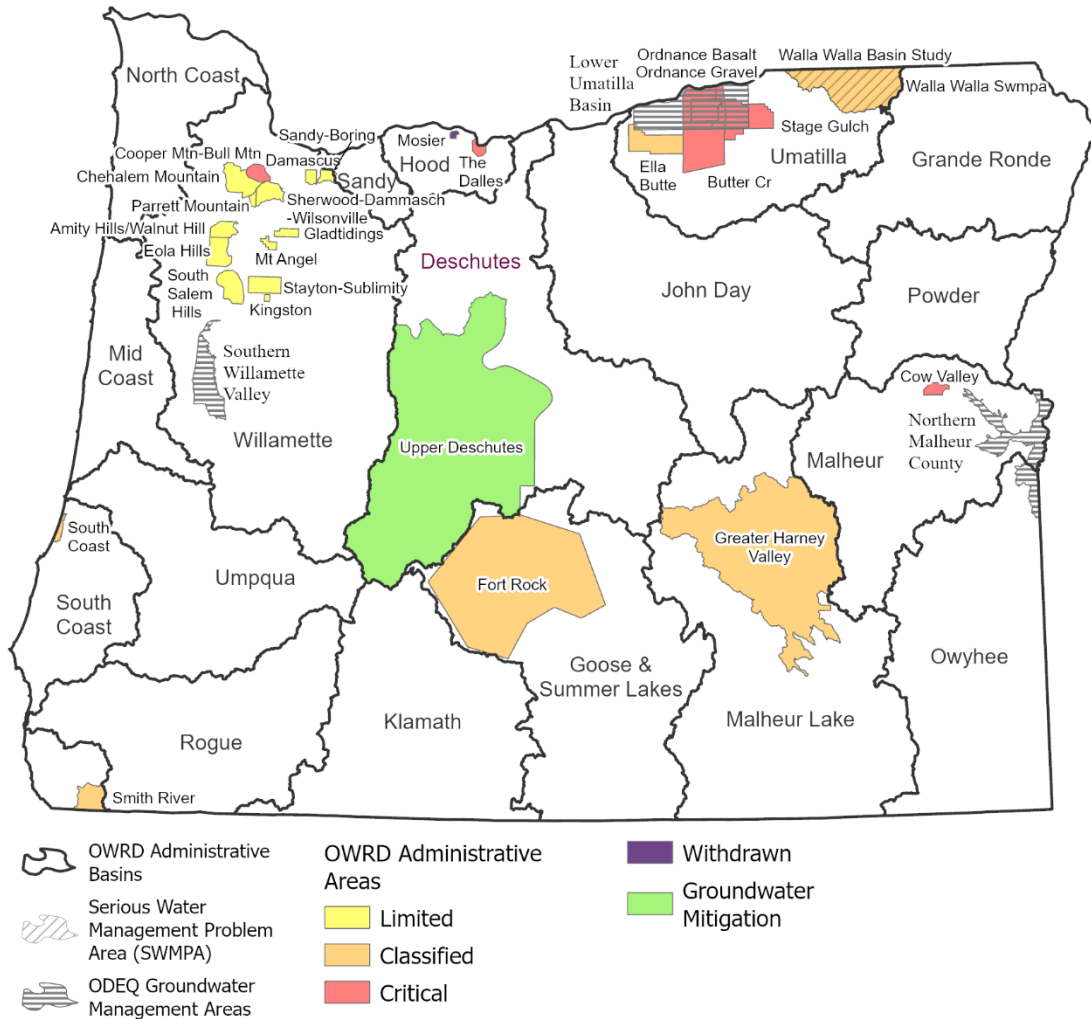
Groundwater Management Areas - The ODEQ designates an area as a "Groundwater Management Area" when groundwater has elevated contaminant concentrations (Figure 1-5). Commonly analyzed contaminants include nitrates, bacteria, and arsenic. Once a Groundwater Management Area has been declared, a local groundwater management committee is formed and then works with state agencies to develop an action plan to address the

contamination. Three Groundwater Management Areas have been designated in Oregon due to elevated nitrate concentrations in groundwater:

- Lower Umatilla Basin
- Northern Malheur County
- Southern Willamette Valley

The ODEQ typically collects groundwater quality samples from well-owners who have granted permission, both within Groundwater Management Areas and other areas of the state. Budget restrictions have not allowed for the installation of monitoring wells.

Figure 1-5: OWRD Groundwater Administrative Areas and ODEQ Groundwater Management Areas



Testing Private Drinking Water Wells –Private drinking water supply wells are not routinely tested for water quality issues, although state law requires testing at the time of a real estate transaction. The Domestic Well Testing Act requires a homeowner selling a property with a drinking water well to test the water for nitrate, total coliform bacteria, and arsenic. Within 90 days after the seller receives the test results, the seller must submit the results to the buyer and to the OHA. The data has potential to provide a broad overview of groundwater quality in the state, however compliance for reporting has been low. This points to a need to amend the Domestic Well Testing Act to require laboratories to electronically report domestic well testing results associated with real estate transactions to the state (see Action 12A Ensure the Safety of Oregon’s Drinking Water).

Domestic wells located in an area impacted by wildfire should be tested to ensure water is still safe to drink. OHA recommends testing for arsenic, nitrate, bacteria, lead, and, depending on damage assessment results, benzene, toluene, ethylbenzene, and xylenes, commonly referred to as "BTEX."

The 2025 Oregon Legislature enacted House Bill 3525 requiring landlords who rent homes that rely on domestic wells to test the water for arsenic, coliform, nitrate, and lead and report the results to their tenant and the OHA. However, this requirement applies only to homes in areas designated by the ODEQ as Groundwater Quality Management Areas. The testing requirements will go into effect starting January 1, 2027.

Monitor and Evaluate Habitat Conditions and Watershed Functions

The ODFW, Oregon Watershed Enhancement Board (OWEB), and other agencies have significant responsibilities around habitat and watershed monitoring. Habitat and watershed function monitoring includes evaluating the change in river channels over time, substrate, and fish passage issues, as well as wetland and floodplain conditions. Monitoring is a broad term that encompasses baseline monitoring, compliance monitoring, status and trend monitoring, and effectiveness monitoring. Diversity of monitoring approaches is essential to building an understanding of watershed health, tracking the success of watershed improvement projects, and setting restoration priorities.

The OWEB maintains the [Oregon Watershed Restoration Inventory](#) of more than 20,000 completed projects since 1995.⁶ This database is used to report on the progress of the Oregon Plan for Salmon and Watersheds, to support effectiveness monitoring of restoration activities, and to inform watershed assessments and future restoration project planning and implementation.

Oregon continues to develop guidance for prioritizing watersheds/basins for data collection and monitoring, including recommendations for further investment. The ODFW is identifying and prioritizing areas for aquatic habitat protection and restoration using new species distribution and climate change information. Some watershed-based tools used to prioritize sensitive water bodies and habitat for future restoration efforts include Endangered Species Act Recovery Plans, the ODFW's State Wildlife Action Plan,⁷ watershed assessments and action plans, and the Department of State Land's Oregon rapid wetland assessment protocol, the stream functional assessment method, and streamflow duration assessment method.

Indicator Species - One way of tracking the status of both water quality and ecosystem health is with a designated indicator species. The health of an indicator species can offer early warning signs regarding ecosystem impairment.

Such indicator species include native salmonids (salmon, steelhead, and trout) that depend on cold, clean water. Since 1991, the National Oceanic and Atmospheric Administration's Fisheries Office of Protected Resources, which monitors anadromous species that migrate between freshwater and the Ocean, has listed 15 out of 23 Evolutionarily Significant Units/Distinct Population Segments of salmon and steelhead found in Oregon under the Endangered Species Act. To date, none of them have been delisted.

In addition to these indicator species, the U.S. Fish and Wildlife Service (USFWS), which has authority for monitoring non-anadromous fish species that reside year-round in Oregon's rivers and streams, has listed five species as either threatened or endangered (Bull trout, Lahontan cutthroat trout, Hutton tui chub, and Shortnose and Lost River suckers). Several other aquatic species are proposed for listing or being assessed for potential listing, including the Northwestern pond turtle and the Western ridged mussel. The high number of aquatic species listed as threatened or endangered are a result of declining water quality and quantity in many areas of the state during critical life history periods and can be an indicator of inadequate ecosystem health. Recovery efforts by local, state, tribal, and federal entities, which include improving habitat connectivity, increasing habitat quantity, and improving habitat quality, are underway for these listed species, as well as other species of significance such as Pacific lamprey.

As a result of such efforts, the USFWS announced the removal of the Oregon chub and Modoc sucker and their associated critical habitat from the list of Endangered and Threatened Species in 2015, making them the first to be delisted due to recovery. In addition, the Fosskett Spring Speckled Dace and Borax Lake Chub were delisted in 2019 and 2020, respectively.



Oregon chub, Credit: Rick Swart



Modoc sucker, Credit: Doug Markle

Impacts to indicator species can also serve as an early warning sign of broader impacts to the benefits that Oregonians enjoy. Healthy ecosystems provide clean air, clean and abundant water, fish and wildlife habitat, and other values that benefit the public. All Oregonians benefit from a healthy aquatic ecosystem as freshwater is vital to human life and economic well-being.

See Strategy Actions 2A-2C for additional data needs related to ecosystems. For Strategy actions that support ecosystem protection and enhancement, see Chapter 4 Strategy Actions 11A-11E.

Measuring Ecosystem Services – Ecosystem services are the benefits that nature provides to the economy, including producing clean water, storing water, and cooling. The State Wildlife Action Plan highlights ecosystem services markets as a way to create economic incentives to protect or restore the environment. The U.S. Department of Agriculture’s [Conservation Effects Assessment Project](#) is a multi-agency effort led by the Natural Resources Conservation Service to quantify the effects of conservation practices across the nation’s working lands. More work is needed in Oregon to quantify ecosystem benefits to support conservation, restoration, or mitigation solutions associated with environmental impacts from development.

Action 1B

Conduct Additional Groundwater Basin Investigations

Action 1A outlined the primary data collection and monitoring needs for surface water, groundwater, and ecosystems. This action identifies additional detail needed to understand our groundwater at a finer geographic scale. Place-based water planning and future iterations of the Strategy require groundwater data at the basin or sub-basin scale.

Prioritize Groundwater Basin Studies

Oregon needs additional basin studies to further understand the relationship between groundwater and surface water, and the availability of both. Conducting groundwater studies is a priority for the state, which has historically evaluated groundwater resources at the basin scale through cooperative, cost-share programs with the U.S. Geologic Survey (USGS). These studies result in a better understanding, or conceptual model, of the basin, including a description of the basin geology, groundwater flow paths, and a water budget quantifying annual volumes of groundwater recharge, discharge, and changes in dynamic storage. A numerical groundwater flow model is also developed and used to better understand the outcome of potential management scenarios with computer simulations.

The Water Resources Department (OWRD) has completed cooperative basin studies in four areas (Harney, Deschutes, Willamette, and Klamath basins) and is currently working with the USGS and Washington Department of Ecology to study the Umatilla Basin’s Walla Walla Sub-basin. The state has prioritized additional basins for subsequent groundwater studies. Priority areas include:

- The Hood Basin's Fifteenmile Creek Sub-Basin, to understand declining groundwater levels and whether groundwater extraction is affecting surface water flows. The OWRD initiated this basin study and associated public outreach in 2025.
- The Powder Basin, to assess groundwater availability and potential overallocation.
- The Grande Ronde Basin, to assess groundwater availability and potential overallocation.

Groundwater Budgets for Major Hydrologic Basins

The 2021 Legislature passed House Bill 2018 that directed the OWRD to:

- Enter into a cost-sharing agreement with the USGS to develop and publish groundwater budgets for all major hydrologic basins in the state. This work is anticipated to be complete by the end of 2028.
- Contract with a qualified person to produce a peer-reviewed report on statewide consumptive water use. The initial set of statewide evapotranspiration data was published in January 2025.
- Expand the groundwater level monitoring network. Groundwater observation wells have been added in the Deschutes, Harney, Rogue, Umatilla, Walla Walla, and Willamette basins. OWRD is in the process of analyzing where there are data gaps to prioritize additional locations.
- Help communities use the data collected under this bill to inform local water planning efforts.

The water use measurement component of this work is addressed in more detail under Action 3A.

Improve Groundwater-Related Records

The state collects and maintains a variety of groundwater-related records that well owners, consultants, and state agencies need to better understand Oregon's water wells, some examples are described below. Data specific to water users reporting their water use is called for in Action 3A.

Well Location Data Gaps – Wells were not required to be registered with the state until 1955. Since then, most well location information has been reported at a very coarse scale (within a 40-acre area). In 2009, requirements were put in place to obtain more precise location information for newly drilled exempt-use wells, which are most often used for domestic purposes. An estimated 280,000 such wells exist today, with several thousand more drilled each year. In 2014, the state updated its online mapping program to help well drillers and landowners record the location of new, existing, and unused water wells—including both exempt-use wells and permitted wells. On July 1, 2023, statutory changes require all well reports submitted to include the GPS coordinates of the well's location. Despite those efforts, Oregon has inadequate documentation of the number, location, and average water use of water wells.

Water-Level Access – Installation of measuring tubes helps to ensure that accurate water level measurements can be taken in water wells, without measurement equipment getting tangled in pumps or wires. This can

Action 1B

Conduct Additional Groundwater Basin Investigations

Examples of how to implement this action:

- Install and maintain dedicated state observation wells in priority basins
- Partner with UGSG to conduct and cost-share additional groundwater recharge studies and basin investigations
- Evaluate existing and potential establishment of new groundwater administrative areas; review time-limited permits more efficiently
- Locate and document water wells, including exempt use wells, permitted wells, and unused wells
- Ensure groundwater level measurements are high-quality; install measuring tubes and make scheduled measurements
- Investigate connections between groundwater and surface water, particularly where groundwater sustains summer low flows and/or discharges cold water
- Support and coordinate with ODEQ's Groundwater Monitoring Program (water quality)
- Incorporate groundwater quality and quantity information into Oregon's Environmental Justice Mapping Tool

be particularly helpful in deep wells. Several locations in Oregon, such as Eola Hills in Polk County, Pete's Mountain in Clackamas County, and Mosier in Wasco County have requirements to install measuring tubes during new well construction.

Scheduled Measurements – Agency scientists collect baseline information at the start of each irrigation season before any significant groundwater pumping begins. This activity is a high priority because it provides an annual snapshot of groundwater conditions that can be compared over time and contributes to Oregon's long-term understanding of the resource.

Action 1C

Enhance Interagency Data Coordination

Data-sharing among agencies supports informed decisions and more efficient management of water resources. As one example, the Department of Environmental Quality (ODEQ) and Department of Fish and Wildlife (ODFW) use data to provide information and advice on water allocation decisions made by the Water Resources Department (OWRD) per agency rules and statutes. Their understanding of species and water quality needs helps determine whether a proposed use of water is in the public interest.

As another example, the Department of Forestry (ODF) uses water right information from the OWRD to determine whether forest streams are sources of drinking water. Streams that serve as a drinking water source trigger more stringent forestry protections. There are many examples among local, state, federal, and tribal agencies where current and accurate water resources information from one agency partner affects whether the other agency can effectively carry out its mission.

Monitoring Oregon's water resources is not limited to just state agencies. There are several federal agencies whose data collection and analysis are critical to the understanding and management of Oregon's surface water and groundwater resources, including the Army Corps of Engineers, Bonneville Power Administration, Natural Resources Conservation Service, the National Weather Service, and the U.S. Geological Survey. Local partners, including soil and water conservation districts and watershed councils, collect valuable monitoring data too.

The lack of stable resources to maintain or expand the state's monitoring networks, collect and share data, conduct studies, and develop modeling tools presents a significant, ongoing challenge. Several years' worth of water quantity and quality data still needs to be processed, analyzed, and shared with the public and other partners. Methods to enhance data collection, processing, and sharing include:

- **Coordination** – Better integration of federal, state, and local data collection efforts, including staffing to coordinate data across agencies, while adhering to quality control standards (e.g., interagency temperature data coordination)
- **Data Management** – Resources need to be allocated for data infrastructure and data stewardship
- **Training** – Improving data collection standards, manuals, training, and technical support
- **Access** – Providing on-line platforms for data submittal, retrieval, and quality control
- **Real-Time** – Adding remote and real-time monitoring to existing stations
- **Backlogs** – Processing the backlog of water quantity and water quality data

A Strategic Enterprise Approach to Monitoring

Oregon's interagency Strategic Enterprise Approach to Monitoring (STREAM) Team was created in June 2013 and is made up of many of the state's natural resources agencies, all of which monitor Oregon's waters for various public purposes. The STREAM Team facilitates collaborative decision-making to support a healthy environment through coordinated planning, monitoring, and communication of water-related data and information. The work of the STREAM Team directly supports the intent of the Strategy, improving water resources data collection and monitoring by coordinating interagency efforts.

The STREAM Team has developed a collaborative workspace for agency partners and a monitoring calendar and associated map that are updated annually. Members meet regularly, where agencies provide input on statewide water-related monitoring issues, such as new stream gages, harmful algae bloom coordination, environmental data management strategies, and more. They published a [statewide monitoring strategy](#) in 2017.

Make Water-Related Information Available Electronically

Water-related program information, contact information, and data are often not available from state agencies, or sometimes difficult to find and use, though agencies do try to keep fact sheets and “how-to” guides accurate and up to date. Agencies have made progress scanning older documents and making newer documents available online in a searchable format, however, investments in information technology have been insufficient. In a culture that relies on instant access to information, agencies are still in the process of making historic documents available while working to make data more interactive.

A significant milestone in the process to share information among agencies and with the public has been achieved through the initiation of the [Oregon Water Data Portal](#) Project in 2022.⁸ The project, led by the ODEQ, is still in the early phases including developing a beta version of the portal in early 2025. The Legislature did not authorize additional funding in for the 2025-27 biennium. Eventually, if funded, the portal will be a single location for agencies and the public to access a variety of data that has been collected by many agencies and partners.

Statewide Lidar – Oregon’s Lidar Program (Airborne Light Detection and Ranging) uses a remote sensing tool to provide three-dimensional surface terrain data (i.e., topographic information) for the state. In 2007, the Oregon Legislature designated the Department of Geology and Mineral Industries (DOGAMI) as the lead agency for lidar acquisition in Oregon. The DOGAMI established the Oregon Lidar Consortium to build funding for the acquisition of large swaths of lidar across the state. These data help create geologic maps, flood hazard maps, evaluate tidal channel topography, locate infrastructure, model water quality, delineate wetlands, evaluate habitat restoration, assess hazards, and inventory forests. As of 2025, the Oregon Lidar Consortium has acquired high-resolution lidar data for approximately 92 percent of the state. A web-based [mapping application](#) shows which parts of Oregon are completed or in-process for lidar coverage.⁹

Action 1C

Enhance Interagency Data Coordination

Examples of how to implement this action:

- Improve integration of federal, state, and local government data collection efforts while adhering to quality control standards
- Improve data sharing and availability using on-line platforms and emerging technologies, mobile apps, and open standards
- Invest in information technology and modernization of databases and applications
- Develop or update modeling and other decision-support tools
- Encourage inter-agency work among a variety of partners
- Provide resources for interagency data management, including data infrastructure and stewardship, as well as participation in the Oregon Water Data Portal
- Support the development, implementation, and ongoing maintenance of the Oregon Water Data Portal Project
- Provide interagency training to improve data collection standards, including manuals and technical support
- Improve public access to water data and provide a centralized location to access various types of water data

**Action
1D**

Support Basin-Scale Climate Change Research

Many local, state, federal, and tribal governments are conducting, and must continue, climate change research, identifying and assessing risks and actions specific to the Pacific Northwest. These research efforts will help water managers and natural resources agencies develop place-based strategies for addressing climate-related impacts on water quality, water quantity, and ecosystems. There are many opportunities to further collaborate between local partners, governments, and research institutions.

Oregon Climate Change Research Institute

The Oregon Climate Change Research Institute (OCCRI) has been tasked by the Oregon Legislature to lead climate change research among faculty of the Oregon University System. In 2025, OCCRI released the [Seventh Oregon Climate Assessment](#), a compendium of research on climate change and its impacts on Oregon.¹⁰

Researchers at OCCRI are examining climate change impacts on a regional scale, looking specifically at risks to the Pacific Northwest. The National Oceanic and Atmospheric Administration awarded a five-year grant to establish and coordinate a regional consortium of climate variability assessment, research, and outreach in the Pacific Northwest. Funds were used to establish the Climate Impacts Research Consortium, which includes OCCRI and other researchers from universities and extension services within Oregon, Washington, and Idaho. The Consortium provides information and tools for making decisions about landscape and watershed management and has been home of the Regional Integrated Sciences and Assessments (RISA) for the Pacific Northwest since September 2010, one of ten RISAs in the country. In 2022, Congress changed the name of the RISA program to "Climate Adaptation Partnerships."

Oregon's Climate Change Adaptation Framework

[Oregon's Climate Change Adaptation Framework](#) provides a broad-scale qualitative assessment of risks to people, infrastructure, communities, and natural resources that are expected to result from the effects of variable and changing climate conditions.¹¹ The Framework calls for additional research in several areas, including social, economic, and climate change impacts related to forest management and other types of management.

Oregon Climate Action Commission (formerly Oregon Global Warming Commission)

In 2007, the Oregon Legislature, through passage of [House Bill 3543](#), established the goal of reducing greenhouse gas emissions by 10 percent below 1990 levels by the year 2020.¹² By 2050, those emissions have to be at least 75 percent below 1990 levels. That legislation also created the Oregon Global Warming Commission, which is tracking progress towards the goal. The Oregon Department of Energy provides support for the Commission.

In 2023, the Oregon Legislature ([Senate Bill 522](#)) changed the name of the Oregon Global Warming Commission to the Oregon Climate Action Commission. The Commission developed an [Oregon Climate Action Roadmap](#) that provides foundational information on state climate impacts, emission trends, and progress towards achieving Oregon's greenhouse gas emissions goals. The Commission has also authored several other documents including the [2021 Natural and Working Lands Proposal](#), in collaboration with the Department of Agriculture (ODA), Department of Forestry (ODF), and the Oregon Watershed Enhancement Board (OWEB). Through the adoption of HB 3409 in 2023, the Oregon Legislature established the state's Natural and Working Lands Fund to support investments in natural climate solutions on Oregon's natural and working lands. As approved by the Oregon Climate Action Commission in early 2024, the Fund's initial \$10 million appropriation was allocated between the ODA, ODF, OWEB, and the Oregon Department of Fish and Wildlife to support a variety of programs and projects to advance nature-based climate solutions.

Next Steps

Oregon should continue collaborating with existing climate change research organizations and institutions to improve climate change projections at a basin scale. Basin-scale data are needed to help Oregonians prepare responses and strategies to address climate change.

These include: identifying basins susceptible to changing flow regimes, establishing gages to quantify the rate of change in the magnitude, frequency, duration, and timing of streamflow; identifying groundwater systems with areas of recharge within the rain-snow transition zone; monitoring groundwater level responses to climatic impacts; and working with the U.S. Geological Survey and other partners to support long-term, natural streamflow monitoring stations that have previously been used to assess climate impacts on water supplies (e.g., U.S. Geological Survey Hydro-Climatic Data Network stations, and Geospatial Attributes of Gages for Evaluating Streamflow stations).

Action 1D

Support Basin-Scale Climate Change Research

Examples of how to implement this action:

- Make improvements in surface water and groundwater monitoring, flood and drought frequency projections, and long-range forecasts
- Improve climate change projections at the basin-scale
- Develop reliable projections of basin-scale hydrology and associated impacts on built and natural systems, including aquatic species and habitat
- Analyze how instream and out-of-stream water rights will be met with hydrologic changes
- Investigate potential shifts in the hydrograph, agriculture and irrigation seasons and impacts to fish distribution/life history timing
- Develop climate change forecasting for use in water availability analyses and permitting decisions (also see Action 10F)
- Investigate new crop types suitable to a changing climate
- Investigate increased risks to ecosystems and water supply and wastewater management infrastructure associated with wildfires, particularly in environmental justice communities
- Finalize and implement ODFW's Aquatic Habitat Prioritization assessment which incorporates climate projections for water quantity and temperature when evaluating future habitat suitability for sensitive aquatic species
- Coordinate data collection into the Oregon Water Data Portal Project
- Include an assessment of vulnerable water supply systems and identify those in environmental justice communities
- Consider the increased risk to water infrastructure by wildfire in environmental justice communities
- Look for equity impacts of climate change (i.e., climate justice) and water management (i.e., water justice)
- Advocate for financial resources to help local basins better understand climate impacts, including partnerships with OCCRI

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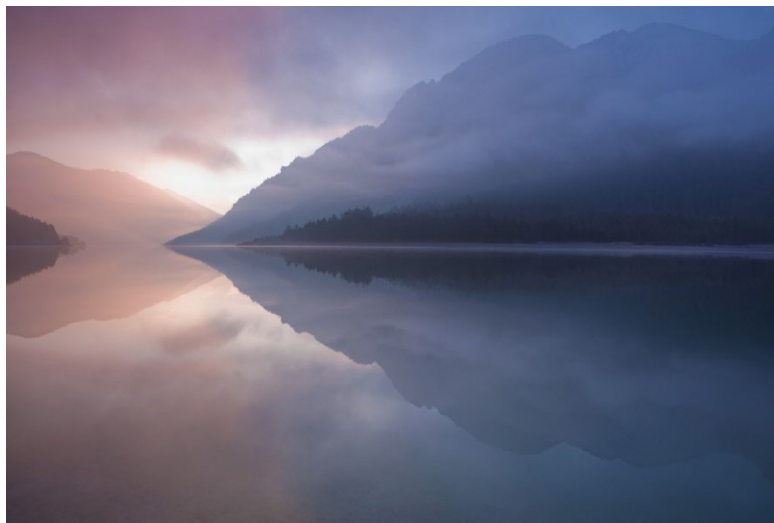
CHAPTER 2

Objective 2: Understand Instream and Out-of-Stream Needs

Oregon's rivers, streams, lakes, estuaries, wetlands, springs, and aquifers support a wide range of benefits for both humans and the environment. They provide sources of water for drinking, agriculture, energy, industry, recreation, plants, and essential habitat for fish and wildlife.

A clean and reliable source of water is critical for meeting our basic human needs and for supporting Oregon's economy. Thousands of businesses and industries rely on water in some form, to irrigate a crop, to manufacture a product, to provide energy, or to provide a service or experience. Oregon's economy is therefore dependent upon a healthy environment where water resources play an essential part. Fish and wildlife need a sufficient quantity and quality of water in rivers, lakes, wetlands, and estuaries to live, reproduce, and thrive. A healthy environment includes fully functioning ecosystems that can support our commercial, recreational, and cultural needs and a quality of life unique to Oregon and the Pacific Northwest.

Oregon continues to seek better information about water needs and demands, both instream and out-of-stream. Without a better characterization of ecosystem needs and water use today, the state cannot adequately plan to meet these needs sufficiently and sustainably in the future.



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Chapter 2 Actions at a Glance

Objective 2: Understand Instream and Out-of-Stream Needs

Critical Issue - Instream and Ecosystem Water Needs

- 2A Determine Instream Flow Needs (Quality and Quantity)
- 2B Determine Needs of Groundwater-Dependent Ecosystems
- 2C Develop Instream and Ecosystem Water Need Forecasts

Critical Issue - Out-of-Stream Water Needs

- 3A Improve Water-Use Measurement and Reporting
- 3B Regularly Update Out-of-Stream Water Demand Forecasts
- 3C Determine Unadjudicated Water Right Claims
- 3D Authorize the Update of Water Right Records with Contact Information

Critical Issue

Instream and Ecosystem Water Needs

Enough cold, clean water is needed within the environment to ensure overall ecosystem health. “Instream flows,” or those within a stream channel, lakebed, groundwater aquifer or place where water naturally flows or occurs, support pollution abatement and sustain fish, wildlife, and the habitats they depend on. Instream flows also support society’s economic and cultural needs, including energy production, navigation, transportation of goods, recreation, tourism, scenic values, and fishing.

The practice of securing a water right and taking water out of streams and aquifers to use for beneficial uses has resulted in reduced amounts of water instream. Without adequate water in the system and its legal protection, instream uses and associated ecological, economic, cultural, and spiritual benefits are at risk. Oregon must develop a better understanding of instream water quantity and water quality needs. For example, efforts to protect and restore water instream for aquatic life require an understanding of the full range of flows and temperature requirements that are needed to not only prevent further species decline but also aid in the recovery of threatened and endangered species.

This section describes the data and studies needed to better understand instream water needs in the context of a changing climate. Chapter 3 describes actions (5A-5C and 6A-6B) to protect water resources during natural hazard mitigation and land use planning. Chapter 4 describes actions (11A-11E) to protect and enhance ecosystems and secure legal instream protections (e.g., Scenic Waterways designations, instream water rights).

Action 2A

Determine Instream Flow Needs, Quality and Quantity

Healthy streams are dynamic, each exhibiting different patterns of variability to which native species are adapted. Ecosystems and aquatic species depend upon a range of flow conditions including frequency, magnitude, and timing, and suitable water quality to thrive. Scientists require site-specific data and studies to quantify these variable instream needs throughout the year. Agencies need information about the quantity and quality of flows needed to support public uses including recreation, scenic attraction, and pollution abatement. This section looks at the next steps for better understanding instream flow needs to inform adequate instream flow protection and prioritize flow restoration efforts.

Data Needs for Instream Water Rights

The state faces an ongoing challenge to sufficiently fulfill instream needs to protect ecosystem function because instream values were not initially recognized under Oregon’s Water Code. Therefore, it is important to conduct studies to quantify specific instream flow needs by stream system and specific reaches and legally protect the identified necessary instream flows (Action 11B). Understanding the full suite of flows needed to support stream ecosystems and functions can better inform future management actions and support instream water right applications.

Instream water rights, a water right held in trust by the Water Resources Department (OWRD), are one tool that can be used to protect instream needs. Three state agencies can apply for instream water rights for aquatic life and wildlife, pollution abatement, and recreation and scenic attraction, described in more detail below. The historic and legal basis of instream water rights are described in more detail in Appendix B. Additional discussion about instream water rights, including instream leases and transfers, can be found in Chapter 4, Action 11B.

Aquatic Life and Wildlife - The Department of Fish and Wildlife (ODFW) applies for instream water rights for the conservation, maintenance and enhancement of aquatic and fish life, wildlife, and fish and wildlife habitat. There are

certain stream conditions that are necessary to support the life cycle of Oregon's fish species. Adequate amounts of cool, clean water are a requirement for all life stages of salmonids, and the water quality, water quantity, and habitat needs vary by species. The ODFW strives to understand and provide information regarding the ecological flows and water quality components needed to protect and enhance Oregon's fish and wildlife and their habitats. Ecological flows represent the full range of flows (i.e., from low water fall spawning flows to channel forming high flows) and water quality that must be maintained within a stream and its margins to support the natural functions of healthy ecosystems. Instream uses and their associated ecological benefits are threatened without adequate water in the system. The quantification of ecological flows is lacking across the state, so additional studies are needed. This lack of data makes water and species management challenging.

Data on ecological flows is needed to support public uses and ecosystem needs in future instream water right applications. Such applications require data collection and scientific analysis to determine the flows needed to meet the physical habitat requirements of target species and life stages. Understanding when and where species may be vulnerable can also inform streamflow and habitat restoration efforts and identify areas in need of additional study. There is very little information on the instream needs for wildlife, so more research is needed.

Pollution Abatement - The Department of Environmental Quality (ODEQ) is authorized to apply for instream water rights for pollution abatement. Elevated stream temperature is a common water quality impairment in streams across Oregon. Healthy, functioning streams require adequate riparian vegetation, floodplain connection, and adequate streamflow, among other factors, to prevent water quality degradation and maintain high-quality aquatic habitat. Some instream rights in Oregon streams are for "pollution abatement" purposes but the ODEQ currently lacks a program and technical capacity to apply for new instream water rights. The ODEQ recognizes that instream water rights for the purpose of fish and wildlife provide water quality benefits as well.

Recreation and Scenic Attraction - The Parks and Recreation Department (OPRD) is authorized to apply for instream water rights to support recreation and scenic attraction based on studies utilizing the Oregon Recreation Methodology. This methodology is used to determine the recreation flow or water level requirements for scenic attraction and recreational values of a stream, river, lake, or wetland. More studies are needed across the state to determine the amount of water needed to accommodate the main recreational use(s) or scenic attraction occurring during any given month.



Western brook lamprey (*Lampetra richardsoni*). Credit: Laura Tesler Photography

Action 2A

Determine Instream Flow Needs (Quality and Quantity)

Examples of how to implement this action:

- Prioritize and install gages in additional locations to monitor the status of instream flows and water rights
- Use existing and new data to develop statewide ecological flow criteria for streams
- Prioritize basins and install monitoring equipment to help characterize the full suite of flows through these basins
- Conduct instream needs studies to support future instream water right applications
- Conduct instream needs studies to assess spiritual and cultural needs
- Pursue a consistent, model-based framework for characterizing long-term instream need in the context of climate change to support the development of a long-term instream forecast (Action 2C)
- Review, synthesize, and update models/studies to quantify the ecological, economic, social, and cultural value of instream uses
- Support state agency instream flow efforts and programs (e.g., ODFW, ODEQ, OPRD)
- Support ODFW and ODEQ efforts and collaboration regarding stream temperature monitoring, modeling, and studies
- Support ODFW and OWRD efforts and collaboration regarding monitoring for instream flows and instream water rights
- Fill data gaps regarding fish passage barriers and screening needs
- Conduct studies to determine if wetland restoration or reconnection to streams could benefit instream flow

Data Needs to Support Spiritual and Cultural Values

Data needs regarding other instream values (e.g., spiritual and cultural values and access to First Foods) need to be studied, as they are not directly quantified in instream water rights. Studies could include environmental flows, which are metrics that consider human uses and other management objectives beyond ecological flow considerations. These are often called “balanced flows.” They are set by evaluating trade-offs, but a solid understanding of ecological flow needs is an essential component to define realistic environmental flow targets.

Data Needs for Other Instream Needs

Salmon and steelhead need cold water refugia during their migrations upstream on the way to spawn and for rearing during the heat of summer when stream temperatures are at their highest. Such safe havens play an important role in the survival and migration of adult and juvenile salmon, steelhead, and trout as rivers warm to lethal thresholds during the summer. Identification, protection, and restoration of cold water refugia is critical, as climate change holds the potential for hotter, drier summers.

In 2015, the ODEQ, U.S. Environmental Protection Agency (USEPA), and the National Oceanic and Atmospheric Administration (NOAA) developed a partnership under the Clean Water Act to locate, protect, and restore zones of cold water habitat for fish in the Columbia and lower Willamette Rivers.¹ [The Lower Willamette River Cold-Water Refuge Narrative Criterion Interpretation Study](#) was submitted to the NOAA by the ODEQ in March of 2020, and the [Columbia River Cold Water Refuges Plan](#) was prepared by the USEPA in 2021.

Data Needs for Funding

Some water projects receiving funds from Water Projects Grants and Loans from the OWRD under [Senate Bill 839 \(2013\)](#)² will need flow prescriptions that describe the duration, timing, frequency, and volume of flows required to maintain the biological, ecological, and physical functions of the watershed.

Action 2B

Determine Needs of Groundwater-Dependent Ecosystems

Groundwater is vital to both ecosystems and human communities, as groundwater discharges and delivers water to wetlands, rivers, and lakes. Groundwater provides late-summer flow for many rivers and creates cool-water upwellings critical for aquatic species during the warmer summer months. Groundwater-dependent ecosystems contain species and habitats that rely on groundwater for some or all of their life cycle. These ecosystems form the interface between groundwater and surface water, and due to their unique hydrology, often harbor many rare species native only to these locations. Groundwater-dependent ecosystems still need to be fully identified and characterized across the state, including their groundwater quantity and quality requirements.

Oregon has a wide distribution of groundwater-dependent ecosystems. In 2022, the Nature Conservancy published the [Oregon Atlas of Groundwater Dependent Ecosystems](#), documenting the abundance and distribution of groundwater dependent ecosystems. This report identified nearly 30,000 springs and found that approximately 33-percent of all rivers, 45-percent of all wetland area, and 63-percent of total lake area are groundwater dependent. The report also noted over 3,100 observations of groundwater dependent species.

Action 2B

Determine Needs of Groundwater-Dependent Ecosystems

Examples of how to implement this action:

- Identify and characterize groundwater-dependent ecosystems and prioritize systems for long-term study
- Perform an in-depth analysis of accessible springs
- Monitor springs and seeps across the state to understand their contribution (quality and quantity) to streamflows
- Identify the water quantity and water quality needs of groundwater-dependent species and ecosystems
- Conduct seepage studies on priority streams to quantify groundwater exchange
- Evaluate impacts to groundwater ecosystems from human activities (e.g., groundwater pumping, lining canals, fish passage and transportation maintenance projects)



Zach Freed,
Michael Schindler,
Claire Ruffing, and
Shonene Scott

OREGON ATLAS OF
**GROUNDWATER-DEPENDENT
ECOSYSTEMS**

While some continued characterization of these systems is needed, the next important step is to quantify their groundwater quantity and quality requirements. This information can be used to help meet the needs of people, species, and ecosystems. For example, in the Oregon Dunes National Recreation Area, municipal wells pump water from an unconfined sand dune aquifer that also supports two sensitive species of amphibian that breed in the swale wetlands. Groundwater needs of amphibians and wetland plants were quantified to identify compatible pumping levels supportive of wetland species.³

Action 2C

Develop Instream and Ecosystem Instream Need Forecasts

The state has completed two long-term water demand studies (2008 and 2015) that focused on forecasting water demands for agricultural, municipal, domestic, and industrial uses (See Action 3B). A parallel statewide analysis is needed to better understand the quality and quantity of instream (surface water and groundwater) and ecosystem needs, now and into the future.

Climate change will continue to affect water quality, timing, availability and use, and balanced solutions are not achievable without understanding the full suite of instream and out-of-stream needs. An instream need forecast must be produced at the appropriate scale and periodically updated to inform water planning and management.

Action 2C is new for the 2025 Strategy. Work must be done to identify project details, agency roles, funding needs, and coordination with a statewide out-of-stream forecast (Action 3B). Current work at the Department of Fish and Wildlife (ODFW) may provide a starting point for the instream forecast. The ODFW is part way through a 5-year study that, once complete, may allow the state to more broadly and efficiently predict statewide instream demand.

Action 2C

Develop Instream and Ecosystem Water Need Forecasts

Examples of how to implement this action:

- Develop statewide instream water forecasts
- Periodically update instream forecasts with new climate projections
- Study potential impacts to ecosystems under a changing climate
- Study potential impacts to environmental justice and other frontline communities under a changing climate



Lostine River, Wallowa-Whitman National Forest. Credit: USFS

Critical Issue

Out-of-Stream Water Needs

Out-of-stream uses are those that divert water from the environment, from a stream, reservoir, or from below ground, to serve a beneficial purpose. The major uses of diverted water in Oregon are to supply the water needed for agriculture, municipal, industrial/manufacturing, and domestic purposes (e.g., drinking water, bathing, laundry), see Figure 2-1, below. Uses that divert water are often considered a “consumptive” use, or water that is not returned to its source. It is important to consider that freshwater is a finite resource and Oregon water law requires that it be used without waste. With few exceptions, water users must apply for and be granted a water right to use either surface water or groundwater for a beneficial use. Additional information about water rights can be found in Appendix B “Water Laws, Policies, and Regulations.”

A changing climate has the potential to reduce water supplies, in the form and timing of snowpack and rain, leaving less water available to meet instream and out-of-stream needs. Oregon has been working to increase its accounting of out-of-stream water use to inform basin strategies for integrated water management. Out-of-stream water use supports many sectors of Oregon’s economy – reinforcing the need to better understand these uses to avoid negative economic and environmental impacts.

Out-of-Stream Water Uses

Statewide Consumptive Use Estimates

House Bill 2018, passed in 2021, called to produce a report on statewide consumptive water use. The Water Resources Department (OWRD) is leading this work and expects to have consumptive water use estimates for all major hydrologic basins in Oregon in 2028. In absence of this more detailed data, generalizations about out-of-stream water use are summarized below using the [2023 Business Case for Investing in Water in Oregon](#) report. The report utilized data from the U.S. Geological Survey.

Water Use in Agriculture

The majority of water diverted for out-of-stream use is for irrigation to grow crops. According to the 2023 Business Case for Investing in Water in Oregon, almost 80-percent of all water withdrawn from surface or groundwater sources is used for irrigation (Figure 2-1).⁴

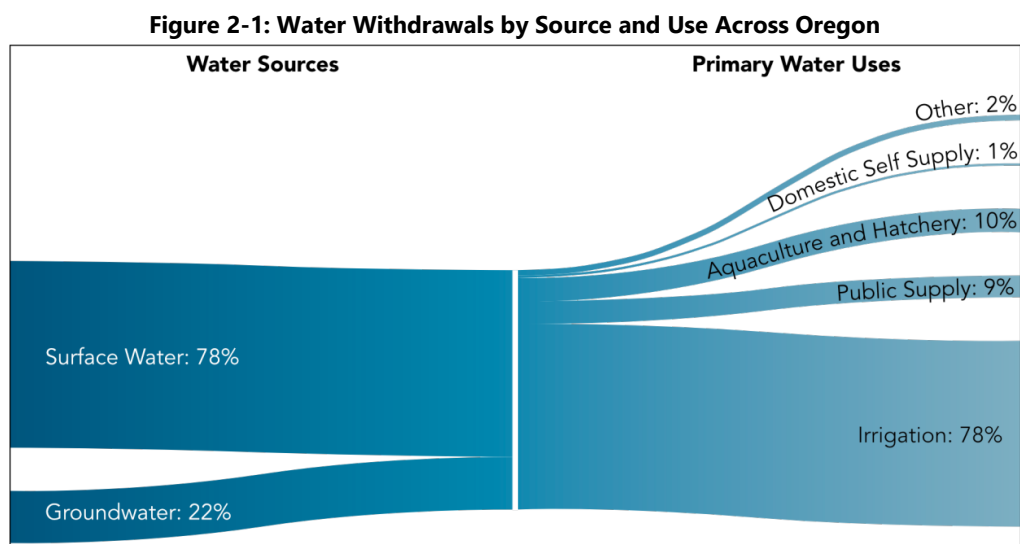


Image Source: AMP Insights, Data Source: USGS Water Use Data for Oregon⁵

Increases in agricultural water demand are expected from a range of possible changes in the climate, including increased temperatures and drier summers, resulting in prolonged agricultural growing seasons and increased evapotranspiration. Many basins are over appropriated, meaning there is not enough water to meet the full water rights held by people. This means that increasing irrigation or shifting irrigation seasons to respond to warmer, drier conditions may simply not be an option. Actions including increasing irrigation efficiency, water conservation, water reuse, storage, and market-based solutions are all potential management approaches outlined in Chapter 4, Actions 10A-10D.



Irrigated agriculture contributes to the economy, food supply, local communities, and Oregon's cultural heritage of agricultural production. The Department of Agriculture reports that Oregon's 35,500 farms produced more than 220 different products in 2023.⁶ According to the 2023 Business Case, the total annual economic contribution of irrigated agriculture to Oregon's economy is \$7.3 billion.

There are many other uses for water within agriculture besides irrigation. Water for livestock operations supports cattle and calves, one of Oregon's highest-ranking commodities valued at almost \$985 million in 2023.⁷

Food Processing – Oregon hosts hundreds of food manufacturing companies that play an essential part in food production by cooking, freezing, and packaging products for consumers. The food processing industry handles crops from cherries to onions and includes bakery and dairy products, fruits and vegetables, meat, poultry, and seafood. Water is needed for washing, processing, and packaging food. Finding a high-quality water supply to meet the needs of this industry is sometimes a challenge.

Public Supply – Municipal, Commercial, and Industrial Water Use

Municipal water systems may be shared water systems operated by homeowner associations, larger systems managed by private water companies, or public systems operated by cities, towns, or water districts. Most commercial, industrial, and high-tech facilities receive water from municipal water systems. Public supply to meet municipal, commercial, and industrial demands, account for approximately 9 percent of out-of-stream diversions (Figure 2-1).

Municipal water systems are crucial to the state's economy, serving as a backbone of economic development, public health, and safety in many Oregon communities. These water providers supply clean and reliable water to residences, schools, parks, hospitals, industries, businesses, and other public and private facilities. In the past decade, manufacturing has largely been located in urbanized areas where access to a public water system has played an important role. The ability of municipal water systems to deliver reliable, high quality water supplies is one factor that has attracted industry to Oregon.

Industrial use involves using water within the processing or manufacturing of a product. Water can be used to construct, operate, and maintain industrial sites and facilities. Commercial use is very similar. It includes the use of water for the production or delivery of goods, services, or commodities, along with the use of water to construct, operate, or maintain a facility. Some industrial or commercial water needs can be met with reclaimed or recycled water.

Economic growth in Oregon depends, in part, on the availability of water and wastewater services, and the ability of municipalities to serve these needs. Through their planning efforts, municipalities will continually need to estimate

long-range water supply demands and to identify options, including water conservation programs, to meet future needs. Municipal Water Management and Conservation Plans, described in Appendix B, are one such tool to plan for the future.

Self-Supplied Industries – Self-supplied industrial and commercial facilities maintain their own water supplies and water rights independent of public water systems. It is important to recognize that much of the state’s industries are supported by municipal systems and not “self-supplied.”

Domestic Wells

Domestic self-supply makes up just one percent of the water withdrawals. While this is not a large amount of the total water diverted in the state, this water supply is critical to meeting many people’s basic household needs. Nearly 23 percent of Oregonians rely on domestic or private wells as their primary source of potable water.⁸

Action 3A

Improve Water-Use Measurement and Reporting

Objective water management decisions are made possible when they are based on reliable information about water use. Availability of water use data is fundamental to ensure efficient water management, effective water distribution, determine the effectiveness of water conservation actions, accurately characterize water budgets, account for water use in basin studies, and help plan for future water needs. The information is also used to ground-truth demand projections or models. The Water Resources Department (OWRD) has the authority to require users to measure water use; however, there was historically limited authority to require reporting of the resulting data. This changed with the passing of House Bill 2010 in 2023, now providing the OWRD with broader authority. Water users who do keep track of their use are better able to demonstrate the validity of their water rights, develop water management and conservation plans, and determine the design and funding needs of their water systems in the future.

2022 Legislative Report on Water Use Measurement and Reporting

The [2022 Legislative Report on Water Use Measurement and Reporting](#), published by the OWRD, outlines recommendations for improving collection and use of water use data.⁹ Implementation of these recommendations is expected to provide information needed to facilitate planning, protect existing water right holders, maximize instream and out-of-stream beneficial uses, and minimize costly water conflicts. The report’s six key recommendations include:

1. Improve water use reporting database functionality and public access
2. Integrate accurate, transparent statewide water use summaries
3. Invest in evapotranspiration monitoring and programs
4. Invest in water use measurement devices in priority watersheds
5. Install groundwater observation wells
6. Increase understanding of statewide water use through investments in field and technical staff

Integrate Accurate, Transparent Statewide Water Use Summaries – Basin studies, water budgets, and planning efforts would all benefit from accurate data of water use by water right. A robust data set is also needed to develop reports on water use by watershed, including cross-boundary watersheds, and support modeling efforts used in many planning initiatives. The OWRD received funding for this effort and is working to identify staffing and specific activities needed to develop these much-needed statewide summaries.

Invest in Evapotranspiration Monitoring and Programs – Evapotranspiration (ET) is water that transpires from the leaves of plants and evaporates from soil and reservoirs. ET data can be used to quantify how much water is consumed by irrigated agriculture and other lands (e.g., forest, lawn). Understanding how much water crops use can help farmers, water managers, and communities manage current supplies and plan for their future needs. The

OWRD uses estimates of ET for several important programs and projects ranging from studies to water right transfers.

Satellite-based ET data provides more accurate data over a larger area, over a broader period of time, and more affordably than any other approach. The OWRD uses satellite imagery, supported with ET models, and other well-established methods to calculate consumptive water use from irrigated fields and open water bodies. The OWRD published a well-vetted ET and water use dataset across Oregon to support water planning and management with legislative support from House Bill 2018 and Policy Option Package 110 in 2021. The study, [Crop Evapotranspiration, Consumptive Use, and Open Water Evaporation for Oregon](#), provides ET and open water evaporation products and geospatial datasets to support the development of hydrologic budgets, reporting consumptive water use, and partitioning surface water and groundwater use.¹⁰

Future applications of satellite-based ET data sets for OWRD include:

- Compute water uses in the Walla Walla Basin and future groundwater basin studies
- Develop consumptive use values for statewide water budgets prescribed under House Bill 2018 (2021)
- Support enrollment and validation of historical use; monitoring compliance for the Harney Basin Groundwater Conservation Reserve Enhancement Program (CREP)

For more information, see the [March 2025 OWRD memorandum](#).

Water Measurement Cost Share Revolving Fund – Federal support through the American Rescue Plan Act State Fiscal Recovery Funds provided \$1 million in 2021 to the OWRD’s Cost Share Measurement Program to assist water users with the installation of measuring devices.

Action 3A

Improve Water Use Data and Reporting

Examples of how to implement this action:

- | | |
|---|--|
| <ul style="list-style-type: none"> • Continue to work with Information Technology to improve the software and tools used for water-use measurement and reporting • Update OWRD’s water measurement authorities • Implement new authority that allows OWRD to require reporting of water use, where measurement is required, including aligning the reporting with the Water-Use Reporting program • Update and implement the Water Resources Commission’s Strategic Measurement Plan, measuring significant diversions • Coordinate the Water-Use Reporting Program and Water Resource Commission’s Strategic Measurement Plan • Improve Water Use Reporting Database functionality and public access, including establishing and maintaining quality assurance procedures to verify the accuracy of water use and other data • Invest in water use measurement devices in priority watersheds | <ul style="list-style-type: none"> • Invest in evapotranspiration monitoring and programs • Develop accurate statewide annual water use summaries for water rights using all available water use data sets • Produce annual values of consumptive use by water right to allow for analysis of trends in water use over time • Install and monitor groundwater observation wells • Provide resources to assist with installation of measurement devices; update cost-share program • Work with USGS to integrate water use data from OWRD into USGS water use products • Seek authority to require water use reporting in areas of scientific interest in preparation for Serious Water Management Problem Areas (SWMPAs), basin studies, or planning exercises like updates to basin plan rules • Increase documentation and data collection of decommissioned wells and well construction history • Include equity considerations for assistance through measurement cost share programs |
|---|--|

Action 3B

Regularly Update Out-of-Stream Water Demand Forecasts

The most recent water demand forecast was developed by the Water Resources Department in 2015. Oregon's [2015 Long-Term Water Demand Forecast](#)¹¹ describes potential long-term consumptive use demands in Oregon. The 2015 scenarios and assumptions included both a projected increase in population and a longer, warmer growing season, leading to more demand by agricultural, commercial, residential, and industrial water uses in 2050. The forecast was done at a coarse scale, offering projections for increased water demands at the county level.

Strategy Action 3A described improvements needed to statewide water use measurement and reporting. These improvements, outlined in the [2022 Legislative Report on Water Use Measurement and Reporting](#), are needed to develop the data and modeling tools needed to improve our statewide approach to water demand forecasting. Future out-of-stream water demand forecasts must be produced at the appropriate scale to inform collaborative approaches to water planning and management. Demand forecasts should identify trends in water use, economic development, urban-rural population growth/shift, per capita demands, and changing crop water requirements due to a changing climate.

Out-of-stream water demand forecasting is needed to support future place-based, integrated water resources planning and other planning efforts. For further discussion of place-based water planning, refer to Chapter 4, Action 9A.

Forecasting is also needed for instream flow and ecosystem needs, see Action 2C.

Action 3B

Regularly Update Out-of-Stream Water Demand Forecasts

Examples of how to implement this action:

- Periodically update demand projections with new population, per capita water demand, industrial demand, crop water use, and climate projections
- Develop models/studies to quantify the economic, social, and cultural value of consumptive uses of water and publish outcomes
- Employ remote sensing and crop water demand modeling to improve crop water use estimates
- Provide data in a method consistent with needs of the public, and involve water users in the development of demand products
- Study potential impacts to environmental justice and other frontline communities in demand forecasts



Credit: Dan Meyers

Action 3C

Determine Unadjudicated Water Right Claims

Appendix B describes the process for obtaining water rights in Oregon, and the need to resolve claims to the use of surface water that predate Oregon's 1909 Water Code. Adjudication is a formal administrative judicial process where water right claims are quantified, documented, and eventually incorporated into the prior appropriation system. In addition to pre-1909 claims, federal and tribal reserved water rights can be determined through an adjudication. There are similar procedures for conducting adjudications for groundwater uses that predate the Water Resources Department's (OWRD) authority to issue groundwater rights.

The ability to manage water resources has been greatly facilitated in Oregon [where adjudications have been concluded](#). Adjudicating water right claims creates an enforceable system that is protective of senior users in times of shortage. Without the adjudication process, these claims cannot make calls for their water or take advantage of water management tools, such as transfers or leases.

The Federal Court ruled in *US v Oregon* (1994) that the US Government along with Indian Tribes must participate in Oregon's General Stream Adjudication in the Klamath Basin and have their rights to water quantified. Following this ruling, both the Federal Government and the Klamath Tribes filed claims in the Klamath Basin Adjudication. In 2013, the OWRD completed the administrative phase of the Klamath Basin Adjudication, submitting the Findings of Fact and Order of Determination (FFOD) to the Klamath County Circuit Court for review. A year later in 2014, the OWRD issued the Amended and Corrected Findings of Fact and Order of Determination (ACFFOD). The court remanded portions of the ACFFOD back to the OWRD for further findings. At the conclusion of the judicial phase, the Court will issue a water rights decree, either affirming or modifying the ACFFOD. The OWRD can then issue water right certificates in accordance with the decree.

Adjudications have proven to be very long and complex processes. Pursuing a water rights settlement instead of an adjudication could offer a timelier resolution to federal reserved and tribal claims. The need to resolve tribal and federal rights in Oregon, either through adjudication or settlement, is real and significant. The OWRD would require additional staff capacity to conduct this work.

Action 3D

Authorize the Update of Water Right Records with Contact Information

Almost 90,000 water rights certificates are held by water users. There are no statutory provisions allowing the Water Resources Department (OWRD) to change or update the name on a water right certificate, even if the holder of the certificate has passed away or sold off land with its appurtenant water rights. The state needs the ability to respond to holders of water rights who are asking to modify the names on these certificates. State authority will enable OWRD to update ownership information in its records.

This authority will also help facilitate OWRD processes, such as communicating with water right holders, researching water rights, mapping water rights with geographic information systems (GIS), updating the water rights database, and improving compliance with measurement and reporting permit conditions.

Action 3D

Authorize the Update of Water Right Records with Contact Information

Examples of how to carry out this action:

- Authorize the OWRD to update the names on water rights certificates
- Update related water right records, including databases and geographic information system (GIS) layers

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CHAPTER 3

Objective 3: Understand the Pressures that Affect Our Needs and Supplies

Oregon must plan and prepare for pressures and unexpected challenges that affect our instream and out-of-stream water needs and supplies. Climate change, multi-year droughts, floods, and extreme temperatures will continue to affect water resources, ecosystems, and water needs now, and into the future. Ensuring the state can meet the need for access to clean water is necessary for both people and the environment.

Oregon Revised Statute 536.220 specifies that the Integrated Water Resources Strategy must consider climate change, land-use change, and population growth. This chapter describes how the Strategy offers both climate mitigation and resiliency actions. This chapter also addresses the connection between energy and water, resources to plan and prepare for natural hazards, information needed for land use planning and decision-making, the need to maintain, upgrade, and modernize our water infrastructure, and the importance of providing a foundation of education around water.



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Water Infrastructure – Page 75

Education and Outreach – Page 83

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Chapter 3 Actions at a Glance

Objective 3: Understand the Pressures that Affect Our Needs and Supplies

Critical Issue – Climate Change

Actions to mitigate and adapt to climate change are distributed throughout the Strategy

Critical Issue - Water and Energy

- 4A Analyze the Effects on Water from Energy Development Projects and Policies
- 4B Develop Non-Traditional Hydroelectric Power
- 4C Promote Strategies that Increase/Integrate Energy and Water Savings

Critical Issue - Natural Hazards

- 5A Plan and Prepare for Drought and Wildfire Resiliency
- 5B Plan and Prepare for Flood Events
- 5C Plan and Prepare for a Cascadia Earthquake and Tsunami Event

Critical Issue - Land Use Planning

- 6A Improve Integration of Water Information and Land Use Planning
- 6B Encourage Low Impact Development Practices and Green Infrastructure

Critical Issue - Water Infrastructure

- 7A Maintain, Upgrade, and Decommission Water and Wastewater Infrastructure
- 7B Encourage Regional (Sub-Basin) Approaches to Water and Wastewater Systems
- 7C Support Dam and Levee Safety

Critical Issue – Education and Outreach

- 8A Support Implementation of K-12 Environmental Literacy Plan
- 8B Provide Career Training for the Next Generation of Water Professionals
- 8C Promote Community Education and Outreach
- 8D Identify Water Research Needs and Partnerships

Critical Issue

Climate Change

Oregon is experiencing increased temperatures, extreme weather events, decreased winter snowpack, and frequent and intense drought. These climate conditions place immense pressure on our ecological, social, and economic systems. Oregon's wetlands, estuaries, lakes, rivers, streams, and aquifers are receiving less natural recharge and experiencing more evaporation and increased pressure for human uses. Our water resources are less able to support the many species that rely on them for their survival, contributing to species extinctions and a biodiversity crisis. Oregon's forest ecosystems, essential for storing and filtering water, are suffering from increased disease, competition from invasive species, tree mortality, and wildfire risk. These climate pressures have implications for our ability to meet Oregon's instream and out-of-stream water needs.

Climate change does not affect all places and communities in Oregon equally. Underserved populations, rural communities, future generations, and sensitive ecosystems are disproportionately affected. Individuals who lack access to power, employment, adequate housing, and financial markets are less able to prepare for and respond to the changes brought about by climate change. [Oregon's Social Vulnerability Assessment](#) contains information from community members about the physical, economic, and social toll that a changing climate and extreme events take on Oregonians. Oregon's [Climate Equity Blueprint](#) provides tools that state agencies can use to advance equitable climate adaptation planning and action.¹

This section will describe the latest climate projections, expected impacts to natural and human systems, and the Strategy's role in mitigation and adaptation. While this section does not include standalone actions, it points to the many actions distributed throughout the Strategy that seek to help Oregon mitigate and/or adapt to climate change.

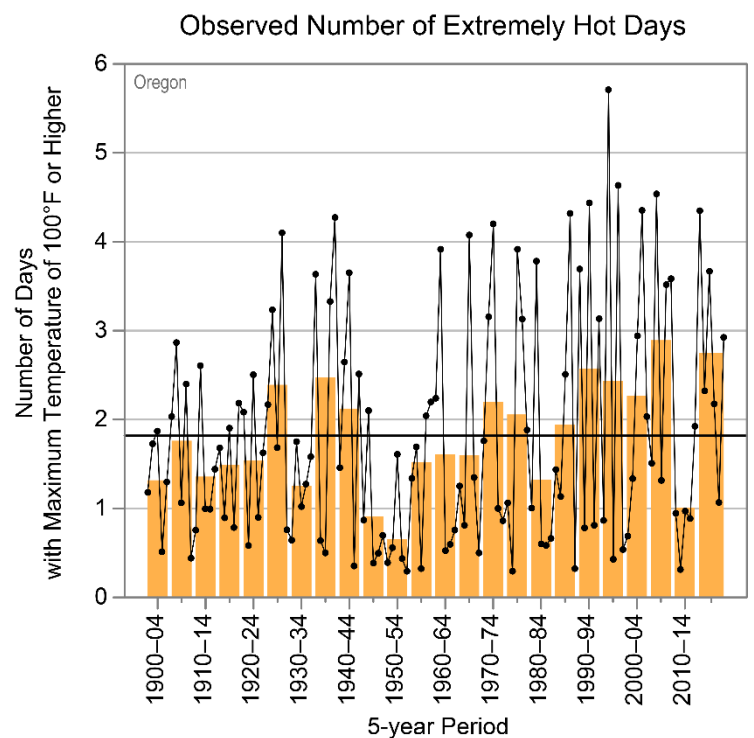
Climate Change Projections for Oregon

The Oregon Climate Change Research Institute (OCCRI) conducts regular biennial assessments of the state of climate change science and the likely effects of climate change on Oregon. The assessment supports the state's natural hazards mitigation planning and implementation of the [2021 Oregon Climate Change Adaptation Framework](#).² The following is a summary of some of the impacts and risks identified in [OCCRI's Seventh Climate Assessment](#) and other references.³

Increasing Air Temperature

Oregon's annual average temperature has warmed by 2.2 degrees Fahrenheit (°F) per century since 1895. Annual temperatures are projected to increase at least 5°F by 2074 if greenhouse gas emissions continue at current levels. The number of days each year where temperatures exceed 90°F during the day and 65°F at night has continued to increase.⁴ Increased air temperatures cause a cascade of other impacts, including changes to snowpack, soil moisture, and water quality.

Figure 3-1: Days Oregon Exceeded 100 Degrees F
(Source: <https://statesummaries.ncics.org>)



Wetter Winters and Declining Winter Snowpack - As mean annual temperature increases, the percentage of precipitation that falls as rain instead of snow are expected to increase. Precipitation that arrives as rain instead of snow runs off the landscape sooner, reducing groundwater recharge and streamflow in the late spring and summer. Climate predictions also note that the amount of moisture contained in snowfall, called “snow water equivalent” is expected to continue to decline.

The retreat of Oregon glaciers has accelerated since the 1990s.⁵⁶⁷ Shrinking glaciers change the hydrology and ecology of downstream systems. Changes in summer and winter air temperature and winter snowfall are the most important factors affecting changes in the extent of glaciers.⁸

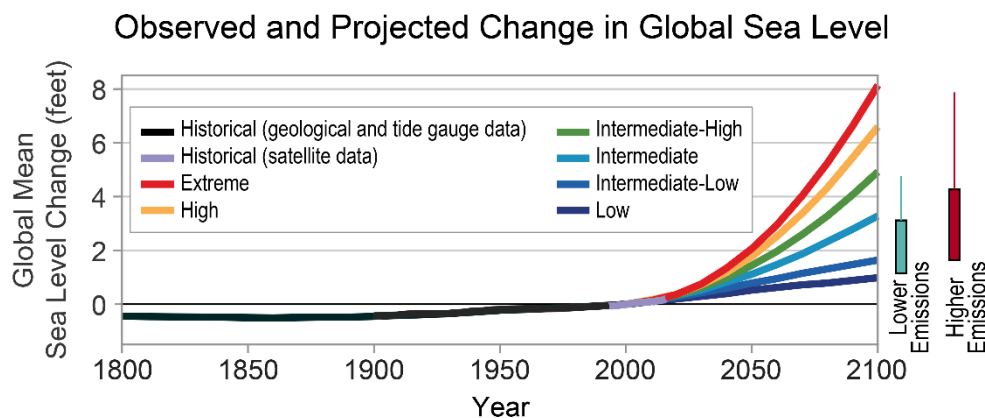
Drier Summers – In addition to summers becoming hotter, they are also expected to be drier. Oregon typically experiences dry summer months, but climate projections indicate the duration between rainy seasons will increase and overall summer precipitation will decrease.

Decreased Soil Moisture – Prolonged high temperatures increase plant uptake and evaporation of water from soil. Dry soils can worsen the human perception of extreme heat events through relative lack of evaporative cooling.

Surface Water Temperatures - High water temperatures are already a major water quality concern in many of Oregon’s streams and rivers. Water temperature is projected to rise as air temperature increases in the 21st century, particularly in urban streams lacking natural riparian vegetation. A decline in summer streamflow will exacerbate the increase in water temperature, because low volumes of water can heat up more quickly than larger, faster streamflows. Warmer conditions may contribute to earlier or longer lasting harmful algal blooms.

Sea-Level Rise - Increasing temperatures raise concerns for sea level rise in coastal areas. Global average sea level has risen since 1900 by about 7–8 inches. It is projected to rise another 1–8 feet, with a likely range of 1–4 feet, by 2100 because of both past and future emissions from human activities. Movement of tectonic plates on the ocean floor is causing the Oregon coast to rise, a phenomenon known as “uplift.” In some parts of the Oregon coast, the uplift is exceeding the rate of sea level rise; so, sea level has dropped in these locations. However, the rate of sea level rise is projected to exceed the rate of uplift along the entire Oregon coast by 2050, resulting in sea level rise for all locations.⁹

Figure 3-2: Global Sea Level Rise
(Source: <https://statesummaries.ncics.org>)



Wind Speeds

Projections indicate extreme winter wind speeds may increase while mean wind speeds across the state are projected to decrease slightly. Increased wind speeds have implications for water and energy infrastructure and public health and safety.

Climate Change Impacts

Impacts to Aquatic Species and Habitat

Changes in hydrologic variables, such as the timing and extent of streamflow, alter key habitat conditions for salmon and other anadromous fish that depend on specific conditions for spawning and migration. The impacts of climate change on the region's salmonids will vary across the region and among different species, populations, life-stages, and site characteristics.¹⁰ Increased winter and early-spring streamflows have the potential to scour eggs or wash away newly emerged fry of fall-spawning salmon and trout species. Extreme low summer streamflows can limit the accessibility for some species to move upstream to spawn.

In snowmelt-dominated watersheds, an earlier occurrence of peak streamflow and snowmelt in the spring will result in decreased summer and fall flows, warmer summer water temperatures, and increased sedimentation, all of which have negative consequences for natural systems, salmonids and other estuarine and marine populations. Shrinking glaciers reduce benefits to cold-water adapted aquatic species, including insects and bull trout.^{11,12}

For salmon populations to remain viable, adults must migrate to spawning habitat, where survival of eggs and larvae requires cool water, gravel substrates, and sufficient water flow and oxygen. There also must be enough water flow to support migration back to the sea. Climate change is affecting all these elements in ways that threaten the survival of salmon runs, and several of the region's populations may be approaching physical temperature tolerances.¹³

Impacts to Wetlands

Scientific data shows that climate change is causing significant impacts to coastal, estuarine, and freshwater wetlands. Sea level rise and ocean acidification is affecting tidal wetland habitats and the species they support. Wetlands can be sensitive to small changes in precipitation and temperature. These climate-sensitive habitats, including vernal pools, springs, and seeps, support a variety of unique species, including threatened and endangered species.

Impacts to Forests

Higher summer temperatures and earlier spring snowmelt increase the risk of forest fires. Wildfires will continue to increase in both frequency and severity. The average annual area burned in Oregon's forests is expected to increase by at least 50-percent. An increase of wildfires, insect outbreaks, erosion, and changing species composition in forests will pose challenges for ecosystems and significant challenges for water management.

Impacts to Groundwater Systems

Reduced snowpack contributes to declines in groundwater recharge, affecting aquifers that are recharged from mountain systems. The timing of groundwater discharge to streams may also shift, possibly reducing baseflows in the late summer months. Much of this change largely depends on the hydrogeological setting and a stream's sensitivity to climate change.

Figure 3-3 shows the distribution of more than 1200 domestic water wells that have been reported to the Water Resources Department since 2021 as "dry" or unable to produce adequate flow to meet demand.

Impacts to Coastal Systems

The coast is already vulnerable to several hazards, and these will be further exacerbated by climate-related impacts. Winter storms have historically been the primary factor for coastal erosion and flooding. The combination of increasing wave heights and rising sea-levels presents a substantial threat to the Oregon coast, increasing erosion and the loss of some beaches and coastal lands.

Sea level rise will also have impacts beyond the coast, affecting tidally influenced rivers and surrounding inland communities, where rising river levels can pose flooding problems. Other threats include increasingly stressed infrastructure built under older engineering standards. Infrastructure at risk can include water treatment plants, diversion facilities, onsite wastewater treatment systems (septic systems) and wastewater treatment plants. The intrusion of salt water will pose a risk in some communities.

The Oregon Coastal Management Program at the Department of Land Conservation and Development (DLCD) published the Sea Level Rise Exposure Inventory for Oregon's Estuaries in 2017. The project identified vulnerable infrastructure and other assets and will help prioritize areas to focus future resources and further study. Additional sea level rise planning resources can be found on the [Oregon Coastal Atlas](#).

Impacts to Human Health

The Oregon Health Authority annually publishes [Climate and Health in Oregon](#) reports documenting how climate change hazards are impacting the health of people in Oregon, and actions communities and the state are taking to reduce those risks.

Impacts to Agriculture

Climate change may significantly affect the availability and use of water for irrigation. Longer and drier growing seasons generally result in an increased demand of water for irrigation. With projected rises in temperature, irrigation demands are projected to increase by at least 10 percent in arid and semi-arid regions, translating into higher pumping and energy costs.¹⁴ Regenerative agriculture practices offer a way to restore degraded soils, increasing organic matter and moisture-holding capacity, and manage them sustainably.¹⁵

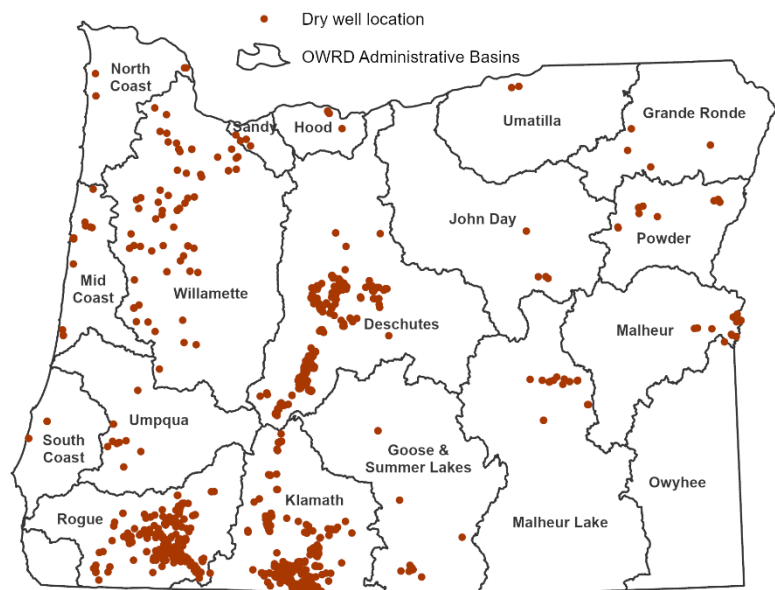
The retreat or disappearance of glaciers will also impact agriculture. For example, the Coe and Eliot glaciers on the north slopes of Mount Hood supply the Middle Fork of the Hood River and apple and pear orchards in the Hood River Valley. Modeling suggests that September flow along the Middle Fork will decrease by almost 70 percent by 2100 due to the loss of glacier area.^{16,17}

Impacts to Water Rights

The shift in timing and availability of water due to climate change may affect whether water users are able to utilize their water rights as authorized. The implications of this could be particularly significant for water right holders who have historically relied on live flow surface water during the summer months. Prime growing conditions are shifting to earlier in the year and lasting longer, because of increases in temperatures. This increased demand for water in the early spring or late summer could happen more frequently in the future under a changing climate.

Similarly, water rights that protect water instream for a certain amount, time of year, and location may no longer be adequate due to precipitation changes, decreased snowpack, and changes in species distribution. An increase in regulation may be needed to meet senior out-of-stream water rights, to protect instream needs, and to meet water quality needs. Policymakers may one day have to revisit the body of rules that define irrigation seasons that were based on historic conditions. Incremental adjustments will be important for maintaining strong legal foundation, while keeping up with a changing climate.

Figure 3-3: Reported Dry Wells Throughout Oregon
July 2025



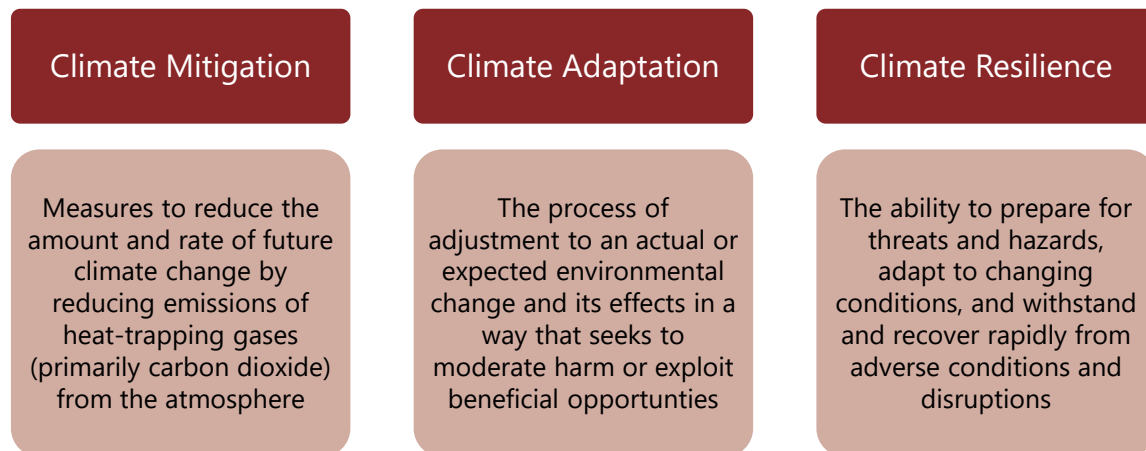
Impacts to Population Growth and Shifts

Climate change is predicted to cause a decline in quality-of-life across much of the country.¹⁸ Areas of Oregon west of the Cascades are anticipated to be an exception, with people in that region benefiting from climate change because of improvements to climate amenities in the future.

People are likely to move to Oregon in response to climate change, and the population and economic production of the Pacific Northwest may increase by 15 percent by 2065 due to climate migration from other areas of the country.¹⁹ Oregon must consider how to prepare for climate migration to avoid economic disruption, housing shortages, and over-burdened infrastructure.

Planning for Climate Mitigation, Adaptation, and Resilience

The wide-ranging impacts of climate change may seem overwhelming and lead us to ask what can or should be done to keep things from getting worse and to adapt to the coming changes. Many state documents and programs are dedicated to addressing both the need to mitigate and adapt to climate change. Climate mitigation and climate adaptation mean very different things, but some actions described in the Strategy can simultaneously accomplish both. Actions to protect and restore our green infrastructure including wetlands, floodplains, and forests, or increasing vegetation in urban areas have potential to accomplish both mitigation and adaptation.



Definitions from the U.S. Global Change Research Program²⁰

Climate Mitigation

Greenhouse gases, such as carbon dioxide, nitrous oxide, methane, and ozone cause heat to be trapped near the Earth's surface causing a "greenhouse effect" and many of the conditions we refer to as "climate change." Greenhouse gases can be from human or natural sources. Carbon dioxide is the largest source of greenhouse gas, produced from a wide range of activities including burning fossil fuels and biomass, land-use changes (e.g., deforestation), and industrial processes (e.g., concrete production). Climate mitigation refers to actions that reduce the production of greenhouse gases or capture carbon dioxide from the atmosphere, to prevent climate change from getting worse. The [Climate Protection Program](#), led by the Department of Environmental Quality, sets an enforceable declining cap on greenhouse gas emissions from fossil fuels used throughout Oregon, including diesel, gasoline, and natural gas. The program is designed to reduce these emissions by 50% by 2035 and 90% by 2050. Some transportation sector emissions reductions have met or surpassed program emissions targets, but overall state emissions in 2023 were down about 7% from the 2017-2019 baseline. The Climate Protection Program covers just over half of current overall emissions, so that subset should see future reductions in line with the 50% target by 2035 and 90% target by 2050.

Oregon's Land Use Planning program (see Critical Issue later in this chapter) led by the DLCD works to address climate mitigation. Land use policies work together to seek to reduce vehicle miles traveled. Oregon's working farms and forests keep carbon sequestered in soils, plants, and trees. Protection of ecosystems is a best practice, and restoration of degraded ecosystems can yield climate mitigation benefits. Chapter 4 "Healthy Ecosystems" discusses several actions to improve watershed conditions.

2025 Strategy Actions Supporting Climate Mitigation

Strategy actions that decrease water and energy use may also reduce greenhouse gas emissions. Actions that protect and restore Oregon's green and natural infrastructure may provide the added benefit of carbon capture or storage. See Figure 3-4 for a list of actions that could be implemented in a way to mitigate climate change.

Figure 3-4: 2025 Strategy Actions with Potential to Support Climate Mitigation (not exhaustive)

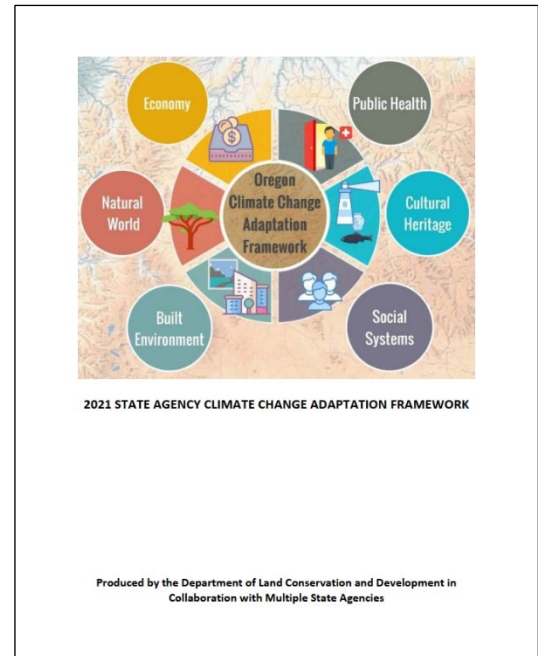


Climate Adaptation

In addition to climate mitigation, Oregon must moderate the harm to instream and out-of-stream needs from climate change by implementing adaptation measures. Adaptation includes changing how we manage water, protecting and restoring ecosystems to help them accommodate change, and improving infrastructure to protect public safety, water quantity, and water quality. The [2021 Oregon Climate Adaptation Framework](#) urges the state to plan for and respond to climate change impacts in a coordinated and efficient manner to increase impact and minimize redundant effort.

Oregon's Climate Change Adaptation Framework - DLCD partnered with 24 state agencies to update the state's Climate Adaptation Framework, published in 2021. The Framework addresses why we must adapt, provides guidance for implementing comprehensive climate change adaptation, and describes vulnerabilities and adaptation strategies. It also includes a Climate Equity Blueprint that presents strategies for addressing climate and environmental justice. The Framework is being implemented by the DLCD hosting a weekly virtual meeting aimed at building a cooperative state agency community-of- practice around climate change adaptation.

A Climate Change Vulnerability Assessment, supporting the Framework, began in 2022 and is being completed in 2025. The Assessment will help us understand how climate change may affect existing and future social vulnerabilities across Oregon. The information gathered during the assessment will be used by agencies and policymakers to propose adaptation measures that support community needs, acknowledging that future community engagement will be needed before adaptation measures are implemented.



2025 Strategy Actions Supporting Climate Adaptation and Resiliency

The 2017 Strategy included Action 5B "Assist with Climate Change Adaptation and Resiliency Strategies." The 2025 Strategy acknowledges that adaptation and resiliency strategies are distributed throughout many other Strategy actions and therefore eliminates this standalone action. The 2025 Strategy also increases the discussion of climate change within the narrative for many other actions. Figure 3-5, below, summarizes how the 2025 Strategy actions contribute to climate adaptation and resilience.

Figure 3-5: 2025 Strategy Actions with Potential to Support Climate Adaptation and Resiliency

Objective 1: Understand Oregon's Water Resources	
Water Resource / Supply Information Actions 1A-1D	<ul style="list-style-type: none"> Water resource data is necessary to understand current and future water supply to inform adaptation actions.
Objective 2: Understand Instream and Out-of-Stream Needs	
Instream and Ecosystem Water Needs Actions 2A-2C	<ul style="list-style-type: none"> Information about instream and ecosystem water needs is critical to informing protection and restoration efforts that will help ecosystems be more resilient to climate change.
Out-of-Stream Water Needs Actions 3A-3D	<ul style="list-style-type: none"> Information about out-of-stream water needs is critical to informing management and conservation efforts.
Objective 3: Understand the Pressures that Affect Our Needs and Supplies	
Water and Energy Actions 4B-4C	<ul style="list-style-type: none"> Energy and water conservation measures help Oregon adapt to a future with increased drought frequency and intensity. Oregon must plan and prepare for an increased frequency and intensity of hazards like drought, wildfire, and flooding. Land use planning requires up-to-date water information (6A) to inform resilient zoning and development. Low impact development and green infrastructure (6B) make Oregon more resilient to increased temperatures, drought, and flooding. Water infrastructure must be resilient to extreme weather events to protect public safety and ecosystems. Upgrades can make infrastructure more water and energy efficient, contributing to drought resilience. Oregon's communities, including youth, can contribute to adaptation and resilience actions if they are informed about climate risks and needed actions.
Natural Hazards Actions 5A – 5B	
Land Use Planning Actions 6A – 6B	
Water Infrastructure Actions 7A – 7C	
Education and Outreach Actions 8A-8D	
Objective 4: Meet Oregon's Instream and Out-of-Stream Needs	
Water Planning Actions 9A – 9E	<ul style="list-style-type: none"> A variety of water planning efforts get interested parties around a table to chart a new future for communities to prepare and adapt to new climate conditions. Water conservation, reuse, storage, and voluntary actions are all needed to adapt to a future with less water (10A-10C). Agency field presence and modernized permitting programs will help water users adapt to climate change (10E-10F). Protection and restoration of ecosystems helps species adapt to increased temperatures, drought, and extreme weather. Surface and groundwater protection through source protection and reduced pollution helps ensure that the water that is available is clean and safe. Funding Strategy implementation and water management by state agencies helps the state be more responsive to changing conditions. The State can choose to fund planning, feasibility studies, and projects that target adaptation and resilience.
Water Use and Management Actions 10A – 10E	
Healthy Ecosystems Actions 11A – 11E	
Clean Water Actions 12A - 12C	
Funding Actions 13A – 13C	

Critical Issue

Water and Energy

Water and energy uses are interdependent. Water is critical for energy production, and energy is used to pump, treat, and convey water through pipes for residential, commercial, industrial, and irrigation purposes. Approximately 23 percent of Oregonians get their drinking water from a private well and are therefore dependent on power for this necessity.²¹ Water conservation saves energy, while energy conservation reduces the amount of water used in energy production. Across various locations and times of the year, climate change presents the challenge of having reduced availability of both water and energy. Actions and policies to reduce greenhouse gas emissions and diversify Oregon's energy portfolio will change how we use water in energy production. Severe weather events threaten energy and water infrastructure and climbing temperatures increases demand for water for many types of cooling processes.

Since 2018, the Oregon Department of Energy (ODOE) has delivered [Biennial Energy Reports](#) to inform local, state, regional, and federal energy policy, planning, and investments. The most recent report from 2024 provides information on key energy resources, policies, trends, and forecasts, and what they mean for Oregon. The document serves as a helpful education tool, including a section called 'Energy 101' that provides the reader with foundational knowledge about energy planning and management in Oregon.

In 2023, the Oregon Legislature directed the ODOE (House Bill 3630) to develop a state [energy strategy](#) by November 1, 2025. The strategy will help identify pathways to achieving the state's policy objectives while increasing the reliability and resilience of the energy system.

Energy-Water Interdependence

Water is critical for electricity production. The U.S. Department of Energy estimates that nearly half of all fresh surface water withdrawals in the United States are used at thermoelectric power plants.²² Oregon has small water withdrawals for thermoelectric power plant cooling and the largest water withdrawals for irrigation. In Oregon, the electricity we use comes from energy production plants throughout the West, including hydroelectric, coal, natural gas, wind, solar, and other sources (see Figure 3-6). About 40 percent of Oregon's electricity is generated by hydroelectric facilities. The ODOE website offers interactive features to see how [Oregon's electricity mix](#) has changed over time.

Oregon's Renewable Portfolio Standard (RPS)

Oregon's 2016 Renewable Portfolio Standard (RPS) update requires that 50 percent of the electricity sold by Oregon's large utilities comes from eligible renewable resources by 2040. Oregon's 100 percent clean energy target established by House Bill 2021 in 2021 also requires the state's large investor-owned electric utilities to achieve a 100 percent reduction in the greenhouse gas emissions associated with their electricity mixes by 2040. House Bill 2021 established an emission-based clean energy requirement and therefore wouldn't necessarily require new renewable energy resources. Existing dams are eligible for the Oregon RPS if they are modified to be more efficient and produce more power, without increasing water flow through the dams. Existing hydropower facilities are also eligible for the Oregon RPS if they are certified as "low-impact hydro" by the [Low-Impact Hydropower Institute](#). Certified low-impact hydropower facilities are facilities that meet science-based criteria for flow, water quality, fish passage, aquatic and riparian habitat, and cultural resource protection.

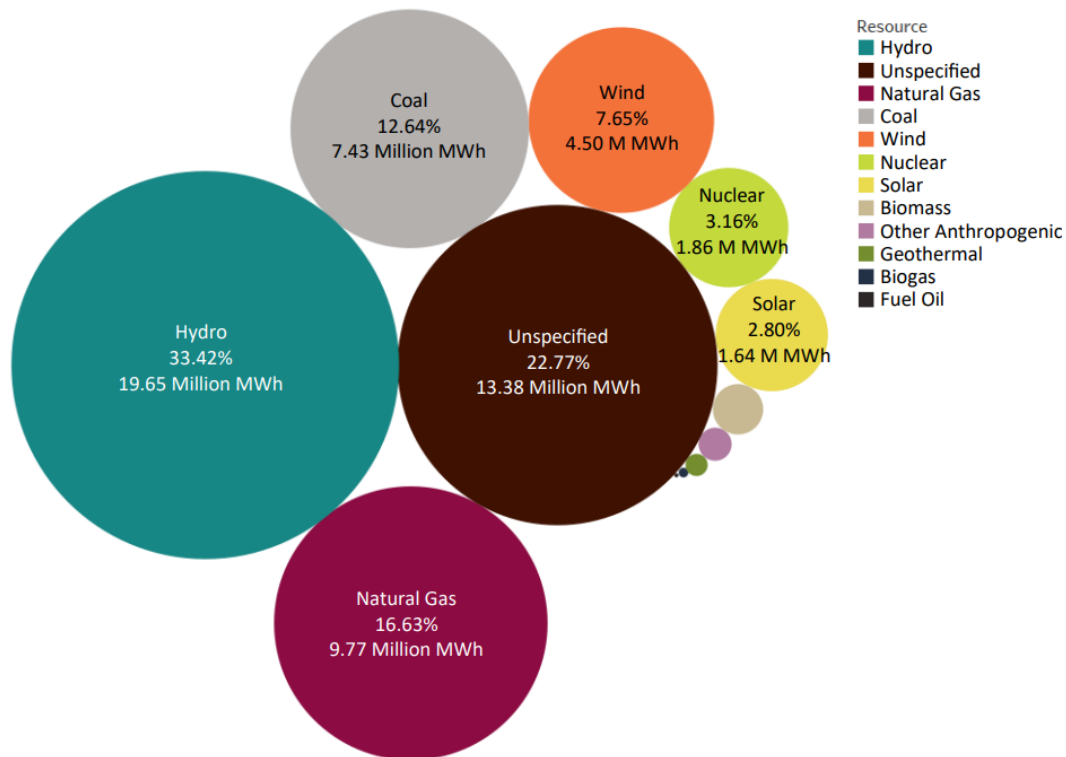
Conventional and renewable energy projects and infrastructure have the potential to impact both instream water quantity and quality. The state will need to understand how new renewable energy projects affect water resources and respond accordingly. Wind and solar generation facilities have minimal water needs, but new thermoelectric generation may be needed to supply electricity when wind and solar are not meeting demands. Energy storage advancements could reduce the need for new thermoelectric generation. Potential low carbon alternative fuels such

as hydrogen and biofuels may grow in demand and production to meet decarbonization targets. Production of these fuels requires the use of water and may lead to greater water demand from the energy sector.

Figure 3-6 Resources Used to Generate Oregon's Electricity

Source: Oregon Department of Energy 2024 Biennial Energy Report

Based on 2022 data, this chart shows the energy resources used to generate the electricity that is sold to Oregon's utility customers.



Action 4A

Analyze the Effects on Water from Energy Development Projects and Policies

Hydropower facilities at dams produce affordable energy, however, dam operations, including procedures for maximizing power production, alter streamflow amounts and timing to the detriment of fish and other aquatic wildlife and other instream needs. Reservoirs behind dams emit methane, a potent greenhouse gas. Statewide goals to reduce greenhouse gas emissions while meeting future energy demand elevates the need for improving efficiency of existing facilities and developing alternative energy projects. Proposed energy projects should undergo a thorough scientific analysis to understand potential impacts to instream and ecosystem needs. This information can then provide the basis for decision-making for often conflicting objectives to produce affordable, low emission power and protect aquatic ecosystems and other instream needs.

Municipal and privately-owned hydropower facilities, as well as those authorized by the Federal Energy Regulatory Commission, are reviewed and evaluated by a multi-state agency Hydroelectric Application Review Team (HART) established under ORS Chapter 543A. HART members develop a coordinated state position and provide required conditions and recommendations during reauthorization of existing projects to maintain, enhance, and protect the natural resources of Oregon from adverse impacts caused by the continued existence of a project. The state position includes, but is not limited to, decisions relating to the allocation of water, certification of water quality, and other state regulatory actions.

In June 2024, the federal government published a report titled [Historic and Ongoing Impacts of Federal Dams on the Columbia River Basin Tribes](#). This report is significant because this is the first time the federal government has described the past and ongoing harm to Tribes in the region from the eleven federal dams on the Columbia River. This report highlights the conflict between building dams for energy production, water supply, or flood control and ecological and cultural harm that can have multi-generational impacts. The federal report omitted an acknowledgement that the Willamette Valley Project dams are also Columbia River dams, thereby ignoring the potential adverse impacts to the Willamette River and the Confederated Tribes of the Grand Ronde. The Confederated Tribes of the Grand Ronde are a Columbia River Basin Tribe per the Willamette Valley Treaty of 1855.

The Northwest Power and Conservation Council's [Columbia River Basin Fish and Wildlife Program](#) has designated certain river reaches as "protected areas," finding that new hydropower development in those areas would have unacceptable risks of loss to fish and wildlife.²³ Exemptions to this policy include adding hydroelectric facilities to already-existing non-hydroelectric dams or diversion structures. These projects must be designed to avoid and minimize potential impacts to fish, wildlife, and water quantity and quality.

Oregon has a need to analyze the impact of existing and potential energy development projects and policies on water quality, quantity, and ecosystems to inform an equitable climate future. Oregon's dam safety program, described in Action 7C, provides for periodic reviews of dams only related to safety for humans and property. Periodic reviews for hydrologic or ecological harms would require additional authority and resources for several agencies.

Non-dam energy projects, such as solar, wind, and geothermal, may also have water demands and siting-related hydrologic or ecological impacts. Actions to develop non-traditional hydroelectric power and projects that integrate water and energy savings are discussed in the following actions.

Action 4B

Develop Non-Traditional Hydroelectric Power

There are several ways that existing infrastructure can support additional power generation. Existing hydroelectric dams can be modified to produce more energy, non-hydroelectric dams can be modified to produce power, and piped water distribution systems can be modified to include in-conduit energy production. Pumped storage systems are less frequently considered for existing infrastructure (e.g., occupying a brownfield site rather than developing a greenfield).

In-Conduit Hydroelectric Development

Irrigation and Municipal Distribution Systems - Oregon has an expedited review process for proposed hydroelectric projects at existing artificial delivery systems, such as within an irrigation district distribution system. The amount and timing of water diverted for an existing water use must remain unchanged (Oregon Revised Statutes 543.765). Holders of water right certificates, or decreed rights under these provisions may apply to install hydroelectric generation inside or at the end of existing transmission pipelines or conduits. The resulting

Action 4A

Analyze the Effects on Water from Energy Development Projects and Policies

Examples of how to implement this action:

- Analyze and project the water demand and water quality impacts of current and proposed energy development projects (e.g., hydroelectric, solar, wind, geothermal, bioenergy, nuclear, hydrogen, natural gas) in the context of climate change and greenhouse-gas reduction strategies
- Analyze the siting impacts of proposed energy projects on water quantity, quality, and ecosystems
- Evaluate where impacts to water quantity and quality associated with energy projects have been experienced, including environmental justice communities, and look for opportunities to recognize and avoid or mitigate in future energy projects

hydroelectric water rights certificate will include requirements for fish screens, by-pass devices, and fish passage, with some exceptions.

In 2013, the Oregon Legislature passed [Senate Bill 837](#), giving in-conduit hydro developers a choice: install fish passage as required by the Oregon Department of Fish and Wildlife (ODFW) or pay into a statewide fish passage restoration account that will fund fish passage at priority locations identified by ODFW.²⁴

Aquifer Storage and Recovery Wells - There are other in-conduit projects generating electricity as water is injected into aquifer storage and recovery wells. Aquifer storage and recovery projects at Madison Farms of Echo and the City of Pendleton also represent a non-traditional use of hydroelectric power.

Pumped Storage Systems

A pumped storage system consists of two reservoirs, one at a higher elevation than the other, where water moves from the upper reservoir to the lower reservoir to generate power when demand is high. Water is then pumped back up to the higher reservoir, using electricity, when pricing and demand is low, usually at night. Pumped storage systems can be coupled with solar or wind generation to optimize the timing of energy production and delivery. For example, excess electricity generated from a solar project during the day can provide power to pump water from a lower reservoir to an upper reservoir. At night, when the solar panels are not producing power, water from an upper reservoir can release water and generate power. Pumped storage systems can be considered both a power management tool and an energy storage device but notably consume more energy than they produce.

These systems require large amounts of land and very specific topographies to provide the needed elevation change between the two reservoirs. Such projects must be designed to avoid and minimize potential impacts to fish, wildlife, cultural resources, and water quantity and quality. Utilizing a brownfield, or previously developed land, may reduce the ecological footprint associated with this power generation technique. Pumped storage projects have the potential for environmental justice impacts and therefore need to include environmental justice communities early in the planning process.²⁵ The Federal Energy Regulatory Commission has licensed one pumped storage project in Oregon, and a number of pumped storage projects are currently being proposed.

Action 4B

Develop Non-Traditional Hydroelectric Power

Examples of how to carry out this action:

- Utilize the state's expedited application process to develop hydroelectric projects at existing infrastructure
- Offer incentives for low-impact hydropower projects that provide local co-benefits, such as in-conduit micro-turbines installed in irrigation or municipal pipes
- Invest in alternative energy projects that protect water resources and the environment

**Action
4C**
Promote Water and Energy Savings

There are many options when selecting energy-efficiency and water efficiency techniques. Significant efficiencies could be realized from coordinating energy conservation and water conservation efforts.

Also see Action 10A for water efficiency and conservation resources.

Saving Water and Energy in Agriculture

Pumping and moving water, especially groundwater, can require significant energy for agriculture and businesses. Many of Oregon's farmers and ranchers have implemented energy efficiency projects, and a few have implemented renewable energy projects. Some of the most attractive projects are those that provide significant co-benefits, such as labor savings, water savings, and improved soil productivity. Irrigation efficiency and reduced or no-till cropping systems are some of the most popular types of multi-benefit projects. Farms often employ the use of efficient water application equipment, energy-saving pumps and motors, soil moisture monitoring programs, and precision fertilizer applications. Reducing the amount of groundwater used for irrigation can save significant energy. The deeper the well, the more power and energy is required to use the water.

Achieving greater efficiencies in water application, such as moving from gravity-powered systems to pumped systems, increases the demand for energy, driving up energy costs. This can be mitigated by using efficient water and energy efficient delivery, e.g., LEPA, LESA and using VFDs to control pumps. This increased energy cost may outweigh the water-use efficiency benefits and should be considered during the design of a project. Grants and incentives are offered by the U.S. Department of Agriculture and Energy Trust of Oregon to encourage installation of more energy efficient irrigation and renewables. A variety of measures are supported by public utilities, including the installation of freeze-resistant stock watering tanks and low-energy precision irrigation equipment.

Agrivoltaics – Agrivoltaic projects combine growing crops and energy production using solar voltaic panels. The Oregon State Extension Service has constructed a research study area at the North Willamette Research and Extension Center in Aurora, Oregon. According to Oregon State University's [Sustainable Farm Agrivoltaic website](#), this approach may reduce the water demand by plants, providing solar panels shading them enough to limit evapotranspiration. The plants also provide a benefit to the solar panel efficiency by keeping them cooler, and thus more productive.



Oregon State University agrivoltaics test site. Credit: OSU

Saving Water and Energy at Municipal Utilities

Energy is needed to pump, treat, and deliver water to homes and businesses. For a municipality, the energy costs for managing water and wastewater can represent one-third of electricity costs. Water supply treatment plants, pump stations located throughout municipalities, and wastewater treatment plants all provide an opportunity for water and energy efficiency upgrades. Oregon Department of Environmental Quality's Clean Water State Revolving Fund program can finance wastewater, irrigation modernization, and other water quality projects that improve energy and/or water efficiency as "green" projects under U.S. Environmental Protection Agency (USEPA) guidelines.

The [Oregon Association of Clean Water Agencies](#) has actively partnered with its member agencies, providing training and best practices to drive down the use and cost of electricity in Oregon's wastewater treatment plants.²⁶ The association named the City of Gresham its outstanding member agency in 2015 for becoming a "net-zero energy" wastewater treatment plant. Gresham's activated sludge treatment plant generates all the power it needs to drive the wastewater plant through best-in-class energy conservation, a ground-mounted solar photovoltaic array, and co-generation engines driven in part by fats, oil, and grease collection. The City saves \$500,000 annually on power bills, while generating \$250,000 annually from fats, oil, and grease hauler tipping fees. Gresham is the first wastewater utility in the Pacific Northwest to reach net-zero energy status and one of only a handful in the United States.

Saving Water and Energy through Building Codes and Standards

Building codes and standards provide a basic starting point for water and energy savings in both residential and commercial buildings. Oregon has mandatory [building codes](#) in 11 different specialty areas, including plumbing (e.g., faucets, showerheads, urinals, and toilets) and residential energy efficiency.²⁷ To provide guidance to local jurisdictions on water conservation, the State of Oregon Building Codes Division approved [Statewide Alternative Methods](#) in 2008 for rainwater harvesting (applicable to both commercial and residential construction as well as potable and non-potable uses) and for the use of graywater for toilet flushing.²⁸ The Building Codes Division updated these Statewide Alternate Methods in 2017 and is also directed by Executive Order 17-20²⁹ to amend the code by October 1, 2025 to require water efficiency improvements in all newly constructed commercial buildings through standards for capture and safe reuse of water for irrigation purposes.

The Building Codes Division has also published a series of [Oregon Smart Guides](#) for consumers; two of those guides focus on rainwater harvesting and water conservation systems.³⁰

The Oregon Department of Energy (ODOE) sets efficiency standards for certain products that must be met for those products to be sold or installed in Oregon. In 2021 the ODOE, in coordination with the Building Codes Division, completed rulemaking and subsequent legislation to establish efficiency standards for showerheads and faucets to require high-efficiency fixtures that align with the most efficient standards in the country and exceed WaterSense® fixture efficiencies.³¹ The Building Codes Division's 2023 Oregon Specialty Plumbing Code adoption included updates to align with these standards.³² In 2022, ODOE updated rules for demand-response capable water heaters and completed rulemaking to establish minimum standards for spray sprinkler bodies for residential irrigation sprinklers.

Saving Water and Energy in the Home

ENERGY STAR, a joint program of the USEPA and the U.S. Department of Energy, rates energy efficient products and practices to help consumers and businesses save money and energy on new purchases. Many qualifying appliances also reduce water use. Some utilities in Oregon offer incentives for installing ENERGY STAR appliances, some even offer incentives for premium water-heating technologies, such as tankless and heat pump water heaters, that help reduce the energy needed to heat water in the home.

Cross-Sector Coordination

Addressing the water-energy nexus cannot occur in isolation; the state must focus on cross-sector and cross-agency collaboration to develop solutions. Oregon's state agencies, working with their civic and industrial partners, should focus efforts on maximizing the efficient use of our water resources, particularly with respect to the generation of low-carbon electricity. Developing new partnerships between the water and energy sectors to better understand how energy is used in water services and how water is used in energy production is critically important.

Action 4C

Promote Strategies that Increase/Integrate Energy and Water Savings

Examples of how to carry out this action:

- Move toward energy independence and resiliency for publicly operated treatment works (wastewater treatment)
- Continue to implement and evaluate building codes that encourage water and energy efficiencies
- Encourage individuals, communities, industries, and businesses, including agriculture, to look for and integrate ways to conserve both energy and water
- Encourage cross-sector and cross-agency collaboration to achieve energy and water savings
- Strive to capture and publicly report energy and water savings data
- Promote resources that increase water and energy efficiency and conservation for irrigation
- Promote regenerative agriculture and permaculture practices
- Improve availability of cost savings associated with ENERGY STAR and similar programs to low-income or disadvantaged households and businesses
- Explore new or innovative technologies to accomplish energy and water savings
- Consider developing an energy/water nexus efficiency program that could support industrial water and energy intensive uses (e.g., data centers, paper mills)
- Increase interagency and energy/water sector collaboration, to identify co-benefits and opportunities for water efficiency (See Action 10A)

Critical Issue**Natural Hazards**

Since the adoption of the first Strategy in 2012, Oregon has recorded its warmest year (2015), experienced the lowest snowpack on record (2015), had one of the most severe wildfire seasons (2020), and declared drought emergencies in 26 counties (2021). Recognizing that natural hazards or extreme events, such as drought, wildfires, floods, and earthquakes occur at great cost to society and the environment, Oregon communities must prepare themselves for these natural hazards. The negative impacts of such events can be far-reaching and may worsen already existing water challenges, such as water scarcity, water quality, and instream habitat conditions.

Oregon uses a natural hazard mitigation planning process to prepare for such events. Natural hazard mitigation focuses on identifying risk and taking actions to reduce potential impacts that a natural hazard might have on people, property, and the environment. Oregon has developed a Natural Hazards Mitigation Plan (NHMP) that addresses twelve hazards (coastal hazards, dam failure, drought, earthquakes, extreme heat, floods, landslides, tsunamis, volcanic hazards, wildfires, windstorms, and winter storms). The Oregon NHMP was last updated in 2020, is required to be updated and reapproved by the Federal Emergency Management Agency every five years to maintain eligibility for certain pre- and post-disaster funds, and has two primary parts: (1) risk assessment - characterizing each hazard, assessing probabilities, vulnerabilities, and describing risks; and (2) mitigation strategy - mitigation goals, a capability assessment, mitigation actions, and an implementation plan. Tribes may work directly with the Federal Emergency Management Agency to develop and update their own NHMP's. Cities, counties, and special districts create and update local NHMPs. Jurisdictions the Oregon Interagency Hazard Mitigation Team oversees provides expertise and information for Oregon NHMP updates. The Federal Emergency Management Agency began curtailing funding for these programs in 2025, leaving state and local partners to prepare for such events without assistance from their federal partners.

Public, private, Tribal, and non-profit organizations working together, as well as individuals who take personal responsibility for thorough preparation, will be critical for Oregon to withstand these extreme events. Key organizations play roles in mitigation, communication, response, and recovery. Their work will be to design resiliency into community and environmental planning, determine which communities, infrastructure, systems, and habitats are vulnerable, and document the economic, social, environmental, and other impacts of such events.

Action
5A
Plan and Prepare for Drought and Wildfire Resiliency

Drought is a normal occurrence in Oregon, with notable droughts in the 1930s, 1976-77, 1992, 2001-02, 2012-2015, 2018, and 2020-2023 and 2025. The severity and frequency of drought has increased in recent years and climate change projections indicate this will continue. Precipitation and temperature are the main drivers of drought, and largely determine snowpack, soil moisture, and streamflow levels, which are commonly used as indicators of drought. In Oregon, many watersheds depend heavily on snowpack for annual water supply, and the timing of peak runoff from snowmelt is critical to providing water when and where it is needed most. Climate change predictions indicate that warm winters may be more common, with more precipitation falling as rain rather than as snow, leading to earlier runoff.

In the case of severe or multi-year droughts, soil moisture does not recover in time for the next growing season. Parched soils can absorb precipitation before it can become available to streams. Increased temperatures can lead to increased evaporation and fish die-off. Groundwater levels do not rebound, and refilling reservoirs can prove difficult. Fish populations may suffer loss of a year-class. These conditions can lead to limited water quality and quantity for fish, wildlife, livestock, drinking water beneficial uses, and crops, reduced irrigation deliveries, and poor yields. Warm summer temperatures can also cause changes in the timing of water supply and water quality issues (e.g., algae blooms and waterborne diseases), as well as shift fish distribution. Because droughts are a slow-moving

disaster where impacts develop over time, persisting even after the rain and snow returns, building drought resiliency in Oregon requires a portfolio of water management methods that are put into place long before the next drought arrives.

Defining Drought

As noted in Oregon's [2016 Drought Annex](#), a drought response plan within the state's emergency operations plan, droughts can generally be characterized by an increased demand or decreased supply of water.³³ In the early 1980s, researchers with the National Drought Mitigation Center (NDMC) and the National Center for Atmospheric Research located more than 150 published definitions of drought. To simplify analysis, the NDMC now provides five different ways in which drought can be defined.

- **Meteorological Drought** – Defined based on dryness, compared to some type of normal or average amount. Due to climatic differences, what might be considered drought in one location of the state may not be the same in a different location. The concept of a “snow drought” has emerged in recent years. Experiencing below average snowpack with above average precipitation has spurred the study of snow droughts.
- **Hydrological Drought** – Occurs when surface and subsurface water supplies are below normal, caused by shortfalls in precipitation, including snow. A hydrological drought usually lags behind a meteorological or agricultural drought. Low precipitation takes longer to show up in streamflow and groundwater, for example.
- **Agricultural Drought** – Occurs when the amount of moisture in the soil no longer meets the needs of a particular crop. This type of drought links together the various characteristics of meteorological (or hydrological) drought to agricultural impacts.
- **Socioeconomic Drought** – Occurs when physical water shortages begin to affect people and the supply of economic goods and services.
- **Ecological Drought** – Occurs when a prolonged and widespread deficit in available water supplies — including changes in natural and managed hydrology — creates multiple stresses across ecosystems.

Impacts of Drought

Drought impacts instream and out-of-stream uses in a variety of ways, requiring additional management actions. It is important to note that these impacts may affect communities and ecosystems disproportionately. Water insecurity is an environmental justice issue and can have health, environmental and economic impacts for communities.

Fisheries

- Restricted access to habitats, dry streams, lethal temperatures, fish die-offs
- Proliferation of parasites or bacterial disease
- Reduced access to fishing (curtailment by Oregon Department of Fish and Wildlife)

Drinking/Potable Water

- Dry domestic wells
- Increased outreach efforts by water suppliers to their customers
- Municipal water conservation and curtailment requests
- Reduced water quality (e.g., concentration of contaminants, harmful algal blooms)
- Reduced water available for firefighting

Recreation

- Reduced access to boating (waterskiing, paddling, kiteboarding, rowing etc.), fishing, hunting, skiing, swimming, diving, clamming, crabbing
- Economic impacts to tourism destinations
- Reduced access due to water quality (e.g., harmful algal blooms)

Agricultural

- Crop damage

- Reduced yields
- Stressed livestock and reduced ranching profit
- Fallow fields
- Soil erosion

Wildfires

- Loss of safety and human life
- Lost/damaged property
- Crop damage (e.g., viticulture)
- Economic losses associated with property damage/lossDamage to water supply systems (health and economic impacts)
- Damages from smoke (health and economic impacts)
- Destruction of terrestrial and aquatic ecosystems
- Displacement of fish and wildlife
- Loss of culturally important lands/water

Action 5A

Plan and Prepare for Drought and Wildfire Resiliency

Examples of how to implement this action:

- | | |
|---|---|
| <ul style="list-style-type: none"> • Implement Oregon's Natural Hazard Mitigation Plan and recommendations from the Drought Vulnerability Assessment | <ul style="list-style-type: none"> • Increase education and outreach efforts to help landowners minimize risk to their property from wildfires |
| <ul style="list-style-type: none"> • Identify, assess, and assist those communities and ecosystems most vulnerable to drought and wildfire (e.g., assess water supply systems for vulnerability) | <ul style="list-style-type: none"> • Invest in built and green/natural infrastructure, (i.e., nature-based solutions), refer to Actions 6B, 7A, 11A-11E |
| <ul style="list-style-type: none"> • Develop the appropriate set of indicators that signal and forecast differing stages of drought | <ul style="list-style-type: none"> • Provide technical assistance and funding to local governments to evaluate the need and opportunities for inter-tie projects in Local Natural Hazards Mitigation Plans |
| <ul style="list-style-type: none"> • Document the economic, social, and environmental impacts of drought and wildfire, including the frequency, distribution, intensity and duration | <ul style="list-style-type: none"> • Prioritize resources for planning and preparation to those most vulnerable to drought and wildfire impacts |
| <ul style="list-style-type: none"> • Prepare for, respond to, and mitigate for the impacts of drought and wildfire | <ul style="list-style-type: none"> • Explore ways to protect minimum stream flows during drought declarations |
| <ul style="list-style-type: none"> • Improve the drought toolbox through education and outreach, drought contingency plans, more efficient water distribution systems, and additional voluntary measures to improve streamflow | <ul style="list-style-type: none"> • Educate the public about the importance of having an emergency supply of drinking water |

A Closer Look at Drought Declarations

County-wide drought declarations go through a two-part process before securing a drought declaration from the Governor. First, County Commissions, Boards, or Courts meet to determine whether they need to request a Governor's declaration. Then these requests go to the Water Supply Availability Committee and Drought Readiness Council (co-chaired by the Office of Emergency Management and Water Resources Department (OWRD)) for review and recommendation to the Governor. The Drought Readiness Council is a standing body comprised of federal and state natural resource, public health, and emergency response agencies. The Governor can issue an Executive Order to declare drought—either independently or in response to a request by counties. In recent years, these Executive Orders have been set to expire at the end of a calendar year.

A Governor's drought declaration can trigger a number of requirements and water management tools not otherwise accessible. Declarations allow the Water Resources Commission to grant a temporary preference of use of water for human consumption and/or stock watering. Drought declarations also authorize the Water Resources Commission and Governor to require state agencies and local governments to develop and file water conservation and/or curtailment plans; the Governor may require the implementation of such plans. Finally, declarations allow the OWRD to use an expedited process in a number of water right areas, including the issuance of emergency drought permits for groundwater. Expedited processes do not weaken or allow loopholes to protective laws.

Drought declarations focus on managing human water needs but do not provide additional protections for instream flows or ecosystem needs. Additional work is needed to protect minimum stream flows during drought declarations.

Communities and businesses looking to offset drought-related losses often turn to the federal government, which can provide payments or emergency loans after a federally issued drought disaster designation by the Secretary of Agriculture. Federal drought funds generally cannot cover all losses suffered by producers, but they can help.

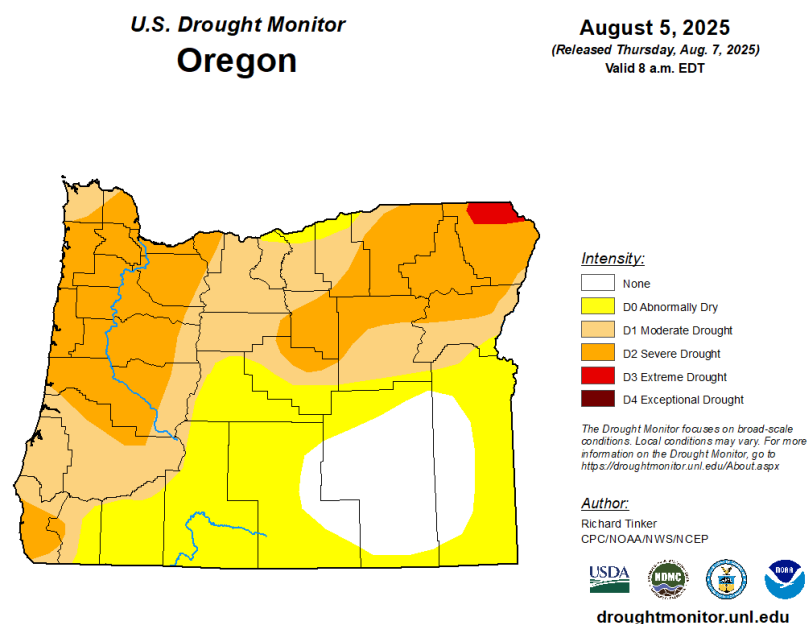
Drought Vulnerability Assessment

In 2023, the OWRD contracted with the National Drought Mitigation Center, the Oregon Climate Change Research Institute, and the University of Oregon to complete a statewide drought vulnerability assessment, addressing Recommendation B from the [2016 Task Force on Drought Emergency Response](#) (HB 4113): "Provide resources for assessments of drought impacts, risks, and vulnerabilities on instream and out-of-stream sectors in order to better prepare for, respond to, and recover from drought," and part of the 2017 Strategy Recommended Action 5.5A: "Plan and Prepare for Drought Resiliency." The drought vulnerability assessment examines drought exposure, drought sensitivity, and adaptive capacity with a focus on drinking water supplies, agriculture, and water-dependent recreation. The final assessment is anticipated in 2025.

Drought Early Warning System

The National Integrated Drought Information System is a program authorized by Congress in 2006 to coordinate and integrate drought research and create a national drought early warning information system. These systems explore and demonstrate a variety of early warning and drought risk reduction strategies that incorporate drought monitoring and prediction information. The [Pacific Northwest Drought Early Warning System](#) (DEWS) includes Idaho, Oregon, Washington, the western portion of Montana that feeds into the Columbia River Basin, and British Columbia. The Pacific Northwest DEWS is a collaborative federal, Tribal, state, and local interagency effort to improve early warning capacity and resilience to drought in the region.

Figure 3-7: Drought Conditions Across Oregon on August 5 2025



Action 5B Plan and Prepare for Flood Events

This section focuses on the public safety and emergency nature of flooding. Other parts of the Strategy call for actions that can help protect and restore floodplains and reduce risk of flooding. Oregon's land use planning system, described below under "Land Use Planning", can be used to reduce risk to people and property. Floodplain protection and restoration is called for in Chapter 4 under "Healthy Ecosystems" Action 11A. Upgrading infrastructure and dam safety is discussed later in this chapter under "Water Infrastructure" Actions 7A and 7C. Statewide efforts to prepare and respond to floods are addressed in the Oregon Emergency Operations Flood Annex.

Oregon's mountain ranges are part of the reason there is tremendous variation in the types of flooding we experience. Although floods are a common natural hazard in Oregon, floods west of the Cascades tend to be large-scale events, while eastern Oregon typically experiences more localized, intensive events. Four main types of flooding described in Oregon's Natural Hazard Mitigation Plan include:

- **Riverine flooding** – This is the most common flood hazard in Oregon and usually occurs during winter. The most severe flooding conditions occur in "rain on snow" events, when heavy rainfall is augmented by rapid snowmelt. Longer duration storms and floods are more common in western Oregon. Very large and widespread floods occurred in parts of western Oregon in 1861, 1891, 1948, 1964, 1996 (three separate storms), and 2007.
- **Flash flooding** – Flash floods are caused by extremely intense rainfall over a short period of time, commonly within a single drainage. Such events usually occur in the summer during the thunderstorm season. In eastern Oregon, local convective thunderstorms often produce the most severe flooding. One of the worst flash floods in history occurred in eastern Oregon in June 1903, killing 247 people (one-fifth of the population at the time) in the town of Heppner.³⁴
- **Coastal flooding** – Coastal floods result from different conditions. Winds generated by tropical storms or intense offshore low-pressure systems can drive ocean water inland, causing significant flooding.
- **Urban flooding** – Urban floods occur because land is converted from fields or woodlands to roads, roofs, and parking lots, losing its ability to absorb rainfall. This transition from pervious surfaces to impervious surfaces results in more and faster runoff of water. During periods of urban flooding, streets can become swift moving rivers, and basements can fill with water. Storm drains may back up with yard waste, causing additional nuisance flooding.

Dam and Levee Failure

In addition to the types of flooding described above, large precipitation events can also place stress on dams and levees. Dam or levee failures can cause catastrophic downstream flooding, risking both life and property. The Dam Safety Program, administered by the Water Resources Department (OWRD), works to evaluate the safety of dams. More information about the program can be found under Action 7C. Oregon does not currently have a statewide and state-led levee safety program. The establishment of such a program is called for in Action 7C and would provide increased public safety, increased resilience to climate change and natural disasters such as earthquakes.

Rain and rapid snowmelt caused severe flooding and eventual levee failure along the Silvies River in Harney County in the spring of 2025. The flooding caused damage to over 950 homes near Burns and on the Burns Paiute Indian Reservation and released untreated sewage into the river causing a public health crisis. Local officials knew for several years that the levee needed repairs, but much of the levee is located on private property which complicates maintenance and repairs.

Atmospheric Rivers

Atmospheric rivers are relatively long, narrow regions in the atmosphere – like rivers in the sky – that transport water vapor from the tropics. When atmospheric rivers make landfall, they often release this water vapor in the form of rain or snow. Although atmospheric rivers come in many shapes and sizes, those that contain the largest

amounts of water vapor and the strongest winds can bring extreme rain and floods, often by stalling over watersheds vulnerable to flooding. These events can disrupt travel, induce landslides or mudslides, and cause catastrophic damage to life and property.³⁵

The OWRD is currently leading a project to analyze the extreme atmospheric river precipitation potential for Oregon. The first phase was completed in 2023, analyzing how extreme precipitation is influenced by ocean and air temperature, and other factors. The second phase, targeted for completion at the end of 2026, will provide an updated method and procedure for determining extreme precipitation in Oregon and guidance on how that precipitation could result in flooding. This project, once complete, will provide the Dam Safety Program with better information to evaluate the Probable Maximum Flood potential when assessing new and existing dams and ensuring proper design to prevent dam failures.

Understanding Oregon's Flood Risk

Like drought, Oregon should develop indicators of flood emergency stages that can be used as a planning, communication, and response tool. We know with reasonably high confidence that the frequency of extreme precipitation and flooding events are likely to increase around the state under a warming climate. Oregon does not have a consolidated assessment of past floods and their economic, social, and environmental impact and is one of only five states that lack up-to-date precipitation-frequency analysis prepared by the National Weather Service. Oregon also does not have a reliable extreme maximum flood document, which most other states have. Oregon should research how changes in land use, land cover, forest cover, and watersheds—including upstream impervious surfaces, geomorphology, logging, and forest fires—may change the location, strength or duration of floods, flood ways, and flood discharge. This information could be beneficial to local planning efforts.

Uncertainty in precipitation information coupled with climate change and possibly more extreme precipitation events has significant implications for the design and safety of water resources infrastructure. Oregon now relies mostly on information from 1973, with a very partial update completed in 2008. Better information, is needed to inform infrastructure upgrades or retrofits to avoid failure during a major flood and as a result, imperil public safety and property.

Flood Risk Mapping - Publicly available mapping educates Oregonians about their flood risk and helps inform future development to reduce flood risk. The Department of Land Conservation and Development (DLCD) supports the Oregon Explorer Hazards, an online web application that allows users to explore GIS data depicting natural hazards in the state. The Department of Geology and Mineral Industries (DOGAMI) has produced a Statewide Geohazards Viewer that shows 100-year flooding potential along with several other hazards.

DOGAMI has also produced a channel migration map that shows historic river or stream channels which can indicate locations prone to flooding. Channel migration is the process by which streams move laterally over time through a natural process of sediment erosion and deposition. While this change often occurs gradually (across decades or hundreds of years), significant channel migration can happen very rapidly during flood events. Although this is rare, streams can also “avulse” and shift to occupy a completely new channel during a flood. Damage due to channel migration and erosion often impacts roads, bridges, and levees and can cause landowners to lose land. It also can undermine houses, buried utility lines, septic tanks, and other types of infrastructure. Critically, the FEMA Flood Insurance Rate Maps do not consider the potential risk from channel migration and properties that are mapped outside the regulatory floodplain can be impacted with the river shifts. DOGAMI has been mapping channel migration zones in Oregon using available federal funding. However, they have only mapped a small fraction of the rivers in Oregon and many people remain unaware of this hazard. During the 2020 floods in Umatilla County, erosion heavily damaged some key roads and bridges which hindered evacuation efforts and has resulted in costly repairs.

There are also federal sources of flood mapping. The Federal Emergency Management Agency maintains and updates flood hazard data through [regulatory flood maps](#).

Increased Risk Following Wildfires

Where forest fires have burned and changed land cover, updated precipitation frequency information can be used in hydrologic models to predict new flows in the watershed. After a wildfire, the charred ground repels rainwater, increasing the risk of flooding and debris flows for several years. Intense storms can lead to severe flooding and landslides, which threatens drinking water supply, degrades aquatic habitat, and even suffocates fish. Considering frequent drought and recent wildfires, state emergency managers recognize the need to be able to respond to these environmental stressors rapidly and responsibly.

The DLCD and DOGAMI are partnering on four Post-Fire Debris Flow risk reduction projects, with funding provided by the Federal Emergency Management Agency. The four projects are in areas impacted by the Eagle Creek Fire (2017), Beachie Creek and Lionshead Fires (2020), Holiday Farm Fire (2020), and Archie Creek Fire (2020).

Interagency Coordination

Dealing with floods and the potential for landslides requires interagency partnerships across multiple jurisdictions. Silver Jackets is a group of local, state, federal and Tribal agencies chaired by the U.S. Army Corps of Engineers and is focused on reducing the risk of flooding and other natural disasters. Most states have a Silver Jackets program, and Oregon's program focuses on flood preparedness, communication, and recovery. The Oregon Silver Jackets Team is a subcommittee under the State Interagency Hazard Mitigation Team. Oregon also has a Flood Core Team that is focused on updating the flood-related portion of Oregon's Emergency Operations Annex.

Local soil and water conservation districts work with the federal Natural Resources Conservation Service to provide technical and financial assistance to communities through the Emergency Watershed Protection Program. The program does not require a federal or state disaster declaration to provide assistance.

Action 5B

Plan and Prepare for Flood Events

Examples of how to implement this action:

- Implement Oregon's Natural Hazards Mitigation Plan
- Develop indicators of flood emergency stages, using information about meteorologic, hydrologic, hydraulic, and watershed conditions
- Document the economic, social, and environmental impacts of floods
- Evaluate potential for extreme flooding, under atmospheric rivers and climate change scenarios
- Establish early flood and debris-flow warning systems in areas where recent drought and wildfire have affected forests and vegetation
- Complete update of precipitation frequency estimates for Oregon
- Update methods and procedure for determining extreme precipitation and flooding
- Support DLCD to continue to provide assistance and training to local floodplain managers, property owners, surveyors, real estate agents, and other to support compliance with the National Flood Insurance Program
- Increase education and outreach efforts to help landowners minimize risk to their property from floods
- Invest in built and green/natural infrastructure (i.e., nature-based solutions), refer to Actions 6B, 7A, 11A-11E
- Prioritize resources for planning and preparation to those most vulnerable to flood impact
- Develop an inventory of levees in Oregon and assess their condition and risk (also see Action 7C)
- Support dam safety (also see Action 7C)
- Educate the public about the importance of having an emergency supply of drinking water

Action 5C

Plan and Prepare for a Cascadia Earthquake and Tsunami Event

Seismic activity in the state has been relatively low since the time of European settlement. Up until the mid-1980s, Oregon was not considered to be at high earthquake risk. Infrastructure built before 1980 was designed with criteria based on that seismic understanding. However, during the past 25 years geological analyses have led to a very different understanding of seismic risk in Oregon.

Statewide efforts to prepare and respond to earthquakes and tsunamis are each covered in separate Oregon Emergency Operations Annexes.

Earthquakes and Tsunamis in Oregon

The Oregon Department of Geology and Mineral Industries (DOGAMI) is the lead agency for earthquake hazards. DOGAMI has created maps that identify areas in selected Oregon communities that will suffer more damage, relative to other areas, during a damaging earthquake. A [clearinghouse of tsunami information](#) is also maintained by DOGAMI and includes information for coastal residents, visitors, planners, and scientists.

There are two major types of earthquakes that occur in Oregon: megathrust earthquakes that occur along the Cascadia Subduction Zone near the coast, and smaller crustal earthquakes. For the most part, crustal earthquakes occur on shore on much smaller fault systems. The two largest earthquakes in recent years occurred in Scotts Mills (magnitude 5.6) in March 1993 (known as “The Spring Break Quake”) and six months later in Klamath Falls (magnitude 5.9 and magnitude 6.0), both of which were crustal earthquakes. The last major subduction zone (megathrust) earthquake and tsunami occurred more than 300 years ago in 1700.

A Cascadia Earthquake

The Cascadia Subduction Zone fault, shown in Figure 3-8, spans from Northern California to southern British Columbia and can produce earthquakes as large as magnitude 9.0 with corresponding tsunamis. Scientific evidence indicates that an earthquake of this size occurs along the fault on average once every 200 to 500 years.

The Cascadia Subduction Zone closely mirrors the subduction zone in northern Japan that produced the 2011 Tohoku earthquake. The incredibly destructive tsunami that resulted from the Tohoku earthquake should serve as a warning to Oregon.

When a Cascadia earthquake occurs, it will affect mostly western Oregon, and in particular, coastal communities. Following such an event, it is estimated that it will take one to three years to restore drinking water and sewer services in the coastal zone. A 2025 study by the National Academy of Sciences showed that an earthquake along the Cascadia fault could cause subsidence (sinking) of coastal land up to six feet which would increase the exposure of these areas to sea-level rise and flooding.³⁶

Figure 3-8: Cascadia Subduction Zone



Available studies estimate that a Cascadia earthquake and resulting tsunami could result in 1,250 to more than 10,000 fatalities, tens of thousands of buildings destroyed or damaged so extensively that they will require months to years of repair work, tens of thousands of displaced households, more than \$30 billion in direct and indirect economic losses (close to one-fifth of Oregon's gross state product), and more than one million truckloads of debris.³⁷

The Oregon Coastal Management Program is coordinating with coastal communities to help them prepare for a Cascadia Subduction Zone tsunami through land use planning. The Program, administered through the Department of Land Conservation and Development, has helped many coastal cities and counties create tsunami mapping, adopt Tsunami Hazard Overlay Zones, and develop Tsunami Evacuation Facility Improvement Plans.

2013 Oregon Resilience Plan

In 2013, the Oregon Seismic Safety Policy Advisory Commission published the [Oregon Resilience Plan](#) describing likely outcomes from a Cascadia Subduction Zone earthquake event. The plan notes that while we cannot predict when the next Cascadia earthquake will occur, we can calculate odds. Experts estimate the odds that a Cascadia earthquake will occur in the next 50 years range from 7 to 15 percent for a great (magnitude of 8.7 to 9.3) earthquake affecting the entire Pacific Northwest to about 37 percent for a very large (magnitude of 8.3 to 8.6) earthquake affecting southern Oregon and northern California. The likelihood and predicted consequences of a Cascadia event during our lifetimes are both so great that it is prudent to consider this type of earthquake when designing new structures or retrofit of existing structures, evaluating the seismic safety of existing structures, or planning emergency response and preparedness.

The Oregon Resilience Plan encompasses a set of short- and long-term recommendations regarding critical and essential structures, transportation, energy, information and communication, and water and wastewater systems:

- Begin aggressive public information efforts to re-set public expectations for a realistic response time. The old guideline of having a 72-hour emergency survival kit falls far short.
- Public agencies should be advised that the Oregon Water/Wastewater Agency Response Network is a vital resource and membership is recommended.
- Service providers from all sectors should be required to have a business continuity and seismic response plan that includes resources normally provided by functioning infrastructure (e.g., food, water, and communications).
- Service providers should plan for and support employee preparedness.
- Water-related industry associations and manufacturers should evaluate the need for seismic design standards for pipelines.
- Seismic vulnerability criteria should be incorporated into overall capital improvement project planning and asset management priorities, particularly updates to water system master plans.
- The Oregon Health Authority should be encouraged to include a seismic design requirement as part of routine design review of water system improvements.
- Encourage the Oregon Department of Environmental Quality and the Oregon Health Authority to establish goals and expectations for post-earthquake regulatory compliance and applicable standards. For example, will it be acceptable to discharge into waters of the state the chlorinated water from main breaks and main repairs?
- Encourage public health, water, and wastewater agencies to plan for significant water quality impacts to rivers downstream from urban areas.

The plan further describes the vulnerabilities facing our water delivery systems. These include numerous potential points of system failure at reservoirs, intakes, treatment plants, pump stations, and outfalls. Many materials are inflexible, joints are push-on, and pipelines may be prone to failure at connections to above-ground structures. Vulnerabilities also include interdependence with other potentially damaged systems, such as power, transportation, chemical, and financial industries. Water from leaks and breaks in water pipelines and private plumbing systems will

cause collateral damage, drain available water storage, and contribute to loss of water supply and pressure, which will in turn result in a loss of fire protection capability.

The performance of gravity sanitation and storm sewers depends on appropriate grades and slopes, which are disrupted by ground displacement associated with liquefaction. Liquefaction is when water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Because nearly all water and wastewater treatment plants are built near rivers, they are vulnerable to liquefaction and effective mitigation may require rebuilding these plants on more stable soils.

Earthquake Impacts to Water Wells

Earthquakes can cause structural damage to the integrity of a water well, cause a noticeable change in the appearance of water supplies, or may cause a change in the supply rate. The shaking associated with an earthquake can stir up sediments and cause drinking water to be cloudy and discolored. If visible structural damage is observed, the well produces cloudy water for an extended period of time, or if the well suddenly does not produce an adequate amount of water, then there may be serious damage to the well that will require the services of a groundwater professional.

Seismic Retrofits

Throughout Oregon, businesses and service providers are taking another look at critical infrastructure and undergoing seismic retrofits where feasible. Retrofits to roads, schools, and hospitals receive sizable sums of money from the Oregon Legislature. Water infrastructure in the agricultural, municipal, industrial, and domestic sectors also requires seismic upgrades, but have been less well funded. The Oregon Health Authority provides funding for seismic evaluations of water infrastructure and mitigation plans. Some dams, transmission lines, and treatment plants have received state or federal funding for seismic study and upgrade, although more work in this area is needed.

Understanding Risk from Hazardous Materials

Although some studies have been started, there is more work needed to understand how a major seismic event and subsequent tsunami will impact a wide range of hazardous materials being released into the air, land, and water. This includes but is not limited to liquid fuels, toxic materials and hazardous chemicals used in agricultural and industrial processes, and wastewater and sewage. The cumulative impact of these releases could pose a major risk to environmental and human health in the short and long run. Further study is needed to understand the extent and magnitude of risk, who it may impact, and how to mitigate the risk.

Action 5C

Plan and Prepare for a Cascadia Earthquake and Tsunami Event

Examples of how to implement this action:

- Implement Oregon's Natural Hazard Mitigation Plan
- Follow the recommendations provided by the Oregon Seismic Safety Policy Advisory Commission, including in its 2013 Oregon Resilience Plan and 2021 Tsunami Resilience on the Oregon Coast Report
- Incorporate earthquake and tsunami resilience regulations in local land use plans (see model policies developed by DLCD)
- Evaluate and retrofit dams and other water infrastructure to meet new seismic standards (see Action 7C)
- See water infrastructure Actions 7A – 7C
- Consult or develop a local Tsunami Evacuation Facilities Improvement Plan
- Prioritize resources for planning and preparation to those most vulnerable to earthquake and tsunami impacts
- Evaluate and mitigate the seismic vulnerability of bulk oils or liquid fuel terminals (SB 1567, 2022) that pose significant pollution risks to critical waterways
- Educate the public about the importance of having

Critical Issue**Land Use Planning**

Land and water are connected in many ways. Land use planning is a process to regulate the location of different types of land uses, restricting or promoting various land uses through zoning and permitting, to protect the environment, conserve resources, and support economic growth. This is an important step in determining how best to develop the land to protect the quantity and quality of our water resources. The statewide land use program and its implementation by cities and counties is an important framework for integrating water resource issues with land use and development decisions.

This section covers considerations and regulations for land use planning which is distinctly different from regulating land management. Land management practices including pollution management are addressed in Chapter 4, under “Clean Water” identifying ways in which urban, farm, and forest practices are regulated to protect water quality for humans and the environment.

Considering Oregon’s projected changes in population, industrial, and commercial growth, communities need to adequately plan and prepare for meeting a larger demand on a shared resource. Water quality, water quantity, and ecosystems all need to be considered within the context of land use planning and development. Efforts aimed at directing development to appropriate areas and minimizing the impact of development can help meet statewide goals related to protection and use of water resources.

Plan for Changes in Land Use

Oregon’s statewide land use planning program was designed to: foster livable and sustainable development; protect agricultural land, forest lands, and other natural resources; to conserve coastal and ocean resources; and to improve the well-being and prosperity of Oregon’s citizens, businesses, and communities. Originating in 1973 under Senate Bill 100, the program positioned Oregon as a nationally recognized leader in the arena of land conservation and development.³⁸ Changes in land use in urban and rural areas can affect the function of forested lands, wetlands, riparian habitat, and other landscapes. When natural functions are impacted, there are consequences for our water resources.

Local Comprehensive Plans

Land use planning is a function that resides with local planners, local planning commissions, boards, and councils, all of which include a public process and oversight from the Oregon Department of Land Conservation and Development (DLCD). Local governments in Oregon are responsible for developing and implementing their own comprehensive land use plan that complies with the statewide planning goals, shown in Figure 3-9. The Land Conservation and Development Commission and the DLCD are responsible for reviewing city and county comprehensive plans for consistency with the Statewide Land Use Planning Goals.

When the Commission officially approves a local government's plan, the plan is said to be “acknowledged.” Local governments adopt the plan, and it becomes the controlling document for land use in the area covered by that plan. Local governments develop code to implement the plan.

Figure 3-9: Oregon's Statewide Land Use Planning Goals

Oregon's Land Use Planning Goals	
Goal 1 – Citizen Involvement	Goal 11 – Public Facilities and Services
Goal 2 – Land Use Planning	Goal 12 – Transportation
Goal 3 – Agricultural Lands	Goal 13 – Energy Conservation
Goal 4 – Forest Lands	Goal 14 – Urbanization
Goal 5 – Natural Resources, Scenic & Historic Areas, and Open Spaces	Goal 15 – Willamette River Greenway
Goal 6 – Air, Water & Land Resources Quality	Goal 16 – Estuarine Resources
Goal 7 – Areas Subject to Natural Hazards	Goal 17 – Coastal Shorelands
Goal 8 – Recreational Needs	Goal 18 – Beaches & Dunes
Goal 9 – Economic Development	Goal 19 – Ocean Resources
Goal 10 – Housing	

Statewide Land Use Planning Goals - There are several statewide land use planning goals that are relevant to water resources, specifically Goals 3, 4, 5, 6, 7, 11, 16, 17, 18 and 19. [Descriptions of all goals](#) are available on the DLCD's website. Local governments coordinate with state agencies to ensure that land use decisions comply with statewide planning goals and local comprehensive plans as well as other applicable state regulations. This includes permit applications submitted by state agencies. State actions are needed to add detail to some of these goals. Specific needs are described below and included as example actions under Action 6A.

Goal 5 covers 13 resource categories, including wetlands, riparian areas, and groundwater resources. Goal 5 groundwater resources include critical groundwater areas and restrictively classified areas designated by the Oregon Water Resources Commission, and certain wellhead protection areas. Oregon Administrative Rules for Goal 5 set procedures for local governments to identify and protect "significant natural resources." Few local governments have completed planning for groundwater resources, particularly since completing the process for wellhead protection areas is not mandatory. Many communities have not updated their Goal 5 inventories since the 1980's or 1990's and therefore many important riparian, wetland, and wildlife habitat resources are not considered during the land use review process because they are not identified in the local plans. Resources are needed to support communities in updating their Goal 5 resource inventories.

Goal 7 directs local governments to adopt measures to reduce the risk to people and property from natural hazards, such as floods, landslides, earthquakes, tsunamis, coastal erosion, and wildfires. Protecting people and property from natural hazards requires knowledge, planning, coordination, and education. This goal directs jurisdictions to apply appropriate safeguards, such as hazard overlay area zones and review standards when planning for and authorizing new development. Good planning does not put buildings or people in harm's way. Planning, especially for the location of essential services like schools, hospitals, public utilities, fire and police stations, is done with sensitivity to the potential impact of nearby hazards. A local government addresses natural hazards in its comprehensive land use plan by adopting a natural hazard inventory and supporting plans and policies. A limited amount of [planning grant money](#) is available through the DLCD to help communities address these planning needs. The DLCD works with the Oregon Department of Geology and Mineral Industries, the Federal Emergency Management Agency, and others to help communities plan for natural hazards. With the reduction of federal funding for hazards planning, the burden falls to state and local agencies, in partnership with the private sector and community partners.

There is no implementing rule for Goal 7, so comprehensive plans have been acknowledged for consistency with the goal based solely on participation in the National Flood Insurance Program. Additional information about planning for natural hazards was provided in the previous section, Actions 5A-5C. Funding for local governments to conduct natural hazard inventories and Goal 7 rulemaking by the DLCD may help further protect people and the environment from natural hazards.

Goal 11 and its administrative rules require cities with populations greater than 2,500 to prepare public facilities plans addressing drinking water, wastewater disposal and treatment, and stormwater management needs. These plans focus on the costs and timing of infrastructure needs consistent with planned uses and coordination among providers within the jurisdiction. Funding the development and implementation of these plans can avoid water quality impacts associated with deteriorating infrastructure or systems operating beyond their design capacity.

Goal 16 directs the planning and management of Oregon's 39 estuaries. There is a critical need for dedicated investments to update estuary management plans. Updated plans will incorporate new information, improve coordination among jurisdictions and Tribes, and implement new or updated policies. Robust estuary management leads to community co-benefits such as flood reduction, improved water quality, increased recreation opportunities, and storm buffering.

Goal 17 sets planning and management requirements for lands bordering estuaries, coastal lakes, and the ocean shore. Activities and uses occurring adjacent to coastal waters directly and indirectly impact the water quality and quantity of those waters. Goal 17 is focused on the protection and management of resources unique to shoreland areas, among which are significant habitats and potential restoration or mitigation sites.

Goal 18 focuses on conserving and protecting Oregon's beach and dune resources, and on recognizing and reducing exposure to hazards in this dynamic environment. The goal includes a requirement for local governments to inventory beaches and dunes and their associated groundwater resources. Local governments and state agencies are required to conduct permit reviews to protect groundwater from drawdown which would lead to loss of stabilizing vegetation, loss of water quality, or intrusion of salt water into water supplies.

The coastal goals (Goals 16-19) and their implementation contribute significantly to the state's Coastal Nonpoint Pollution Control Program, see Chapter 4 Action 12C.

Periodic Review - Periodic review is a process for certain local governments in Oregon to examine and, as necessary, update their comprehensive land use plan and implementing codes. The process was once mandatory, but now is voluntary. The process is voluntary for two reasons. First, the process can be complicated and arduous as DLCD implemented it, leading the Legislature to remove the periodic review requirement for most counties and smaller cities. Second, in 2009 the Legislature eliminated technical assistance funding due to recession-related budget shortfalls. The DLCD decided not to require periodic review if the State of Oregon could not provide technical assistance funding to help them through the program.

The intent of periodic review is to make sure that local comprehensive plans respond to changes in local, regional, and state conditions, are coordinated with other comprehensive plans and investments, and are in compliance with statewide planning goals, statutes, and rules. Requirements for who must complete periodic review and which statewide goals are addressed have been scaled back to focus on economic development and housing needs and no longer includes Goal 5 Natural Resources, Scenic & Historic Areas, and Open Spaces.

Excluding Goal 5 resources from periodic review can have cumulative impacts on water resources and associated sensitive habitats. In addition to updating Goal 5 inventories (described above,) there is a need to encourage and support periodic review and updates to comprehensive land use plans to reflect current Goal 5 resources.

Plan for Population Changes in Oregon

Recent population projections indicate a slowing of statewide growth, compared with what Oregon has experienced in recent years. Oregon's Demographic and Population Outlook, published in March 2023 by the Oregon Office of Economic Analysis shows that Oregon's growth rate from 2020-2030 will be the lowest in recent history. This is due to an increase in deaths and rapid decline in births, with migration into the state providing for the only population increase.³⁹ Population changes will likely be experienced differently across the state, with some areas growing while

others decline. Some areas that experienced growth in population over the last decade were also areas with known water resources issues. Planning for future development must consider pressures on Oregon's water resources, in terms of both water quantity and water quality and impacts to the environment and ecosystems.

Each city and metropolitan area in Oregon has an [urban growth boundary](#) that separates urban land from rural land. The boundary contains a 20-year planning area for a city to plan to grow into considering the extension of public services, like water, sewer, and road networks, that will be required to serve future urban growth. By law, every city must maintain a long-term supply of buildable land in its urban growth boundary to accommodate anticipated economic and population growth. The development of public facilities plans (Goal 11), municipal water management and conservation plan (when required by the Water Resources Department), or a Water Master Plan (when required by Oregon Health Authority) can help a municipality plan for growth.

Oregon's statewide planning program discourages "sprawling" development, outside an urban growth boundary. However, rural development is permitted in existing rural residential, recreational, commercial, and industrial zones. Counties can rezone rural lands to allow more intensive development, provided the rezoning is consistent with standards set in state statutes and rules. Statewide Planning Goal 11 (public facilities) prohibits the extension of community sewerage systems and limits the extension of community drinking water systems outside an urban growth boundary. Availability of water and capacity for onsite sewage treatment to serve new development on rural lands is an important consideration.

Oregon Statute lists the land uses allowed on rural lands that are zoned primarily for commercial farm production. Allowable uses include several non-resource uses. Statewide Planning Goal 3 and DLCD rules implement statute. A similar structure exists for limiting new development on rural lands zoned primarily for commercial timber production. Statewide Planning Goal 4 and associated administrative rules provide standards for siting non-forest uses in forest zones. It is possible to rezone these Goal 3 and 4 lands to allow the subdivision of large lots for rural residential use. This process requires a "Goal exception." The standards that must be met for an exception to Goals 3 or 4 are high.

Rural lands with a "non-resource" designation (not in a farm or forest zone) exist in some counties. These lands can be made available for new rural development, provided natural resource functions, such as water quality and wildlife habitat, are preserved. Proposals to amend county zoning codes to allow rural residential development on non-resource lands have been more frequent over the past few years.

Another option available for developing new housing on rural lands is the destination resort siting process, described in statute and Statewide Planning Goal 8. Destination resorts are self-contained developments that provide visitor-oriented lodging and recreational facilities in a setting with high natural amenities. Destination resorts have significant infrastructure needs and potential water impacts.

Housing

The Oregon Legislature passed [House Bill 2001](#) in 2023 to help communities meet the housing needs of Oregonians. The law establishes a new methodology to estimate and allocate housing needs for all communities in Oregon. The bill also requires many cities and Metro counties to take local actions that promote housing production, affordability, and choice. Jurisdictions will periodically assess whether there is enough land to accommodate needed housing. They will also maintain a Housing Production Strategy, which identifies actions to meet their housing needs. The DLCD is responsible for integrating House Bill 2001 policies into Oregon Administrative Rules.

The bill established the Housing Acceleration Program. The program will support cities that fall behind their assigned housing production target. For cities that need to accelerate housing production, the DLCD will identify state and local barriers to production and work with local governments to remove these barriers. Water availability is expected to be a barrier in regions where water supplies are limited. Meeting housing needs may require some cities

to implement strategies that reduce per capita water demand. A Water Management and Conservation Plan can help a community manage water efficiently and allow for stewardship of our limited water resources.

Action 6A

Integrate Water Information and Land Use Planning

Local government land use planners do not always have the tools or information needed to assess the positive or negative effects of their long-term planning decisions on water resources. The need to better integrate water management and land use planning is not a challenge unique to Oregon. Other states have addressed the lack of decision-making tools or information with:

- Laws and policies that require coordination through certain approval processes
- Financial incentives that link land use development proposals to beneficial water management strategies or projects (e.g., incentives for green infrastructure, see Action 6B)
- Training sessions and workshops where land use planners and water management staff interact
- Requirements for consultation with water agencies during updates to land use plans

How Local Governments Utilize State or Federal Agency Information

Local governments need access to information collected by state and federal agencies. Below are several examples of information or agency programs that support local land using planning.

Natural Resource Information - To protect and plan for Goal 5 resources, local governments may utilize data from the Oregon Department of Forestry's stream classification maps, Oregon Department of Fish and Wildlife's fish and wildlife distribution maps, local, state, and federal wetland inventories, and the Federal Emergency Management Agency's floodplain maps.

Source Water Assessments -The Oregon Department of Environmental Quality (ODEQ) and Oregon Health Authority (OHA) have developed source water assessments for most federally regulated public water systems in Oregon. These assessments provide community officials with detailed information on the watershed or recharge area that supplies their well, spring, or surface water intake and identifies potential risks within the source area. Water systems and local communities can use the information in the assessment reports to voluntarily develop drinking water protection strategies and plans to address short- to long-term drinking water source protection challenges. The Drinking Water Source Protection Program provides technical assistance to water systems and communities to identify and cultivate partnerships, develop projects, locate potential funding sources, and access technical assistance resources. Both DEQ and OHA maintain robust web pages with extensive resources for Source Water Protection. Go to [DEQ's Drinking Water Source Protection website](#) and [OHA's Drinking Water Source Protection Program website](#) to access these resources and find direct contact information.

Existing and Future Land Uses - Municipalities consider water rights and their capacity to produce and distribute drinking water for uses within incorporated cities and districts. Access to existing land use data and future land use projections helps municipalities make critical water infrastructure investments to preserve and accommodate future demands.

Demographic Information - Population and employment forecasts are of interest to municipalities when estimating water demands for residential, industrial, and other uses. Individual studies conducted to evaluate land use requests, particularly to show that there is an adequate supply of groundwater for a proposed urban use, are frequently completed. The Portland State University [Population Research Center](#) produces county and urban growth boundary population projections, which are funded by the Department of Land Conservation and Development (DLCD).

Rural Water Supply - Oregon's land use laws provide opportunities for counties to consider the appropriate level of rural development in areas that are not zoned for "resource" (i.e., farm or forest) use and to study whether new areas for development should be designated. Since rural development typically relies on wells, counties need data on the availability of groundwater early in the planning process to make informed decisions on what density of development to permit in rural development zones.

Stormwater Management – Local urban governments have many potential permitting relationships with the ODEQ associated with stormwater. The ODEQ can identify certain federal, state, and local governments and agencies, including cities, counties, and special districts as a Designated Management Agency, with authority to manage and regulate water pollution listed in a Total Maximum Daily Load (TMDL) plan. Municipalities may also hold a Municipal Separate Storm Sewer System (MS4) permit. A MS4 is a conveyance or system of conveyances, such as roads with drainage systems, municipal streets, catch basins, curbs, gutters, constructed channels or storm drains, owned or operated by a governmental entity that discharges to waters of the state.

Underground Injection Control systems (UICs) are a way to legally, through permit, emplace water (e.g., stormwater, remediation fluids, low-temperature geothermal return water) below ground. UICs often consist of a concrete structure (e.g., drywell), placed below ground that receives stormwater and then slowly releases it over time. The UIC program is managed by the ODEQ and intended to prevent the contamination of groundwater. UIC locations are available to local governments and the public on a web-based map application. A user can enter an address or a latitude and longitude and check if there are permitted UICs at or near that location.

Data Gaps

There are areas where data is lacking and improvements can be made to connect land use planning and water resources planning. Of primary concern, local land use decision makers need more information about groundwater quality and availability at specific locations, as well as the groundwater quality vulnerability and long-term ability of local aquifers to yield water, when making decisions about appropriate locations for development, particularly in those rural areas already designated as Groundwater Administrative Areas or Groundwater Quality Management Area. Available groundwater information tends to be either too broad (based on regional studies) or too narrow (based on specific project sites) to help with land use planning decisions. Refer to Strategy Action 1B, calling for additional groundwater basin studies, for a list of priority basins that will be studied in the coming years.

The land use planning program at the DLCD needs accurate geographic information regarding water rights and district boundaries to better support local governments.

Land use decision makers also need better information about the cumulative impacts of development on water quantity and quality, to comprehensively plan land uses. Municipalities need information related to natural resources to support preservation and better information about the carrying capacity of land to absorb and/or mitigate stormwater and onsite wastewater disposal.

Action 6A

Improve Integration of Water Information and Land Use Planning

Examples of how to implement this action:

- Protect natural water bodies in the course of land use decisions, such as wetlands, estuaries, groundwater aquifers, rivers, and lakes
- Update land use protections for water bodies incorporating best available data
- Integrate regulation of water master plans with local comprehensive land use plans to sustainably support municipalities' development
- Make accurate geographic information on water rights and district boundaries available to local governments and DLCD
- Support local governments to perform periodic review of their comprehensive plans
- Update Goal 5 resource inventories in local comprehensive plans (e.g., riparian areas, wetlands)
- Develop and share information with local governments regarding the location, quantity, and quality of water resources for use in land use decisions; consider mechanisms for increasing access to water data such as through the Oregon Water Data Portal
- Improve coordination, technical guidance, and assistance to local governments for land use decisions that rely on water availability or could have negative impacts to water quality
- Take next steps to implement land use goals related to water resources—establish implementing rules, support local governments to update acknowledged plans, and the application of appropriate safeguards during permitting
- Build partnerships with state agencies and local governments to share land use information
- Increase resources for local governments to update their natural hazard inventories (Goal 7)
- Increase resources for local governments to update their facilities plans (Goal 11)
- Work towards achieving a statewide dataset of tax lots (identified as a priority by DAS)
- Update State Agency Coordination Programs and associated rules (see Action 9D)
- Include environmental and social justice information in land use planning

Action 6B

Encourage Low Impact Development Practices and Green Infrastructure

Runoff from urbanized lands and impervious surfaces such as paved streets, parking lots, and building rooftops during rainfall and snow events often contain pollutants that negatively affect water quality. This polluted runoff commonly includes heavy metals, pesticides and fertilizers, oil and grease, bacteria, sediment, and other urban pollutants (e.g., 6PPD-quinone, PFAS) that impair human health and aquatic habitat. Urban runoff is a major source of degraded surface water quality and can also contaminate groundwater. In addition to pollution, the increased amount and timing of runoff from urban areas can have negative impacts on receiving streams. Action 6B focuses on incorporating stormwater management into planning and development. See Actions 7A, 11A, 12A-12C for additional ways to manage point and non-point sources of pollution.

Green infrastructure provides a way to manage stormwater and protect water quality and ecosystem health. MS4 permits, described under Action 6A, also encourage the use of low impact development and green infrastructure. "Green infrastructure" is defined by Oregon statute ([ORS 550.160](#)) to include both engineered stormwater practices (e.g., green roofs) as well as natural areas. Green infrastructure includes infrastructure adapted to wet weather management that:

- Infiltrates, evapotranspires, captures and reuses stormwater to maintain or restore natural hydrology
- Protects or restores natural landscapes
- Rain gardens, porous pavements, green roofs, infiltration planters, trees, tree boxes, bioswales, or other green infrastructure strategies, or
- Harvests rainwater from an artificial impervious surface for non-potable uses, including landscape irrigation or toilet flushing

Low Impact Development (LID) uses techniques such as green infrastructure to manage stormwater quantity and quality close to its source. Green infrastructure, such as bioswales, rain gardens, large trees, or vegetated roofs mimic natural processes to intercept, infiltrate, evapotranspire, or retain stormwater or runoff on the site where it is generated. The goal is to treat stormwater runoff at its source before it reaches the storm sewer system, reducing stormwater infrastructure maintenance, and reducing downstream impacts to receiving streams.

Effective LID must be incorporated at the beginning of the project, during site analysis and planning. Site topography, soils, and previous development status (e.g., brownfield) can guide the design for specific LID strategies. LID and green infrastructure support climate mitigation, adaptation, and resiliency strategies.

The Department of Land Conservation and Development (DLCD) is positioned to play an important role in promoting the use of green infrastructure. House Bill 3409 (2023) established a Community Green Infrastructure Fund, directing the DLCD to provide grants for community green infrastructure projects, and for the development and implementation of green infrastructure master plans. Green infrastructure plans must provide social, environmental, or economic benefits to an environmental justice community and be developed in coordination with that community.

Action 6B

Encourage Low Impact Development Practices and Green Infrastructure

Examples of how to implement this action:

- Continue to compile and provide online information on low impact development best practices
- Support updates to local development codes, improving local capacity to review and permit low impact development and green infrastructure designs
- Encourage communities to consider natural infrastructure in lieu of, or as a complement to, built infrastructure
- Consider how and where co-benefits of natural/green infrastructure will occur, including flood abatement, clean drinking water, lower water/wastewater utility rates, educational opportunities, and climate resilience

Green Infrastructure - Defined in Oregon Statute

Oregon Revised Statute 197.469

(a) Green infrastructure as defined in ORS 550.160; or

(b) Infrastructure that:

(A) Mimics natural systems, or enables natural systems to be less stressed through water conservation, water protection or ecosystem restoration, at the neighborhood or site scale as part of an integrated approach in residential, municipal or industrial developments or water infrastructure; and

(B) Implements community-based concepts, principles and practices to conserve and manage resources for future generations, sequester carbon and provide environmental and social benefits.

Oregon Revised Statute 550.160

(5) "Green infrastructure" means infrastructure adapted to wet weather management that:

(a) Infiltrates, evapotranspires, captures and reuses storm water to maintain or restore natural hydrology;

(b) Protects or restores natural landscapes;

(c) Uses rain gardens, porous pavements, green roofs, infiltration planters, trees, tree boxes, bioswales or other green infrastructure strategies; or

(d) Harvests rain water from an artificial impervious surface for nonpotable uses, including landscape irrigation and toilet flushing.

Emerging Stormwater Contaminant 6PPD-Quinone

Vehicle tires contain the chemical known as 6PPD to prevent tires from breaking down. When 6PPD reacts with ozone in the air, it forms 6PPD-quinone (6PPD-q), a substance found to be highly toxic to coho salmon and other aquatic organisms.⁴⁰ Tires break down through contact with roads and release particles into the environment. Stormwater from roads and parking lots wash the tire particles into streams and other water bodies, exposing fish and other organisms to this substance. Little is currently known about the human health effects of 6PPD-q. Salmon have cultural, commercial, and ecological importance and healthy populations are critical to the health and well-being of Tribes and their ability to practice Tribal Treaty Rights. Federal and state agencies and other partners are advancing research about possible stormwater treatment approaches including engineered green infrastructure systems.

The Department of Environmental Quality, Department of Fish and Wildlife, and city and county representatives have formed a work group to investigate and study the scope of impacts of 6PPD-q in Oregon and search for policy solutions and effective control measures, including investigating the applicability of pervious pavement and other filtration techniques. The work group presented to the Fish and Wildlife Commission in 2025 and is considering practical measures to reduce the amount of this contaminant entering waterways.

Critical Issue**Water Infrastructure**

Built and green (i.e., natural) infrastructure (also see Action 6B) used to store, transport, distribute, disperse, collect, and treat water is an important, but often overlooked, piece of our collective water management and stewardship responsibilities. Maintenance of our built water and wastewater infrastructure is critical for maximizing equipment longevity and minimizing the risk to water resources from equipment failures. Ensuring that Oregon's built and green infrastructure is well maintained and functioning is important for a variety of public health and safety reasons and protecting ecosystems, but also for meeting our state's economic needs.

It takes an extensive system of pumps, pipes, treatment, and storage facilities to deliver water to our homes, businesses, and fields every day. Built water infrastructure includes storage, drinking water, stormwater, irrigation-related, and wastewater treatment infrastructure. Natural areas, including forests, floodplains, and rivers, provide valuable storage, flood abatement, climate resiliency, climate mitigation, and water quality benefits while also providing important habitat for fish and wildlife.

Examples of built water infrastructure include:

- Storage facilities, e.g., dams and reservoirs
- Levees
- Wells
- Municipal/community drinking water treatment systems
- Canals and pipelines
- Pumps and pumping stations
- Headgates, headworks, and valves
- Spillways, siphons, drains, penstocks, and transmission lines
- Telemetry systems
- Measurement devices
- Fish screens and fish passage facilities
- Drainage pumps, ditches, and tiles
- Municipal/community wastewater treatment systems
- Fish screens and fish passage facilities
- Drainage pumps, ditches, and tiles

- Municipal/community wastewater treatment systems
- Stormwater conveyance and treatment systems
- Septic systems
- Tidegates

Examples of green water infrastructure include:

- Rivers and streams
- Floodplains
- Riparian vegetation
- Wetlands and estuaries
- Meadows
- Forests
- Coastal areas
- Parks
- Urban elements like bioswales, green roofs, street trees, and lawns/gardens
- Soil saving practices (e.g., terraces, dikes, retention dams)

**Action
7A****Maintain, Upgrade, or Decommission Water Infrastructure**

Built and green infrastructure both require ongoing management and maintenance. Climate change and associated changes in weather patterns have new implications for infrastructure. Built infrastructure may need to be upgraded to improve resiliency, also providing an opportunity to improve fish passage (Action 11C), and improve water and energy efficiency and water conservation (Actions 4C and 10A). When wells, dams, or levees have significantly deteriorated, the costs of repair may exceed the expected benefits, and proper decommissioning and removal may be a less expensive and more environmentally beneficial alternative.

Protect and Enhance Green Infrastructure

Built infrastructure, such as pipes, tanks, dams, reservoirs, and wastewater treatment plants, are constructed by humans to accomplish a water management objective such as flood control, conveyance, storage, and treatment. In contrast, green infrastructure can meet an infrastructure need, but using a naturally occurring feature (e.g., floodplain, forest, wetland) or created or enhanced natural feature (e.g., constructed wetland) to provide multiple benefits for humans and the environment. Investing in green infrastructure projects helps communities adapt to and mitigate for climate change. There is overlap between this action and Action 11A, to protect and enhance the green infrastructure that provides valuable ecosystem functions and can sometimes reduce our reliance on built infrastructure to accomplish a similar function. For example, it can be more cost effective to enhance riparian vegetation to cool water rather than construct infrastructure to accomplish the same task.

Green infrastructure can provide co-benefits such as flood abatement, clean drinking water, lower water/wastewater utility rates, educational opportunities, and climate resilience. Green infrastructure projects should be located to benefit environmental justice communities.

Plans Guiding Built Infrastructure Investments

Various planning documents prepared by cities, counties, utilities, or districts can help identify upcoming infrastructure investment needs.

Public Facilities Plans - Discussed under the critical issue "Land Use Planning," Statewide Planning Goal 11 and its administrative rules require cities with populations greater than 2,500 to prepare public facilities plans addressing drinking water, wastewater disposal and treatment, and stormwater management needs. These plans focus on the costs and timing of infrastructure needs and coordination among providers within the jurisdiction. Funding the development and implementation of these plans can avoid water quality impacts associated with deteriorating infrastructure or systems operating above their design capacity.

Water Master Plans – Oregon Health Authority requires existing and new community public water systems with 300 or more connections to develop a water master plan. The master plan considers a 20-year period and includes extensive system information including present and future system deficiencies, alternatives to address deficiencies, implementation schedule, and a financing program for construction. Business Oregon provides funding to help community systems prepare their water master plans and offers grant and loan programs to finance system improvements.

Wastewater Facility Plans – Failing wastewater systems increase the risk of contamination of both surface water and groundwater and can be a public health hazard. A wastewater facility plan presents alternatives to meet a community's wastewater needs and is often required when seeking funding for improvements. The Oregon Department of Environmental Quality (ODEQ) must review wastewater plans at least every five years. Business Oregon provides support for developing wastewater facility plans and financing system improvements.

Support Irrigation Infrastructure Modernization

Irrigation infrastructure is used throughout Oregon, from small-scale to large-scale applications. Oregon is home to many irrigation districts, water control districts, drainage districts and water improvement districts which manage the distribution of irrigation water. In central and eastern Oregon, these districts often utilize manmade canals or flumes to convey and distribute water. Water losses often occur in unlined canals through porous soils, and evaporative losses occur from the water surface from both canals and flumes. In the last twenty years, irrigation districts have been

"We can modernize our flood protection infrastructure where appropriate, while fully incorporating the benefits of natural infrastructure and ecosystems. Combined, these will help mitigate impacts of increased flooding and drought, while reducing the impacts of sea level rise to coastal communities."

-100-Year Water Vision (2020)

implementing projects to pipe their distribution canals to reduce these losses. In cases where the applicant is going through the Allocation of Conserved Water Program at the Water Resources Department (OWRD), and a state or federal funding source is used to finance a portion of the piping, pursuant to statute and rule the minimum of 25% of the conserved water must be allocated to the State to remain instream. Some piping projects in Central Oregon have resulted significant flows permanently protected instream with water rights dating back to the 1800's.

There is a need to continue supporting irrigation modernization projects that lead to water conservation and benefit agriculture as well as fish and wildlife. Irrigation modernization grant programs at the Oregon Watershed Enhancement Board and OWRD are just two examples of funding sources that help finance irrigation infrastructure improvements.

Support Oregon's Well Construction Program

Oregon's well construction standards are designed to protect groundwater resources and the public by preventing contamination, waste, and loss of artesian pressure. With several thousand wells drilled each year, state agency oversight and inspection is critical to ensure wells are constructed using proper methods, materials, and equipment. The OWRD has made important efforts to modernize policies and procedures for well construction to provide more timely well inspections and better protection of the groundwater resources (House Bill 2145, 2021).

Homeowners with old, unused, neglected, or poorly maintained wells should contact the OWRD for information regarding the proper methods of decommissioning their wells.

The Water Well Abandonment, Repair, and Replacement Fund (WARRF), established by House Bill 2145 in 2021 authorized the OWRD to provide financial assistance to low- or moderate-income households where the well has gone dry or is no longer able to provide sufficient water for household use. The Special Legislative Session in December 2023 modified the focus of the fund to prioritize financial assistance to those domestic wells in areas recently impacted by drought or wildfire. In 2023, House Bill 2010 revised WARRF again to include eligibility for

Action 7A

Maintain, Upgrade, or Decommission Water Infrastructure

Examples of how to carry out this action:

- Provide timely inspection of well construction, review of well logs, and educate drillers and pump installers to ensure construction standards are met
- Inventory, inspect, and make safety improvements to levees, accounting for future conditions associated with climate change
- Properly decommission infrastructure, such as a well, culvert, levee, or dam, at the end of its useful life
- Upgrade infrastructure to improve water and energy efficiency and conservation (e.g., pipe irrigation canals, leak detection and repair in municipal water distribution systems)
- Provide funding for planning, design, and construction of point source and nonpoint source water pollution control projects to upgrade infrastructure systems, protect, restore, and improve water quality
- Provide funding for projects based on USEPA "green" project eligibility
- Incorporate equity and community vulnerability assessments into infrastructure planning to inform strategies for repair, replacement, and funding infrastructure improvements
- Assess additional locations where levee accreditation could help lower floodplain insurance costs for low-income households and improve flood protection for vulnerable communities
- Continue to support the OWRD Well Abandonment, Repair, and Replacement Fund to provide financial assistance to low to moderate income individual households or members of federally recognized tribes in Oregon
- Incorporate environmental justice considerations in targeting funding and resources for water infrastructure improvements in underserved communities
- Support water and wastewater infrastructure investments that prioritize (efficient) infill development, provision of affordable housing, and jobs within walkable service areas

wells with contamination levels that exceed drinking water standards. As of July 2025, WARRF provided funding that restored water to 233 homes located within 17 counties across Oregon.

Dam Safety and Decommissioning

Oregon has a dam safety program, described in detail in Action 7C. Dams that are at the end of their useful life, pose a public safety risk, or no longer serve their intended purpose, may need to be removed. Dam removal projects should be coupled with ecological restoration activities to restore hydraulic and ecological function. The Department of Fish and Wildlife has identified priority artificial barriers across the state and is actively pursuing restoring fish passage at sites that maximize the return of native migratory fish to critical habitats, as described in Action 11D.

Improve Oregon's Levees

Levees are used around the country to protect low lying areas from river flooding, coastal flooding, and other floods that are intensified by high tides. Levees are very similar to embankment dams, in that they are generally constructed of local soils and intended to retain water without leakage or overtopping. Levees can affect riparian and floodplain functions and only provide flood protection if they are of sufficient height and stability. Even then, levees must be monitored during flooding, to identify and immediately address leakage and overtopping. Levee failure in some cases can be catastrophic, as was the case when a levee adjacent to the Columbia River failed, killing 15 people and destroying the City of Vanport in 1948. At the time, it was the second largest city in Oregon and the largest public housing project in the nation.

The U.S. Army Corps of Engineers (USACE) sponsors and certifies a portion of the levees in Oregon. The USACE keeps an inventory of those levees it sponsors and certifies. In exchange for assistance with inspections and emergency response, owners of those levees are required to maintain them to federal standards. These levees are well inventoried, regularly inspected and have a reasonable margin of safety. The USACE is not routinely involved in levees constructed to manage coastal (tide related) flooding. There are other levees in Oregon that have not been maintained to federal standards, nor are they part of the USACE certification program. Many of these levees have not been inventoried which means the condition and ownership status is unknown. Based on information from the USACE, there could be nearly 2000 levees that are not in their inventory.

The Department of Geology and Mineral Industries has compiled a dataset of levee-like features throughout parts of the Willamette Valley and the Oregon Coast. The dataset is a starting point for developing a geospatial inventory of levees. There are many structures in the inventory that are not levees and the inventory needs to be further refined. A geospatial inventory of levees is an important resource for assessing flood risk, flood mitigation planning, and for emergency response during flood events. It also benefits ecological restoration efforts by helping locate levees to remove or breach to expand habitat for aquatic species. The 2021-2023 legislative session authorized \$10 million to Business Oregon for levee grant funding available to provide financial assistance for levee projects that result in improvement, expansion, or repair of levees, flood control facilities, or flood control embankments.

New Standards for Levee Certification – Levees must be accredited to be recognized in the Federal Emergency Management Agency's flood insurance program. An accredited designation means that a levee is built and maintained to protect against a one-percent-annual-chance flood event, commonly known as the 100-year flood. To achieve accreditation, a professional engineer must certify the levee. Levee failures resulting from Hurricane Katrina (2005) spurred the U.S. Army Corps of Engineers to re-evaluate their levee inspection and certification program. New evaluation standards were established in 2012 for all levee certifications, including those that were previously completed.

Given the large number of un-accredited levees and public safety risk, Oregon should establish a levee safety program (like its Dam Safety Program), see Action 7C.

Wildfire Damage and Public Health Risk

Drinking water and wastewater infrastructure can be damaged during a fire in unexpected ways. Intense heat from wildfires can release toxic chemicals into a public drinking water system, interruption of electrical power can cause a loss of pressure in the system and risk of contamination, and systems served by surface water can experience a spike in sediment, minerals, and nutrients. Septic systems that sustained only partial damage during a fire may still need to be replaced. The ODEQ developed a [website](#) with several resources for addressing infrastructure issues following the 2020 fires.

Action 7B

Encourage Regional Water and Wastewater Systems

Many Oregon communities, particularly smaller ones, struggle to adequately fund drinking water and wastewater-related infrastructure. The high capital costs of infrastructure, construction, operation, ongoing maintenance costs, and the salary and training costs of retaining qualified personnel can be prohibitively expensive to communities with a small ratepayer base. In Oregon these tend to be rural, coastal, and/or small urban communities.

Developing a regional water and wastewater system may make sense if it is cost-effective. A regional system could include physical consolidation, system redundancy, or shared contracts, services, purchases, mutual assistance agreements, interties, and back-up supplies. State and federal agencies often provide incentives such as funding and technical assistance to encourage a regional approach to meeting water needs.

Oregon should encourage regional approaches to water and wastewater services, particularly if these approaches create efficiencies for smaller communities and support resilience to natural hazards and climate change. Business Oregon has recently completed a rulemaking allowing them to provide funding for regionalization projects. Organizations such as the Oregon Association of Clean Water Agencies can play a key role in making connections and encouraging regional approaches among water and wastewater systems.

Action 7B

Encourage Regional (Sub-basin) Approaches to Water and Wastewater Systems

Examples of how to carry out this action:

- Make use of shared contracts, services, and purchases
- Develop mutual assistance agreements between neighboring communities and water/wastewater systems
- Establish inter-ties and back-up supplies for water supplies
- Provide incentives to encourage regional approaches to water distribution, efficiency, and wastewater treatment
- Incorporate DLCD equity and community vulnerability assessments into asset management planning to inform strategies for repair, replacement, and funding infrastructure improvements
- Identify transition strategy for providing water and wastewater to urbanizable areas (within an urban growth boundary) consistent with comprehensive land use planning.

Action 7C Support Dam and Levee Safety

Dam safety represents a significant area in which the state has responsibility for the communities located downstream from important but aging water impoundments.

A “dam” is a hydraulic structure built above the ground surface that is used to impound water. Dams include all related structures and together are sometimes referred to as “the works.” Dams can include wastewater lagoons and other hydraulic structures that store water, attenuate floods, and divert water into canals. Many traditional dams are constructed on stream channels to form reservoirs. Dam owners include homeowners, farmers, irrigation districts, private industry, municipalities, associations, and public agencies.

As mentioned under Action 5B, dam safety and flood events are included in the state’s Natural Hazard Mitigation Plan.

Establish a Levee Safety Program

Levees, described under Actions 5B and 7A, have received less recognition than dams regarding their potential for failure and ability to cause life and property loss. The US Army Corps of Engineers estimates that there could be as many as 2,000 levees in Oregon. However, the Water Resources Department (OWRD) is only aware of about 260 levees. Oregon needs to establish a Levee Safety Program, in concert with the Dam Safety Program, to protect public safety and increase resilience to climate change and natural hazards (e.g., floods, earthquakes).

Managing Oregon’s Dam Safety Program

Oregon strives to maintain a good dam safety record to ensure public safety. The Association of State Dam Safety Officials notes that, while *“dams bring water, power, flood control, recreation, economic possibilities and many other advantages to people...people must understand that safe operation and maintenance is key to sustaining these advantages and avoiding potential disaster.”*

The original focus of Oregon’s dam safety program was the review and approval of designs for new dams. A majority of Oregon’s dams were constructed decades ago, with some more than 100 years old. As a result, the dam safety program now focuses on evaluating the condition of existing dams through regular inspections and providing feedback to owners regarding needed safety improvements.

Oregon Revised Statutes authorize and direct the OWRD to take specific actions related to the design, construction, inspection, and safety of dams. The State Engineer for Water Resources oversees the Dam Safety Program and inspects all the state-regulated high hazard dams. Among their many duties, Oregon’s watermasters conduct inspections of low hazard dams.

Those Subject to the Dam Safety Program – Approximately 1,200 dams in Oregon are at least 10 feet high and store 3 million gallons or more (9.2 acre-feet of water), making them subject to Oregon’s Dam Safety Program. The

Action 7C Support Dam and Levee Safety

Examples of how to carry out this action:

- Authorize resources to determine if dams have safety deficiencies; evaluate and retrofit dams to meet new seismic and hydrologic standards
- Implement actions to improve the safety of dams
- Properly decommission dams and levees at the end of their useful life
- Coordinate interagency emergency response regarding dam inspection, communication, and evacuation
- Define the legal responsibilities of dam owners
- Dedicate grant and loan resources for rehabilitation of deficient dams
- Improve clarity of statute and rule regarding enforcement mechanisms to ensure dam owners follow through with Emergency Action Plan exercises and updates
- Map potential impacts to critical infrastructure (e.g. schools, hospitals, water treatment facilities) and demographics of who will be impacted by dam failures

Figure 3-10: Hazard Classifications for Dams

76	High Hazard Dams Failure will likely cause fatalities. These dams are inspected annually.
154	Significant Hazard Dams Failure will damage property but loss of life is unlikely. These dams are inspected every 2 to 3 years.
711	Low Hazard Dams Failure is unlikely to cause major property damage or loss of life. These dams are inspected every 5 to 6 years.
941	Total Dams in the Program

Source: OWRD, July 2025

largest dams, however, are regulated by federal agencies. The OWRD is the lead public authority responsible for 941 non-federal dams.

The OWRD works with owners to bring these dams up to current safety standards. Many of Oregon's dams are old and could fail, greatly increasing the severity and consequences during major flooding. Additional resources are needed to determine if dams have safety deficiencies.

Hazard Ratings – Like most states, Oregon rates dams by hazard classification—high, significant, or low (Figure 3-10). A dam's hazard rating is based on what could happen if the dam fails, not on the condition of a dam. A high hazard dam, for example, means that failure would likely cause fatalities. There are currently 76 non-federal dams rated as high hazard. These dams are inspected annually.

A deficient dam has been declared to be "Potentially Unsafe" or "Unsafe" as defined in statute and described in rule.

For the purposes of FEMA grants (not in statute or rule), the condition of high hazard dams is evaluated using four categories: satisfactory, fair, poor, and unsatisfactory. The condition analysis of each high hazard dam is updated after its formal inspection.

Monitoring High Hazard Dams – Remote monitoring can detect a potential problem before there is harm to people and property. The most important information includes the current water level in the reservoir and any change in seepage flow through the dam. The OWRD is now authorized to require remote monitoring on deficient, high hazard dams.

Emergency Authorities – In Oregon, if a dam is imminently unsafe, the OWRD will notify the owner and schedule a hearing to see if a water level restriction or other action is deemed warranted by an administrative law judge in accordance with the dam safety statutes and Oregon administrative law. The process takes several months unless the owner voluntarily signs a consent agreement.

Legal Responsibilities for Dam Safety – The Association of State Dam Safety Officials notes that dams are a unique type of infrastructure, because while public entities tend to own roads, bridges, and sewer systems, this is not the case with dams. Most dams in the United States are privately owned. Dam owner responsibility and liability is outlined in statute (ORS 540.459 and 491). Owners should know what their responsibilities are, including keeping the dam safe and taking immediate action if the dam begins to fail and threaten people or property.

Emergency Action Plans – An Emergency Action Plan (EAP) helps identify situations where a dam failure might occur and spells out actions that could save the dam and hasten evacuations. The 2017 Legislature passed a bill requiring owners or operators of high-hazard dams to develop an emergency action plan and file it with the OWRD, Office of Emergency Management, and the local county emergency agency no later than January 1, 2019. Dam owners are required by statute to update and exercise their EAPs periodically.

Emergency Inspection after Extreme Events – Oregon has no interagency agreements in place to inspect multiple dams damaged by an earthquake or widespread flood. Inspections will be difficult after a Cascadia Earthquake or flood if road access is no longer possible. Emergency access and dam inspections are essential to avoid dam failures

in the aftermath of a Cascadia Earthquake or significant flood. Additional arrangements are needed for an effective and coordinated response during extreme events so that the public can be reassured that dams are safe, or can be evacuated, if necessary.

Grant and Loan Programs – Most conventional loan programs cannot be applied to dam repair or maintenance. Many dams are privately owned and many owners do not have the financial resources necessary to rehabilitate their dams. This is especially true for dams that generate no income. It is essential to inspect, monitor and analyze those dams with known deficiencies. With older dams, there are often a great number of unknowns, uncertainties, and defects, including the reliability or existence of design information.

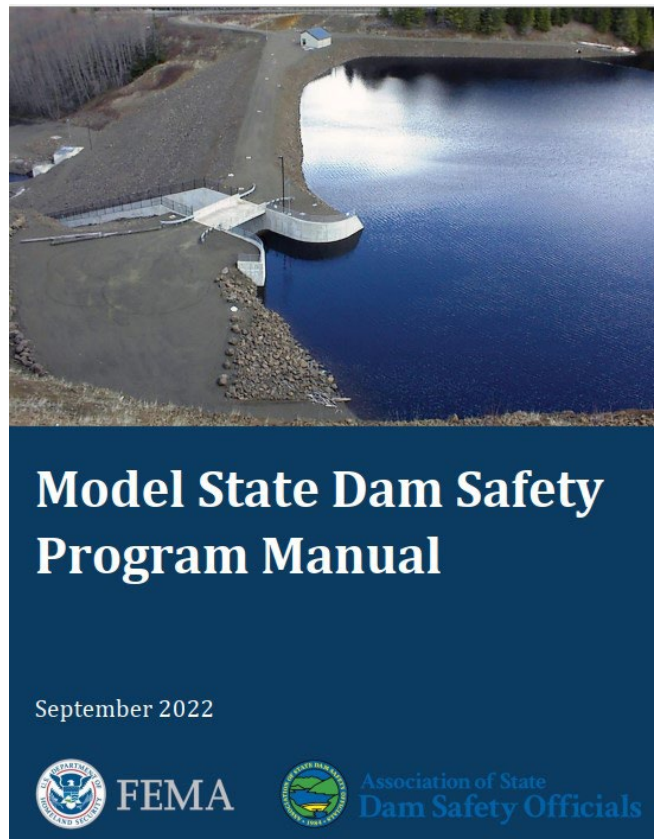
Recently, the Dam Safety Program and other grant programs provided some funds to dam owners to conduct engineering analysis of high hazard dams. Although Oregon has efficiently leveraged limited resources to improve the overall safety of state-regulated dams, many important activities have been deferred, some indefinitely. Establishing formal grant and loan programs would allow owners to make seismic and flood related upgrades, rehabilitate unsafe dams that still have value, or to provide funds for removal of dams that no longer provide benefits.

Federal sources of funding include the Federal Emergency Management Agency's (FEMA) High Hazard Potential Dam Grant and National Dam Safety Program Grant programs.

Ecological Impacts from Dams

Channel-spanning dams come with negative environmental impacts. They alter river ecosystems by shifting the flow regime, disrupting sediment and bedload movement, impacting water quality such as temperature and dissolved oxygen, blocking or slowing fish migration, and degrading overall habitat.

The existing Dam Safety Program provides for periodic review of dams, only in relation to human safety and property. Dams requiring upgrades to meet safety requirements may trigger fish passage laws. Periodic reviews for hydrologic or ecological harms would require additional authority and resources for several agencies.



Critical Issue

Education and Outreach

Climate uncertainty, water scarcity, and public health and ecological crises all require that we share information in a timely and accessible manner. Agencies and many types of partners can provide the public, and one another, with information about our water resources and challenges to help everyone engage in water stewardship actions. Expanding our collective knowledge about water can increase the attention and care we devote to protecting our shared resource.

The health and sustainability of Oregon's water resources can benefit greatly from a variety of education and outreach efforts. The value of water and the role it plays in Oregon's economy and the environment is not always well understood or even recognized. Everyone can benefit from a reminder that our human activities and decisions have a significant impact on both the quantity and quality of our water and the many economic and ecological uses it supports.

**Action
8A**
Support Implementation of K-12 Environmental Literacy Plan
Environmental Literacy Plan

In 2009, the Governor and the Oregon Legislature launched the development of an Environmental Literacy Plan as part of the No Child Left Inside Act. Oregon is the first state to pass legislation directly related to the development of an environmental literacy plan. Last updated in 2013, the [Environmental Literacy Plan](#) is aimed at helping students become lifelong stewards of their environment and community, exercising the rights and responsibilities of environmentally literate citizenship, and making choices to interact frequently with the outdoor environment. The program also supports teachers by providing professional development training, guidance for conducting research and assessment, maintaining a database of resources, and building capacity through partnerships (Oregon Environmental Literacy [Resource Directory](#)). In 2014, Oregon State University became the administrative body overseeing the [Environmental Literacy Program](#) to help implement the plan.

Other Resources

Children's Clean Water Festival - The [Children's Clean Water Festival](#), held annually in the Portland metro area, is a community-supported event, organized by public, private, and non-profit organizations committed to water and environmental education in Oregon. The festival's goal is to teach fourth and fifth grade students that they can have positive impacts on water resources, including lessons on the water cycle, watersheds, stormwater, drinking water, water conservation, and wastewater. The festival's website currently provides 'Festival Lessons' that can be accessed anytime.

Oregon Envirothon – [Oregon Envirothon](#) is a hands-on, problem-solving education program and competition that teaches high school students about environmental sciences. Oregon Envirothon works in cooperation with local conservation districts, natural resource associations, educators, and environmental agencies to provide mentorship, training, and competition to high school students and their teachers.

Outdoor School - Oregon State University also serves in a leadership role for [Oregon's Outdoor School Program](#), a week-long field-science curriculum for fifth and sixth graders, focusing on the environment, natural resources, economic development, and related careers. Since the late 1950s, nearly one million students have participated in studying natural sciences and the responsible use of natural resources alongside students from other schools. Participation in Outdoor School varies by school district and has not been available on a statewide basis.

Salmon and Trout Enhancement Program's Fish Eggs to Fry – The Oregon Department of Fish and Wildlife's [Salmon and Trout Enhancement Program](#) provides valuable tools, resources, and support to provide education opportunities in and outside the classroom as well as in the community. One of the most popular programs is "Fish

Eggs to Fry” where salmon or trout eggs are raised in a classroom incubator, giving students first-hand experience with how water quality impacts fish survival.

Project WET - Project WET, established in 1984, has a coordinating center at Western Oregon University, and other coordinating centers located nationally and internationally. The organization offers K-12 water related curricula for educators, available for a fee, providing an overview of water quality and quantity issues, focusing on topics such as watersheds, wetlands, oceans, sanitation and hygiene, water history, and more.

4-H Youth Development - The 4-H Youth Development Program is the largest out-of-school youth program in the United States. The program is over 100 years old and was developed to share new agricultural developments with young people in rural communities. Today 4-H opportunities are available in every Oregon county, delivered through Oregon State University Extension Service. Example learning topics relevant to water stewardship include agriculture, geology, forestry, and horticulture.

Action 8A

Support Implementation of K-12 Environmental Literacy Plan

Examples of how to implement this action:

- Support funding for implementation (e.g., Outdoor School, Children’s Clean Water Festival)
- Natural resource agencies, community organizations, and others should engage in education for environmental literacy activities
- Incorporate environmental justice, and culturally specific water stewardship values in environmental literacy programs
- Engage and support culturally specific community-based organizations in the design and implementation of environmental literacy programs

Action 8B

Provide Career Training for the Next Generation of Water Professionals

Challenges posed by climate change, aging infrastructure, poor water quality, population shifts, degraded instream habitat, and land use change have increased the demand for water professionals. Water professionals are needed in a wide range of specialties, including water and wastewater treatment, well drilling, science, engineering, policy, law, planning, engagement, and science communications.

An alarming national shortage of workers exists in the water utility sector, including water and wastewater treatment operators. This shortage will become more critical as a large percentage of the utility industry becomes eligible for retirement. Upcoming retirements from the Baby Boomer generation will impact other job sectors too, elevating a need for more graduates to fill the demand.⁴¹

A career in water provides an opportunity for a rewarding profession, competitive wages, and the satisfaction of delivering clean water to your community or supporting Oregon’s fish and wildlife.

“Communities with fewer resources are challenged to strategically plan for and invest in their water future and need access to a skilled workforce to implement, manage, and monitor water projects.

We can begin investing now in strong community capacity and a skilled water workforce in every region across Oregon.”

.-100-Year Water Vision (2020)

Oregon State University hosts a website of [water-related education and training programs](#) offered by Oregon’s public universities and community colleges. The [Office of Community Colleges and Workforce Development](#) also provides a listing of colleges that offer water-related courses, degrees, and programs throughout Oregon. The American Water Works Association, the Water Environment Federation, and the U.S. Environmental Protection Agency (USEPA) have partnered to create a website to promote career choices in the water sector geared toward jobseekers of all levels: workforwater.org.

Water and Wastewater Utility Workforce

During the 1970s and 80s, the water and wastewater treatment industry grew rapidly to fulfill the requirements of the federal Clean Water Act and the Safe Drinking Water Act. In the next ten years, approximately one-third of drinking water and wastewater operators will be eligible for retirement, and filling those jobs requires a new set of technical skills.⁴² In 2020, the USEPA launched the [America's Water Workforce Initiative](#) to respond to this challenge, acknowledging the environmental and public health implications associated with operations and maintenance of essential drinking water and wastewater infrastructure. The Initiative identifies needed partnerships across federal, state, Tribal, and local governments along with public utilities, the private sector, community groups, and educational institutions. The Initiative's goal is to help make water a career of choice through education and sustained public outreach.

The USEPA also developed a grant program to build a pool of skilled and diverse workers in the water and wastewater utilities sector. During 2023, the [Innovative Water Infrastructure Workforce Development Grant](#) Program offered more than \$20 million nationally for various workforce development activities.

Administrative challenges associated with providing water and wastewater services, like staffing and skilled trades to support and maintain municipal water systems, may have cascading impacts on the ability of cities and special districts to function. The Oregon Community College Association reports that out of the seventeen publicly chartered community colleges in Oregon, only Clackamas Community College offers a water and wastewater operator training program. Umpqua Community College offers a water quality technician program. Lane and Clackamas Community Colleges offer a water conservation technician program—specializing in the connection between energy and water efficiency. Certification and training programs are critical resources for plant operators.

Some water providers have initiated internship and apprenticeship programs to help fill the void for water operators. More state funding is needed to fund apprenticeship programs.

In 2023, the Oregon Legislature authorized \$1.6 million to the Oregon Association of Water Utilities to construct a Water System Training Center. The facility is currently under construction and scheduled to be complete by the end of 2025.

Oregon Science, Technology, Engineering, and Math (STEM) Hubs

Legislation passed in 2015 led to the establishment of "Oregon STEM" and several regional Science, Technology, Engineering, and Math (STEM) Hubs across the state to increase access to STEM education and develop a skilled workforce. The program has since been expanded to include art, now referred to as "STE(A)M" learning opportunities. There are currently 13 STE(A)M Hubs that provide equitable learning opportunities for students through partnerships with local leaders, Pre K-20 education, after school programs, local industry, and community-based organizations serving youth. Oregon STEM published an [impact report](#) in 2023, which included a finding that STE(A)M Hubs advance equity for historically underserved students.⁴³

Action 8B

Provide Career Training for the Next Generation of Water Professionals

Examples of how to implement this action:

- Determine whether career training programs are available and equipped to meet the demand for water professionals
- Offer job shadow programs to expose students to careers in water
- Continue funding support for water-related trade and science programs at Oregon community colleges
- Increase coordination between state agencies and universities to develop programs that foster interest in water-related fields and career progression for graduating students
- Offer paid apprenticeship or internship programs to expose BIPOC and underrepresented students and new professionals to careers in water
- Partner with Hispanic Serving Institutions (HSI) to increase support for water-related trade and science programs at Oregon community colleges and universities
- Partner with water/wastewater utilities to promote careers and provide on-the-job training

Well Construction

The increase in reported dry domestic wells in Oregon has also meant an increased demand for licensed well drillers. In 2024, Klamath Community College was awarded nearly \$1 million from the state to purchase a drilling rig for a new apprentice program. Students will gain hands-on experience as one component to licensure through the Oregon Water Resources Department.

Other Careers in Water

Numerous programs for science, planning, engineering, law, and other water careers are available at community colleges and universities throughout Oregon. However, there is still a need to increase water professionals, including diversity, entering the work force to meet demand and fill openings left by retirements.

Agencies and professionals in the private sector could assist with recruitment through participation in K-12 career days, offering job shadow programs, and internships. Establishing and maintaining programs between state agencies and colleges and universities can also provide an opportunity for students to learn about water-related career paths.



Esther Shin, Assistant Watermaster, teaches an Oregon State University class about measuring streamflow.
Credit: Kim Fritz-Ogren

Action 8C

Promote Community Education and Outreach

State and federal agencies offer a variety of educational resources and programs. Oregon is also home to an extensive network of community-based organizations that offer technical assistance and information on water quantity, water quality, and watershed-related issues. With 45 soil and water conservation districts and 76 watershed councils, Oregon is well positioned to advance locally led education and outreach efforts.

Many drinking water providers and non-profit organizations have also developed their own educational and outreach materials, making them available to the public. Oregon should continue providing support and technical training to soil and water conservation districts, watershed councils, and other on-the-ground organizations. State agencies need to continue to expand their role in community education and outreach, including supporting community-based organizations and smaller water providers. One way to do this is to increase outreach and educational resources, providing communications in multiple languages and making them accessible to a variety of learning styles.

The important role that state agency field staff play in on-the-ground education is further supported by Strategy Action 10E in Chapter 4.

Soil and Water Conservation Districts - In 1939, the Oregon Legislature passed legislation to establish conservation districts in Oregon. Oregon's soil and water conservation districts (SWCDs) are special districts which provide for the conservation of renewable resources and serve as an important educational resource. SWCDs work with local landowners and residents, natural resource organizations, natural resource users, and local, state, and federal governments and agencies to conserve natural resources, control and prevent soil erosion, conserve and develop water resources, and protect water quality. They also preserve wildlife, conserve natural beauty, and promote collaborative conservation efforts to protect and enhance healthy watershed functions. They are governed by an independently elected board of directors and are funded through grants, contracts for services, and in some cases a property tax levy. The Oregon Department of Agriculture provides statutory oversight and assistance to the 45 SWCDs, and maintains an [interactive map](#) showing district service areas. SWCD's also receive grant funding from USDA Natural Resource Conservation Service and the Oregon Watershed Enhancement Board (OWEB).

Watershed Councils - The 1995 Oregon Legislature unanimously passed House Bill 3441 to provide guidance on the formation of watershed councils. Oregon watershed councils are groups of volunteers who meet regularly in local communities to assess conditions in a given watershed and implement projects with willing property owners that support ecological restoration or enhancement that benefits local economies, fish and wildlife, people, water quality, and water quantity. Watershed councils work with local, state, and federal partners and private landowners and serve an important role in community education. Councils are designated by county governments and are expected to have broad and balanced representation and viewpoints. There are 76 locally designated watershed councils as defined by Oregon Revised Statutes 541.890 (14) and 541.910. Other watershed

Action 8C

Promote Community Education and Outreach

Examples of how to implement this action:

- Look for opportunities to keep Oregonians informed about the importance of water resources to people and the environment
- Look for opportunities to provide outreach, including informational materials about water-related programs (e.g., streamflow restoration, water conservation, transfers)
- Promote technical training for public and private partners
- Promote access to water-related recreational opportunities using state programs
- Develop a centralized location and outreach materials for people to access information about water conservation
- Develop and distribute informational materials related to the suite of tools available to protect instream flow
- Partner with community-based organizations to deliver water education to the public
- Provide resources for interested local organizations to conduct education and outreach to the communities they serve
- Increase outreach and education resources to produce communications in multiple languages and accessible to a variety of learning styles

organizations and groups exist, but do not meet this definition. The OWEB currently funds 56 of the 76 watershed councils and maintains an [interactive map](#) showing council service areas.

Water Utilities and Municipalities – Water and wastewater providers, including utilities and municipalities, contribute to public outreach and education. They offer a variety of opportunities to learn about the important role the public plays in protecting our water resources and affordability through tours, K-12 programs, and hosting college field trips and internships.

Select Educational Resources

State and federal agencies offer a wide range of educational resources addressing water conservation, water quantity and quality, environmental stewardship, and recreation. Select resources reflecting educational needs heard during the Strategy engagement efforts are listed below. Resources focusing on youth-specific education are provided in Action 8A.

Water Efficiency and Conservation

Access to information and tools for accomplishing water conservation was one of the most mentioned concerns during outreach and engagement for the 2025 Strategy. Additional information about implementing conservation practices are addressed in Strategy Action 10A.

The Water Resources Department currently offers the following resources that provide information regarding water conservation:

- [Water Rights in Oregon – An Introduction to Oregon’s Water Laws](#)
- [Water Conservation Fact Sheets](#) (for residential, farm/ranch, and municipal users)
- [Allocation of Conserved Water Program](#)
- [Instream Lease](#)
- [Instream Transfer](#)
- [Water Projects Grants and Loans and Irrigation Modernization Funding](#)
- [Guidebook for Municipal Water Management and Conservation Plan](#)
- [Guidebook for Agricultural Water Management and Conservation Plan](#)

Agriculture and Forestry - At the federal level, the Natural Resources Conservation Service provides information about [water conservation techniques and resources](#) for farmers, ranchers, and forest landowners.

Graywater Reuse and Rainwater Harvesting - The Department of Environmental Quality (ODEQ) offers information about permitting and constructing [graywater reuse](#) systems, which can conserve water by reducing a business or household’s demand on drinking water supplies. The Building Codes Division of the Department of Consumer and Business Services developed an [Oregon Smart Guide to Rainwater Harvesting](#).

Water Quality Information and Advisories

The public needs access to information about the quality of water for drinking, recreating, or food harvesting (e.g., shellfish and fish).

The Oregon Health Authority (OHA) maintains several sources of information specific to drinking water. The [Resources for Consumers](#) webpage includes helpful links to information about water quality for public systems and private wells. A [mapping tool](#) is also available depicting the location of active drinking water advisories.

Harmful algal blooms (HABs), can make water unsafe in which to drink or recreate. HABs can also make it unsafe to consume fish from affected waters. The OHA has expanded its [education and outreach resources](#) and offers a communications toolkit for drinking water providers. The OHA also provides [recreational advisories](#), informing the

public about the presence of HABs, high levels of bacteria at Oregon's beaches, and shellfish harvest closures. More information about HAB monitoring and advisory programs is provided in Chapter 1, Action 1A and Chapter 4, Actions 12A-12C.

Protecting Water Quality – While it is important for Oregonians to know how to access information about water quality, there are also ways that individuals can participate in protecting water quality. Here are just a few examples:

- [Drug Take-Back Program](#), administered by the ODEQ, provides a convenient and safe way to dispose of unwanted or expired prescription and over-the-counter medicines. This prevents people from flushing medicines down the drain or putting them in a landfill, where they can degrade water quality and cause environmental harm.
- Oregonians that get their water from a domestic well can learn about well stewardship in the Well Owner's Handbook ([English](#) or [Spanish](#)), which includes information about proper installation and maintenance of domestic wells, wellhead protection, testing wells for contaminants, interpreting the results, addressing any contaminants OHA also provides resources through their [Domestic Well Safety Program](#).
- Septic system owners can learn about proper care and maintenance to prevent groundwater contamination through the ODEQ's [Septic Systems](#) webpage. Additionally, the [Oregon Septic Smart Initiative](#) provides resources to ensure the longevity of the system and find an industry professional to inspect your system.

Environmental Stewardship and Recreation

Awareness and enjoyment of water resources helps people connect with the environment, which leads them to use water responsibly and promote water resource protection. Support for responsible, sustainable recreation is one way to encourage social investment in protection of these resources.

The Recreation Trails, Scenic Waterways, and grant programs for local governments administered by the Oregon Parks and Recreation Department (OPRD) help increase access to water-based outdoor recreation and enhance stewardship of the state's waterways. The Oregon State Marine Board offers numerous environmental and recreation-based boating safety programs and often partners with other agencies such as the Department of Fish and Wildlife (ODFW) and OPRD. Some of these programs include:

- [Water Wits](#), a K-12 curriculum with interactive lessons in boating, water safety, and marine stewardship
- [Interactive Boat Oregon Map](#) of public boating access facilities, launch ramps, boating obstructions, Certified Clean Marinas, pumpouts and floating restrooms, clear gasoline locations, rivers where personal watercraft (e.g., jetskis) are allowed, boating regulations, and boating waterways.
- [Boating obstructions dashboard](#), maintained by the Oregon State Marine Board
- Nationally accredited [boater education courses](#)
- [Free online paddling education](#) and promotion of Oregon Water Trails
- [Aquatic Invasive Species Prevention Program](#)
- [Clean Marinas](#)
- [Clean Boaters](#)
- ODFW's [Angler Education Program](#)



Canoe at Agate Lake.
Credit: Kim Fritz-Ogren

Action 8D

Identify Water Research Needs and Partnerships

The water resources sector will need to continue identifying ongoing research needs that could use assistance from undergraduate and graduate students, public and private universities, research institutions, and other partners. Partnerships between higher education and both the public and private sectors can result in innovative solutions for addressing water quantity and quality challenges.

Research collaboration between agencies and higher education may be mutually beneficial, as research institutions can bring innovative tools, technology, and other resources to the effort, while agencies can bring expertise in data, evidentiary and scientific standards, and management knowledge.

Several state and federal agencies offer internship programs for students to gain real-world experience. Business Oregon, for example, has an internship program that includes work in clean technology and renewable energy. The Department of Fish and Wildlife, Department of Forestry, and Water Resources Department often provide summer internships or seasonal employment opportunities to support monitoring and assessment projects, or other field-based activities.

Some current and upcoming research needs that might be well suited for partnerships with higher education include:

- Prediction of water temperature through remote sensing (also see Action 1A)
- Research into the application of artificial intelligence (AI) into data processing (e.g., processing streamflow data) (also see Action 1C)
- Continued development of techniques to quantify ecological flow needs, particularly channel maintenance and pulse flows (also see Action 2A)
- Improved techniques for remote sensing of water use (also see Action 3A)

Action 8D

Identify Water Research Needs and Partnerships

Examples of how to implement this action:

- Continue to identify ongoing research needs at the local and state level
- Support partnerships with state and federal agencies, tribes, public and private institutions to address research needs
- Fund and/or participate in research initiatives
- Consider research initiatives that would address frontline communities' environmental and climate justice challenges

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CHAPTER 4

Objective 4: Meet Oregon's Instream and Out-of-Stream Needs

Oregon needs to further integrate and coordinate both the long-term planning and day-to-day management of Oregon's water resources among its natural resources and economic development agencies, at all levels of government. Key factors to consider include state-level and place-based water planning, wise water use and management, and the protection of ecosystems and public health. Our ecosystems need protection, enhancement, and restoration to increase resiliency. The Strategy's four objectives that seek to better understand and meet our instream and out-of-stream water needs all require adequate funding.

Chapter 4 describes several actions needed to adapt and mitigate for climate change and build a more secure water future for people and the environment.



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Chapter 4 Actions at a Glance

Objective 4: Meet Instream and Out-of-Stream Needs

Critical Issue – Water Planning

- 9A Support Place-Based Integrated Planning and Other Water Planning Efforts
- 9B Coordinate Implementation of Natural Resource Plans
- 9C Partner with Tribes, Federal Agencies, and Neighboring States in Long-Term Water Resources Management
- 9D Improve State Agency Coordination
- 9E Lead Meaningful Community Engagement

Critical Issue - Water Use and Management

- 10A Improve Water-Use Efficiency and Water Conservation
- 10B Encourage Water Reuse Projects
- 10C Improve Access to Storage
- 10D Reach Environmental Outcomes with Non-Regulatory Alternatives
- 10E Provide an Adequate Field Presence
- 10F Strengthen and Improve Oregon's Water Quantity and Water Quality Permitting Programs

Critical Issue - Healthy Ecosystems

- 11A Improve Watershed Health, Resiliency, and Capacity for Natural Storage
- 11B Develop Additional Instream Protections
- 11C Prevent and Eradicate Invasive Species
- 11D Protect, Restore, and Provide Access to Instream Habitat for Fish and Wildlife
- 11E Develop Additional Groundwater Protections

Critical Issue - Clean Water

- 12A Ensure the Safety of Oregon's Drinking Water
- 12B Reduce the Use of and Exposure to Toxics and Other Pollutants
- 12C Implement Water Quality Pollution Controls

Critical Issue - Funding

- 13A Fund Development and Implementation of Oregon's Integrated Water Resources Strategy
- 13B Fund Water Resources Management Activities by State Agencies
- 13C Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Critical Issue

Water Planning

Water is a finite resource, and effective water planning supported by adequate data is an important tool to help support sustainable management for present and future generations of people as well as fish and wildlife. Water planning and management are crucial for balancing competing demands, mitigating water scarcity, protecting public health and the environment, and building resilience to climate change. Done properly, water planning can also facilitate dialogue, negotiation, and cooperation among interested parties to resolve conflicts and promote equitable access for instream and out-of-stream uses.

Water planning can occur in many forms and at different scales. Place-Based Water Planning was established as a permanent program in the Water Resources Department (OWRD) in 2023. Oregon currently has several water-infrastructure related planning tools (e.g., water management and conservation plans, Goal 11 facilities plans, water master plans, wastewater facility plans) but would benefit from more holistic and integrated water planning. Planning for streamflow restoration, conservation, and land management are also critical to improve our ecosystems. An effective statewide Strategy will require more extensive and integrated planning at the local or regional and state levels in the coming years.

**Action
9A**
Support Place-Based Integrated Planning and Other Water Planning Efforts

Forging partnerships between local communities and state agencies through planning offers a unique opportunity for the implementation of a wide range of actions described in the 2025 Strategy. From land-use practices to natural resources management and emergency preparedness, communities are well-positioned to build trust, hold difficult conversations, and make progress on issues beyond what state agencies can do on their own.

Place-Based Water Planning

The 2012 Strategy tasked state agencies with creating a statewide framework for developing place-based integrated water resources plans. This resulted in the development of [Draft Planning Guidelines](#) that outline how communities can undertake place-based integrated water resources planning in partnership with state agencies. The process starts by building a collaborative and inclusive process among balanced water interests. Planning steps include characterizing water resources for the area and examining current and future instream and out-of-stream water needs. Ultimately, a Place-Based Water Plan is a hydrologically bound plan that includes a set of prioritized, strategic, and integrated solutions to meet multiple water needs.

Providing Financial and Technical Assistance

In 2015, the Oregon Legislature passed [Senate Bill 266](#),¹ providing the OWRD with authority to issue grants, enter into contracts or agreements, and provide technical assistance to pilot place-based integrated water resources planning. Following a funding solicitation process, four areas were selected to form planning collaboratives and develop place-based integrated water resources plans. These planning collaboratives have been able to leverage this funding to pursue significant in-kind and cash contributions from other funders and organizations.

**Figure 4-1:
Features of Place-Based Water Planning**

- Locally led collaborative process
- Voluntary, non-regulatory approach
- Includes a balanced representation of water interests
- Conducted in partnership with the state
- Addresses instream and out-of-stream needs, including water quantity, quality and ecosystem needs
- Utilizes an open and transparent process that fosters public participation
- Facilitates implementation of local solutions
- Builds on and integrates existing studies and plans
- Does not jeopardize existing water rights
- Recognizes the public interest in water
- Consistent with the principles in the Integrated Water Resources Strategy, and state laws and policy

In addition to providing planning and financial support, state agencies also provide technical assistance to the planning collaboratives. The OWRD and Departments of Fish and Wildlife, Agriculture, and Environmental Quality contributed significant time and resources to the planning efforts to better integrate agency efforts at the local level. Many federal agencies, non-profits, private individuals, and foundations have also contributed resources, including staff, funding, and expertise.

Place-Based Water Planning continues to enhance inter- and intra-agency coordination and has improved access to agency data and information. The planning process has also created the space for sharing local knowledge and agency expertise about water issues. Continued investments are critical to ensure agencies can partner with communities and provide ongoing support.

Place-Based Integrated Water Planning Pilot Program

Consistent with the spirit of a place-based approach, the planning process and resulting plans reflect the unique characteristics of the areas they represent. Using a place-based water planning framework, the planning collaboratives (Figure 4-2) brought together individuals and organizations representing instream interests (such as fish and wildlife needs and recreation), out-of-stream interests (such as agriculture, municipalities, domestic, and industry), as well as representatives from local, state, federal, and Tribal governments.

These planning collaboratives, in partnership with the state, continue to build the capacity to collaboratively solve water problems, improve coordination of existing information and plans, foster partnerships among different water sectors and water users, leverage public and private investments to maximize impact, engage the broader public in community conversations about water, and encourage continuous improvements in water planning and management. Place-Based Water Planning can help Oregon communities identify and develop widely supported project concepts that can meet multiple needs. Projects that are collaboratively developed and yield multiple benefits generally have a competitive edge for implementation funding.

Planning collaboratives that formally adopt a plan can seek state recognition from the Water Resources Commission. Three planning collaboratives – the Upper Grande Ronde, Lower John Day, and Mid-Coast – have successfully adopted an integrated water resources plan, receiving the Commission’s recognition in 2022. Implementation is underway with federal funding through the American Rescue Plan Act. The Harney planning collaborative took a slightly different planning approach due to pressing groundwater issues in the basin. The groundwater portion of the plan is complete, following an intensive groundwater study conducted by the US Geological Survey and the OWRD. The collaborative has finalized the surface water element of the plan and anticipates adoption and seeking the Commission’s recognition of the integrated plan in 2025.

Figure 4-2: Pilot Place-Based Integrated Water Planning Collaboratives

Upper Grande Ronde River Watershed Partnership

Convened by Union County. union-county.org

Lower John Day Place-Based Partnership

Co-convened by the Gilliam County Soil and Water Conservation District and the Mid- John Day/Bridge Creek Watershed Council. lowerjohndaybp.com

Mid-Coast Water Planning Partnership

Initially co-convened by the City of Newport and the Water Resources Department. Other conveners include Gibson Farms, Seal Rock Water District, and Lincoln Soil and Water Conservation District. midcoastwaterpartners.com

Harney Community-Based Water Planning Collaborative

Co-convened by the Harney County Watershed Council and the Harney County Court. harneywaterfuture.com

Action 9A

Support Place-Based Integrated Planning and Other Water Planning Efforts

Examples of how to implement this action:

- Promote success by continuing to support the places currently following the draft planning guidelines and as they develop integrated implementation plans
- Continue to provide financial and technical assistance to support collaborative water planning
- Develop or recapitalize funding pathways for plan implementation to achieve instream and out-of-stream objectives
- Promote peer-to-peer learning between communities pursuing collaborative water planning
- Refine planning guidelines, and implement process improvements
- Include public outreach and engagement activities to encourage participation by under-represented populations
- Consider OWEB Focused Investment Partnership model to support plan implementation
- Offer place-based planning training for interested people and community groups
- Support a range of local or regional planning efforts (e.g., OWRD administrative basin plan and rule updates, water management and conservation plans)

Independent Evaluation of Place-Based Water Planning

In 2021, the National Policy Consensus Center and Oregon State University's Cooperative Extension Program conducted an extensive independent evaluation of Place-Based Water Planning to document interested parties' perspectives regarding their experiences with the program as well as to suggest ways that the program could be improved. The [Participatory Evaluation](#) report highlights positive outcomes from the planning process, beyond simply creating a plan.² These included productive discussions between previously polarized water interests, increased local support for plan implementation, the ability to use the plan to leverage funding, identifying key data gaps, increased knowledge of water resources, and the establishment of an actively engaged water planning network. The report also highlights nine key lessons learned during the pilot and how place-based integrated water resources planning can be improved in the future.

The independent evaluation noted that the four planning collaboratives and the core supporting state agencies have invested considerable time, thought, and energy in putting the Legislature's vision for place-based planning into action. The journey to completed Plans has been neither easy nor short, but much learning, skill-building, and social network building has taken place on the part of the planning collaboratives and state agencies. State agencies now have a much better idea of where there are key data gaps and what steps the agencies can take to help fill them. The pilot Place-Based Water Planning program established a solid foundation that the state and communities can build on and improves the likelihood that Oregon can achieve the Strategy's goal of meeting instream and out-of-stream water needs while also addressing water quantity, water quality, and ecosystem needs.

Regional Water Planning and Management Workgroup

In 2022, the State-Supported Regional Water Planning and Management Workgroup was formed, made up of diverse interests, Place-Based Water Planning participants, Tribes, and agencies to develop a framework and path for state-supported water planning and management at the region and/or basin level. After holding facilitated discussions for a year, the workgroup made a [set of recommendations](#) to inform policy development, funding, and guidance around water planning and management as well as recommendations for the next generation of place-based integrated water resources planning.³

The workgroup report highlights the need to make significant investments in water planning to meet statewide goals and mandates for managing instream and out-of-stream water needs with a changing climate. Specifically, any state-supported regional water planning effort must be underpinned with the budgets and capacity needed to

do this work at the state level and to meet this need, state leadership must prioritize and address the current overarching system-level need for funding related to state agency data collection and analysis, agency capacity, and interagency coordination.

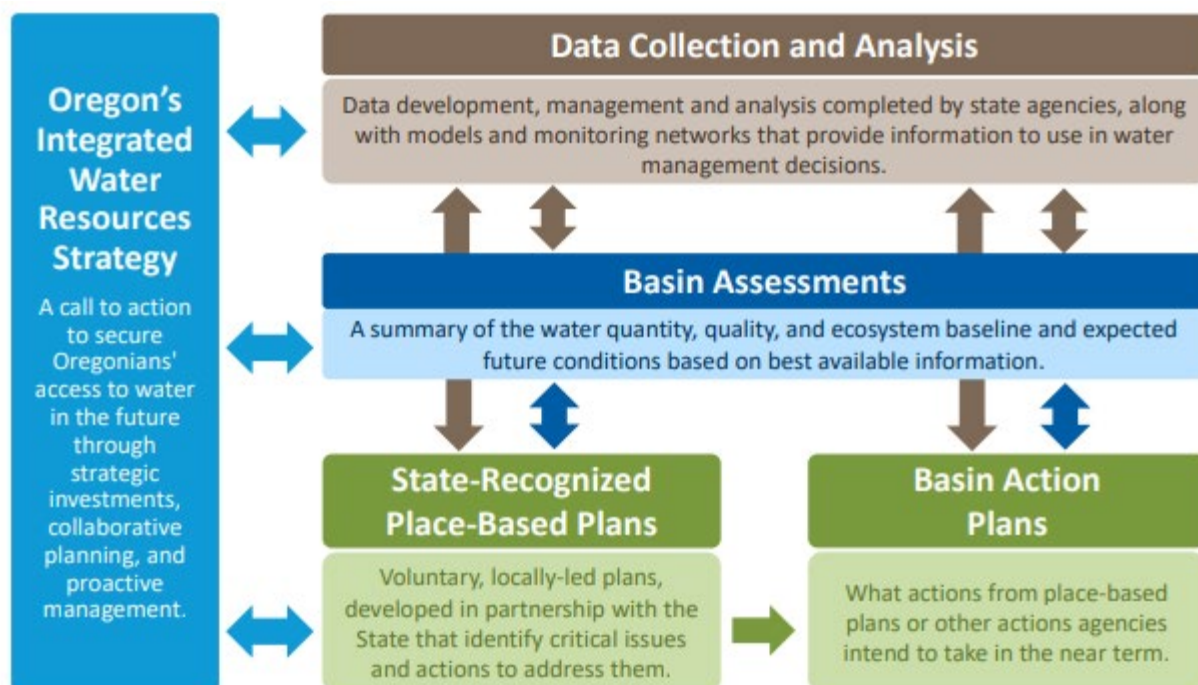
Next Steps for Place-Based Integrated Water Resources Planning

In 2023, the Oregon Legislature made the Place-Based Water Planning program permanent and allocated \$2 million to the OWRD to support place-based integrated water resources planning. Work is underway to incorporate the lessons of the pilot phase, the independent evaluation, and recommendations of the Regional Water Planning and Management Workgroup into a permanent program. This work includes rule adoption (spring 2025), updated planning guidance (anticipated 2025), improved technical assistance and interagency coordination, and new grant solicitations. To succeed, Place-Based Water Planning must be championed by local leaders, coordinated with state agencies, and supported by instream and out-of-stream interests. Its continued success will require new partnerships, creative approaches to problem-solving, a continued commitment to improved coordination and integration, and sustained investments of time and money from the public and private sectors.

Other Water Planning Efforts

Administrative Basin Planning - Many western states have made water planning at the regional level an essential component to further develop and periodically update statewide water plans. In Oregon, water planning was completed at the OWRD administrative basin-scale and largely implemented through administrative rule adoption. However, this type of comprehensive river basin planning has not occurred in more than thirty years. Over the years, the OWRD has been able to update some of its rules with minor revisions, but a more comprehensive update would require planning-level support and data (e.g., basin assessments). Oregon will need to consider this gap in basin-level water planning in tandem with the next steps for place-based integrated water resources planning. Additionally basin-scale or regional assessments are essential for informing future updates to the Strategy, as directed in [ORS 536.220](#), updated in 2023. The OWRD published [An Updated Scope for the Stewardship and Supply Initiative](#) legislative report in September 2024 outlining the approach and resources needed to pursue statewide basin assessments. The report includes several helpful figures (see Figure 4-3) to explain the possible relationship between the Strategy and other planning and data efforts.

Figure 4-3: Possible relationship between the Strategy and other data and planning efforts



“Learning from other successful models, Oregon can implement best approaches to ensure water planning and investment decisions are strategic and coordinated across jurisdictions, and with public and private partners. This system can successfully combine a state-level framework with local and regional planning and flexibility.”

-100-Year Water Vision (2020)

Other Basin Planning - Other communities across the state are pursuing integrated water resources planning at the basin scale. The Deschutes Basin Water Collaborative is developing a [comprehensive water plan](#) for the basin that aligns with Oregon’s place-based planning model, building upon years of extensive studies and collaborative projects and solutions. The State of Oregon, State of Washington, and Confederated Tribes of the Umatilla Indian Reservation co- led the development of the [Walla Walla Water 2050 Plan](#). The Partnership for Lake Abert and the Chewaucan assessed collaborative possibilities in the Chewaucan Basin and is working on joint fact-finding and a shared narrative report. Many other places across the state are ready to engage in water planning.

Water Management and Conservation Plans - Water management and conservation plans, typically developed by larger public water suppliers, are planning tools that lay out steps to meet long-term water demands in the future. These plans can be costly and often small water systems lack the technical or financial capacity to develop these on their own. Providing funding to support the development of municipal or agricultural water management and conservation plans could help those communities most in need.

Watershed Action Plans - Watershed councils work with state and federal agencies, regional Tribes, and their local communities to develop watershed assessments and watershed restoration action plans that are guided by state and federal aquatic species recovery plans. The watershed councils then seek grant funding and partnerships to implement the restoration actions and monitor the resulting improvements to habitat and water quality.

Focused Investment Partnerships – The Oregon Watershed Enhancement Board-funded [Focused Investment Partnerships](#) address ecological priorities by developing a strategic action plan that is then implemented through targeted restoration project investments. An example of a Focused Investment Partnership is the 2015-2021 Deschutes Partnership which has helped to restore stream flows and stream habitat conditions for salmon, steelhead, and resident trout in Whychus Creek and the lower Crooked River.

Action 9B

Coordinate Implementation of Natural Resource Plans

One of the major challenges of taking on a regional, more integrated approach to water planning is that in any given basin, there are multiple parties and interests to convene. These include irrigation districts, municipal water providers, conservation districts, watershed councils, drainage districts, wastewater and stormwater utilities, local governments (counties/cities), and environmental groups. In addition to this list are the state, federal, and Tribal natural resource agencies with water, land, or fish management responsibilities, and other public, private, and nonprofit organizations with an interest in water management and resource issues.

Within a basin or sub-basin, multiple state and local planning documents that involve water management, directly or indirectly, exist. These plans can be

Action 9B

Coordinate Implementation of Natural Resource Plans

Examples of how to implement this action:

- Dedicate resources to coordinate and reconcile existing planning documents
- Support local governments to update their local comprehensive land use plans with current natural resource information (e.g., Goal 5 natural resources)
- Support water management and conservation plan development in conjunction with local land use planning to achieve sustainable water use
- Dedicate resources for state and local implementation of existing plans
- Support the application of equity and social justice principals in plan reconciliation and updates

contradictory or complementary. Coordination of these plans will lead to improved collaboration, resulting in greater benefits for natural resources.

A few examples of plans include water management and conservation plans (by a municipal water provider or irrigation district); fish conservation and recovery plans; biological opinions; basin plans for water allocation; Total Maximum Daily Load plans for improving water quality; water system master plans; and many local implementation plans. There are also local land-use plans, watershed restoration action plans, and locally developed agricultural water quality management plans. Taken together, these plans and their respective strategies engage many agencies and entities at every level.

In envisioning a place-based approach to water planning, these existing plans and programs do not go away, but instead provide a baseline of information, history, and rules that must be integrated into the water plan. A place-based approach can help reconcile and implement the state's programs and plans more effectively. Any new water planning initiative should account for the time and resources needed to compile, review, and reference relevant Tribal, federal, statewide or local natural resource plans.

Action 9C

Partner with Tribal Governments, Federal Agencies, and Neighboring States in Long-Term Water Resources Management

Partnerships with Tribes, federal agencies, and neighboring states continue to play an important and necessary role in Oregon's water resources management. Oregon is home to nine federally recognized Tribes, all of which have responsibilities for protecting and managing water resources. Federal agencies manage a large percentage of Oregon's landscape and Oregon shares groundwater and surface water, including three major rivers, with California, Washington, and Idaho.

State and Tribal Partnerships

The Strategy presents an opportunity to strengthen state and Tribal government-to-government relationships. State agencies are directed by law to improve working relationships with the nine federally recognized Tribes in Oregon. Agencies invite informal staff-to-staff coordination and formal government-to-government consultation on issues that may be of interest to Tribes. If requested, agency directors engage in formal consultation with Tribal leaders.

These consultations often revolve around cultural and natural resource issues, water needs and water rights, water quality monitoring, or watershed management, protection, and restoration. Tribal members are represented on various agency boards, commissions, and committees to provide perspective and guidance. A Consultation Task Force is currently developing standardized guidance for state agencies to improve the government-to-government processes. Agencies submit annual government-to-government reports on Tribal relations to the Legislature outlining engagement and consultation activities.

Action 9C

Partner with Tribes, Federal Agencies, and Neighboring States on Long-Term Water Resources Management

Examples of how to implement this action:

- Protect Tribal and state interests in shared bi-state surface water and groundwater basins
- Negotiate agreements such that water protected instream is shepherded across state lines to the mouth of the river
- Partner with neighboring states and Tribes to continue or improve managing shared resources
- Carry out actions identified in the 2023 Tribal Water Task Force Report
- Coordinate with Tribes on instream flow protection
- Conduct collaborative planning to develop water management approaches to protect species and avoid or minimize impacts to endangered or threatened species
- Identify who may benefit, or be impacted by, long-term water management approaches

Fisheries management is an area where state and federal agencies work closely with Tribal governments. In the Columbia River Basin, the Oregon Department of Fish and Wildlife (ODFW) works with the Columbia River Treaty Tribes (Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation), the Shoshone-Bannock Tribe, state fish and wildlife agencies in Washington and Idaho, the U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration on a variety of fisheries management and fish production issues under the [2008 - 2017 U.S. v. Oregon, Management Agreement](#).⁴ The agreement expired at the end of 2017, replaced by the [2018-2027 U.S. v. Oregon Management Agreement](#).

To build upon existing working relationships with federally recognized Tribes, the ODFW has entered into Memorandum of Agreements (MOAs) with several Tribes to restore hunting and fishing opportunities and access for Tribal members while increasing Tribal sovereignty over management of fish and wildlife populations. The MOAs represent a voluntary, cooperative partnership to collaborate, share resources, and work as partners to develop and implement plans to protect, restore, and enhance fish and wildlife populations and their habitat within specific geographies of Oregon.

Tribal Water Quality Authorities - Tribes may apply to the U.S. Environmental Protection Agency (USEPA) for authorization to administer water quality standards under the Clean Water Act. This means they may obtain similar authority to the Oregon Department of Environmental Quality, referred to as "primacy." The Confederated Tribes of Umatilla Indian Reservation, the Confederated Tribes of Warm Springs Reservation of Oregon, and the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians have established such authority. State agencies must coordinate with Tribes to understand environmental impacts to Tribal resources of concern and how water resource management by the state may impact compliance with USEPA-approved Tribal Water Quality Standards.

State and Federal Partnerships

The role of the federal government in natural resources management, land management, and therefore, water resources management is significant. The federal government manages 53 percent of all land in Oregon, including 60 percent of forestlands. Appendix A discusses the roles of key federal agencies with water-related responsibilities. State and federal agencies often work together on cooperative studies, such as groundwater basin studies (Action 1B). Oregon also uses its Federal Consistency authority under the Coastal Zone Management Act to facilitate coordination between federal, state, and local authorities concerning federal actions in the coastal zone that have the potential to impact water resources. This authority enables the state to review federal agency activities and the issuance of federal permits in the coastal zone that have the potential to impact water resources for any inconsistencies with state and local regulations.

The federal government also owns or manages key pieces of water infrastructure, including federal reservoirs that store water for irrigation districts, cities, industries, and landowners. Many federal projects also produce and sell power from several hydropower facilities in the Northwest. The Bonneville Power Administration manages mitigation programs to offset habitat losses associated with hydropower projects.

Biological opinions are developed by federal agencies, such as the U.S. Fish and Wildlife Service, and outline ways to reduce and minimize the effects of federally funded, authorized, or permitted actions on Oregon's species and critical habitats, making certain such actions don't jeopardize listed species or adversely modify critical habitat. Biological opinions can impact water operations and management, especially the use of stored water involving federally owned or operated reservoirs. Implementing actions in a biological opinion often requires close coordination and open communication with others, especially state agencies with water management, water quality, and fish and wildlife responsibilities.

In 2016, National Marine Fisheries Service issued a Biological Opinion stating the Federal Emergency Management Agency's implementation of the National Flood Insurance Program (NFIP) jeopardizes species and habitat protected by the Endangered Species Act. In 2021, the Federal Emergency Management Agency issued a Draft

Implementation Plan to change how floodplains are protected, restored, and developed. State and local governments were being told they must adopt new standards, or they will be removed from the NFIP which would impact the ability for these communities to qualify for federal disaster assistance or funding for federal projects in the floodplain. Congress must periodically renew the NFIP's statutory authority to operate and the NFIP is currently authorized through September 2025. This emerging issue will require staff resources, at the state and local level, to understand and respond to the impacts of the biological opinion and associated implementation plan, and potential changes to the program.

Oregon Coastal Management Program – The National Oceanic and Atmospheric Administration funds and provides technical assistance for the [Oregon Coastal Management Program](#), administered by the Department of Land Conservation and Development. The program supports local government management for hazard resiliency and other water related issues including nonpoint pollution control. Many additional [federal agencies](#) contribute to managing Oregon's coastal resources.

Municipal Watersheds – Many municipal water supplies in Oregon obtain their water from watersheds at least partially owned by the federal government. This requires municipalities to protect federal Endangered Species Act-listed species in their water management decisions. For example, the Portland Water Bureau has a Habitat Conservation Plan that was developed in partnership with federal agencies to protect fish and other species in the Bull Run Watershed.

Habitat Conservation Plans – A Habitat Conservation Plan (HCP) is a planning document is designed to accommodate economic development to the extent possible by authorizing the limited and unintentional take of federal Endangered Species Act listed species. There are several HCPs in place throughout Oregon.

The Deschutes Basin HCP has resulted in increased coordination across many interests which has helped the area navigate irrigation and wildlife challenges during consecutive years of drought. Over 10 years ago, Tribes, agencies, irrigation districts, and the public came together to forge a new approach to water management in the basin. The partners, led by the local irrigation districts, developed the Deschutes Basin HCP. The Deschutes Basin HCP was finalized and approved by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service in 2020, and 2023, respectively. The HCP offers many practices to better align the water management operations with the life-history needs of covered species. The aquatic species covered by the U.S. Fish and Wildlife Service in this HCP include the Oregon spotted frog and bull trout. The National Marine Fisheries Service permit covers steelhead and sockeye salmon - all federally listed as threatened.

Partnerships with Neighboring States

Oregon shares surface water resources with its neighboring states, including the Columbia River, Walla Walla River, the Snake River, and the Klamath River. It also shares significant groundwater aquifers with its neighbors, and coordinates data collection and sharing so that water managers on both sides of the border can manage the resource effectively. Oregon will continue to work with neighboring states to strive towards sustainable management of surface water and groundwater resources.

Oregon, Washington, the Confederated Tribes of the Umatilla Indian Reservation, and many others have come together to develop the [Walla Walla 2050 Strategic Plan](#) to guide integrated water resource management in the Walla Walla Basin. [Senate Bill 1567](#) (2024) passed by the Oregon Legislature directs the state to work collaboratively with Washington and partner with federal agencies, Tribes, and water users to manage water resources in the Walla Walla Basin. The bill closely matches a House Bill 1322 passed in 2023 by the Washington Legislature. An important implication of the legislation is that water protected instream in Oregon can cross state lines into Washington and remain protected from appropriation.

United States, Canada, and Tribes: Columbia River Management

The [Columbia River Treaty](#) between the United States and Canada was ratified in 1964, bringing significant management efforts for flood control and power generation benefits to both countries. In 2024, certain aspects of the treaty were set to expire. The United States and Canada re-initiated earlier negotiations to modernize the Treaty in 2018. The U.S. Army Corps of Engineers and the Bonneville Power Administration, the agencies responsible for implementing the Treaty on behalf of the United States, conducted a multi-year effort to study these post-2024 Treaty issues. The [U.S. Entity Regional Recommendations for the Future of the Columbia River Treaty after 2024](#) recommends that the United States pursue a number of modifications to the Columbia River Treaty, along with some unresolved domestic matters.⁵ The U.S. Department of State is now leading efforts for updating the Columbia River Treaty.

Columbia Basin Restoration Initiative - The Columbia River Basin, which once sustained 10- 18 million salmon and a wide variety of native fish, has experienced significant change in the past 150 years. Dams constructed on the Columbia and Snake Rivers and their tributaries have decimated salmon and other fish populations, pushing them towards extinction. Four Columbia River Treaty Tribes alleged that the federal agencies operation of the dams violates the Endangered Species Act and the National Environmental Policy Act because it causes too much salmon mortality. Litigation began in 2001 and settlement was memorialized in the Biden Administrations December 14, 2023 Memorandum of Understanding and Motion to Stay the NWF v NMFS litigation. During mediation, the four Columbia River Treaty Tribes joined Oregon and Washington to create a strategy for restoring abundant salmon and other fish species to the Columbia Basin. This strategy became known as the Columbia Basin Restoration Initiative.

In September 2024, Oregon's Governor signed [Executive Order No. 24-28](#) "directing coordinated and transparent implementation of Oregon's commitments to the Columbia Basin Restoration Initiative and the Resilient Columbia Basin Agreement." The Executive Order identifies various state agency responsibilities.

Federal Columbia River System Operations - The U.S. Army Corps of Engineers, Bonneville Power Administration, and Bureau of Reclamation prepared an Environmental Impact Statement under the National Environmental Policy Act for the Columbia River System in response to changing conditions in the basin. The system is comprised of 14 federal dam and reservoir projects in Idaho, Montana, Oregon, and Washington. The final Environmental Impact Statement, released in 2020, documents the review and environmental effects of implementing the Selected Alternative, proposing a variety of structural and operational changes.

Oregon, California, and Tribes: The Klamath River

Representatives from Oregon and California, several federal agencies, Tribal governments, counties, irrigators, and conservation and fishing groups signed the Klamath Basin Restoration Agreement⁶ and Klamath Hydroelectric Settlement Agreement⁷ in February 2010. The Upper Klamath Basin Comprehensive Agreement was later signed in 2014. These agreements set signatories on a path to comprehensive solutions for the Klamath Basin. However, Congress did not enact authorizing legislation, and the Klamath Basin Restoration Agreement expired in December 2015, and the Upper Klamath Basin Comprehensive Agreement was terminated in December 2017.

The Klamath Hydroelectric Settlement Agreement has been amended twice and continues to be in place. The Agreement lays out the process for additional studies, environmental review, and a set of decisions by the Secretary of the Interior regarding the removal of four PacifiCorp dams. This decision set in motion the largest dam removal project in United States history. The Klamath River Renewal Corporation is a non-profit organization formed to carry out the dam removal. Four hydroelectric dams on the Klamath River, one in Oregon and three in California, were removed in 2024. Restoration following the dam removal is expected to continue for five to ten years. Over the next five years, there is a significant opportunity for the Tribal nations, irrigators, and other interested parties in the Klamath Basin to consider integrating water rights and requirements under the federal Endangered Species Act. Doing so will require collaboration to consider reworking irrigation infrastructure and water management practices while also addressing species recovery.

**Action
9D**

Improve State Interagency Coordination

Water-related responsibilities are distributed across multiple state agencies, making it critical that agencies coordinate to support one another's work. Agencies should seek to improve interagency coordination to ensure an efficient use of public resources. Agencies need communication tools to help Tribes, the public, local government, and community-based organizations navigate state agencies.

Interagency Permit and Grant Review

Agencies utilize interagency permit review teams to enhance coordination and ensure permit conditions or limitations meet the needs of multiple agencies. The Departments of Environmental Quality and Fish and Wildlife contribute to water right permit review for the Water Resources Department (OWRD), reviewing for impacts to water quality and fish and wildlife habitat.

Grants awarded for water acquisition, land acquisition, and habitat restoration projects often require review by multiple agencies. Some existing review teams include Oregon Plan Monitoring Team (for the Oregon Plan for Salmon and Watersheds), Oregon Watershed Enhancement Board Technical Review Teams, OWRD Feasibility Study Grants and Water Project Grants and Loans, and Business Oregon's process for awarding water infrastructure grants and loans.

Interagency Teams and Work Groups

Several state agencies perform monitoring activities, collect data, and have a need to share information to make timely decisions. The Oregon Stream Team represents many agencies with monitoring duties and has published a [Monitoring Strategy](#) to help guide these efforts. It is important to support work groups that provide for staff-to-staff coordination, as well as those that function at the leadership level. The Environmental Justice Council is a 13-member statewide council responsible for advising the Governor and natural resource agencies on environmental justice issues. The Water Core Team is made up of deputy-level representatives from approximately 15 state agencies that meet regularly to coordinate on water related policies and programs.

Implementing the Integrated Water Resources Strategy

Agency Strategy implementation requires coordinated efforts across many agencies. Many levels of agency staff need to be involved in creating, carrying out, and tracking activities included in Strategy biennial work plans. Agency budget processes should be used to coordinate funding requests needed to carry out Strategy actions.

State Agency Coordination Program

Twenty-five state agencies have a State Agency Coordination (SAC) Program, which is intended to assure that its "rules and programs affecting land use" comply with the [statewide planning goals](#), and that agency actions are compatible with acknowledged city and county comprehensive plans and land use regulations. (See [ORS 197.180](#), [OAR 660-030](#) and [OAR 660-031](#).) This process may identify a need for local governments to revise their local comprehensive plans. Most SACs were certified by the Land Conservation and Development Commission around 1990. Since that time, only the Oregon Department of Aviation and Oregon Department of State Lands have written a new State Agency Coordination Program. State agency coordination programs must be updated to keep pace with changes to statutes, rules, and the creation of new programs or authorities.

Action 9D

Improve State Interagency Coordination

Examples of how to implement this action:

- Update State Agency Coordination Programs in partnership with the DLCD
- Establish efficient procedures for cross-agency coordination and approval of relevant state agency permits
- Coordinate Strategy implementation, develop interagency biennial workplan for implementing Strategy actions
- Develop formal memorandum of agreement/understanding (MOA/MOU) between agencies to establish clear and transparent expectations for interagency cooperation where agencies share affiliated authorities/responsibilities
- Support new and existing interagency review teams or interagency work groups
- Create tools to help tribes, the public, local government, and community-based organizations navigate state agencies to address complex water issues
- Support the development and use of Oregon's Environmental Justice Mapping Tool
- Support interagency communication around community engagement (also see HB 3293 (2021))
- Support interagency coordination to implement water-related plans (e.g., Oregon's Natural Hazard Mitigation Plan, Oregon Plan for Salmon and Watersheds, etc.)

Action 9E

Lead Meaningful Community Engagement

Public and community engagement efforts for the 2025 Strategy, the 2023 [Secretary of State Water Advisory Report 2023-04](#), 2022 [State of Water Justice Report](#), 2022 [Oregon Water Justice Framework](#), 2020 [Oregon Water Futures Project Report](#), and the 2020 100-Year Water Vision effort all document water insecurities and inequities in Oregon. Many of Oregon's Tribes have been excluded from decision-making, where those same decisions have resulted in degradation of water resources and inability to meet their community needs and often federally granted Treaty Rights. Issues across Oregon include inadequate infrastructure and drinking water quality, lead exposure in drinking water, affordability of water utility rates, inadequate water in the workplace, and climate change impacts. Populations experiencing related challenges include "frontline communities," or those that experience impacts "first and worst" and have fewer resources, capacity, safety nets, or political power to respond to water challenges. Oregon must find ways to equitably improve the safety, affordability, reliability, and availability of water for all.

Oregon's disproportionately impacted communities are experts based on their lived experiences and this expertise must be centered in climate resilience and water planning work. However, common community engagement challenges have limited meaningful engagement, such as resource allocation and trust-building with historically marginalized communities. The 2025 Strategy acknowledges that efforts must be made to enhance and expand community engagement to better identify workable solutions to improve water equity and security for everyone in Oregon.

"Community leaders across Oregon have limited awareness of Oregon's water challenges, the urgency to act now, and potential water solutions.

We can work with communities to build a culture and leadership that prioritizes water at the local, regional, and statewide levels."

.-100-Year Water Vision (2021)

There are many reasons for inequities around water. Oregon established a system to issue water rights which includes inherent inequities that cannot easily be resolved. Oregon relies on the doctrine of prior appropriation to issue new water rights. The doctrine dates back to the 1800s, when federal homesteading acts awarded “surplus” lands to primarily white settlers. Under common law, settlers initially appropriated and retained water rights as riparian landowners, but those rights were subject to the rights of prior appropriators. Concurrently, Tribes predating white settler occupation, in most cases by thousands of years, were removed forcibly from their native lands and relocated to reservations (1800s). Meanwhile, racist, exclusionary laws also prevented Black and mixed-race people from settling in the Oregon territory (1840s and 50s) and expelled Chinese migrants from Oregon altogether (1882-1943). In 1909 Oregon codified the prior appropriation doctrine for issuing new surface water rights, effectively grandfathering in existing water rights acquired through inequitable land acquisition laws and policies. Later, through the Ground Water Act of 1955, the state codified the prior appropriation doctrine with respect to groundwater allocation, further cementing the inequities of the prior century.

On the heels of codification of prior appropriation, Tribes faced more challenges with respect to retention of what are arguably the most senior of water rights. During the 1950s, many Tribes faced termination, stripping them of sovereign recognition and ending federal trusteeship over the reservations. With termination came the further loss of lands used for hunting, trapping, gathering, and fishing and any water rights that may have supported those uses. Beginning in the mid-1970s, some Tribes have been restored to full sovereignty and are recognized federally again, but even so, many of the water rights associated with the original reservations have either been eliminated or diminished or remain under dispute. See Oregon Secretary of State, 2023, [Advisory Report 2023-04](#), for more information about racial inequity and Oregon water rights.

Environmental Justice Council

Oregon’s [Environmental Justice Council](#) is a resource for agencies to create authentic community relationships, design inclusive programs and projects, and communicate honestly with community members to create and sustain meaningful community engagement and public participation.

Diversity, Equity, and Inclusion Plans

Oregon’s [Diversity, Equity, and Inclusion Action Plan](#) is a roadmap to advance racial equity and belonging across the state. The plan emphasizes the need for proactive measures to minimize the negative impacts of racism and outlines several actions to advance meaningful community engagement.

[Oregon’s Climate Equity Blueprint](#) (2021) was developed as part of the 2021 Climate Change Adaptation Framework and helps state agencies center equity at the forefront of climate adaptation work, not as an afterthought. The Blueprint provides a set of best practices for agencies to apply an “equity lens” as they design state policies, processes, and programs to address climate change. The Blueprint provides solutions to common challenges regarding meaningful engagement, which have been incorporated into the example actions for Action 9E.

Best Practices in Community Engagement

Oregon Revised Statute [541.551](#) ([House Bill 3293](#), 2021) emphasizes the importance of engaging communities, especially those disproportionately impacted or underrepresented, in decisions related to the identification, scoping, design and implementation of water projects. The bill directed specific agencies to work together and create best practices in community engagement for water projects. As part of this process, each agency pursues their own procedures for acknowledging this work in the Oregon Administrative Rules.

Figure 4-4: Environmental Justice Tools and Resources

Oregon’s Environmental Justice Council was created by the Legislature to help protect Oregonians from disproportionate environmental impacts on minority and low-income populations. The Council is developing a statewide [environmental justice mapping tool](#) to help state agencies identify communities traditionally underrepresented in government processes and harmed by environmental and health hazards as required by [House Bill 4077](#) (2022). The mapping project implementation is scheduled to begin in 2028.

In 2024, the six state agencies (Water Resources Department, Department of Fish and Wildlife, Oregon Health Authority, Oregon Watershed Enhancement Board, Department of Environmental Quality, and Business Oregon) identified in HB 3293 published [10 Best Practices in Community Engagement around Water Projects](#) outlining the draft recognized best practices which represents input from many voices throughout Oregon. Draft best practices include:

1. Identify disproportionately impacted communities with interest in engaging in water project planning.
2. Define the water project purpose and goals, including what will be done to involve disproportionately impacted communities.
3. Develop new, or assess current, decision-making frameworks to identify opportunities to enhance access to the decision-making process for disproportionately impacted communities.
4. Invite Tribal communities in Oregon to participate in the water project, acknowledging their preferences and capacity for collaboration.
5. Co-create water project capacity opportunities that are inclusive, including to disproportionately impacted communities.
6. Build collaborative relationships with disproportionately impacted communities and ensure all parties' voices are heard in the water project.
7. Coordinate with the community and across water project participants to leverage resources, staff, and data.
8. Ensure water project communications and information are shared in a timely, transparent manner, and in languages and formats commonly used or preferred by disproportionately impacted communities.
9. Evaluate community engagement effectiveness before, during, and after the water project, based on communities' and projects' purposes and goals as well as capacities, and adapt future projects as appropriate.
10. Strive to monitor and document the positive and negative impacts of the water project on disproportionately impacted communities and their environments.

Action 9E

Lead Meaningful Community Engagement

Examples of how to implement this action:

- Provide resources for capacity-building for community-based organizations
- Use accessible and inclusive engagement strategies
- Create opportunities for communities to identify and engage decision-makers
- Conduct outreach to invite underserved/under-represented populations to participate in planning activities
- Provide funding for agencies and organizations to sustain engagement over the life of a project
- Provide resources for facilitation and coordination, and staff experts in outreach and engagement best practices
- Use best practices for engagement as identified in the State of Oregon Diversity, Equity, and Inclusion Action Plan and other documents, including cultural and language-specific needs
- Use Oregon's environmental justice mapping tool to evaluate potential impacted communities for state-led planning, engagement, policy development and management activities

Critical Issue

Water Use and Management

Under Oregon law, all water within the state belongs to the public. Wise management and use of this precious public resource is a shared responsibility for all Oregonians. The choices we make may impact the quantity and quality of water available today and in the future. The Water Resources Department (OWRD) is responsible for allocating Oregon's surface water and groundwater supplies to a multitude of instream and out-of-stream uses. The OWRD is also responsible for determining the amount of water available for these diverse uses in basins and aquifers throughout the state, relying on modeling and measurements of surface water and groundwater conditions to help make those determinations.

The OWRD works with water right holders and domestic well owners to help manage their use. While the Department's focus is water supply, they work with other state agencies such as the Oregon Departments of Environmental Quality, Agriculture, Fish and Wildlife, and others, to manage Oregon's water in an integrated manner to meet diverse and often competing uses.

The state and water users partner to carry out water efficiency, reuse, and storage projects. State agencies provide technical assistance, permitting, regulation, compliance, enforcement, and in some cases funding, to support projects that steward our shared public resources.

Action 10A

Improve Water-Use Efficiency and Water Conservation

Water conservation is one of the more widely recognized approaches to managing water demand and stretching limited supplies of water. As defined in state law, water conservation is a means of eliminating waste or otherwise improving the efficiency of water use by modifying the technology or method of diverting, transporting, applying, or recovering water.

This section notes many of the programs and funding resources that exist today and makes recommendations for improving access to information, incentives, and program participation. The next action, Action 10B, "Encourage Water Reuse Projects" addresses the water savings that might be gained from a reuse or recycled water project.

Water Conservation within Agriculture

Diverting an estimated 80 percent of the total water diverted in the state, agriculture is the largest user of water in Oregon, and therefore, offers the highest chance of conserving measurable amounts of water.⁸ Statewide efforts should focus on increasing voluntary conservation and efficiency efforts in the agriculture sector. This could result in significant water savings statewide. Although there are several water conservation and efficiency technologies already in use by the agricultural community, there needs to be an increase in funding and incentive opportunities.

Many irrigators have worked extensively with both public and private sector partners to install and model some of the most modern water conservation techniques. These include more efficient irrigation systems, including weather-based irrigation systems, soil moisture controls linked to weather data and computer-controlled irrigation, drip irrigation, variable speed pumps that adjust to water-use needs, and piping or lining canals. Climate-smart agricultural practices such as no-till, dryland, and/or regenerative agriculture, and permaculture strategies also contribute to water conservation. Several irrigation districts, particularly in Central Oregon, have improved their water delivery systems through lining and piping projects to better manage water supplies. Many of these projects have been funded by the Water Resources Department's (OWRD) Water Project Grants and Loans Program, which may include dedicating water in-stream all or a portion of water savings due to infrastructure upgrades. The [Farmers Conservation Alliance](#) and [Energy Trust of Oregon](#) have also helped support the irrigation modernization

and water conservation projects. The Oregon Watershed Enhancement Board (OWEB) administers a statewide irrigation modernization grant program that supports drought relief and resilience.

The potential for reduced return flow or injury to other water users are also factors to consider when designing a water conservation project. Piping, lining, or other water efficiencies can greatly reduce the quantity and rate of return flows that traditionally make their way back to the stream or groundwater reservoir. However, return flows can also be a major source of nutrient, sediment, and thermal loading to waterbodies. Some Agricultural Water Quality Management Plans call for a reduction in return flows for that very reason. An alternative to piping irrigation canals may be covering them with photovoltaic panels to reduce evaporation and produce power. The North Unit Irrigation District was awarded \$2.55M in 2024 in federal funding from the Inflation Reduction Act for the Main Canal Floating Photovoltaics Project. The North Unit Irrigation District will construct floating photovoltaic solar panels on the Main Canal of the Deschutes Project, serving as a case study to understand how the panels impact water efficiency and produce clean energy.



Crooked River pump station. Credit North Unit Irrigation District

Several funding resources exist to help water users make water-use efficiency gains. The Bureau of Reclamation offers competitive [WaterSMART](#) Water and Efficiency Grants, providing grants for water and energy efficiency projects. Examples of past awards to Oregon irrigation districts have helped pay for piping or lining canals and ditches and installing telemetry systems and related micro-hydro projects.⁹ Federal funding for this program was enhanced through the Bipartisan Infrastructure Law, which designated \$140 million for Water and Efficiency grants in 2023. Other funding sources are available from USDA's Natural Resources Conservation Service, OWRD, and OWEB.

Agricultural Water Management and Conservation Plans – Irrigation districts and other agricultural water suppliers may be required to prepare and submit a Water Management and Conservation Plan to the OWRD, described in more detail in Appendix B. Application of appropriate conservation tools may also lead to an increase in available water supplies to better meet their patrons' crop demands. Irrigation districts with plans approved by the OWRD can take advantage of certain statutory provisions that allow the transfer of water rights from one district user to another to prevent forfeiture of the rights due to non-use.

Allocation of Conserved Water Program – Described later, in Action 11B, Oregon's Allocation of Conserved Water Program allows a water right holder who plans to implement a water conservation project to legally use a portion of the conserved water on additional lands, while another portion is permanently protected instream. Examples of eligible conservation projects include lining or piping open or leaky canals or ditches, or changing from a less efficient water distribution system, such as flood irrigation, to sprinkler or drip irrigation. Irrigation modernization projects provide a valuable opportunity to legally protect conserved water instream.

Water Conservation within Industry

Water conservation in business and industry not only saves money by using less water, it can also save on energy required to heat water and run equipment. In manufacturing operations, service and retail establishments, and other businesses, there are ample opportunities to use water efficiently. Just like in the home, water-efficient toilets, faucets, showerheads, clothes washers, and dishwashers used in the industry setting can save significant amounts of water.

Water-intensive industries have an opportunity to use more efficient processes, or even recycled water (see Action 10B), for washing or flushing, in industrial processes, in chillers, and in cooling towers. Several water providers offer walk-through inspections to help commercial customers detect leaks or develop additional water-saving ideas. Some businesses also take the opportunity to convert their greenspaces to xeriscapes, or to install weather-based irrigation systems to improve irrigation efficiencies.

"We can incentivize water conservation and reuse and invest in modern water delivery systems statewide. Efficiency gains and updated systems will help improve water reliability for cities and counties, tribes, ecosystems, and the many aspects of a thriving economy that depend on water."

-100-Year Water Vision (2020)

Water Conservation within the Home and Cities

Water conservation is a tool that can be implemented in any water use sector and much has already been done to conserve water within our homes and businesses. Many municipalities have robust water conservation programs and resources for their communities. Replacing certain appliances, such as toilets, dishwashers, and washing machines with more water efficient models, adding faucet aerators to bathroom and kitchen sinks, or installing low flow showerheads to use less water are common activities. However, outdoor water use for residential or municipal irrigation (e.g., lawns, parks, and golf courses) provides a continued opportunity for water savings. The U.S. Environmental Protection Agency (USEPA) notes that outdoor water use accounts for more than 30 percent of total household water use, on average, but can be as much as 60 percent of total household water use in arid regions.¹⁰ Water-saving technologies such as irrigation controllers, soil moisture sensors, and rain sensors can be incorporated into irrigation systems to improve their efficiency.

Municipalities or water utilities often provide residential customers with guidance or technical assistance to reduce residential water use. Many water providers in Oregon offer rebates for the purchase and installation of water efficient appliances; some also provide shower timers and leak detection kits free of charge to homeowners and businesses alike.

WaterSense Program - [WaterSense](#), a partnership program started by the USEPA in 2006, offers a quick and simple way to find water-efficient products and services. A WaterSense label means a product has been certified to use at least 20 percent less water, save energy, and perform as well as or better than regular models. Since the program's inception through the end of 2022, it has helped consumers save a cumulative 7.5 trillion gallons of water and \$171 billion in water and energy bills. In Oregon, more than 40 organizations, including non-profits, drinking water providers, and various distributors promote WaterSense labeled products.¹¹

The WaterSense program also provides tips for reducing outdoor water use for household irrigation. The [WaterSense Water-Smart Landscapes Guide](#) provides information about choosing native or drought-tolerant plants, supporting soil health, and proper maintenance.

Municipal Water Management and Conservation Plans – Some municipal water providers are required to prepare and submit a Water Management and Conservation Plan to the OWRD, described in more detail in Appendix B. Examining conservation-based rate structures is a required element of Water Management and Conservation Plans. As a result, some water providers have modified their water rates, further driving down demands for water. Some municipalities have also offered incentive programs to replace lawns with xeriscaping.

Future Water-Use Efficiency and Conservation Programs

Water users in Oregon have many tools available to encourage water conservation and more efficient use of water resources. However, the state does not have a coordinated program to promote such tools. Developing such a program could include creating a user-friendly website, conservation materials for use by public and private partners, an on-line clearinghouse that highlights best management practices, funding, and technical resources. A clearinghouse could help water providers identify the potential for conservation and then design or improve their programs.

Conservation tools, such as those offered by the Alliance for Water Efficiency and the Water Research Foundation that help entities calculate the economic benefits of conservation programs, are good examples to feature in the clearinghouse. Having analytical tools easily available is of critical importance in determining the feasibility of investing in water efficiency and conservation programs. Lastly, because water and energy are so closely tied, water conservation goals and efforts should be coordinated with energy efficiency programs, see Action 4C.

Action 10A

Improve Water Use Efficiency and Water Conservation

Examples of how to implement this action:

- Establish a comprehensive water-use efficiency and conservation program that provides incentives and technical assistance to water users in all sectors
- Conduct a statewide water conservation potential assessment, considering high priority water management needs
- Prioritize and provide funding for agricultural water-use efficiency and conservation projects (often saving energy and supporting Action 4C)
- Support water conservation projects that use the Allocation of Conserved Water Program
- Develop or continue municipal incentives (e.g., xeriscaping rebates, metering, tiered rate structures)
- Develop an outreach strategy to expand participation in already-existing water-use efficiency and conservation programs
- Develop outreach materials, a user-friendly website, and online clearinghouse that highlights best practices, funding, and technical resources
- Ensure disadvantaged communities are not overburdened by mandatory or voluntary water conservation measures
- Borrow best practices and experience from energy efficiency programs in implementing water efficiency programs
- Partner with broadly supported well-developed energy efficiency programs that also save water (See Action 4C)
- Assess the value of establishing statewide efficiency standards
- Update state definition of “waste” for enforcement purposes

**Action
10B**

Encourage Water Reuse

Water reuse is the practice of treating “used” water (or effluent) and making it available for another beneficial use. Reusing water can be an environmentally sound way to manage graywater or wastewater while conserving surface water and groundwater supplies.

Reusing water can provide many benefits to both water quantity and quality and support drought mitigation and climate adaptation and resiliency. In general, recycled water places fewer demands on freshwater, leaving more water instream or in the ground for other uses. Municipal reuse can provide a benefit to water quantity by reducing the demand on drinking water. Municipal reuse for irrigation can support green infrastructure and maintain soil moisture, helping to mitigate the urban heat island effect. Irrigating and maintaining healthy green infrastructure during the summer months helps ensure it can provide important stormwater management functions during the wet winter months. Reuse for agricultural uses may reduce the need for surface water withdrawals, helping to maintain stream flows and support a variety of beneficial uses.

Reuse laws and permitting processes take into consideration potential environmental and public health impacts. See Action 10F regarding strengthening and improving water quality and quantity permitting processes.

Reuse projects often require expensive equipment and infrastructure with ongoing operations, maintenance, and energy needs. Potential projects must evaluate the costs and benefits, including impacts to water affordability.

Reuse Terminology

There are many terms used regarding wastewater treatment and reuse, and the use of some of these terms varies by state agency or local government. The national organization [WaterReuse](#) provides the following descriptions for commonly used water reuse terms:

- *Reused water* - water that is used more than once and has been treated to a level that allows for its reuse for a beneficial purpose
- *Recycled water* - treated domestic wastewater that is used more than once before it passes back into the environment
- *Reclaimed water* - used water that has been treated to be fit-for-purpose for reusing or recycling

Agency Roles

Oregon’s policies encourage the reuse of water, so long as the use protects public health and the environment. Several agencies, including the Oregon Health Authority (OHA), Department of Environmental Quality (ODEQ), Department of Fish and Wildlife (ODFW), Water Resources Department (OWRD), and Department of Consumer and Business Services (Building Codes Division), are all involved in different aspects of water reuse projects.

The ODEQ is the lead agency in regulating the use of recycled water. The ODFW identifies potential impacts to fish and wildlife and instream flow targets from proposed projects.

The OWRD refers to recycled water as “reclaimed” water. The Department determines whether the reclaimed water use will cause harm to other water rights; it also tracks the reclaimed water use in the Water Rights Information System database, noting the source of the water and where and how the water will be reused. The OWRD has two exemptions in statute where a new water right permit is not needed for recycled water; when water is used for municipal purposes and when groundwater associated with an industrial or Confined Animal Feeding Operations permit is used for irrigation.

Types of Reuse

Three general categories of water reuse include:

- **The Use of Graywater** – Graywater refers to water from showers, baths, bathroom sinks, kitchen sinks, and laundries. Graywater can be reused for limited activities, such as subsurface irrigation, with minimal treatment. Homeowners and small businesses can reuse graywater for toilet and urinal flushing with the appropriate plumbing permit from a local building department. Outdoor reuse of graywater can occur by carefully planning reuse activities and obtaining a Water Pollution Control Facility graywater reuse and disposal system permit from the ODEQ.
- **The Use of Domestic Recycled Water** – Recycled water refers to treated effluent from a municipal wastewater treatment facility. Oregon has approximately 340 wastewater treatment facilities and there are more than 140 municipal facilities operating recycled water programs throughout Oregon. Communities have been taking advantage of State Revolving Fund loans for developing and upgrading recycled water systems.
- **The Use of Industrial Wastewater** – Industrial wastewater refers to treated effluent from an industrial process, manufacturer or business, or from the development or recovery of any natural resource. An example of industrial wastewater is water derived from the processing of fruit, vegetables, or other food products. A more recent development in industrial wastewater is the water left over from use as cooling water in data centers throughout Oregon.

Although water reuse activities in Oregon have been traditionally limited to non-drinking water purposes, a wide range of activities can occur, including irrigation of crops and pastureland and irrigation of urban landscapes. Cities commonly use recycled water to irrigate golf courses, athletic fields, and business parks. Recycled water can also be used for industrial cooling, dust control, street sweeping, and artificial recharge of groundwater.

Specific water reuse activities depend on the level of treatment and resulting quality. More reuse activities can occur with higher-quality water. As public awareness of water reuse benefits increases, additional innovative uses of water will become more common.

Recent Legislative Support

In 2023, the Oregon Legislature enacted provisions for expanding the application of reuse. The 2025 Oregon Legislature passed [House Bill 2169](#) requiring the ODEQ to establish an Interagency Water Reuse Development Team that includes the ODFW, OHA, OWRD, and the Oregon Department of Agriculture to encourage and expand water reuse in Oregon. This team will continue the work directed in the 2023 legislative session to:

- Provide training and education to state agency staff on the benefits and drivers of water reuse projects and Oregon's policy to encourage and expand opportunities for water reuse
- Identify and address internal barriers and information needs within agencies, identify changes needed to overcome these barriers and work towards improving interagency collaboration
- Identify conflicts between agencies that must be resolved to expand water reuse in Oregon and work toward their resolution
- Ensure information and agency contacts regarding water reuse are current and accessible and that responses to information requests are consistent and timely
- Evaluate successful environmentally protective approaches used by other states' water reuse programs that could be implemented in Oregon
- Develop technical assistance guidance, or other resources for local governments, industries, and nongovernmental organizations seeking water reuse program development and associated permitting
- Establish goals and performance metrics on water reuse development in Oregon

Innovative Approaches

Direct-Potable Reuse – Direct-potable reuse refers to the treatment of wastewater to a quality high enough that it can be used for drinking water. The technology used to accomplish this treatment is often at the municipal scale and includes reverse osmosis or other membrane technology. Direct potable reuse projects can include piping highly treated water directly into a water distribution system or blending the treated water with raw water supply right before the drinking water treatment plant. States that commonly experience water supply shortages, such as Texas and California, have been using direct-potable reuse and other states are positioned to follow. In 2013, Texas became the first state to operate a direct potable reuse facility in the country.¹²

Regulations ensure that direct potable reuse projects manage risk to drinking water supplies and public health. Projects must comply with the Clean Water Act and Safe Drinking Water Act.

Environmental Restoration – Water recycling can support environmental restoration efforts or provide a co-benefit to the environment when restoration is not the primary driver for the project. Recycled water can recharge groundwater (see Action 12D) and has the potential to augment streamflows, supporting species that have been impacted by declining groundwater and low stream flows.

Fertigation – “Fertigation” generally refers to combined delivery of fertilizer in irrigation water. [Oregon State University](#) has been conducting studies on the use of wastewater effluent to fertilize crops, avoiding the need for chemical fertilizers. The technology used to treat and reuse the wastewater includes a two-stage hybrid membrane filtration that would remove bacteria but keep valuable nutrients including nitrogen, phosphorus, and potassium. The studies will help determine if this technology is economically viable for use by farmers.

Action 10B

Encourage Water Reuse Projects

Examples of how to carry out this action:

- Conduct a statewide assessment of the potential for additional water reuse, considering impacts, costs, and benefits to water quantity and quality, and management of water and wastewater systems
- Ensure that state agencies coordinate and communicate various policies, procedures, and regulations to facilitate reuse projects
- Provide incentives to increase and track water reuse
- Complete evaluation and updates of ODEQ and OWRD water reuse programs ([House Bill 2169](#), 2025)
- Develop technical assistance capacity to promote and inform water reuse practices and projects
- Develop and maintain adequate staffing to support increased utilization of state reuse programs
- Develop water reuse rules to ensure implementation of an effective and protective reuse program
- Connect reuse actions to the Water Management and Conservation Plan Program
- Explore opportunities for the state, tribes, and other interested parties to partner on water reuse projects
- Evaluate who benefits, or is negatively impacted by, reuse projects
- Evaluate successful environmentally protective approaches used by other states’ water reuse programs that could be implemented in Oregon
- Establish goals and performance metrics on water reuse development in Oregon

Action 10C

Improve Access to Storage

The history of storing water in Oregon dates to the 1800s when projects consisted mostly of ponds or small dams across streambeds. As the state's population grew, so did the scale and purpose of these projects. Before long, developers and governments were building major dams and reservoirs to meet the increasing water demands for power production, flood protection, and out-of-stream needs during the dry summer months.

In Oregon today, there are more than 15,000 water rights authorizing the storage of surface water in reservoirs. Another 5,000 ponds were registered with the state in the mid-1990s. The Water Resources Commission adopted the state's water storage policy, identifying water storage as an integral part of Oregon's strategy to enhance public and private benefits from use of the state's water resources.¹³ The policy acknowledges that both structural and nonstructural methods should be used in Oregon to store water, with preferences for storage that optimizes instream and out-of-stream public benefits and beneficial uses. In 1993, the Oregon Legislature codified the state's policy regarding water storage facilities, declaring it a high priority to develop environmentally acceptable and financially feasible multipurpose storage projects, and to enhance watershed storage capacity through natural processes using non-structural means (e.g., floodplain restoration). Watershed and floodplain protection and restoration to improve natural storage capacity is addressed Action 11A.

Below-Ground Storage — Aquifer Storage and Recovery and Artificial Groundwater Recharge

Oregon can improve access to below-ground storage by encouraging the increased use of Aquifer Storage and Recovery (ASR) and Artificial Groundwater Recharge (AR) for water storage. The use of these techniques is gaining interest, particularly in the northwest and north-central regions of Oregon, due to the smaller environmental footprint, moderate cost, and potential associated benefits for water quality, compared to above-ground storage. Areas of Oregon designated as "groundwater limited" or "critical groundwater areas" may have greater aquifer capacity to accommodate ASR and AR projects.

Forming partnerships between different user groups, such as a municipality that treats water and an irrigation district needing an alternative source of water, could help meet the financial and water quality obligations for below-ground storage, but risks and unintended impacts to water quantity also need to be considered.

Water that is treated to standards safe enough for drinking water is the only source water allowed for ASR projects. Direct injection of water also must be geochemically compatible with natural groundwater. This protects the groundwater resources, but can be an expensive standard to meet, particularly for non-municipal projects with large tracts of land. Grants for feasibility studies from the Water Resources Department (OWRD) have been used to explore potential aquifer storage projects. Business Oregon also offers an Aquifer Recharge Due Diligence Grant and Forgivable Loan Program.

The state has issued authorizations for approximately 20 ASR and 10 AR projects. Municipalities use below-ground storage to supplement their water supplies for their communities, as in the case of Baker City and the City of Beaverton. Farmers and ranchers use below-ground storage to supplement irrigation water during the summer months. A barrier to advancing AR/ASR projects includes a lack of OWRD's agency staff capacity and Department of Environmental Quality staff to evaluate water quality questions. Figure 4-5 compares both permitting paths.

Figure 4-5: Comparing Artificial Recharge and Aquifer Storage and Recovery Technologies

Category	Artificial Recharge (AR)	Aquifer Storage and Recovery (ASR)
Water Use	Primarily irrigation, industrial	Primarily drinking water
Recharge Method	Seepage systems, injection wells	Injection wells only
Water Quality Requirements	Recharge water cannot impair or degrade groundwater quality	Recharge water must meet drinking water standards
Water Rights	Rights required to appropriate source water and to pump recharged groundwater	Can use existing rights to store and use recovered water
Oregon Revised Statutes (ORS) Oregon Administrative Rules (OAR)	ORS 537.135 OAR 690-350-0120	ORS 537.531 to 537.534 OAR 690-350-0010 to 690-350-0030

Identifying Potential Below-Ground Storage Sites – In 2009, the OWRD created an [inventory](#) of potential below-ground storage sites.¹⁴ Additional site-specific investigation is needed to pursue these potential storage sites, including consideration of local aquifer characteristics, infrastructure, water availability, cost-benefit relationships, water quality, and authorization requirements.

Above-Ground Storage — Reservoirs

Reservoirs have existed as a critical piece of Oregon's stored water landscape for many decades. They allow water to be captured and stored for later use, and some even generate hydropower. However, changing patterns of precipitation, snowpack, and heat have impacted the effectiveness of existing water storage systems. Reduced rainfall and snowpack are resulting in less water available for use during the high demand summer season, while earlier spring temperature increases and intensifying summer heat waves are increasing evaporation loss in reservoirs and further reducing supplies. These issues, combined with competing environmental demands, complicate considerations for new above-ground reservoirs.

Identifying Potential Above-Ground Storage Sites – As part of the Oregon Water Supply and Conservation Initiative (2008), the OWRD conducted an inventory of potential above-ground storage sites from past surveys conducted by different entities¹⁵. Most of these potential dam sites in the inventory are located on major stream channels. Since the time of these surveys, Oregon has moved away from locating dams on significant stream and river channels, in large part because of effects on fish and aquatic life that must migrate through these streams and water quality parameters such as temperature and dissolved oxygen. There has been very limited evaluation of above-ground storage sites that are located off-stream or at sites with little or no effect on fish and other aquatic life. Additional work is needed to locate and evaluate impacts of potential reservoir sites in locations that minimize impacts to ecosystems and that could be economically viable.

Evaluating Storage Infrastructure – Oregon should evaluate the status of its existing storage capacity and infrastructure, including determining the maintenance and rehabilitation needs of dams. To improve access to stored water, Oregon should continue to support the Dam Safety Program and identify multipurpose ways to expand the capacity of existing above-ground storage projects—by raising a dam's height, removing sediment, or repairing dams where safety restrictions have required lower water levels. Fish passage and other environmental issues must be considered when evaluating raising a dam's height.

In some cases, sediment accumulation has reduced storage capacity and dredging may restore its original capacity. Reservoir owners should be aware that dredging activities fall under the State Removal Fill laws enforced by the Department of State Lands and requires a permit. Reservoir dredging is intended to restore the original capacity, not to increase capacity.

Federal Reservoir Systems – The U.S. Army Corps of Engineers (USACE) and the U.S. Bureau of Reclamation (USBR) are key partners in the operation and management of key pieces of water infrastructure, including reservoirs used for power production, irrigation, and flood control.

Recently, the USACE completed a feasibility study, co-sponsored by the OWRD, to determine the potential to use stored water from the Willamette Valley Project reservoirs for multiple purposes. The study was needed because demands on the basin's water supplies have changed significantly since the dams were constructed, due to increasing population, development, irrigation needs, and the listing of fish species under the Endangered Species Act. The study evaluated several options for reallocating storage space that could better meet water needs not only for irrigation, the only use allowed under existing water rights, but also as a source of drinking water for communities, industries, and instream flow needs for listed fish species in the basin.

In 2020, the U.S. Congress approved the reallocation of storage space, designating 69 percent for fish and wildlife, 21 percent for agricultural irrigation, and 10 percent for municipal and industrial uses. There is a strong interest and desire among agencies, basin partners, and others to contribute to a longer-term water management plan that optimizes the use of a shared resource for all uses of water, both instream and out-of-stream. To fully carry out reallocation, several steps need to occur, including additional consultation under the Endangered Species Act, a water rights transfer, a new contracting process for municipalities and industries, as well as securing instream water rights to protect the release of stored water for fish and wildlife purposes.

Evaluating Reservations for Storage

The 1987 Instream Water Right Act included a provision for Oregon Department of Agriculture to request a reservation of water for future economic development ([ORS 537.356 through 537.358](#)). A reservation sets aside an amount of unappropriated water in some basins for storage to meet future needs. The Water Resources Commission assigns an amount and a priority date, although it is not the same as a water right application or permit. Approval of a reservation does not mean that any future application will be approved, or that a reservoir may be constructed. Water users wishing to access reserved water must submit a water use application to the OWRD, referencing the reservation. The OWRD then reviews the application based on current, applicable public-interest review standards and applicable basin rules regarding the reservation.

Reservations are in place in six basins: Grande Ronde, Hood River, Malheur, Malheur Lake, Owyhee, and Powder River, and are established by rule in basin programs. To date, there have not been any successful applications for reserved water. Any pursuit of multi-purpose storage under these reservations would likely be challenging.

Action 10C

Improve Access to Storage

Examples of how to carry out this action:

- Encourage increased use of environmentally acceptable below-ground storage sites and practices
- Assess and make improvements to the Aquifer Storage and Recovery and Artificial Recharge Programs to promote and increase the use of this tool in a manner that protects public health, water quality, and ecosystems
- Carry out implementation of the Willamette Basin reallocation study recommendations as directed by Congress in the Water Resources Development Act of 2020
- Investigate potential off-channel sites for environmentally acceptable above-ground storage projects
- Evaluate the status of storage infrastructure, including the maintenance and rehabilitation needs of reservoirs, and potential for expanding existing storage capacity
- Investigate the use of existing reservations of water during planning efforts
- Consider equity, environmental justice, and water insecurity in the prioritization of storage sites

Action 10D

Reach Environmental Outcomes with Non-Regulatory Alternatives

Water conservation, storage, and reuse are a set of conventional tools for meeting water needs, used in conjunction with state and federal regulatory tools that protect water resources for future generations. We also need to consider non-regulatory and market-based approaches to meeting our collective and often competing demands for water and consider holistic strategies to meet water quality, water quantity, and ecosystem needs.

Potential solutions include voluntary actions by water users that often include funding and technical assistance from agencies. Oregon should continue to explore new alternatives and promote and expand existing programs.

Related Strategy Actions

Many actions described throughout the Strategy require voluntary participation to provide positive environmental outcomes, and many require strong partnerships with senior water users. These programs and related Strategy Actions include:

- Water efficiency/conservation projects and allocation of conserved water, Actions 10A and 11B
- Aquifer Recharge (AR) and Aquifer Storage and Recovery (ASR) projects, Action 10C
- Ecological restoration on public or private property, Actions 11A, 11C, 11D
- Water transfers and leases, Action 11B
- Voluntary agreements among water users within one basin to limit water use, Action 11E
- Source water land acquisition, Action 12A
- Pesticide Stewardship Partnership participation, Action 12B

Conservation Reserve Enhancement Program (CREP)

The Conservation Reserved Enhancement Program (CREP) is administered by the U.S. Department of Agriculture Farm Services Agency and supports private-land conservation. This voluntary program pays farmers and ranchers to remove environmentally sensitive land from production, paying them an annual rental rate and other incentives. This is an important tool that can be used to pay to retire groundwater rights in basins where groundwater is overallocated. In Harney County, the CREP contract includes a provision requiring the cancellation of the water right in trade for CREP payment. A CREP contract payment period is typically 10-15 years. In 2018, eligible partners expanded beyond individuals, state and Tribal governments to also include non-governmental organizations such as non-profits, private companies, and foundations.

Conservation Stewardship Program (CSP)

The Natural Resources Conservation Service administers the Conservation Stewardship Program, paying agricultural producers to implement practices that benefit wildlife, improve soil health, reduce water quality impacts and reduce irrigation. The program can be used

Action 10D

Reach Environmental Outcomes with Non-Regulatory Alternatives

Examples of how to carry out this action:

- Research and develop-voluntary, non-regulatory tools to meet environmental outcomes
- Continue to develop water quality trading programs
- Develop voluntary water markets to restore streamflow in priority stream reaches
- Develop protocols for translating streamflow restoration into credits and accounting strategies
- Investigate and establish incentives for voluntary efforts to achieve positive environmental outcomes
- Make improvements to transfer processes and develop potential adaptive transfer tools, including instream leases and transfers
- Develop an outreach strategy for informing the public about non-regulatory alternatives
- Support agencies to provide technical assistance regarding voluntary efforts
- Develop a voluntary agreement framework (O.R.S. § 537.745) for groundwater right holders
- Partner with federal agencies with Conservation Reserve Enhancement Programs to permanently retire groundwater rights where groundwater resources are overallocated

to fund innovative agricultural practices like multi-species cover crops or deep-rooted cover crops that break up compacted soil.

Water Quality Trading

The Oregon Environmental Quality Commission approved rules in 2015 establishing a voluntary water quality trading program to facilitate pollution reduction and protect the quality of Oregon's waterways. The rules provide clarity for regulated entities, the public, and Department of Environmental Quality staff.

Cities and utilities have utilized water quality trading to address temperature pollution challenges. The City of Medford partnered with The Freshwater Trust to establish leases with landowners to plant trees along the Rogue River. The City of Ashland implemented a similar project, also in partnership with The Freshwater Trust. Clean Water Services implements a water quality credit trading program that includes flow enhancement and riparian planting activities. The Clean Water Services 2022 Annual Water Quality Trading Report said they had implemented 200 planting projects along streams in the Tualatin River Watershed that have generated a total of 614 million kcal/day of thermal credit since they established the program in 2004.

The Metropolitan Wastewater Management Commission of the Eugene-Springfield area partnered with The Freshwater Trust to implement a temperature project in the Willamette River basin. Streamside planting is expected to be completed in 2027.

The Deschutes Water Bank

The Deschutes River Conservancy has developed an expanded water bank program to help manage water resources in the basin. [The Deschutes Water Bank](#) provides a platform for both permanent and temporary voluntary water transactions among water users in the region. The goal of the Bank is to support flexible market-based opportunities to help address and balance complex water use and water management objectives. Example water transactions include permanent instream transfers, instream leasing, irrigation district "district-to-district" transfers, and mitigation banking.

[House Bill 3806](#) (2025) authorizes the Water Resources Commission to approve, after meeting several conditions, a Deschutes River water bank pilot program for surface water. The pilot program provides a voluntary, market-based tool to allow for management and movement of water to increase supply reliability for junior irrigation districts, provides cities with access to groundwater mitigation, and restores instream flows in the Deschutes River. The pilot program does not replace the use of the Allocation of Conserved Water statute or instream leasing and Deschutes Groundwater Mitigation Programs. The authorizing legislation states the pilot program will sunset on January 2, 2034.

Action 10E

Provide an Adequate Field Presence

Several of Oregon's natural resources agencies have personnel in the field. Adequate field capacity is needed for data collection, inspections, technical assistance, and effective coordination between agencies and partners.

Field personnel are well positioned to work with local, state, and federal water managers, watershed councils, local planners, county commissions, and other entities in the community with responsibility for water. These individuals are also on the front lines of public education with broad and deep policy, technical, and legal expertise in their disciplines. They are the state's first responders to requests for technical assistance or information and an integral part of fulfilling the agencies' statutory authorities. The state's watermasters, biologists, water quality specialists, basin coordinators, and other field staff have a unique opportunity to strengthen ties and build relationships with local communities.

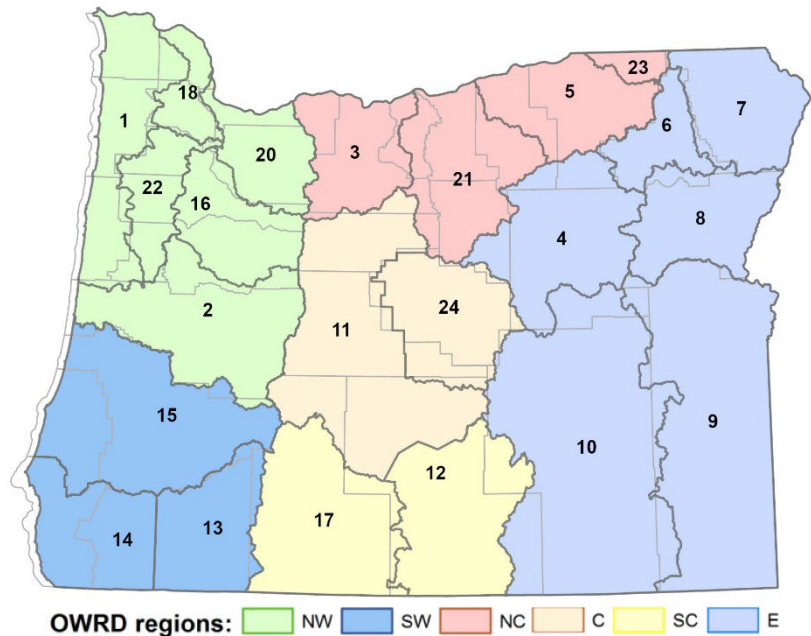
Data Collection - Field personnel collect data, including hydrological, biological, and chemical data. Field-related work also involves installing and calibrating water measurement and monitoring equipment as well as conducting instream flow studies.

Inspections and Enforcement – Field personnel protect public and environmental health through inspections and enforcement activities. Field personnel conduct site inspections, confirm compliance with permit conditions, guard against waste and contamination, inspect for hazards, and pursue enforcement actions when necessary. Inspection activities associated with dam safety are supported by Action 7C.

Partnerships between the Oregon Liquor and Cannabis Commission, the Department of Agriculture, Water Resources

Department (OWRD), and local law enforcement have been instrumental in identifying and halting illegal water use associated with hemp and marijuana growing operations.

Figure 4-6: OWRD Watermaster Regions and Districts



Water Distribution – At the OWRD, field personnel implement [Oregon water law](#) and the doctrine of prior appropriation. Under the doctrine, the state’s watermasters and assistant watermasters are responsible for regulating and distributing water, curtailing the water use of junior water right holders during times of water shortage, and enforcing water right permit conditions.

Action 10E

Provide an Adequate Field Presence

Examples of how to carry out this action:

- Review and assess agency staff workloads; establish priorities and seek efficiencies
- Improve regulatory tools, including updating laws, modernizing technology and enforcement tools, and providing (cross) training
- Improve the ability for field staff to conduct education and outreach within their districts; develop outreach materials to have on hand when interacting with the public
- Enhance all natural resources agencies capacity to conduct field studies and work directly with water users and conservation interests
- Support cross-agency communication to expedite regulatory enforcement
- Employ staff in rural and remote areas to respond to and assist more communities across the state
- Increase field staff capacity to build and maintain relationships with communities, community-based organizations, and farmworker advocates
- OWRD to provide guidance to field personnel on administering instream water rights
- Provide access to training that addresses equity, environmental justice, and community engagement
- Develop culturally appropriate education materials

The OWRD's limited number of field staff is noteworthy, given the large geographic territory and responsibilities (Figure 4-6). In southeast Oregon, District 10, has just two staff responsible for regulating and distributing water in an area covering 11,700 square miles, the largest district in the state. In northwest Oregon, the District 16 watermaster oversees several hundred dams of various sizes and configurations that need routine inspection and site visits. In this district alone, there are 14,700 water rights that authorize the use of groundwater, surface water, and storage for a variety of uses. The OWRD needs adequate field personnel to distribute and regulate water rights to protect instream and out-of-stream uses.

Support Needed for Field Personnel

Training – Investing in field activities means more than just increasing the number of staff, it also refers to investing in technical training and distribution of workload. There is a need for more advanced equipment and software. Utilizing new tools and technologies may require additional education, training, and certification. Agencies also see the benefit of cross-training staff in the field, so that employees are familiar with multiple issue areas and can assist in the work of other staff or even other districts.

Regulatory Tools – The legal and statutory framework underpinning agency activities needs to be up-to-date, clear, and responsive enough to keep up with modern day water use. Needs vary across agencies, but for the OWRD, they include improving property access agreements and making enforcement tools more responsive. Communities where field presence is robust and public education is strong and consistent exemplify compliance with rules and laws. Areas of the state with a long tradition of regulation and partnership have higher rates of compliance, resulting in more timely and efficient water management.

Technology that is available to field staff (information, equipment, communications platforms, and transportation) must be efficient and accessible to be useful.

Coordination and Communication – Strengthening Oregon's field-based work will require financial investments in communications equipment, information platforms, and outreach materials. It also means finding more efficient ways to coordinate and partner with other agencies to carry out our shared responsibilities. The Department of Fish and Wildlife (ODFW) and OWRD often coordinate on instream flow needs, streamflow restoration efforts, water use measurement projects, and voluntary initiatives or projects. The ODFW staff determine potential impacts to fish, wildlife, and habitats from proposed allocations of water and can recommend conditions and/or mitigation to offset the impacts.



Watermasters Terra Kemper and Matt Anderson removing a defective gage station.

Credit: Garrett Steensland

**Action
10F**

Strengthen and Improve Oregon's Water Quantity and Water Quality Permitting Programs

Several natural resources agencies in Oregon are engaged in water-related permitting. Just like the field staff described earlier, permit reviewers frequently answer calls or questions from water users, realtors, and others, conduct records research, and process case files. It is imperative that agencies have enough well-trained permitting staff in place to process requests in a timely, accurate manner. It is also imperative that state agencies coordinate with Oregon's Tribes who have developed water quality standards to ensure state actions support efforts to meet those standards.

For staff to be effective, improving and expanding staff training and interagency coordination is critical. Investments need to be made to update technologies, manuals, and procedures that continue to improve transparency, efficiency, permit application processing time, and consistency between sections of the respective agency. Interagency staff need access to accurate, quality data on which to design projects or base permitting decisions, supporting the need for continued development of the Oregon Water Data Portal. Staff also need appropriate communications resources to inform permittees about their permit conditions.

Water Quantity Permits

The Water Resources Department (OWRD) administers several water right programs, described in more detail in Appendix B. Staff are responsible for preparing, reviewing, and processing water use permits, limited licenses, temporary drought permits, permit amendments, extensions, transfers (temporary and permanent), certificates, instream leases, conserved water projects, hydroelectric permits, reclaimed water use registrations, among others. The OWRD oversees water management and conservation planning efforts of local entities and completes adjudication proceedings.

The OWRD needs to evaluate each permitting program to ensure that it is helping to accomplish its mission to ensure sustainable water supplies for both instream and out of stream purposes. The OWRD is currently evaluating ways to modernize and streamline the water rights application process.

Water Right Permits and Certificates - In Oregon, reviewing water right permit applications is done in partnership with other state agencies. The Oregon Departments of Fish and Wildlife and Environmental Quality (ODEQ) regularly review new water use permit applications to ensure that the proposed use is not detrimental to fish, wildlife, and habitats and the use is consistent with existing water quality standards, as outlined in OWRD rules. The OWRD sends notice to affected Tribes, local, state, and federal agencies, and others, as outlined in administrative rule. The Department also has specific engagement requirements with certain Tribes as defined by settlement agreements.

In many cases, a new permit application can only be approved if it is conditioned in certain ways or mitigation is provided to offset impacts due to water quality and quantity. Failure to meet some permit conditions cannot be rectified and can result in cancellation of the permit. Early, up front customer service at permit-issuance helps water users avoid later compliance issues.

The OWRD was allocated \$3 million of American Rescue Plan Act (2021) funding to work on water right related backlogs for the 2021-23 biennium. The OWRD focused resources on three major backlog areas: water rights, transfers, and reviewing claims of beneficial use for possible certificate issuance. Approximately \$1.5 million of the funding remained unused at the end of the biennium, however the 2023 Legislature reauthorized the remaining amount to be used on backlog reduction throughout the 2023-25 biennium. Figure 4-7 shows the progress that has been made on reducing the three different types of permit and certificate backlogs.

Figure 4-7 Water Resources Department Backlog Reduction Efforts Between 2021 and 2024

Date	Water Rights	Transfers	Claims of Beneficial Use	Total
July 1, 2021	657	310	1220	2187
January 1, 2024	561	398	882	1841

Water Right Transfers - Having a water right certificate opens the door to other tools, such as transfers, that allow water users to change where their authorized water is diverted from, where it is used, or what it is used for. There is growing interest in the use of water right transfers to move water around to support out-of-stream uses, streamflow restoration, and economic growth. This interest is driven by the fact that most of the surface water in the state has already been allocated and securing additional water through a new water use permit is difficult. This is especially true for obtaining water during the summer, when out-of-stream demands are high, instream needs for species are critical, and supplies are scarce.

The filing of transfer applications has steadily increased during the past twenty years, a growing trend in most western states. The program includes options for permanent transfers, temporary transfers, and instream leases. The Allocation of Conserved Water Program, described under Action 11B, is an innovative conservation tool available as part of the water right transfer program.

Water Quality Permits

The ODEQ administers several water quality related permits and the Department of State Lands administers removal/fill permits. These programs need continued evaluation and support to improve permitting effectiveness. Permitting managed by the ODEQ includes:

- National Pollutant Discharge Elimination System (NPDES)
- Water Pollution Control Facility (WPCF)
- Onsite Septic System
- Municipal Separate Storm Sewer System
- Section 401 Certifications
- Underground Injection Control
- Graywater Reuse and Disposal System

Action 10F

Strengthen and Improve Water Quantity and Water Quality Permitting Programs

Examples of how to carry out this action:

- Expand staff training opportunities, including interagency trainings; provide adequate staffing
- Update technologies, processing manuals, and expand guidance documents for transparency
- Develop outreach materials and follow-up procedures to help water users understand the application process and permit, transfer, or extension requirements
- Develop a statewide mitigation strategy in coordination with relevant state agencies (DEQ, ODFW, OPRD, OWRD)
- Create stronger linkages among partner agencies
- Develop and implement a workplan to improve the quality and timeliness of individual National Pollutant Discharge Elimination System permits
- Regularly update Oregon's water-related permitting guide (formerly 2017 Strategy Action 2E)
- Improve the timeliness of water right transactions and reduce backlogs
- Modernize and create more efficient and user-friendly permitting processes while maintaining protections for public process and the environment
- Incorporate climate change forecasting into water availability analyses and permitting decisions (also see Action 1D)
- Develop programs and resources to support BIPOC farmers and business owners, as well as farmers and business owners for whom English is not a primary language, in obtaining and managing permits and other authorizations
- Improve resources for NPDES monitoring and permitting to help attain water quality that aligns with fish consumption standards for Oregon Tribes
- Support continued development of the Oregon Water Data Portal to provide interagency access to accurate, high quality water data for permits

Critical Issue

Healthy Ecosystems

Responsibility for managing, stewarding, protecting, and restoring Oregon's ecosystems falls to all Oregonians across a broad range of local, state, federal, and Tribal agencies, as well as on private landowners, interest groups, and local organizations. Oregon has a rich history of work in this area, using numerous tools and institutions to help address and improve ecological conditions. Chapter 2 described the actions needed to support measurement and monitoring efforts and better define instream and ecosystem water quantity and quality needs. This "Healthy Ecosystems" section describes five actions to protect and improve ecosystem function and climate resilience. Actions address improvements needed in watershed protection and restoration, instream habitat and fish passage, instream flow protections, invasive species eradication, and groundwater protections. Protection, restoration, and responsible management of ecosystems offer the additional benefit of climate change mitigation.

Oregon's Ecosystems Provide Critical Benefits

Generally, the term "ecosystem" refers to a system of interdependent relationships between organisms and their surrounding environments. Healthy ecosystems provide a wide variety of benefits to Oregon's fish and wildlife as well as our communities. Oregon's ecosystems provide high quality water, carbon sequestration, flood control, fish and wildlife habitat, and productive soils while sustaining economically viable activities such as farming, ranching, fisheries, timber harvesting, power generation, and outdoor recreation.

By degrading or neglecting the natural functions of ecosystems, we risk jeopardizing the fish and wildlife that depend on these systems as well as our own quality of life. Ecosystem degradation subsequently results in a need to engineer unnatural solutions that attempt to mimic ecological functions, often at a great expense that yields a lesser quality function. For instance:

- Fish and wildlife populations are more expensive to maintain through restoration actions and hatchery operations than through the maintenance and protection of natural habitat and watersheds that provide clean, cold water;
- It costs far more to obtain drinking water when treated by a multi-million-dollar facility than maintaining a relatively healthy watershed that naturally provides a clean source of water;
- Flooding is far more frequent and costly when waters cannot be well absorbed by the physical environment and wetlands or stream floodplains cannot attenuate flood waters; and
- Crop production costs are higher when soil productivity is compromised.

Habitat and Ecosystem Functions

Flowing Water and Riparian Areas – Flowing water habitat includes all naturally occurring freshwater streams and rivers, including perennial, intermittent, and ephemeral streams and rivers, as well as springs and seeps. These systems support a wide variety of species, including fish, invertebrates, amphibians, birds, plants, and algae. Human activities such as constructing dams, deepening, widening, or straightening stream channels have had the unfortunate impact of degrading habitat and water quality. Methods to enhance the amount of water remaining instream are discussed in Action 11B. See Action 11D for recommendations regarding improving flowing water (e.g., stream) habitat including stream channel restoration and fish barrier removal.

Riparian areas are plant communities located in a zone of transition from an aquatic ecosystem to a terrestrial ecosystem, often containing a mix of trees and shrubs adjacent to a stream or river. Riparian areas provide important functions like bank stabilization, shade to keep water cool for fish, filtration of runoff before it enters the stream, and habitat for many species. Riparian habitats directly affect natural water storage, hydrology, water quality, water temperature, and habitat quality through their ability to hold and slowly release water, filter and

biologically process nutrients, and provide shade and habitat. Riparian ecosystems are dependent upon surface or subsurface water through the zone's soil-vegetation complex to support their overall health.

Oregon should continue encouraging efforts to prevent further degradation and improve riparian conditions through enforcement of existing regulations and voluntary restoration, such as the efforts conducted under the [Oregon Plan for Salmon and Watersheds](#)¹⁶, [Oregon's Agriculture Water Quality Management Plans](#)¹⁷, [Forest Practices Act](#)¹⁸ and [Riparian Lands Tax Incentive Program](#)¹⁹.

Floodplains - Floodplains are diverse habitats, adjacent to a river, stream, lake, estuary, or other water body that is subject to flooding. These areas, if left undisturbed, act to store excess floodwater which can protect downstream property from flooding and release water slowly, later in the year. They also provide valuable habitat for fish and wildlife. In the Willamette River Basin, flood control modifications have largely disconnected the Willamette River from its braided channels, oxbows and sloughs—wetland types that are remnants of its historical river channel. This fundamental disconnect in the valley's hydrologic regime has changed the character of the valley's floodplain and wetlands and greatly altered their storage, filtration, and habitat functions.

Reconnecting rivers and streams to their floodplains; restoring stream channel location and complexity; removing dikes and revetments; allowing seasonal flooding; restoring wetland and riparian habitats; and removing priority high-risk structures within floodplains²⁰ and other actions described in Oregon's State Wildlife Action Plan can restore floodplain functions.

Wetlands - Wetlands are distinct ecosystems that are flooded or saturated with water either temporarily (seasonally) or permanently. They provide valuable functions such as nutrient cycling, water storage, reduced flooding, clean water, recreation, and support a high diversity of microbes, insects, amphibians, birds, and other species. Wetlands can be found in a wide variety of locations, within floodplains, isolated in uplands, or near the ocean.

Large wetlands in Oregon, such as the Klamath Basin National Wildlife Refuge Complex and [Malheur Wildlife Refuge](#) support continental bird diversity by providing habitat for migrating species. In southern Oregon, the [Lower Klamath National Wildlife Refuges](#)' shallow marshes, open water, and grassy uplands support one of the most biologically productive refuges within the Pacific Flyway migration route. Approximately 80 percent of the flyway's



Twin Lake near Hells Canyon, Oregon. Credit United States Forest Service

migrating waterfowl pass through the Klamath Basin on both spring and fall migrations.²¹ The refuge provides habitat for 25 species of special concern listed as threatened or sensitive by California and Oregon.

Land development has changed Oregon's landscape, eliminating and degrading wetlands and waters. Oregon has lost about 40 percent of its original wetlands. The U.S. Fish and Wildlife Service (USFWS) estimates that Oregon has 1.4 million acres of wetlands today, compared to about 2.3 million acres of tidal and non-tidal wetlands that covered the same area in the late 1700s.²² A 2024 USFWS Study reports that under a high sea level rise climate change scenario, all salt marsh is predicted to be lost in Oregon by 2100.²³ Oregon must protect our remaining wetlands through rigorous permitting (e.g., Department of State Land's Removal-Fill permitting) and conservation on public and private lands. The state must also restore degraded wetlands to regain water storage capacity and other hydrologic benefits and support the many declining species reliant on these ecosystems.

Estuaries - An estuary is a zone of transition between the marine-dominated systems of the ocean and the upland river systems, a zone which yields one of the most biologically productive areas on Earth. Estuaries provide important habitat for many fish and wildlife species for rearing, nesting, foraging, and as a migration route. They also provide valuable flood attenuation, an important consideration under climate change scenarios that predict sea level rise and more frequent coastal storms. Numerous species can be found in Oregon's estuaries, such as salmon, herring, flounder, crabs, oysters, clams, ducks, geese, shorebirds, and harbor seals.

There are 22 major estuaries in Oregon. Although most estuaries along the coast are relatively small, the Columbia River estuary at Astoria is the largest in area at more than 80,000 acres. Some of the issues affecting the health of Oregon's estuaries include increased sedimentation and nutrient loading, introduced nuisance and invasive species, recreational and development pressures, and low freshwater inflows. Climate change and increased demand for out-of-stream uses will further impair freshwater inflow, impacting the salinity gradient, sedimentation, and nutrient loading of the estuary, and, therefore, the productivity of fish, shellfish, and other estuarine life. Managers along the West Coast are also concerned about how sea-level rise and ocean acidification will alter estuaries and impact threatened species.²⁴ Some communities are restoring tidal inundation to estuarine lands to build resiliency for coastal sea level change and tidal flooding.

Forests - Oregon's forests help filter drinking water, keep water cool, provide habitat for diverse animal and plant species, supply oxygen, moderate temperatures and rainfall, store atmospheric carbon, and support Oregon's economy. Healthy forests promote soils that provide natural filtration to keep streams clean and water quality high. Nearly 50 percent of the state, or 30 million acres, is classified as forestland.

Most of Oregon's municipal water systems rely on water that originates from forestlands, including those managed for wood production. At the state scale, data collected from the Department of Environmental Quality's ambient monitoring network indicates that public forestlands have the highest percentage of excellent or good water quality sites, compared to agriculture, urban areas, rangelands, and mixed land uses.²⁵ However, the ambient monitoring network encompasses all lands designated under a general forest land use type which includes private industrial forest lands, state forests (harvestable and/or non-harvestable), state parks, protected areas, and federal forest lands. It is not intended to assess water quality in or downstream of wildfire areas or actively manage timber lands where decreased canopy cover, forest management, and pesticide use may impact water quality.

Forests are part of the essence of Oregon, and our waters benefit from their sound management. However, many federal forestlands, particularly in drier regions, have massive ecological restoration needs. The rising expense of owning forestland and the land's growing value as real estate increases economic pressure to sell private forestland for development. As forests are converted to other uses, this leads to habitat fragmentation and displaces the species that rely on forest ecosystems. Increased home density within forested areas, coupled with increased wildfire risk from climate change, elevates the need for forest management to reduce fire risk.

Forest diversity can offer a range of benefits when land managers account for values such as wood production, aesthetics, recreation, habitat, water quality, and clean air. The Forestry Program for Oregon emphasizes the importance of efforts to maintain healthy, resilient, and functional forested areas, in part, for the benefit of water resources.²⁶ Keeping forests as forests, however, requires public support, investment, and resource protection policies that make continued forest ownership an economically viable alternative to conversion.

Oregon's Ecosystems Support Economic Health

Oregon's ecosystems sustain economically viable activities such as farming, ranching, fisheries, timber harvesting, power generation, and outdoor recreation, while providing high quality water, carbon sequestration, flood control, fish and wildlife habitat, and productive soils.

Navigation - Oregon's waterways have long served as important routes for travel and trade. According to the American Society of Civil Engineers ([ASCE](#)) Infrastructure Report Card,²⁷ Oregon boasts 680 miles of inland waterways, ranking 15th nationally. Many of the agricultural products grown in Oregon and elsewhere in the United States move down the Columbia River by barge. Instream flows sufficient for navigation facilitate ocean-going and river-going commerce and promote economic activity at ports and cities throughout Oregon.

Water-Related Recreation and Tourism - The focal point of many recreational activities in Oregon is often a river, waterfall, lake, wetland, or snow-covered mountain. Water resources offer opportunities for skiing, boating, kayaking, rafting, canoeing, camping, hiking, fishing, and observing wildlife, all of which greatly contribute to Oregon's economy. In their [2020 analysis](#), Earth Economics²⁸ estimated that all outdoor recreation in Oregon generates \$15.6 billion annually in consumer spending, and supports 224,000 direct jobs—\$9.3 billion in wages and salaries.

Many of Oregon's counties receive a significant boost to their local economy from those who travel to participate in fish and wildlife recreation activities. The economic value of fish and wildlife recreation is one of the many reasons for protecting water instream for the benefit of future generations.

Many of the state's day-use parks and overnight camping facilities reside along rivers and lakes. The Oregon Parks and Recreation Department manages more than 250 properties that include day-use areas and overnight camping facilities available for public use. Each year, these facilities²⁹ host over 50 million daytime visitors and 3 million campers.

Boating and kayaking are popular recreational activities as well, with more than 159,000 recreational boats in the state.³⁰ According to the Earth Economics analysis of outdoor recreation in Oregon, in 2019, boaters spent over 6.8 million activity days power boating, over 650,000 activity days canoeing, kayaking, rowing, or tubing, and over 500,000 activity days on personal watercraft (jet skis, etc.). Boaters divide their time evenly between rivers and lakes/reservoirs. The Columbia and Willamette Rivers are the most popular rivers, and Lake Billy Chinook, Brownlee Reservoir, Detroit Lake, Wallowa Lake, Prineville Reservoir, and Diamond Lake are the most visited lakes and reservoirs.



Fisheries - Healthy fisheries support the traditional and cultural identity of many Oregon communities. Northwest Tribal communities, for example, rely on salmon and other fish species as a major food source and a foundation of life, culture, economy, and spirituality. Because of Oregon's collective interest in the health of its fisheries, management responsibilities are shared among state, federal, and Tribal agencies.

Adequate instream flows are necessary to support Tribal Treaty Rights and Oregon's recreational and commercial fisheries. Native fish such as salmon, steelhead, and trout are an Oregon icon and support a vigorous recreational and commercial fishing economy. In their 2020 analysis of outdoor recreation in Oregon, Earth Economics reported that in 2019, anglers spent over 3.5 million activity days fishing Oregon's waters. The [Recreational Boating & Fishing Foundation](#)³¹ reported that, as of 2019, the number of anglers in America aged 6-years or older reached 50.1 million, accounting for approximately 1/6 of all Americans.

Hatcheries - The construction of dams beginning in the 1800's, has had negative impacts to fish populations, leading to the construction of fish hatcheries to mitigate fish losses and augment fisheries. The need for hatcheries continues today, with hatcheries distributed across the state.

The Oregon Department of Fish and Wildlife operates more than 30 hatcheries and several rearing ponds statewide. Five of the hatcheries include Tribal co-management. These facilities raise salmon, steelhead, and several species of trout. Hatcheries play a vital role in the state's overall efforts to maintain healthy fish populations and supplement recreational and commercial harvests. Each year, the state raises and releases 45 million fish on average from hatcheries. Clean, cold water is critical for the proper functioning of these facilities.

Action 11A

Improve Watershed Health, Resiliency, and Capacity for Natural Storage

Ecosystem resilience is the capacity to absorb and adapt to disturbance and change while maintaining essential functions. Healthy water resources are directly related to the resiliency of an ecosystem. Oregon's floodplains, rivers, riparian areas, wetlands, estuaries, forests, and other uplands provide essential habitat for fish and wildlife and valuable benefits for humans. These places have been modified to support human needs including flood control, irrigation, navigation, hydropower, recreation, land development, and other uses. Watershed protection and restoration is needed at many scales, including uplands and lowlands, to improve degraded habitat, restore resiliency, improve water quality, and increase capacity for natural storage. While Action 11A addresses the need to improve watershed health, Action 11D specifically addresses instream habitat improvements including fish passage.

This section describes existing statewide planning documents guiding ecosystem protection, restoration, and recovery. Actions outlined in these documents are voluntary, so success may depend on public-private partnerships and a variety of funding sources.

The Oregon Plan for Salmon and Watersheds

The [Oregon Plan for Salmon and Watersheds](#) (the "Oregon Plan"), is a statewide initiative launched in 1997 to help restore healthy watersheds that support the economy and the quality of life in Oregon. The Oregon Plan has a strong focus on salmon, largely because of the significant cultural, economic, and recreational importance to Oregonians—and because they are important indicators of watershed health. The Oregon Plan makes recommendations to improve water quality and quantity and to address factors that contribute to declines in fish populations and watershed health. Many of these measures are voluntary and depend upon the willingness of private citizens to implement restoration projects. These voluntary measures continue to be fundamental to the success of the Oregon Plan.

Landowners and other private citizens, community organizations, interest groups, and all levels of government come together to organize, fund, and implement these measures in a coordinated manner. Oregon's watershed

"We can increase investments in watersheds to store, filter, and deliver water for fish and wildlife."

-100-Year Water Vision (2020)

councils, soil and water conservation districts, land trusts and water trusts assist landowners with projects and lead restoration and land and water protection efforts in many watersheds throughout the state. The Oregon Plan has bolstered interagency and state-federal coordination and collaboration.

The Oregon Watershed Enhancement Board (OWEB), along with several state agencies, federal agencies, and non-profit organizations provide financial assistance for these restoration projects. The U.S. Department of Agriculture's Natural Resources Conservation Service, U.S. Bureau of Land Management, National Fish and Wildlife Foundation, the U.S. Environmental Protection Agency, the U.S. Forest Service, the U.S. Fish and Wildlife Service, NOAA Fisheries, and the Oregon Departments of Fish and Wildlife and Environmental Quality are actively funding watershed restoration projects. As part of its responsibilities, the Bonneville Power Administration funds regional efforts to protect and enhance fish and wildlife populations affected by federal dams in the Columbia River Basin. Other state agencies may administer programs or undertake actions that help advance the work of the Oregon Plan.

Future conservation efforts will be enhanced by continuing to implement and build upon the successful collaborative efforts of the Oregon Plan for Salmon and Watersheds, and other relevant documents including Oregon's State Wildlife Action Plan, Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program, Conservation and Recovery Plans and Biological Opinions, and water quality implementation plans. The Integrated Water Resources Strategy should be used to strengthen and forge new partnerships.

State Wildlife Action Plan (formerly the Oregon Conservation Strategy)

The State Wildlife Action Plan (SWAP), formerly referred to as The Oregon Conservation Strategy, was developed in 2006, for the goal of maintaining healthy fish and wildlife populations by maintaining and restoring functioning habitats, preventing declines of at-risk species, and reversing declines where possible. The SWAP is revised every 10 years, with the next updated version available in 2026. The Oregon Department of Fish and Wildlife (ODFW) leads the implementation of the SWAP.

The SWAP takes a non-regulatory, statewide approach, while recognizing that conservation issues vary by region and must be tailored to the unique needs of the fish, wildlife and human communities that coexist. The SWAP engages citizens in addressing Oregon's conservation needs by offering recommended voluntary actions and tools and encourages monitoring key species and attributes of ecosystems as well as measuring the effectiveness of conservation actions.

The SWAP has several components, including identifying key conservation issues (e.g., climate change, water quantity/quality), conservation opportunity areas, and 294 strategy species of greatest conservation need.

A Restoration Tool – Beaver Modified Landscapes

American beaver (*Castor canadensis*), Oregon's state animal, are common to Oregon's riparian areas and waterways (rivers, streams, lakes, ponds, marshes, and wetlands) where they have an ample supply of food and year-round water flow for shelter and protection from predators³². Beaver-modified floodplains and wetlands can trap sediment, filter or bind excess nutrients and toxic chemicals, thereby improving water quality. The sponge-like properties of these floodplain-wetland habitats may also reduce the severity of drought, wildfire, or flooding events.³³ Many planning and conservation efforts have identified the importance of beaver and beaver-modified habitats (e.g., beaver dams, pools, and wetlands) for Oregon's state sensitive and federally listed fish and wildlife species in a changing climate^{34, 35, 36, 37, 38, 39, 40, 41}. In 2023, the ODFW published the 3-Year Action Plan for Beaver-Modified Landscapes, August 2022-2025, which outlines goals and actions to be taken by the ODFW to advance the protection and restoration of beaver-modified habitat in Oregon⁴². The ODFW has established [10 Beaver Emphasis Areas](#) as focal areas for implementing the plan's actions and increasing collaborations with interested partners to

collect beaver activity data, restore beaver habitat, and/or advance opportunities for human-beaver coexistence. Additionally, ODFW is:

- developing tools and shared resources (e.g., partnering with the Oregon Department of Forestry to implement beaver activity survey protocols⁴³)
- developing a [Fish Passage Application Form and guidance for beaver coexistence flow devices](#)
- developing a Beaver Habitat Guidance Manual
- updating beaver management rules, tracking, and reporting
- [hosting Beaver Action Plan Partnership meetings](#)
- providing financial and technical assistance to partners (e.g., [Project Beaver's Best Management Practices for Pond Levelers and Culvert Protection Systems](#))
- partnering with OSU to conduct a beaver coexistence social science study to advance beaver-modified floodplain landscapes, where appropriate, in Oregon

Wetlands and slow-moving water created by beaver dams provide key habitat for amphibian, reptile, fish and bird populations. Beaver dams, pools, and off-channel habitats such side-channels and meanders, provide juvenile rearing and overwintering areas for salmon and steelhead.

Legislation from the 2023 legislative session ([House Bill 3464](#)) acknowledged the benefits of beaver to fish, wildlife, habitat, and humans in a changing climate and removes beavers from the "predatory animals" definition under ORS 610.002 to simplify management of beaver in Oregon.

While beavers play an important role in healthy ecosystems, their burrowing, foraging, and damming activities can damage timber, crops, landscaping, human infrastructure, and property, so balanced solutions are needed. Installing planting protections (e.g., fencing, gritted paint) or beaver flow devices (e.g., pond levelers, culvert exclusion devices) can reduce beaver-human conflict and prevent further property damage. The ODFW's [Living with Beaver](#)⁴⁴ guidance document provides facts about Oregon's beaver and tips for coexisting with them on the landscape. Additionally, the U.S. Fish and Wildlife Service developed a [Beaver Restoration Guidebook](#), updated in 2023, summarizing information for landowners, restoration practitioners, managers, and other parties who are interested in working with beaver to restore streams, wetlands, and floodplains.

The Beaver Restoration Guidebook

Working with Beaver to Restore Streams, Wetlands, and Floodplains

Version 2.02, March 23, 2023



Photo credit: North A Den Foundation (northaden.org)

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Version 2.02. Get the latest version at: <https://www.fws.gov/media/beaver-restoration-guidebook>

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The Private Forest Accord Grant Program

The Private Forest Accord Mitigation Fund and its associated grant program (known as the PFA Grant Program) was established in the 2022 Legislative Session (Senate Bills [1501](#) and [1502](#); [House Bill 4055](#)) as an outcome of the landmark agreement between timber and conservation groups designed to enhance aquatic resource protections in the Forest Practices Act while providing long term regulatory assurances for the timber industry. The Private Forest Accord Grant Program, administered by the ODFW, is an incredible opportunity to move the dial toward conservation and recovery for some of Oregon's most sensitive fish and amphibians. With significant investment from the State of Oregon and timber harvest tax revenue, the Private Forest Accord Grant Program will be capable of delivering nearly \$15 million in conservation grants every year (up to \$250 million over the life of the program). Watershed-scale investments in projects like stream habitat restoration, removal of barriers to fish passage, cold water and flow protection, beaver-modified habitat creation, and more will create statewide benefits for the species covered by the Private Forest Accord Habitat Conservation Plan.

Soil Health Improves Watershed Health

Soil health describes the overall composition of soil, including soil structure, the water and nutrient holding capacity of the soil, the amount of organic matter in the soil and the continued capacity of the soil to function as a biological system. Healthy soils with a high percentage of organic matter and water holding capacity provide both climate mitigation and climate adaptation resilience. Climate-smart agricultural practices provide an opportunity to improve soil health, increase plant and wildlife diversity, and protect and improve water quality. Soil and water conservation districts, the Oregon Department of Agriculture, Oregon State University, and the U.S. Natural Resources Conservation Service can all serve as resources for providing technical assistance, outreach, education, financial incentives to guide voluntary efforts to improve soil health and implement climate-smart agriculture. The Oregon Agriculture Heritage Program at the OWEB provides grants for projects that improve soil health and increase carbon sequestration on natural and working lands.

Action 11A

Improve Watershed Health, Resiliency, and Capacity for Natural Storage

Examples of how to carry out this action:

- Protect and restore instream habitats and watersheds to build climate change resiliency
- Improve and protect riparian conditions to create a healthy buffer between aquatic ecosystems and adjacent land use and development to provide fish and wildlife habitat and protect water quality
- Restore meadows, wetlands, and hydraulic connectivity to side channels and floodplains to maintain critical functions like processing nutrients, providing habitat, and natural storage
- Protect and restore estuarine conditions to maintain the natural mixing of freshwater and marine systems and allow for safe tidal inundation to build resiliency for sea level change and flooding
- Protect and restore beavers, beaver habitat, and beaver-modified habitat
- Protect and restore floodplains and native riparian-floodplain vegetative communities
- Identify and implement actions to protect and maintain drinking water source areas quality and quantity in upland and forested areas
- Collaborate and/or consult with Tribes as needed to prioritize locations targeted for protection and restoration and restore access to First Foods
- Invest in restoration projects led by Tribes, low-income communities, and communities of color to discover new approaches and best management practices that meet community goals for clean water
- Strengthen protections under Oregon Statewide Land Use Planning Goal 4 which limits development on non-federal forestlands.
- Implement climate-smart agricultural practices to improve soil and watershed health

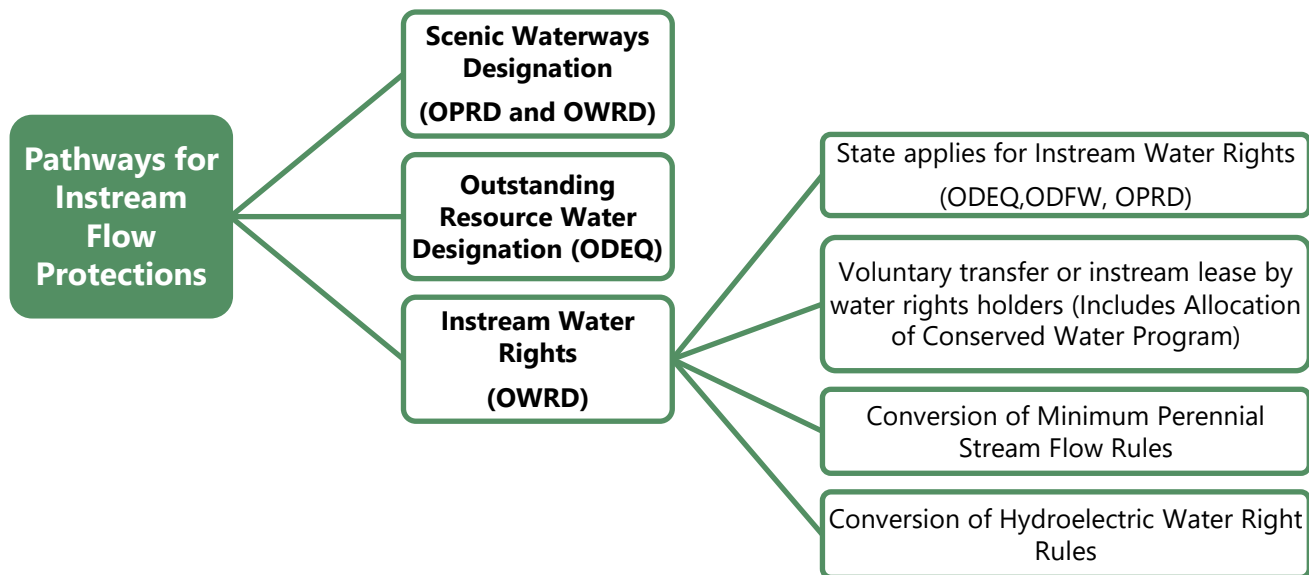
Action 11B

Develop Additional Instream Protections

In many areas of Oregon, streamflows are very low or even non-existent during late summer months, largely due to human causes like diversions for irrigation or other beneficial water uses. Low streamflow conditions are made worse by periods of intensive water use or drought. Low streamflows often mean higher water temperatures and increased nutrient concentrations, contributing to poorer water quality for fish, wildlife and humans. Oregon needs to conserve and protect streams by developing additional instream flow protections and seek opportunities for enhancing and restoring streamflow.

Several laws, policies, and regulations that can be used to protect Oregon's rivers and streams are described in detail in Appendix B. The primary pathways for protecting water instream are illustrated in Figure 4-8 and described below.

Figure 4-8: Pathways to Protect Water Instream



Scenic Waterways Designation

In 1970, Oregonians voted to establish the Scenic Waterways Program to allow designation of a river or lake to protect its unique character and protect it from future degradation. The construction of dams or other impoundments are prohibited within a scenic waterway. Designation limits new surface water rights within or above scenic waterways as well as groundwater rights where pumping (individually or cumulatively) will reduce surface water flows. Land use activities that can affect a scenic waterway or adjacent land are also regulated, including constructing roads or buildings, mining, and forest harvesting.

The Oregon Parks and Recreation Department (OPRD) administers the Scenic Waterways Program. The Governor designates a candidate river or lake as State Scenic Waterway after a recommendation from Oregon Parks and Recreation Commission and concurrence from Oregon Water Resources Commission.

A portion of the Nehalem River was the most recent waterbody receiving scenic waterway designation, in 2019. There are currently portions of 22 rivers and one mountain lake [designated as scenic waterways](#).

The public can participate in additional waterway protection by supporting the OPRD process for designation. The OPRD must conduct Scenic Waterway Studies to assess waterway eligibility, including engagement with state and federal agencies, Tribes, local governments, landowners, conservation groups, and others.

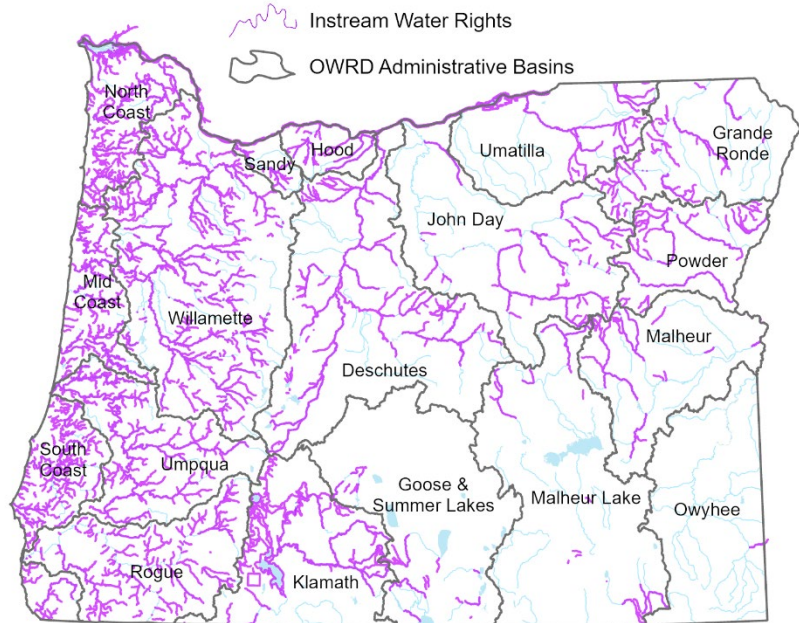
Outstanding Resource Water Designation

An Outstanding Resource Waters designation by Oregon's Environmental Quality Commission adds water quality protections, including restrictions on point source discharges to identified streams or lakes. Designation protects high quality water from degradation, thereby protecting exceptional ecological characteristics, and other outstanding values of the waters. In July 2017, the North Fork of the Smith River and its tributaries and associated wetlands became the first Outstanding Resource Water designated in Oregon. In 2021, Waldo Lake and Crater Lakes were designated as Outstanding Resource Waters.

Instream Water Rights

As described in Appendix B under the Instream Water Rights Act, the Department of Fish and Wildlife (ODFW), OPRD and Department of Environmental Quality can submit applications to protect water instream for uses such as fish and wildlife, water quality, recreation, and scenic values. The state's policy is to obtain an instream water right on every stream, river, or lake which can provide significant public benefits. There are almost 1,600 certificated instream water rights across the state covering approximately 10,000 river miles (only about 7% of Oregon's streams). Therefore, Oregon needs to continue establishing additional instream water rights to protect instream flows, resolve existing protested instream water right applications, and expand the scope and scale of its toolbox to conserve and restore flow.

Figure 4-9: Instream Water Rights
July 2025



Additional data needs regarding instream water rights were discussed in Chapter 2, Action 2A, including the need to identify the full suite of flows and temperature conditions necessary to support species habitat (e.g., ecological flows) to inform the amount of flow requested in instream water right applications. A potential ODFW rule change may be necessary to incorporate a broader range of techniques that lead to protection of ecosystem needs, including consideration of temperature-based flows.

Oregon's original Water Code formalized a system of water allocation that did not consider water for instream uses, causing Oregon's freshwater habitats to quickly become degraded. Because the Instream Water Right Act was not enacted until 1987, most instream water rights today are quite junior compared to existing out-of-stream water rights, some of which date back to the 1800s. The practical effect of the junior status is that instream flows, even when identified in an instream water right, are often not fulfilled during the summer months. As a result, actual flow protections often cannot be realized under Oregon law based on prior appropriation. In most instances, achieving instream water right flow targets will depend on both healthy, functional watersheds and voluntary partnerships with senior water right holders to be effective.

Instream Transfers and Leases and Flow Restoration - The Instream Water Rights Act also allows water users with valid, existing surface water rights to voluntarily transfer water instream to restore streamflow through a program administered by the Water Resources Department (OWRD). An out-of-stream use, such as irrigation for agricultural crops, can be transferred instream to restore flows on a temporary or permanent basis with the priority date of the original right. The water user has the option of transferring an entire water right instream, or a portion

thereof. One of the basic tenets of instream transfers and instream leases is ensuring that other water users are not injured as a result of the changes to the use. Education and incentives are needed to encourage voluntary actions such as instream transfers or leases.

Instream flow restoration activities have predominantly occurred in a handful of basins, although streamflow restoration needs have been identified in every basin. As of July 1, 2025, there were 447 active instream leases and instream transfers in place. Active instream leases resulted in nearly 3500 cubic feet per second (cfs) protected instream, with most of that flow reflecting leases for hydroelectric power generation. Approximately 432 cfs is kept instream associated with permanent or long-term transfers. In addition, the majority of water put instream on a permanent basis is associated with senior water rights, resulting in an impactful instream benefit.

Flow restoration through instream transfers and leases benefits greatly from active partnerships between the state, Tribes, soil and water conservation districts, watershed councils, irrigation districts, private landowners and Oregon's conservation organizations, including The Freshwater Trust, the Deschutes River Conservancy, Trout Unlimited, and others. Incentives offered by these organizations and others can help land remain productive and profitable, while also benefitting freshwater ecosystems. State funding sources can also pay individuals to transfer or lease water instream. The OWRD's Water Projects Grants and Loans can fund projects and the Oregon Watershed Enhancement Board offers water acquisition grants that fund transfers, leases, water conservation projects, and other water use agreements where ecologically beneficial. The state needs to increase resources and capacity to expand flow restoration efforts. Biological flow targets help guide agencies and other collaborators in voluntary restoration efforts and long-term basin planning that benefit fish, wildlife, and their habitats. Developing and implementing strategies that identify and target watersheds with the highest instream flow needs helps to expand voluntary streamflow restoration beyond current efforts, on both public and private lands.

Some wastewater and stormwater utilities in Oregon may pursue purchasing or leasing water rights to keep cold, clean water instream while meeting their compliance requirements, particularly when coupled with reuse (see Action 10B). This approach has the potential to help meet temperature TMDL requirements in some watersheds. [Water quality trading data](#) is available for many projects across Oregon.

There are also some federal funding sources to support flow restoration, including the National Fish and Wildlife Fund and Bonneville Power Administration's Columbia Basin Water Transactions Program.

Allocation of Conserved Water - The Allocation of Conserved Water Program at the OWRD allows a water user who conserves water to use a portion of the conserved water on additional lands, put the portion of water to a new use, lease or sell the water, or dedicate the water to instream use. To participate in the program, the water user

Action 11B

Develop Additional Instream Protections

Examples of how to carry out this action:

- Designate Scenic Waterways where needed to protect recreation, fish, and wildlife uses
- Designate Outstanding Resource Waters where needed to protect extraordinary water quality or ecological values
- Establish additional instream water rights where needed to protect the full suite of flows for fish and wildlife, water quality, recreation, and scenic attraction
- Promote utilization of voluntary OWRD programs including Allocation of Conserved Water and instream transfers and leases to restore flow instream
- Expand education, funding opportunities, and use of voluntary programs to protect and restore streamflow, lake levels, and cold water refugia
- Increase resources and capacity to expand the geographic range and increase effectiveness of flow restoration efforts by identifying flow restoration priorities and focusing resources to priority areas
- Update ODFW Rules (OAR 635-400; last modified in 1989) to incorporate a broader range of techniques to determine flow amounts to protect ecosystem needs including consideration of temperature-based flows
- Increase compliance with water rights laws (Also See Actions 10E and 10F)
- Improve process for resolving instream water rights protests

must make a physical change to their water delivery system, being a change to how the water is distributed (piping of a canal) or making efficient changes to the on-farm delivery system (changing from pivots to drip irrigation). Use of this program is voluntary and provides benefits to both water right holders and instream values. One program requirement is that at a minimum, 25% of the conserved water is dedicated instream. As of July 1, 2025, the OWRD had approved 129 applications resulting in approximately 268.463 cfs permanently protected and 90.644 cfs temporarily reserved instream.

Conversion of a Hydroelectric Water Right - Oregon Administrative Rules (OAR 690-054) outline procedures for converting a hydroelectric water right to an instream water right in accordance with ORS 543.305. Hydroelectric water rights that have not been used in five years, have expired, or are voluntarily retired can be converted to an instream water right. The point of diversion and priority date of the hydroelectric water right apply to the instream water right, which is held in trust for the people of the State of Oregon.

Action 11C

Prevent the Spread of Invasive Species

The Oregon Invasive Species Council defines an invasive species as a non-native species that can cause economic or environmental harm or cause harm to human health. It can be a plant, animal or any other biologically viable species that enters an ecosystem beyond its native range. Invasive species disrupt the natural function of an ecosystem by competing and replacing native species and disrupting the natural habitat.

Oregon experiences threats from invasive species in both aquatic and terrestrial ecosystems. Aquatic invasive species can flourish in waterways, reducing water quality, competing with native plants, and clogging boat, hydropower, municipal, and irrigation infrastructure. Native plant species in riparian and wetland areas adjacent to waterways face competition from invasive species, limiting their capacity to provide benefits such as shade, shelter, and food. Invasive species can also impact the health of uplands, where well-managed forests are critical to protecting source water quality.

Climate change is expected to increase the introduction and spread of invasive species. Disturbances to natural and working landscapes from severe storms, flooding, and wildfires can damage or kill native plant communities, making them vulnerable to non-native invaders. Increased temperatures may increase the range of invasive species, requiring diligent monitoring to identify new infestations before they become problematic.

The scale and pace of invasive species management will need to increase accordingly. Multi-agency coordination is critical for timely and effective eradication and management. A good example of this is the state's response to the Emerald Ash Borer that threatens native ash trees along our rivers and streams, as well as ornamental ash trees located throughout neighborhoods, parks, and cities.

Impacts to First Foods

Invasive species can cause major changes to ecosystems, reducing biodiversity and the availability of Tribal First Foods that are essential to Tribal traditions and culture.

Action 11C

Prevent and Eradicate Invasive Species

Examples of how to carry out this action:

- Support and continue funding for the Aquatic Invasive Species Prevention Program
- Support and continue funding for the Oregon Invasive Species Council
- Identify and implement projects to support the State Wildlife Action Plan to prevent new introductions, and decrease the scale and spread of infestations
- Continue to implement and enforce ballast water management regulations
- Provide technical assistance and landowner education for invasive species detection and potential control and management actions on agricultural and forestlands
- Couple invasive species eradication with native species restoration efforts (see 11A)
- Support protection of culturally significant plants, animals, and ecosystems from invasive species
- Promote the propagation, growth, and sale of native plants

Invasive species management must consider ecological processes that relate to the sustained production of First Foods and be done in a way to prevent impacts to Tribal people reliant on those resources.

Aquatic Invasive Species

Quagga and zebra mussels, along with hydrilla (a waterweed), and Northern Pike are currently among the top aquatic species of concern to keep out of Oregon. Quagga and zebra mussels and aquatic vegetation can be easily transported by trailered watercraft and have spread rapidly in portions of the United States due to their adaptability, lack of natural predators and physical transport. Species like Eurasian watermilfoil and New Zealand mudsnails already contaminate some Oregon waterbodies.⁴⁵

The [Aquatic Invasive Species Prevention Program](#) and invasive species actions contained in the Department of Fish and Wildlife's State Wildlife Action Plan (SWAP) provide key tools for fighting invasive species. Key elements of the SWAP are to prevent new introductions of invasive species, control the scale and spread of infestations, and eradicate invasive species, if possible, through boat inspection stations. Inspections act as a line of defense and an opportunity to educate the public about the risk of aquatic invasive species entering our state.

Ballast Water – The discharge of ballast water, used to provide stability for large commercial ships, is a primary pathway of concern for introducing non-native species from foreign ports, potentially threatening our regional waterways. The Department of Environmental Quality (ODEQ) implements and enforces ballast water management regulations to reduce the risk of introducing new aquatic invasive species by prohibiting ballast water discharge unless it meets specified criteria. Since 2012, the ODEQ ballast water program has been supported by a 50-50 cost share between the General Fund and a fee on regulated vessels using Oregon waters. In addition to monitoring vessels for pre-arrival ballast management compliance, the ODEQ identifies high-risk arrivals and conducts vessel inspections and compliance verification sampling on at least 12 percent of vessels calling on Oregon ports.

Invasive Species in Forests

Invasive species also cause issues in uplands, and their impact on Oregon's forests can lead to water quality and quantity concerns. Diseased or dying trees, on a large scale, are unable to provide the watershed benefits of filtering and storing water. The Oregon Department of Agriculture (ODA) and Oregon Department of Forestry coordinate on monitoring and response to invasive species on forestlands (Figure 4-10).

Figure 4-10: Invasive Species Common in Oregon Forests and Uplands

Insects:	Diseases:
Asian giant hornet	Sudden oak death
Elongate hemlock scale	White pine blister rust
Emerald ash borer	Port-Orford-cedar root disease
Larch casebearer	
Mediterranean oak borer	
Spongy moth	

Urban Forests - Maintaining and increasing tree canopy in urban areas can help both mitigate and adapt to climate change. Urban trees are also vulnerable to climate change and threats from pests and disease. The Urban and Community Forestry Program through the Oregon Department of Forestry is collaborating with the Department of Land Conservation and Development on the Community Green Infrastructure Grant Program that can help fund climate resilient green infrastructure projects.

Invasive Species in Agriculture

Invasive species can threaten the health and profitability of crops, and the ability of agricultural infrastructure to work properly. Aquatic invasive species can clog irrigation intakes or ditches. Irrigation structures that create shallow pools can elevate water temperatures that are unsuitable for native aquatic species but are tolerated or preferred by invasive species.

Invasive species management, including pesticide and herbicide use, must avoid negative impacts to soil, water, and air. Pesticide or herbicide residue or runoff can find its way into local waterways, potentially harming aquatic wildlife

or polluting drinking water sources. The ODA the Oregon Invasive Species Council, which provides extensive resources on their [website](#). They have developed a [Digital Information Hub](#) that provides species profiles of the numerous invasive species of concern for agricultural landscapes.

Action 11D

Protect, Restore, and Provide Access to Instream Habitat for Fish and Wildlife

Freshwater ecosystems including perennial, intermittent, and ephemeral rivers and streams, seeps and springs, and wetlands are essential for providing habitat to many at-risk species, including important spawning and rearing habitat for salmonids, amphibians, freshwater mussels, and other invertebrates. However, most river systems in Oregon have been heavily modified to achieve various flood control, irrigation, navigation, hydropower, recreation, and other water supply benefits. The construction of roads and their associated bridges, culverts, and tidegates have altered many river and stream systems. These modifications have greatly reduced the amount of accessible stream habitat for many aquatic species, degraded habitat and water quality, and caused the decline of many species and subsequent Endangered Species Act listings.

Oregonians can be proud of the work that has been done to protect and restore the condition of rivers and streams throughout the state. Tens of thousands of degraded stream miles have been improved through riparian habitat projects, removal of fish passage barriers, instream habitat enhancement, and restoration of streamflows. These efforts have helped improve the ecological and economic health of Oregon's fish, wildlife, and communities. Our cooperative, community-level approach to watershed and stream restoration, through partnerships developed under the Oregon Plan for Salmon and Watersheds, has significantly improved water quality and fish and wildlife habitat. Oregon should build upon this good work to further enhance stream restoration and fish protection efforts.

Habitat for Aquatic Species

Freshwater habitats contain an incredible proportion of Oregon's biodiversity. Water is crucial for all fish and wildlife, and high quality freshwater aquatic systems provide essential habitat for many at-risk species. Beyond the multitude of Oregon's iconic fish species, many species of wildlife, such as the Oregon Spotted Frog, rely on instream habitat for a portion or all their life cycle.

Installing fish screens, replacing culverts with bridges, building fish-friendly culverts, constructing fishways, stabilizing road fill material, and removing obsolete infrastructure (also see Action 7A) are all techniques that can be used to restore and protect fish, habitat, and passage for fish.

Ways to improve instream habitat conditions include protecting streams from degradation, including channelization, riparian vegetation removal, erosion, runoff, and pollution, and restoring channel and floodplain function and complexity with restoration projects. For example, ongoing efforts to replace culverts present opportunities for developing, testing, and implementing methods to maximize habitat connectivity for a variety of aquatic and terrestrial species. Wildlife crossings are becoming more popular on busy roads as well. There are many regional, state, and local documents and plans outlining species-specific protection and recommended habitat improvements, including the State Wildlife Action Plan (SWAP). The SWAP provides a list of "strategy species," or species of greatest conservation need, along with voluntary conservation actions and resources to benefit those species.



Credit Ryan Hagerty / USFWS

Fish Passage – Barriers such as dams, dikes, road fill, culverts, and tide gates change hydrological conditions and alter natural flow regimes. Many of these artificial obstructions create safety hazards for fish, can prevent fish passage altogether, alter transport of sediment, boulders, gravel, and wood, and create an uneven distribution of habitat.

The Department of Fish and Wildlife works with owners or operators of artificial obstructions in several ways to address barriers to fish passage, including administering a [cost share program](#) for voluntary upgrades. Recognizing the unique nature of migratory fish in the Pacific Northwest, many other agencies and organizations have helped Fish and Wildlife to compile data on fish passage barriers throughout the state. Compiling this information is a first step in a long-term process to fill existing gaps related to [fish passage data](#) and fish habitat distribution data, with the hope of integrating the two datasets to further fish passage restoration opportunities.

This ongoing effort has resulted in the identification of approximately 45,000 potential barriers to fish passage, which includes both natural (waterfalls, steep gradients, etc.) and artificial obstructions (dams, bridges, culverts, tide gates, etc.). Almost 70 percent of the potential barriers that were compiled are culverts. Although significant progress has been made to compile data on fish passage barriers and fish habitat distribution, more work is needed to fill data gaps, including the inclusion of several local, county, Tribal, and federal agency inventories and information regarding barriers on private land. Oregon should continue to address and/or remove barriers, particularly at high-priority sites identified on the Department of Fish and Wildlife's Statewide Fish Passage Barrier Priority List. Removal of fish barriers may offer public safety benefits and reduce the economic liability associated with the fish barrier.

The National Oceanic and Atmospheric Administration has developed West Coast Fish Passage Guidelines to communicate the importance of considering climate, hydrologic, geomorphic, and biologic processes when designing fish passage for salmonids. Native fish such as Pacific lamprey, sculpins, and sturgeons are not as strong swimmers as salmonids and generally get less attention in fish passage and screening discussions. However, the Pacific Lamprey Conservation Initiative and its technical advisory committee, the Lamprey Technical Workgroup, have released several publications that provide guidance for fish passage and screening for native lamprey.

Fish Screening – Another aspect of fish protection is fish screening, an important part of the Oregon Plan's efforts for the protection, restoration, and recovery of native migratory fish, such as salmon and steelhead. Fish screening significantly reduces juvenile fish mortality at water diversions by preventing fish from entering diversion ditches, machinery, pumps, or irrigated fields. Since the early 1990s, the state has required fish screening and/or bypass devices as a condition of approval for surface water permits and transfers, when applicable. The Department of Fish and Wildlife operates the state's fish screening program and has helped install more than 1,500 fish screens through its cost-share and tax credit programs. The 2023 Legislature extended the sunset for fish screen tax credits through January 1, 2030. Oregon should continue to require fish screening at new diversions and work to screen unscreened diversions, particularly at priority sites.

Historic Klamath Dam Removal Effort

Many dam removal projects occur throughout the state in an effort to restore ecosystems and fish passage. As introduced in Action 9A, a historic dam removal project in Oregon and California was completed in 2024. Four PacifiCorp dams, JC Boyle, Copco No. 1 and 2 and Iron Gate, located on the Klamath River were all removed, and as of August 28th, 2024, the river was free-flowing and providing access to over 400 stream-miles of historic spawning and rearing habitat for Chinook, Coho, steelhead, and lamprey. Almost immediately post-removal, hundreds of fall Chinook were observed spawning in the Oregon portion of the project area. The dam removals are expected to improve water quality, reducing stagnant water that can support harmful algal blooms (HABs), and support the cultural lives, health, and economic well-being of Native American communities in the Klamath Basin.

This dam removal project took decades of negotiations and is currently the largest dam removal project in the country, possibly the world. The Klamath River Renewal Corporation leading the effort has contracted with the Yurok Tribe to revegetate the land exposed from draining the dams. Restoration activities along the Klamath River

will continue for about the next 10 years. More information about the project can be found on the [Klamath River Renewal Corporation's website](#).



One of four dams removed on the Klamath River, the JC Boyle Dam (left) before removal, and following removal (right). Credit: ODFW

Action 11D

Protect, Restore, and Provide Access to Instream Habitat for Fish and Wildlife

Examples of how to carry out this action:

- Implement Oregon's fish screening and passage laws
- Continue to update the inventory of fish passage barriers and priority unscreened diversions
- Address and/or remove barriers, particularly at high-priority sites identified on the Department of Fish and Wildlife's Statewide Fish Passage Barrier Priority List
- Support fish screening efforts
- Build upon existing ecological planning and restoration efforts by incorporating fish screening and passage needs and enhancing instream habitat conditions (e.g., water quality, channel complexity)
- Update streamflow restoration priority areas using new species distribution, climate change projections, hydrologic data, and water quality impairments related to streamflow
- Couple stream restoration projects with voluntary flow restoration projects (see Action 11B)
- Restrict livestock access to riparian areas and streambeds through regulatory compliance, where applicable, and support cooperative fencing programs/efforts
- Provide financial and technical assistance, when applicable, to landowners and other interested parties to implement projects that improve fish habitat and mitigate risks to natural resources (e.g., road construction with fish-friendly culverts, large wood placement)
- Ensure fish screening and fish passage laws are addressed in FERC hydroelectric project relicensing or when adding hydroelectric generation to an unpowered dam

**Action
11E**

Develop Additional Groundwater Protections

The Oregon Atlas of Groundwater Dependent Ecosystems, published in 2022, found that more than a third of all streams and rivers depend on groundwater, and about two-thirds of all lakes and ponds do as well⁴⁶. Groundwater discharge contributes to springs, wetlands, and streamflow throughout the state, often providing sustained flows and vital cold water for aquatic species during summer months. Contributions from groundwater support ecosystems (known as groundwater-dependent ecosystems) and human systems alike. Just as this Strategy calls for the development of additional instream protections (Action 11B), it also calls for the development of additional groundwater protections. Such protections should support a goal of sustainable groundwater management to benefit groundwater dependent ecosystems as well as water rights and public health.

In some locations of the state, groundwater withdrawals are occurring at a rate greater than what can be replaced with rain or snow. Consecutive years of drought and climate change are intensifying this situation. Groundwater contamination is also an issue, with ongoing nitrate contamination in the Lower Umatilla Basin, Northern Malheur County, and Southern Willamette Valley Groundwater Management Areas, proving to be a difficult problem to improve or resolve.

The Groundwater Act of 1955 (see Appendix B) established the authority for groundwater management and monitoring for the preservation of the public health, safety, and welfare. There are existing regulatory programs designed to protect groundwater quantity and quality, however, they are limited in effectiveness by the resources allotted to the respective responsible agencies and programs. Additionally, rules that guide groundwater management sometimes need to be updated to reflect new scientific analyses and current conditions.

Designate and Manage Groundwater Administrative Areas

Introduced in Action 1A, the Water Resources Department (OWRD) oversees 22 Groundwater Administrative Areas designated to limit further water level declines or groundwater interference with surface water. Specific rules apply to each Groundwater Administrative and Limited Area and may include withdrawing the area from future allocation, curtailing existing uses, or mitigating for new uses where groundwater is hydraulically connected to surface water. Adequate data (see Actions 1A and 1B) and agency capacity are needed to designate and manage Groundwater Administrative Areas.

Improve Water Quality in Groundwater Management Areas

Introduced in Chapter 1, Action 1A, the Department of Environmental Quality (ODEQ) may designate a Groundwater Management Area when monitoring and assessment shows evidence of groundwater contamination ([ORS 468B.175-188](#)). Commonly tested contaminants include nitrates, bacteria, and arsenic. Groundwater Management Areas can be designated for other contaminants, although the only current designations are due to nitrate. The three areas designated due to nitrate contamination are the Lower Umatilla Basin, Northern Malheur County, and Southern Willamette Valley. Common sources of nitrate contamination are agricultural use of fertilizers, manure, and septic systems.

Once a Groundwater Management Area has been declared, a local groundwater management committee is formed and then works with state agencies to develop an action plan to address the contamination. The ODEQ must coordinate projects and activities of other agencies designed to reduce impacts on groundwater from:

- Commercial and industrial activities;
- Commercial and residential use of fertilizers and pesticides;
- Residential and sewage treatment activities; and
- Any other activity that may result in contaminants entering the groundwater.

Statute outlines additional requirements that include promoting public awareness, awarding grants for projects that address contamination, coordination with federal agencies, and more.

The Oregon Nitrate Reduction Plan for the Lower Umatilla Groundwater Management Area was published in 2024. Multiple state agencies are collaborating on the implementation of this plan to reduce nitrate contamination in groundwater to protect the health of people residing in parts of northern Morrow and northwestern Umatilla counties.

Passed by the Oregon State Legislature in 2025, [Senate Bill 1154](#) updated processes for managing ground water quality contamination concerns to be more proactive, integrated across state agencies and prioritize engagement with local entities. At its core, this legislation lays out a new process for assessing groundwater quality data and concerns, preparing an action plan, implementing regulations, and taking any other necessary actions to address ground water quality, while also promoting increased monitoring, reporting, and coordination to protect public health and water resources.

Action 11E

Develop Additional Groundwater Protections

Examples of how to carry out this action:

- Implement actions for sustainable groundwater management through voluntary, incentive-based, and regulatory means
- Develop clear objectives and metrics for defining sustainable groundwater management
- Designate groundwater limited areas
- Protect groundwater through proper well construction (also see Actions 7A, 12A)
- Identify and protect and/or restore springs, cold water discharge to surface water, and wetlands (also see Action 11A)
- Prioritize resources where frontline communities are experiencing unsafe drinking water, with potentially serious health consequences (also see Action 12A)
- Implement improvements to groundwater quality management (Senate Bill 1154, 2025)
- Explore methods to protect groundwater in situ

Groundwater Management Rulemakings

Beginning in 2023, the OWRD worked with the Water Resources Commission to conduct a groundwater allocation rulemaking to update the state's process for issuing new groundwater rights in a manner more sustainable and more protective of existing water rights. The updates focus on the definition of "water is available" for future allocation and redefines the criteria for determining availability based on best available science while honoring the doctrine of prior appropriation. For example, the Ground Water Act of 1955 refers to determining and maintaining "reasonably stable groundwater levels," but the term was not defined in rule. Acknowledging the hydraulic connection between surface water and groundwater, these updated rules also set criteria to address the potential impacts of new groundwater permits on already depleted streams and other surface waters. The updated rules were adopted by the Water Resources Commission in September 2024.

The OWRD is also working with various community working groups in the Harney Basin to reduce groundwater use by rulemaking and other means. The proposed rulemaking is in response to findings from the Department's observation wells and the [2022 Harney Basin groundwater study](#). The study found that groundwater withdrawals are not being recharged where groundwater withdrawals in the lowlands of the basin exceed natural recharge by 110,000 acre-feet per year. If adopted, the proposed rules would designate a Critical Groundwater Area to control groundwater use in over-appropriated areas of the basin.

Voluntary Agreements

Voluntary agreements are a cooperative management tool available to groundwater users. Oregon Revised Statute 537.545 authorizes the Oregon Water Resources Commission to approve such agreements among groundwater users from the same groundwater reservoir. These agreements must align with the intent, purposes, and requirements of the Ground Water Act of 1955, including the provisions pertaining to the designation of Critical Groundwater Areas. However, the statute is not limited to those reservoirs that have a Critical Groundwater designation. One possible benefit of a Voluntary Agreement is allowing groundwater users to act before

groundwater resources become unsustainable and a Critical Groundwater Area designation or other control measures are necessary to protect the resource. Another potential benefit is the ability of groundwater users to enter into agreements that implement best practices that may be as or more effective than those tools available through a Critical Groundwater Area designation or other control measures.

Related Strategy Actions

Many Strategy actions seeking to improve water management, increase water efficiency and water conservation, and protect people and the environment from pollution have the combined benefit of protecting surface as well as groundwater. Just a few such actions are listed below to illustrate the wide range of Strategy actions that seek to protect groundwater quantity and quality:

Strategy Actions to Protect Groundwater Quantity

- Conduct additional groundwater studies (Action 1B)
- Improve water use measurement and reporting (Action 3A)
- Support modernization of Oregon's Well Construction Program (7A)
- Provide outreach and educational resources for communities regarding water conservation (Action 8C)
- Improve water-use efficiency and water conservation (Action 10A)
- Encourage water reuse projects to reduce use of potable water for non-potable uses (Action 10B)
- Support voluntary programs to reduce the amount of irrigated land (e.g., Conservation Reserve Enhancement Program) (Action 10D)
- Provide an adequate field presence to identify and address illegal water use (10E)
- Strengthen water quantity permitting programs (10F)
- Restore wetlands and floodplains to increase capacity for natural storage (Action 11A)
- Fund water resource management activities such as distribution (Action 13B)

Strategy Actions to Prevent Groundwater Contamination

- Fund water resource management activities such as groundwater quality monitoring (Action 1A, 13B)
- Plan and prepare for flood events to minimize water quality issues (e.g. sewage releases into the environment) (Action 5B)
- Protect groundwater quality from contamination through proper well construction or decommissioning (Action 7A)
- Support modernization of Oregon's Well Construction Program (7A)
- Repair or upgrade wastewater infrastructure that poses a risk to groundwater contamination (Action 7A)
- Provide outreach and educational resources regarding domestic well and septic system maintenance/ownership (Action 8C)
- Engage with communities to develop plans to address contamination (Actions 9A, 9E)
- Provide an adequate field presence to identify sources of pollution (10E)
- Strengthen water quality permitting such as the TMDL program (Action 10F)
- Protect and restore watersheds, including wetlands, floodplains, etc. (Action 11A)
- Protect municipal drinking water source areas (Action 12A)
- Reduce pesticide use and educate pesticide users through the Pesticide Stewardship Partnership (Action 12B)

Critical Issue

Clean Water

Tools to protect water quality, and thereby protect public health and the environment, are shared among many entities. Actions described throughout this section are needed to increase the protection of our drinking water, reduce the use and exposure to toxic chemicals and other pollutants, and reduce point and nonpoint sources of pollution of our surface and groundwater through sound land management and implementation of regulatory authority.

**Action
12A**
Ensure the Safety of Oregon's Drinking Water

Drinking water is vulnerable to contamination in many areas of the state. Some drinking water contaminants, such as bacteria, may cause acute health effects that generally occur within a few days or weeks. Long-term exposure to other chemical contaminants, such as nitrate or arsenic, may cause cancer or organ damage. Additionally, climate change may worsen contamination of drinking water through a variety of effects, including increased frequency and magnitude of droughts, floods, and toxin-producing harmful algal blooms.

Appendix B provides a detailed overview of the laws and regulations protecting surface and groundwater quality and drinking water quality. The Oregon Health Authority (OHA) and the many water system operators across the state are instrumental in making sure the water that enters our homes is safe for consumption and use. They need adequate resources to carry out the applicable federal and state laws help to protect public drinking water, including:

- Federal Clean Drinking Water Act
- Federal Safe Drinking Water Act
- Oregon's Drinking Water Quality Act
- Oregon's Reduction of Lead in Drinking Water Act
- Oregon's Domestic Well Testing Act

Regulating Public Water Systems

In Oregon, public drinking water systems are categorized based on the number of people they serve and the nature of their service. Community water systems, such as those operated by cities, rural municipalities, and manufactured home parks serve more than 25 people year-round and typically rely on groundwater wells or surface water sources like rivers and lakes. These systems are regulated by the Oregon Health Authority's Drinking Water Services (OHA-DWS) and must comply with the federal Safe Drinking Water Act. Very small systems, which serve fewer than 25 people or have fewer than 15 connections are also regulated by OHA-DWS but may have less stringent monitoring requirements due to their smaller size. In contrast, private and domestic sources are not considered public water systems and are not regulated under the Safe Drinking Water Act. Private domestic wells, which serve individual homes or farms, draw groundwater and are regulated only in terms of well construction and siting by the Oregon Water Resources Department (OWRD). Water quality for these wells is the homeowner's responsibility. Similarly, private surface water sources, such as streams or springs used for drinking water by a single household may require filtration and disinfection but are not monitored by OHA. Water rights for these sources are overseen by OWRD, but water quality remains the responsibility of the user.

Oregon Very Small Water Systems - Water systems that were called “State Regulated” have been renamed to “Oregon Very Small” (OVS) systems, effective January 1, 2022. The technical description of an OVS is a system serving 4 to 14 service connections and commercial or public premises used by 10 to 24 people at least 60 days per year. Regulations for OVS systems are streamlined to balance public health protection and consistent implementation of the rules. The OHA provides technical assistance to OVS systems; however, these systems are not eligible for federal funding and currently state funding is not available for these systems for their infrastructure projects. Additionally, the [Oregon Health Authority website](#) provides several helpful resources for Oregon’s OVS water systems.

Figure 4-11: Online Public Water System Information

The Oregon Legislature has recently demonstrated support for increasing resources for small systems. House Bill 2010 (2023) allocated funding for the Oregon Association of Water Utilities to study the needs and vulnerability of small and very small community water systems and design and construct water utility training center.

Private and Domestic Sources

Private and Domestic Wells – In rural areas, private wells are more commonly used to provide drinking water than public water systems. In fact, more than 90 percent of people living in rural areas rely on groundwater from such wells to meet their drinking water needs. The Safe Drinking Water Act applies to public water systems; however, it does not regulate private wells providing water for fewer than 10 individuals.

Pursuant to Oregon’s Domestic Well Testing Act, the owner of a property with a private well must test for nitrate, coliform, and arsenic, but only if the property is being sold or changing ownership. There is currently no authority for the OHA to enforce this requirement. Public health officials estimate a 10 to 20 percent compliance rate. An amendment to the Domestic Well Testing Act requiring laboratories to electronically report testing results associated with real estate transactions could increase compliance and improve public safety.

The 2025 Oregon Legislature enacted [House Bill 3525](#) which requires landlords to collect and test samples of drinking water for certain contaminants if the dwelling unit has one or more exempt wells located within a groundwater management area under ORS 468B.150. This legislation requires landlords to test for arsenic, coliform bacteria, lead, and nitrates and provide test results to the tenant and the OHA and specifies information that must be provided by landlords to tenants.

The OHA’s Environmental Public Health Program administers the [Domestic Well Safety Program](#), providing information about water quality testing, treatment, maintenance, and other resources. OHA’s Well User Resource Toolkit includes a wide array of fact sheets, contacts, and [Water Well Owners Handbook](#), developed jointly by OHA and the OWRD, available in English and Spanish.⁴⁷

Since 2023, at the direction of the Governor and the Oregon Legislature, OHA has delivered direct safe water services to residents of the Lower Umatilla Groundwater Management Area in Morrow and Umatilla Counties due to elevated risk of high nitrate in domestic well water. OHA together with the Oregon Department of Human Services and local county public health and community based organization partners conducts outreach to alert residents to the health risks and provide free well water testing and follow on drinking water delivery and water treatment systems to households whose wells test at or above the maximum contaminant level of 10 milligrams nitrate per

Find Data on Public Water Systems

<https://yourwater.oregon.gov/>

Oregon Health Authority Drinking Water Services maintains an online searchable platform to display data on public water systems in Oregon. You can find data such as coliform and chemical test results, violations, enforcements, public notices, and basic system information, such as sources used, treatment applied, and contact information.



liter of water, a health action level set by the US Environmental Protection Agency (USEPA). All services are delivered in English and Spanish. More information is available at testmywell.oregon.gov.

The 2025 Oregon Legislature enacted [Senate Bill 1154](#), modifying the state's process for designating groundwater quality areas of concern and ground water quality management areas. The legislation includes direction to OHA to identify populations at risk of exposure to contaminants through drinking water (both domestic wells and public water systems) in these areas and develop plans to mitigate public health hazards.

"We can invest in resilient built and natural water infrastructure and reduce pollutants to provide clean water for all Oregon communities."

-100-Year Water Vision (2020)

Private and Domestic Surface Water Systems – In rural areas, some private and domestic water supplies are sourced from surface water. Just like domestic wells, these systems are not regulated for drinking water quality.

Drinking Water Source Protection

Whether people obtain their drinking water from a private well, a small community system, or a large municipal system, the original source of that water is from groundwater, surface water, or a combination of the two. Therefore, the means for protecting the safety of Oregon's drinking water includes protecting and managing those sources. Protecting the source of our drinking water can be accomplished by many parties, including individuals, private landowners, businesses, municipalities, Tribes, and agencies. Land use planning, watershed management, watershed ownership, proper well construction, and wellhead protection are all useful ways to protect Oregon's drinking water. The Oregon Department of Environmental Quality's (ODEQ) Clean Water State Revolving Fund (CWSRF) program can fund source water protection, planning, design, and construction projects including land acquisition, measures to prevent or mitigate pollution in watersheds, and watershed protection. CWSRF cannot fund physical improvements to drinking water infrastructure.

Land Use Planning – Described in Chapter 3, land use planning has the potential to protect drinking water sources from incompatible land uses. Data regarding the location of drinking water supplies (e.g., private wells, watersheds for municipal systems) can be used to inform land use zoning to limit incompatible land uses. Planning and implementing low impact development techniques may protect water resources. Also see Strategy Actions 5B, 6A, 6B, and 9D.

Watershed Management – The way we manage land for urban, agricultural, and forestry uses influences the quality of water within a given watershed. Land management practices such as limiting stormwater runoff, minimizing erosion, limiting use of pesticides and herbicides, maintaining septic systems, and maintaining healthy vegetation and stream buffers may all reduce impacts to shared water resources. Agencies require adequate resources and personnel to implement and enforce existing laws and regulations to limit the pollution of surface and groundwater sources, including conservation easements. Also see Strategy Actions 5B, 7A, 10F, 11A, 12B, and 12C.

Watershed Ownership– Land ownership of a community's drinking water source area is an effective way to manage water quality and quantity. Land ownership allows land management and creates the opportunity to implement practices that maximize watershed health, groundwater recharge, and natural filtration.

Limited water supply options on the coast have led many coastal communities to prioritize acquisition of their watersheds from willing sellers to protect the quality and reliability of their water supply. The 2023 Legislature ([House Bill 2010](#)) created a Drinking Water Source Protection Program at the Oregon Watershed Enhancement Board to provide land acquisition grants for drinking water source protection. The 2023 Legislature made a one-time investment of \$5 million in funding which has been fully committed in grant agreements. No additional funding is available in the program at this time.

Proper Well Construction – Proper well construction is critical for protecting the state’s groundwater. Wells are often used for domestic, municipal, industrial, environmental monitoring, or agricultural purposes. The Well Construction and Compliance Section at the OWRD is responsible for several program areas to ensure that wells are properly constructed, altered, maintained, and decommissioned to prevent contamination, loss of artesian pressure, and waste of Oregon’s groundwater resources. Also see Strategy Actions 7A and 11E.

Wellhead Protection – A local government may choose to protect any wellhead protection area that is within their jurisdiction. Often wellhead protection areas extend into other jurisdictions, for example, from a city into a county. Amendments to a county comprehensive plan can be used to protect wellhead protection areas identified by a city. Also see Strategy Actions 6A, 9B and 9D.

Source Water Assessments for Public Water Systems

A source water assessment evaluates the potential contamination sources to a public water supply. An assessment is used to develop and voluntarily implement a drinking water protection plan. The ODEQ has completed source water assessments for public water supplies that use surface water as their source. The OHA is updating delineated drinking water source areas and potential contaminant inventories for groundwater-supplied systems.

Many municipal watersheds are located on U.S. Forest Service lands, however source areas for smaller communities often include multiple private and public landowners. Source water assessments include property ownership information that allows drinking water providers to involve landowners when developing protection strategies for source water protection.

Source water assessments also provide key information that enable communities to focus limited resources on higher risks within their drinking water source area. The information can be supplemented with local water system and community knowledge and help address local water quantity and water quality challenges.

Source Water Protection Plans

Local communities can protect their drinking water by developing a protection plan that starts with identifying the water source and potential risks. A source water assessment helps map the supply area (drinking water source area) and highlight threats like pollution or runoff. Based on this, communities can create and implement strategies such as land use controls, public education, and emergency planning. Collaboration with local partners and ongoing coordination are key to keeping the water supply safe. State agencies often provide guidance and funding to support these efforts.

Contaminants of Emerging Concern (CECs)

Improved testing methods now reveal some chemicals previously undetected during sampling events. These chemicals are referred to as “contaminants of emerging concern” (CECs) because the risk to human health and the environment associated with their presence, frequency of occurrence, or source may be unknown. State and federal agencies are working to improve the understanding of several CECs, particularly pharmaceuticals, personal care products, and perfluorinated compounds, among others. Monitoring of public drinking water for CECs should be increased to determine the occurrence and concentration of contaminants. This data is crucial to assess whether and how such contaminants may pose individual, cumulative, or synergistic health risks to the public. This monitoring data can be used in conjunction with the USEPA’s [Unregulated Contaminant Monitoring Rule](#) data (also see Appendix B) to evaluate connections among source sensitivity, potential contaminant sources in the area, and overall system vulnerability to contamination.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) – The recent discovery of the widespread presence of perfluoroalkyl and polyfluoroalkyl substances (PFAS) in drinking water sources has gained attention from the USEPA. PFAS are also referred to as “forever chemicals” as they break down very slowly. The [Oregon Health Authority’s website](#) provides a list of potential health risks from PFAS including reproductive, developmental, liver,

kidney, and immunological effects. Between 2021 and 2023, the OHA sampled 143 public water systems, finding that 22 of the systems had detections of at least one PFAS compound. Sampling results can be found at [Drinking Water Data Online](#).

In April 2024, USEPA announced the final national drinking water standards for six PFAS substances. USEPA's rule includes initial monitoring of all community and non-transient non-community public water systems that must be completed by April 2027, ongoing routine compliance monitoring after that date, and would allow OHA to require action where PFAS exceed a Maximum Contaminant Level (MCL) in drinking water at those systems in Oregon beginning in April 2029. Oregon has two years to adopt rules and apply for primacy from USEPA or request an extension.

In May 2025, USEPA announced planned changes to the PFAS drinking water rule, which include maintaining the MCLs for two of the six PFAS substances and reconsidering the regulatory determinations for the other four. The USEPA is also considering extending the compliance date for the MCLs to 2031 and establishing a federal exemption process for possibly going beyond 2031. The USEPA also announced its new PFAS OUT initiative, an effort that will connect with every public water system needing capital improvements for compliance with USEPA technical assistance. The USEPA plans to propose a rule for these changes fall 2025 and finalize the rule spring 2026.

Manganese – Manganese is a naturally occurring element found in rocks, soil, water, air, and the food we eat. Humans need to consume small amounts of manganese to stay healthy. Some parts of Oregon have been identified as having elevated manganese in their drinking water which, may not be safe for long-term consumption. With additional study, manganese may eventually become regulated under the Safe Drinking Water Act. The OHA has developed a Manganese Fact Sheet in [English](#) and [Spanish](#).

Arsenic – Arsenic is a naturally occurring element found in soils and groundwater. Drinking water with high levels of arsenic may lead to serious health conditions including cancer, nervous or reproductive system issues, and diabetes. Public water supplies are tested and treated for arsenic. People using a private well for their drinking water must test their well to know if it contains harmful levels of arsenic. The OHA has developed an [Arsenic and Drinking Water Fact Sheet](#).

Drinking Water Emergencies

Equipment failures, harmful algal blooms, contamination by pathogens, natural hazards including drought (Action 5A), floods (Action 5B), and earthquakes (Action 5C), and chemical releases/spills (also see Action 12B) are just some events that can contribute to drinking water emergencies. The OHA requires public water systems to develop and maintain an emergency response plan. Community water systems serving more than 3,300 people also must conduct a risk and resilience assessment.

Oregon's statewide emergency response system must be designed to quickly respond to drinking water emergencies. All water providers should be encouraged to join the [Oregon Water/Wastewater Agency Response Network](#), a statewide mutual aid agreement specific to water and wastewater agencies that provides access to equipment and personnel. The Regional Disaster Preparedness Organization and the Regional Water Providers Consortium in the Portland Metro area are two such networks that can help with the development of regional emergency preparedness, response and recovery, and coordination of resources.

Desalination

Rising sea levels, over-pumping, or storm surges may lead to salt-water intrusion in some coastal aquifers.⁴⁸ Desalination is a technique that allows communities to stretch limited water resources by removing salt and other contaminants using reverse osmosis technology. Some of the greatest challenges to building a desalination plant include intense energy requirements to treat the water; expansive coastline to site an energy source, pumps, pipes, inflows, and outfalls; damage to marine organisms during water intake; and brine disposal options. These challenges make desalination one of the most expensive sources of drinking water.

Despite the challenges associated with desalination, many states are including it in their water supply strategies. In 2024, the U.S. Department of Energy announced \$75 million in funding over five years for a desalination innovation hub. The innovation hub will be used to find solutions to the technical barriers associated with desalination.

Access and Affordability

Access to drinking water in Oregon is not equitable, with some people experiencing contaminated water coming from their tap, others unable to afford their utility bills, while others lack water access in workplaces. The [State of Water Justice in Oregon report](#) and [Secretary of State Advisory Report 2023-04](#) outline these and many other challenges facing frontline communities across the state.

House Bill 2010 (2023) directed the Legislative Policy and Research Office to research and report on approaches and funding sources for an ongoing statewide assistance program for low-income ratepayers of drinking water, wastewater, and stormwater services. The report, [Approaches and Funding for Low-Income Water Ratepayer Assistance and Household Infrastructure in Oregon](#) was published in 2024. Legislation also expanded eligibility for the Water Well Abandonment, Repair, and Replacement Fund (WARRF) to cover household water wells with contamination levels that exceed drinking water standards. The OWRD administers the WARRF program, prioritizing financial assistance for low-to-moderate income households in areas impacted by drought or wildfire.

Addressing water access and affordability at a statewide scale will continue to be challenging, as water distribution happens at many scales (e.g., domestic well, municipal water system, etc.) and does not lie within the purview of one agency. Solutions to water access and affordability will need to reflect the varied circumstances found across urban and rural parts of the state.

Action 12A

Ensure the Safety of Oregon's Drinking Water

Examples of how to carry out this action:

- Assist drinking water systems of all sizes; increase technical, administrative, and funding resources for small and very small water systems (less than 15 connections)
- Protect drinking water sources (e.g., proper well construction, onsite septic system maintenance, responsible land management, nutrient reduction, riparian/upland/forest restoration, watershed land acquisition)
- Increase understanding of occurrence and health implications of contaminants of emerging concern (e.g. pharmaceuticals, personal care products, microplastics, nanoplastics, perfluoroalkyl and polyfluoroalkyl substances (PFAS)).
- Encourage water providers to join the Oregon Water/Wastewater Agency Response Network
- Increase domestic well testing and provide updated support materials and education (including translations, when needed) (Also see Action 1A)
- Amend Domestic Well Testing Act to require laboratories to electronically report domestic well testing results associated with real estate transactions to the state
- Increase resources for education, outreach, monitoring, and treatment for disadvantaged/underserved domestic well users
- Support resiliency efforts for maintaining operation of drinking water systems during emergencies (e.g., solar/renewable energy, battery storage)
- Seek alternative to EPA's definition of "disadvantaged communities" to increase eligibility for funding drinking water improvements in underserved communities in urban areas

Action 12B

Reduce Use of and Exposure to Toxics and Other Pollutants

Protecting Oregonians from the impacts of toxic pollutants is a top priority for the Department of Environmental Quality (ODEQ) and Oregon Health Authority (OHA). Thousands of toxic chemicals are in products that are used daily. Old chemicals that may not be sold today but are stored in homes, schools, and businesses also pose risks. These chemicals are released into Oregon's air, water, and land as toxic pollutants in a variety of ways. Once in the environment, toxic pollutants can adversely affect the health of people and other living organisms. Additional pollutants including plastics and micro-plastics also pose risks to human and aquatic life, with the full impact of these waste products still being studied. Accidents, including chemical spills and train derailments also pose environmental and public health risks, emphasizing the need for prevention, planning, and expedient clean-up. Toxic pollutants that affect air, land, and water quality intersect with and become cumulative impacts that disproportionately affect frontline environmental justice communities.

Addressing permitted discharges of pollutants, TMDLs, point and nonpoint sources of pollution, are covered in Strategy Action 12C.

Toxics Reduction Strategy

The ODEQ's 2018 [Toxics Reduction Strategy](#) emphasizes collaboration and partnerships with other agencies and organizations to reduce priority toxic chemicals in the environment and exposure to such chemicals by people.⁴⁹ The strategy emphasizes reducing toxic pollutants at the source, rather than managing them after they are generated. [Executive Order No. 12-05](#) ("Environmentally Friendly Purchasing and Product Design") provides additional support for ODEQ's Toxics Reduction Strategy by focusing the work of other state agencies on reducing toxics.⁵⁰ The Executive Order has become the official policy of the Department of Administrative Services and resulted in low toxicity procurement guidelines for state agencies, and other public entities that join state price agreements.

Two other high priority short-term actions identified in the 2018 Toxics Reduction Strategy were to expand and enhance the Pesticide Stewardship Partnership program and ensure support for pesticide waste collection events.

Water Quality Pesticide Management Plan

As the lead agency for the Federal Insecticide, Fungicide, Rodenticide Act, the Oregon Department of Agriculture's (ODA) Pesticides Program holds the primary responsibility for pesticide registration and use regulation. Oregon's Pesticide Management Plan for Water Quality Protection outlines the roles, policies, and legal authorities of each government agency with responsibilities to protect Oregon's water resources from pesticides and the process by which these activities will be coordinated. Under this plan, the ODA created an interagency team, the Water Quality Pesticide Management Team (WQPMT), composed of representatives the Department of Forestry, ODEQ, OHA, Department of Fish and Wildlife (ODFW), and Oregon State University. The goals of the WQPMT are to:

- Select and prioritize pesticides of interest and pesticides of concern;
- Establish guidelines and reference points;
- Conduct watershed vulnerability assessments;
- Design, conduct, and guide monitoring efforts (including the Pesticide Stewardship Partnership Program monitoring);
- Recommend and facilitate management options; and
- Develop communication strategies.

Pesticide Stewardship Partnerships

The Pesticide Stewardship Partnership (PSP) Program, led by the ODA, is a voluntary program that relies on local partnerships to monitor pesticide levels in waterways and implement solutions to protect water quality while managing pests and maintaining crop yield. Efforts include technical assistance, outreach, and education-based projects. The PSP works as a feedback loop with the water quality sampling data continuously being used to evaluate pesticides of concern, the effectiveness of education, and collaborative projects on an annual basis.



Credit Hood River Soil and Water Conservation District

The goals of the PSP Program are to:

- Identify potential concerns and improve water quality affected by pesticide use around Oregon.
- Combine local expertise in water quality sampling results to encourage voluntary changes in pesticide use and management practices.
- Find ways to reduce pesticide levels while measuring improvements in water quality and crop management.
- Advance measurable environmental improvements, making Oregon waters safer for aquatic life and humans.

As of 2025, there are PSPs established in nine watersheds: Amazon, Clackamas, Hood River, Middle Deschutes, Middle Rogue, Pudding, Yamhill, Walla Walla, and Wasco. PSP areas can be found at the [Oregon Department of Agriculture website](#). Several of the partnerships have shown improvements in water quality in response to education created around water quality data and subsequent changes in pesticide management practices. These successes demonstrate the Pesticide Stewardship Partnership approach can be an effective alternative to traditional regulatory approaches dealing with “nonpoint” sources of chemicals in water.

Pesticide Waste Collection - Pesticide waste collection events are part of the PSP program and provide an opportunity to bring pesticides from agricultural growers and other commercial or institutional pesticide users for free disposal. Some state pesticide collection funds are transferred to county and regional entities (representing Hood, Sherman, and Wasco counties) that operate permanent hazardous waste collection facilities to support periodic free agriculture pesticide collections for local growers and other pesticide users.

Contaminated or Hazardous Sites

Sites, facilities, or structures that were once used for industrial, military, transportation, energy, or other purposes may have historical releases of hazardous substances that pose a threat to water resources. The nature and degree of such threats depend on the types and amounts of contaminants, when they were released, the likelihood of migration to surface water or groundwater, and remedial actions completed, if any.

Addressing hazardous and contaminated sites is not only important for protecting environmental and public health but can also lead to economic development opportunities for local communities. The redevelopment of brownfields—sites where future use may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant—is changing the way contaminated property is perceived and addressed. In Oregon, brownfields have been cleaned up and turned into new businesses and created new jobs. Brownfield redevelopments include urban community gardens; mixed-use developments that include housing, retail, and commercial facilities this includes food bank operation centers; thrift stores; and health-care centers in rural Oregon communities. Community health concerns and environmental justice are integrated throughout brownfield redevelopment and reuse planning to prevent future exposure to contamination.

Underground Storage Tanks – Oregon’s Leaking Underground Storage Tank Program, administered by the ODEQ, identifies and addresses hazardous or contaminated sites and prioritizes investigative and remedial actions based on threats to human health and the environment with a focus on protecting sensitive water resources. Site owners complete most work on a voluntary basis, with program oversight. The program uses enforcement mechanisms to eliminate or treat discharges to sensitive water resources as needed. This includes use of the ODEQ’s Orphan Site Account when site owners are unknown, unable, or in some cases unwilling, to perform immediate cleanups.

Abandoned and Derelict Vessels - There are hundreds of hazardous boats and ships in Oregon’s public waterways, including large tugboats, barges, former military vessels, and recreational vessels. In April 2023, the Department of State Lands (DSL) began working to propose a comprehensive program for abandoned and derelict vessels in Oregon, including identifying funding needs and potential sources. The passage of [House Bill 2914](#) (2023) directed the DSL to develop the program in coordination with other state agencies including the State Marine Board, ODEQ, and the State Parks and Recreation Department.

Polychlorinated Biphenyls (PCBs) – Monsanto Company manufactured many products (e.g., coolants, hydraulic oils, paint, caulk, copy paper, etc.) that contained PCBs. PCBs are highly toxic and were banned in 1977, however, they persist in Oregon’s land and water. In December of 2022, [Monsanto was ordered to pay Oregon \\$698 million](#) to address remediation associated with PCBs. [Senate Bill 1561](#) (2024) established the Oregon Environmental Restoration Fund. This Fund, comprised of money received from the Monsanto Settlement Agreement, will be managed by the [Environmental Restoration Council](#). The Environmental Restoration Council is administered by the Oregon Watershed Enhancement Board.

Action 12B

Reduce the Use of and Exposure to Toxins and Other Pollutants

Examples of how to carry out this action:

- Update and implement the ODEQ’s 2018 Toxics Reduction Strategy
- Implement green chemistry executive order, including revising purchasing practices related to toxic chemicals
- Update and implement Water Quality Pesticide Management Plan
- Support Pesticide Stewardship Partnerships and enhance program to focus on environmental justice communities
- Continue “take back programs” and develop partnerships with community-based organizations and tribes to facilitate culturally relevant “take back programs”
- Continue to identify and address hazardous or contaminated sites (e.g., Lower Umatilla Basin nitrate contamination, brownfields, abandoned/derelict vessels)
- Prevent blue-green algae (including Harmful Algal Blooms or HABs) from forming beyond natural background levels and support advisory/notification efforts
- Support implementation of the 2023 ODEQ Freshwater Cyanobacteria Harmful Algal Bloom Strategy
- Monitor recreational waters and inform the public when contaminants are present, including communications to reach non-English speaking, low-income, tribal, and rural residents and businesses
- Update Oregon’s water quality criteria for toxic pollutants to protect aquatic life and human health based on the latest science
- Support programs and organizations to help communities and utilities prevent, prepare for, and respond to chemical spills
- Support no-till, organic, and regenerative agricultural practices that reduce herbicide, pesticide, and fertilizer use
- Engage historically or currently impacted communities in design of toxics source reduction and clean-up efforts so that they can experience the benefits of the effort, such as utilizing Community Benefits Agreements

Unused Medications

Often, unused or expired medications are disposed of by flushing down drains in homes, care facilities, medical clinics, and hospitals. Wastewater treatment plants and septic systems, depending on the level of treatment, may only partially treat pharmaceuticals which allows certain chemical compounds to reach surface water or groundwater resources. Risks to aquatic organisms by long-term exposure to pharmaceuticals are still being studied.

More than 50 Oregon communities have established permanent, free collection boxes for unused medications. Collection box locations are listed on the [Oregon Health Authority website](#). The U.S. Drug Enforcement Agency offers a national drug take-back event twice a year, in April and October. The ODEQ also administers the [Drug Take-Back Program](#), in partnership with the Oregon Board of Pharmacy.

Public Health Advisories for Recreational Water Bodies and Public Water Systems

Public health advisories alert the public to water quality issues and help prevent exposures to toxics and other pollutants that may negatively impact human health. Millions of people participate in recreational activities each year, including harvesting shellfish, fishing, swimming, boating, and enjoying Oregon's coastline. State agencies use a variety of approaches and tools to protect people living, working, and playing near beaches, rivers, lakes, and other water bodies. In addition to advisories, it is critical that land management activities do not contribute to further water quality degradation (see Action 12C).

Harmful Algal Bloom (HAB) Advisories –An overgrowth of cyanobacteria in lakes, rivers, and ponds can result in the development of a harmful algal bloom (HAB), which can produce extremely dangerous toxins (cyanotoxins) that can sicken or kill people and animals. HABs have become increasingly common across Oregon, impacting recreational waters as well as drinking water supplies. In July 2018, the City of Salem's drinking water source, North Santiam River, became contaminated with cyanotoxins, causing a public health emergency. Since then, the OHA has [developed regulations](#) that require drinking water systems using surface water sources susceptible to HABs to routinely test for cyanotoxins and publish advisories if health advisory levels are exceeded.

The OHA is the agency responsible for issuing recreational HABs advisories for lakes, reservoirs, and rivers, educating the public about HABs at waters used for recreation, and encouraging local water body managers to post onsite warnings when OHA issues an advisory. OHA uses a combination of visual identification by experienced assessors, satellite imagery, and laboratory testing of water samples confirming the presence and quantity of a harmful algae species or the toxins they produce. [Current cyanobacteria recreational advisories](#) can be found on the OHA website.

See Action 12C for the ODEQ's HABs Strategy for reducing the occurrence of HABs.



Credit Oregon Health Authority

The Oregon Beach Monitoring Program – The OHA and the ODEQ are responsible for monitoring recreational water quality at coastal beaches in Oregon. Marine waters are tested for the bacterium enterococcus, which is an indicator of the presence of other illness-causing organisms. Enterococcus is present in human and animal waste and can enter marine waters from a variety of sources such as streams and creeks, stormwater runoff, animal and

seabird waste, failing septic systems, sewage treatment plant spills, or boating waste. When bacteria levels are above normal, a water contact advisory is issued.

The goal of the program is to protect public health by providing information about water quality, monitoring water quality standards at beaches, and promoting scientific research. The public can sign up for [email alerts](#) to receive notices when advisories have been issued at certain beaches.

Fish and Shellfish Consumption – Fish and shellfish can accumulate toxic chemicals from legacy contamination, spills, or toxic algal blooms, posing health risks to those who consume them. The ODEQ establishes the level of protection needed to ensure public health, by setting human health toxics criteria based on fish consumption rates. Oregon's fish consumption rate is 175 grams per day is one of, if not the highest in the nation, in recognition of the consumption rates by Tribes, subsistence fishers, and Asian and Pacific Islanders in the Pacific Northwest. The OHA issues [fish consumption advisories](#), due primarily to moderate-to-high mercury levels or PCBs (polychlorinated biphenyls) found in locally-caught fish. The ODA and ODFW jointly issue [shellfish safety closures](#) to protect recreational shellfish harvesters from consuming clams or mussels contaminated with harmful biotoxins. The ODA also maintains an online website with biotoxin results, recent news releases, and encourages the public to call the shellfish safety hotline before harvesting.

Action 12C

Implement Water Quality Pollution Controls

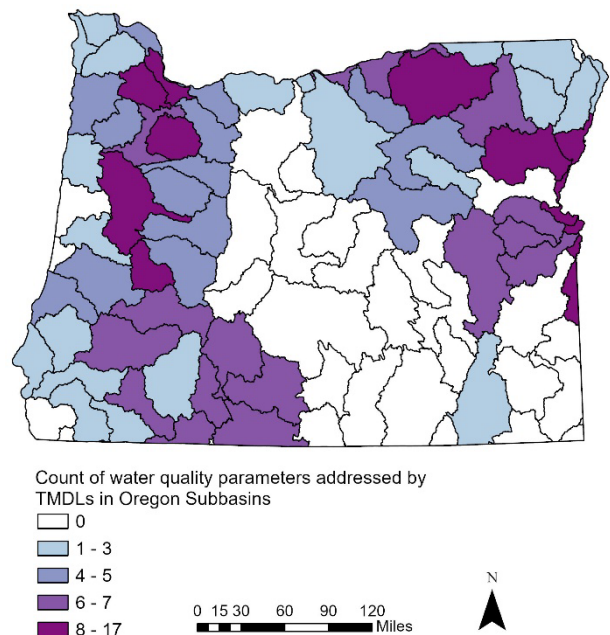
It is important that land management activities and their associated point and nonpoint sources of pollutants are managed to protect water quality for humans and the environment. The Clean Water Act, described in Appendix B, administered by the Oregon Department of Environmental Quality (ODEQ), provides the regulatory structure for addressing point and nonpoint sources of pollution.

Total Maximum Daily Load (TMDL) Implementation

A Total Maximum Daily Load (TMDL) describes the maximum amount of a pollutant from all sources: municipal, industrial, agricultural, commercial, surface runoff and background; that can enter a waterway without violating clean water standards associated with the Clean Water Act. The ODEQ sets TMDL limits and communities work together to develop TMDL implementation plans. TMDL plans identify pollution controls across agricultural, forest, urban, and rural residential land uses to protect and improve water quality.

It is important to continue developing and implementing TMDL plans for waterbodies that do not meet water quality standards. This includes developing TMDLs for the remaining waterbodies and pollutants on Oregon's 303(d) impaired waters list and for those added in the future, in accordance with the federal Clean Water Act. It also includes reviewing and updating existing TMDLs and providing oversight to ensure that TMDL implementation measures are effective. By the end of 2023, the ODEQ completed 46 TMDL actions that require pollutant reduction on more than 200,000 miles of streams and rivers

Figure 4-12: Number of 303(d) listed parameters addressed by TMDLs in each Oregon sub-basin



in Oregon. In total, these TMDLs address 28 water quality parameters listed on the 303(d) list of impaired waters. The map in Figure 4-12 summarizes the number of parameters that have been addressed by a TMDL for each subbasin in Oregon. The full list of water quality parameters addressed can be found on the [ODEQ's TMDL website](#).

Three Oregon Tribes have authorization from the US Environmental Protection Agency (USEPA) to administer water quality standards under the Clean Water Act; the Confederated Tribes of Umatilla Indian Reservation, the Confederated Tribes of Warm Springs Reservation of Oregon, and the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians. State agencies must coordinate with Tribes to understand environmental impacts to Tribal resources of concern and how water resource management by the state may impact compliance with USEPA-approved Tribal Water Quality Standards.

In 2024, the USEPA signed a final rule that changes how Clean Water Act water quality standards are applied to Tribal Reserved Rights. Historically, the USEPA has addressed Tribal Reserved Rights under the Clean Water Act on a case-by-case basis in state-specific actions. This practice led to uncertainty for Tribes, states, and entities looking to comply with Clean Water Act requirements. The USEPA's final rule provides clarity and transparency by revising the federal water quality standards regulation to better protect Tribal Reserved Rights under the Clean Water Act. With this rule, the USEPA is ensuring that water quality standards are established taking into consideration Clean Water Act-protected aquatic and aquatic-dependent resources where Tribes hold and assert rights to those resources under federal treaties, statutes, or executive orders. The Tribal Reserved Rights rule is being reviewed for rescission by the current federal administration.

Oregon's Nonpoint Source Management Program Plan

A nonpoint source of pollution is any pollution entering a waterbody that does not come directly from a visible source such as a pipe or ditch. Unlike end-of-pipe (point source) pollution that originates from industrial and sewage treatment plants, nonpoint source pollution comes from many diffuse sources, including runoff from agricultural, forest, and ranching activities, construction sites, home landscaping, and road surfaces.

The ODEQ leads the development of the statewide [Nonpoint Source Management Program Plan](#), which identifies programs and actions that will be implemented by multiple state agencies, local governments, non-governmental organizations, and local citizens. The program's multi-agency strategy, including the Department of Agriculture (ODA) and Department of Forestry, involves using water quality management programs in conjunction with regulatory, voluntary, financial, and technical assistance. The program's primary components are assessment, planning, implementation, and education.

The federal Clean Water Act provides states, territories, and Tribal governments opportunities for funding to address nonpoint pollution, commonly referred to as Section 319 grants. These grants can be used for technical assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects. In 2010, Oregon was awarded more than \$1.38 million in Section 319 grants for 33 projects that address nonpoint source pollution. Since 2015, the amount of 319 funds Oregon has received annually has been reduced by 30-percent due to the disapproval of the states' Coastal Nonpoint Source Pollution Program under the Coastal Zone Reauthorization Amendment (CZARA), see description below. In 2022 and 2023 only \$135,067 and \$137,567, respectively, grant funds were available to support on the ground projects from the state's total 319 allocation. The ODEQ has submitted a revised program plan to USEPA and is awaiting approval in 2025, which would allow for greater 319 grant funding.

The Nonpoint Source Management Program Plan refers to many other state programs that manage nonpoint sources of pollution. A selection of these programs is described below.

Agricultural Water Quality Management Plans – The ODA's Agricultural Water Quality Program is part of the state's effort to address the federal Clean Water Act, ensuring that farmers and ranchers do their part in meeting water quality standards. There are 38 area [Agricultural Water Quality Management Plans](#) and rules around the state.

The ODA's water quality specialists work with farmers, ranchers, community leaders, and other interested parties who serve as members of local advisory committees for each management area. Each committee identifies local agricultural water quality problems and opportunities for improvement.

Soil and water conservation districts (SWCDs) work with the ODA as the Local Management Agency for implementation of voluntary actions related to the Agricultural Water Quality Program. Statutes require the ODA to work with SWCDs to the greatest extent practical. The SWCDs provide technical assistance, seek funding, and implement projects to protect and improve water quality.

Coastal Nonpoint Pollution Control Program – The Coastal Zone Act Reauthorization Amendment (CZARA) established the national Coastal Nonpoint Pollution Control Program requiring coastal states to address nonpoint source pollution. The Department of Land Conservation and Development and ODEQ lead the state's management of the program and receive federal funding under Coastal Zone Management Act and the Clean Water Act, respectively. Oregon has not met CZARA requirements since 2015 due to forestland management issues. Oregon's timber harvesting rules were not providing adequate water quality protection. New rules and rule revisions to the Forest Practices Act in 2022 are expected to result in improved water quality associated with private forestland management along the coast.

Farm Bill Programs – There are several Farm Bill conservation programs, administered through the Natural Resources Conservation Service, for agricultural producers and landowners. Oregon ranchers have worked with public and private sector partners to install and monitor effective habitat restoration techniques, including fencing and building stock water troughs to protect sensitive riparian areas from livestock.

Forest Practices Act Implementation – Non-federal forestland is managed in accordance with the Forest Practices Act (see Appendix B), as well as individual management plans based on geographic area (Northwest, Southwest, and Eastern Oregon). Example actions that can help prevent pollution of waterways include leaving vegetated buffers adjacent to streams, road placement and drainage to minimize runoff, and avoiding harvesting on steep slopes.

Harmful Algal Blooms (HABs) Strategy – Once a waterbody is identified as having HABs, the ODEQ is responsible for investigating the causes, identifying sources of pollution, and writing a pollution reduction plan. The Department developed a [Harmful Algal Bloom Strategy in 2011](#) to describe and recommend improvements to an overall strategy that they can implement in order to prevent and control, where possible, HABs in Oregon.⁵¹ In 2023, the Department also published a [Freshwater Cyanobacteria Harmful Algal Blooms Strategy](#) that supports the continued implementation of many of the actions in the 2011 Strategy, but is written more specifically for agency staff and identifies additional needs to expand current operations⁵².

Stormwater in Urban Areas

Stormwater runoff often contains pollutants that can adversely affect water quality. Strategy Action 6B calls for promoting low impact development and green infrastructure practices to reduce and manage stormwater. Strategy Action 7A supports the need to maintain and upgrade stormwater infrastructure, which is often a combination of built and green infrastructure.

National Pollutant Discharge Elimination System (NPDES) permits, issued by the ODEQ (see Appendix B), are required for certain stormwater discharges that



Credit Portland Bureau of Environmental Services

leave a site through a “point source,” often a pipe, and reaches surface waters either directly or through storm drainage. A municipal separate storm sewer system, or “MS4”, is a conveyance or system of conveyances (e.g., roads with drainage systems, municipal streets, catch basins, curbs, gutters, manmade channels or storm drains) owned or operated by a governmental entity that discharges to waters of the state. The population of an urban area determines whether they require an MS4 discharge permit. Oregon needs to ensure the effective management and oversight of stormwater in urbanized areas through the implementation of NPDES and MS4 permits, TMDL Implementation Plans for Urban Designated Management Agencies, best management practices, or through comparable voluntary plans.

Septic Systems in Rural Areas

State law provides the ODEQ with regulatory authority over onsite (e.g., septic) sewage treatment and disposal. More than one million Oregonians, or about 35 percent of the state’s population, use onsite sewage systems, also known as septic systems. Most of these are single-family homes in rural areas without access to community sewer systems.

A failing septic system increases the risk of contamination of both surface water and groundwater and can be a public health hazard. Septic systems are required to be inspected at the time of construction to ensure they are correctly installed and functioning properly. Ongoing maintenance carried out by the system owner is critical to avoid system failures. Businesses that install septic systems or provide pumping services are regulated through a statewide licensing program. The ODEQ provides direct service for onsite system permitting and installation in the counties of Baker, Coos, Curry, Grant, Jackson, Josephine, Morrow, Union, Wallowa, and Wheeler. The 26 remaining counties work directly with their local governments for permitting and installations, with oversight from the state.



The ODEQ has established a new program, [Oregon Septic Smart](#), to provide Oregonians with easy access to information and improve access to certified industry professionals that can perform septic system inspections. The ODEQ also administers an Onsite Financial Aid Program to provide grants and low-cost loans to address failing septic systems. The program will utilize \$15 million in federal American Rescue Plan Act funds that the 2021 Oregon Legislature allocated to the ODEQ. The ODEQ maintains a list of additional financial resources for onsite septic systems on their [website](#)

Action 12C

Implement Water Quality Pollution Controls

Examples of how to carry out this action:

- Continue to develop and implement TMDLs for water bodies that do not meet water quality standards
- Continue to address nonpoint sources of pollution across all land uses
- Ensure effective management and oversight of stormwater in urbanized areas
- Assist communities with septic system challenges, including technical and funding resources for underserved communities
- Continue to update and revise TMDLs to conform with current temperature standards
- Continue to work with Designated Management Agencies, as defined in each TMDL, to achieve water quality standards
- Develop more programmatic implementation plans for common TMDL issues
- Continue to meaningfully engage with communities within the boundaries of new and updated TMDL’s
- Review TMDL prioritization process to ensure geographic equity among places with a completed and approved TMDL
- Recognize role of water management and water withdrawals in meeting TMDL objectives

Critical Issue

Funding for Oregon's Waters

The 2023 Secretary of State Advisory Report regarding water security ([Report 2023-04](#)) identified that natural resources state agencies are chronically underfunded and understaffed in relation to their respective responsibilities⁵³. Meeting the water challenges of today and tomorrow will require an increased investment in state agencies and programs.

Most Strategy actions require some type of funding, whether it is to hire or keep agency staff, purchase equipment, hire a specialist/consultant, or plan, design, and implement a project. Recently the Legislature has increased the state's spending on water. Notable water investments from the 2021, 2022, and 2023 Legislative sessions are provided below. Future Strategy workplans and progress reports will provide an opportunity to link legislative investments with state agency actions that support Strategy implementation.

This section concludes with three distinct Strategy Actions: funding the development and implementation of the Strategy, funding water resources management by state agencies, and assisting with local or regional water challenges by funding planning, feasibility studies, and instream and out-of-stream water projects.

The Business Case for Investing in Water

The [Business Case for Investing in Water in Oregon](#)⁵⁴ outlines the risks, opportunities, and benefits associated with making some specific investments in water. The report finds that "Oregon should invest in ways that increase resiliency and flexibility and should do so in advance of crises rather than in response to crises." Figure 4-13 outlines the reports' five guideposts for investment and shows the corresponding critical issues and actions in the Strategy.

Figure 4-13: Business Case Guidance for Investment and Associated Strategy Actions

Business Case Five Guideposts to Meet Oregon's Current and Future Water Challenges	Critical Issues and Actions in the 2025 Strategy Aligned with Guidepost
Invest in whole-watershed and nature-based approaches for a range of benefits including future avoided costs of potential negative impacts from climate change	Instream and Ecosystem Needs, Actions 2A-2C Land Use Planning, Action 6B Water Infrastructure, Action 7A Healthy Ecosystems, Actions 11A-11E Funding, Action 13C
Fund innovative governance and policy adaptations to increase flexibility of water management and capitalize on collaboration and creativity	Water Use and Management, Actions 10D-10F Healthy Ecosystems, Action 11E Funding, Action 13B
Focus on modernizing infrastructure across the landscape in ways that help address specific risks like flooding, stormwater management, reduced summer baseflow, shrinking glaciers, fish passage, etc.	Energy and Water, Actions 4B-4C Water Infrastructure, Actions 7A, 7C Healthy Ecosystems Actions 11A, 11D
Enhance water justice by authentically engaging frontline communities in policy and power and targeting investments so that benefits are distributed to these communities equitably	Water Planning, Action 9E Funding, Actions 13C, 13C
Recognize and invest to support Tribal economic, spiritual, and cultural values for water and fish and engage with Tribes as sovereign co-managers of the resource	Instream and Ecosystem Water Needs, Actions 2A-2C Out-of-Stream Water Needs, Action 3C Water Planning, Action 9C Healthy Ecosystems, Actions 11A-11E Clean Water, Actions 12A-12C Funding, Actions 13B, 13C

"Oregon faces significant threats to its environment, economy and way of life from current and future water-related risks and challenges. Oregonians have demonstrated that they have many of the required strategies and tools at hand and have the expertise and motivation to develop new approaches when necessary. Wielding the tools and deploying the strategies, however, requires major investment not just once, but for the foreseeable future. The necessary investment cannot be underestimated and requires determination, commitment and engagement across all sectors, agencies, communities and levels of government and power. Importantly, it also requires inclusion of frontline communities that have been traditionally left out of decision-making and power over water including Tribes, low-income communities, rural communities, communities of color and others."

-The Business Case for Investing in Water in Oregon (2023)

Recent Legislative Investments in Water

2021 Legislative Water Package

The 2021 Oregon Legislature made historic investments in Oregon's water future, with the passing of a \$538 million water package. Approximately \$500 million of the funding package came from the federal American Rescue Plan Act (ARPA). This funding resulted in investments in many types of water infrastructure across Oregon, through grants, loans, and direct appropriations and came at a time when many communities experienced several years of consecutive drought and/or devastating wildfires. While funding was provided to agencies for additional staff capacity, much of the water package included pass-through funding where agencies used the money for contracting services or increasing funding through grant and loan programs. Continued funding for agency day-to-day operations remains a consistent funding challenge.

Figure 4-14: Investments from the 2021 \$538 Million Water Package (House Bill 5006) and Related Strategy Actions

Investment Amount	Description	Related Strategy Actions
\$275.7 M	Direct appropriations of ARPA funding for drinking water, wastewater, and stormwater infrastructure projects throughout Oregon	13C, 12A-12C, 7A-7C
\$135.7 M	Public works funds and financial assistance programs to repair and replace water infrastructure	13C, 12A-12C, 7A, 7C
\$46.5 M	Regional and basin-specific projects (Deschutes and Willamette Basins, Wallowa and Newport dams, Umatilla County)	13B, 13C, 9A, 10A-10C, 7A-7C
\$39.9 M	Water Projects Grants and Loans, Feasibility Grants	13B, 13C, 5B, 10C-10F, 7C
\$11.2 M	Modernize the data collection and technology used to monitor Oregon's water supply	13B, 1A-1C
\$17.7 M	Water quality improvements (including research and technical assistance, TMDL development, fish screen/passage projects)	13B, 1A, 11B, 11D, 12A-12C, 7A
\$6.5 M	Make Oregon's water infrastructure safer and more resilient (including dam safety)	5A-5C, 12A-12C, 7A, 7C
\$5 M	Update Integrated Water Resources Strategy, regional water planning workgroup, place-based integrated planning, statewide business case assessment	13B, 13C, 9C, 6A, 12A

2022 Legislative Investments

During the 2022 Legislative Session, [House Bill 5202](#) identified \$25 million in funding to support Oregon's waterways and wetlands and to protect fish and other aquatic species during times of drought. Funding provided support for the Oregon Watershed Enhancement Board's (OWEB) voluntary water acquisitions program, the Oregon Department of Fish and Wildlife's (ODFW) fish passage barrier removal program and temperature and flow monitoring, and the Oregon Conservation and Recreation Fund. This funding provided meaningful benefits to drought-imperiled rivers, wetlands, and fish. Specifically, it funded:

- Increase in real-time temperature and streamflow gages throughout the state,
- Temperature loggers and staff time to identify and map cold water refugia areas that provide critical habitat for fish in times of drought when rivers reach lethal temperatures,
- Increase in OWEB's existing Water Acquisition Program which compensates water users who voluntarily choose to engage in instream transfers,
- ODFW staff and legal capacity to address a backlog of instream water right protests awaiting contested case hearings,
- Funding to improve fish passage to cooler habitats, and
- Increase in habitat restoration projects funded through the Oregon Conservation and Recreation Fund that improve drought resiliency of our rivers, waterways, and aquatic habitat.

2023 Drought Resilience and Water Security Package

The 2023 Oregon Legislature passed a \$143 million Drought Resilience and Water Security Package, marking an important milestone in achieving support for many Strategy actions that address not only drought resilience, but many parts of water security. A fifteen-page summary of the [2023 Drought Resilience and Water Security Package](#) lists the numerous pieces of legislation that support building drought resilience across Oregon. This funding package contains seven priority "focus areas," related to actions found throughout the Strategy.

1. Water Project Investments – \$68.9M

Funding associated with water project investment included direct appropriations for a range of water infrastructure projects, support for irrigation modernization projects, and a new grant program to complete feasibility studies and testing for potential aquifer recharge projects.

2. Water for Fish: Instream Priorities and Watershed Health - \$35.2M

Increased investments were made to Oregon Department of Fish and Wildlife's existing Fish Passage Fund and to the Oregon Conservation and Recreation Fund to improve wildlife passage and mobility and increase drought resilience in natural systems. Various funding sources were allocated for restoration across the state, including wetlands, floodplains, and watersheds impacted by western juniper.

3. Water for Farms: Agricultural Resilience and Food Security - \$9.7M

Funding has been allocated to help small-scale agricultural producers increase their resilience to drought and support the Oregon Community Food Systems Network to develop food hub infrastructure and drought resilience. Support was also provided for increasing access to agricultural water technical assistance through Oregon State University's Extension Service and Agricultural Experiment Station.

4. Data and Analysis - \$8.8M

Notable investments included funding to update the statewide water availability model, continued support for the Oregon Water Data Portal, and expanded authority for the Water Resources Department to require water use reporting.

5. Planning, Coordination, and Capacity - \$8.3M

This focus area included permanent funding for Place-Based Integrated Water Resources Planning, grants to support other types of planning and coordination, and staff to address water distribution and water rights and protest backlog reduction.

6. Water for Families: Drinking Water Security - \$7.5M

Drinking water security will be enhanced by a new grant program to help water suppliers protect drinking water source areas, administered by the OWEB. Additional investments include funding to research small community water system vulnerability and funding to expand the existing Water Well Abandonment, Repair, and Replacement Fund (WARRF).

7. Outreach and Engagement - \$4.4M

This funding focus area included \$1.6M for the construction of a water system training center, to be managed by the Oregon Association of Water Utilities, facilitation support to continue the Tribal Water Task Force, and resources for the University of Oregon's Just Futures Institute to research and address water needs of environmental justice communities.

Oregon's Water Caucus

The Oregon Legislature's [Water Caucus](#) is a bipartisan, bicameral group of state legislators and staff committed to fostering a resilient water future for all. The Water Caucus recognizes that tackling complex water challenges requires focused leadership, innovation, and long-term commitment to learning and working together. Core functions include facilitating learning, convening conversations, promoting informed decision-making, and elevating the priority of water-related policies and investments. The Caucus includes members of diverse backgrounds and is led with balance across the Legislature's House and Senate as well as the state's major political parties.

Remaining Funding Gaps

Funding needs remain even after the two consecutive biennia of significant investments in water infrastructure, planning tools, and technical assistance. Agencies continue to need funding for data and analysis to inform near and long-term decision-making.

Underinvestment in water infrastructure has been a problem for decades and will take time to adequately address. Small communities continue to need technical and financial support for water infrastructure, including assistance in pursuing grants. Senior water rights holders in the agricultural sector need financial incentives to dedicate water instream. Some agencies have seen flat funding for carrying out regulatory responsibilities and water management duties that do not keep up with increased costs or increased responsibilities. Agency funding for technology infrastructure and administrative support have not increased proportionally with growth in some agency programs.

"The state's water infrastructure suffers from decades of disinvestment and natural resource agencies lack funding and capacity to properly enact their duties."

-Secretary of State Advisory Report
2023-04 (2023)

**Action
13A****Fund Oregon's Integrated Water Resources Strategy**

Agencies need funding to carry out a robust public process in updating the Strategy, as well as guide the ongoing implementation of the Strategy actions. The Water Resources Department lacked a full-time position dedicated to Strategy implementation after 2018. The Department regained a permanent, full-time position in 2023. The 2023 Legislative session also resulted in the addition of staff positions at other agencies to support the Strategy, including one staff member to the Department of Agriculture, two at the Department of Environmental Quality, and three at the Water Program at the Department of Fish and Wildlife. All natural resources agencies need adequate capacity to participate in the Strategy, especially those with statutory responsibilities.

Since 2009, Oregon has been required to update the Strategy every five years. However, in 2023, the Oregon Legislature extended this period to a maximum of every eight years, also adding the requirement for developing a biennial agency work plan to implement the Strategy. These changes go into effect after the adoption of the 2025 Strategy. Staff support across many agencies will be needed to coordinate efforts in developing the biennial work plan and implementing the Strategy's four objectives and 48 actions.

Ongoing Strategy implementation requires effort for coordination and communication. Updating the Strategy involves coordination with Tribes, interested parties, the public, multiple federal and state agencies, briefings of boards and commissions, and countless hours collecting information on Oregon's water-related policies, programs, and practices. Consistent resources for agencies for Strategy coordination, implementation, and updates will allow for steady progress towards understanding and meeting our states instream and out-of-stream needs.

Action 13A

Fund Development and Implementation of Oregon's Integrated Water Resources Strategy

Examples of how to implement this action:

- Fund implementation of the Integrated Water Resources Strategy
- Fund the development and implementation of biennial Strategy workplans
- Fund the required Integrated Water Resources Strategy updates, including support from partner agencies
- Fund communication resources regarding the Strategy including web-based information and translations
- Fund the development of biennial progress reports to communicate progress on Strategy implementation

Action 13B

Fund Water Resources Management by State Agencies

Although some of the Strategy actions fall under the purview of the private sector, nonprofit organizations, or academic institutions, most actions will fall to the public sector, particularly state agencies. The state plays a complex role when it comes to water resources management; it serves the public interest in economic development, the environment, public health, and public safety.

Oregon has made historic investments in water over the last two biennia. It is important to continue to build upon these investments, while not losing sight of core responsibilities related to water. This action is intended to be broadly interpreted to include the many supporting roles natural resources agency personnel play in water management. For example, information technology, administration, education, communication, research, and monitoring are all critical activities that support effective water management.

For day-to-day operations at state agencies, there are many examples of Strategy implementation activities that require funding:

- Coordinating and partnering with other agencies and public and private entities
- Updating plans and participating in federal, state, and local planning activities
- Improving scientific information, including data collection, analysis, sharing, and use in decision-making
- Updating technical tools, including software, databases, maps, models, field equipment, and education/outreach materials
- Protecting and restoring instream flow, habitat, and access, including fish passage and fish screening
- Providing engineering, scientific, permitting, regulatory and other technical expertise to partners, interested parties, and customers
- Measuring and distributing water
- Assessing, developing, issuing, and denying or renewing permits that are protective of water resources
- Conducting compliance, public health/safety monitoring and inspections
- Enforcing compliance with permits (water rights, water quality, removal-fill, etc.), statutes, and regulations
- Monitoring for and preventing invasive species, toxics, pollution, and hazards

Agency Budgets Support Local Governments and Districts

Many state agency budgets provide funding for local, on-the-ground organizations. For example, the Oregon Watershed Enhancement Board provides funding for watershed councils and soil and water conservation districts, in collaboration with the Oregon Department of Agriculture. The Department of Land Conservation and Development provides technical assistance and funding for local governments relating to comprehensive land use planning and coastal resiliency.

Sources of Agency Funds

Oregon's natural resources agencies' operating budgets depend on a variety of funding sources, and the source can dictate the activities of an agency's time, staff, and resources. There are four primary funding mechanisms for most natural resources agencies: General Funds, lottery funds, federal funds, and fees. Economic development activities are often partially supported by fee revenues or contract funds for work performed. Environmental protection activities have often depended on public funds.

The General Fund is used for a variety of public purposes and the amount of General Fund is limited, meaning there is competition for these dollars. The legislatively approved budget for 2023-25 shows the General Fund investment in natural resources agencies equated to almost 2 percent, or \$606 million, of the \$31.9 billion General Fund budget. The budget for 2021-2023 was also about 2 percent of the General Fund, however, the previous decade consistently allocated closer to 1 percent of the General Fund to natural resources agencies.

Over the years, natural resources agencies have become increasingly reliant on lottery funds and federal funds, which are often geared toward specific, local projects, rather than maintaining core functions and daily operations. Many natural resources agencies also rely on permit fees however, these funds do not cover the real cost of conducting transactions.

An agency's ability to maintain consistent levels of staffing and services requires consistent General Fund and fee revenue. When fee revenue is low, an agency must administratively manage the budget to control costs. This includes leaving positions across the agency open as they become vacant and shifting General Funds, or other available funding sources, to cover fee gaps. This ultimately results in misalignment between staffing levels and workloads agency wide. Often, as water becomes scarcer, the work required of natural resources agency staff becomes more complex and time consuming and fees are typically not enough to recoup the costs.

Action 13B

Fund Water Resources Management Activities by State Agencies

Examples of how to implement this action:

- Fund those water management activities for which the state has responsibility
- Ensure increased and adequate funding from the General Fund
- Seek additional funding sources (e.g., federal funding, bonding)
- Provide funding for agency operations and equipment (e.g., administration, information technologies, interagency coordination, data acquisition and management)
- Allow agencies to adjust fees to ensure that their programs protecting water resources are sustainably funded
- Evaluate and implement opportunities to improve equitable delivery of services by state agencies
- Support agency capacity to carry out the Strategy
- Provide ongoing support for the Oregon Water Data Portal to provide a platform for state agencies and partners to share data and information with the public to support water-related decision making
- Provide equitable access to technical assistance (e.g., state agencies, SWCDs) for communities

Federal funding sources can help support targeted agency projects; most recently, they provided a much-needed boost to help replace and upgrade water infrastructure. Many federal funding opportunities require state matching funds, highlighting the need to have state resources available to leverage federal dollars. Federal funding for many core environmental protection programs carried out by the state, such as the Clean Water Act, have remained flat for many years. As a result, program service levels have been reduced, elevating the need for additional sources of funding.



Action 13C

Invest in Planning, Feasibility Studies, and Project Implementation

Agencies often administer grants and loans to support many types of instream and out-of-stream projects. This role carries with it responsibility for distributing public funds in an equitable manner, addressing racial and environmental justice. Oregon's DEI Action Plan provides guidance for investments, stating they should be targeted to historically and currently under-resourced populations and/or organizations. Project funders should also consider how project outcomes might negatively impact water affordability. Resources have historically been limited to providing financial assistance to low-income households for water and wastewater utilities.

The Federal Justice40 Initiative provides an aspirational model for identifying disadvantaged communities and prioritizing investments to benefit those same communities. Specifically, the Initiative requires that 40-percent of overall benefits of certain climate, clean energy, and other federal investments flow to disadvantaged communities marginalized by underinvestment and overburdened by pollution.

Planning

Planning is done successfully by ensuring that resources exist to help organize people and facilitate the conversation. It also takes resources to gather existing information and to complete new technical assessments that fill key knowledge gaps. In any planning effort, communication and outreach are fundamentally important and require investment of both time and resources.

Investments are needed to support existing state agency planning programs and new planning initiatives. The Water Resources Department (OWRD) administers the Place-Based Integrated Planning Program. The Department of Land Conservation and Development (DLCD) administers numerous planning-focused grants including the General Fund Grant Program to support local governments with local comprehensive planning and plan updates, the Oregon Coast Management Program Coastal Grants to support coastal resiliency, and the Community Green Infrastructure Grant Program to fund planning and development of community green infrastructure projects.

Feasibility Studies

Local communities find it most difficult to secure feasibility study funding as part of their project development. Such studies help determine the viability of a project as well as the environmental, engineering, economic, and social implications of proposed water projects.

One way Oregon can help with costs is to bridge the existing funding gap for feasibility studies. In 2008, the OWRD began providing funding for Feasibility Study Grants for water conservation, reuse, and storage projects. Since then, approximately \$9.9 million has been awarded to support 120 feasibility studies.

Business Oregon (BizOR) and Oregon Health Authority (OHA) provide funding for feasibility studies through the Sustainable Infrastructure Planning Projects forgivable loan program. The BizOR also funds feasibility studies through other programs, including the Safe Drinking Water Revolving Loan Fund and Water/Wastewater Financing Program.

The Oregon Watershed Enhancement Board (OWEB) can also fund feasibility studies through their Technical Assistance Grants, if the applicant can demonstrate it is necessary for an acquisition or restoration project. The DLCD offers Technical Assistance Grants for public facilities feasibility studies in support of housing production.

In 2024, the Oregon Department of Environmental Quality (ODEQ) offered forgivable loans up to \$100,000 for planning and feasibility studies with Bipartisan Infrastructure Law funds through their Clean Water State Revolving Fund.

Instream and Out-of-Stream Project Implementation

The Strategy identifies many actions needed to meet instream and out-of-stream water demands. Many of these actions point to types of projects that are needed, such as ecological restoration (Actions 10A-10E), modernizing irrigation infrastructure (Actions 12B and 13A), or upgrading many types of water infrastructure to be more resilient to climate change and natural hazards (Actions 6A-6C, 13A-13C). Fortunately, many existing state agency programs can help fund a wide range of water projects. The OWEB has grant programs that can fund many aspects of a habitat restoration project including community engagement, technical assistance, construction, and monitoring. The OWEB also funds voluntary instream water transactions with water right holders to benefit fish and wildlife habitat and water quality. The BizOR has numerous grant and loan programs that fund site assessment, remediation, and water infrastructure planning, design, and implementation. The types of water infrastructure projects that receive funding include drinking water supply, stormwater conveyance, wastewater treatment, water storage, and levees.

The OWRD's Water Projects Grants and Loans Program funds evaluation, planning, and the development of instream and out-of-stream water projects that have an economic, environmental, and social or cultural benefit. The Irrigation Modernization Funding Program is also led by the OWRD, providing grants for projects that improve water use efficiency on currently irrigated agricultural lands.

"Coordinated and new investments will ensure communities – including Oregon's federally recognized tribes and those people living in disproportionately impacted and rural communities - can afford and access adequate clean water, and return it to our rivers for downstream users, fish, and wildlife."

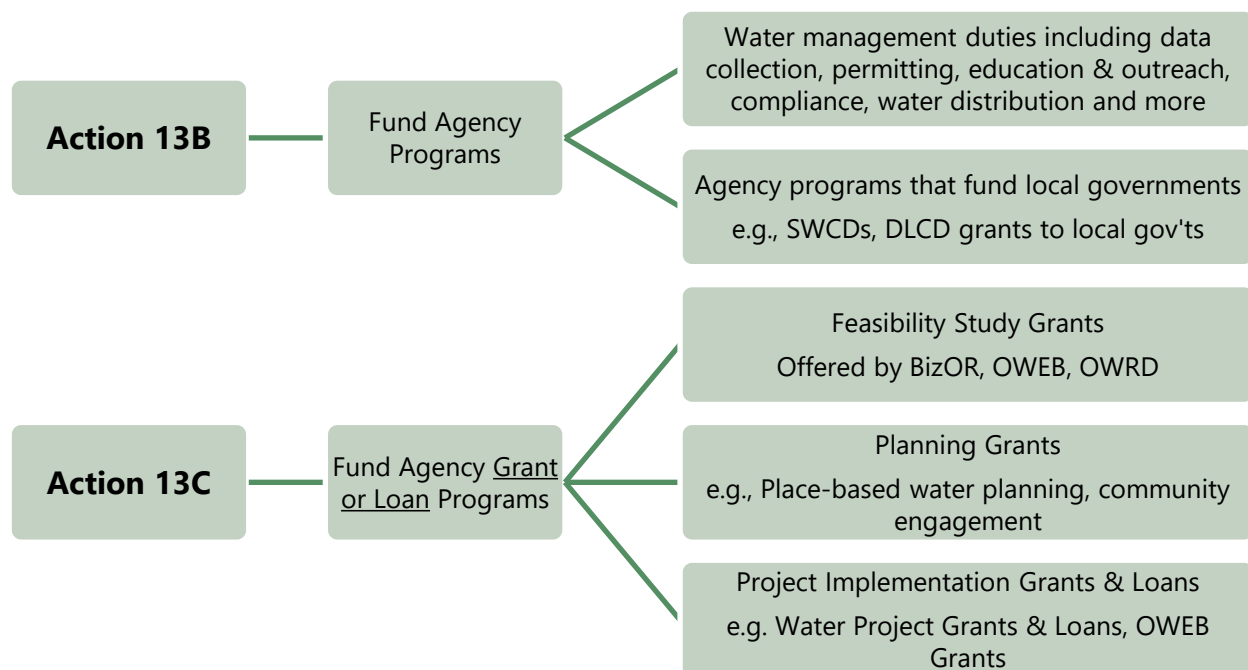
.-100-Year Water Vision (2020)

The Department of Fish and Wildlife administers the Private Forest Accord Grant Program and the Oregon Recreation and Conservation Fund. The Private Forest Accord Grant Program can support watershed-scale investments in projects like stream habitat restoration, removal of barriers to fish passage, cold water and flow protection, beaver-modified habitat creation, and other statewide benefits for the species covered by the Private Forest Accord Habitat Conservation Plan. The Oregon Recreation and Conservation Fund supports projects that help implement the State Wildlife Action Plan, protecting and enhancing species and habitats, and providing opportunities for wildlife-associated recreation and education.

The ODEQ leads the Clean Water State Revolving Fund, which provides below-market rate loans for water infrastructure projects. The BizOR and the OHA partner on the Drinking Water State Revolving Fund which provides low-cost loans to community and non-community water systems for planning, design, and construction of drinking water facility improvements.

Throughout Oregon, municipalities, organizations, businesses, and individuals apply for state funding. Projects often require multiple funding sources to be viable, increasing the impact of grant application and award timing. Project applicants can benefit from agency communication, coordination, and technical assistance to piece together various funding sources.

Figure 4-15: Guidance for using Action 13B or Action 13C



Action 13C

Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Examples of how to implement this action:

- Continue to authorize and fund public and private investments in efforts such as Place-Based Integrated Water Resources Planning, including plan implementation
- Provide funding to assist small water systems to develop and implement water management and conservation plans
- Provide funding to support hazard mitigation planning (e.g. droughts, floods) at the local level
- Support river basin-planning updates
- Authorize bonds to finance investments in water resource-related projects
- Ensure that basic water infrastructure maintenance needs continue to be eligible for grant and loan funding
- Advocate for continued state and federal funding for water and wastewater-related infrastructure
- Develop funding and technical support for low-income, small communities, and districts to maintain, upgrade, and operate water and wastewater-related infrastructure
- Continue funding and support for watershed restoration and OWEB Focused Investment Partnerships
- Continue to fund OWRD Feasibility Study Grants, Water Project Grants and Loans, and Water Well Abandonment, Repair, and Replacement funding opportunities
- Continue to provide BIZOR and OWEB administered grants that cover feasibility studies
- Support water project community engagement, including participation by representatives of disproportionately impacted communities (See HB 3293 (2021) that applies to BIZOR, ODEQ, ODFW, OHA, OWEB, and OWRD)
- Target investments so that benefits are distributed to frontline communities equitably
- Look for ways to support the federal Justice40 Initiative, a goal that 40 percent of benefits of specific federal investments are directed toward those marginalized, underserved, and overburdened by pollution
- Develop a centralized funding platform to help link people with project-appropriate funding programs

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CONCLUSION

Implementation and Looking Forward

Water is a finite resource with growing demands; water scarcity is a reality in Oregon. Water-related decisions should rest on a thorough analysis of supply, the demand / need for water, the potential for increasing efficiencies and conservation, and alternative ways to meet these demands.”

- Policy Advisory Group (2016)



Chewaucan River near Paisley, Oregon. Credit: Garrett Steensland

Strategy Workplan and Implementation

The statute guiding the development and implementation of the Strategy was updated in 2023 to require a biennial workplan. Following the adoption of the 2025 Strategy by the Water Resources Commission, the Strategy Project Team will draft the first biennial workplan that reflects the Strategy Agency Priorities (Appendix E) and the legislatively adopted budget for the 2025-27 biennium. Future workplans will include engagement opportunities in advance of biennial agency budget processes and legislative concept development to adequately support forward-looking Strategy implementation. Workplan development provides an opportunity to coordinate work across many agencies and partners and must be done in a way that protects the public interest and balances instream and out-of-stream needs.

Agencies will continue to make progress on Strategy actions as resources allow. Each biennial budget cycle and legislative session provides a new opportunity to identify and secure necessary resources to implement the Strategy.

Closing Thoughts

Since 2012, the Strategy has provided Oregon with a roadmap to improve our understanding of our water resources and work towards meeting our instream and out-of-stream needs. Most years, steady progress has been made on the Strategy actions. The last four years of legislative investments have allowed for a significant increase in activity. Private landowners, communities, non-profits, businesses, local governments, utilities, tribes, and state and federal agencies have come together to discuss difficult topics, develop creative solutions, find funding, and implement projects on the ground.

During public engagement for the 2025 Strategy, differences in opinion were shared about how to address our water challenges. But commonalities were also shared, across diverse communities throughout the state. Participants also shared a message of hope:

- Encouragement about the development of new devices and technology for both addressing water quantity (such as more efficient tools for agriculture or for households) and water quality
- Empathy and care for what people in other parts of the state might be facing with water in their communities. As one Marion County resident put it, "There are so many of us who care deeply about water, and there are not many ways to show that or ways to find each other if we are not already involved in water management as large-scale customers, professional experts, or administrators."
- A desire to learn more
- Hope in future generations as water and land stewards
- Appreciation for opportunities to be part of the statewide conversation on water

More work is yet to be done. Let the Strategy be the springboard for conversations about both water problems and water solutions. We can't live without water, and we can make choices now that make future conversations easier rather than harder. To quote many Strategy engagement participants, "water is life."

The next edition of the Strategy is due eight years.

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Oregon's 2025 Integrated Water Resources Strategy

APPENDICES

Appendix A – Water Governance - Tribal, State & Federal Agency Water Roles & Responsibilities

Appendix B – Water Laws, Policies, and Regulations

Appendix C – Crosswalk of 2017 Strategy and 2025 Strategy Actions

Appendix D – Strategy Framework and Action Summary Sheets

Appendix E – Agency Priorities 2025-33

Appendix F – 100-Year Water Vision and Related Strategy Actions

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Appendix A

Water Governance – Tribal, State & Federal Agency Water Roles & Responsibilities

Water Governance

In Oregon, all water belongs to the public and no single agency or entity has sole jurisdiction when it comes to water management. There are many public and private organizations with specific responsibilities and authorities related to the management of water resources. These organizations reside at the state, federal, and local level, and with tribal governments within Oregon, and each has a different mission, funding base, and constituency. The 2025 Strategy recognizes the importance of Oregon's legal, scientific, and institutional foundation and commits to continue to improve it.

Tribal Governments

Tribes in Oregon

Archaeological science has documented Tribes in Oregon since time immemorial.ⁱ Creation stories and other ethnographic information tells of the people being created in their homelands, not coming from somewhere else. At the time of colonial exploration in the 1790's, more than 60 Tribes were documented.ⁱⁱ Today, there are only nine federally recognized Tribes and the Chinook Indian Nation is fighting to regain federal recognition.ⁱⁱⁱ Federally recognized Tribes are recognized as sovereign with control of their governance, land, and resources. This recognition establishes a formal government-to-government relationship between Oregon and these Tribes. Unless otherwise specified, references to Tribes in this document pertain to those federally recognized.

Historical Context of Sovereignty

It is critical to understand the history surrounding sovereignty of federally recognized Tribes as independent nations, to understand the current state of water management in Oregon. Oregon's tribal history encompasses the ceding of land, reservation establishment, the loss of sovereignty during the 1950s termination era, and the subsequent efforts to reinstate sovereignty from the 1970s onwards. The impact of these events varied among Tribes, with some facing challenges in fully restoring their sovereignty. There are currently at least 14 modern indigenous tribal nations in Oregon. The summary, below, provides an overview of the general history surrounding tribal sovereignty.

Excerpted from the [Oregon Blue Book, Introduction to Native Peoples of Oregon](#)^{iv}:

"Tribal governments are separate and unique sovereign nations with powers to protect the health, safety and welfare of their enrolled members and to govern their lands. This tribal sovereignty predates the existence of the U.S. government and the State of Oregon. The members residing in Oregon are citizens of their tribes, citizens of Oregon, and since 1924, citizens of the United States of America.

The U.S. Department of the Interior, Bureau of Indian Affairs, oversees tribal interests and administers the federal government's trust obligations. At times, the federal government has been supportive of tribal self-determination, and in other periods, has adopted policies and passed legislation having a negative impact on the ability of tribes to govern as sovereigns. "Termination," one such policy in the 1950s, was an attempt to sever federal trusteeship and support for tribal sovereignty. Of the 109 tribes and bands terminated nationwide, 62 were in Oregon. In 1975, the federal government recognized the failure of its termination policy and passed the Indian Self-Determination and Education Assistance Act, and later, the Tribal Self-Governance Act.

Several tribes began the process to restore their status as sovereign nations. In 1977, The Confederated Tribes of Siletz was the second tribe in the nation to achieve restoration. Following Siletz was the Cow Creek Band of the Umpqua Tribe of Indians in 1982, the Confederated Tribes of Grand Ronde in 1983, the Confederated Tribes of Coos, Lower Umpqua and Siuslaw in 1984, the Klamath Tribes in 1986 and the

Coquille Indian Tribe in 1989. Another three federally recognized tribal governments exist in Oregon: The Confederated Tribes of Warm Springs (Treaty of 1855), the Confederated Tribes of Umatilla (Treaty of 1855) and the Burns Paiute Tribe (1972 Executive Order). Fort McDermitt Paiute Shoshone Tribe is a federally recognized tribe with reservation lands straddling Oregon and Nevada, but the tribe's population center is in Nevada. Celilo Village is a federally recognized tribal entity near The Dalles, jointly administered by the Confederated Tribes of Warm Springs, the Confederated Tribes of Umatilla, and the Yakama Indian Nation (Washington).

All Oregon tribal governments have reservation or trust lands created by treaties, statutes or executive branch actions. Tribal governments have regulatory authority over these lands, unless that authority has been removed by Congress. Nearly 904,000 acres, or at least 1.6% of land within Oregon's boundaries, are held in trust by the federal government or are designated reservation lands. Tribal governments have the authority to decide their own membership qualifications and have a right to exclude individuals from their reservations.

Public Law 280 gave the state certain civil and criminal jurisdiction over tribes with the exception of the Confederated Tribes of Warm Springs, the Confederated Tribes of Umatilla and the Burns Paiute Tribe, which are "non Public Law 280" tribes. Notwithstanding Public Law 280, all Oregon tribes have the authority to elect their own governments and adopt laws and ordinances. Oregon tribal governments have their own departments dealing with governmental services, including law enforcement and tribal court systems. In addition, each tribal government operates programs in the areas of natural resources, cultural resources, education, health and human services, public safety, housing, economic development and other areas to serve their members."

Websites for each of the nine federally recognized tribal nations in Oregon provide additional information about the Tribes' history, culture, and current projects:

- [Burns Paiute Tribe](#)
- [Confederated Tribes of Coos, Lower Umpqua, and Siuslaw](#)
- [Confederated Tribes of the Grand Ronde Community of Oregon](#)
- [Confederated Tribes of Siletz Indians of Oregon](#)
- [Confederated Tribes of the Umatilla Indian Reservation](#)
- [Confederated Tribes of Warm Springs Reservation of Oregon](#)
- [Coquille Indian Tribe](#)
- [Cow Creek Band of the Umpqua Tribe](#)
- [Klamath Tribes](#)

It is important to note that there are Tribes that have pursued, but not received, federal recognition. Without formal recognition, these Tribes are not able to engage in government-to-government processes or benefit from some federal resources.

Tribal Relations with the State of Oregon

Oregon was the first state to adopt a legal government-to-government relationship with Tribes through both executive action and legislation. Even so, Tribes have historically been left out of water planning and water rights decisions in Oregon. State agencies are continuing efforts to collaborate and consult with Tribes on water issues. Each state agency has a staff person assigned to the role of Tribal Liaison, and as part of this role, is tasked with identifying changes and initiatives in the agency which may impact Tribes and/or tribal members, and then to engage early and appropriately with Tribes. Each agency's Tribal

Liaison is responsible for developing an annual Government-to-Government (G2G) report that outlines the agency's efforts and actions during the past year to consult, coordinate, collaborate, and enhance relations with tribal nations. These reports are submitted to the Legislative Commission on Indian Services.

Legislative Commission on Indian Services (LCIS)

LCIS was created by statute in 1975 to improve services to Indians in Oregon. Its 13 members are appointed jointly by the Senate President and the Speaker of the House to a two-year term. LCIS members select their own officers to serve one-year terms. Prior to its establishment, there was no suitable mechanism in state government to consider Indian concerns directly. LCIS serves as the main forum in which Indian concerns are considered. It serves as a conduit through which concerns are channeled through the network to the appropriate entity; it serves as a point of access for finding out about state government programs and Indian communities.

Working Groups

There are several topic-specific working groups established between Tribes and state agencies. Two groups that frequently discuss water-related work include the Cultural Resources Cluster and the Natural Resources Working Group.

Tribal Water Task Force

In September of 2021, the nine sovereign Tribes of Oregon wrote to the Governor addressing Oregon's 100-year Water Vision. The letter shared tribal perspectives on water and noted the importance of tribal engagement in any water planning process. The letter requested the establishment of a Tribal Water Task Force, which would serve two primary functions:

- Educate Oregon's nine Tribes to the full complement of state agencies that touch upon water and that have a bearing on one or more of Oregon's water resources
- Educate Oregon's nine water-related agencies on the full complement of Tribal interests/issues that "Oregon's Water Vision" needs to acknowledge and address

The Task Force met five times during the summer and fall of 2022, and the 2023 Legislature has allocated funding for future facilitation. The Task Force released a [summary report](#) of their findings and recommendations from the 2022 meetings, also identifying a number of shared values about water that were agreed upon between both the Tribes and the State of Oregon:

1. The foundational and inherent importance of water for life and culture;
2. The need to plan for and invest in water with a long-term vision. The Tribes have an important value of making decisions with seven future generations in mind and the State has embarked on a 100-year water vision. It is clear that all parties understand the importance and need for long term visioning and planning;
3. Importance of Tribal engagement in water planning in Oregon at all levels;
4. Recognizing and emphasizing the urgency of the current and ongoing impacts of climate change on our environment and the effect climate change has on water; and
5. Understanding that we will all be better and stronger if we work together moving forward.

Task Force on Tribal Consultation

House Bill 2069 (2025) establishes the Task Force on Tribal Consultation through the end of 2026 to identify and clarify the requirements of state agencies to engage in tribal consultation. The 2025

legislation requires the task force to submit a report, which may include recommendations for legislation, to the Legislature in September 2026.

Tribal Water Authorities

As sovereign entities, tribal rights and authorities may be derived, retained, or defined from treaties, Congressional Acts, or Executive Orders, and are often further clarified through case law and adjudications. The right to hunt, fish, and gather is an important right to Northwest Tribes, and may extend to areas outside of reservation lands. The ability to fulfil a right to hunt, fish, and gather is notably dependent on ecosystem health, including water quality and quantity conditions necessary to sustain populations of culturally significant species.

Tribal reserved water rights are generally determined through an adjudication or settlement agreement. While several Tribes are working closely with the Water Resources Department to resolve historic water right claims, many Tribes hold water rights associated with the purchase of land. The priority date associated with a water right is maintained, even after the land changes ownership. Therefore, some Tribes hold senior water rights based on the priority date of the water right they acquired through land purchase.

Tribes may apply to the U.S. Environmental Protection Agency for authorization to administer water quality standards under the Clean Water Act. This means they may obtain similar authority to the Oregon Department of Environmental Quality, referred to as “primacy.” The Confederated Tribes of Umatilla Indian Reservation, the Confederated Tribes of Warm Springs Reservation of Oregon, and the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians have established such authority.

Refer to the section “Water Laws, Policies, and Regulations,” in Appendix B, for a more holistic description of water quantity, quality, and ecosystem regulations, including roles of tribal, state, and federal governments.

State Government

There are several agencies in Oregon with responsibilities related to water resources. The following text provides a brief description of each agency’s role, to enhance coordination and help illustrate how they might best participate in the Strategy.

State Interagency Project Team

Many state agencies contributed to the 2025 Strategy, however, five of these agencies served on an interagency project team from 2022 to 2025 and significantly supported its development. Agencies are listed in alphabetical order.

Oregon Department of Agriculture (ODA)

ODA’s mission is to “ensure healthy natural resources, environment, and economy for Oregonians now and in the future through inspection and certification, regulation, and promotion of agriculture and food.” ODA oversees many programs that protect water quality and habitat. The Agricultural Water Quality Program implements a compliance and enforcement program, identifies Strategic Implementation Areas needing additional water quality improvement, and supports water quality monitoring. The Soil & Water Conservation District (SWCD) program administers grants to SWCDs to provide technical assistance, for education and outreach, and for voluntary water quality projects. The Confined Animal Feeding

Operations (CAFO) and Pesticide Programs led by ODA also focus on collaboration and strategies to protect water quality. The Insect Pest Prevention & Management Program supports invasive species eradication.

Oregon Department of Environmental Quality (ODEQ)

ODEQ's mission is to "be a leader in restoring, maintaining, and enhancing the quality of Oregon's air, land, and water" and is responsible for implementing the federal Clean Water Act and state water quality law in the state. ODEQ has four Divisions: Air Quality, Land Quality, Water Quality, and Laboratory Administration. The Land Quality Division oversees programs that address pollutant management and cleanup, while the Laboratory performs various tasks in support of the agency mission, including many that are related to the Strategy, such as overseeing water quality monitoring programs. The Water Quality Division implements state and federal laws to protect and restore Oregon's rivers, lakes, streams, oceans, estuaries, and groundwater. This work plays a critical role in ensuring that Oregon's water resources are safe and available for both instream and out-of-stream beneficial uses, such as drinking water, fish and other aquatic organisms, recreation, the ability to consume fish safely, and irrigation. Programmatic and regulatory responsibilities within the Water Quality Division include developing and issuing permits for wastewater treatment systems and industrial, construction, and municipal stormwater discharges that protect land, surface, and ground waters.

ODEQ coordinates with other state and federal agencies on actions that may affect Oregon waters including partnering with other state agencies to support water quality programs and implement water-related regulations.

Oregon Department of Fish and Wildlife (ODFW)

ODFW's mission is to "protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations." ODFW is responsible for implementing Oregon's Endangered Species Act (ORS 496.171-496.192). ODFW has three main Divisions - Fish, Habitat, and Wildlife - all of which provide some level of support for the Strategy. Fish Division programs include fish passage/screening, engineering, public education, conservation, and recovery. The Habitat Division programs collect and share data, identify conditions needed to support aquatic and terrestrial species including instream flow, and support restoration activities. The Wildlife Division includes a conservation program that implements the State Wildlife Action Plan and a habitat program that oversees 16 ODFW Wildlife Areas. ODFW also co-manages an Aquatic Invasive Species Prevention Program with OSMB.

Oregon Department of Land, Conservation, and Development (DLCD)

DLCD's mission is to "help communities and citizens plan for, protect and improve the built and natural systems that provide a high quality of life." DLCD fosters sustainable and vibrant communities and protects Oregon's natural resources legacy. DLCD's work is guided by Oregon's 19 Statewide Land Use Planning Goals, requiring each city and county to adopt and maintain a comprehensive plan addressing these goals. DLCD has been leading Oregon's [Climate Change Adaptation Framework](#) and Climate Change Vulnerability Assessment. Additionally, DLCD administers a variety of grants for comprehensive plan updates, public facilities plan updates, natural hazard mitigation planning, and climate change adaptation and mitigation. DLCD provides annual funding to Portland State University (PSU) to update county-level population forecasts. DLCD's work on housing production is relevant to the Strategy's focus on meeting water resource needs. Within the coastal zone – defined as the crest of the coast range out to three nautical miles offshore – the Oregon Coastal Management Program within DLCD uses its Federal Consistency authority under the Coastal Zone Management Act to review federal permits, licenses, and federal agency-led activities against the enforceable policies of the coastal program. These include state

policies related to water quality, water appropriation, submerged land uses, archaeological resources, and species and habitat protection. Proposed projects found inconsistent with these policies may be subject to conditions or a formal objection that can prevent the action from proceeding.

Oregon Watershed Enhancement Board (OWEB)

OWEB's mission is "to help protect and restore healthy watersheds and natural habitats that support thriving communities and strong economies." The agency provides grants to a variety of public and private entities to accomplish habitat conservation, restoration, protection, land and water acquisition, and monitoring. OWEB currently offers more than 20 different grant programs. OWEB's work supports the Oregon Plan for Salmon and Watersheds, including the task of coordinating watershed monitoring data from a variety of private landowners, federal, and state agencies. OWEB maintains the [Oregon Watershed Restoration Inventory](#) (OWRI) database which quantifies conservation and restoration results to inform future efforts.

Oregon Water Resources Department (OWRD)

OWRD's mission is "to serve the public by practicing and promoting responsible water management through two key goals; one, to directly address Oregon's water supply needs, and two, to restore and protect streamflows and watersheds in order to ensure the long-term sustainability of Oregon's ecosystems, economy, and quality of life." Under Oregon law, all water belongs to the public, and with some exceptions, all water users must obtain a permit or license from OWRD to use water from any source. OWRD collects, analyzes, and provides water quantity data to other agencies and to water users. OWRD processes water rights transactions, adjudicates claims to water uses which predate Oregon Water Law and federal and tribal reserved water claims, distributes water under the water rights system of prior appropriation, and addresses unauthorized uses of water. OWRD also protects public safety through the well construction and dam safety programs. OWRD provides planning, technical assistance, and funding to address instream and out-of-stream water supply needs. OWRD is responsible for developing and updating the Strategy, in collaboration with other state agencies, Tribes, interested parties, and the public.

Other Water-Related State Agencies

Many state agencies play a role in the Strategy and include natural resource agencies in addition to agencies that support economic development and public health. Agencies are listed in alphabetical order.

Business Oregon (BizOR)

BizOR is the state's economic development agency, with a mission to "invest in Oregon businesses, communities, and people to promote a globally competitive, diverse, and inclusive economy." BizOR administers a variety of loan and grant programs that support site assessment, remediation, and water infrastructure planning, design, and implementation. The types of water infrastructure projects that receive funding include drinking water supply, stormwater conveyance, wastewater treatment, water storage, and levees.

Department of Geology and Mineral Industries (DOGAMI)

DOGAMI's mission is to "provide earth science information and regulation to make Oregon safe and prosperous." DOGAMI works to increase understanding of Oregon's geologic resources and hazards through science and stewardship. There are two main programs at the Agency: Mineral Land Regulation and Reclamation (MLRR) and Geological Survey and Services (GS&S). The MLRR Program oversees the state's mineral production and works to minimize impacts of natural resource extraction and to maximize the opportunities for land reclamation. This includes extensive interagency coordination to enforce mining permits that protect water quality, among other environmental concerns. The GS&S program has much

more extensive interaction with the Strategy, including earth science data collection, information sharing, natural hazard mapping, and identification of risk reduction strategies. Staff in the GS&S program lead the [Oregon Lidar Consortium](#) which organizes the collection of lidar data in coordination with dozens of local, state, and federal partners.

Oregon Department of Energy (ODOE)

ODOE's mission is to "help Oregonians make informed decisions and maintain a resilient and affordable energy system." The agency accomplishes this through a combination of data collection/analysis, education, technical assistance, regulation, oversight, and administration of energy programs. ODOE offers a variety of incentive programs to encourage energy and water conservation.

Oregon Department of Forestry (ODF)

ODF's mission is to "serve the people of Oregon by protecting, managing, and promoting stewardship of Oregon's forests to enhance environmental, economic, and community sustainability." The Forest Practices Act (FPA) guides ODF's management of private and federally owned forests. Publication of the Private Forest Accord Report and legislation passed in 2022 has guided modifications to the FPA and ODF administrative rules, providing additional protections to habitat and water quality. ODF's Fire Protection Program protects 16 million acres of forest, on private and public lands. ODF also manages over 700,000 acres of state-owned forests and the state's Common School Fund Forest Lands. Management approaches to both private and public forests provide an opportunity to protect water quality, conserve and restore habitat for native species, and eradicate invasive species.

Oregon Department of Higher Education, Oregon Climate Change Research Institute (OCCRI)

OCCRI was created by the Oregon Legislature in 2007. OCCRI serves several functions regarding conducting and sharing climate change research and provides technical assistance to local governments in developing climate change policies, practices, and programs. OCCRI publishes [biennial assessments](#) on the state of climate science and the likely effects of climate change in Oregon.

Oregon Department of Human Services (ODHS)

ODH's mission is "to help Oregonians in their own communities achieve well-being and independence through opportunities that protect, empower, respect choice, and preserve dignity." The ODHS Office of Resilience and Emergency Management coordinates with governmental and non-governmental agencies to provide food, water, and shelter during a major emergency or disaster, in accordance with [Oregon's Comprehensive Emergency Management Plan](#). In recent years, ODHS provided emergency water to communities impacted by drought, wildfire, and contaminated groundwater.

Oregon Department of State Lands (DSL)

DSL's mission is "to ensure Oregon's school land legacy and protect wetlands and waterways of the state through superior stewardship and service." DSL oversees permitting associated with removal or fill in wetlands and or waterways, as defined in Oregon's Removal-Fill Law (ORS 196.795-990). The Department maintains programs and training to support natural resource identification, including the Oregon Rapid Wetland Assessment Protocol (ORWAP), Stream Function Assessment Method (SFAM), and Aquatic Resource Mitigation Framework. DSL also coordinates with state, federal, and community partners to address abandoned or derelict vessels in waterways.

Oregon Department of Transportation (ODOT)

ODOT's mission is to "provide a safe and reliable multimodal transportation system that connects people and helps Oregon's communities and economy thrive." ODOT holds a single National Pollutant Discharge

Elimination System MS4 permit issued and regulated by Department of Environmental Quality that covers the operation of all ODOT storm drain systems statewide. ODOT has implemented the Guide [“Routine Road Maintenance: Water Quality and Habitat Guide Best Management Practices”](#) since 1999. The guide is considered the cornerstone of ODOT’s Office of Maintenance and Operations Environmental Section. ODOT Maintenance crews use the Guide to help minimize impacts to the environment while performing day-to-day highway maintenance activities and to comply with provisions of the Endangered Species Act.

Oregon Health Authority (OHA)

OHA’s mission is “ensuring all people and communities can achieve optimum physical, mental, and social well-being through partnerships, prevention, and access to quality, affordable health care.” OHA is the primacy agency for implementing the federal Safe Drinking Water Act. While OHA encompasses many divisions and programs that promote public health, the Environmental Public Health (EPH) and Drinking Water Services (DWS) sections of the Public Health Division include the most relevant activities in relation to the Strategy. OHA-EPH identifies, assesses, and reports on threats to human health from exposure to environmental and occupational hazards, and also advises the people and communities of Oregon on how to best understand potential risks where they live, work and play. OHA-EPH’s involvement with water is through the Healthy Waters program that includes Fish Consumption Advisories, Harmful Algae Bloom Surveillance (HABS), Beach Monitoring, and Domestic Well Safety. In addition, OHA-DWS has primacy from the federal Environmental Protection Agency to implement the Safe Drinking Water Act. OHA-DWS administers and enforces drinking water quality standards for public water systems. OHA-DWS also enforces state law regulating small public water systems not regulated under the federal law. OHA-DWS provides water system operator training, technical assistance for water systems, emergency planning and response, and infrastructure funding for the federally regulated public water systems. OHA-DWS implements Drinking Water State Revolving Funding jointly with Business Oregon and source water protection program jointly with the Department of Environmental Quality.

Oregon Parks and Recreation Department (OPRD)

OPRD’s mission is “to provide and protect outstanding natural, scenic, cultural, historic and recreational sites for the enjoyment and education of present and future generations.” OPRD manages and maintains state parks, campgrounds, and beaches. They administer several grant programs, all aimed at increasing access to recreation. OPRD manages the State Natural Areas Program to protect and recognize high quality native ecosystems and rare plant and animal species. OPRD also manages the Scenic Bikeways, Scenic Trails, and Scenic Waterways Programs. Waterway designation places restrictions on the types of activities that can occur within or near the banks of the waterway.

Oregon State Marine Board (OSMB)

OSMB’s mission is to serve “Oregon’s recreational boating public through education, enforcement, access, and environmental stewardship for a safe and enjoyable experience.” OSMB titles and registers motorized boats and sailboats, issues titles for floating properties, issues Waterway Access permits for nonmotorized, make rules for boat operation, register outfitter guides, manage mandatory motorized boater education, contract with Counties and Oregon State Police for on-water law enforcement, administer a variety of boating access grant programs, provide technical assistance to boating access facility owners to improve access at more than 1,600 locations, manage Clean Marina Program, and Aquatic Invasive Species Prevention Program in partnership with ODFW. OSMB encourages safe boating practices, such as wearing life jackets, having sound signaling devices and following all operation and waterway rules. OSMB does not own public access sites but provides significant grant funding and assistance to improve, develop and maintain access for recreational boating.

Federal Government

Key Federal Agencies & Primary Roles

There are several federal agencies that collaborate with the Tribes and state agencies regarding water management.

Bonneville Power Administration (BPA)

BPA delivers hydropower produced in the Columbia River Basin to communities across the Northwest. BPA markets wholesale electrical power from 31 federal dams in the Northwest that are operated by the U.S. Army Corps of Engineers and the Bureau of Reclamation. They also market power from one nonfederal nuclear plant and several small nonfederal power plants. BPA funds the Northwest Power and Conservation Council's [Columbia River Basin Fish and Wildlife Program](#). The program funds regional efforts to mitigate the impacts of the federal dams on the region's fish and wildlife species.

Bureau of Reclamation (USBR)

USBR's mission is "to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public." USBR is a water management agency, established in 1902, responsible for the construction of over 600 dams and reservoirs across the western United States. They provide water deliveries, conservation, recycling, and reuse and have developed partnerships with customers, states, and Tribes. Most [USBR projects in Oregon](#) were built in the eastern half of the state. USBR's current efforts focus on improving the safety of existing dams and reservoirs, enhancing stream flows and fish passage, and working with partners on watershed restoration projects.

Bureau of Land Management (BLM)

BLM's mission is to "sustain health, diversity, and productivity of public lands for the use and enjoyment of present and future generations." BLM manages 15.7 million acres of federal land in Oregon, providing resource management, recreation, and education. The BLM Fire Program performs fire suppression, preparedness, predictive services, vegetative fuels management, community assistance and protection, and fire prevention through education. BLM provides funding for watershed restoration projects.

Federal Emergency Management Agency (FEMA)

FEMA's mission is "helping people before, during and after disasters." They develop flood maps – identifying various flood zones, or locations likely to flood during specified storm events. FEMA manages the National Flood Insurance Program and provides resources for floodplain management and risk reduction. FEMA coordinates with the Oregon Department of Land Conservation and Development regarding Oregon's Statewide Planning Goal 7 and floodplain management. FEMA also administers the [National Dam Safety Program](#) and takes actions to encourage and promote state and federal dam safety programs to reduce risks from dam-related hazards.

National Oceanic and Atmospheric Administration (NOAA and NOAA-Fisheries)

NOAA's mission is to "understand and predict changes in climate, weather, ocean, and coasts, to share that knowledge and information with others, and to conserve and manage coastal and marine ecosystems and resources." NOAA's monitoring and research provide critical information for understanding impacts from climate change. NOAA provides funding for watershed restoration projects. The National Marine Fisheries Service (NOAA-Fisheries) is an office within NOAA responsible for the stewardship of the nation's ocean resources and their habitat. NOAA-Fisheries jointly administers the federal Endangered Species Act with US Fish and Wildlife Service and is responsible for marine and anadromous species. NOAA Fisheries

manages marine and anadromous species pursuant to the Endangered Species Act, The Magnuson-Stevens Fishery Conservation Management Act, and the Marine Mammal Protection Act. NOAA's Office for Coastal Management funds the Oregon Coastal Management Program.

U.S. Army Corps of Engineers (USACE)

USACE's mission is to "deliver vital engineering solutions, in collaboration with our partners, to secure our Nation, energize our economy, and reduce disaster risk." USACE has constructed many types of infrastructure including coastal fortifications and flood control systems throughout the country, including some dams, dikes, and levees in Oregon. USACE also collaborates with DSL on Clean Water Act Section 404 and Oregon's Removal-Fill permitting programs. During natural disasters and other emergencies, USACE can respond in four main ways: under its own authority, Public Law 84-99, under the National Emergency Preparedness Program, and as the designated lead agency in support of FEMA for Emergency Support Function Number 3, Public Works and Engineering.

U.S. Department of Agriculture, Forest Service (USFS)

The mission of the USFS is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The agency manages almost 16 million acres of national forest lands in Oregon which comprise about 25 percent of the state and are the source of nearly 45 percent of its mean annual water supply. USFS implements diverse watershed, forest and rangeland management and restoration practices, per its Organic Act, to "improve and protect the forest, secure favorable conditions of water flows, and furnish a continuous supply of timber for the use and necessities of citizens of the United States." The agency also conducts research and provides assistance to state and local governments, forest industries, and private landowners to help protect and manage non-federal watersheds, forests and rangelands. USFS lands support many watersheds for municipal drinking water supply within Oregon and the agency plays an important role in wildfire management. USFS undertakes and provides funding for habitat and watershed restoration projects.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)

NRCS's mission is to "deliver conservation solutions so agricultural producers can protect natural resources and feed a growing world." NRCS works with producers, Tribes, soil and water conservation districts, and others to plan, design, and implement conservation practices and activities, while also providing funding through its programs. NRCS conservation programs help people address resource opportunities relating to soil, water, air, animals, plants, and energy.

U.S. Environmental Protection Agency (USEPA)

USEPA's mission is to "protect human health and the environment" and works to ensure that Americans have clean air, land and water. USEPA develops and enforces regulations, administers grants, sponsors partnerships, studies environmental issues, and educates people about the environment. They lead the implementation of the Clean Water Act, Safe Drinking Water Act, and provide oversight of states that have been delegated to administer the federal program, such as ODEQ. USEPA provides funding for watershed restoration, water infrastructure, toxics reduction, water quality monitoring, and nonpoint source pollution reduction projects in Oregon. USEPA helps fund ODEQ's implementation of Clean Water Act and Safe Drinking Water Act programs through a Performance Partnership Grant. The workplan for this grant can be found in appendix C of the [Oregon Performance Partnership Agreement](#).

U.S. Fish and Wildlife Service (USFWS)

USFWS's mission is to "conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people." The federal Endangered Species Act is jointly administered by USFWS and the National Marine and Fisheries Service. The USFWS primarily has oversight for terrestrial and freshwater species and some marine mammals. USFWS also implements the Bald and Golden Eagle Protection Act; and partners with all entities to conserve and restore habitats, conduct research and monitoring, and provide community education and outreach.

U.S. Geological Survey (USGS)

USGS's mission is to "monitor, analyze, and predict current and evolving Earth-system interactions and deliver actionable information at scales and timeframes relevant to decision makers." They are a "primary Federal source of science-based information on ecosystems, land use, natural hazards, water use and availability, and updated maps and images of the Earth's features available to the public." USGS collaborates with OWRD on basin studies and place-based planning efforts.

ⁱ News Staff, "Ancient Humans Occupied Oregon Rockshelter 18,250 Years Ago" Science News, July 7, 2023. <https://www.sci.news/archaeology/rimrock-draw-rockshelter-12076.html>

ⁱⁱ Cain, Eric and John Rosman. "Broken Treaties: An Oral History Tracing Oregon's Native Population." Oregon Public Broadcast, March 20, 2017. <https://opb.org/artsandlife/series/brokentreaties/oregon-tribes-oral-history-broken-treaties/>

ⁱⁱⁱ Reyna, Luna. "Chinook Indian Nation Land Claims Settlement Awarded, Nation Could be Closer to Federal Recognition." Underscore Native News, Feb 23, 2024. <https://www.underscore.news/justice/chinook-Indian-nation-land-claim-settlement-awarded-nation-could-be-closer-to-federal-recognition/>

^{iv} State of Oregon. 2023. Oregon Blue Book – Almanac & Fact Book. Tribal Governments Webpage. Accessed November 3, 2023. <https://sos.oregon.gov/blue-book/Pages/national-tribes-intro.aspx>

Appendix B

Water Laws, Policies, and Regulations

Water Laws, Policies, and Regulations

The actions described throughout the Strategy fit within an existing state and federal legal framework. Some water challenges we face in Oregon can be addressed with improved enforcement of existing regulations, modifications to laws or policies, or rulemaking within an agency program.

Both federal and state laws operate within an intricate legal structure, each with its own jurisdiction and authorities. Federal laws enacted by Congress have supremacy and apply uniformly across all states and territories. State governments retain significant authority to legislate and regulate matters not explicitly addressed by federal law. Each type of law—statutes, regulations, and policies—carries distinct levels of authority and serves specific functions within the legal system, with statutes generally holding the highest authority. This section outlines the primary federal and state statutes, regulations, and policies that guide Oregon’s management of water quantity, quality, instream, and out-of-stream needs. The section is organized featuring federal laws first and their associated state-run programs, followed by state laws.

Federal Statutes and Associated Regulations and Policies

The Clean Water Act (CWA) [33 U.S.C. § 1251](#)

The primary regulatory tool used to reduce or prevent pollutants from entering surface waters is the [Federal Clean Water Act \(CWA\)](#), which requires states to establish water quality standards to protect all beneficial uses of water. In Oregon, the Department of Environmental Quality administers the CWA with oversight from the U.S. Environmental Protection Agency. The state establishes [water quality standards](#) to protect defined beneficial uses (e.g., fish and aquatic life, water contact recreation, domestic water supply). The Oregon Department of Environmental Quality is required to review and update standards every three years, as resources allow.

Tribes may apply to the U.S. Environmental Protection Agency for authorization to administer water quality standards under the CWA. This means they may obtain similar authority to the Oregon Department of Environmental Quality.

Assessing, Listing and Reporting Requirements [Section 303\(d\) & 305\(b\)](#)

Total Maximum Daily Loads (TMDLs)- Requires states to identify waters that are not meeting water quality standards and establish TMDLs for those pollutants impairing water quality. TMDLs specify the maximum numerical amount of a pollutant that a water body can receive while still meeting water quality standards. As part of the 303(d) requirements, each state must assess the quality of water bodies across the state. The state must then determine TMDLs and implementation plans for all waterbodies that do not meet the state’s water quality standards. The Oregon Department of Environmental Quality is responsible for managing, implementing, and enforcing this program. Certain federal, state, and local governments and agencies, including cities, counties, and special districts, may be identified by the Department of Environmental Quality as a Designated

Management Agency, with authority to manage and regulate water pollution listed in a TMDL. Water quality standards can differ in adjacent states, so in cases where TMDLs cross state borders or require bi-state management, the highest standards designated are used in the TMDL.

Water Quality Status and Monitoring Reports– States are mandated to submit biennial reports known as "Water Quality Status and Monitoring Reports" to the U.S. Environmental Protection Agency. The result of these analyses and conclusions is called the "Integrated Report" because it combines the requirements of CWA sections 303(d) and 305(b) into one report. Waters identified as not meeting water quality standards ("303(d) listed") require the development of a TMDL. These reports provide comprehensive information on the condition of waters within the state.

Federal Certification [Section 401](#) – Gives states and authorized tribes the authority to grant, deny, or waive certification of proposed federal licenses or permits that may discharge polluted waters into Oregon's waters to ensure they meet Oregon's water quality standards. The Department may issue a Section 401 water quality certification, along with permit conditions.

Nonpoint Source Pollution Program [Section 1288](#) - - A nonpoint source of pollution is any pollution entering a waterbody, surface, or groundwater source, that does not come directly from a pipe. Nonpoint sources are often linked with agricultural, forestry, urban, and rural residential land use activities where rain or snow runs off to surface waters. As the runoff moves, it picks up and carries away pollutants (e.g., metals, nutrients, sediment) resulting from human activity, finally depositing them into lakes, rivers, wetlands, coastal waters, and groundwater. The Clean Water Act requires that each state develop a plan for controlling pollution from nonpoint sources and improving water quality. The Oregon Department of Environmental Quality is the lead agency in developing the plan. The most recent [Nonpoint Source Management Program Plan](#) was published in 2022.

Also significant in addressing nonpoint source pollution, the [Coastal Zone Act Reauthorization Amendments](#) (CZARA) established the national Coastal Nonpoint Pollution Control Program, mandating states with federally funded coastal management programs to tackle nonpoint source coastal pollution. This program is jointly overseen by the U.S. Environmental Protection Agency and the National Oceanic and Atmospheric Administration. In 2015, Oregon's latest Coastal Nonpoint Pollution Control Program was disapproved by the U.S. Environmental Protection Agency and the National Oceanic and Atmospheric Administration which led to temporary reductions in federal support for grant but will revisit the issue the next time they review the state's program for compliance.

Beaches Environmental Assessment and Coastal Health (BEACH) Act [Section 1311](#) – The BEACH Act amended the Clean Water Act by requiring the U.S. Environmental Protection Agency to develop performance criteria for testing, monitoring, and notifying public users of possible coastal recreation water quality problems. The Act authorizes U.S. Environmental Protection Agency to award grants to states, territories, tribes, or local governments to develop and implement beach monitoring and assessment programs.

Point Source Permitting: National Pollutant Discharge Elimination System (NPDES) [Section 1342](#)

The Clean Water Act prohibits anybody from discharging "pollutants" through a "point source" (e.g., pesticide use, industrial or wastewater treatment plant discharge) into a "water of the United States" unless they have a NPDES permit. While a federal program, NPDES permits are issued by the Oregon Department of Environmental Quality. The Department also issues state Water Pollution Control Facility (WPCF) permits to regulate the point source discharge of wastewater onto land. Both types of permits set limits on the amount of pollution that can be discharged and require specific practices and monitoring to safeguard surface waters and groundwater aquifers.

For livestock operations, the Oregon Department of Agriculture is the lead agency responsible for assigning NPDES and WPCF permits for Confined Animal Feeding Operations (CAFOs) to owners so manure does not pollute ground and surface water.

Clean Water State Revolving Fund (CWSRF) [Section 1381](#) – The Clean Water State Revolving Fund (CWSRF) was established by Title VI of the 1987 amendments to the Clean Water Act. The CWSRF program is a partnership between the U.S. Environmental Protection Agency and the Oregon Department of Environmental Quality to provide low-cost financing for a variety of infrastructure projects including municipal wastewater facilities, nonpoint source pollution control, decentralized wastewater treatment systems, stormwater runoff mitigation, green infrastructure, estuary protection, and water reuse.

The Safe Drinking Water Act (SDWA) [42 U.S.C. § 300\(f\)](#)

The 1974 federal Safe Drinking Water Act (SDWA) mandates the U.S. Environmental Protection Agency to establish and enforce standards that public drinking water systems must follow. These standards encompass a range of programs and requirements such as source water protection, treatment, monitoring, compliance, and public information. These measures aim to ensure that water system operators maintain a safe supply of drinking water for communities. The U.S. Environmental Protection Agency delegates primary enforcement responsibility, known as primacy, to state and tribal governments.

The Oregon Health Authority administers and enforces drinking water quality and notice standards for public water systems in Oregon. Public water systems are defined as having more than three hookups or serving more than 10 people year-round. Oregon has more than 3,300 public water systems that are fed by more than 200 surface water diversions, nearly 4,000 groundwater wells, and 225 springs. The SDWA regulates over 90 naturally occurring and man-made contaminants. Water quality data for Oregon's public water systems can be found at [Drinking Water Data Online](#).

Oregon Health Authority regulates public water systems serving 10 or more individuals.

Unregulated Contaminant Monitoring Rule [40 C.F.R. 141 Subpart O](#) – "Emerging contaminants" are chemicals found in drinking water that might be harmful to health and are not yet regulated by the federal government. The SDWA mandates the U.S. Environmental Protection Agency to list such contaminants every five years for monitoring by public water systems. The Unregulated Contaminant Monitoring Rule specifies which chemicals need testing and is updated regularly. Data gathered under this rule helps the U.S. Environmental Protection Agency assess the extent of these contaminants nationwide and informs decisions about future regulations.

Reduction of Lead in Drinking Water Act [42 U.S.C. § 300\(g\)- 6](#)- The Reduction of Lead in Drinking Water Act amends the SDWA regarding the use and introduction into commerce of lead pipes, plumbing fittings or fixtures, solder, and flux. The Act defines the percentage of lead allowed in plumbing products and provides for exempt uses where the water is not anticipated to be used for human consumption (e.g., industrial processing, fire hydrants).

In 2017, the Oregon Legislature passed Senate [Bill 1062](#), requiring all school districts, education service districts, and public charter schools to adopt a Healthy and Safe Schools Plan. These plans must include provisions for testing and reducing exposure to elevated levels of lead in water used for drinking or food preparation, as required under guidelines adopted by the Oregon Health Authority. Rules outline that initial testing be done at all drinking and food preparation taps at all schools by 2020, and every 6 years thereafter according to a schedule determined by the Oregon Department of Education. Initial testing is intended to identify problem taps or plumbing, and once resolved, should not have issues in the future. On-going testing is required to determine whether water quality changes or plumbing deterioration has caused more lead to be released.

Endangered Species Act (ESA) [16 U.S.C. § 35](#)

The federal Endangered Species Act (ESA) aims to protect and restore endangered or threatened species and their habitats. "Endangered" means a species faces extinction in its range, while "threatened" means it's likely to become endangered soon. While there are some exceptions, the ESA is administered by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The former handles land and freshwater species, while the latter oversees marine wildlife and anadromous fish.

The state of Oregon and the federal government maintain separate lists of Threatened and Endangered species. Under state law ([ORS 496.171-496.192](#)) the Fish and Wildlife Commission through the Oregon Department Fish and Wildlife maintains the list of native fish and wildlife species in Oregon that have been determined to be either "threatened" or "endangered" according to criteria set forth by rule ([OAR 635-100-0105](#)). The Department also maintains a list of state sensitive species ([OAR 635-100-0040](#)). The Department leads the development of conservation and recovery plans for state ESA-listed fish and wildlife species. Coordinated action with citizens, and other local, state, and federal agencies is essential for successful implementation. State [plant ESA listings](#) are managed by the Oregon Department of Agriculture.

Oregon Statutes and Associated Regulations and Policies

Water Rights – Oregon's 1909 Water Code

In Oregon, water is recognized as a public resource ([ORS 537.110](#)). Since the enactment of Oregon's Water Code in 1909, a structured system for the allocation and management of water has been established statewide. Typically, individuals or entities seeking to utilize water from any source must obtain a permit from the Water Resources Department. Landowners do not inherently possess the right to utilize water flowing past, through, or beneath their property without appropriate state authorization, although certain exemptions from permitting requirements exist.

The allocation and use of water rights are governed by four fundamental provisions. Firstly, water may only be diverted for beneficial purposes without waste, whether from surface or groundwater sources. Secondly, the priority of water rights determines allocation during times of shortage, with older rights taking precedence. Thirdly, water rights are typically tied to the land they serve, known as appurtenancy, meaning they transfer with the land upon sale. Lastly, once established, water rights must be utilized as

specified at least once every five years to remain valid. Failure to do so may result in forfeiture and potential cancellation, except under certain legal exceptions.

Doctrine of Prior Appropriation

Oregon's water laws operate under the principle of prior appropriation, which dictates that the first individual or entity to secure a water right on a stream maintains priority access. In practice, this means, that when senior water rights cannot be fulfilled, junior rights may be restricted. In other words, the first person to obtain a water right on a stream is the last to be shut off in times of shortage. For more details, read [Water Rights in Oregon: An Introduction to Oregon's Water Laws](#).ⁱ

Water Rights Permits and Certificates

The Water Resources Department administers nearly 90,000 water rights, which includes both permits and certificates, for both instream and out-of-stream uses. When the Department evaluates new requests for out-of-stream uses, various factors are considered, such as the needs of existing users, including established instream protections, as well as potential impacts to sensitive, threatened, or endangered fish species, and compliance with existing water quality standards.

Adjudication

Claims to the use of surface water that predate Oregon's Water Code are required to go through a formal administrative judicial process known as an adjudication. This process documents, quantifies, and eventually incorporates their water rights into the prior appropriation system. Similar procedures are conducted for groundwater uses that pre-date the Water Resources Department's authority to issue groundwater rights.

Federal and tribal reserved water rights, along with pre-1909 claims, are typically determined through adjudication processes. Federal reserved rights are linked to specific federal land allocations that require water, while tribal reserved rights may stem from treaties, executive orders, or congressional acts, covering uses associated with tribal lands or resources. These claims are not necessarily older than the water code, as their priority dates are tied to the respective federal actions or, in the case of tribal water rights, to time immemorial.

The adjudication process is time-consuming, requires significant state resources, and often take decades. The primarily involved agencies include the Water Resources Department, Department of Justice, Office of Administrative Hearings, and many others. Strategy Action 3C addresses the need to continue undertaking adjudications.

Oregon's 1987 Instream Water Right Act [ORS 537.332 through 537.360](#)

Oregon's 1987 Instream Water Right Act was designed to protect instream flows for public benefit by establishing instream water rights. Instream water rights are a legally recognized beneficial use of water. The Department of Fish and Wildlife, Parks and Recreation Department, and Department of Environmental Quality can submit applications to protect water instream. Acceptable reasons for protecting instream flows include the conservation, maintenance and enhancement of aquatic and fish life, wildlife, and fish and wildlife habitat ([OAR 635-400-0000](#)); recreational values and scenic attraction ([OAR 736-060-0000](#)); or pollution abatement ([OAR 340-056-0000](#)). Since 1987, more than 1,000 instream rights have been established through this process and are held in trust on behalf of the public by the Water Resources Department.

In the 1950s, before the Act was passed, Oregon put streamflow protections in place to support aquatic life and protect water quality. The State has converted more than 500 of these older protections, called

"minimum perennial streamflows," into instream water rights, bringing the total certificated instream water rights to over 1,500.

Oregon law also allows water right holders to sell, lease, or donate water rights to be converted to instream water rights. This is done through a short-term lease agreement or by a formal transfer of the existing right from the current use to a new type of instream use.

Instream rights are usually set for a certain stream reach or at a specific point on the stream and have an established priority date. Many instream rights are junior water rights with the practical effect that they are often not fulfilled during the summer months. Nonetheless, these water rights do establish flow targets essential for safeguarding aquatic life. Strategy Action 2A addresses data needs for establishing instream water rights and Action 11B identifies instream water rights as a tool for instream protections.

The Instream Water Right Act also includes provisions for a local government, watershed council, state agency, or an individual cooperating with one of these entities, to request the Water Resources Commission to reserve unappropriated water for multipurpose storage for future economic development. The Commission undertakes a rulemaking process for any approved requests for a reservation. Water users wishing to access reserved water must submit a water right application to the Water Resources Department, referencing the reservation. The Department then reviews the application based on current, applicable public-interest review standards and applicable basin rules regarding the reservation.

Groundwater

Groundwater Act of 1955 [ORS 537.505 to 537.795 and ORS 537.992](#)

The Groundwater Act of 1955 established the authority for groundwater management and statewide monitoring for the preservation of public welfare, safety, and health. The Act directs the Oregon Water Resources Department and Water Resources Commission to determine rights to the use of public groundwater. Furthermore, it mandates managing groundwater alongside surface water within the prior appropriation system, acknowledging their interconnectedness.

The Groundwater Act also directs the Water Resources Department to determine the extent, capacity, quality, and other characteristics of its groundwater bodies. These metrics are then used to inform resource management decisions. Oregon's groundwater management policy also provides that rights to use groundwater be protected, reasonably stable groundwater levels be determined and maintained, and groundwater overdraft be prevented.

Groundwater Quality Protection Act [ORS 468B.150-190](#)

The Groundwater Quality Protection Act was adopted in 1989 and aims to prevent contamination, conserve, and restore groundwater resources in Oregon. It mandates all state agency rules and programs align with protecting drinking water resources and public health. The Department of Environmental Quality oversees groundwater quality protection and uses a combination of water quality and land use programs to implement the Act.

Under this law, the Department of Environmental Quality has the authority to designate Groundwater Management Areas when groundwater has elevated contaminant concentrations. The Department has designated three [Groundwater Management Areas](#) because of elevated nitrate concentrations.

Water Rights Management

Administrative Basins [OAR 690-500](#)

The Water Resources Department has organized the state into 20 administrative river basins to allocate water resources. Basin programs are administrative rules which establish water management policies and objectives, and which govern the appropriation and use of the surface and groundwater within each of the administrative basins. The regulations classify surface and groundwater based on permitted uses, preferences among uses, potential for withdrawing water from further appropriation, reservation of water for specified future uses, and establishment of minimum perennial streamflows. These rules supplement statewide regulations that govern the allocation and utilization of water resources.

Water Use Measurement & Reporting

[ORS 537.099](#) requires government entities (e.g., federal and state agencies, cities, counties, schools, irrigation districts and other special districts) to annually report monthly water use data to the Water Resources Department. Certain types of water use are also required to be measured and reported, in accordance with the conditions of a water right or permit. Governments and water right holders in serious water management problem areas have unique reporting requirements, outlined in [OAR 690-085](#).

Distribution and Regulation

Separate and distinct from the Administrative Basins, there are 23 watermaster districts used for water right distribution and regulation. Watermasters at the Water Resources Department are responsible for distributing water in accordance with the doctrine of prior appropriation. Each summer as streamflows drop, watermasters regulate junior users to provide water to the more senior users. By the end of summer, there is typically only enough water to supply users who established their rights in the late 1800s in many areas of the state.

Enforcement

The Water Resources Department enforces the state's water laws and implements the Water Resources Commission's policies in the field. Enforcement staff are responsible for regulating water use based upon the water rights of record.

Conservation

According to Oregon's Water Code, the diversion of surface or groundwater for use is permissible only when it serves a beneficial purpose and avoids wasteful practices. Many municipal and irrigation water suppliers are required to prepare and submit a [Water Management and Conservation Plan](#) (WMCP) to the Water Resources Department as conditions of their water use permits, a final order approving a previous plan, or permit extensions. A WMCP provides a description of the water system, identifies the sources of water, and explains how the water supplier will manage and conserve supplies to meet future needs.

The Allocation of Conserved Water Program recognizes that improved technology and distribution methods may enable water users to use less water than was required in the past. Use of this program is voluntary and provides benefits to both water right holders and instream values. The program allows a water user who conserves water to use a portion of the conserved water on additional lands, lease or sell the water, or dedicate the water to instream use. At a minimum, 25 percent of the conserved water is allocated to the state (for an instream water right) but could be more, depending on funding sources and other agreements.

Transfers and Leases

The use of water under a water right is restricted to the terms and conditions described in the water right certificate: place of use, point of diversion or appropriation, and character of use. The water right holder must file a transfer application with the Water Resources Department to change a point of diversion, point of appropriation, type of use, place of use, or any combination of these. Permanent, temporary, and drought transfers are just a few of the types of transfers that may be applied for by an existing water right holder.

Oregon's instream leasing program ([ORS 537.348](#) and [OAR Chapter 690, Division 77](#)) provides a voluntary means to aid in the restoration and protection of streamflow. This arrangement provides benefits to both water right holders and to instream values by providing water users with options that protect their water rights while leasing for instream benefits. Instream leases can be for up to 5 years and there is no limit on renewals.

Drinking Water

Oregon's Drinking Water Quality Act [ORS 448.119 to 448.285; 454.235; and 454.255](#).

Enacted in 1981, the Act establishes a program for drinking water systems, ensuring safe drinking water for all Oregonians, and offering a mechanism to enhance deficient drinking water systems.

Domestic Well Testing Act [ORS 448.271](#)

The Domestic Well Testing Act requires that wells that supply groundwater for domestic purposes be tested for arsenic, nitrates, total coliform bacteria, and any other contaminants of public health concern that Oregon Health Authority has established in rule, when they are included in any real estate transaction and the seller accepts an offer to purchase or exchange that real estate. Only laboratories accredited according to Oregon Environmental Laboratory Accreditation Program can conduct the sample analysis. The results must be sent to the buyer and to Oregon Health Authority where they are made publicly available in the real estate transaction well report database. This data provides the public and state agencies with critical information on groundwater quality in private domestic wells, statewide. There is no enforcement mechanism with this requirement, and recent studies indicate that only about 10% of the applicable real estate transaction data is being submitted to the state.

Land Use Planning and Agriculture

Statewide Land Use Planning Goals - The Department of Land Conservation and Development implements Oregon's land use planning program, which influences how land is used throughout the state. The program began in 1973 under [Senate Bill 100](#), it directs cities and counties to protect water resources when planning for and permitting development in their jurisdictions. The land use program plays a significant role in managing nonpoint source pollution by promoting compact urban development in designated urban areas and minimizing the impact of rural development on working lands and natural resources through rules and incentives.

Agricultural Water Quality Management Act - The Agricultural Water Quality Management Act enabled the Oregon Department of Agriculture to develop plans and rules to prevent and control water pollution from agricultural activities in order to achieve water quality standards. These rules both advance federal Clean Water Act objectives and serve as the foundation for Oregon's Agricultural Water Quality Program. There are 38 area [Agricultural Water Quality Management Plans](#) and Rules around the state.

Ecosystems and Waterway Protections

Fish Screening & Passage Laws

The Oregon Department of Fish and Wildlife oversees the state's fish screening and fish passage programs. Screens prevent fish from being caught in water diversion structures. Fish passage over man-made dams and diversions has been a requirement since before statehood in locations where native migratory fish are currently or have historically been present. Where applicable, Oregon requires fish screens, bypass devices, and/or passage as a condition of new uses (permits). Only fish screens (not fish passage) are addressed during authorized changes to an existing water right (e.g., transfers).

Forest Practices Act

The Forest Practices Act (FPA) of 1971 sets standards for all commercial activities involving the establishment, management, or commercial harvesting of trees on nonfederal forestlands. Many of the rules are aimed at protecting water sources. For example, regulations require landowners to leave forested buffers and other vegetation along streams, wetlands, and lakes to protect water quality and fish and wildlife habitat. The Oregon Board of Forestry has primary responsibility to interpret the Act and to set rules for forest practices. The FPA statute and rules are the mechanisms to implement water quality standards and Total Maximum Daily Loads (TMDLs) on nonfederal forestlands.

In March 2022 [Senate Bill 1501](#) became effective and requires the Board of Forestry to adopt a comprehensive set of new rules and revisions to the FPA. These changes, along with the aerial herbicide buffers established in 2020 under Senate Bill 1602, are expected to significantly enhance water quality protection on private forestlands. The new rules stem from an agreement reached in October 2021 between timber industry advocates and conservation groups known as the Private Forest Accord. The Private Forest Accord also resulted in Senate Bill 1502 and House Bill 4055 which became effective in 2022. Senate Bill 1502 provides tax credits for small forestland owners complying with riparian timber harvest restrictions, while House Bill 4055 modifies taxation of forest products and allocates certain tax revenue to mitigate forest practice impacts on aquatic species. The fish-bearing stream rules for large forestland owners went into effect July 1, 2023, with other provisions going into effect January 1, 2024. Currently, the state is writing a Habitat Conservation Plan for the aquatic and riparian species covered by the Private Forest Accord, and the Adaptive Management Program to review and, as needed, update the new forestry rules as operational.

State-owned forests are managed according to forest management plans that are based on geographic area (northwest, southwest, and eastern Oregon). State forests are managed in compliance with and often surpass the standards established by the FPA. The State Forest program has voluntarily entered a long-term Stewardship Agreement that recognizes a commitment to meet and exceed regulatory requirements that cover forest land in western Oregon and is currently working on a Habitat Conservation Plan for aquatic, riparian, and terrestrial species-at-risk.

Oregon's Removal-Fill Law [ORS 196.795-990](#)

Oregon's Removal-Fill Law requires people who plan to remove or fill material in wetlands or waterways to obtain a removal-fill permit from the Department of State Lands. The law applies to all landowners, whether private individuals or public agencies. The purpose of the law, enacted in 1967, is to ensure protection and the best use of Oregon's water resources for home, commercial, wildlife habitat, public navigation, fishing, and recreational uses. In most cases, a permit is required if an activity involves filling or removing 50 cubic yards or more of material in a wetland or waterway. For activities in state-designated Essential Salmonid Habitat, within a quarter mile of a state-designated scenic waterway, and compensatory mitigation sites, a permit is required for any amount of removal or fill. [ORS 468B.025](#)

prohibits causing pollution or discharging waste to waters of the state and other state permits from the Department of Environmental Quality may be required for in-water activities to ensure the protection of waters of the state is consistent with the Oregon Environmental Protection Act at [ORS 468.149](#).

Specific types of agricultural drainage channel maintenance activities may be eligible for a Notice ([ORS 196.906 – 196.919](#), [OAR 603-095-4000 to 603-095-4060](#)) from the Oregon Department of Agriculture through the Agricultural Drainage Channel Maintenance Program instead of a Removal-Fill Permit from the Oregon Department of State Lands. The Notice provides a streamlined process by which landowners and water districts may, without paying a fee, maintain eligible agricultural channels while ensuring that maintenance protects, maintains, or improves ecological functions of the channels; upholds state objectives for fish recovery; and protects wetlands, waterways, and fish and wildlife habitats.

No-Net Loss Wetland Policy - Although Oregon’s wetland management and protection authorities date back to the early 1970s, legislation passed in 1989 adopted policies maintaining the acreage, functions, and values of the state’s wetlands. Oregon has adopted a goal of *no-net loss* of freshwater wetlands, administered by the Department of State Lands.

Oregon’s Scenic Waterways Act [ORS 390.805-925](#)

Oregon’s Scenic Waterways Act protects over 1,100 river miles. The Act was passed in 1970 to maintain the free-flowing character of designated rivers and lakes in quantities necessary to support recreation, fish, and wildlife. The Act includes criteria for outstanding scenic, fish, wildlife, geological, botanical, historic, archeologic, and outdoor recreation opportunities.

The Scenic Waterways Act prohibits construction of dams or other impoundments within a scenic waterway. It limits new surface water rights within or above scenic waterways as well as groundwater rights where pumping (individually or cumulatively) will reduce surface water flows. Land use activities that can affect a scenic waterway or adjacent land—such as constructing roads or buildings, mining, and forest harvesting—are limited or regulated by this Act. The Oregon Parks and Recreation Department has primary responsibility for implementing the Scenic Waterways Act and consults with several natural resource agencies, including the Water Resources Department. See Action 11B for more information about recent designations.

Outstanding Resource Waters

Outstanding Resource Waters are “high quality waters that constitute an outstanding state resource due to their extraordinary water quality or ecological values, or where special protection is needed to maintain critical habitat areas.” Oregon’s Outstanding Resource Waters policy is part of the state’s antidegradation policy described in [OAR 340-041-0004\(8\)](#). The public can nominate waterbodies for designation and Oregon’s Environmental Quality Commission can designate Outstanding Resource Waters. Designation adds water quality protections, including restrictions on point source discharges, to ensure no degradation of high-quality water, exceptional ecological characteristics, and other outstanding values of the waters occurs. See Action 11B for more information about recent designations.

ⁱ Oregon Water Resources Department, 2016. Water Rights in Oregon: An Introduction to Oregon’s Water Laws. Salem, Oregon.
<http://www.oregon.gov/owrd/PUBS/docs/aquabook.pdf>

Appendix C

Cross-walk of 2017 Strategy and 2025 Strategy

2017 Objectives & Critical Issues	2025 Objectives & Critical Issues (additions in red)
Objective 1: Understand Water Resources Today Critical Issues: <ul style="list-style-type: none"> • Further Understand Limited Water Supplies & Systems • Improve Water Quality & Quantity Information • Further Understand Our Water Management Institutions 	Objective 1: Understand Oregon's Water Resources Today Critical Issue: <ul style="list-style-type: none"> • Water Resources /Supply Information
Objective 2: Understand Instream & Out-of-Stream Needs Critical Issues: <ul style="list-style-type: none"> • Further Define Out-of-Stream Needs/Demands • Further Define Instream Needs/Demands 	Objective 2: Understand Instream and Out-of-Stream Needs Critical Issues: <ul style="list-style-type: none"> • Further Define Instream and Ecosystem Water Needs/Demands • Further Define Out-of-Stream Water Needs/Demands
Objective 3: Understand the Coming Pressures that Affect our Needs & Supplies Critical Issues: <ul style="list-style-type: none"> • Water & Energy • Climate Change • Extreme Events • Water & Land Use • Water-Related Infrastructure • Education & Outreach 	Objective 3: Understand the Coming Pressures that Affect our Needs and Supplies Critical Issues: <ul style="list-style-type: none"> • Water and Energy • Climate Change • Extreme Events Natural Hazards • Water & Land Use Planning • Water-Related Infrastructure • Education and Outreach
Objective 4: Meet Oregon's Instream & Out-of-Stream Needs Critical Issues: <ul style="list-style-type: none"> • Place-Based Efforts • Water Management & Development • Healthy Ecosystems • Public Health • Funding 	Objective 4: Meet Oregon's Instream and Out-of-Stream Needs Critical Issues: <ul style="list-style-type: none"> • Place-Based Efforts Water Planning • Water Use and Management & Development • Healthy Ecosystems • Public Health Clean Water • Funding

2017 Critical Issues and Strategy Actions	2025 Critical Issues and Strategy Actions (revisions in red)
Critical Issue: Understanding Water Resources / Supplies / Institutions	Critical Issue: Water Resource / Supply Information
1A Conduct additional groundwater investigations	1B Conduct additional groundwater basin investigations
1B Improve water resource data collection & monitoring	1A Improve water resource data collection and monitoring
1C Coordinate inter-agency data collection, processing, and use in decision-making	1C Enhance interagency data coordination
Critical Issue: Understanding Oregon's Out-of-Stream Needs/Demands	Critical Issue: Out-of-Stream Water Needs
2A Regularly update long-term water demand forecasts	3B Regularly update out-of-stream water demand forecasts
2B Improve water-use measurement & reporting	3A Improve water-use measurement and reporting
2C Determine unadjudicated water right claims	3C Determine unadjudicated water right claims
2D Authorize the update of water right records with contact information	3D Authorize the update of water right records with contact information
2E Regularly update Oregon's water-related permitting guide	Moved to example action 10F
Critical Issue: Understanding Oregon's Instream Needs/Demands	Critical Issue: Instream & Ecosystem Water Needs
3A Determine flows needed (quality & quantity) to support instream needs	2A Determine instream flow needs (quality and quantity)
3B Determine needs of groundwater dependent ecosystems	2B Determine needs of groundwater-dependent ecosystems
	2C [new] Develop instream and ecosystem water need forecasts
Critical Issue: Water and Energy	
4A Analyze the effects on water from energy development projects & policies	4A Analyze the effects on water from energy development projects and policies
4B Take advantage of existing infrastructure to develop non-traditional hydroelectric power	4B Develop non-traditional hydroelectric power
4C Promote strategies that increase/integrate energy & water savings	4C Promote strategies that increase/integrate energy and water savings
Critical Issue: Climate Change	
5A Support continued basin-scale climate change research efforts	Moved, now 1D Support basin-scale climate change research
5B Assist with climate change adaptation & resiliency strategies	Distributed throughout other Strategy actions
Critical Issue: Extreme Events	Critical Issue: Natural Hazards
5.5A Plan and prepare for drought resiliency	5A Plan and prepare for drought and wildfire resiliency
5.5B Plan and prepare for flood events	5B Plan and prepare for flood events
5.5C Plan and prepare for a Cascadia subduction earthquake event	5C Plan and prepare for a Cascadia earthquake and tsunami event
Critical Issue: Water & Land Use	Critical Issue: Land Use Planning
6A Improve integration of water information into land use	6A Improve integration of water Information and land

planning (and vice versa)	use planning
6B Improve state agency coordination	9D Improve state interagency coordination
6C Encourage low-impact development practices and green infrastructure	6B Encourage low impact development practices and green infrastructure
Critical Issue: Water-Related Infrastructure	Critical Issue: Water Infrastructure
7A Develop and upgrade water and wastewater infrastructure	7A Maintain, upgrade, decommission water and wastewater infrastructure
7B Encourage regional (sub-basin) approaches to water and wastewater systems	7B Encourage regional (sub-basin) water and wastewater systems
7C Ensure public safety/dam safety	7C Support dam and levee safety
Critical Issue: Education & Outreach	
8A Support Oregon's K-12 environmental literacy plan	8A Support implementation of K-12 Environmental Literacy Plan
8B Provide education and training for Oregon's next generation of water experts	8B Provide career training for the next generation of water professionals
8C Promote community education and training opportunities	8C Promote community education and outreach
8D Identify ongoing water-related research needs	8D Identify water research needs and partnerships
Critical Issue: Place-Based Efforts	Critical Issue: Water Planning
9A Continue to undertake place-based integrated, water resources planning	9A Support place-based integrated planning and other water planning efforts
9B Coordinate implementation of existing natural resource plans	9B Coordinate implementation of natural resource plans
9C Partner with federal agencies, tribes, and neighboring states in long-term water resources management	9C Partner with Tribes, federal agencies, and neighboring states in long-term water resources management
	9D [new] Lead meaningful community engagement
Critical Issue: Water Management & Development	Critical Issue: Water Use & Management
10A Improve water-use efficiency and water conservation	10A Improve water-use efficiency and water conservation
10B Improve access to built storage	10C Improve access to storage
10C Encourage additional water reuse projects	10B Encourage water reuse projects
10D Reach environmental outcomes with non-regulatory alternatives	10D Reach environmental outcomes with non-regulatory alternatives
10E Continue the water resources development program	Moved to example action under 13C
10F Provide an adequate presence in the field	10E Provide an adequate field presence
10G Strengthen water quantity & water quality permitting programs	10F Strengthen and improve water quantity and water quality permitting programs
Critical Issue: Healthy Ecosystems	
11A Improve watershed health, resiliency, and capacity for natural storage	11A Improve watershed health, resiliency, and capacity for natural storage
11B Develop additional instream protections	11B Develop additional instream protections
11C Prevent and eradicate invasive species	11C Prevent and eradicate invasive species
11D Protect and restore instream habitat and habitat access for fish and wildlife	11D Protect, restore, and provide access to instream habitat for fish and wildlife
11E Develop additional groundwater protections	11E Develop additional groundwater protections
Critical Issue: Public Health	Critical Issue: Clean Water

12A Ensure the safety of Oregon's drinking water	12A Ensure the safety of Oregon's drinking water
12B Reduce the use of and exposure to toxics and other pollutants	12B Reduce the use of and exposure to toxics and other pollutants
12C Implement water quality pollution control plans	12C Implement water quality pollution controls
Critical Issue: Funding	
13A Fund development and implementation of Oregon's IWRS	13A Fund development and implementation of Oregon's Integrated Water Resources Strategy
13B Fund water resources management activities at state agencies	13B Fund water resources management activities by state agencies
13C Invest in local or regional water planning efforts	13C Invest in planning, feasibility studies, and water resource project implementation
13D Invest in feasibility studies for water resources projects	
13E Invest in implementation of water resources projects	

Appendix D

Framework and Strategy Action Summary Sheets

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Oregon’s 2025 Integrated Water Resources Strategy

A framework for improving our understanding of Oregon’s water resources and meeting our instream and out-of-stream needs, including water quantity, water quality, and ecosystem needs

Goal 1: Improve Our Understanding of Oregon’s Water Resources

(1) Understand Oregon’s Water Resources

Further Understand Limited Water Supplies and Systems
(groundwater, surface water, and their interaction)

Improve Water Quality and Quantity Information

Further Understand Our Water Management Institutions

Water Resource / Supply Information

1A Improve Water Resource Data Collection and Monitoring

1B Conduct Additional Groundwater Basin Investigations

1C Enhance Interagency Data Coordination

1D Support Basin-Scale Climate Change Research

Goal 1 (continued)

(2) Understand Instream and Out-of-Stream Needs

Further Define Instream Needs
(i.e., left-in-place water)

Further Define Out-of-Stream Needs / Demands
(i.e. diverted water)

Instream & Ecosystem Water Needs

2A Determine Instream Flow Needs (Quality and Quantity)

2B Determine Needs of Groundwater-Dependent Ecosystems

2C Develop Instream and Ecosystem Water Need Forecasts

Out of Stream Water Needs

3A Improve Water-Use Measurement and Reporting

3B Regularly Update Out-of-Stream Water Demand Forecasts

3C Determine Unadjudicated Water Right Claims

3D Authorize the Update of Water Right Records with Contact Information

← Objectives →

← Critical Issues →

← Actions →

Goal 1 (continued)

(3) Understand the Pressures that Affect Our Needs and Supplies

Climate Change

Economic Development

Population Change

Water and Energy

Natural Hazards

Land Use Planning

Water Infrastructure

Education and Outreach

Climate Change

Actions are included throughout the Strategy

Economic Development and Population Change

See Actions 2C and 3B

Water and Energy

4A Analyze the Effects on Water from Energy Development Projects and Policies

4B Develop Non-Traditional Hydroelectric Power

4C Promote Strategies that Increase/Integrate Energy and Water Savings

Natural Hazards

5A Plan and Prepare for Drought and Wildfire Resiliency

5B Plan and Prepare for Flood Events

5C Plan and Prepare for a Cascadia Earthquake and Tsunami Event

Land Use Planning

6A Improve Integration of Water Information and Land Use Planning

6B Encourage Low Impact Development Practices and Green Infrastructure

Water Infrastructure

7A Maintain, Upgrade, Decommission Water and Wastewater Infrastructure

7B Encourage Regional (Sub-Basin) Water and Wastewater Systems

7C Support Dam and Levee Safety

Education and Outreach

8A Support Implementation of K-12 Environmental Literacy Plan

8B Provide Career Training for the Next Generation of Water Professionals

8C Promote Community Education and Outreach

8D Identify Water Research Needs and Partnerships

Goal 2: Meet Oregon’s Water Resource Needs

(4) Meet Oregon’s Instream and Out-of-Stream Needs

Water Planning

Water Use and Management

Public Health

Healthy Ecosystems

Clean Water

Funding

Water Planning

9A Support Place-Based Integrated Planning and Other Water Planning Efforts

9B Coordinate Implementation of Natural Resource Plans

9C Partner with Tribes, Federal Agencies, and Neighboring States in Long-Term Water Resources Management

9D Improve State Interagency Coordination

9E Lead Meaningful Community Engagement

Water Use and Management

10A Improve Water-Use Efficiency and Water Conservation

10B Encourage Water Reuse Projects

10C Improve Access to Storage

10D Reach Environmental Outcomes with Non-Regulatory Alternatives

10E Provide an Adequate Field Presence

10F Strengthen & Improve Water Quantity and Water Quality Permitting Programs

Public Health

See Actions 12A through 12C

Healthy Ecosystems

11A Improve Watershed Health, Resiliency, and Capacity for Natural Storage

11B Develop Additional Instream Protections

11C Prevent and Eradicate Invasive Species

11D Protect, Restore, and Provide Access to Instream Habitat for Fish and Wildlife

11E Develop Additional Groundwater Protections

Clean Water

12A Ensure the Safety of Oregon’s Drinking Water

12B Reduce the Use of and Exposure to Toxics and Other Pollutants

12C Implement Water Quality Pollution Controls

Funding

13A Fund Development and Implementation of Oregon’s Integrated Water Resources Strategy

13B Fund Water Resources Management Activities by State Agencies

13C Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

← Objectives →

← Critical Issues →

← Actions →



Estrategia integrada de recursos hídricos de Oregón para 2025

Un marco para mejorar nuestra comprensión de los recursos hídricos de Oregón y satisfacer nuestras necesidades dentro y fuera de la corriente, incluidas la cantidad de agua, la calidad del agua y las necesidades del ecosistema

Meta 1: Mejorar nuestra comprensión de los recursos hídricos de Oregón

(1) Comprender los recursos hídricos de Oregón

Conocer Mejor los Sistemas y Suministros Limitados de Agua
(aguas subterráneas, aguas superficiales y su interacción)

Mejorar la Información Sobre la Cantidad y la Calidad del Agua

Comprender Mejor Nuestras Instituciones de Gestión del Agua

Información sobre recursos hídricos y suministro
1A Mejorar la recopilación y el seguimiento de datos sobre recursos hídricos
1B Realizar investigaciones adicionales sobre cuencas de aguas subterráneas
1C Mejorar la coordinación de datos entre agencias
1D Apoyar la investigación sobre el cambio climático a escala de cuenca

Meta 1 (continuó)

(2) Comprender las necesidades dentro y fuera de los cursos de agua

Definir Mejor las Necesidades de los Cursos de Agua (es decir, el agua remanente)

Definir Mejor las Necesidades/Demandas Fuera del Cauce (es decir, el agua desviada)

Necesidades hídricas de los cursos de agua y los ecosistemas
2A Determinar las necesidades de caudal en los cursos de agua (calidad y cantidad)
2B Determinar las necesidades de los ecosistemas que dependen de las aguas subterráneas
2C Elaborar previsiones de las necesidades de agua en los cursos de agua y los ecosistemas

Necesidades de agua fuera de los cursos de agua
3A Mejorar la medición y la notificación del uso del agua
3B Actualizar periódicamente las previsiones de la demanda de agua fuera de los cursos de agua
3C Determinar las reclamaciones de derechos de agua no adjudicados
3D Autorizar la actualización de los registros de derechos de agua con información de contacto

← Objetivos →

← Temas Críticos →

← Acciones →

Meta 1 (continuó)

(3) Comprender las presiones que afectan a nuestras necesidades y suministros

Cambio Climático

Desarrollo Económico

Crecimiento Demográfico

Agua y Energía

Riesgos Naturales

Planificación del Uso del Suelo

Infraestructura Hídrica

Educación y Divulgación

Cambio Climático
Las medidas se incluyen a lo largo de toda la estrategia

Desarrollo económico y Crecimiento demográfico
Ver acciones 2C y 3B

Agua y Energía
4A Analizar los efectos sobre el agua de los proyectos y políticas de desarrollo energético.
4B Desarrollar energía hidroeléctrica no tradicional.
4C Promover estrategias que aumenten/integren el ahorro de energía y agua.

Riesgos Naturales
5A Planificar y prepararse para la resiliencia ante sequías e incendios forestales
5B Planificar y prepararse para inundaciones
5C Planificar y prepararse para un terremoto y un tsunami en Cascadia

Planificación del Uso del Suelo
6A Mejorar la integración de la información sobre el agua y la planificación del uso del suelo
6B Fomentar prácticas de desarrollo de bajo impacto e infraestructura verde

Infraestructura Hídrica
7A Mantener, mejorar y dismantelar la infraestructura de agua y aguas residuales
7B Fomentar los sistemas regionales (subcuencas) de agua y aguas residuales
7C Apoyar la seguridad de presas y diques

Educación y Divulgación
8A Apoyar la implementación del Plan de Alfabetización Ambiental K-12
8B Proporcionar formación profesional para la próxima generación de profesionales del agua
8C Promover la educación y la divulgación en la comunidad
8D Identificar las necesidades de investigación sobre el agua y las asociaciones

← Objetivos →

← Temas Críticos →

← Acciones →

Meta 2: Satisfacer las necesidades recursos hídricos de Oregón

(4) Satisfacer las necesidades de Oregón dentro y fuera de los cursos fluviales

Planificación Hídrica

Uso y Gestión del Agua

Salud Pública

Ecosistemas Saludables

Agua Limpia

Financiación

Planificación Hídrica
9A Apoyar la planificación integrada basada en el lugar y otras iniciativas de planificación hídrica
9B Coordinar la implementación de planes de recursos naturales
9C Colaborar con tribus, agencias federales y estados vecinos en la gestión a largo plazo de los recursos hídricos
9D Mejorar la coordinación entre agencias estatales
9E Liderar una participación comunitaria significativa

Uso y Gestión del Agua
10A Mejorar la eficiencia en el uso del agua y la conservación del agua
10B Fomentar proyectos de reutilización del agua
10C Mejorar el acceso al almacenamiento
10D Alcanzar resultados medioambientales con alternativas no reguladoras
10E Proporcionar una presencia adecuada sobre el terreno
10F Fortalecer y mejorar los programas de permisos de cantidad y calidad del agua

Salud Pública Ver acciones 12A-12C

Ecosistemas Saludables
11A Mejorar la salud, la resiliencia y la capacidad de almacenamiento natural de las cuencas hidrográficas
11B Desarrollar protecciones adicionales en los cursos de agua
11C Prevenir y erradicar las especies invasoras
11D Proteger, restaurar y proporcionar acceso al hábitat de los cursos de agua para los peces y la fauna silvestre
11E Desarrollar protecciones adicionales para las aguas subterráneas

Agua Limpia
12A Garantizar la seguridad del agua potable de Oregón
12B Reducir el uso y la exposición a sustancias tóxicas y otros contaminantes
12C Implementar controles de contaminación de la calidad del agua

Financiación
13A Financiar el desarrollo y la implementación de la Estrategia Integrada de Recursos Hídricos de Oregón
13B Financiar las actividades de gestión de los recursos hídricos por parte de las agencias estatales
13C Invertir en planificación, estudios de viabilidad e implementación de proyectos de recursos hídricos

Action Summary Sheets

Chapter 1 – Understand Oregon’s Water Resources

Chapter 1 Actions At-A-Glance

Critical Issue - Water Resource/Supply Information

Actions 1A – 1D

Chapter 2 – Understand Instream and Out-of-Stream Needs

Chapter 2 Actions At-a-Glance

Critical Issue - Instream and Ecosystem Water Needs

Actions 2A – 2C

Critical Issue - Out-of-Stream Water Needs

Actions 3A – 3D

Chapter 3 – Understand the Pressures that Affect Our Needs and Supplies

Chapter 3 Actions At-a-Glance

Critical Issue – Climate Change

Actions are distributed throughout other Strategy actions

Critical Issue - Water and Energy

Actions 4A – 4C

Critical Issue - Natural Hazards

Actions 5A – 5C

Critical Issue - Land Use Planning

Actions 6A – 6B

Critical Issue - Water Infrastructure

Actions 7A – 7C

Critical Issue – Education and Outreach

Actions 8A-8D

Chapter 4 – Meet Instream and Out-of-Stream Needs

Chapter 4 Actions At-a-Glance

Critical Issue – Water Planning

Actions 9A – 9E

Critical Issue - Water Use and Management

Actions 10A – 10F

Critical Issue - Healthy Ecosystems

Actions 11A – 11E

Critical Issue - Clean Water

Actions 12A – 12C

Critical Issue – Funding

Actions 13A-13C

Descriptions for Headings on Action Summary Sheets

Lead agency – identifies the primary state or federal agency or agencies where this action falls into their mission, current or recent activities, or an existing program. Identification as a lead agency does not indicate obligation to contribute to the action, acknowledging that participation is voluntary and dependent upon agency resources and funding. **Agencies are listed in alphabetical order.**

Supporting agency – identifies the state or federal agencies that may participate in the action but have less involvement than the lead agencies. This category recognizes agencies that provide support through technical assistance, workgroups, funding, or other contributions. **Agencies are listed in alphabetical order.**

Possible Partners – any non-federal or state agency entity that has participated in this action, or likely would, given the type of action. Tribes are often listed as a partner to promote partnership and/or consultation when appropriate. This list is not intended to be exhaustive or exclusive but highlights the major interested parties.

Example Actions – specific examples provided to help illustrate how the action relates to agency roles, duties, or programs. Inclusion does not indicate priority or mandate action. Implementation of example actions is subject to regulatory authority and adequate resources.

Resources – includes agency programs, workgroups, websites, and documents to support implementation. Documents often include state agency plans or strategies (e.g., Oregon’s State Wildlife Action Plan), helping to show how the Strategy complements and supports other state initiatives. Resources may also include agency work products (e.g., reports, studies) resulting from or supporting action implementation.

Other Definitions

“Instream” water use – identifies water that is left-in-place in the environment, either in surface water (e.g., rivers, streams) or groundwater (e.g., aquifers). Water left instream supports ecological needs and human uses including aquatic habitat, groundwater-dependent ecosystems, fish propagation, recreation, water quality improvement, hydroelectric power generation, navigation, and spiritual and cultural practices.

“Out-of-Stream” water use - Water removed from the ground or diverted from a surface-water source for beneficial use. Common uses include irrigation and domestic and municipal water supply.

U.S. Geological Survey [Water Resources Glossaries](#)

Agency Acronyms

The action summary pages use acronyms for the lead and supporting state and federal agencies. See "Other Acronyms" for common types of partners listed on the action summary pages.

State Agencies

BIZOR	Business Oregon
DAS	Department of Administrative Services
DOGAMI	Department of Geology and Mineral Industries
DLCD	Department of Land Conservation and Development
DSL	Department of State Lands
HECC	Higher Education Coordinating Commission
OCCRI	Oregon Climate Change Research Institute
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODHS	Oregon Department of Human Services
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
OEM	Office of Emergency Management
OHA	Oregon Health Authority
OLCC	Oregon Liquor and Cannabis Commission
OPRD	Oregon Parks and Recreation Department
OSMB	Oregon State Marine Board
OSU	Oregon State University
OWEB	Oregon Watershed Enhancement Board
OWRD	Oregon Water Resources Department

Federal Agencies

BLM	Bureau of Land Management
BPA	Bonneville Power Administration
FEMA	Federal Emergency Management Agency
NFWF	National Fish and Wildlife Fund
NOAA	National Oceanic and Atmospheric Administration
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Department of Agriculture, U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Other Acronyms

CBO	Community-based organization
NGO	Non-governmental organization
SWCD	Soil and water conservation district
WC	Watershed council

"Local governments" ([ORS 174.116](#)) includes cities, counties, local service districts (e.g., people's utility districts, domestic water supply districts, irrigation districts, soil and water conservation districts)

Chapter 1 Actions at a Glance

Objective 1: Understand Oregon's Water Resources

Critical Issue - Water Resource/Supply Information

- 1A Improve Water Resource Data Collection and Monitoring
- 1B Conduct Additional Groundwater Basin Investigations
- 1C Enhance Interagency Data Coordination
- 1D Support Basin-Scale Climate Change Research

Critical Issue: Water Resource/Supply Information**Action 1A****Improve Water Resource Data Collection and Monitoring****Lead Agencies**

ODEQ, ODFW, OHA, OWEB, OWRD

Supporting AgenciesBLM, NOAA-NWS, NRCS, ODA, USBR,
USACE, USEPA, USFS, USGS**Possible Partners**Tribes, local governments, SWCDs,
WCs**Purpose**

Oregon has several water resource data collection and monitoring programs. However, resource constraints limit the geographic scope and frequency of data collection and analysis. On-going statewide groundwater and surface water quantity monitoring supports active management of the resource and establishes long-term data sets to evaluate climatic, seasonal, and water use impacts on rivers and aquifers. Additional resources are needed for surface water monitoring and data analysis to identify impaired waterbodies and measure the effectiveness of actions taken to meet water quality standards. Monitoring data are also pivotal for ensuring that water quality improvement strategies and investments, such as ecological restoration, achieve the desired habitat function or water quality targets and are cost-effective.

Example Actions

- Use agencies' monitoring strategies, or similar methods, to design, expand, and maintain real-time monitoring networks for surface water and groundwater quality and quantity
- Prioritize basins for data collection and monitoring by centering the needs of people and ecosystems most affected by water quantity or quality challenges
- Expand gage network associated with monitoring instream water rights
- Improve agency capacity to collect, share, analyze, and report data, bringing records to final form and make them available to the public
- Implement statewide groundwater quality monitoring programs and assure responsiveness to community health
- Update water quality standards and develop additional TMDL's (also see Action 12C)
- Increase the number of stream gages with reportable water temperature data to support water quality programs
- Increase resources to help disadvantaged homeowners and renters access water quality testing in private drinking water wells; update real estate transaction database
- Monitor habitat and watershed conditions and evaluate the effectiveness of restoration efforts (e.g., OWEB restoration inventory)
- Establish methods for measuring ecosystem services (benefits) and incorporate results into planning efforts, when useful
- Increase monitoring and evaluate the effectiveness of pollution control plan implementation
- Identify and address gaps in staffing or process that prevent agencies from sharing in the collection of, or already collected, data (e.g., temperature data)
- Work with USBR and irrigation districts to help fund state agency staffing to improve measurement of water use and water storage
- Work with tribes, state, federal, and local monitoring partners (e.g., USGS) to analyze gage network to identify and address gaps

Resources*Agency Programs*

ODEQ Water Quality Programs, ODFW Water Program, OWEB Oregon Watershed Restoration Inventory Program, OWEB Grant Programs, OWRD Technical Services Division

Documents/Websites

[OWEB Oregon Watershed Restoration Inventory](#), [OWRD 2016 Monitoring Strategy](#), [OWRD Surface Water Availability Reporting System \(WARS\)](#), [Groundwater Information System \(GWIS\)](#), [Groundwater Administrative Areas/Critical Groundwater Areas](#), and [Realtime Streamflow and Lake Level Data](#), [ODEQ Ambient Water Quality Monitoring System](#), [ODEQ Water Quality Monitoring Strategy](#), [Groundwater Management Areas](#)

Workgroups

Oregon Plan Monitoring Team, Water Quality Pesticide Management Team, Oregon STREAM Team, Oregon Water Data Portal Steering Committee and [Oregon Water Data Portal](#)

Critical Issue: Water Resource/Supply Information**Action 1B****Conduct Additional
Groundwater Basin Investigations****Lead Agencies**

ODEQ, OWRD, USGS

Supporting Agencies

DOGAMI, ODA, ODFW, OHA, USEPA, USFS

Possible PartnersTribes, local governments, OSU
Extension Service, SWCDs,
public and private research
institutions**Purpose**

Accurate well location and use information, aquifer water-level data, and water quality data are critical for assessing groundwater resources. Oregon has a need for additional basin -scale investigations to further understand the relationship between groundwater and surface water, and their availability. Conducting basin studies is a priority for the state, which typically evaluates groundwater resources through cooperative, cost-share programs with federal agencies.

OWRD needs adequate data to evaluate and assess whether groundwater administrative areas are meeting the goals of groundwater stabilization, groundwater recovery, and protection of existing water rights. The state needs to dedicate resources to determine whether additional areas require groundwater designations. Additionally, ODEQ needs additional resources to support the Statewide Groundwater Monitoring Program, which has seen funding and staffing reductions since 2017.

Example Actions

- Install and maintain dedicated state observation wells in priority basins
- Partner with USGS to conduct and cost-share additional groundwater basin investigations
- Evaluate existing and potential establishment of new groundwater administrative areas; review time-limited permits more efficiently
- Locate and document water wells, including exempt use wells, permitted wells, and unused wells
- Ensure groundwater level measurements are high-quality; install measuring tubes and make scheduled measurements
- Investigate connections between groundwater and surface water, particularly where groundwater sustains summer low flows and/or discharges cold water
- Support and coordinate with ODEQ's Groundwater Monitoring Program (water quality)
- Incorporate groundwater quality and quantity information into Oregon's Environmental Justice Mapping Tool

Resources*Agency Programs*

ODEQ Groundwater Protection Program and Groundwater Monitoring Program, [OWRD Groundwater Monitoring Program](#), [Deschutes Groundwater Mitigation Program](#)

Workgroups

ODEQ and OWRD Groundwater Technical Advisory Team

Documents

[2021 Oregon Groundwater Resource Concerns Assessment](#)

[2021 Review of Deschutes Groundwater Mitigation Program Report](#)

[2021 DOGAMI Bulletin 108 - Geology of the North Half of the Lower Crooked River Basin, Crook, Deschutes, Jefferson, and Wheeler Counties, Oregon](#)

Data

[OWRD Groundwater Information System \(GWIS\)](#)

Critical Issue: Water Resource/Supply Information**Action 1C****Enhance Interagency
Data Coordination****Lead Agencies**

DSL, ODA, ODEQ, ODF, ODFW,
OWEB, OWRD

Supporting Agencies

BLM, BPA, DLCD, NRCS, NWS, USACE,
USBR, USFS, USGS

Possible Partners

Tribes, local governments, SWCDs
WCs, OSU

Purpose

Federal, state, and local governments monitor and study Oregon's waterways. This data collection and analysis is critical to the understanding and management of Oregon's surface water and groundwater resources. The lack of stable resources to coordinate and maintain the state's monitoring networks, to collect and share data, to conduct studies, and to develop modeling tools presents a significant, ongoing challenge. Consistent agency coordination can support efficient use of limited resources. Several years' worth of water quantity and quality data still needs to be processed, analyzed, and shared with the public and other partners.

Example Actions

- Improve integration of federal, state, and local government data collection efforts while adhering to quality control standards
- Improve data sharing and availability using on-line platforms and emerging technologies, mobile apps, and open standards
- Invest in information technology and modernization of databases and applications
- Develop or update modeling and other decision-support tools
- Encourage inter-agency work among a variety of partners
- Provide resources for interagency data management, including data infrastructure and stewardship, as well as participation in the Oregon Water Data Portal
- Support the development, implementation, and ongoing maintenance of the Oregon Water Data Portal Project
- Provide interagency training to improve data collection standards, including manuals and technical support
-
- Improve public access to water data and provide a centralized location to access various types of water data

Resources*Agency Programs and Workgroups*

DSL Waterways & Wetlands Program, ODA Agricultural Water Quality Program, ODEQ Water Quality Program, ODF Compliance Monitoring Program, ODFW Water Program, OWEB Effectiveness Monitoring Program, OWRD Surface Water Hydrology Section, OWRD Groundwater Hydrology Section

Conservation Effectiveness Partnership, Oregon Plan Monitoring Team, Water Quality Pesticide Management Team, Oregon STREAM Team, Oregon Water Data Portal Steering Committee and [Oregon Water Data Portal](#)

Documents

2017 [Monitoring Strategy for Oregon's Waters: An Inter-Agency Approach](#)

[Oregon Open Data Portal](#)

[ODEQ Water Quality Monitoring Data](#)

Critical Issue: Water Resource/Supply Information**Action 1D****Support Basin-Scale
Climate Change Research****Lead Agencies**

DLCD, ODA, ODEQ, ODFW,
OWRD

Supporting Agencies

DOGAMI, NOAA, NRCS, OWEB, USFWS,
USGS

Possible Partners

Tribes, local governments, SWCDs,
OSU, OCCRI, Oregon Climate Action
Commission

Purpose

Many local, state, federal, and tribal governments are conducting, and must continue, climate change research, identifying and assessing risks, and developing actions specific to the Pacific Northwest. Basin-scale research aids water managers and natural resources agencies in developing strategies for addressing climate-related impacts on water quality, water quantity, and ecosystem health.

Example Actions

- Make improvements in surface water and groundwater monitoring, flood and drought frequency projections, and long-range forecasts
- Improve climate change projections at the basin-scale
- Develop reliable projections of basin-scale hydrology and associated impacts on built and natural systems, including aquatic species and habitat
- Analyze how instream and out-of-stream water rights will be met with hydrologic changes
- Investigate potential shifts in the hydrograph, agriculture and irrigation seasons and impacts to fish distribution/life history timing Investigate new crop types suitable to a changing climate
- Develop climate change forecasting for use in water availability analyses and permitting decisions (also see Action 10F)
- Investigate increased risks to ecosystems and water supply and wastewater management infrastructure associated with wildfires, particularly in environmental justice communities
- Finalize and implement ODFW's Aquatic Habitat Prioritization assessment which incorporates climate projections for water quantity and temperature when evaluating future habitat suitability for sensitive aquatic species
- Coordinate data collection into the Oregon Water Data Portal Project
- Include an assessment of vulnerable water supply systems and identify those in environmental justice communities
- Consider the increased risk to water infrastructure by wildfire in environmental justice communities
- Look for equity impacts of climate change (i.e., climate justice) and water management (i.e., water justice)
- Advocate for financial resources to help local basins better understand climate impacts, including partnerships with OCCRI

Resources*Agency Programs*

DLCD Natural Hazards, ODA Natural Resources, ODEQ Water Quality, ODFW Water Program, OWRD Field Services and Technical Services Divisions

Policies

ODFW's Climate and Ocean Change Policy

Workgroups

OWEB's Climate and Water Committee, Climate Impacts Research Consortium

Documents/Websites

[OWRD 2016 Monitoring Strategy](#)

[2023 Final Report: Foundational Elements to Advance the Oregon Global Warming Commission's Natural and Working Lands Proposal](#)

[2022 State of Water Justice Report](#)

[2021 Oregon's Climate Change Adaptation Framework & Equity Blueprint](#)

[South Slough National Estuary Research Reserve](#) (research regarding watershed health and resiliency)

[Climate Change Vulnerability Assessment](#)

Chapter 2 Actions at a Glance

Objective 2: Understand Instream and Out-of-Stream Needs

Critical Issue - Instream and Ecosystem Water Needs

- 2A Determine Instream Flow Needs (Quality and Quantity)
- 2B Determine Needs of Groundwater-Dependent Ecosystems
- 2C Develop Instream and Ecosystem Water Need Forecasts

Critical Issue - Out-of-Stream Water Needs

- 3A Improve Water-Use Measurement and Reporting
- 3B Regularly Update Out-of-Stream Water Demand Forecasts
- 3C Determine Unadjudicated Water Right Claims
- 3D Authorize the Update of Water Right Records with Contact Information

Critical Issue: Instream and Ecosystem Water Needs**Action 2A****Determine Instream Flow Needs
(Quality and Quantity)****Lead Agencies**

ODEQ, ODFW, OPRD, OWRD

Supporting AgenciesBPA, DSL, NOAA, ODA, ODF, OWEB,
USACE, USEPA**Possible Partners**Tribes, local governments,
SWCDs, WCs, CBOs, NGOs**Purpose**

Our rivers and streams, lakes, reservoirs, aquifers, wetlands, and estuaries all contribute greatly to species survival, habitat functionality, and our economy and health. Instream uses and their associated economic and ecological benefits are greatly diminished without adequate water quality and supply. Instream flows are also critical for spiritual and recreational opportunities and supporting Tribes' access to First Foods. To improve instream flow protections (Action 11B), Oregon should prioritize identifying ecological flow criteria (metrics characterizing the full range of flows needed to support ecosystem health). A solid understanding of ecological flow criteria is needed to inform development of environmental flows (metrics that balance human considerations with ecological flow needs) for streams throughout the state.

Example Actions

- Prioritize and install gages in additional locations to monitor the status of instream flows and water rights
- Use existing and new data to develop statewide ecological flow criteria for streams
- Prioritize basins and install monitoring equipment to help characterize the full suite of flows through these basins
- Conduct instream needs studies to support future instream water right applications
- Conduct instream needs studies to assess spiritual and cultural needs
- Pursue a consistent, model-based framework for characterizing long-term instream need in the context of climate change to support the development of a long-term instream forecast (Action 2C)
- Review, synthesize, and update models/studies to quantify the ecological, economic, social, and cultural value of instream uses
- Support state agency instream flow efforts and programs (e.g., ODFW, ODEQ, OPRD)
- Support ODFW and ODEQ efforts and collaboration regarding stream temperature monitoring, modeling, and studies
- Support ODFW and OWRD efforts and collaboration regarding monitoring for instream flows and instream water rights
- Fill data gaps regarding fish passage barriers and screening needs
- Conduct studies to determine if wetland restoration or reconnection to streams could benefit instream flow

Resources*Agency Programs*

ODEQ Water Quality Program, ODFW Water Program, OPRD Scenic Waterways, OWRD Water Rights Division, OWRD Technical Services Division

Workgroups

Oregon STREAM Team

Authorities

Oregon's Instream Water Right Act

Documents

[Oregon Plan for Salmon and Watersheds](#)

[2023 ODFW Guidance for Determining Instream Flow Needs](#)

[Tide Gate and Tidal Wetland Monitoring](#)

Critical Issue: Instream and Ecosystem Water Needs**Action 2B****Determine Needs of
Groundwater-Dependent Ecosystems****Lead Agencies**

ODEQ, ODFW, OWRD

Supporting Agencies

DLCD, DOGAMI, ODF, USFS, USFWS, USGS

Possible PartnersTribes, local governments, WCs, CBOs,
NGOs**Purpose**

Groundwater is vital to both ecosystems and human communities, as groundwater discharges and supplies water to wetlands, rivers, and lakes. Groundwater provides late-summer flow for many rivers and creates cool-water upwellings critical for aquatic species during the warmer summer months. Groundwater-dependent ecosystems contain species and habitats that rely on groundwater for some or all of their life cycle. These ecosystems form the interface between groundwater and surface water, and due to their unique hydrology, often harbor many rare species native only to these locations. Groundwater-dependent ecosystems still need to be fully identified and characterized across the state, including their groundwater quantity and quality requirements.

Example Actions

- Identify and characterize groundwater-dependent ecosystems and prioritize systems for long-term study
- Perform an in-depth analysis of accessible springs
- Monitor springs and seeps across the state to understand their contribution (quality and quantity) to streamflows
- Identify the water quantity and water quality needs of groundwater-dependent species and ecosystems
- Conduct seepage studies on priority streams to quantify groundwater exchange
- Evaluate impacts to groundwater ecosystems from human activities (e.g., groundwater pumping, lining canals, fish passage and transportation maintenance projects)

Resources*Agency Programs*

ODEQ Water Quality Program, ODFW Water Program, ODFW Technical Services Division

*Documents/Websites*Online mapping tool by The Nature Conservancy, [Global Groundwater Dependent Ecosystems](#)Article in Nature Water, "Establishing ecological thresholds and targets for groundwater management" available at <https://doi.org/10.1038/s44221-024-00221-w>

Critical Issue: Instream and Ecosystem Water Needs**Action 2C****Develop Instream and Ecosystem Water Need Forecasts****Lead Agencies**

ODEQ, ODFW, OWRD

Supporting Agencies

DLCD, DOGAMI, ODA, OPRD, USGS

Possible PartnersTribes, local governments,
SWCDs, WCs, CBOs, NGOs**Purpose**

The state has completed two long-term demand studies (2008 and 2015) that focused on forecasting water demands for agricultural, municipal, domestic, and industrial uses (see Action 3B). A parallel statewide analysis is needed to better understand the quality and quantity of instream (surface water and groundwater) and ecosystem needs now and into the future. Climate change will continue to affect water quality, timing, availability and use, and balanced solutions are not achievable without understanding the full suite of instream and out-of-stream needs. An instream need forecast must be produced at the appropriate scale and periodically updated to inform water planning and management.

Example Actions

- Develop statewide instream water forecasts
- Periodically update instream forecasts with new climate projections
- Study potential impacts to ecosystems under a changing climate
- Study potential impacts to environmental justice and other frontline communities under a changing climate

Resources*Agency Programs*

ODFW's Water Program, OWRD's Planning, Collaboration, and Investment Section, OWRD Technical Services Division

Documents

[2015 Statewide Long-Term Water Demand Forecast](#)

Critical Issue: Out-of-Stream Water Needs**Action 3A****Improve Water-Use
Measurement and Reporting****Lead Agencies**

OWRD

Supporting Agencies

ODEQ, ODFW, USGS

Possible PartnersAgriMet, local governments,
water rights holders, OSU
Extension Service, SWCDs**Purpose**

Objective water management decisions are made possible when they are based on reliable information about water use. Water use data is fundamental to carry out efficient water management, effective water distribution, and to help plan for future water needs. The information is also used to ground-truth demand projections or models. The Water Resources Department has the authority to require new users to measure and report water use and can require existing users who already measure water use to report the resulting data. Water users who keep track of their use are better able to demonstrate the validity of their water rights, to develop water management and conservation plans, and to determine the design and funding needs of their future water systems.

Example Actions

- Continue to work with Information Technology to improve the software and tools used for water-use measurement and reporting
- Update OWRD's water measurement authorities
- Implement new authority that allows OWRD to require reporting of water use, where measurement is required, including aligning the reporting with the Water-Use Reporting program
- Update and implement the Water Resources Commission's Strategic Measurement Plan, measuring significant diversions
- Coordinate the Water-Use Reporting Program and Water Resource Commission's Strategic Measurement Plan
- Improve Water Use Reporting Database functionality and public access, including establishing and maintaining quality assurance procedures to verify the accuracy of water use and other data
- Invest in water use measurement devices in priority watersheds
- Invest in evapotranspiration monitoring and programs
- Develop accurate statewide annual water use summaries for water rights using all available water use data sets
- Produce annual values of consumptive use by water right to allow for analysis of trends in water use over time
- Install and monitor groundwater observation wells
- Provide resources to assist with installation of measurement devices; update cost-share program
- Work with USGS to integrate water use data from OWRD into USGS water use products
- Seek authority to require water use reporting in areas of scientific interest in preparation for Serious Water Management Problem Areas (SWMPAs), basin studies, or planning exercises like updates to basin plan rules
- Increase documentation and data collection of decommissioned wells and well construction history
- Include equity considerations for assistance through measurement cost share programs

Resources*Agency Programs and Workgroups*

OWRD Water-Use Reporting Program

Funding

OWRD Water Measurement Cost Share Program

Documents[2022 OWRD Legislative Report on Water Use Measurement and Reporting](#)[2000 Oregon Water Resources Department Strategic Measurement Plan](#)

Critical Issue: Out-of-Stream Water Needs**Action 3B****Regularly Update Out-of-Stream
Water Demand Forecasts****Lead Agencies**

OWRD

Supporting Agencies

DLCD, DOGAMI, ODA, ODEQ, ODFW, USGS

Possible PartnersTribes, local governments,
SWCDs, municipal water providers**Purpose**

There is a need to understand how the out-of-stream demand for water, across many use sectors, is projected to change over time. This can help inform planning and infrastructure decisions to anticipate these demands and respond to climatic impacts that alter water timing and availability.

Oregon must regularly update its forecasts of out-of-stream water needs and coordinate this effort with understanding instream forecasted needs (See Action 2C). These forecast updates should include identifying trends in water use, economic development, urban-rural population growth/shift, per capita demands, and changing crop water requirements due to a changing climate.

Example Actions

- Periodically update demand projections with new population, per capita water demand, industrial demand, crop water use, and climate projections
- Develop models/studies to quantify the economic, social, and cultural value of consumptive uses of water and publish outcomes
- Employ remote sensing and crop water demand modeling to improve crop water use estimates
- Provide data in a method consistent with needs of the public, and involve water users in the development of demand products
- Study potential impacts to environmental justice and other frontline communities in demand forecasts

Resources*Agency Programs & Workgroups*

ODFW's Water Program, OWRD's Planning, Collaboration, and Investment Section, OWRD Technical Services Division

Documents

[2015 Statewide Long-Term Water Demand Forecast](#)

Critical Issue: Out-of-Stream Water Needs**Action 3C****Determine Unadjudicated
Water Right Claims****Lead Agencies**

OWRD

Supporting Agencies

ODEQ, ODFW, USBR

Possible Partners

Tribes

Purpose

In many parts of Oregon, landowners began using water long before the Oregon Water Code was enacted. Passage of the Water Code by the Legislature in 1909 established, for the first time in Oregon, a centralized administrative system for acquiring and recording rights to the use of surface water. These water rights are managed within a prior appropriation system of water allocation that gives priority to senior rights in times of shortage. Similar actions were taken for groundwater in the 1955 Groundwater Act. Court cases over the years have further established federal and Tribal "reserved" water rights.

Adjudications may be conducted to determine pre-1909 Water Code surface water rights, and pre-1955 Groundwater Act groundwater rights, as well as federal and tribal reserved water rights. The ability to manage water resources has been greatly facilitated in those areas of the state where adjudications have been concluded. Adjudicating water right claims creates an enforceable system that is protective of senior users in times of shortage. Without the adjudication process, these claims cannot make calls for their water or take advantage of water management tools, such as transfers or leases.

Adjudications have proven to be very long and complex processes. Pursuing a water rights settlement instead of an adjudication could offer a timelier resolution to federal reserved and Tribal claims. The need to resolve Tribal and federal rights in Oregon, either through adjudication or settlement, is real and significant. The OWRD would require additional staff capacity to conduct this work.

Example Actions

- Conduct surface water and groundwater adjudications
- Settle federal reserved claims, including tribal claims

Resources*Agency Programs*

OWRD's Water Rights Program

Documents[Water Rights in Oregon](#)

Authorize the Update of Water Right Records With Contact Information**Lead Agencies**

OWRD

Supporting Agencies**Possible Partners**

Legislature

Purpose

There are currently no statutory provisions allowing the name on a water right certificate to be changed or updated, even if the holder of the certificate has passed away or sold off land with its appurtenant water rights. Almost 90,000 certificates are held by water users. The state needs the ability to respond to holders of water rights who are asking to modify the names on these certificates. State authority will enable the Water Resources Department to update ownership information in its records.

Example Actions

- Authorize the OWRD to update the names on water right certificates
- Update related water right records, including databases, and geographic information system (GIS) layers

Resources*Agency Programs*

OWRD's Water Rights Program

Documents[Water Rights in Oregon](#)

Chapter 3 Actions at a Glance

Objective 3: Understand the Pressures that Affect Our Needs and Supplies

Critical Issue – Climate Change

Actions to mitigate and adapt to climate change are distributed throughout the Strategy
Refer to the Strategy narrative for additional information

Critical Issue - Water and Energy

- 4A Analyze the Effects on Water from Energy Development Projects and Policies
- 4B Develop Non-Traditional Hydroelectric Power
- 4C Promote Strategies that Increase/Integrate Energy and Water Savings

Critical Issue - Natural Hazards

- 5A Plan and Prepare for Drought and Wildfire Resiliency
- 5B Plan and Prepare for Flood Events
- 5C Plan and Prepare for a Cascadia Earthquake and Tsunami Event

Critical Issue - Land Use Planning

- 6A Improve Integration of Water Information and Land Use Planning
- 6B Encourage Low Impact Development Practices and Green Infrastructure

Critical Issue - Water Infrastructure

- 7A Maintain, Upgrade, and Decommission Water and Wastewater Infrastructure
- 7B Encourage Regional (Sub-Basin) Approaches to Water and Wastewater Systems
- 7C Support Dam and Levee Safety

Critical Issue – Education and Outreach

- 8A Support Implementation of K-12 Environmental Literacy Plan
- 8B Provide Career Training for the Next Generation of Water Professionals
- 8C Promote Community Education and Outreach
- 8D Identify Water Research Needs and Partnerships

Analyze the Impacts on Water from Energy Development Projects and Policies**Lead Agencies**

ODOE, ODFW

Supporting AgenciesBPA, DLCD, DOGAMI, NOAA,
ODEQ, OWRD, USACOE, USFWS**Possible Partners**Tribes, Public Utility Commission, Oregon
Climate Action Commission, WCs, CBOs,
NGOs**Purpose**

Hydropower facilities at dams produce affordable energy, however, dam operations can alter streamflow amounts and timing and oppose needs for fish and other aquatic wildlife and other instream needs. Statewide goals to reduce greenhouse gas emissions while meeting future energy demand elevates the need for improving efficiency of existing facilities and developing alternative energy projects. Proposed energy projects should undergo a thorough scientific analysis to understand potential impacts to instream and ecosystem needs. This information can then provide the basis for decision-making for often conflicting objectives to produce affordable, low emission power and protect aquatic ecosystems and other instream needs.

Example Actions

- Analyze and project the water demand and water quality impacts of current and proposed energy development projects (e.g., hydroelectric, solar, wind, geothermal, bioenergy, nuclear, hydrogen, natural gas) in the context of climate change and greenhouse-gas reduction strategies
- Analyze the siting impacts of proposed energy projects on water quantity, quality, and ecosystems
- Evaluate where impacts to water quantity and quality associated with energy projects have been experienced, including environmental justice communities, and look for opportunities to recognize and avoid or mitigate in future energy projects

Resources*Agency Programs*

ODOE Energy Planning and Innovation Division, ODEQ Climate Protection Program, ODEQ Water Quality Program, ODEQ Section 401 Hydropower Program, ODFW Land Resources Program, OWRD Hydroelectric Program

Workgroups

Hydroelectric Application Review Team (ODEQ, ODFW, OWRD)

Documents

ODOE's [Biennial Energy Report](#)

[Oregon's Energy Strategy](#) (coming fall 2025)

2021 [Oregon's Climate Change Adaptation Framework](#)

2024 U.S. Department of the Interiors' [Historic and Ongoing Impacts of Federal Dams on the Columbia River Basin Tribes](#)

Critical Issue: Water and Energy**Action 4B****Develop Non-Traditional
Hydroelectric Power****Lead Agencies**

ODEQ, ODFW, ODOE, OWRD

Supporting AgenciesBIZOR, BPA, DLCD, DSL, ODA, ODOT,
OEM, NRCS, USEPA**Possible Partners**Tribes, local governments, SWCD's,
WCs, CBOs, NGOs, businesses,
individuals**Purpose**

Oregon's 2016 Renewable Portfolio Standard (RPS) update requires that 50 percent of the electricity sold by Oregon's large utilities comes from eligible renewable resources by 2040. Oregon's 100 percent clean energy target established by House Bill 2021 (2021) also requires the state's large investor-owned electric utilities to achieve a 100 percent reduction in the greenhouse gas emissions associated with their electricity mixes by 2040. Reducing emissions while meeting Oregon's energy demand will require new approaches to energy generation.

Potential project types include in-conduit (within-a pipe) hydropower systems like those used within irrigation or municipal distribution systems and within aquifer storage and recovery systems like projects in Echo and Pendleton. Pumped storage systems can be used in combination with solar or wind projects to produce power when these renewable sources are not operating (e.g., at night).

Example Actions

- Utilize the state's expedited application process to develop hydroelectric projects at existing infrastructure
- Offer incentives for low-impact hydropower projects that provide local co-benefits, such as in-conduit micro-turbines installed in irrigation or municipal pipes
- Invest in alternative energy projects that protect water resources and the environment

Resources*Agency Programs*

ODEQ Section 401 Hydropower Program, ODFW Hydropower Program, OWRD Hydroelectric Program

Workgroups

Hydroelectric Application Review Team (ODEQ, ODFW, OWRD), River Management Joint Operating Committee (BPA, USACE, USBR)

Documents/Websites[ODOE Biennial Energy Report](#)[Pumped Storage Hydropower | Department of Energy](#)[Low Impact Hydro Certification](#)[BPA/USACE/USBR 2018 Hydroclimate Projections and Analyses](#)*Funding*[Energy Trust Irrigation Modernization](#)[Farmers Conservation Alliance](#)[NRCS Environmental Quality Incentives Program](#)

Critical Issue: Water and Energy**Action 4C****Promote Strategies that Increase /
Integrate Energy and Water Savings****Lead Agencies**

ODA, ODOE, OWRD

Supporting AgenciesBCBS, BIZOR, BPA, DLCD, USDA,
USEPA**Possible Partners**Tribes, local governments, SWCDs, WCs, CBOs, NGOs,
Oregon Climate Action Commission, Oregon Public
Utility Commission, OSU Extension Service**Purpose**

Water is critical for energy production, and energy is used to pump, treat, heat, and convey water through pipes for residential, commercial, industrial, and irrigation purposes. Water conservation also conserves energy, and energy conservation reduces the amount of water used in energy production. Across various locations and times of the year, climate change presents the challenge of having reduced availability of both water and energy. To increase water/energy efficiency and conservation, there is a need to increase the sharing of information about efficiency and conservation strategies, along with financial incentives to implement the strategies.

Example Actions

- Move toward energy independence and resiliency for publicly operated treatment works (wastewater treatment)
- Continue to implement and evaluate building codes that encourage water and energy efficiencies
- Encourage individuals, communities, industries, and businesses, including agriculture, to look for and integrate ways to conserve both energy and water
- Encourage cross-sector and cross-agency collaboration to achieve energy and water savings
- Strive to capture and publicly report energy and water savings data
- Promote resources that increase water and energy efficiency and conservation for irrigation
- Promote regenerative agriculture and permaculture practices
- Improve availability of cost savings associated with ENERGY STAR and similar programs to low-income or disadvantaged households and businesses
- Explore new or innovative technologies to accomplish energy and water savings
- Consider developing an energy/water nexus efficiency program that could support industrial water and energy intensive uses (e.g., data centers, paper mills)
- Increase interagency and energy/water sector collaboration, to identify co-benefits and opportunities for water efficiency (See Action 10A)

Resources*Agency Programs*

ODOE Community Renewable Energy Grant Program, ODOE Energy Planning and Innovation, ODOE Energy Development Services, ODEQ Climate Protection Program, BCBS Building Codes Division Energy Code

Workgroups

Northwest Power and Conservation Council
Oregon Climate Action Commission (formerly Oregon Global Warming Commission before 2023)
Energy Facility Siting Council
Energy Advisory Work Group

Documents/Websites

ODOE Community Renewable Energy Grant Program
[Energy Trust of Oregon](#), programs for residential, commercial, industrial + agricultural, and municipal
Oregon Global Warming Commission [2023 Oregon Climate Action Roadmap to 2030](#)
Oregon Global Warming Commission [2021 Natural & Working Lands Proposal](#)
USDA [No -Till Farming for Climate Resilience](#)

Critical Issue: Natural Hazards**Action 5A****Plan and Prepare for Drought and Wildfire Resiliency****Lead Agencies**

DLCD, ODA, ODEQ, ODF, ODFW,
OEM, OWRD

Supporting Agencies

DOGAMI, FEMA, NOAA, NRCS,
ODHS, OWEB, USBR, USEPA,
USFS

Possible Partners

Tribes, local governments, OCCRI/Oregon
Climate Service, SWCDs, WCs, CBOs, NGOs,
businesses, individuals

Purpose

Although there have been individual years of wet conditions over the past two decades, on average the span between 2000-2022 was drier than any other 22-year period in the past thousand years. Drought conditions impact water supplies, streamflow, agricultural productivity, wildfire danger, and ecosystem health.

The state has developed many resources to respond to drought, the primary source being the [Natural Hazards Mitigation Plan](#) (NHMP) and accompanying Drought Vulnerability Assessment. Agencies must continue to work together to plan, prepare, and respond to drought.

Example Actions

- Implement Oregon's Natural Hazard Mitigation Plan and recommendations from the Drought Vulnerability Assessment
- Identify, assess, and assist those communities and ecosystems most vulnerable to drought and wildfire (e.g., assess water supply systems for vulnerability)
- Develop the appropriate set of indicators that signal and forecast differing stages of drought
- Document the economic, social, and environmental impacts of drought and wildfire, including the frequency, distribution, intensity and duration
- Prepare for, respond to, and mitigate for the impacts of drought and wildfire
- Improve the drought toolbox through education and outreach, drought contingency plans, more efficient water distribution systems, and additional voluntary measures to improve streamflow
- Increase education and outreach efforts to help landowners minimize risk to their property from wildfires
- Invest in built and green/natural infrastructure, (i.e., nature-based solutions), refer to Actions 6B, 7A, 11A-11E
- Provide technical assistance and funding to local governments to evaluate the need and opportunities for inter-tie projects in Local Natural Hazards Mitigation Plans
- Prioritize resources for planning and preparation to those most vulnerable to drought and wildfire impacts
- Explore ways to protect minimum stream flows during drought declarations
- Educate the public about the importance of having an emergency supply of drinking water

Resources*Agency Programs*

[DLCD Natural Hazard Mitigation Planning Program](#), OWRD Technical Services Division, ODHS Office of Resilience and Emergency Management

Workgroups

Multihazard Mitigation Council, Drought Readiness Council, Water Supply Availability Committee, [State Interagency Hazard Mitigation Team](#)

Documents/Websites

[OWRD Drought webpage](#), [OWRD Summary](#), [State Drought Declaration Process and Emergency Tools](#)
[Drought.gov](#)

[Oregon's Emergency Operations Annex – Drought](#), [Oregon's Emergency Operations Annex – Wildlands Fire](#)
[Oregon Emergency Management's list of local \(city/county\) and tribal emergency managers](#)

Drought and Public Health

[Oregon Department of Emergency Management: Local Water Supply Emergency Planning Guidance](#)
[Drought Mitigation Policy Aid \(fema.gov\)](#)

[Federal Disaster Declaration Process](#)

[Post-Fire Debris Flow Project](#)

**Plan and Prepare for
Flood Events****Lead Agencies**

DLCD, DOGAMI, ODOT, OEM,
OWRD, USACE

Supporting Agencies

FEMA, NOAA, NRCS, ODA,
ODEQ, ODF, ODFW, OHA,
USEPA

Partners

Tribes, local governments, OCCRI/Oregon
Climate Service, SWCDs, WCs, CBOs, NGOs,
businesses, individuals

Purpose

Flood events pose a risk to public safety, property, and the environment including threats to drinking water supplies and unintended wastewater discharges to our rivers and streams. Floods are one of twelve hazards addressed in Oregon's [Natural Hazards Mitigation Plan \(NHMP\)](#). The NHMP contains mitigation actions, which are meant to reduce or eliminate the long-term risk to people and property from flooding. The NHMP also includes potential funding sources for hazard mitigation activities. Statewide efforts to prepare and respond to floods are addressed in the Oregon Emergency Operations Flood Annex.

This action focuses on the public safety and emergency nature of flooding. Other parts of the Strategy call for actions that can help reduce the risk of flooding. Stream gaging data improvements are called for in Action 1A. Oregon's land use planning system can be used to reduce risk to people and property, see Action 6A. Action 7A supports increasing the resiliency of our infrastructure such as upgrading or decommissioning unsafe or outdated dams and levees and Action 7C supports Oregon's Dam Safety Program and the development of a Levee Safety Program. Floodplain protection and restoration are discussed under Action 11A.

Example Actions

- Implement Oregon's Natural Hazards Mitigation Plan
- Develop indicators of flood emergency stages, using information about meteorologic, hydrologic, hydraulic, and watershed conditions
- Document the economic, social, and environmental impacts of floods
- Evaluate potential for extreme flooding, under atmospheric rivers and climate change scenarios
- Establish early flood and debris-flow warning systems in areas where recent drought and wildfire have affected forests and vegetation
- Complete update of precipitation frequency estimates for Oregon
- Update methods and procedure for determining extreme precipitation and flooding
- Support DLCD to continue to provide assistance and training to local floodplain managers, property owners, surveyors, real estate agents, and others to support compliance with the National Flood Insurance Program
- Increase education and outreach efforts to help landowners minimize risk to their property from floods
- Invest in built and green/natural infrastructure (i.e., nature-based solutions), refer to Actions 6B, 7A, and 11A-11E
- Prioritize resources for planning and preparation to those most vulnerable to flood impact
- Develop an inventory of levees in Oregon and assess their condition and risk (also see Action 7C)
- Support dam safety (also see Action 7C)
- Educate the public about the importance of having an emergency supply of drinking water

Resources*Agency Programs*

DLCD's [Natural Hazards Program](#), DLCD's [National Flood Insurance Program](#), NRCS's [Emergency Watershed Protection Program](#), OWRD's Dam Safety Program

Workgroups

[USACE Silver Jackets Flood Risk Program](#), Flood Core Team, [State Interagency Hazard Mitigation Team](#)

Documents/Websites

National Flood Insurance Program

[2020 Natural Hazards Mitigation Plan \(NHMP\)](#)

[Oregon's Emergency Operations Annex - Flood](#)

Oregon Emergency Management's [list of local \(city/county\) and tribal emergency managers](#)

Plan and Prepare for a Cascadia Earthquake and Tsunami Event**Lead Agencies**

DLCD, DOGAMI, ODEQ, OEM,
OHA, OWRD

Supporting Agencies

USEPA, NRCS, ODF, USFS

Possible Partners

Tribes, local governments, OCCRI/Oregon
Climate Service, WCs, CBOs, NGOs,
businesses, individuals

Purpose

A large earthquake such as the Cascadia Earthquake and an associated tsunami could have widespread impacts on water infrastructure and water quality for years to come. Earthquakes and tsunamis are two of twelve hazards addressed in Oregon's [Natural Hazards Mitigation Plan \(NHMP\)](#). The plan contains mitigation actions, which are meant to reduce or eliminate the risk to people and property from earthquakes and tsunamis, in addition to potential funding sources for hazard mitigation activities.

Example Actions

- Implement Oregon's Natural Hazard Mitigation Plan
- Follow the recommendations provided by the Oregon Seismic Safety Policy Advisory Commission, including in its 2013 Oregon Resilience Plan and 2021 Tsunami Resilience on the Oregon Coast Report
- Incorporate earthquake and tsunami resilience regulations in local land use plans (see model policies developed by DLCD)
- Evaluate and retrofit dams and other water infrastructure to meet new seismic standards (see Action 7C)
- See water infrastructure Actions 7A – 7C
- Consult or develop a local Tsunami Evacuation Facilities Improvement Plan
- Prioritize resources for planning and preparation to those most vulnerable to earthquake and tsunami impacts
- Evaluate and mitigate the seismic vulnerability of bulk oils or liquid fuel terminals (SB 1567, 2022) that pose significant pollution risks to critical waterways
- Educate the public about the importance of having an emergency supply of drinking water

Resources*Agency Programs*

DLCD Hazard Mitigation Planning Program, DOGAMI Geological Survey and Services Program, OWRD Dam Safety Program

Workgroups

Oregon Seismic Safety Policy Advisory Commission, State Interagency Hazard Mitigation Team

Websites/Documents

[DOGAMI clearinghouse of tsunami information](#)

[DLCD tsunami land use planning information](#)

[2020 Natural Hazards Mitigation Plan](#)

[Oregon's Emergency Operations Annex – Earthquake](#)

[Oregon's Emergency Operations Annex - Tsunami](#)

[Oregon Emergency Management's list of local \(city/county\) and tribal emergency managers](#)

[2020 DOGAMI Oregon Coastal Hospital Resilience Project](#)

[2013 Oregon Resilience Plan](#)

[2021 Tsunami Resilience on the Oregon Coast](#)

[2012 DOGAMI Earthquake Risk Study for Oregon's Critical Energy Infrastructure Hub](#)

[Earthquake and Tsunami Community Disaster Cache Planning Guide](#)

[Fuel Tanks and Seismic Stability Assessments](#)

Critical Issue: Land Use Planning**Action 6A****Improve Integration of Water Information and Land Use Planning****Lead Agencies**

DLCD, ODEQ, ODFW, OWRD

Supporting Agencies

DAS, DOGAMI, DSL, ODA, ODF, OHA

Possible PartnersTribes, local governments, SWCDs,
WCs, CBOs, NGOs**Purpose**

Local government land use planners do not always have the information they need when making long-term decisions that affect water resources. Oregon can help remedy this issue by improving communication and coordination between state and local governments to improve local comprehensive planning and water resource protections. Local governments need increased access to several types of agency-generated information, including water availability, site suitability for stormwater and wastewater management, and the presence of sensitive natural resources to update and carry out local comprehensive plans. Enhanced coordination and resources also provide opportunities for improved land use protections within the local comprehensive planning process.

Example Actions

- Protect natural water bodies in the course of land use decisions, such as wetlands, estuaries, groundwater aquifers, rivers, and lakes
- Update land use protections for water bodies incorporating best available data
- Integrate OHA regulation of water master plans with local comprehensive land use plans to sustainably support municipalities' development
- Make accurate geographic information on water rights and district boundaries available to local governments and DLCD
- Support local governments to perform periodic review of their comprehensive plans
- Update Goal 5 resource inventories in local comprehensive plans (e.g., riparian areas, wetlands)
- Develop and share information with local governments regarding the location, quantity, and quality of water resources for use in land use decisions; consider mechanisms for increasing access to water data such as through the Oregon Water Data Portal
- Improve coordination, technical guidance, and assistance to local governments for land use decisions that rely on water availability or could have negative impacts to water quality
- Take next steps to implement land use goals related to water resources—establish implementing rules, support local governments to update acknowledged plans, and the application of appropriate safeguards during permitting
- Build partnerships with state agencies and local governments to share land use information
- Increase resources for local governments to update their natural hazard inventories (Goal 7)
- Increase resources for local governments to update their facilities plans (Goal 11)
- Work towards achieving a statewide dataset of tax lots (identified as a priority by DAS)
- Update State Agency Coordination Programs and associated rules (see Action 9D)
- Include environmental and social justice information in land use planning

Resources*Agency Programs*

DLCD Community Service Division, Rural Planning, Urban Planning, Housing, and Transportation and Growth Management Programs, ODEQ Underground Injection Control Program, ODFW Land Resources and Water Programs, DSL Waterways and Wetlands Program, OWRD Surface Water, Groundwater, and Planning Programs

Documents/Websites

[Oregon's Statewide Planning Goals](#)

[State Agency Coordination Plans](#)

[ODFW Compass: Mapping Oregon's wildlife habitats](#)

[Statewide Wetlands Inventory](#)

[Essential Salmonid Habitat Mapping](#)

[Integrating Water Efficiency into Land Use Planning in the Interior West: A Guidebook for Local Planners](#)

Critical Issue: Land Use Planning**Action 6B****Encourage Low Impact Development Practices and Green Infrastructure****Lead Agencies**

DLCD, ODEQ

Supporting AgenciesBIZOR, DSL, NRCS, ODF, OHA,
OWEB, OWRD, USEPA, USFS**Possible Partners**Local governments, OSU Extension Service,
SWCDs WCs, CBOs, NGOs, developers, utilities**Purpose**

Land development often changes the way water moves across the land, preventing it from soaking into the soil, and creating stormwater runoff that can pollute waterways. Low Impact Development (LID) practices, including environmentally sensitive site design and the use of natural or green infrastructure, helps collect rainfall close to where it falls, reduce pollution, and increase climate resilience. The best LID practices for a project need to be determined early on in project planning. Regulatory benefits include meeting requirements for a Total Maximum Daily Load (TMDL) plan, meeting MS4 permit post-construction requirements, the Safe Drinking Water Act, state land use planning Goals 5 and 6, and reducing impacts on Endangered Species Act listed species.

Also see related Actions 7A, and 11A-11E.

Example Actions

- Continue to compile and provide online information on low impact development best practices
- Support updates to local development codes, improving local capacity to review and permit low impact development and green infrastructure designs
- Encourage communities to consider natural infrastructure in lieu of, or as a complement to, built infrastructure
- Consider how and where co-benefits of natural/green infrastructure will occur, including flood abatement, clean drinking water, lower water/wastewater utility rates, educational opportunities, and climate resilience
- Implement Community Green Infrastructure Grant Program

Resources*Agency Programs*

DLCD and ODOT Transportation and Growth Management Program, ODEQ Total Maximum Daily Load Program, ODEQ Nonpoint Source Pollution Program, ODEQ MS4 Program

Websites

[ODEQ LID Resources](#)

[ODEQ MS4 Resources](#)

EPA – [Nonpoint Source Pollution and Low Impact Development](#)

Documents

[Low Impact Development in Western Oregon: A Practical Guide for Watershed Health](#)

LID Overview Fact Sheet http://oeonline.org/wp-content/uploads/2014/11/LID_OVERVIEW_FACT_SHEET.pdf

[Oregon Smart Guide for Rainwater Harvesting](#)

2016 ODOT Green Infrastructure Study [Green Infrastructure Techniques for Resilience of the Oregon Coast Highway](#)

Funding

DLCD [Community Green Infrastructure Grant Program](#)

Critical Issue: Water Infrastructure**Action 7A****Maintain, Upgrade, or Decommission
Water Infrastructure****Lead Agencies**

ODEQ, OHA, OWRD

Supporting AgenciesBIZOR, DLCD, DOGAMI, ODFW,
ODOE, USACE, USEPA, USFWS**Possible Partners**Tribes, local governments, SWCDs, WCs,
CBOs, NGOs, businesses, individuals**Purpose**

Ensuring that Oregon's water-related built and green infrastructure is maintained and properly functioning is important for a variety of environmental, public health, and safety reasons, but also for meeting our state's economic needs. It takes an extensive system of pumps, pipes, treatment, and storage facilities to deliver water to our homes, businesses, and fields every day. A network of built and green infrastructure is necessary for conveying and treating stormwater and wastewater produced by residences, businesses, and industry. Updating aging infrastructure improves resilience, water security, and may also result in water and energy conservation. In some cases, decommissioning or removing deteriorated infrastructure may be a more cost-effective and environmentally beneficial alternative (e.g., wells, dams, or levees). Protection and restoration of green infrastructure (also see Action 11A) is also critical for maintaining infrastructure benefits such as flood control, stormwater management, water quality improvement, and storage. Safety improvements of dams and levees are covered under this action and Action 7C.

Example Actions

- Provide timely inspection of well construction, review of well logs, and educate drillers and pump installers to ensure construction standards are met
- Inventory, inspect, and make safety improvements to levees, accounting for future conditions associated with climate change
- Properly decommission infrastructure, such as a well, culvert, levee, or dam, at the end of its useful life
- Upgrade infrastructure to improve water and energy efficiency and conservation (e.g., pipe irrigation canals, leak detection and repair in municipal water distribution systems)
- Provide funding for planning, design, and construction of point source and nonpoint source water pollution control projects to upgrade infrastructure systems, protect, restore, and improve water quality
- Provide funding for projects based on USEPA "green" project eligibility
- Incorporate equity and community vulnerability assessments into infrastructure planning to inform strategies for repair, replacement, and funding infrastructure improvements
- Assess additional locations where levee accreditation could help lower floodplain insurance costs for low-income households and improve flood protection for vulnerable communities
- Continue to support the OWRD Well Abandonment, Repair, and Replacement Fund to provide financial assistance to low to moderate income individual households or members of federally recognized tribes in Oregon
- Incorporate environmental justice considerations in targeting funding and resources for water infrastructure improvements in underserved communities
- Support water and wastewater infrastructure investments that prioritize (efficient) infill development, provision of affordable housing, and jobs within walkable service areas

Resources*Agency Programs*

ODFW Fish Passage Program, OWRD Well Construction Program and Dam Safety Programs

Funding

BIZOR grant and loan programs, including Community Development Block Grants, [Safe Drinking Water Revolving Loan Fund](#), Special Public Works Fund, Sustainable Infrastructure Planning Projects Forgivable Loan Program, Tidegate Fund, Water/Wastewater Fund, ODEQ Clean Water State Revolving Fund Program, [OHA Drinking Water State Revolving Fund Program](#), OWRD [Water Well Abandonment, Repair, and Replacement Fund](#) and [Water Projects Grants and Loans](#)

Documents/Websites[Ecological Effects of Tide Gate Upgrade or Removal: A Literature Review and Knowledge Synthesis](#)[ODFW Fish Passage Barrier Inventories](#)

Critical Issue: Water Infrastructure**Action 7B****Encourage Regional (Sub-basin)
Water and Wastewater Systems****Lead Agencies**

BIZOR, ODEQ, OHA, OWRD

Supporting Agencies

DLCD, ODFW, ODOE

Possible PartnersTribes, local governments, CBOs,
NGOs**Purpose**

Many Oregon communities, particularly less populated ones, struggle to adequately fund water and wastewater related infrastructure. The high capital costs related to infrastructure, the construction, operation, and maintenance cost of facilities, and the salary and training costs of retaining qualified personnel may be prohibitively expensive to communities with a small ratepayer base. In Oregon, these tend to be rural, coastal, and/or small urban communities.

Developing a regional water and/or wastewater system may be more cost-effective and provide co-benefits such as improved water quality and increased resiliency. A regional system could include physical consolidation, system redundancy, or shared contracts, services, purchases, mutual assistance agreements, interties, and back-up supplies. State and federal agencies often provide incentives such as funding and technical assistance to encourage a regional approach to meeting water needs.

Example Actions

- Make use of shared contracts, services, and purchases
- Develop mutual assistance agreements between neighboring communities and water/wastewater systems
- Establish inter-ties and back-up supplies for water supplies
- Provide incentives to encourage regional approaches to water distribution, efficiency, and wastewater treatment
- Incorporate DLCD equity and community vulnerability assessments into asset management planning to inform strategies for repair, replacement, and funding infrastructure improvements
- Identify transition strategy for providing water and wastewater to urbanizable areas (within an urban growth boundary) consistent with comprehensive land use planning

Resources*Agency Programs*

BIZOR grant and loan programs, including Community Development Block Grant, Safe Drinking Water Fund, Special Public Works Fund, Water/Wastewater Fund

Funding

ODEQ Clean Water State Revolving Fund and Overflow Sewer and Stormwater Municipal Grant Program, USEPA grant funds administered by ODEQ

OWRD's Water Projects Grants and Loans, OWRD's Place-Based Planning Fund

OHA's [Drinking Water State Revolving Fund](#)

Documents/Websites

LPRO [Approaches and Funding for Low-Income Water Ratepayer Assistance and Household Infrastructure in Oregon](#)

Critical Issue: Water Infrastructure**Action 7C****Support Dam
and Levee Safety****Lead Agencies**

ODA, OEM, OWRD

Supporting Agencies

BPA, ODEQ, ODFW, USACE

Possible PartnersTribes, local governments, WCs, CBOs,
NGOs, businesses, individuals**Purpose**

Approximately 1,200 dams in Oregon are at least 10 feet high and store at least 3 million gallons of water (9.2 acre-feet of water), making them subject to Oregon's Dam Safety Program. The largest dams, such as the Bonneville Dam on the Columbia River, are regulated by federal agencies like the Bonneville Power Administration and the United States Army Corps of Engineers. The Water Resources Department is the lead public authority responsible for 950 non-federal dams.

The original focus of Oregon's Dam Safety Program was the review and approval of designs for new dams. Many of Oregon's dams were constructed decades ago, some more than 100 years old. As a result, the Dam Safety Program now focuses on evaluating the condition of existing dams through regular inspection feedback to owners regarding needed safety improvements. Oregon also needs to establish a Levee Safety Program

Safety improvements and decommissioning of dams and levees are also covered under Action 7A.

Example Actions

- Authorize resources to determine if dams have safety deficiencies; evaluate and retrofit dams to meet new seismic and hydrologic standards
- Implement actions to improve the safety of dams
- Properly decommission dams and levees at the end of their useful life
- Coordinate interagency emergency response regarding dam inspection, communication, and evacuation
- Define the legal responsibilities of dam owners
- Dedicate grant and loan resources for rehabilitation of deficient dams
- Improve clarity of statute and rule regarding enforcement mechanisms to ensure dam owners follow through with Emergency Action Plan exercises and updates
- Map potential impacts to critical infrastructure (e.g. schools, hospitals, water treatment facilities) and demographics of who will be impacted by dam failures

Resources*Agency Programs*

OWRD's Dam Safety Program, ODA's CAFO Program (inspects dams on permitted facilities that meet the qualifications)

Workgroups

Association of State Dam Safety Officials

Funding

FEMA High Hazard Potential Dam Grant, FEMA National Dam Safety Program Grant

Critical Issue: Education and Outreach**Action 8A****Support Implementation of
K-12 Environmental Literacy Plan****Lead Agencies**

Oregon Department of
Education, OSU

Supporting Agencies

BLM, ODEQ, ODFW, OPRD, OWRD, USGS

Possible Partners

Local governments, SWCDs,
CBOs, NGOs

Purpose

Oregon's Environmental Literacy Plan is aimed at helping students become lifelong stewards of their environment and community. Administered by Oregon State University Extension, the current Environmental Literacy Program [website](#) provides resources for teachers and community members. The goals of the plan are to: prepare students to understand and to address the major environmental challenges; contribute to students establishing a healthy lifestyle through outdoor experiences in the school curriculum; and give teachers opportunities for enhanced professional development. Support for implementation of the Plan will encourage environmental literacy among Oregon's young people and prepare them for the management and stewardship challenges ahead.

Example Actions

- Support funding for implementation (e.g., Outdoor School, Children's Clean Water Festival)
- Natural resource agencies, community organizations, and others should engage in education for environmental literacy activities
- Incorporate environmental justice, and culturally specific water stewardship values in environmental literacy programs
- Engage and support culturally specific community-based organizations in the design and implementation of environmental literacy programs

Resources*Agency Programs*

Oregon's Environmental Literacy Program, Oregon's Outdoor School Program, Outdoor School Education Fund
ODFW's Salmon and Trout Enhancement Program ([Fish Eggs to Fry](#))

Events

Children's Clean Water Festival, <https://www.cleanwaterfestival.org/>

Documents

[2013 Environmental Literacy Plan](#)

[Environmental Literacy Resource Directory](#)

Critical Issue: Education and Outreach**Action 8B****Provide Career Training for the Next Generation of Water Professionals****Lead Agencies**

HECC, ODA, ODEQ, ODFW, OHA,
OWRD

Supporting Agencies

NRCS, NOAA, USEPA

Possible Partners

Tribes, utilities, CBOs, NGOs, SWCDs,
universities and community colleges

Purpose

In the next ten years, approximately one-third of water and wastewater operators in the U.S. will be eligible for retirement. The water utility workforce has important implications for environmental and public health protections. Challenges posed by climate change, degraded ecosystems, aging infrastructure, and population increases have increased the demand for a wide variety of water professionals. Agencies, utilities, non-governmental organizations, and educational institutions must provide career training opportunities to increase the water workforce.

Example Actions

- Determine whether career training programs are available and equipped to meet the demand for water professionals
- Offer job shadow programs to expose students to careers in water
- Continue funding support for water-related trade and science programs at Oregon community colleges
- Increase coordination between state agencies and universities to develop programs that foster interest in water-related fields and career progression for graduating students
- Offer paid apprenticeship or internship programs to expose BIPOC and underrepresented students and new professionals to careers in water
- Partner with Hispanic Serving Institutions (HSI) to increase support for water-related trade and science programs at Oregon community colleges and universities
- Partner with water/wastewater utilities to promote careers and provide on-the-job training

Resources*Agency Programs*

[HECC Office of Community Colleges and Workforce Development](#), [HECC Future Ready Oregon](#), [OWRD Certified Water Right Examiner Annual Training](#), [OWRD Well Constructor Continuing Education](#), [OHA Drinking Water Systems Operator Certification](#)

Websites

[Oregon Association of Water Utilities](#)

[Oregon STEM Hubs](#)

[Pacific Northwest Section – American Water Works Association](#)

[USEPA's Water Sector Workforce Initiative](#)

[Workforwater.org](#) – website promoting career choices in the water sector

[Office of Community Colleges and Workforce Development](#) – provides a listing of colleges that offer water-related courses, degrees, and programs throughout Oregon

OSU Traditional Ecological Knowledge Lab, <https://tek.forestry.oregonstate.edu/>

Funding

NOAA's National Sea Grant College Program, <https://seagrant.noaa.gov/>

USEPA's [Innovative Water Infrastructure Workforce Development Grant Program](#)

Critical Issue: Education and Outreach**Action 8C****Promote Community Education and Outreach****Lead Agencies**

DSL, ODA, ODEQ, ODF, ODFW,
ODOE, OHA, OPRD, OSMB, OWEB,
OWRD

Supporting Agencies

USDA, USEPA, USFWS, USGS

Possible Partners

Tribes, OSU Extension Service, local
governments, SWCDs, WCs, CBOs NGOs,

Purpose

Public engagement for the 2024 Strategy revealed a need for more access to information about water. Oregonians want to learn more about water, how it is governed, how they can conserve and protect water resources, and other stewardship practices. State and federal agencies and partners need to increase capacity to provide this education, and partner with utilities, community-based and non-governmental organizations to reach more people. Communications efforts need to be responsive to community language and format needs. Regional partnerships are an important approach to sharing media, marketing, and translation services. See Action 8B for additional educational resources.

Example Actions

- Look for opportunities to keep Oregonians informed about the importance of water resources to people and the environment
- Look for opportunities to provide outreach, including informational materials about water-related programs (e.g., streamflow restoration, water conservation, transfers)
- Promote technical training for public and private partners
- Promote access to water-related recreational opportunities using state programs
- Develop a centralized location and outreach materials for people to access information about water conservation
- Develop and distribute informational materials related to the suite of tools available to protect instream flow
- Partner with community-based organizations to deliver water education to the public
- Provide resources for interested local organizations to conduct education and outreach to the communities they serve
- Increase outreach and education resources to produce communications in multiple languages and accessible to a variety of learning styles

Resources*Agency Programs*

OPRD's Recreation Trails and Scenic Waterways Programs, OSMB's Water Wits and Interactive Boat Oregon Map, Soil and Water Conservation Districts, Watershed Councils, OHA Drinking Water and Domestic Well Safety Programs, ODFW Angler Education Program, OWRD Well Safety Program, Field Services Division, Technical Services Division, and Water Rights Services Division, Interagency Pesticide Stewardship Partnership

Documents/Websites

OHA Drinking Water – links to several [videos](#)

OHA Domestic Well Safety Program – visit

healthoregon.org/wells

[2024 Water Rights in Oregon: An Introduction to](#)

[Oregon's Water Laws](#)

[2015 OWRD Fact Sheets for Strategies to Save Water](#)

[Well Owner's Handbook](#) and [Well Owner's Handbook \(Español\)](#)

[Human Health and Well Water](#)

[Water Quality and Pesticides](#)

[Agricultural Water Quality Resources](#)
[Water Wits](#)

[Free online paddling education](#) and
promotion of Oregon Water Trails

[Aquatic Invasive Species Prevention](#)
[Program](#)

[Clean Marinas and Clean Boaters Programs](#)

[Angler Education Program](#)

[Water Justice Leadership Institute](#)

Identify Water Research
Needs and Partnerships**Lead Agencies**

DLCD, ODA, ODEQ, ODF, ODFW, ODOE,
OWRD

Supporting Agencies

DOGAMI, NOAA, NWS,
OWEB, USGS

Possible Partners

Tribes, local governments, OSU Extension Service,
public and private research institutions, Oregon
Climate Change Research Institute, SWCDs

Purpose

Partnerships between higher education and both the public and private sectors can result in innovative solutions for addressing water quantity and quality challenges. The water resources sector will need to continue identifying ongoing research needs that could use assistance from undergraduate and graduate students, public and private universities, research institutions, and other partners. Research collaboration between agencies and higher education may be mutually beneficial, as research institutions can bring innovative tools, technology, and other resources to the effort, while agencies can bring expertise in agency data, evidentiary and scientific standards, and management knowledge.

Example Actions

- Continue to identify ongoing research needs at the local and state level
- Support partnerships with state and federal agencies, tribes, public and private institutions to address research needs
- Fund and/or participate in research initiatives
- Consider research initiatives that would address frontline communities' environmental and climate justice challenges

Resources*Agency Programs*

ODA Natural Resources Programs, ODEQ Water Quality Program, ODFW Water Program, OWRD Technical Services Division and Field Services Division

Workgroups

[Climate Impacts Research Consortium](#)
[Oregon Climate Change Research Institute](#)
[Oregon Water Futures](#)

Documents

[2022 State of Water Justice in Oregon](#)
[2022 Water Justice Framework](#)
[2021 Oregon Climate Change Adaptation Framework](#)
[Oregon Climate Equity Blueprint](#)

Chapter 4 Actions at a Glance

Objective 4: Meet Instream and Out-of-Stream Needs

Critical Issue – Water Planning

- 9A Support Place-Based Integrated Planning and Other Water Planning Efforts
- 9B Coordinate Implementation of Natural Resource Plans
- 9C Partner with Tribes, Federal Agencies, and Neighboring States in Long-Term Water Resources Management
- 9D Improve State Interagency Coordination
- 9E Lead Meaningful Community Engagement

Critical Issue - Water Use and Management

- 10A Improve Water-Use Efficiency and Water Conservation
- 10B Encourage Water Reuse Projects
- 10C Improve Access to Storage
- 10D Reach Environmental Outcomes with Non-Regulatory Alternatives
- 10E Provide an Adequate Field Presence
- 10F Strengthen and Improve Oregon's Water Quantity and Water Quality Permitting Programs

Critical Issue - Healthy Ecosystems

- 11A Improve Watershed Health, Resiliency, and Capacity for Natural Storage
- 11B Develop Additional Instream Protections
- 11C Prevent and Eradicate Invasive Species
- 11D Protect, Restore, and Provide Access to Instream Habitat for Fish and Wildlife
- 11E Develop Additional Groundwater Protections

Critical Issue - Clean Water

- 12A Ensure the Safety of Oregon's Drinking Water
- 12B Reduce the Use of and Exposure to Toxics and Other Pollutants
- 12C Implement Water Quality Pollution Controls

Critical Issue - Funding

- 13A Fund Development and Implementation of Oregon's Integrated Water Resources Strategy
- 13B Fund Water Resources Management Activities by State Agencies
- 13C Invest in Planning, Feasibility Studies, and Water Resources Project Implementation

Support Integrated Place-Based Planning and Other Water Planning Efforts

Lead Agencies

OWRD

Supporting Agencies

DLCD, DOGAMI, ODA, ODEQ, ODFW, OHA,
OWEB, USGS

Possible Partners

Tribes, local governments, SWCDs,
WCs, CBOs, NGOs, individuals

Purpose

Place-based integrated planning provides an opportunity to forge partnerships between individuals and organizations representing instream interests (such as fish and wildlife needs and recreation), out-of-stream interests (such as agriculture, municipalities, domestic, and industry), and representatives from local, state, federal, and tribal governments. Place-Based integrated planning groups work to develop an integrated plan, have it recognized by the Water Resources Commission, and secure funding and implement the plans. In 2023 the Oregon Legislature made the Place-Based Integrated Water Resources Planning Program permanent and allocated \$2 million to assist communities with engagement and plan development.

Other types of water planning happening in Oregon include administrative basin planning, bi-state planning (e.g., Walla Walla Water 2050 Plan), and water management and conservation planning by irrigation districts and public water suppliers.

Example Actions

- Promote success by continuing to support the places currently following the draft planning guidelines and as they develop integrated implementation plans
- Continue to provide financial and technical assistance to support collaborative water planning
- Develop or recapitalize funding pathways for plan implementation to achieve instream and out-of-stream objectives
- Promote peer-to-peer learning between communities pursuing collaborative water planning
- Refine planning guidelines, and implement process improvements
- Include public outreach and engagement activities to encourage participation by under-represented populations
- Offer place-based planning training for interested people and community groups
- Support a range of local or regional planning efforts (e.g., OWRD administrative basin plan and rule updates, water management and conservation plans)

Resources

Agency Programs

OWRD's Planning, Collaboration, and Investment Section, OWRD's Place-Based Planning Fund

Workgroups

Harney Community-Based Water Planning Collaborative

Lower John Day Basin Work Group

Mid-Coast Water Planning Partnership

Upper Grande Ronde River Watershed Partnership

Deschutes Basin Water Collaborative

Walla Walla 2050

Partnership for Lake Abert and the Chewaucan

Documents

[2015 Draft Planning Guidelines](#)[2022 Report of the Work Group on State-Supported Regional Water Planning & Management](#)[2022 Oregon's Place-Based Integrated Water Resources Planning Program: A Participatory Evaluation](#)

Coordinate Implementation of Natural Resource Plans

Lead Agencies

DLCD, ODA, ODEQ, ODFW, OWRD

Supporting Agencies

USEPA, USFWS, NOAA, OWEB

Possible Partners

Tribes, local governments, SWCDs, WCs, CBOs, NGOs, individuals

Purpose

Existing natural resource plans can provide baseline information, history, and rules to consider and build upon during a place-based or other water planning effort. Multiple planning documents that involve water management, directly or indirectly, may exist within a given planning area. These plans may be complementary, or contradictory and require collaboration to reconcile. Coordinated implementation of these plans can lead to improved benefits for natural resources.

Example Actions

- Dedicate resources to coordinate and reconcile existing planning documents
- Support local governments to update their local comprehensive land use plans with current natural resource information (e.g., Goal 5 natural resources)
- Support water management and conservation plan development in conjunction with local land use planning to achieve sustainable water use
- Dedicate resources for state and local implementation of existing plans
- Support the application of equity and social justice principals in plan reconciliation and updates

Resources

Documents

DLCD – [Estuary Management Plans](#)

ODA - [Agricultural Water Quality Plans](#)

OWRD - [Water Management and Conservation Plans](#) (developed by municipal or irrigation water suppliers)

OWRD [Administrative Basin rules and studies](#)

ODFW - [Fish Conservation and Recovery Plans](#)

ODEQ - [Total Maximum Daily Loads](#) and associated Water Quality Management Plans

Local land use plans

[Place-Based Integrated Water Resources Plans](#)

Watershed restoration action plans

[Oregon Statewide Strategic Plan for Invasive Species \(2017-2027\)](#)

[Oregon Plan for Salmon and Watersheds](#)

State Wildlife Action Plan

[Oregon Resilience Plan](#)

[Oregon Climate Change Adaptation Framework](#)

[Oregon Diversity, Equity, and Inclusion Action Plan](#)

[Local, Tribal and State Natural Hazards Mitigation Plans](#)

Partner with Tribes, Federal Agencies, and Neighboring States in Long-Term Water Resources Management

Lead Agencies

ODA, ODEQ, ODF, ODFW,
ODOE, OWRD

Supporting Agencies

BPA, BLM, FSA, NOAA, USACE, USBR, USEPA,
USFWS, USGS, USDA, BIA, US Dept of Interior

Possible Partners

Tribes, State of California, State of Idaho,
State of Washington, Canada, SWCDs

Purpose

Partnerships with Tribes, federal agencies, and neighboring states have and will continue to play an important and necessary role in Oregon's management of water resources. A large percentage of Oregon's landscape is managed by federal agencies, and Oregon shares groundwater and surface water, including three major waterways, with California, Washington, and Idaho. The Columbia Basin drainage basin includes a portion of Canada, large portions of Oregon, Washington, and Idaho, and small portions of Montana, Nevada, Utah, and Wyoming.

Oregon is home to nine federally recognized Tribes, all of which have cultural ties to and an interest in water, as well as responsibilities for protecting and managing water resources. The Strategy presents an opportunity to strengthen these government-to-government relationships.

Example Actions

- Protect Tribal and state interests in shared bi-state surface water and groundwater basins
- Negotiate agreements such that water protected instream is shepherded across state lines to the mouth of the river
- Partner with neighboring states and Tribes to continue or improve managing shared resources
- Carry out actions identified in the 2023 Tribal Water Task Force Report
- Coordinate with Tribes on instream flow protection
- Conduct collaborative planning to develop water management approaches to protect species and avoid or minimize impacts to endangered or threatened species
- Identify who may benefit, or be impacted by, long-term water management approaches

Resources

Workgroups

Tribal Consultation Task Force

Tribal Water Task Force

Natural Resources Working Group

Cultural Resources Cluster Group

Legislative Commission on Indian Services

Interstate Workgroups (Walla Walla, Idaho Power)

Klamath River Compact Commission

[Klamath River Renewal Corporation](#)

[Kaizen pre-application teams](#)

Treaties, Inter-state Agreements

Columbia Basin Fish Accords

Klamath River Compact

U.S. Department of State website: [Columbia River Treaty](#)

Summary of [Active and Inactive Klamath Basin Agreements](#)

Documents

[Walla Walla Groundwater Study](#)

[Deschutes Basin Habitat Conservation Plan](#)

[USFWS Federal Endangered Species Act species Recovery Plans](#)

[NOAA Federal Endangered Species Act species Recovery Plans](#)

Improve State Interagency Coordination

Lead Agencies

BIZOR, DLCD, DOGAMI, DSL, ODA, ODEQ, ODF, ODFW, ODOE, ODOT, OHA, OPRD, OSMB, OWEB, OWRD, and others

Supporting Agencies

DAS, OEM

Possible Partners

Governor's Natural Resources Office

Purpose

Given the distribution of water-related responsibilities across multiple agencies, it is critical that agencies coordinate to support one another's work and implement the Strategy. Agencies should seek to improve coordination to exercise efficient use of state resources and alignment of state law. Currently, coordination occurs through various interagency workgroups and forums. Agencies will need to collaborate on the development and implementation of Strategy biennial interagency workplans.

Example Actions

- Update State Agency Coordination Programs in partnership with the DLCD
- Establish efficient procedures for cross-agency coordination and approval of relevant state agency permits
- Coordinate Strategy implementation, develop interagency biennial workplan for implementing Strategy actions
- Develop formal memorandum of agreement/understanding (MOA/MOU) between agencies to establish clear and transparent expectations for interagency cooperation where agencies share affiliated authorities/responsibilities
- Support new and existing interagency review teams or interagency work groups
- Create tools to help tribes, the public, local governments, and community-based organizations navigate state agencies to address complex water issues
- Support the development and use of Oregon's Environmental Justice Mapping Tool
- Support interagency communication around community engagement (also see HB 3293 (2021))
- Support interagency coordination to implement water-related plans (e.g., Oregon's Natural Hazard Mitigation Plan, Oregon Plan for Salmon and Watersheds, etc.)

Resources

Workgroups

Conservation Effectiveness Partnership, Environmental Justice Council, Interagency Review Team, Oregon STREAM Team, Oregon Technical Advisory Committee, Regional Solutions Team, Water Core Team, Water Supply Availability Committee, Climate Change Adaptation Framework Implementation Team, Drought Readiness Council, Technical Review Teams for agency grant programs, Oregon Water Data Portal Steering Committee, Pesticide Stewardship Partnerships, Water Quality Pesticide Management Team, Willamette Action Team for Ecosystem Restoration, Natural Resource Enforcement Team

Documents

[State Agency Coordination Plans](#)

[ODA-DEQ Nonpoint Source Pollution Memorandum of Agreement](#)

Lead Agencies

DLCD, ODA, ODEQ, ODF, ODFW,
OWEB, OWRD

Supporting Agencies

BIZOR, OHA, OPRD, USEPA

Possible Partners

Tribes, local governments, community
leaders, CBOs, NGO's, SWCDs, WCs, OSU
Extension Service, individuals

Purpose

Meeting instream and out-of-stream needs requires engagement with impacted communities. Tribal communities, communities of color, low-income, and many rural communities have faced years of inequitable governmental policies and exclusionary decision-making practices created and maintained by government institutions. Agencies need to be able to allocate resources for engagement, including to organizations that represent underserved/under-represented populations, as well as providing services necessary to facilitate engagement of members of those populations. Funding and resources to support participation in state-led planning, engagement, policy development, and management activities will help ensure plans and projects meet the needs of those they are intended to serve.

Example Actions

- Provide resources for capacity-building for community-based organizations
- Use accessible and inclusive engagement strategies
- Create opportunities for communities to identify and engage decision-makers
- Conduct outreach to invite underserved/under-represented populations to participate in planning activities
- Provide funding for agencies and organizations to sustain engagement over the life of a project
- Provide resources for facilitation and coordination, and staff experts in outreach and engagement best practices
- Use best practices for engagement as identified in the State of Oregon Diversity, Equity, and Inclusion Action Plan and other documents, including cultural and language-specific needs
- Use Oregon's environmental justice mapping tool to evaluate potential impacted communities for state-led planning, engagement, policy development and management activities

Resources*Authorities*

Oregon's Environmental Justice Law, [House Bill 4077](#) (2021), [House Bill 3293](#) (2021)

Workgroups

[Environmental Justice Council](#)

Documents

Climate Change Adaptation Vulnerability Assessment Report

[State of Oregon Climate Equity Blueprint](#)

[State of Oregon Diversity, Equity and Inclusion Action Plan](#)

[State of Oregon Environmental Justice Task Force: Environmental Justice: Best Practices for Natural Resources Agencies](#)

[10 Best Practices for Community Engagement around Water Projects](#)

Funding

[EPA's Community Change Grants](#)

Critical Issue: Water Use and Management**Action 10A****Improve Water-Use Efficiency
and Water Conservation****Lead Agencies**

ODA, OWEB, OWRD

Supporting AgenciesBPA, NRCS, ODEQ, ODFW, ODOE,
USBR**Possible Partners**Tribes, local governments, SWCDs, WCs, CBOs,
NGOs, businesses and individuals, OSU Extension**Purpose**

Water conservation is one of the more widely recognized approaches to managing water demand and stretching limited water supplies. Water conservation, as defined in state law, is a means of eliminating waste or otherwise improving the efficiency of water use by modifying the technology or method of diverting, transporting, applying, or recovering water. Water conservation can also be accomplished through reuse, addressed in Action 10B. Water conserved through the Allocation of Conserved Water Program can benefit water instream, Action 11B. Additional incentives are needed to expand water conservation in Oregon.

Example Actions

- Establish a comprehensive water-use efficiency and conservation program that provides incentives and technical assistance to water users in all sectors
- Conduct a statewide water conservation potential assessment, considering high priority water management needs
- Prioritize and provide funding for agricultural water-use efficiency and conservation projects (often saving energy and supporting Action 4C)
- Support water conservation projects that use the Allocation of Conserved Water Program
- Develop or continue municipal incentives (e.g., xeriscaping rebates, metering, tiered rate structures)
- Develop an outreach strategy to expand participation in already-existing water-use efficiency and conservation programs
- Develop outreach materials, a user-friendly website, and online clearinghouse that highlights best practices, funding, and technical resources
- Ensure disadvantaged communities are not overburdened by mandatory or voluntary water conservation measures
- Borrow best practices and experience from energy efficiency programs in implementing water efficiency programs
- Partner with broadly supported well-developed energy efficiency programs that also save water (See Action 4C)
- Assess the value of establishing statewide efficiency standards
- Update the state definition of "waste" for enforcement purposes

Resources*Agency Programs*

OWRD's Water Management and Conservation Planning Program, OWRD's Allocation of Conserved Water Program

Funding

OWRD's Grants and Loans Program, Statewide Irrigation Modernization Program, OWEB Grant Programs, USBR's Water and Energy Efficiency Grants, Energy Trust of Oregon incentive programs

Resources

[Water Conservation Fact Sheets](#) (for residential, farm/ranch, and municipal users)

[Allocation of Conserved Water Program](#)

[Instream Lease](#)

[Instream Transfer](#)

[Water Projects Grants and Loans and Irrigation Modernization Funding](#)

Guidebooks Water Management and Conservation Plan: [Municipal](#) and [Agricultural](#)

Alliance for Water Efficiency

Water Research Foundation

Critical Issue: Water Use and Management**Action 10B****Encourage Water Reuse Projects****Lead Agencies**

ODA, ODEQ, OWRD

Supporting Agencies

DCBS, ODFW, OHA

Possible Partners

Tribes, local governments, SWCDs, WCs, CBOs, NGOs, businesses, individuals

Purpose

Water reuse is the practice of treating “used” water (or effluent) and making it available for another beneficial use. Examples include treating municipal wastewater effluent for golf course irrigation or treating and reusing water within a closed loop (e.g., industrial data center cooling). When considering water reuse, it is most cost effective to match the correct level of treatment to the planned secondary use of the water.

Reusing water can provide many benefits to both water quantity and quality. It can provide a benefit to water quantity by reducing the demand on municipal drinking water. In general, recycled water places fewer demands on freshwater, leaving more water instream or in the ground. Laws allowing reuse projects take into consideration potential environmental and public health impacts.

Example Actions

- Conduct a statewide assessment of the potential for additional water reuse, considering impacts, costs, and benefits to water quantity and quality, and management of water and wastewater systems
- Ensure that state agencies coordinate and communicate various policies, procedures, and regulations to facilitate reuse projects
- Provide incentives to increase and track water reuse
- Complete evaluation and updates of ODEQ and OWRD water reuse programs (see House Bill 2169 ,2025)
- Develop technical assistance capacity to promote and inform water reuse practices and projects
- Develop and maintain adequate staffing to support increased utilization of state reuse programs
- Develop water reuse rules to ensure implementation of an effective and protective reuse program
- Connect reuse actions to the Water Management and Conservation Plan Program
- Explore opportunities for the state, tribes, and other interested parties to partner on water reuse projects
- Evaluate who benefits, or is negatively impacted by, reuse projects
- Evaluate successful environmentally protective approaches used by other states’ water reuse programs that could be implemented in Oregon
- Establish goals and performance metrics on water reuse development in Oregon

Resources*Agency Programs and Workgroups*

ODEQ’s Water Reuse Program, OWRD’s Reclaimed Water Program, DCBS Building Codes Division

Funding

ODEQ Clean Water State Revolving Fund, OWRD Water Projects Grants and Loans

Websites[EPA’s Water Reuse Action Plan](#)[Oregon Association of Clean Water Agencies](#)[WaterReuse.org](#)[Recode](#), frequently asked questions about reuse alternatives

Lead Agencies

ODEQ, OWRD

Supporting Agencies

ODA, ODFW, USFWS, USBR, USACE

Possible PartnersTribes, local governments, WCs, CBOs,
NGOs**Purpose**

Storage has the potential to extend access to water for both instream and out-of-stream uses during dry summer months and provide resilience in the face of climate change. The Oregon Water Resources Department can authorize storage in reservoirs or ponds through the water right permitting process. Oregon's storage policy acknowledges that both structural and nonstructural methods must be encouraged to enhance watershed storage capacity, with preferences for storage that optimize instream and out-of-stream public benefits and beneficial uses. In 1993, the Oregon Legislature codified the state's policy regarding water storage facilities, declaring it a high priority to develop environmentally acceptable and financially feasible multipurpose storage projects, and to enhance watershed storage capacity through natural processes using non-structural means (e.g., floodplain restoration). Restoration activities, which accomplish many benefits including natural storage, are outlined in Action 11A.

Example Actions

- Encourage increased use of environmentally acceptable below-ground storage sites and practices
- Assess and make improvements to the Aquifer Storage and Recovery and Artificial Recharge Programs to promote and increase the use of this tool in a manner that protects public health, water quality, and ecosystems
- Carry out implementation of the Willamette Basin reallocation study recommendations as directed by Congress in the Water Resources Development Act of 2020
- Investigate potential off-channel sites for environmentally acceptable above-ground storage projects
- Evaluate the status of storage infrastructure, including the maintenance and rehabilitation needs of reservoirs, and potential for expanding existing storage capacity
- Investigate the use of existing reservations of water during planning efforts
- Consider equity, environmental justice, and water insecurity in the prioritization of storage sites

Resources*Agency Programs*

BIZOR's Aquifer Recharge Due Diligence Grant and Forgivable Loan Program, OWRD Groundwater Hydrology Section and Water Projects Grants and Loans Program

Documents/Websites

[2009 OWRD Inventory of Potential Below Ground Storage Sites](#)

[OWRD Artificial Groundwater Recharge \(AR\)](#)

[OWRD Aquifer Storage and Recovery \(ASR\)](#)

Reach Environmental Outcomes with Non-Regulatory Alternatives

Lead Agencies

ODA, ODEQ, ODF, ODFW,
OWEB, OWRD, USDA

Supporting Agencies

DSL, USEPA

Possible Partners

Tribes, local governments, SWCDs,
WCs, CBOs, NGOs

Purpose

Water conservation, reuse, and storage are a set of traditional tools for meeting water needs (Actions 10A-10C). These traditional water supply tools are used in conjunction with state and federal regulatory tools that protect water resources for future generations. Today, however, we also need to consider forward-looking approaches to meeting our collective and often competing demands for water and consider holistic strategies to meet water quality, water quantity, and ecosystem needs. These alternatives require strong partnerships with senior water users. Potential solutions include voluntary actions by water users that often include technical assistance from agencies. This action overlaps with programs described in Actions 10A, 10C, 11A-11E, and 12A-12B.

Example Actions

- Research and develop voluntary, non-regulatory tools to meet environmental outcomes
- Continue to develop water quality trading programs
- Develop voluntary water markets to restore streamflow in priority stream reaches
- Develop protocols for translating streamflow restoration into credits and accounting strategies
- Investigate and establish incentives for voluntary efforts to achieve positive environmental outcomes
- Make improvements to transfer processes and develop potential adaptive transfer tools, including instream leases and transfers
- Develop an outreach strategy for informing the public about non-regulatory alternatives
- Support agencies to provide technical assistance regarding voluntary efforts
- Develop a voluntary agreement framework (O.R.S. § 537.745) for groundwater right holders
- Partner with federal agencies with Conservation Reserve Enhancement Programs to permanently retire groundwater rights where groundwater resources are overallocated
- Identify community benefits from improved environmental outcomes

Resources

Agency Programs

ODA Strategic Implementation Areas, ODF and ODA Stewardship Agreement Program, ODEQ Water Quality Trading Rules, ODFW Grant and Tax Incentive Programs, OWEB Grant Programs, OWRD Transfer and Conservation Section, OWRD Water Projects Grants and Loans, Pesticide Stewardship Partnership, USDA Farm Services Agency [Conservation Reserve Enhancement Program](#)

Documents

[Measuring Cost-Effectiveness of Environmental Water Transactions](#)

Critical Issue: Water Use and Management**Action 10E****Provide an Adequate
Field Presence****Lead Agencies**

ODA, ODEQ, ODF, ODFW, OLCC,
OSMB, OWRD

Supporting Agencies

DSL, OHA, OPRD

Possible Partners

Tribes, local governments, SWCDs, WCs,
CBOs, NGOs, local and state law
enforcement

Purpose

Oregon's natural resources agencies have personnel in the field that are responsible for data collection, site inspections, education, permit compliance, conducting enforcement activities, and responding to inquiries, complaints, or emergencies. Communities have strong compliance with rules and laws in areas where field presence is robust and public education is strong and consistent. Areas of the state with a long history of regulation and partnership with the state have higher rates of compliance, resulting in more timely and efficient water management.

Strengthening Oregon's field-based work will require financial investments in staff capacity, communications equipment, information platforms, and outreach materials. It also means a look at more efficient ways to coordinate and partner with other agencies and local governments to carry out our shared responsibilities and modernize and streamline regulatory, compliance, and enforcement processes. Field staff can also benefit from actions to streamline data reporting outlined in Strategy Actions 1C.

Example Actions

- Review and assess agency staff workloads; establish priorities and seek efficiencies
- Improve regulatory tools, including updating laws, modernizing technology and enforcement tools, and providing (cross) training
- Improve the ability for field staff to conduct education and outreach within their districts; develop outreach materials to have on hand when interacting with the public
- Enhance all natural resources agencies capacity to conduct field studies and work directly with water users and conservation interests
- Support cross-agency communication to expedite regulatory enforcement
- Employ staff in rural and remote areas to respond to and assist more communities across the state
- Increase field staff capacity for compliance, restoration consultation, and engagement to build and maintain relationships with communities, community-based organizations, and farmworker advocates
- OWRD to provide guidance to field personnel on administering instream water rights
- Provide access to training that addresses equity, environmental justice, and community engagement
- Develop culturally appropriate education materials

Resources*Agency Programs*

ODA Natural Resources Program, ODEQ Water Quality Program, ODF Compliance Monitoring Program, ODFW Water Program, ODFW and OSMB Aquatic and Invasive Species Prevention Program, OWRD Dam Safety Program, OWRD Regulation Program, OWRD Enforcement Section, OWRD Well Construction and Compliance Section

Policies

[2022 Water Hauling and Cannabis Laws](#)

Websites

Locate your local [Watermaster](#)

Critical Issue: Water Use and Management**Action 10F****Strengthen and Improve Water Quantity and Water Quality Permitting Programs****Lead Agencies**

DSL, DOGAMI, ODA, ODEQ, OWRD

Supporting Agencies

ODFW, USACE, USEPA

Possible Partners

Tribes, local governments, Certified Water Rights Examiners, WCs

Purpose

Several natural resources agencies in Oregon are engaged in water-related permitting. Permit reviewers frequently answer calls or questions from water users, permit holders, and realtors, conduct records research, and process case files. It is imperative that agencies have enough well-trained permitting staff to process requests in a timely and accurate manner.

Water rights permits and certificates, water rights transfers, and well construction special standards are examples of permitting programs through the Water Resources Department. There are many types of water quality permits administered by the Department of Environmental Quality through the National Pollution Discharge Elimination System (NPDES) and Clean Water Act 401 Water Quality Certifications. Other agencies also administer permitting systems, often associated with water quality; for example, the Department of State Lands issue removal/fill permits, while the Oregon Department of Agriculture administers Confined Animal Feeding Operations Permits. DOGAMI issues surface mining, exploration, and drilling permits. Non-regulatory state agencies also provide permit review for other agencies and provide recommendations to regulators.

Example Actions

- Expand staff training opportunities, including interagency trainings; provide adequate staffing
- Update technologies, processing manuals, and expand guidance documents for transparency
- Develop outreach materials and follow-up procedures to help water users understand the application process and permit, transfer, or extension requirements
- Develop a statewide mitigation strategy in coordination with relevant agencies (DEQ, ODFW, OPRD, OWRD)
- Create stronger linkages among partner agencies
- Develop and implement a workplan to improve the quality and timeliness of individual National Pollutant Discharge Elimination System permits
- Regularly update Oregon's water-related permitting guide (formerly 2017 Strategy Action 2E)
- Improve the timeliness of water right transactions and reduce backlogs
- Modernize and create more efficient and user-friendly permitting processes while maintaining protections for public process and the environment
- Incorporate climate change forecasting into water availability analyses and permitting decisions (also see Action 1D)
- Develop programs and resources to support BIPOC farmers and business owners, as well as farmers and business owners for whom English is not a primary language, in obtaining and managing permits and other authorizations
- Improve resources for NPDES monitoring and permitting to help attain water quality that aligns with fish consumption standards for Oregon Tribes
- Support continued development of the Oregon Water Data Portal to provide interagency access to accurate, high quality water data for permits

Resources***Agency Programs***

DSL Removal-Fill Permits, ODA Water Quality Program, ODEQ Water Quality Program, ODEQ 401 Hydropower Program, ODFW Aquatic Invasive Species Prevention Program, ODFW Water Program, OWRD Water Rights Program, OWRD Well Construction and Compliance Program

Documents/Websites

[2012 State Water-Related Permits User Guide](#), and [OWRD Certified Water Rights Examiner \(CWRE\) training materials](#)

Improve Watershed Health, Resiliency, and Capacity for Natural Storage

Lead Agencies

DSL, ODA, ODEQ, ODF, ODFW,
OWEB

Supporting Agencies

BLM, BPA, DLCD, NOAA, NRCS,
OPRD, OWRD, USBR, USFS, USFWS

Possible Partners

Tribes, local governments, private
landowners, SWCDs, WCs, CBOs, NGOs,
forest collaboratives

Purpose

Protecting and restoring ecological function to Oregon's watersheds supports adaptation to disturbance and climate change, provides habitat for fish and wildlife, protects water quantity and quality for humans and the environment, and supports Tribal access to First Foods. Many riparian areas, floodplains, wetlands, estuaries, and uplands have been significantly modified by human activities over the last 150-200 years. Restoration of Oregon's green infrastructure provides many human and environmental co-benefits and can be a more cost-effective solution to constructing built infrastructure to accomplish things like water storage, flood control, and temperature regulation.

Example Actions

- Protect and restore instream habitats and watersheds to build climate change resiliency
- Improve and protect riparian conditions to create a healthy buffer between aquatic ecosystems and adjacent land use and development to provide fish and wildlife habitat and protect water quality
- Restore meadows, wetlands, and hydraulic connectivity to side channels and floodplains to maintain critical functions like processing nutrients, providing habitat, and natural storage
- Protect and restore estuarine conditions to maintain the natural mixing of freshwater and marine systems and allow for safe tidal inundation to build resiliency for sea level change and flooding
- Protect and restore beavers, beaver habitat, and beaver-modified habitat
- Protect and restore floodplains and native riparian-floodplain vegetative communities
- Identify and implement actions to protect and maintain drinking water source areas quality and quantity in upland and forested areas
- Collaborate and/or consult with Tribes as needed to prioritize locations targeted for protection and restoration and restore access to First Foods
- Invest in restoration projects led by Tribes, low-income communities, and communities of color to discover new approaches and best management practices that meet community goals for clean water
- Strengthen protections under Oregon Statewide Land Use Planning Goal 4 which limits development on non-federal forestlands
- Implement climate-smart agricultural practices to improve soil and watershed health

Resources

Agency Programs

BPA's Fish and Wildlife Program, Private Forest Accord Grant Program, [OWEB Grant Programs](#), Oregon Conservation and Recreation Fund, ODFW Private Forest Accord Mitigation Program, OWRD Water Projects Grants and Loans, ODF's Forest Resources and Urban and Community Forest Programs, [USFWS Partners for Fish and Wildlife Program](#) and [National Fish Passage Program](#)

Documents/Websites

[Oregon Plan for Salmon and Watersheds](#)

[Oregon's Conservation Strategy](#)

[Oregon Forest Practices Act \(January 2024\)](#)

[Oregon's Agriculture Water Quality Management Plans \(38 total\)](#)

[Oregon Removal/Fill Guide](#)

[The Beaver Restoration Guidebook](#)

[ODFW's 3-Year Action Plan for Beaver-Modified Landscapes August 2022 – 2025](#)

[South Slough National Estuary Research Reserve](#) (research regarding watershed health and resiliency)

Develop Additional
Instream Protections**Lead Agencies**

ODEQ, ODFW, OPRD, OWRD

Supporting AgenciesBPA, DSL, NFWF, NOAA, OWEB,
USGS**Possible Partners**Tribes, local governments, SWCDs, WCs, CBOs,
NGO's, individuals**Purpose**

Oregon's original Water Code formalized a system of water allocation that did not consider water for instream uses, causing Oregon's freshwater habitats to quickly become degraded. The Instream Water Right Act was not enacted until 1987, causing most instream water rights to be junior compared to existing out-of-stream water rights, some of which date back to the 1800s.

In many areas of Oregon, streamflows are very low or even non-existent during late summer months, largely due to human causes like diversions for irrigation or other beneficial water uses. Low streamflow conditions are made worse by periods of intensive water use or drought. Low streamflows often mean higher water temperatures and increased nutrient concentrations, contributing to poorer water quality for fish, wildlife and humans. During the winter, high flows are necessary to maintain aquatic habitat and trigger migration. Oregon needs to conserve and protect streams by developing additional instream flow protections and seek opportunities for enhancing and restoring streamflow.

Example Actions

- Designate Scenic Waterways where needed to protect recreation, fish, and wildlife uses
- Designate Outstanding Resource Waters where needed to protect extraordinary water quality or ecological values
- Establish additional instream water rights where needed to protect the full suite of flows for fish and wildlife, water quality, recreation, and scenic attraction
- Promote utilization of voluntary OWRD programs including Allocation of Conserved Water and instream transfers and leases to restore flow instream
- Expand education, funding opportunities, and use of voluntary programs to protect and restore streamflow, lake levels, and cold water refugia
- Increase resources and capacity to expand the geographic range and increase effectiveness of flow restoration efforts by identifying flow restoration priorities and focusing resources to priority areas
- Update ODFW Rules (OAR 635-400; last modified in 1989) to incorporate a broader range of techniques to determine flow amounts to protect ecosystem needs, including consideration of temperature-based flows
- Increase compliance with water rights laws (Also See Actions 10E and 10F)
- Improve process for resolving instream water rights protests

Resources*Agency Programs*

ODEQ's Outstanding Resource Waters, ODFW Water Program, OPRD Scenic Waterways, OWRD's Water Rights Services Division

Authorities/Policies

Allocation of Conserved Water Act, Instream Water Rights Act, Scenic Waterway Act, ODEQ's Antidegradation Policy, Outstanding Resource Waters Policy

Funding

OWEB Grant Programs, OWRD Water Projects Grants and Loans, BPA and NFWF Columbia Basin Water Transaction Program

Documents/Websites

OWRD [Allocation of Conserved Water Program](#)

OWRD [Instream Transfer Program](#)

OWRD [Instream Leasing Program](#)

[Oregon Plan for Salmon and Watersheds](#)

Lead Agencies

ODA, ODEQ, ODF, ODFW, OSMB

Supporting Agencies

OWEB, USDA, USFS

Possible PartnersTribes, local governments, OSU
Extension Service, SWCDs, WCs, CBOs,
NGOs, individuals**Purpose**

The Oregon Invasive Species Council defines an invasive species as a non-native species that can cause economic or environmental harm or cause harm to human health. It can be a plant, animal, or any other microorganism that enters an ecosystem beyond its native range. Invasive species disrupt the natural function of an ecosystem by competing and replacing native species and disrupting the natural habitat. Preventing and removing invasive species helps support watershed health and resiliency.

Example Actions

- Support and continue funding for the Aquatic Invasive Species Prevention Program
- Support and continue funding for the Oregon Invasive Species Council
- Identify and implement projects to support the State Wildlife Action Plan to prevent new introductions, and decrease the scale and spread of infestations
- Continue to implement and enforce ballast water management regulations
- Provide technical assistance and landowner education for invasive species detection and potential control and management actions on agricultural and forestlands
- Couple invasive species eradication with native species restoration efforts (see 11A)
- Support protection of culturally significant plants, animals, and ecosystems from invasive species
- Promote the propagation, growth, and sale of native plants

Resources*Agency Programs*

ODA's Insect Pest Prevention and Management Program, ODFW and OSMB's Aquatic Invasive Species (AIS) Prevention Program, ODF Forest Health Unit, OWEB Grant Programs

Workgroups

[Oregon Invasive Species Council](#)

Laws/Policies

Oregon Invasive Species Council [ORS 570.755\(1\)](#)

Aquatic Invasive Species Program [ORS 830.560\(a\)](#)

Documents/Websites

[Oregon Statewide Strategic Plan for Invasive Species \(2017-2027\)](#)

State Wildlife Action Plan

[ODA Noxious Weed Profiles](#)

[ODA Insect Pest Alerts](#)

[USDA National Invasive Species Information Center](#)

[ODF Forest Health Unit](#)

Protect, Restore, and Provide Access to Instream Habitat for Fish and Wildlife

Lead Agencies

DSL, ODEQ, ODF, ODFW, ODOT,
OWEB, OWRD

Supporting Agencies

BPA, BLM, NFWF, NRCS, NOAA,
USBR, USEPA, USFS, USFWS

Possible Partners

Tribes, local governments, private
landowners, SWCDs, WCs, CBOs, NGOs

Purpose

Instream habitat quality has been degraded by modifications to rivers and streams including construction of fish passage barriers, floodplain development, channelization, large woody debris and riparian vegetation removal, and bank instability worsened by livestock access. Changes in hydrology and flow patterns, older culverts, and many dams or other impassible barriers have greatly reduced historically accessible habitat for many aquatic species. Appropriate fish screening and fish passage barrier removal should be coupled with stream channel restoration efforts when possible, to improve habitat conditions.

Example Actions

- Implement Oregon's fish screening and passage laws
- Continue to update the inventory of fish passage barriers and priority unscreened diversions
- Address and/or remove barriers, particularly at high-priority sites identified on the Department of Fish and Wildlife's Statewide Fish Passage Barrier Priority List
- Support fish screening efforts
- Build upon existing ecological planning and restoration efforts by incorporating fish screening and passage needs and enhancing instream habitat conditions (e.g., water quality, channel complexity)
- Update streamflow restoration priority areas using new species distribution, climate change projections, hydrologic data, and water quality impairments related to streamflow
- Couple stream restoration projects with voluntary flow restoration projects (see Action 11B)
- Restrict livestock access to riparian areas and streambeds through regulatory compliance where applicable and support cooperative fencing programs/efforts
- Provide financial and technical assistance, when applicable, to landowners and other interested parties to implement projects that improve fish habitat and mitigate risks to natural resources (e.g., road construction with fish-friendly culverts, large wood placement)
- Ensure fish screening and fish passage laws are addressed in FERC hydroelectric project relicensing or when adding hydroelectric generation to an unpowered dam

Resources

Agency Programs

DSL's Waterways and Wetlands, ODFW Fish Screening and Passage Program, ODFW Hydro Program, ODFW Water Program, [ODFW Western Oregon Stream Restoration Program](#), OWRD Dam Safety Program, ODOT Environmental Program

Funding

ODFW's Oregon's Fish Screening and Passage Cost Sharing Program, OWEB's Grant Programs, ODF Small Forestland Investment in Stream Habitat (SFISH) Program, [USFWS National Fish Passage Program](#)
Many Federal Sources: BPA, BLM, USDA-NRCS, NFWF, USEPA, USFS, USFWS, NOAA

Documents

[Oregon Plan for Salmon and Watersheds](#)

State Wildlife Action Plan

NOAA Fisheries [West Coast Fish Passage Guidelines](#)

Pacific Lamprey Conservation Initiative, [Lamprey Technical Workgroup](#) Publications

Northwest Power and Conservation Council's Strategy for Salmon

2020 ODOT's Routine Road Maintenance: Water Quality and Habitat Guide Best Management Practices

[Ecological Effects of Tide Gate Upgrade or Removal: A Literature Review and Knowledge Synthesis](#)

Develop Additional Groundwater Protections

Lead Agencies

ODEQ, OWRD

Supporting Agencies

DLCD, DOGAMI, ODFW

Possible Partners

Tribes, local governments,
SWCDs, WCs, CBOs, NGOs, well
owners

Purpose

Groundwater discharge contributes to springs, wetlands, and streamflow throughout the state. Contributions from groundwater support ecosystems and human systems alike. Protecting groundwater from over-use or contamination benefits groundwater-dependent ecosystems as well as existing water users. This action acknowledges the need for additional voluntary, incentive-based, and regulatory approaches to achieve sustainable groundwater management.

Related Actions 7A, and 12A-12C address specific ways to prevent sources of groundwater contamination.

Example Actions

- Implement actions for sustainable groundwater management through voluntary, incentive-based, and regulatory means
- Develop clear objectives and metrics for defining sustainable groundwater management
- Designate groundwater limited areas
- Protect groundwater through proper well construction (also see Actions 7A, 12A)
- Identify and protect and/or restore springs, cold water discharge to surface water, and wetlands (also see Action 11A)
- Prioritize resources where frontline communities are experiencing unsafe drinking water, with potentially serious health consequences (also see Action 12A)
- Implement improvements to groundwater quality management (Senate Bill 1154, 2025)
- Explore methods to protect groundwater in situ

Resources

Agency Programs

ODEQ Water Quality Program, OWRD Technical Services Division, OWRD Policy Section

Authorities

The Groundwater Act of 1955, The Groundwater Quality Protection Act of 1989

Documents/Websites

[2019 ODEQ Groundwater Quality Protection in Oregon](#)

Online mapping tool by The Nature Conservancy, [Global Groundwater Dependent Ecosystems](#)

Ensure the Safety of Oregon's Drinking Water

Lead Agencies

ODEQ, OHA, OWRD

Supporting Agencies

ODA, ODF, USEPA, USFS, OWEB

Possible Partners

Tribes, local governments, SWCDs, WCs, CBOs, NGOs, domestic well owners, individuals

Purpose

Whether people obtain their drinking water from a private well, a small community system, or a large municipal system, the original source of that water is from groundwater, surface water, or a combination of the two. Oregon manages those sources and the safety of drinking water through land use planning, land use management, ecological restoration, land acquisition, proper well construction, wellhead protection, and implementation of a drinking water protection plan.

Climate change may contribute to variabilities in supply, increases in contaminant concentrations and harmful algal blooms (HABs), and decreases in access and affordability of drinking water. Municipalities, utilities, and small/very small water systems that deliver drinking water need adequate resources to address the increasing challenges associated with climate change and changing regulatory environment. Upgrading and maintaining infrastructure (Action 7A) also contributes to protecting Oregon's drinking water.

Example Actions

- Assist drinking water systems of all sizes; increase technical, administrative, and funding resources for small and very small water systems (less than 15 connections)
- Protect drinking water sources (e.g., proper well construction, onsite septic system maintenance, responsible land management, nutrient reduction, riparian/upland/forest restoration, watershed land acquisition and conservation)
- Increase understanding of occurrence and health implications of contaminants of emerging concern (e.g. pharmaceuticals, personal care products, microplastics, nanoplastics, perfluoroalkyl and polyfluoroalkyl substances (PFAS))
- Encourage water providers to join the Oregon Water/Wastewater Agency Response Network
- Increase domestic well testing and provide updated support materials and education (including translations, when needed) (Also see Action 1A)
- Amend Domestic Well Testing Act to require laboratories to electronically report domestic well testing results associated with real estate transactions to the state
- Increase resources for education, outreach, monitoring, and treatment for disadvantaged/underserved domestic well users
- Support resiliency efforts for maintaining operation of drinking water systems during emergencies (e.g., solar/renewable energy, battery storage)
- Seek alternative to EPA's definition of "disadvantaged communities" to increase eligibility for funding drinking water improvements in underserved communities in urban areas

Resources

Agency Programs

ODA's Agriculture Water Quality Program, ODF Water Quality Program, OHA/ODEQ Drinking Water Protection Program, ODEQ's Underground Injection Control Program, OHA's Drinking Water State Revolving Fund, OWEB Drinking Water Source Protection Grant Program

Workgroups

Drinking Water Advisory Committee

Documents

LPRO [Approaches and Funding for Low-Income Water Ratepayer Assistance and Household Infrastructure in Oregon](#)

Reduce the Use of and Exposure to Toxins and Other Pollutants

Lead Agencies

DSL, ODA, ODEQ, ODF, OHA

Supporting Agencies

DAS, ODFW, ODOT, OWEB,
USEPA

Possible Partners

Tribes, OSU, PSU, local governments, SWCDs,
WCs, CBOs, NGOs, farmers and farmworkers

Purpose

Protecting public health and the environment from the impacts of toxic pollutants in the air, water, and land is a top priority for ODEQ and OHA. Thousands of toxic chemicals are in products that individuals and businesses use daily. Old chemicals that may not be sold today but are stored in homes, schools, farms, and businesses also pose risks, including herbicides, pesticides, and fertilizers. Whether used in their raw form or in products, these chemicals can be released into Oregon's air, water, and land. Once in the environment, toxic pollutants can adversely affect the health of people and other living organisms. The accumulation of toxins in fish is a major concern for high fish consuming populations including many tribal members. Actions are needed to both reduce the use of toxics and adequately notify the public when health risks are present.

Example Actions

- Update and implement the ODEQ's 2018 Toxics Reduction Strategy
- Implement green chemistry executive order, including revising purchasing practices related to toxic chemicals
- Update and implement Water Quality Pesticide Management Plan
- Support Pesticide Stewardship Partnerships and enhance program to focus on environmental justice communities
- Continue "take back programs" and develop partnerships with community-based organizations and tribes to facilitate culturally relevant "take back programs"
- Continue to identify and address hazardous or contaminated sites (e.g., Lower Umatilla Basin nitrate contamination, brownfields, abandoned/derelict vessels)
- Prevent blue-green algae (including Harmful Algal Blooms or HABs) from forming beyond natural background levels and support advisory/notification efforts
- Support implementation of the 2023 ODEQ Freshwater Cyanobacteria Harmful Algal Bloom Strategy
- Monitor recreational waters and inform the public when contaminants are present, including communications to reach non-English speaking, low-income, tribal, and rural residents and businesses
- Update Oregon's water quality criteria for toxic pollutants to protect aquatic life and human health based on the latest science
- Support programs and organizations to help communities and utilities prevent, prepare for, and respond to chemical spills
- Support no-till, organic, and regenerative agricultural practices that reduce herbicide, pesticide, and fertilizer use
- Engage historically or currently impacted communities in design of toxics source reduction and clean-up efforts so that they can experience the benefits of the effort, such as utilizing Community Benefits Agreements

Resources

Agency Programs

ODA Agricultural Water Quality Management Program, Pesticide Stewardship Partnership, ODEQ Air, Land, and Water Programs, ODOT's Spill Prevention, Control and Countermeasure Program, DSL's Abandoned and Derelict Vessels Program, OHA's Safe Drinking Water Program and fish consumption/HABs advisory programs, DEQ's drinking water source water protection program, OWEB Grant Programs

Laws/Policies

Executive Order No. 12-05 ("Environmentally Friendly Purchasing and Product Design"), Forest Practices Act

Workgroups

Abandoned and Derelict Vessels Workgroup, ODEQ Team Toxics, Water Quality Pesticide Management Team, Legislative Policy and Research Office Harmful Algal Bloom Workgroup, Coordinated Streamside Management

Documents

[2018 ODEQ Toxics Reduction Strategy](#), [2023 ODEQ Freshwater Cyanobacteria Harmful Algal Blooms Strategy](#), [2011 Oregon's Water Quality Pesticide Management Plan for Water Quality Protection](#)

Implement Water Quality
Pollution Controls**Lead Agencies**

ODA, ODEQ, ODF

Supporting AgenciesBLM, DSL, ODFW, ODOT, NRCS,
USACE, USEPA, USFS**Possible Partners**Tribes, local governments, SWCDs, WCs,
CBOs, NGOs, businesses, private
landowners**Purpose**

Land management activities and their associated point and nonpoint sources of pollutants must be managed to protect water quality for humans and the environment. The Clean Water Act, administered by the ODEQ, provides the regulatory structure for addressing point and nonpoint sources of pollution in the state. The ODA and ODF play important supporting roles. The USEPA has delegated ODEQ to administer the Underground Injection Control Act under the Safe Drinking Water Act for underground injection activities such as Aquifer Storage and Recovery (ASR) and Artificial Recharge (AR).

Oregon must continue developing and implementing Total Maximum Daily Loads (TMDLs), or pollutant reduction plans, for waterbodies that do not meet Oregon water quality standards and use its enforcement authorities to compel related permit condition compliance. This includes developing TMDLs for the remaining waterbodies and pollutants on Oregon's 303(d) impaired waters list and for those added in the future. It also includes reviewing and updating existing TMDLs and providing oversight to ensure that implementation measures by permit holders and designated management agencies are effective.

Example Actions

- Continue to develop and implement TMDLs for water bodies that do not meet water quality standards
- Continue to address nonpoint sources of pollution across all land uses
- Ensure effective management and oversight of stormwater in urbanized areas
- Assist communities with septic system challenges, including technical and funding resources for underserved communities
- Continue to update and revise TMDLs to conform with current temperature standards
- Continue to work with Designated Management Agencies, as defined in each TMDL, to achieve water quality standards
- Develop more programmatic implementation plans for common TMDL issues
- Continue to meaningfully engage with communities within the hydrologic boundaries of new and updated TMDL's
- Review TMDL prioritization process to ensure geographic equity among places with a completed and approved TMDL
- Recognize role of water management and water withdrawals in meeting TMDL objectives

Resources*Agency Programs*

ODA Natural Resources Program, ODEQ Total Maximum Daily Load, Nonpoint Source Pollution, Water Quality Permitting, and Onsite Wastewater Management Programs

Funding

Clean Water State Revolving Fund

Laws/Policies

Clean Water Act, Forest Practices Act

Documents

[Agricultural Water Quality Area Plans \(38 total\)](#)

Water Quality Management Plans (and implementation plans for an approved TMDL)

2020 ODOT's Routine Road Maintenance: Water Quality and Habitat Guide Best Management Practices

Critical Issue: Funding**Action 13A****Fund Development and Implementation of Oregon's Integrated Water Resources Strategy****Lead Agencies**

ODA, ODEQ, ODFW, OWEB,
OWRD

Supporting Agencies

BIZOR, DLCD, DOGAMI, DSL, ODF, ODOE,
OHA, OPRD, OSMB, Many federal agencies

Possible Partners

Tribes, Legislature, local governments,
individuals, SWCDs, WCs, NGOs

Purpose

State agencies need adequate, stable funding to guide Strategy development, updates, and implementation to address our current and future instream and out-of-stream water needs. The goals, objectives, and 48 actions spelled out in the Strategy will be meaningless without long-term funding. Coordination among state, federal, and private partners will also be critical for making progress.

Updates and implementation of the Strategy, including specific state agency participation, is called out in Oregon Revised Statute [ORS 536.220](#). Two-year Strategy Workplans are required, providing an opportunity to identify biennial budgetary needs associated with Strategy implementation. Communicating progress on workplan implementation helps increase accountability and transparency..

Example Actions

- Fund implementation of the Integrated Water Resources Strategy
- Fund the development and implementation of biennial Strategy workplans
- Fund the required Integrated Water Resources Strategy updates, including support from partner agencies
- Fund communication resources regarding the Strategy including web-based information and translations
- Fund the development of biennial progress reports to communicate progress on Strategy implementation

Resources*Agency Programs*

Refer to state agency programs listed on Strategy Action Summaries for Actions 1A through 13C

Workgroups

Interagency IWRS Project Team, OWRD IWRS Team, Federal Liaison Team, Water Core Team, Tribal Water Task Force

Laws

Oregon Revised Statute, [ORS 536.220](#)

**Fund Water Resources Management
Activities by State Agencies****Lead**

Legislature

Supporting AgenciesBIZOR, DLCD, DOGAMI, DSL, ODA,
ODEQ, ODF, ODFW, ODOE, OHA,
OPRD, OSMB, OWEB, OWRD, Many
federal agencies**Possible Partners**Tribes, local governments, SWCDs,
WCs, CBOs, NGOs, individuals**Purpose**

The state's core responsibilities related to water, including those described throughout the Integrated Water Resources Strategy, must continue to receive funding to adequately protect and manage the public's water resources. State agencies lead the budget development process, working with interested parties, local governments, Tribes, and others to understand resource needs for the next biennium. Agencies must communicate the importance of investing in water to the Oregon Legislature.

The 2025-27 Legislatively Adopted Budget allocated just 2.8% of the total budget to Natural Resources agencies. Approximately 1.6% of the General Fund was directed to these agencies. Increased investments are needed for agencies to carry out their responsibilities, which may require new funding sources.

Example Actions

- Fund those water management activities for which the state has responsibility
- Ensure increased and adequate funding from the General Fund
- Seek additional funding sources (e.g., federal funding, bonding)
- Provide funding for agency operations and equipment (e.g., administration, information technologies, interagency coordination, data acquisition, and management)
- Allow agencies to adjust fees to ensure that their programs protecting water resources are sustainably funded
- Evaluate and implement opportunities to improve equitable delivery of services by state agencies
- Support agency capacity to carry out the Strategy
- Provide ongoing support for the Oregon Water Data Portal to provide a platform for state agencies and partners to share data and information with the public to support water-related decision making
- Provide equitable access to technical assistance (e.g., state agencies, SWCDs) for communities

Resources

State agency biennial budgets

[Publications from the Oregon State Legislature Legislative Fiscal Office](#)

Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Lead Agencies

BIZOR, DLCD, ODA, ODEQ, ODF, ODFW, OPRD, OWEB, OWRD

Supporting Agencies

DOGAMI, DSL, ODOE, OHA, OSMB

Possible Partners

Legislature, Tribes, local governments, SWCDs, WCs, CBOs, NGOs, individuals

Purpose

Investing in planning, feasibility studies and water resources-related project implementation is critical to ensuring communities and the environment can adequately meet our future instream and out-of-stream water needs. Planning is done successfully by ensuring that resources exist to help organize people, apply for and administer funds, and facilitate the conversation. It also takes resources to gather water resources information and to develop new data that fill key knowledge gaps. Feasibility studies help determine the environmental, engineering, economic, and social implications of proposed projects, such as conservation, reuse, or storage projects prior to significant investment. Finally, reliable and sufficient funds are needed to implement a wide range of water resource projects aimed at meeting Oregon's instream and out-of-stream needs.

Example Actions

- Continue to authorize and fund public and private investments in efforts such as Place-Based Integrated Water Resources Planning, including plan implementation
- Provide funding to assist small water systems to develop and implement water management and conservation plans
- Provide funding to support hazard mitigation planning (e.g. droughts, floods) at the local level
- Support OWRD administrative Basin Program updates (basin planning, assessments, and program rules)
- Authorize bonds to finance investments in instream and out-of-stream projects
- Ensure that basic water infrastructure maintenance needs continue to be eligible for grant and loan funding
- Advocate for continued state and federal funding for water and wastewater-related infrastructure
- Develop funding and technical support for low-income, small communities, and districts to maintain, upgrade, and operate water and wastewater-related infrastructure
- Continue funding and support for watershed restoration and OWEB Focused Investment Partnerships
- Continue to fund OWRD Feasibility Study Grants, Water Project Grants and Loans, and Water Well Abandonment, Repair, and Replacement funding opportunities
- Continue to provide BIZOR and OWEB administered grants that cover feasibility studies
- Support water project community engagement, including participation by representatives of disproportionately impacted communities (See HB 3293 (2021) that applies to BIZOR, ODEQ, ODFW, OHA, OWEB, and OWRD)
- Target investments so that project benefits are distributed to frontline communities equitably
- Look for ways to support the federal Justice40 Initiative, a goal that 40 percent of benefits of specific federal investments are directed toward those marginalized, underserved, and overburdened by pollution
- Develop a centralized funding platform to help link people with project-appropriate funding programs

Resources

Agency Funding Programs

[BIZOR grant, loan, and tax incentive programs](#), DLCD Housing Technical Assistance Grants (for public facilities feasibility studies in support of housing production), [OWEB Grant Programs](#), OWRD Place-based Water Planning Fund, [Feasibility Study Grants](#), [Water Projects Grants and Loans](#), [ODEQ Clean Water State Revolving Fund](#)

Many additional agency funding programs exist for project implementation

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Appendix E

Agency Priorities 2025-2033

State agencies identified three priority areas, inspired by recent conversations with federally recognized sovereign tribal nations, communities impacted by groundwater contamination in the Umatilla Basin, dry domestic well issues in several basins, increasing water scarcity that impacts people, species, ecosystems, and statewide effects of climate change.

Each priority area includes several tasks that require coordination across multiple agencies. There are 15 priority tasks summarized in the tables below. Each task relates to one or more of the 48 Strategy Actions, as listed.

The implementation of these tasks will depend upon agency capacity and the availability of other resources. Agency priorities provide a helpful reference for Strategy workplan development, budget development, and legislative pursuits.

Appendix E

Oregon's Integrated Water Resources Strategy – Agency Priorities 2025-33

	Priority Area 1: Act with Urgency to Protect Instream and Out-of-Stream Uses				
Task	P1.1 Reduce unauthorized water use and gain compliance with other water laws	P1.2 Provide guidance for what constitutes reasonable use of water	P1.3 Increase the use of existing programs and tools and develop new programs and tools that protect priority waters and/or watersheds that support instream needs and promote resiliency	P1.4 Expand efforts to protect the quality of surface and groundwater sources that provide drinking water to Oregonians	P1.5 Implement improvements to water permitting processes to improve transparency, efficiency, and effectiveness of decisions
IWRS Actions	8C, 10E, 10F, 13B	8C, 10F, 13B	10F, 11A-11E, 13B, 13C	11A-11E, 12A-12C, 13B, 13C	10F, 13B
Agency(ies)	DSL, ODA, ODEQ, ODFW, OWRD	OWRD, ODA	DSL, ODEQ, ODFW, OPRD, OWEB, OWRD	DLCD, ODA, ODEQ, ODFW, OWEB, OWRD	DOGAMI, ODEQ, ODFW, OWRD
	Achieving outcomes for many of these tasks may require coordination and/or partnership with Tribes, federal, state, and local agencies, districts, community-based and non-governmental organizations, and private entities, among others.				

Appendix E

Oregon's Integrated Water Resources Strategy – Agency Priorities 2025-33

	Priority Area 2: Assist the State and Communities to Prepare for Water Scarcity				
Task	P2.1 Increase quality and accessibility of water availability, water use, and water demand information	P2.2 Modernize water data systems and website user interfaces to facilitate wider data sharing amongst agencies and the public and enhanced customer service	P2.3 Improve understanding of instream and out-of-stream needs through increased numbers of completed basin assessments, instream flow studies, and clean water plans	P2.4 Increase the number of communities and Tribes that have completed or are participating in water planning efforts to meet instream and out-of-stream water needs, protect drinking water sources, improve water quality and promote drought resiliency	P2.5 Increase the involvement of OWRD in advisory committees for Economic Opportunity Analyses (EOAs) and implement other actions to better align land use planning and actions with water resource goals
IWRS Actions	1A, 3A, 13B	1C, 13B	1A-1D, 2A-2C, 13B	9A, 9E, 13B	6A, 13B
Agency(ies)	OWRD	DLCD, DSL, ODA, ODEQ, ODFW, OWEB, OWRD	ODEQ, ODFW, OWRD	DLCD, ODA, ODEQ, ODFW, OWEB, OWRD	DLCD, OWRD
	Achieving outcomes for many of these tasks may require coordination and/or partnership with Tribes, federal, state, and local agencies, districts, community-based and non-governmental organizations, and private entities, among others.				

Appendix E

Oregon's Integrated Water Resources Strategy – Agency Priorities 2025-33

	Priority Area 3: Adapt to Water Scarcity by Stretching Our Water Supplies				
Task	P3.1 Increase the pace and scale of completion of water reuse and aquifer storage, recovery and recharge projects that support resilience and protect the environment	P3.2 Increase the number of water users that are planning for or implementing water conservation, efficiency, or modernization efforts that support resilience or improve instream flows	P3.3 Align existing and future agency funding and incentives programs to further instream flow restoration, groundwater recharge, source water protection, and water quality and habitat improvement efforts in priority basins/watersheds	P3.4 Identify priority areas and/or guidance for new above and below ground storage that would support resilience and protect public health and the environment	P3.5 Improve water right transfer processing times for lower risk transfers to facilitate the movement of water to high-priority use
IWRS Actions	10B, 10C, 10F, 13B, 13C	7A, 9A, 10A, 13B, 13C	11A-11E, 12A, 13B, 13C	10C	10F, 13B
Agency(ies)	ODEQ, ODFW, OHA, OWEB, OWRD	OWEB, OWRD, ODA	ODEQ, ODFW, OWEB, OWRD	ODEQ, ODFW, OWRD	ODEQ, ODFW, OWRD
	Achieving outcomes for many of these tasks may require coordination and/or partnership with Tribes, federal, state, and local agencies, districts, community-based and non-governmental organizations, and private entities, among others.				

Agency Acronyms: DLCD – Oregon Department of Land Conservation and Development DOGAMI – Department of Geology and Mineral Industries DSL – Department of State Lands ODA – Oregon Department of Agriculture ODEQ – Oregon Department of Environmental Quality	ODFW – Oregon Department of Fish and Wildlife OHA – Oregon Health Authority OPRD – Oregon Parks and Recreation Department OWEB – Oregon Watershed Enhancement Board OWRD – Oregon Water Resources Department
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Appendix F

Crosswalk of 100-Year Water Vision and 2025 Strategy

What is the 100-Year Water Vision?

In 2019, former Governor Brown initiated the 100-Year Water Vision, a community engagement process to elevate water concerns of Oregonians and call for strategic investments to address these challenges. Completed in 2020, the Vision called for Oregonians to “invest strategically in infrastructure and ecosystems across all regions to support resilient communities, vibrant local economies, and a healthy environment for all who live here.” Following the release of the Vision, the 2021 Oregon Legislature made historic investments in Oregon’s water resources by passing a \$538 million water package.

Participants in the Vision process requested that public engagement input be used for the next Integrated Water Resources Strategy. The summary below shows how Vision Water System and Management Challenges relate to the 2025 Strategy actions.

Water System Challenges

Water Availability

System challenge: Many of Oregon’s water delivery systems are outdated and inefficient, increasing the chance that water will not be available for communities when it is most needed.

System opportunity: We can incentivize water conservation and reuse, and invest in modern water delivery systems statewide. Efficiency gains and updated systems will help improve water reliability for cities and counties, tribes, ecosystems, and the many aspects of a thriving economy that depend on water.



2025 Strategy Actions:

Critical Issue: Infrastructure

7A Maintain, Upgrade, Decommission Water and Wastewater Infrastructure

Critical Issue: Water Use and Management

10A Improve Water-Use Efficiency and Water Conservation

10B Encourage Water Reuse Projects

Critical Issue: Funding

13C Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Clean Water

System Challenge: Not all parts of Oregon have reliable access to clean water, resulting in increased health risks for those who live here.

System Opportunity: We can invest in resilient built and natural water infrastructure, and reduce pollutants to provide clean water for all Oregon communities.



2025 Strategy Actions

Critical Issue: Infrastructure

7A Maintain, Upgrade, Decommission Water and Wastewater Infrastructure

Critical Issue: Healthy Ecosystems

11A Improve Watershed Health, Resiliency, and Capacity for Natural Storage

Critical Issue: Clean Water

12A Ensure the Safety of Oregon's Drinking Water

12B Reduce the Use of and Exposure to Toxics and Other Pollutants

12C Implement Water Quality Pollution Controls

Critical Issue: Funding

13C Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Ecosystems

System Challenge: Not all watersheds provide cool, clean water and habitat for fish and wildlife, threatening the sustainability of those species in Oregon.

System opportunity: We can increase investments in watersheds to store, filter, and deliver water for fish and wildlife.



2025 Strategy Actions

Critical Issue: Healthy Ecosystems

11A Improve Watershed Health, Resiliency, and Capacity for Natural Storage

Critical Issue: Funding

13C Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Community Security

System challenge: Too much of Oregon's built infrastructure is neglected and not keeping communities safe, while we have not fully realized the benefits of natural infrastructure and ecosystems to protect communities from harmful floods and provide resilience to drought.

System opportunity: We can modernize our flood protection infrastructure where appropriate, while fully incorporating the benefits of natural infrastructure and ecosystems. Combined, these will help mitigate impacts of increased flooding and drought, while reducing the impacts of sea level rise to coastal communities.



2025 Strategy Actions

Critical Issue: Natural Hazards

5B Plan and Prepare for Flood Events

Critical Issue: Infrastructure

7A Maintain, Upgrade, Decommission Water and Wastewater Infrastructure

Critical Issue: Healthy Ecosystems

11A Improve Watershed Health, Resiliency, and Capacity for Natural Storage

Critical Issue: Funding

13C Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Management Challenges

Data and Information Services

Management Challenge: Communities across Oregon lack basic data and information to make strategic, long-term decisions about water investments and water management.

Management Opportunity: Good data is the foundation of wise and coordinated decisions. We can work across agencies at all levels, with tribes, and with the private sector to improve access to accurate, relevant, trusted, and current water data and infrastructure condition. We can also use science and information to anticipate future trends. Access to quality information will help communities strategically plan for and invest in their water future.



2025 Strategy Actions

Critical Issue: Water Resource/Supply Information

- 1A Improve Water Resource Data Collection and Monitoring
- 1B Conduct Additional Groundwater Basin Investigation
- 1C Enhance Interagency Data Coordination
- 1D Support Basin-Scale Climate Change Research

Community Capacity

Management Challenge: Communities with fewer resources are challenged to strategically plan for and invest in their water future and need access to a skilled workforce to implement, manage, and monitor water projects.

Management Opportunity: We can begin investing now in strong community capacity and a skilled water workforce in every region across Oregon.



2025 Strategy Actions

Critical Issue: Education and Outreach

- 8C Provide Career Training for the Next Generation of Water Professionals

Investments in Water

Management Challenge: We have underinvested in our built and natural water infrastructure, and our ecosystems. Investments in water planning and projects are not fully coordinated at the community, regional or state levels, and there has not been a concerted conversation about how Oregon will fund its future water needs.

Management Opportunity: We can coordinate our current investments and seek new sustainable, dedicated public and private funding for restoration of ecosystems, and built and natural infrastructure. Coordinated and new investments will ensure communities – including Oregon's federally recognized tribes and those people living in disproportionately impacted and rural communities - can afford and access adequate clean water, and return it to our rivers for downstream users, fish, and wildlife.



2025 Strategy Actions

Critical Issue: Funding

- 13C Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Water Investment Decision-Making

Management challenge: Oregon lacks a cohesive governance system to strategically prioritize water investments at the local and regional levels, leaving those decisions to a wide array of individuals, governments, and other interests with overlapping priorities and investment needs.

Management Opportunity: Learning from other successful models, Oregon can implement best approaches to ensure water planning and investment decisions are strategic and coordinated across jurisdictions, and with public and private partners. This system can successfully combine a state-level framework with local and regional planning and flexibility.



2025 Strategy Actions

Critical Issue: Water Planning

9A Support Place-Based Integrated Planning and Other Water Planning Efforts

Critical Issue: Funding

13C Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Education and Culture

Management Challenge: Community leaders across Oregon have limited awareness of Oregon's water challenges, the urgency to act now, and potential water solutions.

Management Opportunity: We can work with communities to build a culture and leadership that prioritizes water at the local, regional, and statewide levels.



2025 Strategy Actions

Critical Issue: Water Planning

9D Lead Meaningful Community Engagement

Oregon's 2025 Integrated Water Resources Strategy

Draft 2 Public Comment

April 7 to May 12, 2025

Comment #	Name & Organization
1	April Snell, Oregon Association of Nurseries, Oregon Farm Bureau, Oregon Water Resources Congress
2	Audie Huber, Confederated Tribes of the Umatilla Indian Reservation
3	Caylin Barter, Wild Salmon Center
4	Christopher Hall, Water League
5	Craig Lacy, Consolidated Oregon Indivisible Network
6	Daniel Elefant
7	Ethan Brown, City of Portland Bureau of Environmental Services
8	Gary Young
9	Gordon Lyford
10	Karen Lewotsky, Oregon Environmental Council
11	Karen Loomis
12	Ken Thompson
13	Kimberley Priestley, WaterWatch of Oregon
14	Melanie Klym, American Rivers
15	Michael Karnosh, The Confederated Tribes of the Grand Ronde Community of Oregon
16	Rick Eichstaedt, The Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians
17	Robin Lee
18	Robin Vora
19	Stan Dean, Oregon Association of Conservation Districts
20	Ursula Bechert

2025 IWRS Draft 2 Public Comments & Agency Responses			
Public Comment Period April 7 to May 7, 2025			
No.		Agency Response	Relevant Agency
1	Name/ Organization	April Snell, Oregon Association of Nurseries, Oregon Farm Bureau, Oregon Water Resources Congress	
	Comments	The Oregon Association of Nurseries, the Oregon Farm Bureau, and the Oregon Water Resources Congress are providing comments on Oregon’s Integrated Water Resources Strategy (IWRS) 2025-2031 Draft 2. We appreciate the time and attention provided to this important multi-agency effort. We have a few suggestions and recommendations on the document and overall process. Our primary request is that the next IWRS update be developed with a workgroup of stakeholders and agency leaders. We also request that the list of priority actions be informed by additional stakeholder feedback post-session.	OWRD
		Our associations collectively represent the largest sectors of irrigated agriculture, including farmers, ranchers, nursery growers, and agricultural water suppliers. Our organizations actively participated in the development of the legislation creating the IWRS in 2009, the creation of the first IWRS in 2012, and the 2017 update. Our board members have served on policy advisory groups, participated in open houses, and provided input on drafts. Our association’s respective staff have also engaged in various iterations of the IWRS and provided comments on previous drafts before the Oregon Water Resources Commission.	OWRD
		In comparison to previous efforts, the process for developing the IWRS 2025-2031 Draft 2 was largely developed by the agencies internally and offered minimal opportunities for stakeholder engagement. We request the next update of the IWRS be developed similar to previous efforts, with a formal policy advisory group representing the broad array of water stakeholders, including both out-of-stream and instream interests. Online surveys or virtual workshops can inform the effort but are no substitute for discussion and direct engagement.	OWRD
		We also want to highlight that the timing for releasing this draft also was less than desirable, with a short public comment period during the legislative session and at the start of irrigation season, limiting participation from associations and individuals alike. We recognize the desire to complete the current update but urge the Department to take time to finalize the draft and conduct a more meaningful and comprehensive update in the future. It is better to take the time to get it right then it is to get it done quickly.	OWRD
		The draft has several inconsistencies in how the information is summarized and presented. For example, the “Strategy Objectives” summary does not accurately summarize what is in each chapter and needs to be fully revised once the other chapters are completed. Specifically, Objective 4, inappropriately elevates (by italics and bold) the ecosystems need and has no reference to any out-of-stream need. Similarly, Objective 2 mentions consumptive water use but has no mention of instream needs. It is crucial to explicitly include both instream and out-of-stream needs, and provide examples of each throughout the document, particularly in the proposed actions. Whether it is related to consumptive water use or for streamflow, it is important the IWRS represent our complex water resources needs in a balanced manner.	OWRD
2		The document has lots of information about water needs but would benefit from additional discussion with stakeholders who can provide examples and add to the list of proposed solutions. For our members, this may involve examples of infrastructure projects, innovative technologies, or other water management strategies from a water user perspective. There is also little to no mention of the need to invest in water supply, including both above ground and below ground storage, or how new storage and delivery infrastructure may be needed to manage changes to precipitation or snowpack.	OWRD
		We also have concerns about the proposed priority agency actions, which were developed largely without stakeholder input and seem to be lopsided in prioritizing instream and ecosystem needs without proper inclusion of ways to meet consumptive water needs as well. It is unclear who developed the actions or how well they match existing agency authorities and staff resources. These actions also seem to move beyond the guidance structure of the IWRS and into policy directives, which is inappropriate without further vetting. This area will also need to be revisited after the legislative session since some of the ideas are included in proposed legislation or funding packages. Solutions for how we strategically meet our diverse water needs will be best developed through discussion with stakeholders and agency leaders outside of the legislative session.	OWRD
		We care about the wise management of water and look forward to future collaborative discussions about how Oregon can meet all of its current and future water needs.	OWRD
		Thank you for your consideration of our comments.	
	Name/ Organization	Audie Huber, Confederated Tribes of the Umatilla Indian Reservation	
	Comments	The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources (DNR) appreciates the opportunity to submit additional comments on Oregon’s Integrated Water Resources Strategy (IWRS) 2025-2031 Draft 2 revision. Foremost, we would like to extend our gratitude for your willingness to restore the structure of the IWRS to its four original tenets: 1. Understand Water Resources Today; 2. Understand Instream and Out-of-Stream Needs; 3. Understand the Coming Pressures that Affect Our Needs and Supplies; and 4. Meet Oregon’s Instream and Out-of-Stream Needs.	OWRD
		When undertaking the revision of an existing framework like the IWRS, it certainly is appropriate to consider the suitability the framework itself, and we appreciate OWRD’s investigation of this question with respect to the IWRS structure. However, in this case, a diversity of commenters have expressed that the existing foundation of the IWRS is a strong one, and we thank the agency for retaining and building upon this firm footing.	OWRD
		Regarding the contents of the Draft 2 revisions, we appreciate the opportunity to share the following specific comments: Action 2A: Determine Instream Flow Needs, Quality and Quantity Draft 2 currently highlights many of the data needs remaining to better fulfill the objectives of Action 2A. While we strongly support the implementation of these actions, we note that there also are a variety of administrative actions that are critical to determining instream flow needs. Among these needs is the resolution of protested instream water right filings.	OWRD
		While the State of Oregon is directed to file for new instream water rights, a lack of understanding of these filings has unfortunately led to many of these filings being formally protested. Instream water right filings do not cause injury to existing water users and therefore these protests will not prevail once processed. Nonetheless, the backlog of unresolved contested cases is such that the protests have had a chilling effect on the State’s responsibility to move forward on instream water right filings. Given this, we would suggest that “Resolve Protested Instream Water Rights” be called out as a bullet unto itself under this section.	OWRD

Action 10E: Provide an Adequate Field Presence

Related to the general lack of understanding surrounding instream water rights, we recognize that there also continues to be a lack of clarity as to how instream water rights are managed. The Oregon Water Code was created to encourage the development of “out-of-stream” uses, such as irrigation, of the public’s water resources. Given this, it is admittedly challenging for both water managers and water users alike to now accommodate “instream” use under this framework, as the State was directed to do by the Instream Water Rights Act of 1987. Nonetheless, that is the situation we find ourselves now, and the use of a water right used instream is to be accorded every legal protection it would be accorded when used for an “out of stream” use, like irrigation. However, we recognize that it is much more complex for Water Resources staff to manage instream water rights, but we unfortunately are aware that these complexities have sometimes led to inconsistent and inequitable outcomes for instream water rights across the state.

Please see below.

OWRD

Given this, we would like to highlight the need for greater clarity and direction to Water Resources staff statewide on how to legally and equitably administer, manage, and regulate instream water rights. While there are a number of places such a directive could be included in Draft 2, we think a bullet entitled “Provide Field Personnel Guidance on Administering Instream Water Rights” would fit well within Action 10E.

Thank you for your comment. In response to your comment, we have added your recommended example action, "OWRD to provide guidance to field personnel guidance on administering instream water rights" under Action 10E.

Please have your staff contact Audie Huber, CTUIR DNR Intergovernmental Affairs Coordinator at AudieHuber@ctuir.org or 541-429-7229, as the point of contact for further discussions on the IWRS. We thank you for your time and consideration.

N/A

3	Name/ Organization	Caylin Barter, Wild Salmon Center	Agency Response	Relevant Agency
	Comments	Wild Salmon Center (WSC) appreciates this opportunity to provide comments on the second draft of the 2025 Integrated Water Resources Strategy (IWRS) update.	N/A	
		WSC is an international nonprofit headquartered in Oregon that has worked with local partners since 1992 to protect and restore the strongest remaining runs of Wild Pacific Salmon. We use science to drive policy, lead planning processes, and support implementation, and we know that the health of our water resources is directly linked to the recovery of our iconic wild fish and the vitality of our communities and economy. Low streamflows and high water temperatures are stressing even our healthiest salmon runs, and these problems are worsening due to climate change and increased human demand for water. For all of these reasons, it is increasingly important for the IWRS to provide a clear framework for Oregon to better understand and meet instream and out-of-stream water needs.	Thank you for your comment.	OWRD
		WSC supports the restructuring of this draft to align with prior versions of the IWRS and with the framing and intent provided to the public and to the Water Resources Commission at the outset of this update.	Thank you for your comment.	OWRD
		WSC also supports the interagency effort to document “Agency Priorities 2025-2031” to guide implementation of the IWRS over the coming biennia.	Thank you for your comment.	OWRD
		However, WSC has concerns with OWRD’s decision to reformat those priorities in Appendix E, with the result that the IWRS draft no longer aligns with stakeholder outreach or the subsequent Commission presentation, and now presumes if not dictates pathways for implementation of those priorities.	Reformatting was a multi-agency decision. The further development of the Priorities took into consideration water partner input, while refining them with the exact purpose of implementation.	OWRD
		WSC recommends that Appendix E be removed and replaced with the output of the actual “sticky note” exercise completed by the Agency Directors at DLCD, ODA, ODEQ, ODFW, OWEB, and OWRD in late 2024. At a minimum, Appendix E should be reformatted to match the original content from the “sticky note” exercise (including restoring the titles of the “Priority Areas” and the quadrants within each Priority Area), and all extraneous sections (including “Tasks,” “Measurable Outcomes,” and “Milestones”) should be removed – these are properly captured in agency workplans to implement the IWRS and not in the IWRS itself.	The sticky note exercise was an early iteration and was not intended to be a final draft and was described as such. Leadership requested that Appendix E include outcomes and be structured in such a way as to support Biennial Workplan development. The priorities are intended to be implemented.	OWRD
		Finally, WSC notes that if Appendix E is retained in its current form, Priority P1.3a lists the wrong agencies (should be “ODFW” instead of “ODEQ, OWRD”), and Priority P1.3b has the same issue (should be “ODFW, ODEQ, OPRD as applicants, OWRD as processor” instead of “ODEQ, OWRD”). OPRD will also need to be added to the key at the bottom of the Appendix.	The format of the priorities has changed for the final draft.	OWRD
		Thank you for the opportunity to submit these comments.	N/A	

4	Name/ Organization	Christopher Hall, Water League	Agency Response	Relevant Agency
	Comments	Water League submits our comments to the 2025 Draft Integrated Water Resources Strategy on the following pages. We appreciate the opportuniuty to share our thoughts. [Note: Page numbers refer to the PDF document, not the document’s pagination.] Water League strongly supports the 2025 DRAFT Integrated Water Resources Strategy (IWRS). While we preferred the layout of the previous 2024 DRAFT (its holistic integration of Goals, Objectives and Chapters), we also acknowledge the rationale for this conventional layout. We miss the omnipresence of Funding in the 2024 DRAFT as a chapter unto itself, upfront as Chapter 1, and we acknowledge the unfortunate political pressure that diluted funding from being a Chapter (1 of 4) to a much diminished Critical Issue (1 of 48) placed at the back of the 2025 DRAFT IWRS. The silver lining is that this move speaks volumes, and with any luck, the financial undercurrent that flows through every single page of the IWRS will surface and become apparent, if not impossible to unsee by its very absence. To this point, we note that all 48 Actions that address each of the Critical Issues all have “bullet points” for each example, most of which are actually “dollar signs.” We recommend changing each bullet point to a dollar sign for those examples in each Action that needs funding, and to include an estimated/ projected cost/ biennium as well.	N/A	
		We are especially grateful for the IWRS appendices, which are an excellent reference library resource we look forward to using as many Oregonians and state officials will as well.	Thank you for your comment.	OWRD
		OWRD & WRC can assume if any section or provision of the IWRS is left unaddressed, it is because Water League agrees with or supports that part and no further discussion is needed. That said, there are some truly exceptional aspects of the IWRS with which we emphatically agree and deem worth noting below. Also, while we have numerous critiques throughout the DRAFT 2025 IWRS, some of which are stridently critical, none detract from our view that this IWRS update is an excellent product that OWRD, WRC, other related state agencies, and the people of Oregon can be proud of. Thank you for your excellent and hard work seeing this enormous project through.	Thank you for your comment.	OWRD
		Page 4 – IWRS said: “...as the relentless march of climate change and other challenges test our resolve to protect that which sustains us.” Comment: change “that which.” to “...all that sustains us.”	Thank you for your comment. The existing language captures the same intent and will be retained.	GO
		IWRS said: “long-held practices and expectations that are now colliding with very real constraints on our existing water supply.” “As stewards of our air, water, and landscapes, we cannot stand idly by and watch our beautiful and productive landscapes deteriorate in front of us.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD

<p>Page 6 – IWRS said:</p> <p>“With more than 100,000 miles of rivers and streams, 360 miles of coastline, and more than 1,400 named lakes, Oregon is renowned for its water.”</p> <p>Comment: This description needs to include groundwater. There must be an acknowledgment of the vast and fragile groundwater sources for which the state is renowned. Where's the reference to groundwater in any of these objectives?</p>	<p>Thank you for your comment. An infographic (raindrop) has been added for groundwater. An effort has been made to enhance the mention of groundwater in the objectives language and other places within the document.</p>	<p>GO</p>
<p>IWRS said:</p> <p>“A clean and reliable source of water is critical for meeting our basic human needs and for supporting Oregon’s economy. Thousands of businesses and industries rely on water in some form, to irrigate a crop, to manufacture a product, or to provide a service or experience. Without a better characterization of water use today, the state cannot adequately plan to meet these needs sufficiently and sustainably in the future.”</p> <p>Comment: This description is solely about understanding extractive consumptive uses -- out of stream needs -- and speaks not once about understanding the in-stream needs. How did such an omission make it into this draft?</p>	<p>Thank you for your comment. The language has been modified to capture the full balance of interests.</p>	<p>GO</p>
<p>IWRS said:</p> <p>“Water Resources Strategy must consider climate change, land-use change, and population growth.”</p> <p>Comment: Population growth in Oregon has almost no impact on the volume of water use because 78% of all water use is irrigation, and 80% of the ag products are exported and the population is decoupled from the number of irrigated acres: since 1950, the population rate increased by a rate that is 16 times faster than the number of irrigated acres. Furthermore, irrigated agriculture, which accounts for 80% of the entire Ag industry accounts for only 1.5% of the state's annual GPD, which is an insignificant economic contribution that has virtually nothing to do with the state's population.</p> <p>We critique this issue throughout the IWRS.</p>	<p>Oregon Revised Statute 536.220 requires that the Strategy describe "relevant strategy factors, including but not limited to population growth and land use change." Population growth considered at the state scale may have little impact on the overall volume of water use, however, site specific conditions can make population growth and meeting non-irrigation water demands challenging. The 2025 acknowledges this with the sentence on page 78 of the draft 2 pdf, "Some areas that experienced growth in population over the last decade were also areas with known water resource issues. Planning for future development must consider pressures on Oregon's water resources, in terms of both water quantity and water quality and impacts to the environment and ecosystem services."</p>	<p>OWRD</p>
<p>IWRS said:“Objective 4: Meet Oregon’s Instream and Out-of-Stream Needs”</p> <p>Comment: This description says nothing about meeting the state's out of stream needs, and focuses only on in stream needs. This is the exact opposite problem as stated in Objective #1.</p>	<p>This text for this objective has been expanded to include mention of the full contents of Chapter 4.</p>	<p>GO</p>
<p>Page 8 – IWRS said:</p> <p>“...to articulate more definitive outcomes that will best serve the water needs and interests of all Oregonians.”</p> <p>Comment: This means the 4.2 million Oregonians, who vastly outnumber certificated/ permitted water right holders, deserve to have their interests met related to reasonable beneficial uses of water that do not imperil ecosystem health and long-term sustainability.</p> <p>To this extent, Water League acknowledges that the 2025 IWRS update articulates the state agencies' broader 21st century mandate to manage water sources to serve the greater public interest than merely function as “client services” for water right holders, water quality permit holders, etc.</p> <p>We believe we are here today to protect and serve tomorrow. We can live well without preventing those yet to come from enjoying the same experience.</p> <p>We incorporate by reference:</p> <p>University of Chicago Press and Clark Wolf. 1995. “Contemporary Property Rights, Lockean Provisos, and the Interests of Future Generations.” Ethics 105, no. 4 (July): 791-818.</p> <p>https://doi.org/10.1086/293753.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>1) Prevent things from getting worse: protect water quantity and quality, and ecosystem need.</p> <p>2) Help communities and ecosystems prepare and adapt to water and climate changes.</p> <p>3) Increase the pace and scale of multi-benefit solutions for people and ecosystems as our water resources become more scarce.</p> <p>Comment: These three Priority Actions are excellent focus points around which all 48 Actions orbit and to which each Critical Issue relates. The first priority asserts that the future has every right to enjoy the same quality of life as we enjoy today, and that we cannot ever justify preempting posterity from access to fresh clean water. The second priority asserts that state agencies must focus on the public's interest in their welfare and concern for the ecosystems they rely upon for survival. The third priority asserts that no amount of “demand” can demand water that no longer exists in Oregon and that we must learn to live with less, especially since we can no longer regulate off the future from access to water (e.g., use the water that rightfully belongs to the future).</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 12 – IWRS said:</p> <p>“Protection, conservation, and management of our shared public resource and responsible use of public funds requires an integrated strategy based on rigorous data and analysis.”</p> <p>Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“The Strategy is needed to carry out two goals: to improve our understanding of Oregon’s water resources and to meet our state’s instream and out-of stream water resource needs.”</p> <p>Comment: Wherever grammatically correct, change “resources” to “sources.” For example, a river is a water source, it is not a resource. Water becomes a resource once it has been diverted, but before that, the water comes from a source.</p> <p>Also, please add this explanation to clarify the problem of Oregon not explicitly calling out groundwater in the same way it does surface water: “Instream and Out-of-Stream are legal terms of art; they both mean all forms of surface water and groundwater, including percolating water underground and contained water bodies, such as ponds, lakes, and reservoirs.”</p>	<p>The definition of "instream" in the callout box on the Executive summary has been modified to explicitly include the term "groundwater." An effort has been made to increase the reference to groundwater throughout the document.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“It is the platform for prioritized investments in the coming years.”</p> <p>Comment: To this extent, the IWRS is the budget template for several state agencies' funding – what's outlined in the IWRS is what needs funding. To have demoted the Chapter on Funding that was prominent in the 2024 DRAFT IWRS to an after thought in the 2025 DRAFT is a serious political mistake.</p>	<p>Thank you for your support in acknowledging the need to elevate funding.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“To streamline Oregon’s water initiatives, the 2025 Strategy will be the single statewide water planning effort carried forward.”</p> <p>Comment: This makes perfect sense. The 100-year vision is fine to mine for platitudes but the IWRS is the actual strategic plan by which Oregon manages water sources.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 13 – IWRS said:</p> <p>“A centerpiece of pursuing water equity requires bringing more voices to the table to meaningfully address the disparities regarding access to clean water across the state.”</p> <p>Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“Future workplans will include engagement with agencies, water partners, and the public in advance of biennial agency budget processes and legislative concept development to adequately support Strategy implementation.”</p> <p>Comment: Notably, development of the workplan immediately after the WRC adopts the 2025 IWRS update will be solely an agency affair and does not include the public's input. Are the state agencies burned out on public input regarding the IWRS and they need a break? The IWRS does go on to say that: “Workplan development provides an opportunity to coordinate work across many agencies and partners and must be done in a way that protects the public interest and balances instream and out-ofstream needs.”</p>	<p>The development of the 2027-29 workplan will need to begin in the fall of 2025, immediately after IWRS adoption. This provides enough time for public input in front of the agency budgeting processes that need to occur in spring 2026. Public comment for a 2025-27 workplan will be available, although the workplan will mostly be backcasting what was approved/directed by the 2025 legislative session. More information about the fall engagement opportunities will be available following Strategy adoption.</p>	<p>OWRD</p>

Page 14 – IWRS said: “Facilitation by the State: The State should provide direction and maintain authority for local planning and implementation.” Comment: Yes, statewide goals and planning within which basins may function relative to their unique hydrologic characteristics. Note: Variances in basin functions must only be justified by hydrologic distinctions and not based on other criteria. Individual communities and Tribes should be able to express their cultural heritages without restraint as related to water, but no exception should be made that harms water sources by unreasonable diminishment of streamflows, excessive declines in groundwater levels, or impairments to water quality.	Thank you for your comment.	OWRD
IWRS said: “Implementation: Actions should empower Oregonians to implement local solutions; recognize regional differences, while supporting the statewide strategy and resources.” Comment: Yes, excellent scaling: locally relevant solutions that fit within a statewide strategy.	Thank you for your comment.	OWRD
IWRS said: “Sustainability: Ensure that actions sustain water resources by balancing the needs of Oregon’s environment, economy, and communities.” Comment: Balancing at a time of water scarcity becomes highly politicized when faced with the fundamental problem of limited resources in the face of unlimited wants and needs. When in doubt, all hard decisions must ultimately favor posterity.	Thank you for your comment.	OWRD
Page 15 – IWRS said: “There is also a need to understand the instream and out-of-stream water needs of these resources to achieve a secure water future for people and the environment.” Comment: This understanding of needs is the topic of Objective 2. Perhaps this sentence should instead be a statement that ties Objective 1 into Objective 2 – one that forms the logical relationship between these two objectives, rather than just stating Objective 2 at the beginning of Objective 1.	The sentence was a carry over from an earlier draft when two objectives were captured under a data chapter. The sentence has been deleted.	OWRD
Page 17 – IWRS said: “The state needs to maintain and add to its monitoring networks to augment its long-term record, fulfill its day-to day management responsibilities, and identify trends.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “Approximately 10,000 river miles in Oregon are covered by an instream water right, but the state has limited capacity to monitor whether instream water rights are being met.” Comment: While instream water rights are an artifice, if not out-right pretense, because their junior status renders them ineffective in protecting stream flows when water is scarce, not being able to determine if the handful of senior instream water rights are being upheld exposes the hollow promise made in 1987 by its naive proponents and those who knew along how the sleight of hand would play out. Monitoring is necessary for two reasons: 1) awareness of whether the tiny fraction of instream water rights that have seniority are being upheld, but more importantly, 2) awareness of the impotence of the vast majority of instream water rights that actually do nothing to keep water in streams during the summer and fall when water is most needed in streams.	Thank you for your comment.	OWRD
Page 18 – IWRS said: “An expansive network of gages is essential for the management of Oregon’s surface water and groundwater resources, and the existing network is not sufficient.” Comment: We trust OWRD agrees with the reason why the existing stream gage network is insufficient.	Thank you for your comment.	OWRD
IWRS said: “Since the early 1990’s, the state has lacked sufficient capacity to maintain and process data from its existing network of stream gages in a timely fashion.” Comment: Anytime a lack of resources stretches beyond five biennia, then the lack of resources is a strategic political act most charitably described as unworthy of prioritization. The state of Oregon, under the leadership of officials over 30 years, has denied funding needed to reasonably understand Oregon's public water sources in the face of increasing water scarcity. Oregon has a history of avoiding accountability by saying it was unaware of problems and it has strategically not looked to uphold that pretense. How scarce does water that belongs to the public need to become before Oregon officials decide to look – decide to prioritize data collection and processing sufficient to effectively manage the water sources for the future? The 2024 IWRS DRAFT placed Funding as a standalone chapter, which Water League strongly supported. Now politics have demoted it to 1 of 48 actions the end of the 2025 DRAFT document.	Thank you for your support in acknowledging the need to elevate funding.	OWRD
IWRS said: “Action 1A” Comment: The following comment applies to all Actions 1-48 associated with Critical Issues: Nothing in Action 1A (or any of the 48 Actions in the 2025 DRAFT IWRS) will occur any differently than the current status quo without commitments by elected state officials to prioritize funding. Please add an estimated budget expense for every expense item in every Action list. If necessary, use an estimate or range. Then total up the full cost for every action table. Note the items that are already worked into agencies' budgets and which line items are budget expansions. For example, what are the costs for: “Expand gage network associated with monitoring instream water rights?” “Increase the number of stream gages with reportable water temperature data to support water quality programs?” “Increase monitoring and evaluate the effectiveness of pollution control plan implementation?”	Assigning costs to everything in the IWRS is impractical given the 8 year lifetime of the document; for example, we generally establish new contracts for gaging equipment every two years. Agency budget requests that are done during agency budget development are an appropriate time to assign funding needs with specific actions. These processes are time-consuming but result in an accurate resource request. Note that all examples identified here require staffing, equipment, and IT development.	OWRD
Page 19 – IWRS said: “Prior to 2025, the database was referred to as the Water Availability Reporting System (WARS).” Comment: Thank you for the acronym change.	Thank you for your comment.	OWRD
IWRS said: “With funding provided in 2023, the Water Resources Department has begun planning the first update to SWIMS in nearly 30 years.” Comment: This is a good example of how the only activities that get funding get done. Deprioritizing funding in the IWRS, as has been done from the 2024 to 2025 version, is a serious, if not negligent, error. Again, we recognize that it was OWRD's intent to prioritize funding in the 2024 version and politics that demoted it in the 2025 version.	Thank you for your support in acknowledging the need to elevate funding.	OWRD
IWRS said: “Future updates to SWIMS would benefit from improved understanding of surface water-groundwater interactions to better account for the impacts of groundwater pumping on water availability.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “Rule guides how the Water Resource Department determines whether water is available...” Comment: Change to: “Administrative rules prescribe how the Water Resource Department determines whether water is available...”	Thank you for the suggestion. This edit has been made.	OWRD

<p>Page 21 – IWRS said: “Groundwater is connected to surface water in various ways. Oregon water law recognizes this important connection, managing these resources as one. This is called conjunctive management. The hydraulic connection of groundwater to surface water means that groundwater use can deplete streamflow and reduce important cold-water discharge.” Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 24 – IWRS said: “In most locations, groundwater aquifers are no longer capable of sustaining additional development without leading to declining supplies for existing water users...” Comment: The IWRS cannot ignore future users and ought to include them in this and other sentences throughout the IWRS. The idea that increased restrictions on water right applications is solely for those in the present is a harmful and regressive relic of the conventional wisdom because today's decisions regarding water allocation impact the availability and quality of water sources for generations to come. Oregon must reform its ideology that contends the present matters more than the future.</p>	<p>The state agrees that today's decisions impact water for future generations. The September 2024 update to the groundwater allocation rules was one step in slowing the decline of groundwater. Additional actions will be needed, as outlined in Chapter 4.</p>	<p>OWRD</p>
<p>IWRS said: “From 2015 to 2017, the Department was able to monitor two geographic regions per year. Funding and staffing reductions now only allow for monitoring in one region every other year.” Comment: This is another example of how funding is the core factor in water management activities and how Oregonians can tell what their elected officials think is unimportant by what they fund.</p>	<p>Thank you for the comment. In addition to monitoring groundwater quality in one region of interest every other year, DEQ continues to sample groundwater quality on a regular basis in all three Groundwater Management Areas. Narrative in the IWRS has been modified to add "...in addition to regular sampling in the three Groundwater Management Areas."</p>	<p>ODEQ</p>
<p>Page 27 – IWRS said: “Measuring Ecosystem Services – Ecosystem services are the benefits that nature provides...” Comment: Ecosystem Services is an unacceptable term that emphasizes the idea that the ecosystem is a sector of the built environment or in service to some greater imperative. Ecosystem Services, a widely used term, is simply the ecosystem seen through the eyes of those who view the ecosystem as a servant. The idea that the ecosystem is servicing anthropogenic interests or simply is a way to describe an ecosystem that has not yet been degraded is wrong. The term fundamentally misrepresents the intrinsic value of the ecosystem, reducing its existence to a commodity or utilitarian “thing” for human benefit (reifying it), thereby justifying its exploitation and degradation in the name of “service.” The term even makes the ecosystem utilize itself, imputing a repulsive economic idea into the ecosystem.</p>	<p>Statute outlining the contents of the IWRS (ORS 536.220) specifically calls for the Strategy to describe "ecosystem services." However, removing the term "services" in many places in the document and using "The ecosystem provides..." appears to retain the intent. The suggested edit has been made on page 78, however there are still some locations that retain the term.</p>	<p>OWRD</p>
<p>IWRS said: “Action 1B...This action identifies additional detail needed to understand our groundwater at a finer geographic scale. Place-based water planning and future iterations of the Strategy require groundwater data at the basin or sub-basin scale. Prioritize Groundwater Basin Studies – Oregon has a need for additional basin studies to further understand the relationship between groundwater and surface water, and the availability of both.” Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 28 – IWRS said: “The 2021 Legislature passed House Bill 2018 which directed the Water Resources Department...” Comment: HB 2018 was allocated just under \$2.4 million -- was that enough and did USGS contribute a 50% match? Is the work getting done on schedule and will the 2032 deadline be met?</p>	<p>The Department entered into a cost share agreement with USGS to develop reconnaissance level water budgets for each administrative basin; this work will be completed well before 2032. In our last report to the legislature we included a projected timeframe for this work to be completed at the end of 2028. We won’t know the total USGS match until we have completed contracting and scoping; currently only phase 1 has been scoped. The initial set of statewide evapotranspiration data was published January 2025. Groundwater observation wells have been added in the Klamath, Umatilla, Deschutes, Harney, Rogue, Willamette, and Walla Walla basins. Priorities for 2025-27 include additional wells in Deschutes and Umatilla basins. The Department is in the process of analyzing where there are data gaps to prioritize additional locations.</p>	<p>OWRD</p>
<p>IWRS said: “Despite those efforts, Oregon has inadequate documentation of the number, location, and average water use of water wells.” Comment: What is the cost to rectify this problem and how long will it take? Why not require all well owners walk to the location of their wells with their cell phones and drop a pin on an OWRD app that records the location? Also require the address associated with the well, the County code number and well ID Tag, if available. The entire set of wells in Oregon could be located in short order, with some wells having more ID info than others, but all wells having a precise geotag. Non-compliance should have civil consequences.</p>	<p>We recognize the challenges associated with our well location information. Given resource limitations, this has not risen to the highest level of priority.</p>	<p>OWRD</p>
<p>Page 29 – IWRS said: “Their understanding of species and water quality needs helps determine whether a proposed use of water is in the public interest.” Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>IWRS said: “The lack of stable resources...” Comment: Nothing that is measurable proceeds without funding.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 30 – IWRS said: “While agencies have made progress scanning older documents and making newer documents available online in a searchable format, investments in information technology have been insufficient.” Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 35 – IWRS said: “...essential habitat for fish and wildlife.” Comment: Please add flora to the list.</p>	<p>The Strategy has been updated to "They provide sources of water for drinking, agriculture, industry, recreation, plants, and essential habitat for fish and wildlife."</p>	<p>ODFW</p>
<p>Page 37 – IWRS said: “...or place where water naturally flows or...” Comment: Please explicitly state groundwater reservoirs and perched aquifers.</p>	<p>The Strategy has been updated to say "...groundwater aquifer, or place where water naturally flows or occurs,..."</p>	<p>OWRD</p>
<p>IWRS said: “Without adequate water in the system and its legal protection, instream uses and associated ecological, economic, cultural, and spiritual benefits are at risk.” Comment: When citing its legal protection, refer to the Public Trust Doctrine. The IWRS cannot in 278 pages not once mention the 2,000 year standard for holding water in trust.</p>	<p>Court cases in Oregon have provided a somewhat narrow interpretation of the Public Trust Doctrine to address navigable waterways to maintain the public's right to use the waterway for navigation, fishing, commerce, and recreation. OWRD applies statutes and rules to its allocation decisions that consider the effect of allocation on public interests, but doesn’t explicitly base its decisions on the public trust doctrine. There aren't any court cases that better define OWRD's obligation under the doctrine.</p>	<p>OWRD</p>

IWRS said: “Scientists require site-specific data and studies to quantify these variable instream needs throughout the year.” Comment: Finish the sentence with: “...because over-pumping streams and groundwater reservoirs poses and inflicts significant harm.” This rationale needs to be explicitly spelled out. Before pumping, there was no need to monitor the water sources. This fact ought to be acknowledged up front to address skepticism about the needs for these site-specific studies.	Specific instream needs are based on natural conditions (utilizing long-term hydrologic records) and are independent of current uses and state of a stream system. Identifying the need and comparing that to the current state can then show the gap needed to overcome ecological harm.	ODFW
IWRS said: “...because instream values were not initially recognized under Oregon’s Water Code.” Comment: And in 1987, these values were ensconced in a pretense that instream water rights, which are junior, would retain water in streams that were over-appropriated by more senior water rights. This failure to be effective -- this knowing failure -- must be acknowledged by the state. The IWRS must not hide behind the façade that instream water rights after 1987 keep water in streams that senior water right users have a right to dewater.	Instream water rights are protective of instream flow in areas where water is still available for appropriation and when they are senior to many out-of-stream uses. In other situations, they identify a goal for the state. These goals can be utilized for flow restoration and may result in intream water rights with a more senior priotity date. More discussion on the insufficiencies of the Instream Water Right Act can be found in Appendix B ("Many instream rights are junior water rights with the practical effect that they are often are not fulfilled during the summer months.") and in Chapter 4, Action 11B.	ODFW
IWRS said: “...are one tool that can be used to protect instream needs.” Comment: This tool has never worked. Citing the top few percent of senior water right transfers to instream use only proves the point.	Instream water rights are protective of instream flow in areas where water is still available for appropriation and when they are senior to many out-of-stream uses. In other situations, they identify a goal for the state. These goals can be utilized for flow restoration and may result in intream water rights with a more senior priotity date. More discussion on the insufficiencies of the Instream Water Right Act can be found in Appendix B ("Many instream rights are junior water rights with the practical effect that they are often are not fulfilled during the summer months.") and in Chapter 4, Action 11B.	ODFW
Page 38 – IWRS said: “Without adequate water in the system, instream uses and their associated ecological benefits are threatened.” Comment: This sentence is backwards. Please fix it: "Instream uses and their associated ecological benefits are threatened (useless) without adequate water in the system."	Recommended edit has been made.	OWRD
IWRS said: “This lack of data makes water and species management challenging.” Comment: Another example of how funding deprioritization prevents water management that is in the public interest.	Thank you for your comment.	OWRD
IWRS said: “...future instream water right applications.” Comment: Please explain precisely how future instream water right applications are going to resolve the problem of streams that are over-appropriated by senior water right holders, especially during times when streamflows are lowest during the summer and fall. IWRS readers want to know.	Instream water rights are protective of instream flow in areas where water is still available for appropriation . In other situations, they identify a goal for the state. These goals can be utilized for flow restoration and may result in intream water rights with a more senior priotity date. More discussion on the insufficiencies of the Instream Water Right Act can be found in Appendix B ("Many instream rights are junior water rights with the practical effect that they are often are not fulfilled during the summer months.") and in Chapter 4, Action 11B. The fact that ISWRs do not by themselves provide flow needs specified public uses is not a reason to discontinue the program.	ODFW
IWRS said: “...but the Department currently lacks a program and technical capacity to apply for new instream water rights.” Comment: Please finish the sentence with: “.....as the result of insufficient funding due to priorities set by officials.”	Noted.	OWRD
Page 39 – IWRS said: “Data needs regarding other instream values (e.g., spiritual and cultural values and access to First Foods) need to be studied, as they are not directly quantified in instream water rights.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 40 – IWRS said: “Action 2B – Determine Needs of Groundwater-Dependent Ecosystems” Comment: Actions 2B and 2C should be part of one much larger, well-defined and fleshed-out topic. And that topic should have the two distinct subtopics that are inextricably connected together as surface water and groundwater are hydraulically connected. By separating them, it reinforces the improper assumption that 2C is only about surface water, despite the assertion that instream also means groundwater. Action 2B refers to GDE needs as if they are different from instream needs, which is a problem because the term instream is supposed to mean groundwater. Keep action 2b and 2C together and emphasize the hydraulic connection between groundwater and surface water.	Thank you for your comment. Action 2B has a separate purpose than Action 2C. Action 2C builds on Actions 2A and 2B to call for forecasts, to parallel the forecasts for out-of-stream needs (Action 3B). Throughout the IWRS, the term "instream" often includes groundwater. Action 2C narrative has been edited to specify instream forecasts include surface water and groundwater.	OWRD
IWRS said: “Groundwater is vital to both ecosystems and human communities, as groundwater discharges and supplies water to wetlands, rivers, and lakes.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “...the next important step is to quantify their groundwater quantity and quality requirements. This information can be used to help meet the needs of people, species, and ecosystems.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “Action 2C – Develop Instream and Ecosystem Instream Need Forecasts” Comment: This topic needs to be much more fully developed. In a 278 page IWRS, on-half page is less than .2% of the entire document. Please discuss the way the statewide analysis would be developed, including the agencies involved and what they would contribute, how the project and report would be funded, how legislation would be required to make it happen, and greater detail about the benefits as related to the public and environmental health.	All of these factors are unknown at this time. As part of base program, ODFW continues to develop new instream flow targets based on field studies and hydrologic data, though development is time consuming. ODFW is part way through a 5-year study that, once complete, may allow us to more broadly and efficiently predict statewide instream demand.	ODFW
IWRS said: “A parallel statewide analysis is needed to better understand the quality and quantity of instream and ecosystem needs now and into the future.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 41 – IWRS said: “The major uses of diverted water in Oregon are to supply the water needed for agriculture, municipal, industrial/manufacturing, and domestic purposes (e.g., drinking water, bathing, laundry).” Comment: Please follow this sentence on major uses of diverted water with: "(See Figure 2-1 below)."	Suggested edit has been made.	OWRD
IWRS said: “Out-of-stream water use supports many sectors of Oregon’s economy – reinforcing the need to better understand these uses to avoid negative economic impacts.” Comment: Please also add “environmental” to the impacts.	Suggested edit has been made.	OWRD

<p>Page 42 – IWRS said:</p> <p>“...market-based solutions...”</p> <p>Comment: Chasing water that fetches the highest dollar is the biggest reason why Oregon over-pumps water sources in every basin. Market-based solutions (see California) will further incentivize water mining and divert water from lower-economic beneficial uses. Oregon must repeal the statutory language in Chapter 536 that declares all water use must be for the highest economic purpose -- that is a regressive and destructive ideology from the 19th and 20th centuries we can no longer endure. Many other repugnant and harmful ideologies have been eradicated or the attempt to overcome them has been strategically implemented. The ideology that water = money must also come to an end, and it should start with the IWRS.</p>	<p>"Market-based solutions" was included in a list of many other approaches (e.g., irrigation efficiency, water conservation, water reuse, storage) providing a balanced list of tools. Market-based solutions already exist and are being used. Removing it from the IWRS would simply ignore an existing tool, not eliminate its use.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“Irrigated agriculture contributes significantly to the economy, food supply, and to local communities.”</p> <p>Comment: This claim that irrigated agriculture contributes significantly to the economy and food supply is false because it is a gross overstatement. The small rural populations do benefit substantially from irrigated agriculture; however, irrigated agriculture accounts for only 1.5% of the state's GDP, and it is only inflated when double and triple counting other economic activity in the state that is related.</p> <p>All economic activity is related in the state, no matter the specific type of activity and it is wrong to misrepresent the very small economic contribution made by irrigated agriculture. This information is well-documented in the Business Case for Investing in Water in Oregon, and that report inadvertently demonstrates what a bad case for investment irrigated agriculture is given that it consumes 78% of all water but contributes only 1.5% to the state GDP. Furthermore, irrigated agriculture is responsible for the vast majority of harm to water sources, including groundwater reservoirs and streams, and is the most significant threat to future water users and ecosystems by a vast margin than other consumptive water use types. This low dollar value to high damage ratio makes irrigated agriculture not only uneconomical, it is also a direct harm in excess of the perceived benefits. According to USGS data and the Business Case for Investing in Water in Oregon, water-dependent businesses use only 6% of all water diverted annually but account for 30% of the state's GDP. These businesses use water 260 times more efficiently when considering the business case rate of return, and they cause substantially less damage, likely 12 times less, than irrigated agriculture.</p>	<p>The narrative has been revised to "Irrigated agriculture contributes to the economy, food supply, and local communities, while continuing Oregon’s cultural heritage of agricultural production."</p>	<p>OWRD</p>
<p>The IWRS cannot continue to promote baseless propaganda. For example, declaring that irrigated agriculture contributes significantly to the food supply is facile. Oregon’ produces many times the protein and calories resident would eat in a year, but most of those calories enter the national commodity markets. Furthermore, the state does not produce enough of the diverse foods that make up the diverse/ out-of-season/ balanced diet for its residents.</p> <p>A key takeaway from the Ecotrust Report “Oregon Food Infrastructure Gap analysis” is that infrastructure barriers prevent significant local sourcing and consumption. This extensive report is just one of many reports on the subject of food production, distribution, and consumption to consider when making claims about how significant Oregon's irrigated agriculture is to the food supply. The implication is that the "food supply" is the set of calories consumed by Oregonians, which is grossly misleading.</p> <p>The IWRS cannot make such claims without demonstrative evidence. Overstating the value of irrigated agriculture to the economy and the consumption of food by residents while underestimating, if not obscuring the harms to ecosystems and posterity, is a falsehood that can no longer be tolerated.</p>	<p>See above.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“...the total annual economic contribution of irrigated agriculture to Oregon’s economy is \$7.3 billion.”</p> <p>Comment: This number, \$7.3 billion, is much larger than the real economic impact that irrigated agriculture has, and it includes indirect and induced activities that in their own right are already counted elsewhere in the state economy.</p> <p>This economic sleight of hand is useful for understanding the wider impacts of an industry beyond just its immediate production; but to do so, it double counts the same economic activity across multiple sectors. Not acknowledging these facts when including such dollar figures, especially those with no footnote, is misleading. It is notable that so much misleading information is needed to prop up the irrigated agriculture sector.</p> <p>The fact is that irrigated agriculture accounts for just under 80% of all the agricultural economic activity, which is about \$5 billion; therefore, irrigated agriculture is around \$3.8 billion, which is just about half of the number printed in the IWRS that the Business Case uses to show Direct, Indirect, and Induced double-triple counted impacts.</p>	<p>This Business Case was completed by a group of water economists. The IWRS relies on the Business Case as accurate and updated.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“Although much of the water is used to irrigate crops, there are many other uses for water within agriculture, such as water for livestock operations, which supports one of Oregon’s highest-ranking commodities – cattle and calves – valued at almost \$588 million in 2020.”</p> <p>Comment: The annual diversions in the state, the amount of water needed for cattle and calves is a tiny fraction of the water use compared to irrigated agriculture and the dollar return per gallon of water is much higher. The effect of this sentence structure (the juxtaposition of irrigated agriculture and the cattle that eat forage crops quoted above), suggests that the high ratio of dollar to water that livestock drink can carry water for the vastly lower ratio associated with irrigated agriculture. The IWRS should clarify this difference and segregate these factors to reverse the erroneous conflation by putting them into the same sentence. Livestock water use can stand alone in its own paragraph, and when Oregon's groundwater sources experience unreasonably excessive declines, herders can import their forage crops from other basins or states as every other cattle operation does that buys hay exports.</p>	<p>The sentence has been restructured and updaed with 2023 values.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“Water is needed for washing, processing, and packaging food. Finding a high-quality water supply to meet the needs of this industry is sometimes a challenge.”</p> <p>Comment: Relatively speaking, the volume of water use is insignificant compared to irrigated agriculture and clean fresh water should be prioritized for food packaging. Notably, these packaging companies are not canning forage crops that account for 55% of water used by irrigated agriculture.</p> <p>Also, almost all of the livestock is processed/ slaughtered out of the state. Oregon exports its water resources embedded within forage crops and cattle without capturing the higher economic value associated with processing and packaging meat products locally. The justification for irrigated agriculture is not found in the need for water to wash, process, and package food in Oregon, and the amount of irrigated agriculture necessary for this processed food is a small fraction of all irrigated agriculture, and likely represents the most reasonable use of irrigation water in the state.</p>	<p>The statement is pointing out an additional water supply.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>The IWRS refers to: “(Figure 3-6).”</p> <p>Comment: Correct to: “(Figure 2-1).” Figure 3-6 is in the next chapter and shows the Resources Used to Generate Oregon’s Electricity.</p>	<p>Revision has been made.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“It is important to recognize that much of the state’s industries are supported by municipal systems and not “self-supplied.””</p> <p>Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 43 – IWRS said:</p> <p>“Availability of water use data is fundamental to ensure efficient water management, effective water distribution, determine the effectiveness of water conservation actions, accurately characterize water budgets, account for water use in basin studies, and to help plan for future water needs.”</p> <p>Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 44 – IWRS said:</p> <p>“With legislative support from House Bill 2018 in 2021 and House Bill 2010 in 2023, the Department is working to establish a consistent, accurate, and well-vetted ET and water use dataset across Oregon to support water planning and management.”</p> <p>Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>

<p>Page 45 – IWRS said:</p> <p>“...a projected increase in population...”</p> <p>Comment: The increase in population is not a relevant factor in water use because 78% of all water use in the state is irrigated agriculture, and the correlation between population and irrigated agriculture does not measurably exist.</p> <p>From Water League's June 18, 2024, letter to officials:</p> <p>"In a study created for the Water Resource Committee in 1954, OSU experts predicted that irrigated lands could more than double from 1.37 million acres to 2.84 million acres in the future. Today, however, the total is 1.67 million acres, a mere 21% increase in 70 years. Irrigation expansion plateaued: OSU was off by 70%. Meanwhile, Oregon's population did not plateau; rather, it grew steadily from 1.5 million in 1950 to 4.2 million in 2020, a 180% increase in 70 years. Oregon's population outpaced irrigation expansion by a factor of nine, which is almost an order of magnitude." The 2022 USDA NASS reports that there are only 1.53 million acres of irrigated agriculture, and Oregon's population is approaching 4.3 million, which means that the population growth rate is almost 16 times larger than the irrigate acres growth rate over the past 75 years. The trend is an increasing population and decreasing total number of irrigated acres in Oregon. Therefore, there is NO justification for including any increases in population with the amount of water demand in the state. The IWRS must not misrepresent this fact because it amounts to propaganda suggesting that the number of residents in the state increases the consumptive demand measurably.</p>	<p>Population growth considered at the state scale may have little impact on the overall volume of water use, however, site specific conditions can make population growth and meeting non-irrigation water demands challenging. The 2025 acknowledges this with the sentence on page 78 of the draft 2 pdf, "Some areas that experienced growth in population over the last decade were also areas with known water resource issues. Planning for future development must consider pressures on Oregon's water resources, in terms of both water quantity and water quality and impacts to the environment and ecosystem services."</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“Demand forecasts should identify trends in water use, economic development, urban-rural population growth/shift, per capita demands, and changing crop water requirements due to a changing climate.”</p> <p>Comment: Demand is almost certainly to continue trending downward as the number of irrigated acres declines due to over-pumping groundwater reservoirs and streams. Oregon grossly over-appropriated nearly all water sources in every basin, over-pumping is causing the decline and destruction of too many water sources, and climate change is reducing the available water. Any reasonable future projection of consumptive water use in most basins will likely be smaller than in 2024.</p> <p>The conventional wisdom that states consumptive demand always goes up as if it were like monetary inflation is spurious and reckless. Unlike money, water is pegged to hydrologic reality.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 45 – IWRS said:</p> <p>“...the need to resolve claims to the use of surface water that predate Oregon’s 1909 Water Code.”</p> <p>Comment: Requires funding to allocate sufficient staff time to process all these claims. List the estimated range of funding and time required to give readers a better understanding of the scope to the project.</p> <p>Page 51 – IWRS said:</p> <p>“...and increased pressure for human uses.”</p> <p>Comment: The pressure is from humans is from outside of Oregon – those humans who enjoy the agricultural product that are unreasonably draining Oregons water sources (what say you, China, Japan, Saudi Arabia, United Arab Emirates, etc. – why won't you grow your own hay?).</p> <p>The pressure -- 78% of which -- is irrigation. Domestic and municipal uses are about 1/8th as much volume. The ambiguous reference to “human uses” misrepresents the fact that vast amounts of irrigation have little to do with Oregon's 4.2 million residents and that the problem is not pressure from 4.2 million Oregonians; rather, it is pressure from less than 1% of the state's population producing agricultural products that are exported with a tiny 1.5% contribution to the state's GDP.</p> <p>There is no justice in blaming all this damage on abstractions -- “human uses” -- when there are factual concrete realities that describe precisely what the problems are. If Oregon's population can grow at 16 times the rate of irrigated acres over the past 70 years, then there is no justice in blaming all humans for the actions of a few. Irrigation is a substantially isolated economic activity, turning water into dollars that only a very few benefit compared to the entire population.</p>	<p>A sentence has been added to reflect the need for additional resources to pursue this work. The range of funding would depend on the areas being adjudicated. The unknown duration, tied to the court system, makes this number even more challenging to estimate. For example, the work on the Klamath began in 1975 and is still in process.</p> <p>The full sentence "Oregon's wetlands, estuaries, lakes, rivers, streams, and aquifers are receiving less natural recharge and experiencing more evaporation and increased pressure for human uses." Changing the word from "human uses" to "irrigated agriculture" would not retain the intent of the sentence. Certain areas of the state are experiencing increased pressures for recreational uses, or data centers. The statement is intentionally broad.</p>	<p>OWRD</p> <p>OWRD</p>
<p>IWRS said:</p> <p>“Oregon’s annual average temperature has warmed by 2.2 degrees Fahrenheit (°F) per century since 1895.”</p> <p>Comment: There's only been one century. Perhaps just “since 1895” or “over the past 130 years.”</p> <p>Page 53 – IWRS said:</p> <p>“Climate Change Impacts”</p> <p>Comment: Yes: all of these impacts can harm the public health, safety, and welfare. The IWRS should work to minimize the harm to the greatest extent possible for current and future humans, flora, and fauna, especially since humans are responsible for causing climate change.</p> <p>IWRS said:</p> <p>“...significant challenges for water management.”</p> <p>Comment: We are interested in knowing how and why the listed factors will pose challenges for water management -- perhaps list a few examples. We agree they will, we'd just like to see how the challenges complicate water management.</p> <p>Page 54 – IWRS said:</p> <p>“Climate change may significantly affect the availability and use of water for irrigation.”</p> <p>Comment: Water League emphatically agrees. Demand for water in an arid region with severely degraded water sources...yeah, no.</p> <p>IWRS said:</p> <p>“With projected rises in temperature, irrigation demands are projected to increase by at least 10 percent in arid and semi-arid regions, translating into higher pumping and energy costs.”</p> <p>Comment: Meanwhile, the trend is declining numbers of irrigated acres commensurate with declining groundwater levels and streamflows. It is all but certain that the demands for irrigation water use will go up, but that does not drive nor justify the supply of available water. The irrigated agriculture industry is shrinking and will continue to shrink and it will at all times be a destructive force harming ecosystems and the public health, safety, and welfare in the present and future to an unreasonable degree.</p>	<p>The language came directly from the 7th Climate Assessment.</p> <p>Thank you for your comment.</p> <p>Challenges will depend on scale and who is doing the water management. No additions have been made.</p> <p>Thank you for your comment</p> <p>Thank you for your comment.</p>	<p>OWRD</p> <p>OWRD</p> <p>OWRD</p> <p>OWRD</p> <p>OWRD</p>
<p>IWRS said:</p> <p>“The shift in timing and availability of water due to climate change may affect whether water users are able to utilize their water rights as authorized.”</p> <p>Comment: This reduced water availability is certain -- it will occur at different rates in different locations. The IWRS should be more upfront about the reality that water rights will become increasingly worthless as they authorize water use that over-pumps water sources that are inexorably declining.</p> <p>IWRS said:</p> <p>“...may no longer be adequate...”</p> <p>Comment: Instream water rights have never been adequate; they've been a symbolic gesture as ineffectual junior rights to senior consumptive rights.</p> <p>Page 55 – IWRS said:</p> <p>“Oregon must consider how to prepare for climate migration to avoid economic disruption, housing shortages, and over-burdened infrastructure.”</p> <p>Comment: If people want to move here, then provide for opportunities within the 1973 SB 100 regime: provide urban in-fill opportunities and prevent sprawl. Oregon can easily support a larger urban population, but it cannot support a larger suburban and rural population. The population has very little impact to consumptive water use but it does have a severe impact on land use. If necessary, cities should purchase irrigation water rights to the reasonable extent possible and limit growth when proximate water sources have been all bought up and water right limits have been hit.</p>	<p>The statement correctly captures the range of impact water users may experience.</p> <p>Thank you for your comment. The IWRS explains the challenges faced by instream water right in several places, including Action 11B and Appendix B.</p> <p>Thank you for your comment.</p>	<p>OWRD</p> <p>OWRD</p> <p>OWRD</p>

IWRS said: “The program is designed to reduce these emissions by 50% by 2035 and 90% by 2050.” Comment: Please explain to the readers where we are related to these targets -- the assumption is that were are either far behind or even worse off?	The following narrative has been added to the IWRS, "Some transportation sector emissions reductions have met or surpassed program emissions targets, but overall state emissions in 2023 were down about 7% from the 2017-2019 baseline. The Climate Protection Program covers just over half of current overall emissions, so that subset should see future reductions in line with the 50% by 2035 and 90% by 2050 targets."	ODEQ
IWRS said: “Oregon’s Planning Goal 3 (agricultural lands) and Goal 4 (forest lands) help keep these lands in production, rather than converting them to other uses and releasing sequestered carbon.” Comment: Industrial agriculture and vast clear cuts and “near cuts” are hardly net mitigators of carbon dioxide. Who pushed for this statement to be included in the IWRS? This false dichotomy is an extraordinary claim to put in the IWRS; it should be excised. Numerous scientific studies and reports from the IPCC clearly identify industrial agriculture and deforestation (including clear and “near” cutting) as significant contributors to climate change. The really galling aspect of this statement is not just how unscientific it is, but the presumption is that there is only one unnamed alternative, which emits greater greenhouse gasses. Does the IWRS assume that if unsustainable and destructive industrial agricultural and forest practices were halted then some other worse activity would necessary descend upon the lands and cause even worse damage? (We acknowledge that this discussion is held in greater detail on page 135 under the Critical Issue “Healthy Ecosystems”). Are we to believe that state officials reject the alternative that uplands and lowlands can be left unmolested? Or are some political lobbyists that powerful? Are we to assume that there is insufficient political interest in preserving such lands, and/ or that all efforts must be made to develop those lands if the forests aren't clear cut on a regular basis and the earth isn't denuded of topsoil and water-holding capacity? Given all the understandable hand-wringing about climate change in this chapter, this sentence stands out as protectionist propaganda in favor of the destructive forest and agricultural practices that contribute substantially to climate change.	Land kept in agricultural production or forestland management may offer more carbon sequestration and less carbon emissions than a sprawling automobile-dependent urban development, but this does need to be couched in land use planning goals. The IWRS has been modified to delete "Oregon's Planning Goal 3 (agricultural lands) and Goal 4 (forestlands) help keep these lands in production, rather than converting them to other uses and releasing sequestered carbon."	DLCD
IWRS said: “Protection of ecosystems is a best practice, but restoration of degraded ecosystems can yield climate mitigation benefits.” Comment: The conjunction “but” is not logically connecting the two parts of the sentence because restoring degraded ecosystems is akin to ecosystem protection -- restoring and protecting are not opposites; they are quite similar. Also, following immediately after the sentence that defends two harmful carbon emitting practices on the pretense that residential development is only one other alternative that is far worse, is a nonsequitur.	"but" has been replaced with "and"	OWRD
Page 56 – IWRS said: “Actions that protect and restore Oregon’s green and natural infrastructure may provide the added benefit of carbon capture or storage.” Comment: This sensible statement directly contradicts the irrational statement just above that uses Oregon's planning Goals #3 and #4 as a pretext (goal-washing?) for the harmful and substantial carbon emissions related to industrial agriculture and deforestation practices.	Thank you for your comment.	DLCD
Page 59 – IWRS said: “The use of water and energy are highly interdependent...” Comment: Rewrite: "Water and energy uses are interdependent." Otherwise, this entire section is well thought out and an important contribution to the IWRS.	Suggested edit has been made.	OWRD
Page 60 – IWRS said: “Figure 3-6 Resources Used to Generate Oregon’s Electricity” Comment: Almost a quarter of all energy on the wholesale bidding markets is a mix of electricity from unknown sources. In this case, the “Unspecified” portion is likely from the CAISO that does not have the ability to discern what's coming into Oregon through the Malin substation. The IWRS should find out more about this specific topic and write a short paragraph about it, including the various sources that makeup the Unspecified portion. Why would this information be helpful? When the Swanlake North Pumped Storage Hydro claims it is green energy, it is grossly misrepresenting the facts. If it begins production, it may not know where a large portion of its electricity comes from, and it won't be able to claim green energy purchases from renewable energy sources because it will be backed into the corner of buying whatever the the absolute cheapest electricity, which will include a substantial portion of fossil fuel based energy.	Thank you for your comment. It is beyond the scope of the IWRS to conduct a detailed analysis of "unspecified" energy sources. The state is currently in the process of producing its first Energy Strategy, planned for publication in 2025.	OWRD
IWRS said: “Statewide goals to reduce greenhouse gas emissions while meeting future energy demand elevates the need for improving efficiency of existing facilities and developing alternative energy projects.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 61 – IWRS said: “Pumped storage systems are less frequently considered for existing infrastructure (e.g., occupying a brownfield site rather than developing a greenfield).” Comment: Except, of course, the Swanlake North Hydroelectric project that is not only proposed for a Greenfield site, but more importantly, is poised to desecrate some of the most revered ancestral sites of the Klamath Tribes. OWRD did not sufficiently consider this issue when it issued HE 617 to the Swanlake pumped storage hydro project.	Noted.	OWRD
Page 63 – IWRS said: “Significant efficiencies could be realized from coordinating energy conservation and water conservation efforts.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 65 – IWRS said: “Addressing the water-energy nexus cannot occur in isolation; the state must focus on cross-sector and cross-agency collaboration to develop solutions. Oregon’s state agencies, working with their civic and industrial partners, should focus efforts on maximizing the efficient use of our water resources, particularly with respect to the generation of low-carbon electricity. Developing new partnerships between the water and energy sectors to better understand how energy is used in water services and how water is used in energy production is critically important.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 66 – IWRS said: “Recognizing that natural hazards or extreme events, such as drought, floods, and earthquakes occur...” Comment: Please add fires to the list of natural hazards.	"Wildfires" has been added.	OWRD
IWRS said: “Public, private, tribal, and non-profit organizations working together, as well as individuals who take personal responsibility for thorough preparation, will be critical for Oregon to withstand these extreme events.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “Drought is not an abnormal occurrence in Oregon...” Comment: Rewrite: "Drought is a normal occurrence in Oregon..."	Suggested edit has been made.	OWRD

IWRS said: “These conditions can lead to limited water quality and quantity for fish, wildlife, livestock, drinking water beneficial uses, and crops, reduced irrigation deliveries, and poor yields.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 67 – IWRS said: “...droughts can generally be characterized by an increased demand or decreased supply of water. Comment: In Oregon, the anthropogenic activity that causes both an “ increased demand or decreased supply of water” is substantially caused by over-pumping streams and groundwater reservoirs. While climate change, the result of over-pumping oil and gas, has reduced annual recharge precipitation and increased the Vapor Pressure Deficit, these effects do not put electric pumps into streams and aquifers, which remove many times more water from Oregon's water sources than does climate change. In fact, over-appropriation of all of Oregon's surface waters occurred long before climate change became unmanageable, and to this day, climate change has still not figured out how to pump out and drain aquifers the way humans with electric water pumps and drill rigs do. Nonetheless, those who overpump Oregon's water sources as delighted to blame climate change for the destruction they have wrought and have state officials and the media uncritically go along with the subterfuge.	Thank you for your comment.	OWRD
IWRS said: “Hydrological Drought – Occurs when surface and subsurface water supplies are below normal, caused by shortfalls in precipitation, including snow.” Comment: “ ...surface and subsurface water supplies are below normal” as the result of over-pumping during every irrigation season, and they are made worse during the driest periods resulting from prolonged drought. Hydrological Drought is cause by irrigation over-pumping far more than climate change. Over-pumping is the leading cause of hydrological drought. The IWRS cannot ignore this fact. The misrepresentation that Natural Variability dries out groundwater reservoirs is obscene. Does drought reach 100' to 1,000' below the surface and pump water out of the ground? No, only electric pumps do. Do tree roots reach as deep as irrigation wells? No. Drought reduces precipitation, which is a normal naturally variable fact of nature (made worse by anthropogenic climate change), and before over-pumping groundwater reservoirs occurred in the late 20th century, the deficit between annual recharge and discharge was unremarkable. Is the 110,000 acre feet deficit in the Harney Basin a result of drought? No! The deficit is the result of over-pumping since 1990, when discharge resulting from pumping groundwater overcame annual recharge. Hydrologic Drought is the result of over-pumping Oregon's water sources, and the problem is only exacerbated when annual recharge, which is normally variable, is below average.	The drought definitions are taken from the National Drought Mitigation Center. IWRS acknowledges the impacts of irrigation on water supply in many places throughout the IWRS.	OWRD
IWRS said: “Agricultural Drought – Occurs when the amount of moisture in the soil no longer meets the needs of a particular crop. This type of drought links together the various characteristics of meteorological (or hydrological) drought to agricultural impacts.” Comment: Amazing rhetorical sentence structure that makes Agricultural Drought the result of climate variability but not the result of over-pumping. Wow. The reason why “the soil no longer meets the needs of a particular crop” is because there is no water left in the stream or groundwater reservoir by July or August, or because the Bureau of Reclamation or the Watermaster has regulated off junior irrigators. Any time soil moisture drops below the optimal range for any crop, the irrigator turns on the electric pumps and waters their plants. The only reason Agricultural Drought occurs is because those irrigators have no access to water due to the over-appropriation of nearly every water source in every basin in the state. This section on drought definitions is extraordinary for how wrong it is. The IWRS cannot perpetuate such gross misinformation no matter where it sourced this information.	The drought definitions are taken from the National Drought Mitigation Center. IWRS acknowledges the impacts of irrigation on water supply in many places throughout the IWRS.	OWRD
IWRS said: “...managed hydrology...” Comment: Is this a new term or euphemism for water management? Ecological Drought seems like the same thing as hydrological drought since the very streams and groundwater reservoirs that are declining are the ecosystem.	The drought definitions are taken from the National Drought Mitigation Center. It appears the definition of ecological drought is being more explicit about the role of human water use, i.e., managed hydrology and its impacts to ecosystems.	OWRD
IWRS said: Action 5A – “Explore ways to protect minimum stream flow s during drought declarations.” Comment: Typo – fix the word “flows.”	Typo has been fixed.	OWRD
Page 68 – IWRS said: “The Governor can issue an Executive Order to declare drought—either independently or in response to a request by counties.” Comment: Is the declaration an irrigation centric process that requires a minimum number of senior calls? Is drought declaration solely about getting irrigators more water, and when that fails or is maxed out, retreating to preserve domestic and livestock?	No, the declaration process does not include a minimum number of senior calls. The declaration process uses hydrologic and climate conditions to make the determination. A declaration is not solely about irrigation and may help elevate risks associated with wildfire and limited municipal water supply.	OWRD
Page 69 – IWRS said: “Drought declarations focus on managing human water needs but do not provide additional protections for instream flows or ecosystem needs. Additional work is needed to protect minimum stream flows during drought declarations.” Comment: So, are drought declarations first about getting more irrigation water, and second prioritizing domestic and livestock if the drought is really bad, but there is Zero consideration for the streams and groundwater reservoirs? We agree -- the state must institute ecosystem protections during drought declarations -- the anthropogenic supremacy ignoring the harm to the ecosystem by over-pumping during drought is callous and destructive. Over-pumping groundwater during drought when surface water is unavailable is the ultimate Ponzi Scheme. The IWRS must call for ecosystem protections by the state when the Governor declares a drought emergency.	IWRS Action 5A includes example actions "identify, assess, and assist those communities and ecosystems most vulnerable to drought and wildfire" and "explore ways to protect minimum stream flows during drought declarations"	OWRD
Page 70 – IWRS said: “Riverine flooding” Comment: Please explain for readers that riverine flooding is made much worse by destructive forest practices that reduced the significant canopy and forest duff layers, increasing the sheer quality of the ground surface, contributing to substantially more runoff. Instead of a sponge, the surface is more like a porcelain plate that the water sheds off. These destructive forest practices are equal to or worse than the harmful effects of forest fires on siltation and flooding.	The definitions are drawn from the NHMP and will not be expanded. The IWRS explains impacts of deforestation under "Healthy Ecosystems."	OWRD
Page 71 – IWRS said: “Oregon should research how changes in land use, land cover, forest cover, and watersheds—including upstream impervious surfaces, geomorphology, logging, and forest fires—may change the location, strength or duration of floods, flood ways, and flood discharge. This information could be beneficial to local planning efforts.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “Increased Risk Following Wildfires” Comment: Change the title to: “Increased Risk Following Wildfires and Clearcuts.” Destructive forest management practices have the same serious negative impacts as forest fires.	This section is specific to wildfire landcover impacts. Chapter 4 addresses forest management practices and impacts on water quality.	OWRD
IWRS said: “After a wildfire, the charred ground repels rainwater, increasing the risk of flooding and debris flows for several years.” Comment: Change this sentence to: “After a wildfire and clearcut, the charred, compacted, and denuded ground repels rainwater, increasing the risk of flooding and debris flows for several years.”	This section is specific to wildfire landcover impacts. Chapter 4 addresses forest management practices and impacts on water quality.	OWRD
Page 74 – IWRS said: “These include numerous potential points of system failure at reservoirs, intakes, treatment plants, pump stations, and outfalls.” Comment: Add wells -- every well casing under sufficient pressure will shear.	Additional narrative has been added to this section to describe the risk to wells and potential impacts from an earthquake.	OWRD

Page 76 – IWRS said: “Land and water are connected in many ways.” “This is an important step in determining how best to develop the land to protect the quantity and quality of our water resources. The statewide land use program and its implementation by cities and counties is an important framework for integrating water resource issues with land use and development decisions.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “Considering Oregon’s projected changes in population, industrial, and commercial growth, communities need to adequately plan and prepare for meeting a larger demand on a shared resource.” Comment: Since irrigation use is 8 times larger than all municipal and domestic uses combined, this statement that larger demand on a shared resource is misleading: we will never conserve our way to a sustainable future by putting the onus of planning, conservation and sustainable water/ land use practices on the backs of only 10% of the total water use. Commensurate conservation and sustainable use will have to come from the irrigation sector if Oregon is to protect posterity and the ecosystem all life relies upon. The annual deficit between recharge and discharge in the Harney County is 110,000 AF, which is the total amount of water Portland uses annually. Obviously, Oregon is not shipping water from the Harney Basin to Portland, but there are significant water use diversions west of the Cascades that dwarf all the municipal and domestic uses that are collectively draining aquifers and dewatering streams during this period of worsening effects caused by climate change. 4.2 million Oregonians do not eat and wear the substantial amount of irrigation in the state of Oregon; in fact, 55% of all irrigation goes to animal forage crops, and the vast majority of cattle are shipped out of the state. While studies have not been conducted, substantial amounts of irrigation water west of the cascades population centers is used to produce export products, leading to Virtual Water Exports.	Thank you for your comment.	OWRD
Since climate change has caused the reduction in annual winter recharge, the entire state has been and will continue to experience water deficits to varying degrees, basin by basin. Therefore, Virtual Water Exports are real exports of water when aquifers and streams are drained and dewatered due to overpumping and the water sources are not sufficiently recharged.Oregon is going to have to stop destroying our forests' abilities to soak up and infiltrate water into the groundwater reservoirs and stop over-pumping streams and aquifers. No amount of blaming suburban and urban residents for this destruction will ever solve the existential problem of draining water sources and exporting those products out of state for a minuscule economic benefit in the short-term.	Noted.	OWRD
IWRS said: “Efforts aimed at directing development to appropriate areas and minimizing the impact of development can help meet statewide goals related to protection and use of water resources.” Comment: See comment just above -- blaming development for the over-pumping of water sources is the problem: the convention wisdom that says it's the city/ suburb dwellers, and not the irrigation pumpers (who are responsible for 80% of all extractions), is an unsustainable fallacy. We acknowledge that there are regions where municipalities and development sprawl harms water sources, but they are no where near the extent of the problem that irrigation is. We also acknowledge that there are very strong reasons/ justifications for limiting sprawl based on land use concerns; however, instead of using those land use concerns, officials and opponents to sprawl attempt to use water use as the limiting factor, which is wrong. We reject this sleight of hand because it results in misrepresenting domestic and municipal water uses to advance concerns about land use. The Thornburgh Resort development is a heinous land use concept, but, hypothetically speaking, if it were to buy out and transfer all the irrigation water rights six miles to the west in Cloverdale, and pump that water east, the water use concerns could not be justified. There are over five square miles of irrigated lands that could equal as much as 8,000 acre feet of irrigation water, which is more than three times as much water that resort ever proposed to use.	OWRD data show that there is little or no water available to allocate for new uses, however, cities still have room to grown into their <u>existing</u> water rights.	DLCD
Page 77 – IWRS said: “Resources are needed to support communities in updating their Goal 5 resource inventories.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 78 – IWRS said: Regarding updating comprehensive plans: “The process was once mandatory, but now is voluntary.” Comment: What is the reason why -- was it political lobbying pressure? This is not just a rhetorical question, please do explain why – readers would like to know.	The requirement to periodically review comprehensive plans is now entirely voluntary for two reasons: 1) the periodic review process can be complicated and arduous as DLCD implemented it, resulting in the Legislature removing the periodic review requirement first for most counties and then for smaller cities; and 2) in 2009 the Legislature eliminated technical assistance funding because of budget shortfalls after the great recession, and the Land Conservation and Development Commission decided not to require any cities to do periodic review if the State of Oregon could not provide technical assistance funding to help them through this program.	DLCD
IWRS said: “Recent population projections indicate a slowing of statewide growth, compared with what Oregon has experienced in recent years.” Comment: We agree and said as much in our testimony for SB 1537 in 2024. While we strongly support the Governor's initiative to increase housing within UGBs, particularly urban in-fill, the projections of population growth surrounding that bill were unfounded -- they were far off of PSU's research. It appeared that the overstatements were designed to get the bill over the goal line.	Thank you for your comment.	OWRD
IWRS said: “Planning for future development must consider pressures on Oregon’s water resources, in terms of both water quantity and water quality and impacts to the environment and ecosystem services.” Comment: Population growth and the volume of water use in Oregon are NOT meaningfully correlated. While Oregon's population grew from 1.5 million to 4.27 million over the past 75 years, irrigated agriculture, which uses nearly 8 out of 10 gallons every year has only increased from 1.3 million acres to 1.53 million acres. The population has grown at a rate 16 times faster than irrigated acres, and the volume of water use has barely increased. The IWRS cannot misrepresent the facts about who is using how much water, especially when so much water use results in substantial exports of agricultural products that barely contribute to the state's GDP. It's one thing to participate in harmful protectionism of destructive irrigation practices, and quite another to then blame the destructive water use on the 4.27 million Oregonians who are not responsible for that water use.	"Future development" could include many things. Data centers have a notable impact on water resources.	OWRD
Page 79 – IWRS said: “Meeting housing need will require cities to implement strategies that reduce per capita water demand to successfully facilitate production while minimizing impacts on water supplies.” Comment: For every municipal gallon of water conserved, there must be 8 gallons of regionallyproximate irrigation water conserved. That is the ratio of water use: irrigation uses 8 times as much water as public water supply systems. Putting the blame and responsibility onto municipal supplies and not also requiring commensurate water use conservation from irrigation users is not only prejudicial in its inequity, but highly asymmetrical public policy that puts forage and non-human crops over the lives and welfare of the public and the ecosystem they care about and wish to preserve for posterity.	All water rights holders need to work within the volumes they are allowed. The IWRS can't change water law to switch a water right from an agricultural use to a municipal one.	DLCD

Page 80 – IWRS said: “Since rural development typically relies on wells, counties need data on the availability of groundwater early in the planning process to make informed decisions on what density of development to permit in rural development zones.” Comment: The context of citing rural development ought to include a discussion about how exempt use domestic wells, of which there are 225,000 in the state, account for only 1% of all water use, and with regard to just groundwater, account for only 4% of all groundwater extractions despite comprising 88% of all wells. The presumption that siting new exempt use domestic wells is a concern when there are vast industrial irrigation extractions in the vicinity already taking out 20 times as much groundwater (or 80 times as much when including surface water) and that those vast extractions are protected over human consumption, is an anathema to communities, ecosystems, and posterity. We acknowledge 1) there are specific sub-basins/ watersheds that are over-pumped by irrigation and are designated as Groundwater Restricted Areas and 2) there is runoff from industrial/ agricultural operations causing Groundwater Management Areas that make siting rural residential properties impossible. Also, there are areas that have unique geologic formations that hold very little groundwater, are fragile, and that there are areas where the hydraulic connectivity to surface water protected by Scenic Waterways limits water use (notably, exempt uses, such as those from domestic wells, are generally exempt from Scenic Waterway restrictions because they use so little water).	For the reasons you listed regarding site specific conditions, the current text in the IWRS is appropriate.	OWRD
These details should be added to avoid this topic from being a facile commentary on “water as a limiting factor to rural residential development.” Water League strongly supports urban in-fill development over sprawling rural residential developments encroaching onto open land and forests, not to mention the unreasonable risk found at the Wildland-Urban Interface (WUI). The IWRS should leave the limitations to residential development to the WUI and back off using water as the limiting factor as related to exempt use domestic wells.	Noted.	OWRD
IWRS said: “Of primary concern, local land use decision makers need more information about groundwater quality and availability at specific locations, as well as the long-term ability of local aquifers to yield water, when making decisions about appropriate locations for development, particularly in those rural areas already designated as groundwater administrative areas.” Comment: Should of thought of that back in the 20th century when OWRD was over-appropriating all the surface and groundwater sources for irrigation uses, which dwarf domestic and municipal uses. Obviously, we recognize that OWRD was under intense political and lobbying pressure to approve subprime water right applications for irrigation, but still...	Noted.	OWRD
Page 82 – IWRS said: “Runoff from urbanized lands and impervious surfaces such as paved streets, parking lots, and building rooftops during rainfall and snow events often contain pollutants that negatively affect water quality.” “Urban runoff is a major source of degraded surface water quality and can also contaminate groundwater.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “The goal is to treat stormwater runoff at its source before it reaches the storm sewer system, reducing stormwater infrastructure maintenance, and reducing downstream impacts to receiving streams.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 84 – IWRS said: “Built and green (i.e., natural) infrastructure used to store, transport, distribute, disperse, collect, and treat water is an important, but often overlooked, piece of our collective water management and stewardship responsibilities.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “...for a variety of public health and safety reasons, but also for meeting our state’s economic needs.” Comment: Add: "and for protecting the ecosystem from polluting and over-pumping water sources."	The sentence has been revised to include "and protecting ecosystems" right after "public health and safety reasons"	OWRD
IWRS said: “Examples of built water infrastructure include:” Comment: Add: "berms, swales, shallow depressions, and earthworks." These earthworks control flooding, manage diffuse water runoff, assist groundwater infiltration, and can reasonably be considered as part of the “saving soil” and “improving water quality” in ORS 537.141(e).	A bullet has been added "Soil saving practices (e.g., terraces, dikes, retention dams)"	OWRD
IWRS said: “When wells, dams, or levees have significantly deteriorated, the costs of repair may exceed the expected benefits, and proper decommissioning and removal may be a less expensive and more environmentally beneficial alternative.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 86 – IWRS said: “There is a need to continue supporting irrigation modernization projects that lead to water conservation and benefit agriculture as well as fish and wildlife.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 87 – IWRS said: “There are other levees in Oregon that have not been maintained to federal standards, nor are they part of the Corps of Engineers certification program.” Comment: Refer to the recent March/ April 2025 levee failure in Harney County as a way to put a relevant and fine point to the importance of the matter.	Narrative about the 2025 levee failure has been added under Action 5B Plan and Prepare for Flood Events, under the heading "Dam and Levee Failure."	OWRD
Page 88 – IWRS said: “Business Oregon has recently completed a rulemaking allowing them to provide funding for regionalization projects.” Comment: Change to: “...has recently completed rulemaking that can provide funding for regionalization projects.”	Wording was provided by BizOR and will be retained.	OWRD
Page 90 – IWRS said: “...to require remote monitoring on deficient, high hazard dams.” Comment: What is considered deficient relative to the “satisfactory, fair, poor, and unsatisfactory” categories? Knowing this would be helpful.	The condition ratings (satisfactory, fair, poor, and unsatisfactory) are not in statute or rule; they are only assigned as a requirement for OWRD FEMA grants. Therefore condition ratings do not factor into the determination that a dam is deficient. Deficient related to monitoring of high hazard dams means a dam that has been declared to be Potentially Unsafe or Unsafe (defined in statute and described in rule). Clarifying language has been added to the Strategy.	OWRD
Page 91 – IWRS said: “Establishing formal grant and loan programs would allow owners to make seismic and flood related upgrades, rehabilitate unsafe dams that still have value, or to provide funds for removal of dams that no longer provide benefits.” Comment: How is this dam safety funding related to HB 3364, which adds to ORS 541.566, Feasibility Grants, the: “(p) Analyses associated with evaluating the safety of existing dams and evaluating actions to address safety deficiencies related to existing dams”? Water League opposed the concept that OWRD would fund non-governmental agencies to conduct dam safety. Please explain what types of dams are eligible for grant funding, and do experts need to be grant fund recipients or can anyone conduct their own assessments on their private dams? What are the standards?	All Feasibility Study Grant proposals are evaluated on their technical preparedness, study goal, water need, and community involvement. Technical preparedness includes that appropriate personnel and resources are identified to conduct the study, and that all technical details are included and accurate.	OWRD

IWRS said: “The existing Dam Safety Program provides for periodic review of dams, only in relation to human safety and property. Dams requiring upgrades to meet safety requirements may trigger fish passage laws. Periodic reviews for hydrologic or ecological harms would require additional authority and resources for several agencies.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 92 – IWRS said: “Agencies and many types of partners can provide the public, and one another, with information about our water resources and challenges to help everyone engage in water stewardship actions.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 93 – IWRS said: “Water professionals are needed in a wide range of specialties...” Comment: Add state agency water management experts to increase with the need to implement and enforce water use and water quality standards in proportion to increasing water scarcity. These staff are needed to protect water sources such as streams and groundwater reservoirs, forests, fish and wildlife, frontline communities, and to ensure all of the above are well and accounted for in the future.	The particular action 8B "Provide career training for the next generation of water professionals" emphasizes the education pipeline for certain types of water specialties. We did not find documentation of a shortage of water management experts.	OWRD
IWRS said: “A career in water provides an opportunity for a rewarding career...” Comment: Replace the second instance of the word “career” with “profession.”	Suggested edit has been made.	OWRD
Page 96 – IWRS said: “Oregon is also home to an extensive network of community-based organizations that offer technical assistance and information on water quantity, water quality, and watershed-related issues. With 45 soil and water conservation districts and 76 watershed councils, Oregon is well positioned to advance locally led education and outreach efforts.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 97 – IWRS said: “One of the most mentioned concerns during outreach and engagement for the 2025 Strategy was access to information and tools for accomplishing water conservation.” Comment: Please go into more detail about how everyone can hold water in trust. To varying degrees, we all have a fiduciary duty to protect water proportional to our reasonable right to the use of water.	Thank you for your comment.	OWRD
Page 98 – IWRS said: “Awareness and enjoyment of water resources helps people connect with the environment, which leads them to use water responsibly and promote water resource protection. Support for responsible, sustainable recreation is one way to encourage social investment in protection of these resources.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 105 – IWRS said: “Water planning and management is crucial for balancing competing demands, mitigating water scarcity, protecting public health and the environment, and building resilience to climate change. Done properly, water planning can also facilitate dialogue, negotiation, and cooperation among interested parties to resolve conflicts and promote equitable access for instream and out-of-stream uses.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “In the coming years, an effective statewide Strategy will require more extensive and integrated planning at the local or regional and state levels.” “Forging partnerships between local communities and state agencies through planning offers a unique opportunity for the implementation of a wide range of recommended actions described in the 2025 Strategy.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 108 – IWRS said: “However, this type of comprehensive river basin planning has not occurred in more than thirty years.” Comment: Only 30 years? Why, precisely has it been 30 years of no basin planning? How is this related to SB 300 (passed in 1969), which separated the definition of the term order from the definition of the term rule. Fifty-six years have passed, which effectively interrupted basin planning until the legislature finally proposed to make the minor correction in HB 3342 in 20225. Has the lapse in time had significant harmful impacts to over-drawn basins?	The OWRD section responsible for basin planning was eliminated in the 1990's. OWRD has only recently been able to rebuild a planning capacity, now referred to as the Planning, Collaboration, and Investment (PCI) Division.	OWRD
Page 110 – IWRS said: “In envisioning a place-based approach to water planning, these existing plans and programs do not go away, but instead provide a baseline of information, history, and rules that must be integrated into the water plan. A place based approach can help reconcile and implement the state’s programs and plans more effectively.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “A Consultation Task Force is currently developing standardized guidance for state agencies to improve the government-to-government processes.” Comment: Consultation has been turned on its head far too often. U.S. and state agency officials often have been ordered to minimally comply with the requirement to consult with tribes. The problem is so pervasive that critiquing the problem has become hackneyed. That very fact -- that complaints about “performative consultation” are now perceived as overwrought -- is in itself how state and federal officials control the narrative to avoid true consultation that would otherwise lead to free, prior, and informed consent and the possible rejection of projects and activities in whole or in part. Agency consultation with tribes usually means that the agency cannot expect to do whatever it wants and that it will have to give up what it desires in whole or in part. If tribes were empowered to impact and affect state and federal agency activities per the consultation process, then the OWRD/ WRC would NEVER have approved the hydroelectric license HE 617 for the Swanlake North Hydroelectric pumped storage project. But OWRD did not care and approved the project that will permanently desecrate the ancestral lands of the Klamath Tribes if it gets built. Water League incorporates by reference our critique of that disregard for the Klamath Tribes by reference here: https://drive.google.com/file/d/1b6QBiwniQ9oaAUmUFDA5j1AHl68mKGnE/view?usp=drive_link	The Swanlake project was a FERC licensing project with federal led engagement/consultation. The project had already received FERC licensing approval before it came to OWRD and carried with it federal preemption.	OWRD
The IWRS does not address how state agencies disregard true consultation with tribes. There is no hard look at how, for instance, the IWRS provides political cover for doing the exact opposite of all the platitudes in the document exalting consultation. Where is the admission in the IWRS about how Oregon has failed the tribes time after time? If a state or federal agency wants to “perform” consultation with tribes without having to relinquish any power or authority, then they conduct public relations campaigns saying they care about consultation for the express purpose of pushing back against complaints that they don’t care about consultation and ignore tribal interests and concerns. The public relations create a veneer of legitimacy that covers up the actual disregard. Few examples are more acute than the “consultation cover-wash” appliqué used by federal and state agencies to do one thing while saying another. Water League calls on all Oregon state agencies named in the IWRS to list all the times they consulted with tribes in the past 25 years in a table in an appendix, detail what the consultation was about, and then contact each tribe who was party to those consultation proceedings and ask them to finish the list with their views on how each act of consultation resolved and the extent to which those tribes were satisfied with the results. How many of them would report being satisfied?	Thank you for your acknowledgement about the importance of state agency and Tribal consultation. Action 9E in the IWRS acknowledges that Oregon Tribes have been excluded from decision-making, where those same decisions have resulted in degradation of water resources and inability to meet their federally granted treaty rights." All state agencies have a policy regarding Tribal consultation. Some of these policies may need updating. The Tribal Consultation Task Force (HB 2069) should provide an opportunity to improve and standardize the consultation process.	OWRD

<p>We also note that OWRD took great pains to switch away from the legal term of art “Consultation” to the less legally-impacting term “Engagement” in the final draft of the Division 10 administrative rules prior to WRC adoption. Water League contested this change to no avail. Explanations at the time were decidedly unclear and to this day, we have no idea why the change was made. If the term “Consultation” were retained as it was used in the drafts of the 690-0010 rulemaking revision in 2023, we wonder what OWRD/ WRC would have lost or risked. OWRD/ WRC is a state agency under the executive office of the Governor and is therefore acting as the state of Oregon, a formal government agency empowered to conduct government-to-government consultation with tribal nations. We quote the IWRS here: “Agencies invite informal staff-to-staff coordination and formal governmentto- government consultation on issues that may be of interest to tribes. If requested, agency directors engage in formal consultation with tribal leaders.”</p>	<p>OWRD engages with the nine federally recognized Oregon Tribes both through staff-to-staff coordination and Government-to-Government consultation. The choice of engagement is ultimately up to the Tribes. Division 10 rules were updated to include a Tribal engagement requirement to occur during rulemakings pertaining to the designation of Critical Groundwater Areas. See OAR 690-010-0150. OWRD has implemented this rule during the proposed updates to the Division 512 (Malheur Lake Administrative Basin) rules. Please see the May 27, 2025 Notice of Proposed Rulemaking (Amending and adopting Division 512 rules concerning groundwater management in the Malheur Lake administrative basin) which summarizes Tribal engagement consistent with Division 10 rules, available online: See pages 14-15 https://www.oregon.gov/owrd/Documents/NoticeFilingTrackedChanges.pdf</p>	<p>OWRD</p>
<p>Page 111 – IWRS said: “Oregon also uses its Federal Consistency authority under the Coastal Zone Management Act to facilitate coordination between federal, state, and local authorities concerning federal actions in the coastal zone that have the potential to impact water resources.” Comment: Some would say that “Oregon also uses its Federal Consistency authority under the Coastal Zone Management Act to [enable] federal actions in the coastal zone that have the potential to impact water resources.” The DLCD Roadmap Roundtable process authorized under HB 4080 in 2024 is a pretty good example of just such a performative exercise. And as regards the earlier discussion on Consultation with tribes, look no further than how their concerns about the offshore wind industry will be “heard.”</p>	<p>The following narrative has been added, “This authority enables the state to review federal agency activities and the issuance of federal permits in the coastal zone that have the potential to impact water resources for any inconsistencies with state and local regulations.”</p> <p>Federal actions can be actions undertaken by an entity that requires a federal permit, or actions undertaken by a federal agency. Both types of actions are subject to federal consistency review. Further, the federal consistency review is limited to the applicable approved enforceable policies of the state. The National Oceanic and Atmospheric Administration (NOAA) approves these policies, and not all laws and rules of the state can become enforceable policies if they do not meet NOAA’s criteria. There are three possible outcomes for federal consistency reviews: concurrence (proceed), concurrence with conditions (proceed with conditions), or an objection (federal permit/license may not be issued or the federal agency activity may not proceed unless the federal agency determines it is “consistent to the maximum extent practicable”). DLCD provides notification to federal-recognized tribes during active federal consistency reviews and consults with tribes when requested. The Offshore Roadmap Process is a separate planning effort, directed by HB4080 from the 2024 legislative session. The Roadmap process or recommendations cannot directly create or amend laws, rules, or codes, but it may recommend amendments to state enforceable policies that could influence federal consistency review of future proposed projects. Any amendments to enforceable policies would occur through separate public processes. The Roadmap is still under development, and DLCD is engaging and learning from a diverse group representing Oregon in this process, including Tribes.</p>	<p>DLCD</p>
<p>IWRS said: “The U.S. Bonneville Power Administration manages mitigation programs to offset habitat losses associated with hydropower projects.” Comment: Some would say the “mitigation programs to offset habitat losses associated with hydropower projects” is insufficient.</p>	<p>Noted.</p>	<p>OWRD</p>
<p>Page 112 – IWRS said: “The Deschutes Basin is an area where irrigation interests and fish and wildlife needs have often been in conflict. Over 10 years ago, tribes, agencies, irrigation districts, and the public came together to forge a new approach to water management in the basin.” Comment: We consider the HCP to be rather extraordinary in the context of this so-called success regarding fish rescues: “FALL FISH RESCUE 2024!: While it is always a moving target, we have tentative dates for the Fall Fish Rescue. Every year at the end of irrigation season, the Upper Deschutes below Whickiup Dam sees a dramatic drop in flow. During this rapid decrease, side channels become disconnected from the main stem, leading to stranded fish trapped in quickly drying pools. The side channel at Lava Island, just upstream from Bend, is one of the largest and longest of these channels. With expert assistance from Mt. Hood Environmental and help from dozens of passionate volunteers, we will work to save as many fish as possible! Sign up to join our quick action list of volunteers, ready to mobilize and sign up for shifts to help save the fish of the Upper Deschutes!” This exemplifies a broken system, where the needs of irrigation are prioritized to the severe detriment of stream health and aquatic life. The fact that “rescuing fish” is presented as a positive conservation effort, while the underlying cause is the dewatering for irrigation, is deeply problematic.</p>	<p>Noted.</p>	<p>OWRD</p>
<p>Incredibly, the dam water releases appear timed to last as long as the irrigation season, so the water managers ensure the last drops coming out of the dam are times just before harvest. In fact, last fall they had to move the dates ahead by a few days because there was too much water in the quickly draining pools to actually be able to catch and rescue the fish, which means that irrigators were pumping the last remnants of the stream dry and rescuers had to come in at just the right time: “UPDATE: Fall Fish Rescue Dates Moved -- New Dates: October 19th-21st, 2024. More water in the river is typically a good thing, HOWEVER, it looks like there will be too much water in the side channel at Lava Island to start the Fish Rescue tomorrow (Friday, Oct. 18th).” And we quote the IWRS on page 112: “The partners, led by the local irrigation districts, developed a Habitat Conservation Plan (HCP), which is a long-term plan that includes specific conservation measures to minimize and mitigate the effects to the covered species caused by the activity (managing water in this case).” “The HCP has resulted in increased coordination across many interests which has helped the area navigate irrigation and wildlife challenges during consecutive years of drought.” Rescuing fish as part of the HCP is darkly ironic -- true habitat conservation would focus on maintaining adequate stream flows to prevent the fish from becoming stranded in the first place. Rescuing fish from drying pools is a last-ditch effort in place of a proactive conservation strategy. The fact they make it part of the HCP and “rescue” fish every year normalizes this obscene circumstance and deflects responsibility from the state water management system that allows the dewatering of the river every year. In fact, the state water management system is so tightly managed for irrigation that even a slight deviation from the planned dewatering schedule can complicate the “rescue efforts.”</p>	<p>Noted.</p>	<p>OWRD</p>
<p>This element of the HCP is a prime example of a system that prioritizes agricultural water needs to such an extent that it leads to the predictable and repeated stranding and potential death of aquatic life. It's a testament to a failure to balance human water use with the ecological needs of the river system. The IWRS ought to be more transparent about these facts and stop giving out “Participation Awards,” which is what this IWRS paragraph describing the Deschutes Basin Habitat Conservation Plan does.</p>	<p>Noted.</p>	<p>OWRD</p>
<p>IWRS said: “Oregon will continue to work with neighboring states to strive towards sustainable management of surface water and groundwater resources.” Comment: Is Idaho stealing Oregon’s Columbia river water with the Idaho groundwater recharge program? Idaho did not take this water for 100 years, but since 2015, Idaho has been depleting the Columbia River by 250,000+ acre-feet/ year to mitigate their over pumping problem. How is the IWRS addressing this inter-state activity?</p>	<p>This particular question is beyond the scope of the IWRS.</p>	<p>OWRD</p>

Page 114 – IWRS said: “Water-related responsibilities are distributed across multiple state agencies, making it critical that agencies coordinate to support one another’s work. Agencies should seek to improve interagency coordination to ensure an efficient use of public resources. Agencies need communication tools to help tribes, the public, local government, and community-based organizations navigate state agencies.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “The Departments of Environmental Quality and Fish and Wildlife contribute to water right permit review for the Water Resources Department, reviewing for impacts to water quality and fish and wildlife habitat.” Comment: SB 1153 would rely on this type of inter-agency coordination so that OWRD could know if a water right would “result in a loss of in-stream habitat for sensitive, threatened or endangered aquatic species in stream reaches not protected by an existing water right or contribute to water quality impairment in water quality limited streams” as the bill prohibits.	Noted. SB 1153 did not pass.	OWRD
IWRS said: “This process may identify a need for local governments to revise their local comprehensive plans.” Comment: The standards set forth in SB 100 in 1973 and the compliance with statewide goals overseen by DLCD/ LCDC have been eroded substantially, now to the point of deference to political subdivisions, that SACs have almost no authority. We acknowledge that land use is mostly a local municipal power states permit their political subdivisions to oversee; however, the entire purpose of adopting statewide planning goals was to ensure equally applied standards across the state that conform with how Oregonians want to live in relation to each other, the ecosystems, and their future descendants. The state must reel back in its responsibility to ensure its political subdivisions reasonably comply with the 19 statewide planning goals and that comprehensive plans are updated to conform with those goals.	There is renewed interest in updating State Agency Coordination Program plans. See IWRS Action 9D example actions.	DLCD
IWRS said: “State agency coordination programs must be updated to keep pace with changes to statutes, rules, and the creation of new programs or authorities.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 115 – IWRS said: “Oregon’s tribes have been excluded from decision-making, where those same decisions have resulted in degradation of water resources and inability to meet their federally granted treaty rights.” Comment: Water League emphatically agrees. Thank you for this rare acknowledgment.	Thank you for your comment.	OWRD
IWRS said: “Oregon must find ways to equitably improve the safety, affordability, reliability, and availability of water for all.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “However, common community engagement challenges such as resource allocation and trust-building with historically marginalized communities have limited meaningful engagement.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “The 2025 Strategy acknowledges that efforts must be made to enhance and expand community engagement to better identify workable solutions to improve water equity and security for everyone in Oregon.” Comment: This statement could be one of the guiding principles of the 2025 IWRS because every state agency is supposed to work on behalf of the public interest; yet, in too many cases, these agencies have operated under a clientele business model better described as regulatory capture. We deeply appreciate the historical discussion on water use allocations on page 106 of the IWRS. Under the regime of a regressive conventional wisdom, OWRD served water right holders at the expense of the greater public interest for decades even though the water management services were intended (supposed) to ensure that water use was in the public interest or at least not a detriment to the public health, safety, and welfare. OWRD was supposed to manage water use on behalf of the public, which would have meant managing water right holders not for their exclusive special interest benefit, but for the greater benefit of all the public in the present and the future.	Thank you for your comment.	OWRD
The gross over-appropriation of water rights served the water users who applied political pressure when OWRD attempted to not approve water right applications. The regulatory capture of OWRD is legion, and under new leadership at the governance and management levels, this troubled legacy appears to be fading. This new leadership ought to acknowledge that water right certificates are gift certificates from the public to water right holders to use public water. Unfortunately, in the past, those who had a fiduciary responsibility to hold water in trust for the public knelt down before and under the powerful pressure of water users and did not discharge their lawful and moral fiduciary duties sufficiently. Now the public's gift certificates to the use of the water that belongs to them have been overdrawn and those gift certificates are becoming devalued: eventually, many water rights will authorize the use of water that does not exist. Chasing water across the state through water right transfers will threaten posterity if not brought under control. OWRD/ WRC in working on behalf of the public interest must stop the harm and restore the water sources of the state to reasonably stable levels for the benefit of posterity. Lastly, the idea that serving a collection of individual interests is serving the public interest, under the pretense that those individual interests are serving the greater public interest, is flawed and manipulative logic. Too many of those individual interests are not serving the public interest; in fact, their water use may be a detriment to the public interest. What may be a beneficial use to the water right holders may be a harm to the public health, safety, and welfare of the present and the future, and that harm has been overlooked and ignored. OWRD had a backwards policy: instead of keeping the greater public interest in mind when regulating water right holders, they kept the water right holders in mind, thinking those water users would be a public service. That idea is one of the great failures of public policy over the past century -- an example of the misguided conventional wisdom.	Thank you for your comment.	OWRD
Page 116 – IWRS said: “Oregon established a system to issue water rights which includes inherent inequities that cannot easily be resolved.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “Oregon Secretary of State, 2023, Advisory Report 2023-04.” Comment: Can this reference be a hyperlink?	This text now includes a hyperlink.	OWRD
Page 117 – IWRS said: Comment: The last three paragraphs on page 117 should be deleted. They are duplicates of the first three paragraphs on page 118 under the heading “Critical Issue – Water Use and Management.”	The duplicate paragraphs have been deleted.	OWRD
Page 120 – IWRS said: “Water Conservation within Agriculture” Comment: This topic should come first above all other conservation options because irrigation uses 78% of all water in the state; whereas, domestic wells use 1% and all public water supplies use 9%. The order of discussing conservation should be from the largest uses where the most conservation necessarily must come from, the the smallest water uses, where necessarily, the least amount of conservation can come form.	The topics have been re-ordered to discuss agricultural conservation first.	OWRD

<p>IWRS said:</p> <p>“Diverting an estimated 80 percent of the total water diverted in the state, agriculture is the largest user of water in Oregon, and therefore, offers the highest chance of conserving measurable amounts of water. Statewide efforts should focus on increasing voluntary conservation and efficiency efforts in the agriculture sector. This could result in significant water savings statewide.”</p> <p>Comment: Water League emphatically agrees.</p> <p>We note that Conservation efforts must be understood in the context of Jeavon's Paradox, which stipulates that increases in efficiency result in proportional increases in use. Efficiency in water use must be paired with conservation of water. A good example of addressing this paradox is the requirement of leaving instream 25% of the water in the Conserved Water statutes. More and larger allocations towards conservation without increased expansion should be implemented voluntarily, and increasingly enforced when necessary in Groundwater Restricted Areas.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“Piping, lining, or other water efficiencies can greatly reduce the quantity and rate of return flows that traditionally make their way back to the stream or groundwater reservoir.”</p> <p>Comment: Yes. These efficiency projects should be paired with commensurate reductions in the rate and duty of water rights to ensure the same or larger flows continue in rivers. Piping a ditch and then using the same amount. of water -- an increase in the customary amount -- can no longer be justified.</p> <p>Conservation fails when it only benefits the water user -- logically, conservation must equally benefit others in the region and yet to come. Notably, conservation in Groundwater Restricted Areas is too often about lengthening the amount of time left to drain the groundwater reservoirs and is not about conserving water for posterity, others in the proximate vicinity, or groundwater dependent ecosystems.</p> <p>This is “False Conservation” because the end goal isn't to stabilize groundwater levels or stream flows, but to extend the water = money mining profit just a little bit longer.</p>	<p>Noted.</p>	<p>OWRD</p>
<p>Page 121 – IWRS said:</p> <p>“Allocation of Conserved Water Program”</p> <p>Comment: When Can groundwater users can leave a percentage of the water their water rights authorize the use of in the groundwater reservoirs? We understand that in some cases this could be a folly where The Tragedy of the Commons has a death grip on a basin or sub-basin and the act of one irrigator foregoing water use could leave water in the ground for others to deplete.</p> <p>Please consider studying this problem and finding circumstances where the Conserved Water program can be applied to groundwater.</p>	<p>OWRD is interested in looking at many aspects of below-ground storage and protection of groundwater resources for public benefit.</p>	<p>OWRD</p>
<p>Page 125 – IWRS said:</p> <p>In the table where Water Rights and Artificial Recharge intersect: “Permits required to appropriate source water and to pump recharged groundwater.”</p> <p>Comment: Water League will be proposing adding “groundwater infiltration” to ORS 537.141(1)(e) alongside the existing “land management practices intended to save soil and improve water quality.” We propose to dovetail this exempt use in ORS 537.135.</p> <p>We believe diffuse water can be a beneficial use while still under The Natural Servitude Rule and The Reasonable Use Rule. We telegraphed this position in our 2025 testimony in support of HB 2988.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“The study evaluated several options for reallocating storage space that could better meet water needs not only for irrigation—the only use allowed under existing water rights—but also as a source of drinking water for communities, industries, and instream flow needs for listed fish species in the basin.”</p> <p>Comment: Water League emphatically agrees with these options.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 126 – IWRS said:</p> <p>“Identifying Potential Above-Ground Storage Sites”</p> <p>Comment: Move this paragraph up to more closely align with the other paragraph titled "Above- Ground Storage — Reservoirs"</p>	<p>Thank you for this suggestion. Both "Identifying Potential Above Ground Storage Sites" and "Evaluating Storage Infrastructure" have been moved ahead of "Federal Reservoir Systems"</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“The Department then reviews the application based on current, applicable public-interest review standards and applicable basin rules regarding the reservation.”</p> <p>Comment: We presume that during the past 38 years the over-appropriation of surface water and groundwater has become so harmful, and since the WRC adopted rules making the application process for new groundwater allocations more restrictive, that accessing this reserved water is all but impossible.</p>	<p>The IWRS says the Department will "review the application based on current, applicable public-interest review standards and applicable basin rules regarding the reservation."</p>	<p>OWRD</p>
<p>Page 127 – IWRS said:</p> <p>“We also need to consider non-regulatory and market-based approaches to meeting our collective and often competing demands for water and consider holistic strategies to meet water quality, water quantity, and ecosystem needs.”</p> <p>Comment: This assertion is highly controversial and cannot be summarily stated as if it were decreed as a “I Say So.” Who said 'we also need to consider non-regulatory and market-based approaches?' Did the people of Oregon agree to this declaration or did the largest water users who are pumping themselves out of business and wish to evade the water right transfer statutes say so?</p> <p>The term “Market-based approaches” is a euphemism for privatizing water use governance and management, which is the privatization of the water that belongs to the public. It is a usurpation of the fiduciary duty and authority elected and appointed official have to hold water in trust on behalf of the public.</p> <p>Market-based approaches hand over water use management decisions to private interests under the premise that water will flow to the highest dollar amount and that such water use is in the public interest solely because that water use results in the highest economic purpose. Proponents call this increasing the efficiency of the water use, but it's not more efficient use by volume; rather, it is more efficient use of water by dollar value. It's not that one gallon goes further afield; rather, it's that one gallon makes more income for the water user. There is no correlation with the public interest; as such, market-based approaches are a regressive reversion to the 19th century ideology that water use need only serve the individual special interests of the user, justified as that which makes the most money.</p> <p>Market-based approaches are a 21st century version of water mining, where the private interests willing to bid the most for water use are the winners, and the public's interest in the use of its water, which includes ecosystem health and posterity, are the losers.</p>	<p>Market-based approaches are just one of many tools identified throughout the IWRS. The state wants to maintain it in the portfolio of options.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“Voluntary agreements among water users within one basin to limit water use, Action 11E.”</p> <p>Comment: Voluntary Agreements are almost certainly unconstitutional as envisioned by their proponents (they have never been implemented since 1955 when ORS 537.745 was enacted). We incorporate by reference Water League's extensive comments on Voluntary Agreements here: https://drive.google.com/file/d/1-YN7192xu7HMxvuhNGAM4KySxyZEq45d/view?usp=drive_link</p>	<p>We have received Water League's comments on the draft guidance for Voluntary Agreements and will consider those comments if and when future revisions are made.</p>	<p>OWRD</p>
<p>IWRS said:</p> <p>“A CREP contract payment period is typically 10-15 years.”</p> <p>Comment: Note that in Oregon, the CREP contract includes a provision that is the cancellation of the water right in trade for the CREP payment.</p>	<p>A sentence clarifying this point has been added right before the existing sentence "This is an important tool that can be used to pay to retire groundwater rights in basins where groundwater is overallocated."</p>	<p>OWRD</p>

<p>Page 128 – IWRS said: “Cities and utilities have utilized water quality trading to address temperature pollution challenges.” Comment: Is there evidence that this WQ trading program has measurably reduce temperatures in streams? Does the program require sufficient temperature data before the project and then are temperatures taken regularly after the project to get credible data as to whether planting these trees actually cooled down the river? Is there a temperature metric that must be met to offset these cities that heat up rivers? The IWRS should include further discussion on these questions and supply basic data, such as: “Rogue River temps were X Celsius before tree planting and have dropped to Y Celsius after tree planting over so many years. These measurements align with our projections that planting the trees would lower river temps by Z Celsius.”</p>	<p>DEQ adminsters a permitting process associated with water quality trading projects. Outlining the specific requirements is beyond the scope of the document.</p>	<p>OWRD</p>
<p>IWRS said: “The Deschutes Water Bank” Comment: The description should be expanded to at least 250 to 500 words. Minimizing the details results in a facile description that leaves the reader incapable of forming an opinion about the water bank concept. Also, please include links to the actual Deschutes Water Bank website and reference to HB 3806 in the 2025 legislative session.</p>	<p>Narrative about HB 3806 has been added to the IWRS and a link has been added to the website. Readers, if interested, can learn more about the water bank from their website.</p>	<p>OWRD</p>
<p>IWRS said: “Field personnel are well positioned to work with local, state, and federal water managers, watershed councils, local planners, county commissions, and other entities in the community with responsibility for water.” Comment: Water League emphatically agrees with the full contents of the paragraph that begins with this sentence.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 133 – IWRS said: “Ecosystem degradation subsequently results in a need to engineer unnatural solutions that attempt to mimic ecological functions, often at a great expense that yields a lesser quality function.” Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 134 – IWRS said: “Oregon must protect our remaining wetlands through rigorous permitting (e.g., Department of State Land’s Removal-Fill permitting) and conservation on public and private lands. The state must also restore degraded wetlands to regain water storage capacity and other hydrologic benefits and support the many declining species reliant on these ecosystems.” Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 135 – IWRS said: “Oregon’s forests help filter drinking water, keep water cool, provide habitat for diverse animal and plant species, supply oxygen, moderate temperatures and rainfall, store atmospheric carbon, and support Oregon’s economy. Healthy forests promote soils that provide natural filtration to keep streams clean and water quality high.” Comment: Water League emphatically agrees. But these forests are only capable of such activities when they are healthy, and most of the state's forest are unhealthy and severely degraded by destructive forest management practices. Oregon forest are basically hilly corn fields that get mowed down repeatedly. The aspirational quote is welcome but far from reality. IWRS should be more upfront about this fact.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>IWRS said: “The rising expense of owning forestland and the land’s growing value as real estate increases economic pressure to sell private forestland for development. As forests are converted to other uses, this leads to habitat fragmentation and displaces the species that rely on forest ecosystems. Increased home density within forested areas...” Comment: Please explain if this is a general future concern or if there is publicly/ privately owned forest lands that are being sold off for residential development. Earlier in the IWRS, this assertion was made with no attendant evidence as to why forests need to be kept under timber production as a better carbon sink than if development takes over. The same was said about farmland. Are not the statewide planning goals being implemented and enforced, and are DLCD/ LCDC not showing up to work? Aren't Forest Commercial, Forest, Timberland Protection Zone, and Woodlot Resource zones still intact? Please explain what is meant by this concern about residential development taking over the backcountry and where it is coming from. Without evidence, this statement presents a continued justification for the destructive forest practices that are responsible for the “massive ecological restoration needs,” on the basis, no less, than because these harmful forest practices are a better alternative to the residential development alternative. We're not moved or convinced by a long shot.</p>	<p>Thank you for your comment.</p>	<p>DLCD</p>
<p>IWRS said: “Keeping forests as forests, however, requires public support, investment, and resource protection policies that make continued forest ownership an economically viable alternative to conversion.” Comment: Isn't the entire purpose of SB 100 in 1973, the 19 statewide planning goals, and the work that DLCD/ LCDC do what keeps forests as forests (albeit, corn field forests)? Please explain. Maybe what needs revision is statewide leadership in this area.</p>	<p>Work at DLCD takes all such resources, public support, investment, etc.</p>	<p>DLCD</p>
<p>Page 136 – IWRS said: “Many of Oregon’s counties receive a significant boost to their local economy from those who travel to participate in fish and wildlife recreation activities. The economic value of fish and wildlife recreation is one of the many reasons for protecting water instream for the benefit of future generations.” Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 139 – IWRS said: “Soil health describes the overall composition of soil, including soil structure, the water and nutrient holding capacity of the soil, the amount of organic matter in the soil and the continued capacity of the soil to function as a biological system. Healthy soils with a high percentage of organic matter and water holding capacity provide both climate mitigation and climate adaptation resilience.” Comment: Water League emphatically agrees.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
<p>Page 141 – IWRS said: “In many areas of Oregon, streamflows are very low or even non-existent during late summer months, largely due to human causes like diversions for irrigation or other beneficial water uses.” Comment: Water League emphatically agrees. But, irrigation is the leading cause of dewatered streams by an 8 to 1 margin statewide. By adding in the undefined phrase “ other beneficial water uses” without a relative context, the statement misrepresents the major source of the harmful impacts by suggesting that “other beneficial uses” would even show up on the radar screen compared to the damage caused by irrigation.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>

IWRS said: “Oregon needs to conserve and protect streams by developing additional instream flow protections and seek opportunities for enhancing and restoring streamflow.” Comment: Water League emphatically agrees in principle. But first, there needs to be a reckoning – a moment of truth – about how the instream water right regime is a hoax played expertly on unwitting environmentalists and their equally naive sponsoring elected and appointed officials. Our hats are off to those brilliant machinators from the 1980s who knew a good stratagem when they saw one: they took 500 minimum stream flows and turned them into feckless junior water rights, and then stuck a pacifier into every conservationist mouth with every post-1987 junior instream water right. Cheers to them! Second, after this awakening, convert every instream water right into a statutory minimum stream flow not to exceed minimal flow patterns of Natural Variability prior to over-appropriation of surface water in the 20th century. Third, use the same process that ODFW implements for identifying instream water rights and establish minimum stream flows until the free-flowing character of all surface waters in Oregon are restored to conditions before the state permitted and oversaw the destruction of those water sources. Fourth, pay handsomely to voluntarily buy out all the consumptive water rights not associated with domestic or municipal uses, and when necessary, pay handsomely through eminent domain to condemn water rights to accomplish this task. Fifth, never again issue water rights in excess of the capacity of the water sources to function in a healthy manner for all humans, flora, and fauna in the present and future.	Thank you for your comment.	OWRD
IWRS said: “In 1970, Oregonian’s voted to establish the Scenic Waterways Program...” Comment: Finish the sentence with: “...because elected officials were too craven to do it themselves.” Page 142 – IWRS said: “Oregon’s original Water Code formalized a system of water allocation that did not consider water for instream uses, causing Oregon’s freshwater habitats to quickly become degraded. Because the Instream Water Right Act was not enacted until 1987, most instream water rights today are quite junior compared to existing out-of-stream water rights, some of which date back to the 1800s. In most instances, achieving instream water right flow targets will depend on both healthy, functional watersheds and voluntary partnerships with senior water right holders to be effective.” Comment: Water League emphatically agrees. Please see our related comments above.	Noted.	OWRD
Page 143 – IWRS said: “Approximately 422 cfs is kept instream associated with permanent or long-term transfers.” Comment: Right... IWRS said: “This approach has the potential to help meet temperature TMDL requirements in some watersheds.” Comment: Please link to the data showing how these TMDL trading credits have either succeeded or failed. How many trees planted along one river mile of the Rogue River equal 1 degree Celsius cooling? How many years/ degree Celsius? How much canopy?	Thank you for your comment.	OWRD
Page 144 – IWRS said: “One program requirement is that at a minimum, 25% of the conserved water is dedicated instream.” Comment: This provision of the law acknowledges Jeavon's Paradox. We wish that this concept were more broadly held and used throughout more of the IWRS.	Noted.	OWRD
IWRS said: “Oregon Administrative R ules (OAR 690-054) outline procedures...” Comment: Typo with the word “Rules.” IWRS said: “...a hydroelectric water right to an instream water right...” Comment: Revise to: “...a non-consumptive hydroelectric water right to an instream water right...” Not really sure what's gained here, please explain. IWRS said: “The scale and pace of invasive species management will need to increase accordingly. Multi-agency coordination is critical for timely and effective eradication and management.” Comment: Water League emphatically agrees.	Water quality trading is a voluntary program that permittees can use to meet their permit limits. Riparian restoration is a type of green infrastructure that provides benefits to the public year-round rather than short portions of the year when a permittee wouldn’t be able to meet their permit limits. The program is working as intended. Some data is available here: Water Quality Trading Data 2025	ODEQ
Page 148 – IWRS said: “The Oregon Atlas of Groundwater Dependent Ecosystems, published in 2022, found that more than a third of all streams and rivers depend on groundwater, and about two-thirds of all lakes and ponds do as well. Groundwater discharge contributes to springs, wetlands, and streamflow throughout the state, often providing sustained flows and vital cold water for aquatic species during summer months.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “In some locations of the state, groundwater withdrawals are occurring at a rate greater than what can be replaced with rain or snow.” Comment: This is an understatement. In fact, there are excessive groundwater declines in basins across the state and those declines are not because climate change put a pump in the ground 100' to 1,000' deep, it's because humans did. Humans pump groundwater, reaching many times deeper than the roots of trees. And humans drop groundwater levels, bottoming out under rivers and tree roots. The IWRS should call for a statewide study, basin by basin, of the extent to which annual discharge exceeds annual recharge. We know that the deficit in the Harney Basin is 110, 000 acre feet, which is equivalent to the total consumptive water use of Portland.	Thank you, this typo has been fixed.	OWRD
Page 150 – IWRS said: “...the Oregon Water Resources Department is exploring opportunities to encourage its use among groundwater users as a means of either avoiding a Critical Groundwater Area designation or in place of one.” Comment: This statement is factually incorrect and must be fixed. Check with Kelly Meinz and Tim Seymour for the precise language. To be clear: Voluntary Agreements (VA) will not allow any water right holders from avoiding a CGWA; nor will VAs replace the designation of a CGWA. In fact, there is ZERO incentive to participate in VAs without a comprehensive CGWA designation followed up with regulatory actions called Corrective Control Provision that impose water use curtailments following a Contested Case hearing. VAs are a highly unlikely alternative to the Corrective Control Provision that impose water use curtailments. Again, we incorporate our comments (OWRD placed a public request for comments) on VAs: https://drive.google.com/file/d/1-YN7192xu7HMxvuhNGAM4KySxyZEq45d/view?usp=drive_link	Please see last section under Action 11B, "Conversion of a Hydroelectric Water Right." The priority date of the hydroelectric water right applies to the instream water right.	OWRD
IWRS said: “One means of achieving this goal is for groundwater users to agree to use only a portion of their fully allocated groundwater right.” Comment: Finish the sentence by adding: “...in an area under the grips of The Tragedy of the Commons.” Yeah, no.	Thank you for your comment.	OWRD
	Thank you for your comment.	OWRD
	IWRS narrative has been updated.	
	Noted.	OWRD

Page 152 – IWRS said: “Land management practices such as limiting stormwater runoff, minimizing erosion, limiting use of pesticides and herbicides, maintaining septic systems, and maintaining healthy vegetation and stream buffers can all reduce impacts to our shared water resources.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 154 & 155 – IWRS said: “Regulating Public Water Systems The Oregon Healthy Authority administers...” Comment: There are several instances on these two pages with the typo should be fixed to say: “Oregon Health Authority.”	Thank you, these typos have been fixed.	OWRD
Page 154 IWRS said: “...that conveys water from a public water system to a user’s premise (e.g., real estate and the structures on it). For example, a standpipe at a campground or RV park is not a “premise” so all standpipes...” Comment: Typo -- when referring to land, the noun is always pluralized as in “premises.”	Thank you, these typos have been fixed.	OWRD
Page 155 – IWRS said: “An amendment to the Domestic Well Testing Act requiring laboratories to electronically report testing results associated with a real estate transactions could increase compliance and improve public safety.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 156 – IWRS said: “Access to drinking water in Oregon is not equitable, with some people experiencing contaminated water coming from their tap, others unable to afford their utility bills, while others lack water access in workplaces.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 158 – IWRS said: “Pesticide Waste Collection” Comment: Typo – Add a carriage return/ line space.	This edit has been made.	OWRD
Page 160 – IWRS said: “...free collection boxes for unused medications, which can be located at the Oregon Health Authority website.” Comment: Change to “...can be acquired from the Oregon Health Authority website.”	The sentence has been revised to clarify that the locations of the 50 collection locations across Oregon can be found at the OHA website.	OWRD
Page 161 – IWRS said: “Oregon’s fish consumption rate is 175 grams per day is one of, if not the highest in the nation, in recognition of the consumption rates by tribes, subsistence fishers, and Asian and Pacific Islanders in the Pacific Northwest.” Comment: The facts are a bit more complex: 90% of all fish products consumed in Oregon are imported to the state; only 10% of all fish consumption is the result of local fishing, either commercial or personal. While Oregonians may eat more fish per capita than other states, the toxins present in the fish, 90% of which is imported, will be the result of other locations where those fish imports originated from.	Thank you for your comment.	ODEQ
IWRS said: “...from all sources: municipal, industrial, commercial, surface runoff and background...” Comment: Agricultural pollutants are a major source and must not be omitted from this list – please include it. The reference to “surface runoff” is the result of municipal, industrial, and agricultural waste diffusing and then channeling into waterways, groundwater reservoirs, and soil substrates.	Thank you for your comment. Agricultural pollutants are one of the sources of contamination to surface and groundwater in Oregon, generally as non-point sources of pollution. "Agricultural" has been added to the list of sources	ODEQ
IWRS said: “TMDL plans identify pollution controls across agricultural, forest, urban, and rural residential land uses to protect and improve water quality.” Comment: If the IWRS can refer to agricultural pollution here, then it can lead with it in the first introductory sentence noted just above.	See response, above.	OWRD
Page 162 – IWRS said: “Environmental Protection Agency (USEPA)” Comment: Perhaps just use the acronym EPA, which is how everyone understands it.	Thank you for the suggestion. Keeping "US" at the front helps quickly designate the agency as federal, and is consistent with how we are using acronyms for other federal agencies.	OWRD
IWRS said: “...implementation, and education. The federal Clean Water Act...” Comment: Typo – add a space and a carriage return.	A space between paragraphs has been added.	OWRD
IWRS said: “Since 2015, the amount of 319 funds Oregon has received annually has been reduced by 30-percent due to the disapproval of the states Coastal Nonpoint Source Pollution Program under the Coastal Zone Reauthorization Amendment (CZARA).” Comment: What is this? Can you explain in more detail what's going on? What is the relationship between the Section 319 funds and the Coastal Nonpoint Source Pollution Program under the Coastal Zone Reauthorization Amendment (CZARA)? And what is meant by "the disapproval of the states..." (Also is "states" supposed to be a possessive noun?) Please clarify this paragraph. There's a bit more clarity a few paragraphs below, but it would be helpful to have it upfront.	Narrative has been added to "see the CZARA section below," which provides more explanation.	DLCD
IWRS said: “Agricultural Water Quality Management Plans” Comment: Discuss how the SWCDs and ODA work together to assist landowners in projects. A bit more detail on the plans would be helpful.	Thank you for your comment. The paragraph referred to has been edited to include more about SWCD involvement.	ODA
IWRS said: “Water q uality specialists with the Department of Agriculture...” Comment: Typo – quality.	The typo has been fixed.	OWRD
Page 165 – IWRS said: “The 2023 Secretary of State Advisory Report regarding water security (Report 2023-04) identified that natural resources state agencies are chronically underfunded and understaffed in relation to their respective responsibilities. Meeting the water challenges of today and tomorrow will require an increased investment in state agencies and programs.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
Page 167 – IWRS said: “...statewide water availability model (WARS)...” Comment: This has a new acronym – something like STREAM?	Acronym has been removed to reduce confusion as the name transitions. The new name will be "SWIMS"	OWRD
Page 168 – IWRS said: “Senior water rights holders in the agricultural sector need financial incentives to dedicate water instream.” Comment: Water League emphatically agrees.	Thank you for your comment.	OWRD
IWRS said: “...full-time position in 2023.The 2023 Legislative session...” Comment: Typo – add a space between the sentences.	A space between sentences has been added.	OWRD

<p>Page 169 – IWRS said: “Staff support across many agencies will be needed to coordinate efforts in developing the biennial work plan and implementing the Strategy’s five objectives and 47 actions.” Comment: Water League emphatically agrees. Also, are there 48 or 47 Actions?</p>	<p>Language has been updated to reflect the current total of 48 actions.</p>	<p>OWRD</p>
<p>IWRS said: “The state plays a complex role when it comes to water resources management—supporting economic development while also protecting the public interest in areas like the environment, public health, and public safety.” Comment: This wording – the ideological structure of the sentence -- misstates the way water use, policy, and the public interest intersect. Supporting economic development is in the public interest, but so is protecting ecosystems and ensuring all humans, flora, and fauna in the present and the future have access to clean freshwater. Restate the sentence to be: “The state plays a complex role when it comes to water resources management; it serves the public's interest in economic development, recreational access, and the conservation and protection of all water sources to ensure the public heath, safety, and welfare in the present and future.”</p>	<p>The sentence has been modified to place "public interest" before economic development and keeps the existing topics of "the environment, public health, and public safety."</p>	<p>OWRD</p>
<p>Page 170 – IWRS said: “An agency’s ability to maintain consistent levels of staffing and services requires consistent General Fund and fee revenue.” Comment: See our comments near the beginning on the topic of funding and in the introduction to these comments on page 1. IWRS said: “...and workloads agencywide.” Comment: Typo – add a hyphen. IWRS said: “Often, as water becomes scarcer, the work required of natural resources agency staff becomes more complex and time consuming and fees are typically not enough to recoup the costs.” Comment: Water-based agencies' budgets must increase in proportion to increasing water scarcity and declining water quality.</p>	<p>Thank you for your support in acknowledging the need to elevate funding.</p> <p>A hyphen has been added.</p> <p>Thank you for your comment.</p>	<p>OWRD</p> <p>OWRD</p> <p>OWRD</p>
<p>Page 171 – IWRS said: “This role carries with it responsibility for distributing public funds in an equitable manner, addressing racial and environmental justice.” Comment: Water League has serious concerns about how ORS 541.551 and OAR 690-601 will be managed since OWRD decided to fund the community engagement in a way that gives the water project developers extra funds that amount to public relations expense accounts to manage the consent of disproportionately impacted communities. Notably, the disproportionately impacted communities can't actually apply for funding to organize themselves when water projects are proposed for their communities; rather, they get organized by the water project developers. Claims that these disproportionately impacted communities can apply for funds are spurious because the only pathway for their access is through the water project developers as their partners, which is a total co-option of the disproportionately impacted community, which takes a bad situation and makes it worse. How is this not a cynical perversion of the legislative intent of ORS 541.551?</p>	<p>Funding for community engagement plans is NOT restricted to water project developers. Per draft rules, community engagement plan applicants must be able to provide a framework for how engagement will involve “disproportionately impacted communities” in water project decisions. Although the applicant does not need to be a water project developer, to be eligible, they do need to be local governments or organizations, as authorized by ORS 541.511, that are eligible to be supported by grants or loans pursuant to OAR 690-600 or OAR 690-093.</p>	<p>OWRD</p>
<p>Page 173 – IWRS said: The Flow Chart: “Action 13 C – Fund Agency Grant or Loan Programs” Comment: Action 13C, a privatization of water management activities, needs guardrails, the first of which is putting the Action 13C in context: it is a very small portion of spending compared to Action 13B, which is all the public sector spending to manage water in Oregon. This flow chart makes Action 13C appear equal to or even larger than Action 13B. What is the ratio of all funds in 13B compared to 13C? Please put the total budgetary amounts under each Action number so the reader is not mislead. Action 13C is the privatization of a portion of the public sector job to hold water in trust. While there are reasonable ways for public-private partnerships to work out, in those partnerships, the private sector brings its own money to the table. Now with the cash match dropped to 25% under HB 3364 A and the cap in grant funding lifted, Action 13C is more like a no-bid contract given out to the private sector for the private sector to do the projects it wants on the public sector's dime. OWRD/ WRC and all other water-related state agencies must not slide down the hill toward privatization of public sector activities; nor should it appear to suggest that it is by making up graphics the show visually that grant funding appears to be equal to or larger than the actual agency work by civil servants. This chart is NFG. Water League acknowledges the reasonable use of public sector funds to incentivize private sector activities, but we do not support the state agencies, such as OWRD, taking its limited and precious funding and giving it away to the private sector, which ought to pull itself up by its own bootstraps, especially since it is so fond of lambasting public sector agencies of promoting welfare programs. To this point, we objected to the cash-match reduction from 50% to 25% and the lifting of the cap that limited grant sizes in HB 3364 A.</p>	<p>The intent of the flow chart is to help readers quickly differentiate between the two actions that might seem similar. There is no implied relationship in magnitude of funding.</p> <p>An assessment of the feasibility grant program found that the 50% match was a barrier to people applying for funds. The reduced match is intended to have the effect of bringing more interested parties to the table. There are currently few grant sources available to fund feasibility studies.</p>	<p>OWRD</p>
<p>Page 177 – IWRS said: “Water is a finite resource with growing demands; water scarcity is a reality in Oregon. Water-related decisions should rest on a thorough analysis of supply, the demand / need for water, the potential for increasing efficiencies and conservation, and alternative ways to meet these demands. – Policy Advisory Group (2016)” Comment: This is a somewhat failed ideology (fallacy) because it assumes that all demands must be met; in fact, the use of the term “demands” implies that as demands they must be met. For example, over decades there have been statements that demand for more irrigated acres will increase and that Oregon will have to meet those demands. These statements are propaganda: they ignore the substantial reductions in volume of Oregon's water sources and they ignore the fact that Oregon's population is unrelated to the need for irrigated acres, which we discussed earlier. They also ignore the declining trend of irrigated acres, year after year. The statement that “Water is a finite resource with growing demands” is a paradox that cannot be resolved by greater efficiency and conservation. Rather, efficiency will only marginally increase by a very small increment the work that water does while conservation will put the brakes on human water use in the present for the benefit of future human uses and ecosystem health. Efficiency means doing more with less, and conservation means having less. There is no way that “demand” can demand more water under this circumstance when efficiencies are marginally incremental and conservation is tightening the belt on rates and duties. Demand can go pound sand all it wants in a desert and in the inexorably aridifying landscapes. In the same way a water right does not authorize the use of water that does not exist, neither can demand create water by throwing a fit.</p>	<p>Noted.</p>	<p>OWRD</p>

To be frank, there are no alternative ways to meet the demands of demand when it comes to water. It is the fever dream folly of those who think or wish they can have it both ways: they cannot. The call for alternatives is a baseless political stalling tactic that hopes for technology to invent water or political will to devolve back to a regressive 19th century ethos that exalted exhausting resources through unregulated extraction. There are two possible outcomes with reality falling somewhere in between: 1) substantial restriction of demand to fit within the capacity of Oregon's water sources so that the longterm outlook always has the same quality of life as the present, or 2) obsequious fealty to “demand” that has the political power necessary to drain every stream and groundwater reservoir in the present without regard for posterity.

In this reality, there is no creating new water, and there is no meeting demand with water that does not exist; rather, there is only staying within the capacity of the water sources and destroying those sources over the course of the short and mid term by prioritizing the present over the future. Even if reality settles in between scenarios #1 and #2, the inexorable trend will still be declining groundwater levels and dried up streams, just over a slightly longer timeline. This is precisely what's going on right now in the Harney Basin with the political power by irrigators pressing as hard as possible for Scenario #2 while the state and others press for scenario #1 with reality falling in somewhere between. Therefore, there is a very good chance that when 2060 arrives, not only will groundwater levels be low, but they will still continue to decline as “demand” stomps its foot and declares the world is being unfair to it and presses on to keep pumping until there is no water is left.

Page 178 – IWRS said:
“The last four years of legislative investments have allowed for a significant increase in activity.”
Comment: Right. Nothing gets done without funding; therefore, those who don't like the work or are agnostic about the concerns, and have sufficient political power, will withhold funding. There is no better way to understand the political landscape than to look at the budget priorities.

IWRS said:
“Private landowners, communities, non-profits, businesses, local governments, utilities, tribes, and state and federal agencies have come together to discuss difficult topics, develop creative solutions, find funding, and implement projects on the ground.”
Comment: Meanwhile, some members of this cohort have come together to do the exact opposite, and have obstructed discussion, solutions, and funding to prevent implementation.

IWRS said:
“To quote many Strategy engagement participants, “water is life.””
Comment: Water League emphatically agrees.
But, according to the state of Oregon, water is money:
ORS 536.310 Purposes and policies to be considered in formulating state water resources program:
(2) It is in the public interest that integration and coordination of uses of water and augmentation of existing supplies for all beneficial purposes be achieved for the maximum economic development thereof for the benefit of the state as a whole.
When water equals money, then large-scale water users will stop at nothing to mine water until it is gone in the same way all miners dig, drill, and pump when incentivized by the market. But despite what the state laws say, yes, we agree: water is life. If our bodies are the closest to water we will ever get, then by adhering to state law, we are basically extracting ourselves, or to be more precise, our future selves.

Starting on Page 181 – IWRS Said:
“The IWRS Appendices A – F”
These appendices are an excellent reference library resource which we strongly support and deeply appreciate.

Page 267 – IWRS Said:
“Agency priorities 2025--2031”
Water League has reviewed the Agency priorities for 2025—2031 and support those choices. We hope to more thoroughly review them in the coming months, but we believe they are very well chosen.

Thank you for your comment. The IWRS strives to convey the dual nature of instream and out-of-stream "demand" OWRD choosing instead to use the term "need" for streams/ecosystems. Therefore the variety of actions in Chapter 4 to "meet instream and out-of-stream water needs" do offer the potential to turn things around. Political will is needed for implementation at scale, to reverse decline as opposed to slowing the decline.

Thank you for your comment. OWRD

Thank you for your comment. OWRD

Thank you for your comment. OWRD

Thank you for your comment. OWRD

Thank you for your comment. OWRD

	Name/ Organization		
5	Comments	Agency Response	Relevant Agency
	<p>Craig Lacy, Consolidated Oregon Indivisible Network, sub-group Climate, Energy, and Environment</p> <p>Groundwater Research and Needs</p> <p>Groundwater contamination is a serious issue in many areas of Oregon. Private domestic wells may face contamination issues from nearby failing septic systems, industrial or agriculture sources, or from surface water and groundwater interactions. Naturally occurring elements such as arsenic, uranium, and boron can also make water supplies unsuitable for some uses.</p>	<p>Thank you for your comment. DEQ and other agencies recognize the seriousness of groundwater contamination and are working to prevent and remediate groundwater contamination through education, permitting, monitoring, remediation, and a host of program actions outlined in the IWRS.</p>	<p>ODEQ</p>
	<p>The Department of Environmental Quality should implement a Statewide Groundwater Monitoring Program to monitor groundwater for contaminants of concern, including nitrates and pesticides. Despite identifying Groundwater Management Areas (GWMAs) 21 to over 30 years ago, these areas continue to be polluted----some have even gotten worse. Providing monitoring and recommending steps to remediate these areas should be given a high priority. From 2015 to 2017, the Department was able to monitor only two geographic regions per year. Funding and staffing reductions now only allow for monitoring in one region every other year. More areas like the lower Umatilla Basin GWMA will continue to degrade as a result. This is unacceptable.</p>	<p>Groundwater quality sampling continues on a regular basis in all of the GWMAs. Analysis of groundwater quality trends are conducted periodically to evaluate the success of water quality protection measures. In recent years, DEQ’s primary focus has been in the Lower Umatilla Basin GWMA and the development of an interagency Nitrate Reduction Plan for the area. This plan will serve as a model to update Action Plans previously developed for the Southern Willamette Valley and Northern Malheur County GWMAs.</p>	<p>ODEQ</p>
	<p>Agencies should support legislation that requires them to together develop action for groundwater management. ODA should set limits for groundwater contamination and develop public health and remediation responses. Risks to domestic well users should be specifically identified. Agencies should also actively support any legislation that holds government responsible for protecting our public waters and groundwaters and advocate for sufficient funding to do so.</p> <p>Although the Oregon Health Authority requires that private domestic wells be tested for nitrates, bacteria, and arsenic before a home is sold and the data provided to the real estate transaction database, it currently falls outside of agency authority to continue to periodically require that all wells be tested. Agencies should advocate and support legislation that allows periodic testing of all wells, maintain this data, and support corrective action to correct remediate any contamination identified. Testing the water quality of private domestic wells should be done periodically.</p> <p>Monitoring data should be established and maintained for all areas of the state. These can be used to determine areas of the state that are especially vulnerable to groundwater contamination, long term trends in groundwater quality, status of ambient groundwater quality, emerging groundwater quality problems, and potential risks from contamination. Increased resources for groundwater monitoring can help protect public health.</p> <p>Instream Water Rights</p> <p>Only 7% (10,00 miles) of the 138,000 class two river miles in the state have instream water rights. Many of the applications for instream rights have been challenged in court by primarily irrigator interests. Agencies appear to be reluctant to apply for additional instream rights.</p>	<p>Thank you for your comment. Agencies remain neutral on legislation unless given permission by the Governor or if they are put forth by the agency. Setting contamination limits and developing public health responses are not within ODA's authority. DEQ sets contamination limits and OHA develops public health responses. Please note that recent legislation, Senate Bill 1154, was passed to strengthen groundwater protections and outlines new responsibilities for agencies involved in managing water quality.</p> <p>Thank you for your comment. Agencies remain neutral on legislation unless given permission by the Governor or if they are put forth by the agency. HB 3525 passed in 2023 requiring landlords to collect and test samples in GWMA's.</p>	<p>ODA</p> <p>OWRD</p>
		<p>Thank you for your comment. Increased groundwater data is called for in Priority tasks P2.1.</p>	<p>OWRD</p>
		<p>In spite of ongoing protests, ODFW continues to apply for instream water rights across the state.</p>	<p>ODFW</p>

	Need to balance Instream Water Rights with effort to create the most healthy functioning landscape possible, focusing on recharging excessive drainage during spring thaw and other high/destructive flow events.	Thank you for your comment.	OWRD
	The extremes of climate change which could be cushioned by fully recharged aquifers throughout the watershed	Thank you for your comment.	OWRD
	Maximally recharging our aquifers and putting water into storage as high in the watershed as possible during high/destructive flow events is the most natural, efficient and effective way to protect minimum flows(ISWRs) with springs of colder perineal water	Thank you for your comment.	OWRD
	The most “beneficial use” of water is progressing towards maximally recharging our aquifers, nourishing microbes(bacteria,fungi) and plant life, photosynthesis soil building and carbon storage, preventing desertification.	Thank you for your comment.	OWRD
	John Wesley Powell suggested all political boundaries should be based on watersheds.	See narrative and example actions associated with Action 11A "Improve Watershed Health, Resiliency, and Capacity for Natural Storage", calling for restoration of floodplains.	OWRD
	I believe we need policies and rules that encourage aquifer recharge and large natural filtration basins/floodplains in any available area, beginning at and prioritizing the higher elevations of our watersheds, leaving the maximum opportunities for more retention at each successively lower level.i	"A Restoration Tool - Beaver Modified Landscapes" narrative is included in Chapter 4 of the 2025 IWRS.	OWRD
	Gravity and erosion will tend toward rapid and concentrated drainage of watersheds. Thankfully beaver and buffalo helped brake this process until they were considered more valuable skinned. Hooved grazing animals, constantly moving, herd trained by predators or otherwise, leave in their wake a lightly tilled and manured stubble, not excessively harvested, ideal for enhancing grass production and cover. Man-made means for spreading, retention and recharge are merely modern extension of the beaver’s eco-knowledge.		
	Artificial waterway channelization, for various purposes of convenience, has been way overdone. Compared to the 19th century, we have very little healthy functioning floodplain where waterways are constantly changing course, spreading and slowing the water, recharging our aquifers.	See narrative and example actions associated with Action 11A "Improve Watershed Health, Resiliency, and Capacity for Natural Storage" and 11D "Protect, Restore and Provide Access to Instream Habitat for Fish and Wildlife."	OWRD
	I believe we need policies and rules that tend against rapid channelization and encourage the slowing and spreading of early spring thaw, as high in watersheds as possible. We can no longer depend on or expect a slow melt off of winter snow pack.	The Private Forest Accord calls for new rules to address several upland management issues, including stream buffers, steep slopes, etc. This is associated with Action 11A.	OWRD
	The concept of "carry water" (water saved, or supposedly “not lost”, using piping and other more efficient water management) has been discussed. This concept suggests this water should be considered “new” water subject to appropriation and/or conveyance for lower elevation uses.	The IWRS discusses converting a portion of a consumptive water right to an instream water right when implementing a piping/efficiency project.	OWRD
	In my opinion, this idea short-sightedly ignores the benefits to all levels of eco-systems that accrue by effecting maximum aquifer recharge at each watershed elevation. When water is allowed to saturate soils and replenish aquifers while slowly traveling to lower elevations it has the potential to address and improve	Thank you for your comment.	OWRD
	-desertification, -depleting water tables, -wells going deeper or dry, -subsidence with resulting infrastructure damage, -encroachment of salt water into fresh water, -warm streams that should have cold spring-fed water mixing -aquatic life disruption, -intermittent streams that should be perennial, -the extremes of climate change that could be cushioned by more ground and surface storage, -nourishing of microbes and plant life, -photosynthesis soil building -carbon sequestration and storage, -rapid drainage and soil erosion	see above	OWRD
	Encouraging water users and water use decision makers to preserve priority water use at each natural level is a more purposeful and productive determination of efficient water management than whatever the cause, motive, legal pretext, or covering language is intended by "carry water".	Thank you for your comment.	OWRD
	Check out the water-concerns page on our website https://www.bluemtnranch.com/water-concerns	N/A N/A N/A	
	Book recommendation: “Call of the Reed Warbler” by Charles Massy	Regenerative agriculture is referenced 3 places in the IWRS. Under "Climate Change" stating "Regenerative agriculture practices offer a way to restore degraded soils, increasing organic matter and moisture-holding capacity, and manage them sustainably." Also as an example action under Action 4C Promote Strategies that Increase/Integrate Energy and Water Savings, and Action 10A Improve Water Use Efficiency and Water Conservation.	OWRD
	Is it too late to regenerate the earth? Call of the Reed Warbler shows the way forward for the future of our food supply, our Australian landscape and our planet. This ground-breaking book will change the way we think of, farm and grow food. Author and radical farmer Charles Massy explores transformative and regenerative agriculture and the vital connection between our soil and our health. It is a story of how a grassroots revolution – a true underground insurgency – can save the planet, help turn climate change around, and build healthy people and healthy communities, pivoting significantly on our relationship with growing and consuming food.		
	Using his personal experience as a touchstone – from an unknowing, chemical-using farmer with dead soils to a radical ecologist farmer carefully regenerating a 2000-hectare property to a state of natural health – Massy tells the real story behind industrial agriculture and the global profit-obsessed corporations driving it. He shows – through evocative stories – how innovative farmers are finding a new way and interweaves his own local landscape, its seasons and biological richness.	Thank you for your comment.	OWRD
	At stake is not only a revolution in human health and our communities but the very survival of the planet. For farmer, backyard gardener, food buyer, health worker, policy maker and public leader alike, Call of the Reed Warbler offers a tangible path forward for the future of our food supply, our Australian landscape and our earth. It comprises a powerful and moving paean of hope.	Thank you for pointing out this resource.	OWRD

9	Name/ Organization	Gordon Lyford	Agency Response	Relevant Agency
	Comments	I think the IWRS is well written. I only have one comment. I believe that a voluntary program should be initiated to allow owners of exempt domestic wells to install water meters and report measurements. For some reason placing water meters on exempt domestic wells is controversial. Many wells are not suitable for water meters due to many reasons. Also few owners of exempt wells are qualified to read water meters. However, many people are capable of reading a water meter and would also be interested voluntarily instal a water meter. Therefore, I feel that the WRD should have a program that would seek out volunteers who would want to install a water meter for their domestic well and report readings to the WRD. In 1993 I had the plumber install a water meter on my new well and have read it daily along with the daily temperatures and rainfall. It also would be good to have water measurement taught in public schools as part of the science curriculum. Many people might be interested in helping the WRD measure domestic water use.	Thank you for your comment. Thank you for your comment. While such a program could be beneficial, OWRD would require additional staff capacity to run such a voluntary program.	OWRD
			Thank you for your comment. Thank you for your comment.	OWRD
10	Name/ Organization	Karen Lewotsky, Oregon Environmental Council	Agency Response	Relevant Agency
	Comments	Oregon Environmental Council (OEC) appreciates the opportunity to comment on the second draft of the OWRD’s proposed Integrated Water Resources Strategy (IWRS) update. Our comments will be brief, given the short comment period and the water-intensive nature of the 2025 legislative session. OEC is pleased to see that in the second draft of this IWRS update, OWRD has returned to the 2012/2017 document structure and presentation. Thanks to the agency for addressing comments and concerns raised by the first draft of this document. We are grateful that the “placemat” one-pager summarizing the IWRS has been restored to its original format. In both cases, the clarity and familiarity of presentation makes the material easy to follow and easy to understand.	N/A Thank you for your comment. Thank you for your comment.	OWRD OWRD

<p>We are also pleased to see the updating of the Groundwater Quality Protection (1989) explicitly called out as a Priority 1 Task (P1.1c), and increasing/improving interagency cooperation and collaboration emphasized throughout the document.</p> <p>We support the inclusion of innovative approaches to water conservation and protection, including such approaches as water reuse, AR/ASR, and implementation of natural infrastructure alternatives wherever effective.</p> <p>Exempt wells have long been a concern of OEC's, and we would like to see the mapping of all exempt wells included in the IWRS's data collection efforts.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
	<p>Thank you for your comment.</p>	<p>OWRD</p>
	<p>Action 1B includes an example action for locating exempt wells. The IWRS describes that OWRD has improved location information for wells drilled since 2009. Collecting information for older wells would require significant resources and OWRD doesn't anticipate asking for given other priorities over the next 8 years.</p>	<p>OWRD</p>
<p>Thank you for this opportunity to comment, we look forward to working with OWRD in implementing good water management in Oregon.</p>	<p>Thank you for your comment.</p>	

	Name/ Organization	Comments	Agency Response	Relevant Agency
11	Karen Loomis	If a sign could be posted at areas where water is not safe for dogs, horses, people, etc that would be wonderful. Especially when deadly algae is present.	Historically, only a fraction of water bodies in Oregon with high recreational use by the public were visually monitored or sampled for harmful algal blooms and the cyanotoxins they produce. This situation changed starting in 2024, after the 2023 Oregon Legislature directed and funded the Oregon Department of Environmental Quality and Oregon Health Authority to prepare and implement a statewide recreational HABs monitoring and public health advisory program. DEQ now regularly samples a set of high-recreation-use lakes from late spring through early fall, and reports results to OHA, which works with local water body managers to post advisories onsite. While there are still far more water bodies in Oregon that can be monitored with available staff and laboratory capacity, the state has significantly improved protections for people, pets, and horses at popular locations around the state. The Oregon Health Authority maintains a list and map of known harmful algal blooms are their "Current Cyanobacteria Advisories" webpage.	OHA
	Thank you.			

Name/ Organization	Ken Thompson	Agency Response	Relevant Agency OWRD
Comments	<p>After having worked with ADF&W and the (then) Oregon State Water Resources Board from 1964 to 1976 to determine and program Oregon's minimum instream flows, the reality of our effectiveness for protecting instream resources became disappointing. In theory, out-ofstream uses of water were to be restricted when instream flows dropped below programmed instream levels. But, when water users sought a court restraining order when we tried to restrict their out-of-stream uses, the courts always ruled in their favor, and our work became rather pointless. Water rights dates and Appropriated Water Doctrine procedures made little difference. I don't think judicial politics have changed any in Oregon and can't see any likely change in the outcome of your efforts. Most of our instream flow recommendations reports are on file at https://cbfwl.org .</p>	Thank you for your comment and providing a link to instream flow recommendation reports.	

Name/ 13 Organization	Kimberley Priestley, WaterWatch of Oregon	Agency Response	Relevant Agency
Comments	<p>Thank you for this opportunity to comment on the second draft of the OWRD’s proposed Integrated Water Resources Strategy (IWRS) update. We offer the following comments/suggestions for your consideration. Our comments are structured by section to be read in conjunction with the Draft 2 IWRS.</p> <p>Structure/Framework: WaterWatch strongly supports the OWRD’s decision to revert to the 2012/2017 structure. This is a time-tested framework that is easy to follow, is familiar to legislators and other decisionmakers, and, importantly, is consistent with statutory directives. We thank the OWRD for its work here. We also appreciate that the one page “Actions in a Glance” were moved to the appendices, as it allows a handy shortcut to possible actions that is easily accessible/printable. At the same time, we also commend the OWRD for returning the action “boxes” within the narrative, making reading seamless.</p> <p>IWRS Content: We greatly appreciate the OWRD’s hard work to address many of the comments received. That said, we do have a few additional comments/suggestions as to some of the IWRS content, organized by section. Given the short public comment period overlapped with the water heavy 2025 legislative session, WaterWatch’s comments at this juncture are focused on the Strategy Actions under each Critical Issue and the Agency Director’s Priorities (Appendix E).</p> <p>CRITICAL ISSUE STRATEGY ACTIONS</p> <p>Chapter 1, Understanding Oregon’s Water Resources</p> <p>Action 1A: Improve Water Resource Data Collection and Monitoring. We offer comments/questions on three of the bulleted examples on page 8, in the box titled “Action 1A”.</p> <p>1.Bullet 5: Bullet 5’s call to “assure that statewide groundwater quality monitoring programs are responsive to community need” appears to have replaced the 2017 directive of “Implement an on-going state-wide ground water quality monitoring program”. In our mind, the new language diffuses the intent of the more direct language of 2017. Moreover, it also could lead to confusion as to which community needs it is referencing. As is evident in testimony around HB 1154 (updating groundwater management areas) there are a very wide range of positions on state groundwater quality work in communities—with some wanting more, and some wanting less.</p> <p>That said, we do appreciate the sentiment of the new language, so would suggest a merging of the two ideas so that it is clear that agency work will continue, and that community “health” be a priority.</p>	<p>N/A</p> <p>Thank you for your comment.</p> <p>Thank you for your comment.</p> <p>N/A Please see below.</p>	<p></p> <p>OWRD</p> <p>OWRD</p> <p>ODEQ</p>
	<p>2. Bullet 10: Bullet 10 urges the state to “[e]stablish methods for ecosystem services and incorporate results into planning efforts”. Ecosystem services are still somewhat controversial, due to scientific uncertainties, inherent complexities, challenges in managing across different scales and questions about effectiveness for use in planning. Bills on the issue have failed in the legislature. This directive is of concern primarily because it directs that results be incorporated into “planning efforts”. It is unclear what is meant by this. It would be helpful to understand which state agency suggested this so as to better understand the context/intent to ensure inclusion is consistent with state policy (beyond the nod in the IWRS statute).</p>	<p>The Draft 2 language was specifically chosen to accommodate the lack of resources to "implement" a statewide program. However, HB 1154 directs implementation regardless of funding. DEQ agrees it is acceptable to be more specific about community health. The example action has been revised to "Implement statewide groundwater quality monitoring programs and assure responsiveness to community health."</p> <p>That example action appeared in the 2017 IWRS under Action 11A. The example action was relocated to Action 1A. Some types of planning utilize such information. For example, conservation management planning required for some OWEB grants uses ecosystem services. Clarification has been added to say "when useful."</p>	<p>ODEQ</p> <p>OWRD</p>
	<p>3. Bullet 13: This bullet that advocates for “funding and staffing structures that allow for effecting gaging and staffing of storage and irrigation systems” is a bit hard to parse. If the goal is to increase gauging, the bullet should be narrow to that. If the goal is to increase state hydro tech and/or watermaster staff, that should be clearly stated. If the goal is to set a directive to have the state pay for irrigation district staff, we do not believe that is appropriate for this document, as it is not a state responsibility.</p> <p>Action 1B: Conduct Additional Groundwater Basin Investigations. We strongly support all implementation actions in this section. That said, we would urge the OWRD to consider adding here, or under Action 3A, a directive that the OWRD locate and map all exempt wells in the state. As exempt well use expands statewide, this information is critical to responsible water management.</p>	<p>The goal was to support agency staff. The language for this example action has been modified to "Work with USBR and irrigation districts to help fund state agency staffing to improve measurement of water use and water storage"</p> <p>There is an existing example action under 1B, "Locate and document water wells, including exempt use wells, permitted wells, and unused wells"</p>	<p>OWRD</p> <p>OWRD</p>
	<p>Action 1C: Enhance Interagency Data Coordination. We would suggest moving “Invest in information technology and modernization of databases and applications” higher up the list as we understand that to be one of the top priorities for many agencies (noted in 2025 budget discussions and Agency Director Priorities). While we understand the bullet points are not necessarily in priority order, optics are important. Beyond that one small point, we support the implementation actions in this section.</p> <p>Action 1D: Support Basin Scale Climate Change Research. We appreciate the expanded action examples under this Section (previously found in 5A of the 2017 IWRS).</p>	<p>The example action has been moved up on the list.</p> <p>Thank you for your comment.</p>	<p>OWRD</p> <p>OWRD</p>

Chapter 2: Understand Instream and Out-of-Stream Needs Action 2A: Determine Instream Flow Needs (Quality and Quantity). We strongly support all the implementation actions in this section. That said, we would suggest adding “resolve protested instream water rights” as stand-alone bullet point in this section. This will be a large focus of ODFW (and OWRD) going into the future so it would be helpful have it called out here.	N/A An example action "Improve process for resolving instream water rights protests" has been added to Action 11B (instead of 2A).	OWRD
Action 2B: Determine Needs of Groundwater Dependent Ecosystems. We strongly support implementation actions in this section. Action 2C: Develop Instream and Ecosystem Water Need Forecasts. We strongly support implementation actions in this section. That said, the fourth bullet point is also found in 3b; thus, it is unclear if its inclusion here under ecosystem water needs was intentional or not.	Thank you for your comment. Yes, the inclusion of the bullet under both actions was intentional.	OWRD OWRD
Action 3A: Improve Water Use Measurement and Reportingi. We strongly support all the implementation actions in this section, that said we would urge the OWRD to consider three more action items: (1) Improve the state’s measurement and reporting authority (similar to the now deleted 2017 “improve the state’s reporting authority”); (2) Locate and map all exempt wells in the state; and (3) Require registration of all wells and ½ acre locations that will be using water for small commercial farms (if HB 3372 passes). Existing law allows OWRD to require data on exempt uses; no change in statute needed for this.	1. OWRD believes it has adequate reporting authority, but could benefit from an update to our water measurement authority. OWRD obtained reporting authority during the 2023 session, thus the example action was removed from Action 3A. A new example action has been added "Update OWRD's water measurement authorities" 2. See example action under Action 1B. 3. OWRD does not have resources to require registration and has higher data needs.	OWRD
Action 3B: Regularly Update Out-of-Stream Water Demand Forecasts. It would be helpful to direct demand projections with a conservation overlay; this has been a topic of discussion since the OWRD’s OWSCI efforts more than a decade ago.	OWRD will determine the scope at the time they commision a new forecast demand.	OWRD
Action 3D: Authorized the Update of the Water Right Records with Contact Information. As noted, either here or in Action 1B, we would urge the state to move forward on locating/mapping exempt wells. This is critical for both management and planning purposes. Chapter 3: Understand the Pressures that Affect Our Needs and Supplies Climate Change: We appreciate the inclusion and the crosswalk of climate change action items. It is important that the IWRS have this section so that those who are interested can find all the actions in one spot. Thank you for this addition.	There is an existing example action under 1B, "Locate and document water wells, including exempt use wells, permitted wells, and unused wells" N/A Thank you for your comment.	OWRD OWRD
Water and Energy: Action 4A: Analyze the Effects on Water from Energy Development Projects and Policies. We appreciate that Draft 2 moved this section out of the ecosystem section, and back to the Water and Energy section. Thank you for this change.	N/A Thank you for your comment.	OWRD
Action 4B: Develop Non-Traditional Hydroelectric Power. This section has grown from one bullet point to five, with the larger message focused on producing more power. The narrative urges energy development without qualifying this advocacy within the context of Oregon’s policies on hydropower, which are very centered on ensuring that any new hydropower development adhere to the state’s strict natural resource protection policies (e.g. see ORS 543.015 and ORS 543.017). And even sections where protective policies are mentioned, such as the NW Power and Conservation Council’s Columbia River Basin Fish and Wildlife Area protection areas, the heading is “modify existing dams to add power production” rather than something akin to “ensure protection of Oregon’s natural resources when developing power.”	Action 4B received significant input from ODOE during Draft 1 development. Action 4B narrative has been modified for the final draft.	OWRD
Long story short, Oregon has very strong natural resource protections in place for hydro development and we would urge OWRD ensure the IWRS reflect this, especially in the face of new federal threats. It is also noteworthy that on May 11, 2025 Oregon joined 14 other states in a lawsuit challenging President Trump’s “Energy Emergency” Executive Order, meant to undercut environmental sideboards on energy development. The IWRS should align with this and other state work. As such, we would urge OWRD to weave in Oregon’s natural resource protective energy policies into the narrative, titles and bulleted examples implementation actions.	The following language has been added to the section discussing Action 4A: “Municipal and privately-owned hydropower facilities, as well as those authorized by the Federal Energy Regulatory Commission, are reviewed and evaluated by a multi-state agency Hydroelectric Application Review Team (HART) established under ORS Chapter 543A. HART members develop a coordinated state position and provide required conditions and recommendations during reauthorization of existing projects to maintain, enhance, and protect the natural resources of Oregon from adverse impacts caused by the continued existence of a project. The state position includes, but is not limited to, decisions relating to the allocation of water, certification of water quality, and other state regulatory actions.”	ODFW
Action 4C: Promote Strategies that Increase/Integrate Energy and Water Savings. One of the new example actions under Action 4C is to “promote resources that expand irrigation water and energy efficiency and conservation”. This directive does not seem to fall under the title and also is somewhat disjointed. For example, “expanding irrigation” has nothing to do with increasing/integration of energy and water savings. It is also unclear what is meant by “promote resources”. We would urge the removal of this bullet as it does not achieve the stated purpose under this subsection.	The example action calls for more irrigation water and energy efficiency/conservation, not more irrigation. The wording has been modified for clarity.	OWRD
Natural Hazards: Action 5A: Plan and Prepare for Drought and Wildlife Resiliency. While we appreciate the focus here, this section would be strengthened by adding implementation actions that have a bit more teeth. This has long been a topic of discussion. As an example, please see suggestions in WaterWatch’s attached 2015 Memo to the Drought Task Force (attached). Otherwise, we do support the action items included, including, importantly, exploring ways to protect minimum stream flows during drought declarations.	N/A Example actions have been provided by drought staff and provide a comprehensive list of example actions.	OWRD
Action 5B: Plan and Prepare for Flood Events. We would suggest that you the additional example actions of (1) Floodplain Restoration and (2) Dam Safety. Floodplain restoration was suggested by a commissioner in the initial 2023 IWRS Commission Workshop (Harney County) as an important addition to the updated IWRS. And dam safety, while noted in other sections of the document, is a critical piece of preparing for flood events.	Action 5B Example action "Invest in built and green/natural infrastructure (ie nature-based solutions), refer to Actions 6B, 7A, 11A-11E" addresses floodplain restoration. An example action has been added near the levee-related example action to "Support dam safety (see Action 7C)"	OWRD
Land Use Planning: This section has been changed from “Water and Land Use” to “Land Use Planning”. It is unclear why this change was made as the purpose of the IWRS is to integrate agency actions related to water, including those related to land and water. It is our understanding that DLCD did not advocate for this change. If OWRD does not like the original title, we would suggest that at the very least it state “Land Use Planning and Water”.	Please revisit the narrative for the 2017 "Water & Land Use" section. All narrative centers around Oregon's Land Use Planning system. In order for a critical issue to holistically address water and land use, several actions from Chapter 4 would need to be relocated. The new title accurately reflects the content.	OWRD
Action 6A: Improve Integration of Water Information and Land Use Planning. Thank you for returning the first bullet relating to protecting natural resources to this section; this is a cornerstone of this subchapter. As to the other provisions, we have questions as to the genesis of the directives to provide resources to local governments to undertake tasks that generally fall under county purview. Putting county funding needs into a document that is largely focused on state agencies does not seem the appropriate vehicle for these recommendations, especially since many of the state actions outlined in the document do not discuss the underlying funding needs. If OWRD keeps these, we would ask that all agency actions also have a funding component to ensure that there is parity (though we would suggest state funding be the clear priority).	Thank you for your comment. It is a long standing practice for DLCD and other state agencies to support local government efforts to update and improve their land use planning programs. Support is delivered through both technical assistance and financial assistance.	DLCD
Chapter 4: Meet Oregon’s Instream & Out-of-Stream Needs Action 9A: Support Place Based Integrated Planning and other Planning Efforts. As we have stated previously, we object to the expansion of this section beyond “Place Based Planning”. Place based planning has sideboards and goals, “local planning” does not. This directive could provide an avenue for people to advocate for state funding of local plans that are not developed with a balance of interests to meet both instream and out-of-stream needs. To the extent the state wants to call out state basin planning (as has been stated in presentations), it can just say that and/or limit the directive to “other state planning efforts”. It is important to note that neither the Place Based Planning Assessment or the Regional Water Management Workgroup endorsed state funding of “other plans”, in fact the Regional Water Management Workgroup purposefully narrowed the discussion to Place Based Plans. So again, we would urge the narrowing of this title to “Place Based Planning” as it was in the 2012 and 2017 versions.	N/A Planning needs have grown and evolved since the 2012 and 2017 IWRS and the 2025 IWRS accurately reflects that. As a statewide Strategy, programs beyond OWRD’s PBP should be reflected.	OWRD
Action 9B: Coordinate Implementation of Natural Resource Plans. This section has directives to dedicate resources to coordinating, reconciling, updating, and implementing plans, including local plans. As noted previously, local plans sometimes conflict with state, tribal or federal natural resource plans. In these instances, a directive to integrate could work against state work (e.g. Thornburgh Resort in Central Oregon). We would suggest qualifiers to ensure protection of state policies and flexibility. Moreover, to the extent that this section has also been updated to urge funding of local government and municipal planning, there needs to be parity (and prioritization) of funding of state agencies to do this work.	Thank you for your comment.	OWRD
Action 9C: Partner with Tribes, Federal Agencies, and Neighboring States on Long Term Water Resources Management. Support.	Thank you for your comment.	OWRD

Action 9D: Improve State Agency Coordination. While we fully support improving state agency coordination, we urge language to ensure it is clear that in working towards better coordination individual state agencies retain full autonomy to work to achieve their missions. For example, in our opinion is not appropriate for the OWRD to determine workplans or priorities, or establish measurable outcomes or objectives, for other state agencies. A statement related to ensuring agency autonomy would be appreciated. Water Use Management: Action 10A: Improve Water Use Efficiency and Water Conservation. We have three main comments on this section: 1. Conservation projects that use the Conserved Water Act provide efficiency and water supply benefits to water right holders but also require a certain percentage of the saved water be put instream. As the state tries to address water scarcity across spectrums, and addresses longstanding inequities, we would urge the OWRD to highlight this as a recommended bullet. Work in the Deschutes provides a good example, where conserved water has accounted for the bulk of the instream flows restored to the Deschutes. 2. Bullet three has a funding provision for agricultural efficiency projects that was not in the 2017 IWRS. By inserting this here, it could be used to try to influence funding decisions within the Agency’s Water Development Grant and Loan Program and/or Feasibility Fund. We would ask that OWRD take out the word “funding”. As a general matter, we would ask that OWRD grant/loan staff look over all the recommended actions over to ensure that the document does not create an unfair advantage for some interests/projects over others within the agency programs. 3. It is unclear what “ensure disadvantaged communities are not overburdened by mandatory or voluntary water conservation means”. It could be read as a prompt to reduce regulations. If retained, we would urge reworking so that the focus is on assistance with funding, not an out to complying with laws/regulations.	Thank you for your comment. The development of an IWRS workplan will be done in coordination with the Governor's Office and all relevant agencies.	GO
	N/A N/A The Allocation of Conserved Water program is covered in Action 11B, but an example action has been added under 10A as well. The example action referring to funding for agricultural efficiency does not modify any grant evaluation processes. The bullet regarding "ensure disadvantaged communities are not overburdened..." could have solutions beyond funding. The language was provided by our DEIJ expert and will remain.	OWRD
Action 10B: Encourage Water Reuse Projects. Please add to framing the bulleting language that aligns with 2025 legislative agreements that tie support of reuse projects to those that “that protect human health and the environment” (HB 2169A).	This language already appears as "...reuse projects take into consideration potential environmental and public health impacts" in the Purpose paragraph.	OWRD
Action 10C: Improve Access to Storage. (1) Bullet 2, please align language with HB 2988A, which encourages promoting AR/ASR in a manner that protects public health, water quality and ecosystems. (2) Bullet 3: As noted in our previous comments to Draft 1, it is unclear what recommendations are meant here, we would suggest clarifying by “as directed by Congress in the Water Resources Development Act of 2020”. (3)Bullet 5: We would ask that you also add “decommissioning”, along with maintenance and rehabilitation needs of reservoirs.	Bullets 2 and 3 have been modified. Bullet 5 has not been modified. The IWRS discusses the need to decommission dams is several places, e.g., Actions 7A and 7C both call for decomissioning dams. Adding "decomissioning" at this location does support the purpose of Action 10C.	OWRD
Action 10D: Reach Environmental Outcomes with Non-Regulatory Alternatives. Our two primary concerns are as follows: 1. Bullet 3: This bullet calls on the state to develop protocols for translating streamflow restoration into credits and accounting systems. Unless this was suggested by DSL for its existing stream credit program, we strongly oppose this. Of concern is the fact that despite the fact that DSL already has a streamflow credit program, for the past three legislative sessions, there have been efforts by one legislator to try to advance a “salmon credit” bill that would allow stream habitat destruction in the name of stream habitat restoration. These bills have been soundly rejected, and concerns have been raised by agencies, including DSL and ODFW. Thus, unless this bullet is tied directly to DSL’s existing program, this directive could be used by bill proponents as evidence that the bill aligns with state priorities. So again, please remove (or tie directly to the DSL program—if requested by DSL) to thwart any misuse of this. On that point, we would encourage OWRD to have agency legislative teams screen all recommended actions to ensure that any new directives are not counter to agency positions in the legislature or otherwise.	N/A Bullet 3 is not new, it was retained from the 2017 IWRS.	OWRD
2. Bullet 8: Unless this was suggested by OWRD groundwater section, we would urge removal of this. That said, if you do retain this, please qualify that the framework will be developed in an open and transparent OWRD process and have a balance of interests at the table (including tribal and instream).	Additional language is unnecessary.	OWRD
Action 10E: Provide an Adequate Field Presence. We strongly support the recommendation to increase field staff capacity, but it should be for the myriad of duties expected of them, including regulation, not just the subset noted in bullet 7. Providing a narrow scope could lead to unintended consequences. Healthy Ecosystems: Action 11A: Improve Watershed Health, Resiliency and Capacity for Natural Storage. Support all existing and new example actions. Action 11B: Develop Additional Instream Protections. Support all existing and new example actions. Action 11D: Protect, Restore and Provide Access to Instream Habitat for Fish and Wildlife. Support all existing and new example actions. Action 11E: Develop Additional Groundwater Protections. Support the recommended actions, however we would suggest adding additional bullets relating to: (1) Better protecting groundwater quality through the adoption/utilization of Oregon’s groundwater management program (see Gov Kotek’s HB 1154), (2) Reforming Oregon’s exempt well statutes to better protect water right users, groundwater supplies and ecosystems, (3) Identifying all areas in the state where groundwater withdrawals have triggered scenic waterway protections, and (4) Exploring methods to protect groundwater in situ.	Bullets are example actions.	OWRD
	N/A Thank you for your comment. Thank you for your comment. Thank you for your comment.	OWRD OWRD OWRD
	1 An example action has been added to "Implement improvements to groundwater quality management (SB 1154, 2025) 2. Not added. Further work needs to be done to assess whether or what updates need to be made. OWRD has other priority work. 3. OWRD has already done this work and is available online. Item 4 has been added.	OWRD
Clean Water: Action 12A: Ensure the Safety of Oregon’s Drinking Water. We would suggest additional bullets aimed at: (1) protecting groundwater quality (e.g HB 1154) and (2) exempt well reform (e.g. backflow protection measures, limit commercial use, etc).	N/A 1. An additional example action has been added to reflect the scope in SB 1154: "Implement improvements to groundwater quality management (SB 1154, 2025)." 2. Not added. Further work needs to be done to assess whether or what updates need to be made. OWRD has other priority work.	OWRD
Action 12C: Implement Water Quality Pollution Controls. Support suggested items, though we would encourage OWRD to work with DEQ to include some directives related to water quality related to and/or caused by reduced flow.	Thank you for your comment. OWRD and DEQ are coordinating on water quality impacts of water use and reduced flow in many program areas identified throughout the IWRS document. DEQ and ODFW provide review of new water permit applications to ensure that sensitive, threatened, and endangered species are not impacted.	ODEQ
Funding: Action 13A and 13B: We would suggest that the IWRS team meet with agency legislative staff (across agencies) to ensure all funding/budget needs are included. These sections do not seem as robust as they could be. Nor as urgent, frankly.	N/A Agencies have reviewed and contributed to 13A and 13B. Identifying specific budget needs in 13A and 13B is impractical given the effort required and the lifespan of the document. The prioritization and workplan processes can be more tailored to biennial budget needs than an eight-year IWRS.	OWRD
Action 13A: Fund development and Implementation. This bullet does not stress state agency funding to the degree it should; instead it seems largely focused on funding the OWRD IWRS work. While we do not object to this, we feel strongly it should be placed after what is now13B. So in other words, it would be helpful to have the broader agency needs first since that is likely the first thing legislators and others will read and/or focus on. Action 13B: Fund Water Resources Management Activities by State Agencies. We would suggest more attention to this section to add more urgency and need to what is presented.	The action order will continue to match the 2017 order.	OWRD
	The prioritization and workplan processes can be more tailored to biennial budget needs than an eight-year IWRS.	OWRD
For example, Bullet 4 has grouped together funding needs for items that are critical to state agencies under “agency operations and equipment”. In our estimation the presentation really undersells the urgency and need of the items contained in parenthesis, including IT, data and management. We would suggest breaking all the items in the parentheses into their own bullets. Similarly Bullet 5 related to fees is coined as “allow agencies to adjust fees” rather than the stronger “adjust fees”. Another example is Bullet 7, which simply says “support agency capacity to carry out the Strategy”. While we strongly support this, it could use a little more pizazz to sell the need to legislators. Given that this section is critical to implementation, we would urge a cross check with Agency Requested Budgets to incorporate agency language that speaks to the compelling need to fund this work.	Bullet 5 uses specific language provided by an agency as they did not have the authority to adjust their fees. The IWRS biennial workplan development is the appropriate place to inform Agency Requested Budgets and articulate funding needs.	OWRD
As to the last bullet, Bullet 9, this is more appropriately placed in Action 13C which provides examples of funding to non-state agencies.	State agencies must be funded to provide technical assistance. "Federal" agencies has been deleted, SWCD's remains as they are funded through state agencies.	OWRD
Action 13C: Invest in Planning, Feasibility Studies, and Water Resource Project Implementation. A few of our comments include:	N/A	OWRD

1. Bullet 1: This bullet has been expanded from the 2017 to call not only for state funding of the development of place-based plans but also funding of “plan implementation”. This directive is inconsistent with the Regional Water Management Report and also OWRD rules (Div 602), which restrict implementation funding to implementation coordination. We flagged this in the last iteration and are concerned that this remains in the document. We urge OWRD to have Division Administrators review the action items to ensure they are consistent with agency positions, statute and rule. As to this specific language, please either remove “plan implementation” or qualify it with “plan implementation coordination”.	Engagement called for a need to fund PBP implementation. The example action is broader than specific PBP grant award rules and identifies the gap in funding for implemenation.	OWRD
2. We would suggest adding directives to fund agency participation in planning, agency data collection/synthesis, and other work found in the Regional Water Management Workgroup Recommendations (relating to investment in planning). Specific language from that Report includes: Any state-supported regional water planning efforts must be underpinned with the budgets and capacity needed to do this work at the state level. To meet this need, state leadership must prioritize and address the current overarching system-level need for funding related to state agency data collection and analysis, agency capacity, and interagency coordination.	Funding for agencies is addressed under Action 13B.	OWRD
PRIORITY TASKS, EXHIBIT E	N/A	
WaterWatch lent support to the idea of Agency Director Priority Tasks in previous comments and testimony to the Commission. As we understood it from GNRO representations, and the information distributed and discussed at the stakeholder meetings, the intent in doing this was to allow agency directors to identify some high-level priorities for their respective agencies to focus on over the next few years (in relation to the IWRS). Those priorities would then be part of individual agency workplans but would not exclude other work. The list provided to the public generated by the Directors (attached) captured some concepts important to the state and are positive steps forward.	Priorities will be incorporated into a 2-year IWRS workplan, to be implemented by many agencies	OWRD
That said, while we were supportive of the initial concepts generated by agency Directors, we have some concerns with the priority document that is captured in Appendix E of the Draft 2 Update. Rather than leaving the Director priorities at high level directives for agencies to move forward on within the scope of their authorities and the leadership of their individual Directors, it appears that Exhibit E has inserted and/or changed details as to meaning, scope and execution, which both takes away agency flexibility and undercuts agency autonomy. Moreover, it appears that some of the Agency Director goals have also been greatly diluted and/or removed entirely. And finally, it appears that there has been some reshuffling of the deck so to speak between buckets, which in our view changes the points the directors were trying to make in their recommendations.	Priorities have been refined by agency directors and the Governor's Office.	GO
We have noted some specific concerns below but will note that because so much has been changed between the document delivered to the Commission/public and Exhibit E, that it was extremely difficult to cross check Agency Director suggestions with the Exhibit E.	N/A	
A. Measurable Outcomes: In a departure from the Agency Director Priority document that was shared with the public and the Commission, Exhibit E’s Priority Areas now have “measurable outcomes” embedded in the chart. The addition of measurable outcomes, for the most part, seems to dilute the power of the Director priorities by constraining flexibility, focusing on narrow prescriptive direction and, at times, offering measures inconsistent with the Director’s priorities. Specifics concerns are noted below.	State leadership directed the inclusion of measurable outcomes.	OWRD
1. Measurable outcomes are unnecessarily prescriptive: In many cases, measurable outcomes are not “outcomes” per say but rather steps to be taken under the priorities. For example, directives to convene workgroups or ask for legislative policy or budget support are listed as outcomes. Our greatest concern with this new approach is that by prescribing specific actions over results, the document both constrains agency flexibility to meet the overarching priority over an 8-year span and undermines the force of the document to elicit the change needed1. We would suggest removing prescriptive measures altogether. Those seem better suited for the upcoming agency ISWR workplans.	Priorities have been refined by agency directors and the Governor's Office.	OWRD
2. Some measurable outcomes limit agency autonomy by directing how agencies are to achieve priorities: While the IWRS is meant to integrate agency actions in relation to water, at no point was the intent of the IWRS and/or the language of the statute meant to allow any one agency to direct other agency work. As an example, under “Prioritize locations for cold water refugia and identify tools for protection”, a measurable outcome is to “convene a workgroup”. As we understand it, this was generated by OWRD not ODFW. In addition to the fact that this directive could compromise the very goal of protecting cold water refugia--both by opening up scientific determinations to political pressures in a workgroup and by possibly delaying implementation if the ODFW does not have the resources for a workgroup--is not appropriate for OWRD to design directives for other agencies.	Priorities have been refined by agency directors and the Governor's Office.	OWRD
3. Possible mootness issues related to “Measurable Outcomes”: The Agency Priorities were developed in the late fall. Since that time, there have been a number of bills related to the topic areas. Some of the “measurable outcomes” directly tie to these bills (e.g. P.1)2. Given this is an 8-year strategy, it does not seem prudent to limit the outcomes to bills that, if passed, will moot the measurable outcomes before the IWRS is even adopted. We also question the direct tie to bills, as directives will live on in the IWRS if they are not passed and, also, the bills relied upon were not agency bills. We would suggest, as noted previously, simply dropping the “measurable outcomes”. If that is not a possibility, these should be updated.	Priorities have been refined by agency directors and the Governor's Office.	OWRD
4. Language choices do not reflect usage in legislative and/or policy forums: Somewhat related to concern #3, it appears that to the extent language was borrowed from bills the measurable outcomes do not contain final language but rather introduced bill language. As an example, HB 3988 which started out as a bill directing the “removal of barriers” related to AR/ASR3 passed out of Committee in amended form which replaced “identify barriers” with “identify opportunities to improve.....in a manner that protects public health, groundwater quality and ecosystems”. In another example, the IWRS measurable outcomes sections call for “modernize and create more efficient permitting processes.” The discussions at the OWRD and GNRO level have focused on “process improvements” not “efficiency” or “streamlining” or “reduced time from application to decision” as noted in the IWRS. Water right improvements are not limited to expediency measures as the language provided implies.	Priorities have been refined by agency directors and the Governor's Office.	OWRD
5. Some measurable outcomes fall short of what agencies could and should do: As an example, on P.1.2 has “Increase compliance with existing laws to protect and prevent water quality, water quantity, and habitat degradation and water level declines that negatively impact public and ecosystem health.” A laudable goal. The P.1.2a “task” under this is to seek compliance and enforce permit conditions. Again, a laudable goal. Yet, the measurable outcome (specific to compliance) is focused on notifying permit holders and compliance checks, with no indication the agency will take all enforcement steps necessary to ensure compliance. Long story short, while the priority is commendable and consistent with the management duties of the agencies, the “measurable outcome” falls short of what agencies can and should do—which is enforce. Of concern, diluting agency autonomy, power and decision making by providing weak “measurable outcomes” could be used against agency action by stakeholders and, more importantly, in policy and budget work in the legislature. Again, we would urge that Exhibit E simply put forth the high-level priority and tasks only, and then let agencies meet that within their individual management authorities.	Priorities have been refined by agency directors and the Governor's Office.	OWRD
6. Expanding of one agency priority to all agencies: The Agency Director exercise had Directors making recommendations as to what their agencies could do to meet top tier priorities. For example, in the Director’s Priority document, DEQ identified the need for MOUs, if needed, to achieve its agency specific goal of pursuing reduction in nutrient loading and other contaminant loading to aquifers and streams. Exhibit E, however, expands this to a much broader scope to address all five agencies, with the “measurable outcome” being “Convene interagency workgroup to identify needed new or updated MOUs. Develop MOUs for effective implementation of the actions identified in the Integrated Water Resources Strategy”. While some MOUs are helpful, MOUs are not needed for many agency actions in the IWRS. This conflation will only add more time to the work needed. This directive could be used against agencies to stall implementation on select items.	Priorities have been refined by agency directors and the Governor's Office.	OWRD
7. Diffusing the goals of the priorities by burdening with unneeded activities: Priority Area One is titled “Act with Urgency”, yet under this priority, under the 8 tasks identified there are 3 workgroups called for in the measurable outcomes. This seems contrary to the “act with urgency” directive and also seems unnecessary. For example, a workgroup is not needed for cold water refugia protection and will only serve to slow down the science-based work of the agency. (P.1.3).	Priorities have been refined by agency directors and the Governor's Office.	OWRD
B. Tasks: Here too, we have concerns that Exhibit E, in spots, has deviated from what was developed by Agency Directors, resulting in changed scope, actions and intent. The Agency Director exercise was focused on the most important things the state should do (related to water), the biggest things each agency could contribute, and what was needed to make that happen. Exhibit E deviates in a number of ways from the Director exercise (compare documents for full scope).	Priorities have been refined by agency directors and the Governor's Office.	OWRD
In addition to general concerns noted, we raise the following for your consideration as well:	N/A	
1. The words “instream and out-of-stream” are generally not included within tasks that often times provide multi-use benefits. Leaving out the words “instream and out-of-stream” generally tends to disadvantage instream benefits/work in relation to water conservation and efficiency, water projects and other endeavors which optimally would benefit both instream and out of stream needs. Examples include but are not limited to P3.1a, P31b, P3.1c where the suggestions would be improved if the words for “instream and out-of-stream benefits” were added to all three.	Thank you for your comment.	OWRD

	<p>2. Technical assistance and funding are not equitably distributed: The original agency priorities and suggestions that were directly or indirectly related to funding are both broad and narrow. Broad directives included things like “provide funding and technical and resources to get big projects done”, or “support infrastructure projects where it provides climate adaptation and sustainable growth”. Narrow directives included suggestions for funding and/or technical assistance from DLCDC, ODA and ODFW to stakeholder groups to work on projects and/or planning, including importantly, NGOS (ODFW). Exhibit E, on the other hand, does not make clear that the broad directives are geared at both instream and out-of-stream projects, potentially putting instream project proponents at a disadvantage in funding venues. And while the specific directives for cities, counties and SWCD made it in, the ODFW Director recommendation for flow restoration capacity building (NGOs, ODFW, etc) does not appear to have made it in that we could find. We would suggest a copy review to ensure all nods to funding are equitably distributed, and most importantly that state agency funding to do the work is a clear top priority.</p> <p>3. Agency specific tasks that have been broadened to all agencies could have unintended consequences. The Director’s were asked questions specific to their agency work yet Exhibit E has now broadened suggestions specific to an agency across other agencies. In some instances that is fine, but in others we do have concerns about unintended consequences.</p>	<p>Priorities have been refined by agency directors and the Governor's Office.</p> <p>Priorities have been refined by agency directors and the Governor's Office.</p>	<p>OWRD</p> <p>OWRD</p>
	<p>Priority Areas: Exhibit E has reshuffled the Director’s priorities that, in spots, appears to change the original intent as delivered by the Directors. Two examples include:</p> <p>1. Removing urgency where needed: The reshuffling has moved some important actions in a way that dilutes the sense of urgency. For example, priorities that that used to be found under the state’s first priority of “Prevent things from getting worse” (aka “Act with Urgency) are now found under the umbrella “Assist Communities with Preparedness Efforts”. For example, in the Director’s exercise, OWRD identified “support to modernize IT systems, conduct basin assessments and studies, update basin rules, complete WARS update and increase comms capacity” as what the state needed to do meet its identified goals to prevent things from getting worse. That this has now been moved to “increase and improve communication between agencies and the public to share critical information about water scarcity, water quality and ecosystem needs”, both changes the meaning and, importantly, the sense of urgency. As a group that is deeply involved in budget and policy discussions in Salem, we are very concerned that this (and other similar changes) will dilute the ability of the agencies, the governor and advocates to help urge the legislature to fund the initiatives that are absolutely critical to better water management.</p> <p>2. “Helping Communities and Ecosystems Adapt” Priority: The Community and Ecosystems Adaptation bucket appears to incorporate some planning heavy priorities that we could not find in the Agency document. We would urge review to ensure the Director’s priorities are adequately captured and presented.</p>	<p>Priorities have been refined by agency directors and the Governor's Office.</p> <p>Priorities have been refined by agency directors and the Governor's Office.</p> <p>Priorities have been refined by agency directors and the Governor's Office.</p>	<p>OWRD</p> <p>OWRD</p> <p>OWRD</p>
	<p>Additional comments Exhibit E: Exhibit E should be qualified so that readers understand that these priorities are specific to the six agencies that participated. Other agencies, such as Oregon Department of Parks and Department of State Lands were not included. Given Parks is the agency that designates new Scenic Waterways, and DSL must protect rivers and wetlands in removal fill activities, their work should be highlighted in other ways and/or brought into the document. Given the limited tools available to protect/restore streamflows, we would urge inclusion of priority actions such as: designate new scenic waterways, designate additional Outstanding Resource Areas, protect/restore wetlands, etc.</p>	<p>An introduction has been added to Appendix E to explain agency participation.</p>	<p>GO</p>
	<p>Conclusion: Draft 2 is a great improvement over the initial draft. We appreciate the OWRD’s work to align Draft 2 with the original 2012/2017 scaffolding that has served the state well. The result is an easily understandable document that does a good job in addressing both instream and out of stream data gaps, pressures and needs. This will be helpful to state agencies in prioritizing water work, as well as stakeholders who advocate for state agency programs and budgets.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>
	<p>We appreciate the opportunity to comment and hope you will consider our comments as an attempt to provide constructive feedback. If you have any questions, please do not hesitate to contact me. Again, thank you for your hard work.</p>	<p>Thank you for your comment.</p>	<p>OWRD</p>

14	Name/ Organization	Melanie Klym, American Rivers	Agency Response	Relevant Agency
	Comments	On behalf of American Rivers, I am submitting comments on the Draft 2 version of Oregon’s Integrated Water Resources Strategy. Rivers provide our drinking water, grow our food, and sustain our spirits. Today, our rivers are at risk as never before from climate change, pollution, drought, flooding, and loss of natural habitat. Nothing short of our health and safety are at stake. American Rivers works alongside communities that are hardest hit as we champion a movement to protect and restore the rivers on which we all depend.	N/A	
		We appreciate the organization of the integrated water resources strategy and the actions to address Oregon’s water management needs. The following pages contain our detailed comments on the strategy’s objectives and actions.	Thank you for your comment.	OWRD
		Thank you for your investment in the health of Oregon’s people and watersheds.	Thank you for your comment.	OWRD
		Action 1A – Improve Water Resource Data Collection and Monitoring	N/A	
		•American Rivers supports the inclusion of Harmful Algal Bloom monitoring in waterbodies with high recreational use; we also recommend monitoring upstream of drinking water intakes.	Thank you for your comments.	ODEQ
		•American Rivers supports the monitoring and evaluation of habitat conditions and watershed functions, especially the effects of lateral and longitudinal connectivity.		
		•American Rivers supports the evaluation of spiritual and cultural values of instream flows. We encourage you to consider other ways of knowing in addition to quantifying ecological flow targets.		
		Action 2A - Determine Instream Flow Needs, Quality and Quantity	N/A	
		•American Rivers supports the understanding that healthy streams are dynamic.	Thank you for your comments.	OWRD
		•American Rivers supports the need to protect ecosystem functions with instream flows.		
		Action 3C - Determine Unadjudicated Water Right Claims	N/A	
		•American Rivers supports the adjudication of tribal water rights to establish the priority dates of those needs.	As outlined in Action 11B, there are limited routes to secure instream protections. Instream water rights can be applied for by three agencies, ODFW, ODEQ, and OPRD.	OWRD
		•American Rivers recommends considering instream flow dedications for remaining unallocated water rights.		
		Action 3D - Authorize the Update of Water Right Records with Contact Information	N/A	
		•American Rivers supports the Water Resources Department in maintaining complete, accurate water rights records with correct contact information and geographic data.	Thank you for your comment.	OWRD
		Action 4A - Analyze the Effects on Water from Energy Development Projects and Policies	N/A	
		•Some environmental justice impacts, especially to sacred places, cannot be mitigated and should be avoided. American Rivers recommends early and frequent consultation with Tribes when considering where to site projects.	Thank you for your comment. A sentence has been added to Action 4A narrative, right after the first sentence, "Reservoirs behind dams emit methane, a potent greenhouse gas."	OWRD
		•American Rivers supports the additional authority and resources to include hydrologic and ecological harms in dam reviews.		
		•American Rivers encourages Oregon to recognize the methane emission from dammed reservoirs in consideration of climate change impacts. From the Hydropower Reform Coalition1: “As a methane producer, hydro facilities should be required to assess, report, and mitigate emissions rather than being lumped in with wind, solar, and other energy sources considered “clean.””		
		Action 4B - Develop Non-Traditional Hydroelectric Power	N/A	

<ul style="list-style-type: none">•American Rivers supports the requirements for fish screens, by-pass devices, and fish passage for hydroelectric water rights certificates.•American Rivers supports adding hydroelectric generation at existing artificial delivery systems and municipal systems.•American Rivers recommends consideration of dam age and condition, safety risks to downstream residents and recreational water users, and ecological impairment to determine whether modifying non-hydroelectric dams to produce power is in the public interest.•American Rivers does not support the modification of non-hydroelectric dams to produce power unless the dams are brought into compliance with fish passage and dam safety requirements. The retrofit of existing dams should not be used to justify unsafe dams or dams that have outlived their useful purpose remaining on the landscape.•American Rivers supports research into pumped storage technologies that lead to greater integration of wind and solar generation into the energy supply or reduce the impacts pumped storage hydropower has on river ecosystems.•American Rivers does not support the development of new on-river dams, diversions, dikes, or reservoirs, although we encourage the development of pumped storage at previously disturbed sites where the project will have minimal environmental, cultural, and recreational impacts, such as:<ul style="list-style-type: none">o closed loop projects at abandoned mines,o projects on reservoir systems with multiple existing storage impoundments, oro irrigation and navigation projects where pumped storage reservoirs can provide additional public benefits such as stormwater management or flooding mitigation.	Thank you for your comment.	OWRD
<p>Action 4C - Promote Water and Energy Savings</p> <ul style="list-style-type: none">•American Rivers supports the integration of energy and water savings and multi-benefit projects. We recommend consideration of point of diversion consolidation to reduce the number of dams and diversions from our waterways while meeting water users’ needs through improved water use efficiency.	N/A Thank you for your comment.	OWRD
<p>Action 5A - Plan and Prepare for Drought and Wildfire Resiliency</p> <ul style="list-style-type: none">•American Rivers supports identifying, assessing, and assisting those communities and ecosystems more vulnerable to drought and wildfire.•American Rivers supports additional voluntary measures to improve streamflow and protecting minimum streamflows during drought declarations.•American Rivers supports investment in nature-based solutions especially floodplain reconnection. Research on the Sprague River showed that a restored beaver meadow protected vegetation and maintained surface water during a wildfire: https://www.scientificamerican.com/article/beaver-dams-help-wildfire-ravaged-ecosystems-recover-long-after-flames-subside/	N/A Thank you for this resource. Beaver modified habitats are discussed in more detail in Chapter 4, "Healthy Ecosystems."	OWRD
<p>Action 5B - Plan and Prepare for Flood Events</p> <ul style="list-style-type: none">•American Rivers supports the recognition that dams and levee failures can cause catastrophic downstream flooding.•American Rivers supports investment in flood risk mapping and channel migration zones to identify flood prone areas. We encourage Oregon to consider landuse policies similar to Washington state’s to limit development within channel migration zones to help reduce flood and erosion hazards and costly repairs while preventing the loss of crucial floodplain habitat.	N/A Additional narrative has been inserted about DOGAMI's channel migration mapping.	DLCD
<p>Action 6A - Improve Integration of Water Information and Land Use Planning</p> <ul style="list-style-type: none">•American Rivers supports the protection of natural water bodies in the course of land use decisions and updating land use protections for water bodies incorporating best available data.•American Rivers supports investment in flood risk mapping and channel migration zones to identify flood prone areas. We encourage Oregon to consider landuse policies similar to Washington state’s to limit development within channel migration zones to help reduce flood and erosion hazards and costly repairs while preventing the loss of crucial floodplain habitat.•American Rivers supports inclusion of environmental and social justice information in land use planning.	N/A Thank you for your comments.	DLCD
<p>Action 6B - Encourage Low Impact Development Practices and Green Infrastructure</p> <ul style="list-style-type: none">•American Rivers supports the use of green infrastructure and low impact development.•American Rivers encourages the use of nature-based solutions and natural infrastructure in lieu of built infrastructure.•American Rivers supports the evaluation and minimization of hydromodification from stormwater discharges.	N/A Thank you for your comments.	OWRD
<p>Action 7A – Maintain, Upgrade, or Decommission Water Infrastructure</p> <ul style="list-style-type: none">•American Rivers supports the recognition that, “Natural areas, including forest, floodplains, and rivers, provide valuable storage, flood abatement, climate resiliency, climate mitigation, and water quality benefits while also providing important habitat for fish and wildlife.”•American Rivers supports the recognition that, “When wells, dams, or levees have significantly deteriorated, the costs of repair may exceed the expected benefits, and proper decommissioning and removal may be a less expensive and more environmentally beneficial alternative.”•American Rivers supports the removal of deteriorated water infrastructure from waterways (in addition to decommissioning). We do not support leaving decommissioned infrastructure in place in waterways.•American Rivers supports irrigation infrastructure modernization and the allocation of conserved water to remain instream. We recommend converting gravity irrigation system to pumped systems with removal of the diversion dams. Small solar arrays may be used to offset pumping costs. We support continued funding of irrigation modernization through OWEB and OWRD.•American Rivers strongly supports the removal of dams that are at the end of their useful life, pose a public safety risk, or no longer serve their intended purpose. We support the replacement of dams still serving a purpose with a lower-impact alternative that restores the movement of cold, clean water and volitional passage for all native aquatic species.•American Rivers supports the removal of levees that are at the end of their useful life, pose a public safety risk, or no longer serve their intended purpose. We do not support the creation of new levees except in areas of levee setback to reconnect functioning floodplains.	N/A Thank you for your comments. Irrigation modernization funding through OWEB and OWRD are included in Action 13C.	OWRD
<p>Action 7C - Support Dam & Levee Safety</p> <ul style="list-style-type: none">•American Rivers supports the Dam Safety Program evaluating the condition of existing dams through regular inspections.•American Rivers recommends that dam removal be required for dams which cannot meet needed safety or fish passage requirements.•American Rivers supports dedicated funding for removal of dams.•American Rivers supports inclusion of hydrologic and ecological harms that are ongoing or resulting from dam failure, in dam hazard ratings.•American Rivers recommends the drowning risk for recreational waterway users be included in dam hazard ratings.•American Rivers recommends requiring removal of decommissioned dams.	N/A Thank you for your comments.	OWRD
<p>Action 8C – Promote Community Education and Outreach</p> <ul style="list-style-type: none">•American Rivers supports the continued investment in Watershed Councils and Soil and Water Conservation Districts.•American Rivers supports partnering with community-based organization to deliver water education to the public and providing resources to local interested organization to conduct education and outreach to the communities they serve.	N/A Thank you for your comments.	OWRD
<p>Action 8D - Identify Water Research Needs and Partnerships</p> <ul style="list-style-type: none">•American Rivers supports partnerships with state and federal agencies, tribes, public and private institutions to address research needs – especially ecological flow needs.•American Rivers supports research initiatives that would address frontline communities’ environmental and climate justice challenges.	N/A Thank you for your comments.	OWRD
<p>Action 9A - Support Place-Based Integrated Planning and Other Water Planning Efforts</p> <ul style="list-style-type: none">•American Rivers supports investment in place-based integrated planning. We recommend including tribal nations in the planning process.•American Rivers recommends inclusion of functional floodplain reconnection, dam removal, and consideration of State Scenic Waterway designations in place-based integrated planning.	N/A Thank you for your comments. State Scenic Waterways designations are included in Action 11B.	OWRD
<p>Action 9B - Coordinate Implementation of Natural Resource Plans</p>	N/A	

<ul style="list-style-type: none">American Rivers supports dedicating resources for state and local implementation of existing plans and the application of equity and social justice principals in plan reconciliation and updates.	Thank you for your comment.	OWRD
<p>Action 9C - Partner with Tribal Governments, Federal Agencies, and Neighboring States in Long-Term Water Resources Management</p> <ul style="list-style-type: none">American Rivers supports partnering with neighboring states and tribes to continue or improve managing shared resources.American Rivers supports collaborative planning and consideration of co-management to develop water management approaches to protect species and avoid or minimize impacts to endangered or threatened species.American Rivers supports additional staff resources to implement the 2016 National Marine Fisheries Service Biological Opinion and 2021 Federal Emergency Management Agency Draft Implementation Plan relating to how floodplains are protected, restored and developed.American Rivers supports the coordinated and transparent implementation of Oregon’s commitments to the Columbia Basin Restoration Initiative and the Resilient Columbia Basin Agreement.American Rivers supports the integration of water rights and Endangered Species Act requirements in the Klamath Basin.	N/A Thank you for your comments.	OWRD
<p>Action 9D - Improve State Interagency Coordination</p> <ul style="list-style-type: none">American Rivers supports Interagency Permit and Grant Review and recommends development of programmatic permit conditions for river restoration (dam removal and functional floodplain enhancement) projects.American Rivers supports the creation of tools to help tribes, the public, local government, and community-based organizations navigate state agencies to address complex water issues.American Rivers supports the development and use of Oregon’s Environmental Justice Mapping Tool.	N/A Thank you for your comments.	OWRD
<p>Action 9E - Lead Meaningful Community Engagement</p> <ul style="list-style-type: none">American Rivers supports the implementation of best practices for engagement as identified in the State of Oregon Diversity, Equity, and Inclusion Action Plan and other documents, including cultural and language-specific needs.American Rivers supports the use of Oregon’s environmental justice mapping tool and federal EJ Screen to evaluate potential impacted communities for state-led planning, engagement, policy development and management activities.	N/A Thank you for your comments.	OWRD
<p>Action 10C – Improve Access to Storage</p> <ul style="list-style-type: none">American Rivers supports the enhancement of watershed storage capacity through natural processes using non-structural means (e.g., floodplain restoration).American Rivers supports the consideration of artificial recharge for storage and recommends inclusion of floodplain restoration as a recharge mechanism.American Rivers does not support the creation of new on-channel reservoirs. The 2008 inventory of potential new reservoir sites should not be implemented without evaluation of ecological and economic feasibility. American Rivers reminds the State of Oregon of the limited useful lifespan of above-ground storage dammed reservoirs due to the incoming sedimentation, degraded water quality, impaired fish passage, and increased safety hazards downstream and in the reservoirs.American Rivers supports the requirements for fish passage and water quality in consideration of raising an existing dam’s height.	N/A Thank you for your comments.	OWRD
<p>Action 10F - Strengthen and Improve Oregon’s Water Quantity and Water Quality Permitting Programs</p> <ul style="list-style-type: none">American Rivers supports investment in shared data, interagency coordination and consistency, and transparency.American Rivers supports the review of water rights permits for protection of fish, wildlife and habitats and water quality.American Rivers supports water rights transfers to consolidate points of diversions, improve irrigation efficiency, remove barriers (dams), and allocate conserved water for in-stream use.	N/A Thank you for your comments.	OWRD
<ul style="list-style-type: none">American Rivers recommends streamlined permits, such as programmatic permits, for aquatic enhancement projects which remove human-made obstructions such as dams, culverts, and levees from Oregon’s waterways.o We recommend expanding the scope of the waterway enhancement removal-fill general authorization to allow removal of these human-made obstructions without a cumulative removal-fill volume limit.o We recommend developing a programmatic 401 water quality certification for obstruction removal to recognize the long-term benefits of natural sediment transport in balance with the short-term turbidity impacts during in-water work.o We recommend a programmatic fish passage approval form for dam removal in addition to the approvals focused on road-stream crossings.o We recommend adding a “dam removal” project type checkbox to the Joint Permit Application to improve efficiency of implementing the programmatic approvals above.	Thank you for your comment. These suggestions are beyond the scope of the IWRS.	OWRD
<ul style="list-style-type: none">American Rivers supports the consideration of river processes (hydromodification) in the National Pollutant Discharge Elimination System and Municipal Separate Storm Sewer System permits.	Thank you for your comment.	OWRD
<p>Healthy Ecosystems</p> <ul style="list-style-type: none">American Rivers supports the recognition that healthy ecosystems are important to human quality of life in addition to fish and wildlife habitat.American Rivers supports investment in floodplain restoration and reconnection.American Rivers supports the protection and restoration of wetlands; we recommend that the Department of State Lands recognize that wetlands associated with human-made obstructions, such as dams and culverts, do not need mitigation because obstruction removal restores natural riverine processes. The USACE recognizes that dam removal results in ecological function uplift and does not need mitigation.	N/A Thank you for your comments.	OWRD
<p>Action 11A - Improve Watershed Health, Resiliency, and Capacity for Natural Storage</p> <ul style="list-style-type: none">American Rivers supports continued investment in the Oregon Plan for Salmon and Watersheds and The Oregon Conservation Strategy (now known as the State Wildlife Action Plan).American Rivers supports continued investment in the Private Forest Accord Grant Program.American Rivers supports including floodplain restoration and reconnection activities in this action.American Rivers supports consultation with Tribes to prioritize locations targeted for protection and restoration and restore access to First Foods.American Rivers supports investment in restoration projects led by Tribes, low-income communities, and communities of color.	N/A Thank you for your comments. The updated name for the Oregon Conservation Strategy will appear in the final 2025 IWRS.	OWRD
<p>Action 11B - Develop Additional Instream Protections</p> <ul style="list-style-type: none">American Rivers supports the expansion of Scenic Waterway designations.American Rivers supports the expansion of Outstanding Resource Water designations.American Rivers supports continued investment in expanding instream water rights including instream transfers and leases, the allocation of conserved water, and conversion of hydroelectric rights to instream rights. The hydroelectric water right conversion should be required as part of hydroelectric dam decommissioning and removal.American Rivers supports updating ODFW Rules (OAR 635-400; last modified in 1989) to incorporate a broader range of techniques to determine flow amounts to protect ecosystem needs including consideration of temperature-based flows.	N/A Thank you for your comments.	OWRD
<p>Action 11D - Protect, Restore, and Provide Access to Instream Habitat for Fish and Wildlife</p> <ul style="list-style-type: none">American Rivers supports the efforts to protect streams from degradation and restoring channel and floodplain functions.American Rivers recommends that the benefits to public safety and reduced economic liability of fish passage barrier correction be added to the discussion in this section; connecting to the discussion of the value of healthy ecosystems earlier.American Rivers supports the identification and prioritization of fish passage barriers for removal.American Rivers supports the restoration of river processes, including the movement of wood, water, and sediment, in addition to passage for all native aquatic species.American Rivers supports compliance with fish passage laws for all existing, modified, or new dams.American Rivers supports continued investment in dam removal to restore river processes, improve fish passage, benefit water quality, reduce public safety risks and support the culture, health, and economic well-being of communities.	N/A Thank you for your comment. A sentence has been added, "Removal of fish barriers may offer public safety benefits and reduce the economic liability associated with the fish barrier." Thank you for your comments.	OWRD OWRD OWRD
<p>Action 11E - Develop Additional Groundwater Protections</p>	N/A	

	<ul style="list-style-type: none">• American Rivers supports the recognition that surface water and groundwater systems are connected and interdependent.• American Rivers supports the identification and protection and/or restoration of springs, cold water discharge to surface water, and wetlands. Action 12A - Ensure the Safety of Oregon’s Drinking Water <ul style="list-style-type: none">• American Rivers supports drinking water source protection. Action 12B - Reduce Use of and Exposure to Toxics and Other Pollutants <ul style="list-style-type: none">• American Rivers supports efforts to prevent blue-green algae (including Harmful Algal Blooms or HABs) from forming beyond natural background levels and support advisory/notification efforts.• American Rivers recommends considering dam removal to reduce the frequency, duration and severity of harmful algal blooms.• American Rivers supports monitoring recreational waters and informing the public when contaminants are present, including communications to reach non-English speaking, low-income, tribal, and rural residents and businesses.• American Rivers supports updating Oregon’s water quality criteria for toxic pollutants to protect aquatic life and human health based on the best available science. Action 12C - Implement Water Quality Pollution Controls <ul style="list-style-type: none">• American Rivers supports the development and implementation of total maximum daily loads (TMDLs). We encourage Oregon DEQ to consider the cooling benefits of floodplain reconnection and groundwater recharge in the TMDL plans. We encourage DEQ to quantify the heat load from dammed reservoirs and include dam removal as an action to reduce heat loading.• American Rivers recommends considering dam removal to reduce the frequency, duration, and severity of harmful algal blooms.• American Rivers supports the use of green infrastructure for stormwater management.	Thank you for your comments.	OWRD
		N/A	
		Thank you for your comment.	OWRD
		N/A	
		Thank you for your comments.	OWRD
		N/A	
		Thank you for your comments.	OWRD
		N/A	
		Thank you for your comment.	OWRD
		N/A	
		Thank you for your comment. Increased compliance is also a IWRS priority (Appendix E).	OWRD
		N/A	
		Thank you for your comments.	OWRD

Name/ 15 Organization	Michael Karnosh, Confederated Tribes of the Grand Ronde Community of Oregon	Agency Response	Relevant Agency OWRD
Comments	On behalf of the Confederated Tribes of Grand Ronde (CTGR or Tribe), thank you for the recent consultation with OWRD Director Ivan Gall and staff and the opportunity to provide feedback on the 2025 Integrated Water Resource Strategy-Draft 2 (IWRS). We appreciate and acknowledge the work of all the agency staff and others to create and contribute to the content of the IWRS. The Tribe is grateful for an integrated approach and interagency coordination. This document represents preserving the life blood of our State. Grand Ronde is a sovereign Tribal nation comprised of over 30 antecedent tribes and bands from ceded homelands that span much of western Oregon, including areas from southwest Washington to northern California between the peaks of the Cascade and Coastal Mountain ranges. There are seven ratified treaties of western Oregon that vest in the Grand Ronde Indian Reservation and we note that our 1853-55 Treaties predate Oregon’s 1909 doctrine of prior appropriation law, which has historically excluded Oregon and Washington Tribes.	Thank you for your comment.	
		We appreciate your comment and concur in the importance of understanding Tribal history and context.	OWRD
	Water is a revered resource for the Tribe and provides a home to State listed Pacific lamprey, Eulachon smelt, and ESA listed salmon which are Tribal First Foods, among others. Preservation of instream water flows that support and conserve historic native aquatic species is imperative to the Tribe’s future generations vitality & preservation of culture.	We appreciate your comment and concur in the importance of healthy instream flows for the preservation of aquatic species and Tribal culture.	OWRD
	The importance of the IWRS role in overseeing effective instream flow management cannot be overstated. (Priority Task P 1.3b & P2.2e)	We appreciate your comment and concur. Please note that the the priorities have been refined for the final IWRS. Task P1.3b is now P1.3 and Task P2.2e is now P2.3.	OWRD
	Further, it is a costly endeavor to protect water, as well as clean it up after it is contaminated, but only one of these options is beneficial to humans and ecosystems. The Tribes value stewarding the land, air, and water for future generations and note that not enough protective advance measures have been put into place historically, as evidenced by the excessive degradation in parts of Oregon’s surface and groundwater systems. Today’s profits will not pay for tomorrow’s cleanup. The Tribe is advocating for appropriate current and ongoing budget allocations for proactive water investments and protection as prioritized in this document. Less than 3% of the general fund for 15 water agencies in clearly inadequate for making progress towards protecting and conserving the most vital human resource: water. The Tribe urges the State to continue investments such as the 2023 Drought Resilience and Water Security Package to support adequate staffing as described in Action 13A & B. Each agency must request funds tied to priority actions and commit to progress. Further, the Governor’s office must commit to keeping each agency’s Director focused on this document and efforts, especially as there are staffing turnovers.	We appreciate your comment and concur in the importance of stewarding our natural resources for the benefit of future generations.	OWRD
	Generalized comments: 1) The Tribes agrees with the principal concepts for the Strategy’s goals (page vi) and appreciate the Summary Sheets of Actions in Appendix D: The Tribe suggests the development of a reporting dashboard to document progress over the document’s implementation timeframe with identified timeframes and accomplishments. The dashboard should note opportunities for committee work, Tribal consultation milestones, and public involvement periods.	N/A Thank you for your recommendation. The new (2023) statutory requirement for the development of 2-year workplans will necessitate some level of tracking and reporting. OWRD included a budget request in the 2023 session to support dashboard development, but was unsuccessful. The Department recognizes the need to have accessible and transparent information. OWRD will be working to improve IT resources including external communications tools.	OWRD
	2) Chapter 1, 2 & 4: Oregon has been historically slow to adequately regulate, track, and monitor surface and groundwater. These systems enhancements and interagency collaboration must be expedited over the next five years. The Tribe emphasizes early and frequent consultation with Oregon Tribes as a critical piece in successful planning and implementation and sharing of Indigenous knowledge.	We appreciate your comment. We recognize that early, frequent, and meaningful coordination and consultation with the Oregon Tribes is crucial. We are hopeful that the re-commitment to the Tribal Consultation Task Force, passed during the 2025 Legislative session (HB 2069), will identify ways to improve G-2-G consultation.	OWRD
	3) Chapter 3: The Tribe acknowledges the State’s historic work and encourage ongoing work related to preparing for catastrophic weather events that can lead to water shortages, as well as community resiliency and emergency planning. The IWRS should add a goal for additional long term water protection by working with the Oregon Legislature to amend the State Constitution’s Bill of Rights to include clean and plentiful water as a human right.	The state agrees that continued work on community preparedness, resiliency, and emergency planning are important, as identified in IWRS Actions 5A through 5C. The state supports the goal of clean water for all; therefore, the focus of the IWRS is on supporting policy and budget proposals that give clear and actionable authority for agencies to be able to uphold that goal. A new IWRS Action has been added for 2025, Action 9E Lead Meaningful Community Engagement, to support identifying unique needs of varied communities across Oregon. Actions 10A-10F support management to ensure plentiful water and Actions 12A-12C support protecting water quality ensuring safe drinking water.	OWRD
	4) The current system allowing water rights transfer for new uses and to new areas without environmental review or Tribal consultation does not uphold the Tribes’ treaty rights and is tantamount to ensuring salmon extinction. The water rights permitting, and transfer policies must be redressed with expediency. Begin enforcement of water rights use lack of reporting. (Action 10F P1.1a, P1.1b, P1.2a)	Senate Bill 1153 proposed changes to the transfers process, but the ultimately the bill did not pass. The 2025 legislative session passed House Bills 3342 and 3544 to help improve many water rights processes and streamline the contested case process. IWRS priority P1.1 calls for increased compliance with water laws across multiple agencies.	OWRD

5) The State agencies need to collaboratively examine the policy levers for requiring and incentivizing various conservation, modernization, and restoration actions regarding private landowners’ impacts to streams and ensure sufficient financial investments are directed and prioritized to conserve ESA listed species. For example, the Tribe would like to participate in an effort to identify cold water refugia along with TMDL temperature exceedances in conjunction with a priority gage installation in coordination with USGS, ODEQ, ODFW, and OWRD, etc. to prioritize grants in areas of critical importance for the salmon migration along with USACE improvements related to fish passability. (Action 11B P1.3a & 13C P3.1a, P3.2a, P3.2b, P3.2c)	There are many grant programs through ODFW, OWEB, OWRD, etc. that use prioritization for ESA-listed species. ODFW is currently studying cold water refugia and has worked with other agencies to prioritize gage locations. As part of our cold water identificaiton project, ODFW regularly reaches our to regional partners involved in water data collection efforts, which often includes NGOs and Tribes.	
6) The Tribe agrees that providing education & outreach to the general population of water users is important in many ways. For example, safe ways to recreate in and near water that is protective of humans, pets, and water quality. Helping establish an “Oregonian” ethic related to care and concern for natural resources at their home and business is key to long term water conservation success. People protect the things they love. The IWRS outlines a variety of key audiences such as young people who may be interested in professional careers in water or generally, people who own private wells and/or septic tanks, people who own riparian/wetland land, people who live in areas with drought, non-English speakers, people who hunt and fish, people with water rights, people with farms, people in groundwater protection areas, people with threats to their drinking water security, the general public, and underserved populations, etc. and suggests that various agencies should help conduct education and outreach to these audiences or create a specialized website or clearinghouse. There is currently a statewide water campaign branded as Follow the Water that has a website, and various social media channels in an approachable, interesting and engaging manner. The steering committee, known as the Clean Rivers Coalition, is comprised of local municipalities, SWCDs, and includes the work of watershed councils and others who interface with the public on a more frequent basis than most State agencies. Rather than duplicate effort, the agencies involved in this report could grow the Follow the Water work by each contributing funds and key audience technical materials to be distilled into digestible public information by the communications team.	Thank you for bringing to our attention this helpful resource. The state will look for future opportunities to partner with existing organizations on ways to develop technical information or community information to help people conserve and protect water. Agencies will continue to need to dedicate resources to sharing information through their official websites.	GO
Specific comments: 7) The Tribe appreciates the acknowledgement of the need to consider spiritual and cultural values regarding in stream flow preservation (page 29). 8) Action 3C (page 35)— Grand Ronde agrees that the need to resolve tribal and federal rights in Oregon is real and significant. Given that there are remaining unadjudicated areas for surface water west of the Cascades, what actions, priorities, and opportunities is OWRD planning to implement in consultation with Western Oregon Tribes? This is an opportunity to work with Tribes to identify rights/needs/possibilities before the waters at issue are over-appropriated or identify remedies if over-appropriated. Give remaining senior water rights to the ecosystem as first senior right holder.	N/A Thank you for your comment. Adjudications are significant work loads and require extensive periods of time. For example, the Klamath Basin adjudication has been ongoing since 1975. The Water Resources Department would require new staff and fiscal resources, sustained over decades, to initiate additional adjudications. Under the current system of prior appropriation, the primary pathways for a senior water right to become an instream water right include Tribal adjudication or settlement, or the purchase of a senior right from an existing water right holder. Select state agencies (DEQ, ODFW, OPRD) can apply for an instream water right, however new instream water rights, if available, are junior and only met after senior water rights have been satisfied. IWRS Action 11B outlines some additional information about increasing instream protections.	OWRD OWRD
9) Figure 3-1 (page 41)—Given the importance of this document as a reference, can figure 3-1 be updated to include 2020 to 2024 data? 10) Figure 3-3 (page 43)—There is no text summary of this figure within this section. As such, it is unclear if this figure is illustrative of impacts to humans, agriculture, groundwater systems, or all the above. Further, we presume these are drinking water wells and this would be important to clarify along with the time frames. For example, are these wells that have been reported as permanently dry or dry for at least X months a year, etc.? We also note that “drywell” in other water contexts means water injection.	Thank you for your comment. Unfortunately the source graph only includes data through 2020. Thank you for your comment. A description of Figure 3-3 has been added to "Impacts to Groundwater Systems." Figure 3-3 shows the distribution of more than 1200 domestic water wells that have been reported to the Water Resources Department since 2021 as “dry” or unable to produce adequate flow to meet demand.	OWRD OWRD
11) Action 4A (page 50)—The Strategy makes specific reference to the USDOT report titled “Historic and Ongoing Impacts of Federal Dams on the Columbia River Basin Tribes”. Even though it is not mentioned in the report, Grand Ronde is a Columbia River Basin Tribe per its Willamette Valley Treaty of 1855. The land ceded through that treaty is described, in part, as: “...northerly, to the Middle of the Columbia River at the Cascade Falls, and thence down the Middle of said river to the place of beginning.” Even though they are not mentioned in the report, the Willamette Valley Project dams are also Columbia River Basin dams. Grand Ronde has submitted a formal objection related to the disrespectful and harmful errors and omissions in the Department of Interior report. The Tribe respectfully requests that OWRD amend its text in Action 4A to include the Confederated Tribes of Grand Ronde and the Willamette Valley dams, which are vital salmon migration and breeding grounds that are currently largely fish impassable and causing an accelerated path to extinction. Whenever possible, dams should be removed or retrofitted to become fish passible. We implore OWRD and other state agencies to work expeditiously on gaining authority and resources to conduct periodic reviews as noted on page 51. Regarding environmental justice, the dams have caused multiple generations of trauma due to massive impairments to salmon runs interfering with the Tribe’s ability to engage in its historic and usual and accustomed fishing areas. Furthermore, some environmental justices are forever; sacred place development for energy development without express consultation and approval of the Tribe whose original homeland is impacted should not be conducted.	Thank you for your comment. Narrative has been added to Action 4A to acknowledge that the federal report omitted Willamette Valley Project dams that are Columbia River dams. The revised narrative states "The federal report omitted an acknowledgement that the Willamette Valley Project dams are also Columbia River dams, thereby ignoring the potential adverse impacts to the Willamette River and the Confederated Tribes of the Grand Ronde. The Confederated Tribes of the Grand Ronde are a Columbia River Basin Tribe per the Willamette Valley Treaty of 1855."	OWRD
12) Action 4B (page 51)—While any low- or no-impact development is generally acceptable to Grand Ronde, we will remind OWRD that the highly destructive hydroelectric dams now in place and responsible for the imminent extinction of salmon and steelhead were once lauded as the “wave of the future for electric power generation” and generally seen as low-impact by the Government at time of construction. Any development proposed must include full Tribal consultation and impact analysis. Furthermore, moving forward, hydropower facilities should be required to mitigate the impact from methane releases.	Thank you for your comment. Action 4A has been revised to acknowledge reservoirs contribute to methane emissions. Figure 3-4 listing actions that support climate mitigation includes Action 7A Maintain, Upgrade, and Decomission Water and Wastewater Infrastructure, which includes decommissioning dams.	OWRD
13) Action 4C & 12C (page 54) In addition to modernizing the energy use and failing wastewater treatment plants, a goal should be added to the Strategy Action 10F to require modernization of treatment technology in wastewater permitting as updated by DEQ every five years. Plants are not currently designed to remove persistent, bioaccumulative, and toxic compounds, but the technology exists and should be deployed to protect the remaining wild stocks of salmon that are even more sensitive to some of these compounds than humans. Frances Bothfeld’s “Contaminants of Emerging Concern in Wastewater Treatment” provides a helpful summary of the pros and cons of each technology and comparison of tested removal rates. https://apps.ecology.wa.gov/publications/documents/2110006.pdf	Thank you for the comment. Many water quality permits require an evaluation of progress by DEQ every 5 years. Modernizing technology every 5 years is beyond the means of many permittees who take other actions to improve performance and do, when possible, make upgrades to treatment technology. DEQ offers the Clean Water State Revolving Fund to help support system upgrades.	ODEQ
14) Action 5A (page 57)—We note that consultation with Tribes on preparing for wildfire resiliency with frequent consultation and planning regarding co-management of state forests to avoid catastrophic wildfire by using cultural management burns should be a priority. Indigenous knowledge also underscores the importance of flood plains in prevention of the spread of catastrophic wildfires. Oregon development policy and land use planning at the local level should avoid developing and filling flood plains.	The Oregon Department of Forestry is committed to engaging its Tribal Partners in defining and achieving landscape resiliency. ODF will be adding staffing capacity to assist in elevating Tribal voices in defining and achieving landscape resiliency across Oregon. Tribal engagement will begin in the summer 2025. ODF’s team will work with the Tribes to develop a planning and decision-making process to ensure the ODF 20-year Strategy is culturally inclusive, accessible, and honors Tribal communities’ perspectives. ODF will promote effective engagement that honors requests from Tribal communities with Tribal rights and treaty rights, ensuring they are not viewed as stakeholder groups or the public. ODF will work with Tribes to identify opportunities for their participation in this statewide effort, such as shared stewardship and co-management, building capacity through workforce development, and prioritizing funding requests. One of ODF’s primary goals is to develop and facilitate a forum that respectfully encourages Tribes to share their perspectives, practices, and priorities for achieving landscape resiliency. A Resiliency Summit is scheduled for November 12-14th in Bend, Oregon.	ODF

15) Action 6A Statewide Land Use Planning Goals (page 67)—The Tribe notes that this section references Goal 1 “Citizen Involvement.” First, the Tribe requests that DLCD update the Goals to reference the 9 Federally recognized Tribes as Sovereign Nations that require consultation. Further, the State should convene a process structure for Tribes and local agencies to have consultation and review of Goal 5 inventories that are being updated and when urban growth boundaries are being evaluated. Furthermore, **the Tribe notes special attention be given to the State’s wetland inventory to ensure that adequate reserves related to mitigation banks exist, along with adequate legal protections related to building are being given to prevent further depletion of these vital ecological systems.**

Thank you for your comment.

- Revising how the Statewide Land Use Goals reflect DLCD's G-2-G relationship with the nine federally recognized Tribes in Oregon is an important issue. However, it is not within the scope of the IWRS.
- As a state agency, DLCD engages in consultation with the nine federally recognized Tribes in Oregon. Goal 5 inventories are adopted by local governments. Consultation and coordination between local governments and Tribes is encouraged but not required by the state.

As an interim measure, DLCD's Goal 1 and Community Involvement Advisory Committee is doing work under the name "Community Involvement" rather than "Citizen Involvement."

OWRD has shared CTGR's recommendation regarding Statewide Wetlands Inventory with DSL.

16) Action 6B (page 72)—The Tribe notes that a newly discovered significant threat to Coho & Chinook salmon and Steelhead comes from high traffic roadways in the form of 6PPD-Quinone leachate from tire wear “dust”. We underscore the importance of state funding to bolster low impact development/green infrastructure/porous-pervious¹ pavement as a known successful remedy for reducing this chemical prior to entering waterways in communities with high traffic state and county roads that drain to salmon bearing waterways. The state has the power to require the use of porous-pervious pavement which has **The Tribe requests a specific call out about 6PPD-Q and pervious pavement within this section to emphasize the importance of this discovery.**

Thank you for your comment and concern about this contaminant impacting Oregon's aquatic species. DEQ, ODFW, and city and county representatives have formed a work group to investigate and study the scope of impacts of 6PPD-q in Oregon and search for policy solutions and effective control measures, including investigating the applicability of pervious pavement and other filtration techniques. The work group recently presented to the Fish and Wildlife Commission and is considering practical measures to reduce the amount of this contaminant entering waterways. Narrative about 6PPD-quinone has been added to Chapter 3, Action 6B.

17) Action 7A—Ensure the policies around wells, dams, and levees also consider when the cost of repair exceed the benefits of the use and require the removal of structures from waterways, whenever possible.

Thank you for your comment. These are complex decisions involving the landowner or responsible party, agencies, and project funder.

18) Action 9C—Again, this seems like an opportune time for OWRD to work proactively with Tribes, particularly in Western Oregon, on instream water rights to protect Threatened/Endangered/Sensitive fish and aquatics (salmon, steelhead, Pacific lamprey, western pond turtle, etc.). The Tribe has reviewed the notes from the Water Task Force Summary report and notes that it does not sufficiently describe follow up elements towards ensuring that instream flows or groundwater is adequately protected. **The Task Force should be utilized as a separate Committee in the development and review of the State's overall water budget and water permits policy review and updates.**

Thank you for your comment. The state acknowledges the importance of continued collaboration and consultation with Tribes. The future function of the Tribal Water Task Force is still being refined but may include the need to form separate discussion groups to address specific projects or policies.

19) The Tribe agrees that Actions 10C (tools for instream protections), 10D & 12A (support retiring of groundwater rights and rules), 10E (fund more water master field positions), 11B (page 132 popularize the use of instream voluntary transfers) and 13B P1.1d and P3.1c (ensure water right fees support agency staffing needs and technical assistance for reuse projects) are priorities. The Tribe does not support allowing new in-line water reservoirs with waterways as these are known temperature hazards for migrating salmon.

Thank you for your comment. The current permitting process for any proposed in-line water reservoir would include review from DEQ and ODFW regarding water quality or aquatic species, respectively.

20) Appendix A Tribes in Oregon (page 2)—“Many tribes **have established longstanding** roots in Oregon...” this sentence intro describing the Native Americans in Oregon is awkwardly worded and rooted in western concepts of ownership and boundaries. Some additional important contexts that we put forward as more factually accurate and less editorial in style: Archaeological science has documented Tribes in Oregon since time immemorial². Creation stories and other ethnographic information tells of the people being created in their homelands, not coming from somewhere else. At the time of colonial exploration in the 1790s, more than 60 Tribes were documented³. Today, there are only 9 Federally recognized Tribes, and the Chinook Indian Nation is fighting to regain Federal recognition⁴.

Thank you for your comment and providing suggested language and references. Appendix A has been modified to incorporate this new introduction.

	Name/ Organization	Comments	Agency Response	Relevant Agency
16	Rick Eichstaedt, The Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians	<p>These comments are submitted on behalf of my client, the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians (CTCLUSI), on Draft 2 of Oregon’s Integrated Water Resources Strategy. The Tribe has the following comments:</p> <p>Action 3C: Determine Unadjudicated Water Right Claims: CTCLUSI requests that his action be amended to require consultation with Tribes in determining how to proceed with addressing unadjudicated claims. Water adjudication proceedings are inherent adversarial. Efforts should be made early to work with Tribe to address concerns regarding adjudication and opportunities to reach agreement on the scope and extent of claims.</p> <p>Action 9D: Coordination with Tribes should be included in this section particularly to understand environmental impacts to tribal resources of concern and how water resource management of the State may impact compliance with EPA-approved Tribal Water Quality Standards.</p> <p>Action 10 F: This section should be revised to ensure that there is coordination with Tribes that have Water Quality Standards and that state actions further efforts to meet those standards, including fish consumption standards for Oregon Tribes.</p> <p>On page 122, please add “add Oregon Tribes “ to the following sentence - "Water Right Permits and Certificates - In Oregon, reviewing water right permits is done in partnership with other state agencies.".</p> <p>Action 11A, on page 130, change “Collaborate with Tribes” to “Consult with Tribes.”</p> <p>On page 152, this page should address where Tribes have their own EPA approved Tribal Water Quality Standards. Also, the Tribal Reserved Rights rule referenced on this page is currently being review for rescission by the current administration.</p>	<p>N/A</p> <p>Thank you for your comment. The narrative in Action 3C has been modified to clarify that US v Oregon applies specifically to the Klamath Basin, not throughout Oregon. Adjudications are significant work loads and require extensive periods of time. For example, the Klamath Basin adjudication has been ongoing since 1975. The Water Resources Department would require new and sustained resources (over decades) to initiate additional adjudications.</p> <p>Thank you for your comment. Action 9C "Partner with Tribal Governments, Federal Agencies, and Neighboring States in Long-Term Water Resources Management" discusses state and Tribal coordination. A paragraph has been added to address the coordination needed regarding resource management when Tribes have EPA-approved Water Quality Standards.</p> <p>Thank you for the comment. We have revised language in Action 10 F to more clearly describe how DEQ and the Tribes coordinate in situations where a Tribe has set water quality standards, including fish consumption standards.</p> <p>Thank you for your comment. Engagement on water right application reviews occurs if a Tribe has indicated they want to work with OWRD on certain types of or locations of applications. A sentence has been added to the end of the paragraph to describe the current partnership on water rights, "The Water Resources Department sends notice to affected Tribes, and local, state, and federal agencies, and others as outlined in administrative rule. The Department also has specific engagement requirements with certain Tribes as defined by settlement agreements." The Department is continuing to improve its processes for Tribal engagement, including providing notice of pending water rights applications that may be of interest or concern to the Tribes. We are awaiting further guidance from the Tribal Consultation Task Force, which should provide standardized procedures for Tribal engagement. In the meantime, Oregon's Tribes are encouraged to contact the Department to discuss preferences for engaging in water rights transaction processes. Also, the Department’s Tribal Liaison will continue to provide updates during staff-to-staff quarterly LCIS meetings.</p> <p>Thank you for your comment. The example action under 11A has been changed to "Collaborate and/or consult with Tribes as needed to prioritize locations targeted for protection and restoration and restore access to First Foods"</p> <p>Thank you for your comment. Appendix A included language about Tribes and EPA granted Water Quality Standards and this text was added to Action 9C. A simplified version of this text has been added to the 12C narrative, right above Tribal Reserved Rights. Reference to potential federal rescission of Tribal Reserved Rights rule has been added to Action 12C.</p>	<p>OWRD</p> <p>ODEQ</p> <p>ODEQ</p> <p>OWRD</p> <p>OWRD</p> <p>ODEQ</p>

Thank you for the opportunity to submit comments. Please notify the Tribe of additional drafts and the opportunity to consult on the document.

Thank you for your review and comments on Draft 2. The IWRS team is addressing comments from Draft 2 to produce the final draft and deliver to the Water Resources Commission to consider for adoption on September 11, 2025. OWRD will provide the Tribes with the final IWRS prior to the Water Resources Commission meeting in September.

OWRD

17	Name/ Organization	Robin Lee	Agency Response	Relevant Agency
	Comments	I tried to wade through the 278 pages as well as some of the comments from the Tribes. Ugh! Wordy and Unwieldy. Spent 3.5 hours trying to hit the highlights, leading paragraphs, captions, summaries, etc.	Thank you for time in reviewing the document. The length of the document has been a controversial topic. Some feel that the complexity of water requires a discussion on a wide range of topics and enough detail to acknowledge where we've been and where we need to go. The 2025 IWRS attempts to balance content with accessibility. We hope that the Framework and action summary sheets in Appendix D help provide an overview of the contents.	OWRD
		Six times longer read than the U S Constitution! If you really want public input, simplify this document. One thing I noticed is that what started out as 'requiring' updates every five years was subsequently modified to require revisions every two years. It seems any allotted funding is absorbed by clerical processes and a growing staff. I can't see any efficiencies in that!	Oregon Revised Statute (ORS 536.221) was revised from requiring IWRS updates every 5 years to now every 8 years and newly requiring 2-year workplans to guide implementation of the IWRS and increase accountability. The 2-year workplans focus on action, while the 8-year document updates hopefully reduce the clerical processes when compared to a 5-year update.	OWRD
		Frankly, the main thing about water that concerns me is the threat I hear that the State wants to put meters on wells. Couldn't find anything in your document about that.	Action 3A "Improve water use measurement and reporting" describes efforts to better understand water use in Oregon.	OWRD
		Oh, and I don't buy the global warming fear-mongering, no matter how you phrase it. Facts show that it warms and cools regardless of our behavior. The earth was warmest in the dinosaur age. And carbon 'caps' will kill up not save us. Trees and plants need carbon to breathe and they give off oxygen for us to breathe.	Thank you for your comment.	OWRD

18	Name/ Organization	Robin Vora	Agency Response	Relevant Agency
	Comments	Thank you for the opportunity to comment on Oregon's draft Integrated Water Resources Strategy (IWRS). It appears to be comprehensive and shows a lot of work. But it remains more bureaucratic and less a document a decision-maker (e.g., Governor, County Commissioner) would use to make difficult decisions. While more studies and education certainly help make better informed decisions, more on-the-ground actions are needed to address critical water problems. The Executive Summary should include a short summary of actions a decision-maker should consider. Changes in Oregon's antiquated water laws are needed and the IWRS should be bolder in providing recommendations needed for changes in water law for the Governor and Legislators to consider, including a complete overhaul of Oregon's water laws, even if that requires an amendment to the State's Constitution.	Thank you for your comment.	OWRD
		The IWRS should address: Native American Treaty Rights and Uses where there are conflicts in Oregon such as the Klamath Basis. I didn't see any specifics that could provide a path forward in that conflict. I missed reading about treaty rights scanning the main body of the document, where it should be integrated up front, and not just be relegated to an appendix.	N/A Draft 1 (March 2024) placed a discussion of treaty rights at the very beginning of the IWRS but this was a change from the 2017 structure. Draft 2 uses the 2017 document structure, requested by public comment, with the unfortunate consequence that treaty rights are now in an appendix.	OWRD
		The definition of waste should be improved. For example, it should include inefficient irrigation practices allowed because of senior water rights (e.g., flood irrigation of lawns and hobby farm pastures). Wasteful practices should result in removal of water rights.	OWRD recognizes that there is a need to evaluate the definition of waste which is defined in OAR 690-250-0050 and OAR 690-400-0010. The OWRD has plans to update the 250 rules; that rulemaking may include an update to rules pertaining to waste. OWRD has not scoped whether that update will include division 400 rules pertaining to waste.	OWRD
		Rules to restore depletion of groundwater need to be provided directly. The State should not allow groundwater depletion. Surface and groundwater availability are inescapably connected, and additional water rights cannot be granted when water is over allocated. For example, urban growth requiring more use of groundwater needs to be limited by what is available in places such as Deschutes County. Expanding cities will need to purchase water rights and this should not be complicated by seniority of water rights. A plan to rectify overdraft of water rights in places such as Harney County needs to be outlined.	Groundwater management in Oregon is complex. Groundwater rules were changed in September 2024 to support more protective management, described on page 139. The state has been working diligently with the community in Harney County for almost three years to develop a plan for groundwater stabilization and update basin rules. The plan is outlined in the proposed Division 512 rules which can be found on the Department's Harney Rulemaking Webpage: https://www.oregon.gov/owrd/programs/policylawandrules/OARS/Pages/Division-512-Rulemaking.aspx	OWRD

		I should be made easier to transfer water rights to streams on a permanent basis, including when irrigation districts own water rights. All streams should have first priority for water needed to maintain viable aquatic ecosystems, including recovery of native endangered species, and some recreation uses. The State should set up a large fund to purchase water rights where there are critical environmental issues.	The review process for new water right applications already take into account the needs of fish and water quality. There was a bill in the 2025 legislative session that attempted to protect instream values when evaluating changes to existing water rights - that bill did not pass. Other bills are piloting mechanisms to put water instream for districts in the Deschutes and Walla Walla. There currently are funding sources that can be used to acquire water rights from willing sellers.	OWRD
		Specific plans to rectify groundwater pollution need to be provided, including in places such as the Umatilla basin.	In September 2024 the state published the Nitrate Reduction Plan for the Lower Umatilla Groundwater Basin Management Area. A reference to this document has been added on page 139.	ODEQ
		Directly taking on such difficult issues would be controversial but is needed to address problems now. The State should not just postpone difficult decisions behind more planning, lengthy documents, requesting additional staff, and studies.	Thank you for your comment. Following adoption of the 2025 IWRS, agencies will go to work developing and implementing 2-year IWRS workplans. Progress reports will be used to track multi-agency implementation.	OWRD

19	Name/ Organization	Stan Dean, Oregon Association of Conservation Districts	Agency Response	Relevant Agency
	Comments	OACD represents Oregon's 45 Soil and Water Conservation Districts (SWCDs), special districts governed by elected boards. The Districts protect and enhance soil quality, water quality and quantity, and habitat by supporting voluntary conservation in partnership with private landowners and managers as well as federal, state, and nonprofit partners.	N/A	
		This version of the IWRS is very good as it comprehensively lays out water issues in Oregon and the directions that we need to take to address them. However, the big question remains on how to get sufficient funding to do what needs to be done. This will need to be accomplished by mobilizing commitment from the citizens of Oregon, the natural resource agencies and the legislature. The IWRS identifies actions that will help in this regard, but we remain concerned that funding for natural resource issues will continue to be insufficient.	Thank you for your acknowledgement about the importance of funding. Centering attention around a set of inter-agency priorities will help elevate multi-agency funding needs.	OWRD
		In the prior version of the IWRS we were concerned that discussion of climate mitigation was largely absent. We are pleased that this version recognizes the water energy nexus and the role that water management plays in climate mitigation.	Discussions around climate mitigation are new to the IWRS. We appreciate your comments on Draft 1 and agreed the topic should be added to future iterations of the Strategy.	OWRD
		Appendix D provides the details of the actions, and each sheet lists potential partners. We noticed that Soil and Water Conservation Districts are not listed as potential partners, yet we can make valuable contributions to many of the action items. Actions items where we can be most helpful are 1A, 1B, 1C, 2A, 3A, 4B, 4C, 5A, 5B, 6A, 6B, 8A,8B,8C,8O.9A,9B,9C,9E, 10A, 100, 11A, 11B, 11C, 110, 11E, 12A, 12B,and 12C.	The IWRS acknowledges that SWCD's are important partners for implementation. Draft 2 action summary sheets used the term "Local Government" (ORS 174.116) to include cities, counties, and special districts like SWCD's. The final draft has been modified to explicitly identify SWCD's on additional action summary sheets in Appendix D.	OWRD

We appreciate the effort to develop agency priorities as presented in Appendix E. The prior draft agency priorities (fall 2024) was not well developed, and we submitted extensive comments. We are pleased to see that many of our comments were addressed, and the current version is much better. We particularly appreciate the focus on promoting robust water planning processes, protection of critical habitats, water data, basin assessments, instream flow studies, agricultural water quality management planning, incentives for water conservation, watershed restoration, and funding for natural and working lands.

We offer one suggestion on the priorities. Task P.1.d calls to evaluate water right fee models, and this should be expanded to examining a larger set of fees that support water programs. Given the challenges in funding water work, an evaluation of the wide range of fees and fee models is warranted.

We greatly appreciate the effort and good work that has gone into preparation of the IWRS. Oregon's Soil and Water Conservation Districts look forward to doing our part to put this into action.

Thank you for your comment and support for the contents of the agency priorities. Although they have been simplified for the final document, the same topics are covered.

The priorities have been simplified and do not include a task specifically for funding. A statement has been made at the beginning of Appendix E to acknowledge the role of funding throughout all priorities.

Thank you for your comment.

OWRD

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OWRD

Name/ Organization		Agency Response	Relevant Agency
20	Comments		
	Ursula Bechart		
	I'd like to submit some comments regarding the 2025 Integrated Water Resources Strategy. I believe the current draft is much better than the last one, and I hope that my comments are helpful. My focus is on surface drinking water sourced from forest lands.	N/A	
	Page 125: "Most of Oregon's municipal water systems rely on water that originates from forestlands, including those managed for wood production. At the state scale, data collected from the Department of Environmental Quality's ambient monitoring network indicates that public forestlands have the highest percentage of excellent or good water quality sites, compared to agriculture, urban areas, rangelands, and mixed land uses.25" This last statement is misleading because data from DEQ's ambient monitoring network only looked at "dissolved oxygen (percent saturation and concentration), biochemical oxygen demand (BOD), pH, total solids, ammonia and nitrate nitrogen, total phosphorus, temperature and bacteria (E. coli)". Pesticides used in forestland management practices were not evaluated.	Thank you for the comment and observation. The ambient monitoring network encompasses all lands designated under a general forest land use type which includes private industrial forest lands, state forests (harvestable and/or non-harvestable), state parks, protected areas and federal forest lands. It is not intended to assess water quality in or downstream of wildfire areas or actively managed timber lands where decreased canopy cover, forest management and pesticide use may impact water quality. Additional narrative has been added to this section for clarification.	ODEQ
Page 135: "Diseased or dying trees, on a large scale, are unable to provide the watershed benefits of filtering and storing water. The Oregon Department of Agriculture and Oregon Department of Forestry coordinate on monitoring and response to invasive species on forestlands." A common practice to deal with diseased or dying trees is to clearcut the forest, which does nothing to restore the watershed benefits of filtering and storing water. It increases run-off, which increases the organic load and need for additional chlorine, which brings trihalomethanes above safe levels in surface drinking water (see Seal Rock Water District water quality reports).		Thank you for your comment. The Forest Resource Division at ODF has a dedicated Forest Health Unit with staff available to help maintain and improve the health of Oregon's forests. ODF's forest health professionals conduct aerial and ground surveys to monitor insects and tree diseases and the impacts to forest health as a result. They provide technical advice and training in the use of integrated pest management principles to help professional foresters and landowners meet their management goals and objectives. ODF's technical specialists, including forest entomologists and pathologists along with the professional field foresters, are available to help landowners identify forest pest problems and develop strategies to manage the forest health impacts by providing technical assistance and alternatives that help meet the landowners' goals and objectives. Contact a stewardship forester or the Forest Health Unit for more information on ODF's Forest Health Unit and resource information visit: Oregon Department of Forestry : Forest health : Forest benefits : State of Oregon. Any forest management activity that a landowner chooses to undertake must follow all pertinent regulations that are outlined in the Forest Practice Act. The regulations include protections to maintain and improve water and wildlife resources, while promoting efficient forest management practices. Oregon Senate Bill 1501 (2022), part of the legislation that enacted the Private Forest Accord, requires ODF to conduct post-disturbance harvest rulemaking. The proposed rules would allow some harvesting of dying or recently dead trees in certain RMAs with stand level mortality. ODF reopened the public comment period for the post disturbance harvest rule making on July 1 through July 31st until 5pm.	ODF
Page 143: Action 12A Ensure the Safety of Oregon's Drinking Water includes: "Protect drinking water sources (e.g., proper well construction, onsite septic system maintenance, responsible land management, nutrient reduction, riparian/upland/forest restoration, watershed land acquisition)." "Limited water supply options on the coast have led many coastal communities to prioritize acquisition of their watersheds to protect the quality and reliability of their water supply." Not all coastal communities can acquire their watersheds. When logging permits are granted, additional consideration should be given to the requirements for clean drinking water at downstream water municipalities. To my knowledge, this is not currently done beyond small buffer zones along streams. Pesticides are not routinely monitored at these water municipalities either.		Thank you for your comment. Some public water systems have source water protection plans which may take into consideration surrounding land use. All community water systems (including municipalities) and non-transient non-community systems are required to monitor for "synthetic organic chemicals" which include 29 chemicals such as pesticides. See Oregon Health Authority's website: https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/Pages/acr.aspx	OHA
Page 143: "The Department of Environmental Quality has completed source water assessments for public water supplies that use surface water as their source." As a one-time study over 10 years ago?		Thank you for the question. Surface water assessments originally completed in 2005, as required by EPA, were updated between 2019 and 2025. DEQ is available to assist communities in the future, but there is no requirement for the assessments to be routinely updated.	ODEQ
Page 144: "The Oregon Healthy Authority administers and enforces drinking water quality standards for public water systems." Administers and enforces drinking water quality standards for public surface water systems as well?		Thank you for your question. Yes. The Oregon Health Authority administers and enforces drinking water quality standards for public water systems supplied by groundwater, surface water, or groundwater under the direct influence of surface water. Drinking water rules can be found on Oregon Health Authority's website at https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/RULES/Pages/rules.aspx	OHA

Page 146: “Equipment failures, harmful algal blooms, E. coli outbreaks, natural hazards including drought (Action 5A), floods (Action 5B), and earthquakes (Action 5C), and chemical releases/spills (also see Action 12B) are just some events that can contribute to drinking water emergencies. The Oregon Health Authority requires public water systems to develop and maintain an emergency response plan.”

Do "chemical releases" include pesticide applied during forest management activities?

s Thank you for your question. No. A chemical release/spill would refer to an "accident" where the chemical was released in a quantity exceeding the intended application amount. Please refer to "reportable quantity" found in ORS 466.605

DHA

Pesticide users on forestland must follow Oregon's Forest Practices Act (FPA), administered by the Oregon Department of Forestry (ODF). These requirements are in addition to pesticide label requirements. The FPA requires operators to protect human health and safety, and maintain soil productivity, air quality, fish, wildlife, and water resources through measures including but not limited to:

- Retain and protect trees and plants along perennial streams during and following logging,
- Prohibit helicopter herbicide applications within:
 - o 300 feet around schools and dwellings
 - o 300 feet from a qualifying water intake
 - o 75 feet or more of fish-use or drinking water streams and
 - o 50 feet for non-fish streams, with visible surface water
- Prohibit other aerial applications (non-helicopter) within 60 feet of fish-use or drinking water streams,
- Prohibit all aerial applications within 60 feet of open water greater than ¼ acre,
- Prohibit ground-based applications within 10 feet of fish-use or drinking water streams and open water greater than ¼ acre, and
- Prevent, control and report leaks and spills.

Page 147: "Oregon's Pesticide Management Plan for Water Quality Protection outlines the roles, policies, and legal authorities of each government agency with responsibilities to protect Oregon's water resources from pesticides and the process by which these activities will be coordinated. Under this plan, the Oregon Department of Agriculture created an interagency team, the Water Quality Pesticide Management Team (WQPMT), composed of representatives of the Department of Forestry, Department of Environmental Quality, Oregon Health Authority, Oregon Department of Fish and Wildlife, and Oregon State University. The goals of the WQPMT are to:

- Select and prioritize pesticides of interest and pesticides of concern;
- Establish guidelines and reference points;
- Conduct watershed vulnerability assessments;
- Design, conduct, and guide monitoring efforts (including the Pesticide Stewardship Partnership Program monitoring);
- Recommend and facilitate management options; and
- Develop communication strategies.”

Page 149: "Update and implement Water Quality Pesticide Management Plan."

Pages 152-153: "Coastal Nonpoint Pollution Control Program – The Coastal Zone Act Reauthorization Amendment (CZARA) established the national Coastal Nonpoint Pollution Control Program requiring coastal states to address nonpoint source pollution. The Departments of Land Conservation and Development and Environmental Quality lead the state's management of the program. Oregon has not met CZARA requirements since 2015 due to forestland management issues. New rules and rule revisions to the Forest Practices Act in 2022 are expected to result in improved water quality associated with private forestland management along the coast."

The IWRS 2025 report should identify the challenges that these types of plans have encountered. Specifically, what are the forestland management issues? How have these prevented implementation of the WQPMT goals and CZARA requirements?

A sentence has been added "Oregon's timber harvesting rules were not providing adequate water quality protection." right before "New rules and rule revisions to the Forest Practices Act..." that describes the challenges of addressing nonpoint source pollution from private forestland management.

ODEQ

The specific forestland issues identified by USEPA and NOAA on prior submissions of the Coastal Nonpoint Pollution Control Plan are the need for additional management measures for aerial herbicide application, protections for small and medium streams (fish and non-fish), protections for landslide-prone areas, and “legacy” roads. EPA and NOAA found that the forestry rules (as of 2015) were not sufficient to address those additional management measures for forestry, so Oregon’s coastal program under CZARA was disapproved. The 2020 and 2022 forestry reforms (the Private Forest Accord as enacted by SB1602 (2020) and SB1501 (2022)) address these four issues and incorporate a rigorous adaptive management program to update rules over time in response to new information. These reforms combined with Oregon’s TMDL program should allow the State to get approval of its CNPCP.



OREGON WATER RESOURCES COMMISSION

Resolution Adopting the State's Integrated Water Resources Strategy

Whereas, the Oregon Water Resources Commission adopted Oregon's first Integrated Water Resources Strategy in 2012, carrying out its vision of bringing various sectors and interests together to work toward the common purpose of maintaining healthy water resources to meet the needs of Oregonians and the environment for generations to come;

Whereas, extreme weather events in recent years including droughts, fires, winter storms, and floods continually remind us that water-related challenges are here and will only increase in the future;

Whereas, climate change and earthquakes may influence water availability, water use, and water infrastructure;

Whereas, the Water Resources Commission desires to continue, through updates to the Strategy, a strong tradition of scientific integrity, forward-looking public policy recommendations, and robust public participation in Oregon;

Whereas, this 2025 Strategy retained the original vision, goals, objectives, and guiding principles from the 2017 version, with the intent to update information, fill important gaps, and strengthen ideas by shoring up or adding new actions, where needed;

Whereas, partner state and federal agencies and Oregon's Nine Federally Recognized Tribes have continued to lend their voices and knowledge;

Whereas, the citizens of Oregon continue to demonstrate awareness and knowledge of water issues, showing strong support for collaborative solutions and contributing to the conversation through online and in-person meetings, survey responses, and submitting public comments for two drafts;

Whereas, our fellow Boards and Commissions have continued to support this work, the process, and product—the Environmental Quality Commission, Fish and Wildlife Commission, and the Board of Agriculture;

Whereas, the 2025 Integrated Water Resources Strategy includes a suite of actions to improve our understanding of water resources, to define our collective instream and out-of-stream needs, including water quantity, water quality, and ecosystems needs, and to address the pressures that may affect these resources and needs;

Whereas, Oregon's update to the Integrated Water Resources Strategy has been completed according to the parameters set forth in ORS 536.220; Now, therefore,

Be It Resolved, we the undersigned members of Oregon's Water Resources Commission do hereby adopt Oregon's 2025 Integrated Water Resources Strategy on this Eleventh Day of September, 2025.

Janet Neuman
Westside at Large

Julie Smitherman, Vice Chair
Southwest Region

Jan Lee
Northwest Region

Joe Moll
West Central Region

Kathy Kihara
Eastside at Large

Woody Wolfe
Eastern Region