THE OREGON PLAN
FOR SALMON & WATERSHEDS

2021-2023 Biennial Report

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Cover:
Thirtymile Creek Tour (by Linda Repplinger)

Introduction

Salmon have great cultural, economic, and recreational importance to Oregonians. They are important indicators of watershed health.

For over 25 years, Oregonians have dedicated state resources to support salmon recovery and watershed health. In 1997, state leaders established the Oregon Plan for Salmon and Watersheds to restore salmon and watershed health. In 1998, Oregonians passed a ballot measure to direct a portion of lottery funding for parks, watersheds, and salmon. This support was made permanent through a ballot measure passed in 2010.

The Oregon Plan for Salmon and Watersheds includes specific actions. These actions address the factors that affect fish populations and watershed health. Most of these actions focus on water quality, stream flows, and habitat restoration. State and federal agencies, local governments, tribes, private citizens, and organizations across Oregon have worked together on solutions. Watershed councils and soil and water conservation districts have led efforts in many watersheds.

Every two years, Oregon Plan agencies provide information included in this Biennial Report regarding investments and accomplishments to support salmon recovery and watershed health. In addition, as required by law, the following report incorporates recommendations from the OWEB board for enhancing the effectiveness of Oregon Plan implementation.

Finn Rock restoration site in the McKenzie Watershed with wildfire-salvaged trees used as large woody debris.

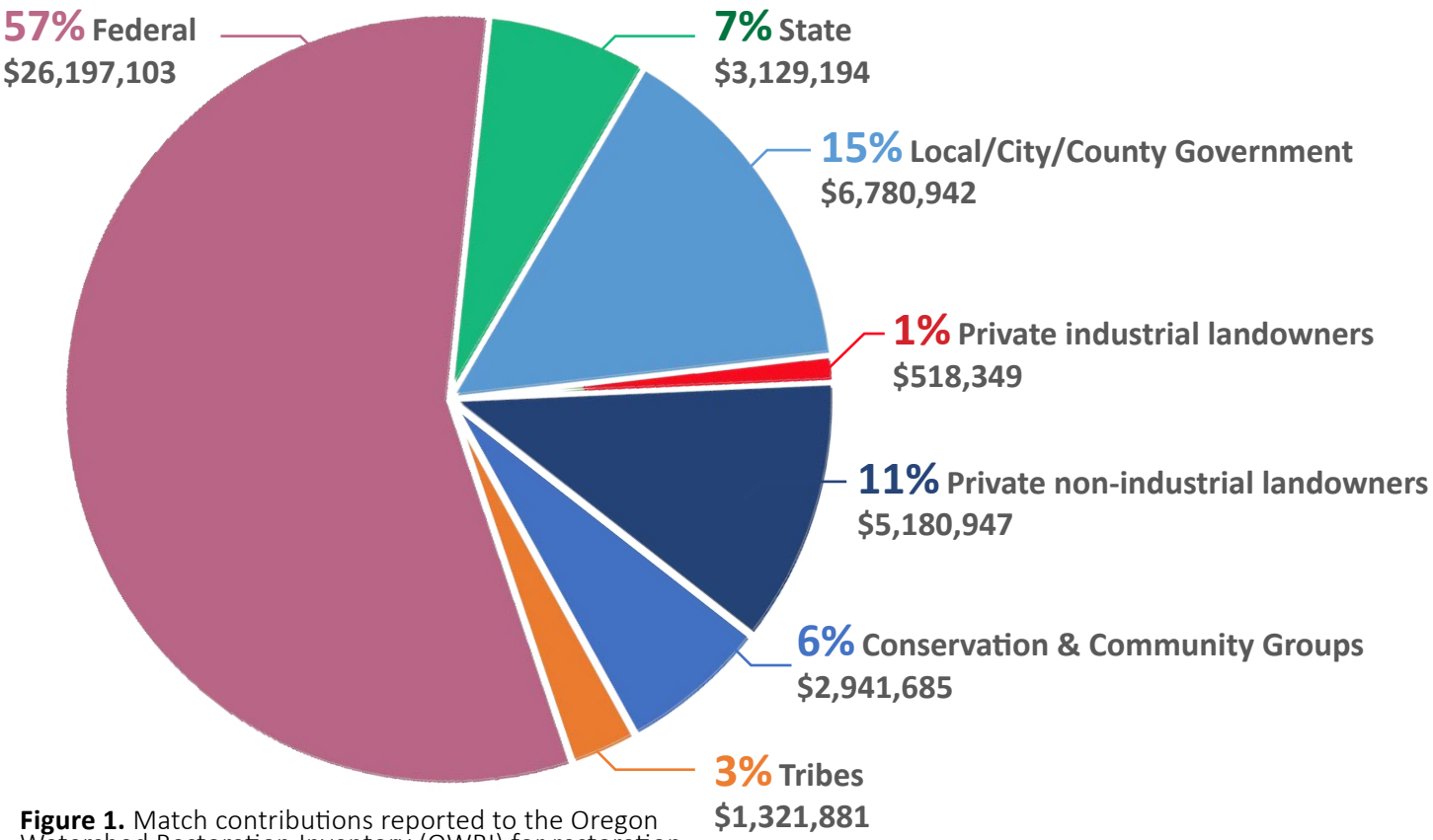


Figure 1. Match contributions reported to the Oregon Watershed Restoration Inventory (OWRI) for restoration projects for calendar years 2021 and 2022.

Investments and Accomplishments

The Oregon Watershed Enhancement Board is a state agency created to administer grant funds for watershed restoration, clean water, and fish and wildlife habitat. In 2024, OWEB will reach its 25th anniversary of helping Oregonians take care of watersheds through its grant administration work.

During the 2021-2023 biennium, the Oregon Watershed Enhancement Board (OWEB) awarded $112,186,346 for watershed enhancement projects in Oregon. Data are from the OWEB Grant Management System from July 1, 2021 through June 30, 2023). This total includes funding from the Oregon Lottery, federal Pacific Coastal Salmon Recovery Fund which includes additional investments from the Infrastructure Investment and Jobs Act, Bureau of Land Management, U.S. Fish and Wildlife Service, salmon license plate revenues, and other sources. These dollars leverage significant funding that is provided by other agencies and partner organizations, increasing the impact of OWEB funding throughout the state.

As OWEB partners implement projects, they often secure and use match contributions from a variety of sources. Partners report match contributed to projects when they submit project data to the Oregon Watershed Restoration Inventory (OWRI), a restoration database maintained by OWEB.

The purpose of OWRI is to document how public funds are spent, quantify restoration and conservation results to inform future planning, management and conservation efforts, and recognize the contributions made by various partners. OWEB publishes OWRI data on an annual basis organized by calendar year, so this report includes 2021 and 2022 data available at the time of publication. When available in early 2024, the 2023 data will be posted on the Oregon Explorer website.

Match contributions reported from Oregon Plan partners to OWRI for calendar years 2021 and 2022 are shown in **Figure 1** above. These contributions reflect significant investment in watershed restoration from diverse participants.

Some organizations, such as private timber companies and small woodland owners, report to OWRI to document additional actions—above and beyond those required by regulations—that they have taken to enhance the state's watersheds. The U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) provide summary information to OWEB to provide a more comprehensive picture of restoration work across the state. Metrics from OWEB's Oregon Watershed Restoration Inventory (OWRI), BLM, and USFS are reported in each Biennial Report.

Watershed Metric	OWRI	BLM	USFS	Total
Riparian Miles (e.g., Streamside Plantings)	107	12	9	**128** miles
Instream Habitat Miles (e.g., Wood Placement)	124	21	119	**264** miles
Miles of Fish Habitat Made Accessible (due to stream crossing improvements)	73	19	66	**158** miles
Stream Crossings Improved for Fish Passage	71	13	73	**157** crossings
Push-Up Dams Retired to Improve Fish Passage	5	--	--	**5** push-up dams
Fish Screens Installed on Water Diversions	16	2	--	**18** screens
Upland Acres (e.g., Juniper Thinning, Seeding)	109,903	70,613	5,838	**186,354** acres
Wetland Acres (e.g., Wetland Habitat Created)	1,177	268	34	**1,479.75** acres
Miles of Road Closure and Decommissioning	11	69	75	**155** miles
Miles of Road Improvements (e.g., Erosion Control)	21	--	179	**200** miles
Miles of Riparian Invasive Treatments	148	--	--	**148** miles

Figure 2. Metrics for watershed restoration activities completed and reported from 1/1/2021 to 12/31/2022 as reported by state and voluntary sources in OWRI (OWEB's Oregon Watershed Restoration Inventory).

Where comparable data standards were applied, metric data is provided from the Bureau of Land Management [BLM] and U.S. Forest Service [USFS]. Federal information excludes projects already reported to OWRI. BLM upland habitat reflects significant east-side hazard fuels reduction. USFS metric does not include full total of actual upland acres treated by USFS.

Recommendations from the OWEB Board

In 2023, the OWEB Board began revisiting its strategic plan that was adopted in 2018. The revisions to the plan incorporate learnings over the past five years and will serve as a guide for the next five years. While the OWEB Board will continue to fine-tune the strategic plan revisions into 2024, the broad priorities would enhance the effectiveness of the Oregon Plan for Salmon and Watersheds, and will include:

Priority 1: Build awareness of the relationship between the people of Oregon and watershed restoration.

Priority 2: Engage the diversity of Oregonians in watershed enhancement work.

Priority 3: Strengthen and leverage community capacity to achieve healthy watersheds.

Priority 4: Advance learning about watershed restoration effectiveness through coordinated monitoring.

Priority 5: Increase connection of working lands to watershed health.

Priority 6: Take bold and innovative action toward climate resilience.

OWEB met with partners at the JC Boyle Dam removal site in October 2023.

Additional Information Available Online

OWEB maintains a collection of information about grant-funded projects that illustrates restoration outcomes. Information includes videos, fact sheets, story maps, and other products that highlight projects and describe factors that contribute to success.

Telling the Restoration Story

An OWEB grant offering called Telling the Restoration Story helps grantees produce this information. During the 2021-2023 biennium, OWEB continued to offer Telling the Restoration Story grants. OWEB staff worked with grantees to identify areas where agency investments have yielded measurable restoration outcomes and describe the factors that contribute to success.

Nine projects have been completed and five additional projects are currently funded, encompassing a variety of restoration actions throughout the geography of the state. Each project is producing a suite of outreach products. For more information see Telling the Restoration Story.

Oregon Explorer Mapping Tools

Information about investments in Oregon Plan basins is available through online mapping tools and can be customized into reports for local areas. Oregon Explorer provides access to these statewide datasets and mapping tools. The OWEB Investment Tracking Tool provides information about where OWEB funds are invested across the state. This tool shows grants in progress as well as completed projects.

Oregon Watershed Restoration Tool

Information about OWEB funding and primary grant types is available for each Oregon Plan reporting basin, and can be shown for each subbasin, watershed council, or Soil and Water Conservation District (SWCD) boundary. Through the Oregon Watershed Restoration Tool, restoration information can be filtered for each of the Oregon Plan basins, sub-basins, or watershed councils. Data can be shown by restoration activity type on the mapping tool by county, legislative districts, or watershed council or SWCD area.

The tool offers the ability to create custom reports that list the restoration data (e.g., stream miles treated; upland acres treated) and graph the data for specific areas and timeframes of interest. For these online tools, information is uploaded each calendar year, and is current as of OWRI's most recent calls for data.

Coordinated Actions Around the State

Collaboration is the heart of the Oregon Plan for Salmon and Watersheds. In the 2021-23 biennium, state agencies and partners continued work on several water-related initiatives. Climate change continues to be an important emphasis area because of the impacts on salmon, other fish and wildlife, and the watersheds of Oregon. This biennium, several new coordinated efforts are addressing emerging restoration challenges.

Inter-Agency Initiatives that Describe or Address Monitoring and Information Needs

The Integrated Water Resources Strategy (IWRS) is a water related inter-agency framework to manage Oregon's water needs and supplies under increasing challenges. Updated in 2017, the IWRS included specific recommendations for improved water resources data collection and monitoring methods and investing in healthy ecosystems. Work is actively underway to update the IWRS. The Oregon Water Resources Department plans to complete the next IWRS update in 2024.

Water Data Portal: As directed by the 2021 Legislature, the Oregon Department of Environmental Quality (DEQ) worked with other State natural resource agencies and various contractors to evaluate and propose design options for an information technology project that would provide a web-based single point of access for water related data. The primary objective of this Oregon Water Data Portal (OWDP) initiative is to improve decision-making, community and public access to the necessary data and information upon which long-term strategic water and water infrastructure-related decisions can be made, including planning and investment.

During 2021-2023 (Stage 1), the OWDP development began with scoping and design by engaging 68 participants representing more than 40 state, local, and Tribal agencies, community organizations and other interested groups. The OWDP project team inventoried currently existing water data sets held by the 17 state agencies with water related missions or functions, assessed their readiness for inclusion in the OWDP, and identified additional critical data needs.

Based on meetings with representatives from states who have initiated similar water data modernization projects and meetings with private sector representatives, the OWDP project team evaluated the technical aspects of the portal platform that will be needed and developed a set of recommendations for Legislative consideration. The 2023 Legislature subsequently authorized funding to continue project development during the 2023-25 biennium.

Efforts to identify efficiencies in water related monitoring and reporting continued through the interagency Water Data Portal project and interagency teams such as the STREAM Team and the Conservation Effectiveness Partnership. Strategic investments in local partnerships working to achieve ecological outcomes continued through the Oregon Water Resources Department's (OWRD) Place Based Planning program and OWEB's Focused Investment Partnerships.

Place-based Planning: Place-based integrated water resources planning (also known as place-based water planning) is a voluntary, locally initiated and led effort, in which a balanced representation of water interests work in partnership with the state to understand and meet their instream and out-of-stream water supply needs. Place-based planning provides a framework and support to implement the Integrated Water Resources Strategy, and the many recommended actions it contains, at the local level.

Across Oregon, three partnerships developed and are implementing integrated water resource plans, funded through Oregon Water Resources Department (OWRD) and other partners and a fourth continues to make progress. Agencies also work together to provide guidance and technical assistance to the planning efforts. In 2021, the Oregon Legislature authorized additional funding for these groups to complete plans and transition to implementation. In 2023, the Oregon Legislature passed authorizing legislation to make the Integrated Place-Based Planning Program permanent. For a series of updates and the status of each planning effort, see OWRD's Place-Based Integrated Water Resources Planning.

CEP map meeting.

Conservation Effectiveness Partnership (CEP): CEP is a collaborative effort among DEQ, ODFW, the Oregon Department of Agriculture (ODA), the federal Natural Resource Conservation Service (NRCS), and OWEB. CEP aims to describe the effectiveness of cumulative conservation and restoration actions in achieving natural resource outcomes through collaborative monitoring, evaluation, and reporting. In the 2021-2023 biennium, the group completed a case study describing the long-term water quality monitoring outcomes in Floras River watershed in Curry County; and began work on the first prospective watershed case study in Thirtymile watershed, Gilliam County. The CEP Technical Team convened with local partners in Gilliam County to discuss planned and completed projects within the study area. They also began an inventory of existing data and future monitoring efforts. In the spring of 2023 several members from the CEP agencies joined local experts on the ground for a field trip of the study area.

Strategic Enterprise Approach to Monitoring (STREAM) Team: This partnership of seven natural resource agencies collaborates regularly on technical issues related to water monitoring and information needs. STREAM Team continued discussing the value of sharing continuous water temperature datasets among agencies to better track and understand the impact of climate change on Oregon water resources and provided this information to help inform the Oregon Water Data Portal. STREAM Team maintains an annually updated inter-agency water-related monitoring map and monitoring calendar, currently made available for natural resource professionals to reference through ArcGIS Online. The map shows locations where Oregon's state natural resource agencies are actively engaged in monitoring activities for the current calendar year. The calendar shows information about when monitoring activities are planned throughout the year. While not comprehensive, these tools show locations and parameters monitored through Oregon's state enterprise. Information is updated each year, and the map and calendar are current for the 2021-23 biennium.

Cover art to the Integrated Water Resources Strategy, 2017. Oregon artist Susan Luckey Higdon painted "In the Beginning" at the headwaters of the Deschutes River where this mighty river begins its journey quietly flowing out of Little Lava Lake. Little Lava Lake is fed by many springs as well as runoff from the surrounding mountains.

Inter-Agency Initiatives that Address Emerging Restoration Challenges

Climate Change: Along with warming temperatures, climate change brings high variability in natural disturbance events such as floods, droughts, and fire. All these events have the potential to impact OWEB's investments. At the same time, OWEB's investments have the potential to enhance long-term carbon sequestration and storage and increase the resilience of our natural resources and human communities to climate change.

During the 2021-23 biennium, OWEB continued efforts to integrate climate mitigation and adaptation strategies into the work of the agency. The board adopted a Climate Resolution to provide guidance on integrating climate mitigation and adaptation into OWEB's budgeting, investing, and policy-making decisions. OWEB added evaluative climate criteria to grant applications, starting with the Fall 2023 Open Solicitation grant cycle. OWEB hosted a series of listening sessions to inform the development of the climate criteria and, once criteria were adopted in July 2023, the agency provided a suite of training opportunities and resources to help grant applicants respond to the new criteria.

OWEB continues to participate in the implementation of the Natural and Working Lands Program authorized by the 2023 Legislature, in collaboration with other agencies and under the leadership of the Oregon Climate Action Commission (formerly the Oregon Global Warming Commission).

During the 2021-23 biennium, the Oregon Department of Fish and Wildlife (ODFW) continued to implement policies to ensure that the Department adequately prepares and responds to these impacts. ODFW's Climate and Ocean Change Policy directed the agency to assess its carbon footprint every five years or less and to develop a carbon reduction plan to outline how the department would reduce its own net greenhouse gas emissions, with the goal of being carbon neutral by mid-century.

ODFW finalized its Base Year Greenhouse Gas Inventory Report and Carbon Reduction Plan in 2021 and 2022, respectively. Assessments of the potential impacts from climate and ocean change and habitat strategies to minimize those impacts have also been central components of biological status assessments and conservation plans developed during the 2021-23 biennium. ODFW also updated its fish passage rules to align them with the Climate and Ocean Change policy, reflecting the importance of fish passage as an adaptation strategy, both for fish to access refuge habitat and for longevity of culverts (during floods).

Sage Grouse: The SageCon Partnership brings together landowners, agencies, and interest groups to address threats to sagebrush rangelands and the species that rely on them. Through implementation of the Oregon Sage-Grouse Action Plan, the state has developed tools and resources to guide coordinated implementation, and partners have invested heavily in on-the-ground actions to improve habitat. See the SageCon Dashboard for more information on the status and trends of sagebrush rangeland condition, sage-grouse populations, and collaborative conservation efforts in southeastern Oregon.

Drought: Much of Oregon faced unprecedented drought conditions in the 21-23 biennium. During the 2nd Special Legislative Session in 2021, General Funds were allocated to OWEB to support several drought relief grant programs. These programs include: statewide irrigation modernization; irrigation modernization by the North Unit Irrigation District; drought resiliency projects in Jefferson and Klamath counties; livestock watering wells and construction of off-channel watering facilities in Klamath County; and soil conservation work by the Jefferson County Soil and Water Conservation District. This funding complements many other allocations made to state agencies and local partners as part of the recent drought funding packages in the legislature.

Leveraging funding from the Oregon Conservation and Recreation Fund, ODFW launched a drought outreach campaign centering on increasing public awareness and provided a toolkit to help educate Oregonians about the impacts of drought on fish, wildlife, and habitat. The campaign suggested ways for Oregonians and visitors to reduce their unintended impacts when recreating outdoors. ODFW has also continued to work with partners to implement additional monitoring of stream temperatures and stream flow, and to identify important cold-water habitats that will be crucial to sustaining aquatic species in a changing climate with more frequent drought conditions. Much of this work was made possible by Drought and Water funding packages passed during the 2022 and 2023 legislative sessions.

Fire Restoration and Recovery: In response to the catastrophic wildfires in 2020, the Oregon Department of Forestry (ODF) and DEQ, along with OWEB, co-convened a State Natural and Cultural Resources Recovery Task Force with multiple state, federal, and Tribal partners that provided critical coordination and implementation in the recovery response. Among other activities, the task force compiled assessment data on areas impacted by the wildfires and identified priorities for restoration action based on impacts to drinking water sources, soil stabilization and slope stability, and areas of potential risks to cultural resources.

To address these priorities, the Oregon Legislature in 2021 provided General Funds to ODF to expand tree seedling capacity, and funding to OWEB for upland and riparian reforestation and floodplain restoration and reconnection. Following another significant fire season in 2021, OWEB received additional General Funds in the 2022 legislative session to support natural resources post-fire recovery in areas impacted by the 2021 fires. Implementation work supported by all of this funding is ongoing, with local partner organizations, Tribes, and municipalities conducting post-fire recovery.

In 2021, 11 state and federal agencies established the Post-fire Research and Monitoring Collaboration through a Memorandum of Understanding. In 2021 and 2022, DEQ's Water Quality Monitoring program contributed to the Governor's Post-Fire Research and Monitoring Science Team. DEQ conducted a surface water study in seven watersheds affected by the 2020 wildfires, analyzing samples for conventional water quality parameters and toxics. DEQ presented results in multiple forums in fall 2021.

Tide Gates: A primary limiting factor for Oregon coastal coho population growth is access to winter rearing habitat within estuaries. Tide gates have historically been used on the Oregon coast to convert coastal wetlands into agricultural fields by controlling the flow of brackish estuarine waters. Tide gates can affect the ability of coho to access estuarine habitat that is crucial to their life cycle. Efforts to address issues with replacing tide gates with fish-friendly alternatives are being coordinated through the Oregon Tide Gate Partnership (oregontidegates.org), including state and federal agencies, conservation organizations, industry groups and local communities.

In the 2021-2023 biennium, partners worked to:

1) Refine the Oregon Tide Gate Inventory through on the ground survey work along the coast.

2) Develop guidance and host training for the Tide Gate Decision Support Tool.

3) Refine process mapping for the regulatory permit process for tide gate project applicants.

4) Make significant progress on the development of a pipe-sizing tool to assist with tide gate engineering.

5) Assist the Oregon Business Development Department to implement the Tide Gate Grant and Loan Program that funded 13 planning and four construction projects.

6) Continue to provide assistance and coordination to tide gate owners, local partners, and agencies involved in tide gate upgrades through the Tide Gate Coordinator position.

McDonald Slough and tide gate.

Ocean Acidification and Hypoxia (OAH): As carbon dioxide levels increase in the earth's atmosphere, more carbon dioxide is absorbed into the oceans and makes the oceans more acidic. At the same time, changing climate conditions affect dissolved oxygen levels in ocean water. Dissolved oxygen and acidity levels in the oceans are experiencing greater variability and are further influenced by local conditions including freshwater inputs and seasonal upwelling. These water quality impacts are referred to as OAH and affect marine habitat.

To better monitor these conditions, DEQ is convening a technical workgroup to produce an OAH assessment methodology. The methodology will help provide information for DEQ's future Integrated Water Quality Reports.

New Coordinated Restoration Efforts Led by Oregon Department of Fish and Wildlife

New Investments: Federal competitive grant opportunities through the Infrastructure Investment and Jobs Act (BIL-IIJA) and Inflation Reduction Act (IRA) are available over the next 5 years to invest in creating healthy natural areas that support our wildlife, recreation, and economy in Oregon. ODFW is working with Tribes and local partners to focus this investment into key places where additional funding is needed for achieving great outcomes for fish and wildlife and Oregon's underserved communities. These focal areas include strategic investments to promote Wallowa River fish passage and flow restoration, restoration and enhancement of anadromous fish runs and water efficiency in the Klamath Basin, fish passage and water quantity/quality benefits for Oregon Coastal Coho Salmon recovery, Rogue watershed resiliency, wildlife habitat restoration, habitat connectivity, and wildlife passage improvements.

In 2022, the Oregon Legislature established the Private Forest Accord (PFA) Mitigation Fund associated with the landmark agreement between timber and conservation groups to recommend changes to the Forest Practices Act (Senate Bills 1501 and 1502; House Bill 4055). The PFA allows forest practices to proceed with increased protections for natural resources, including developing a habitat conservation plan (HCP) for aquatic species. To further the goals of the PFA and HCP, ODFW was tasked with creating and administering the PFA Grant Program. This Grant Program works with a public-private advisory committee to fund millions of dollars in projects leading to the conservation uplift of HCP-covered species habitat throughout the State of Oregon.

The 21-23 biennium also saw continued investments through the Oregon Conservation and Recreation Fund (OCRF). Established by the Oregon Legislature in 2019 (HB 2829) and administered by ODFW with guidance from a diverse Advisory Committee, the OCRF supports projects that protect and enhance the species and habitats identified in the Oregon Conservation Strategy and create new opportunities for wildlife watching, urban conservation, community science, and other wildlife-associated recreation. To-date, the OCRF has funded 141 projects that build opportunities for all Oregonians to connect with the natural world and further the conservation of Oregon's fish and wildlife, and their habitats.

Beaver: ODFW released the Three-Year Action Plan for Beaver-Modified Landscapes (Action Plan) in June 2023 with the goal of accelerating the restoration of beaver habitat and beaver-modified habitat at the landscape-scale in Oregon. The Action Plan builds upon and coalesces beaver-related habitat restoration and/or human-beaver coexistence priorities identified in seven native fish conservation and recovery plans, the Oregon Conservation Strategy, the Oregon Private Forest Accords Report (ODF 2022), and the Oregon Fish and Wildlife Commission's Beaver Management Workgroup Recommendations Report, among others. The Plan is structured as four integrated Pillars of Action — Data and Science, Beaver Habitat and Beaver-Modified Floodplain Restoration (Habitat Restoration), Beaver Management, and Outreach and Communication — which outline the specific commitments and steps the Department will take by 2025 to improve adaptive management and coordination across ODFW divisions and the field. ODFW has identified 10 Beaver Emphasis Areas across the state as focal areas for this work. The plan also commits ODFW to create tools and shared information to better understand current beaver distribution and habitat use, and support the ongoing work of partners (tribal, federal, state, watershed councils, soil and watershed conservation districts, NGOs, and private landowners) in scaling up beaver-modified landscape restoration in Oregon.

Also in the 21-23 biennium, HB 3464 was passed by the Oregon Legislature and signed into law by Governor Kotek. The Bill acknowledges 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. Under the amended rule, beavers causing damage will be regulated like other furbearers according to ORS 498.012. Landowners experiencing damage or nuisance will coordinate with their local ODFW office for advice on alleviating conflict and damage using non-lethal, coexistence tools, where possible. The statute will go into effect once rulemaking is completed by the Oregon Fish and Wildlife Commission, no later than December 31, 2024. ODFW will actively engage with agricultural partners during this rule-making period.

Water Monitoring

Statewide Streamflow Monitoring: OWRD works with the U.S. Geological Survey, U.S. Bureau of Reclamation, and others to operate a statewide network of gaging stations that is essential for the management of Oregon's water resources. In addition to gages run by partners, OWRD operates more than 250 gages. Monitoring streamflow in near real time is essential for regulation and distribution of water rights, including those for instream uses, according to priority date. Stream gages are also critical for basin water budgets, flood forecasting, and understanding interactions between groundwater and surface water dependent ecosystems. OWRD also requires water use measurement where needed in order to ensure compliance with water rights and to distribute and manage water.

Lostine River.

Statewide Ambient Water Quality Monitoring: The Oregon Department of Environmental Quality (DEQ) maintains a network of over 150 ambient water quality monitoring stations throughout the state. Testing occurs for water quality variables such as temperature, dissolved oxygen, nutrients, pH, turbidity, conductivity, chlorophyll a, fecal indicator bacteria and other water quality parameters. The data from this and many other water quality monitoring programs is publicly accessible online. The Oregon Water Quality Index provides information on trends in some of these variables over time throughout the state.

Oregon DEQ Toxics Monitoring: DEQ's laboratory collects water samples from across Oregon. Sites include coastal estuaries, large rivers, and small streams. The program analyzes samples for over 500 chemicals, including metals, pesticides, consumer products, industrial chemicals, and flame retardants. Beginning in fall of 2019, the toxics monitoring program transitioned from risk identification toward a trending network of 60 sites based on data previously assessed by this program and other spatial considerations. However, due to travel restrictions created by the pandemic, the toxics monitoring programs focused on the Willamette Basin and wildfire-affected basins in 2020 and 2021. In winter and spring 2021, toxics sampling focused on surface water in five basins affected by the 2020 wildfires. In fall, 2021, DEQ analyzed toxics in sediment collected from 28 sites in the Willamette Basin as well as 7 sites in wildfire-affected basins. In 2023, DEQ has resumed monitoring of the toxics network sites.

Temperature Monitoring: DEQ continued its partnership with ODFW conducting long-term continuous temperature monitoring at 21 stations along Oregon coastal streams. While DEQ leads water quality monitoring in Oregon, monitoring responsibilities are shared among other natural resource agencies. The Oregon Department of Agriculture (ODA) occasionally collects information about water quality to support the Agricultural Water Quality Management Program, and the Oregon Department of Forestry (ODF) conducts research and monitoring to verify that forest management practices maintain water quality. Throughout Oregon, local organizations with strong community ties – watershed councils, SWCDs, and others – gather on-the-ground information about water quality, stream flow, and other indicators of watershed condition. Many of these organizations are supported by DEQ's Volunteer Monitoring Coordinator through the provision of water quality instrumentation, the development of monitoring plans, and through data review and management services. Most of the data is submitted to DEQ and publicly available via DEQ's Ambient Water Quality Monitoring System (AWQMS).

Fish Population and Habitat Monitoring

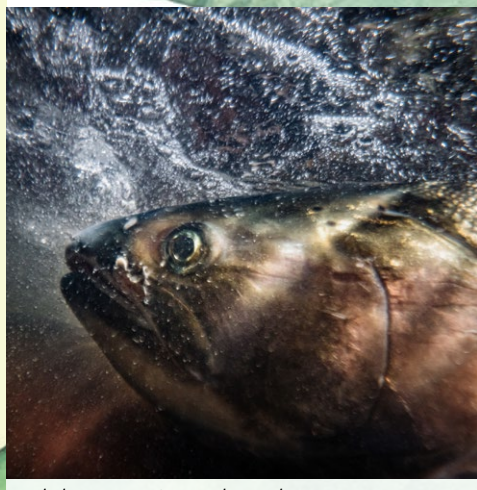
ODFW continues to conduct extensive fish and habitat monitoring throughout Oregon. This monitoring is described and called for in numerous conservation and recovery plans that the Department has developed with extensive external input. These plans describe specific, measurable criteria for conservation and recovery, and provide a common framework for all partners to coordinate, monitor and track their progress on conservation and recovery efforts.

Throughout the 21-23 biennium, ODFW continued to lead long-standing Oregon Plan monitoring programs. The Aquatic Inventories Project collects data on stream habitat and juvenile salmonids using a rigorous quantitative stream survey methodology. This project has also been a monitoring partner with the Clackamas Partnership Project, an OWEB-funded Focused Investment Partnership seeking to improve habitat for native fishes and improve watershed health in the Clackamas River basin. The Oregon Adult Salmonid Inventory and Sampling Project coordinates and conducts salmon and steelhead spawning ground surveys. The Salmonid Life Cycle Monitoring Project operates traps to estimate abundance and survival of adult and juvenile salmonids, as well as effects of habitat modification on populations. Each project also conducts research to evaluate and improve fish and habitat inventory methods.

ODFW's Fish Research, Evaluation, Data and Decision Support Program is actively working to develop new monitoring and assessment tools. For example, this program has worked with academic and agency research partners to build a comprehensive foundation for using monitoring with environmental DNA (eDNA; detecting fish and other aquatic organisms using DNA that has been shed into the water) to monitor the distribution of native Oregon fish species and to improve detection of aquatic invasive species. ODFW is also working to develop tools to better forecast stream temperatures and flows to support climate resilient conservation planning and management actions.

Status and trend monitoring results are available through reports for specific projects and conservation plan implementation reports as well as through the Salmon and Steelhead Recovery Tracker or StreamNet. Fish distribution information is available from the Natural Resource Information Management Program. The Oregon Conservation Strategy, including the Oregon Nearshore Strategy, describes key conservation issues, limiting factors, and priority monitoring needs for 294 fish and wildlife species of greatest conservation need, 11 native habitats of conservation concern, and 206 priority conservation areas throughout the state. In the 23-25 biennium, ODFW will lead a 10-year review and revision of the strategy with robust engagement of public and private conservation partners.

Clackamas River.
Photo by Clackamas Partnership.



Adult, spawning coho salmon.
Photo by Oregon/Washington BLM.

Integrated Monitoring Projects with Statewide Relevance

Intensively Monitored Watersheds (IMWs) are watershed-scale monitoring efforts designed to answer questions that typical project-level effectiveness monitoring cannot. IMWs look at an entire suite of restoration actions at a larger watershed scale and attempt to determine how these combined restoration actions affect physical and biological conditions. Located throughout the Pacific Northwest, results from IMWs are informing ongoing restoration programs as the coordinated effort reaches completion. For an example IMW project within Oregon, see the Upper Middle Fork John Day River IMW.

Oregon Plan Agency Programs

The work done regularly within state natural resource management agencies is crucial to the Oregon Plan. Highlights of programs and recent progress related to the Oregon Plan are described below, with updated links to further information.

Business Oregon

The Oregon Business Development Department, DBA Business Oregon, is the state's economic development agency. The agency works with businesses, using programs and expertise to help them grow, so they can in turn add jobs, diversify the economy, and increase Oregon prosperity. Business Oregon works with communities to enhance and expand infrastructure in the state, and support community safety, which also sets the stage for future business development. Business Oregon's mission is to invest in Oregon's businesses, communities, and people to promote a globally competitive, diverse, and inclusive economy. Throughout the 2021-23 biennium, Business Oregon continues to provide financial support for the environmental strategies outlined in the Oregon Plan. Funded projects include tide gates, brownfields, drinking water, and wastewater management, with new projects awarded to provide benefits to communities in rural Oregon. Additionally, Business Oregon partners with DEQ and the Oregon Health Authority to implement the Drinking Water Source Protection program. While the program's primary focus is protecting public drinking water quality, many studies and projects implement actions that protect watersheds, such as efforts to reduce sediment deposition and associated water turbidity.

Hood River agriculture. Photo by Tracy Robillard, NRCS.

Oregon Department of Agriculture (ODA)

ODA works closely with partners including Oregon's Soil and Water Conservation Districts. ODA supports the Oregon Plan through the agency's Natural Resource Programs, including the Agricultural Water Quality Management Program, Agricultural Drainage Channel Maintenance Program, programs to support the proper use of pesticides and fertilizers, and through its noxious weed and insect pest prevention and management programs.

Oregon's Agricultural Water Quality Management Program (Ag WQMP) is a vital part of the state's strategy for improving the condition of the state's waters. The program works with Oregon's 38,000 farms and ranches, which vary significantly in size, products grown, climate, and ownership. In the 2021-23 biennium, focused work in small watersheds called Strategic Implementation Areas (SIAs) continued to be an important area of emphasis for the program.

ODA's Pesticide and Fertilizer Programs include Oregon's Pesticide Stewardship Partnerships (PSPs). PSPs help local partners identify specific pesticide concerns, encourage improved management practices, and support the voluntary reduction of pesticide impacts. DEQ assists ODA in coordinating with local partners, conducts lab analyses, and helps evaluate pesticide data in support of PSP efforts. ODA works closely with other state natural resource agencies and partners to identify, guide, and evaluate PSPs. During the past biennium, nine PSPs continued ongoing efforts (Walla Walla, Wasco, Hood, Clackamas, Yamhill, Pudding, Amazon, Middle Deschutes, and Middle Rogue).

Scotch broom management.

ODA's noxious weed and insect pest prevention programs focus on early detection and rapid response to invasive species before they gain a foothold in the state. Much of the program's work focuses on preventing and managing insect and plant pests that have the potential to damage watershed health. The noxious weed program works closely with local partners to manage priority weeds of concern and, in some cases, deploys bio-control agents such as a newly released agent for gorse. The insect pest prevention and management program monitors for economically and environmentally damaging pests and initiates treatments to keep these species out of the state.

During the 2021-23 biennium, ODA continued to administer the Plant Conservation Program, providing information about sensitive and at-risk plant species and their management.

Oregon Department of Environmental Quality (DEQ)

DEQ is responsible for protecting surface and groundwater to provide for a wide range of uses, including drinking water, recreation, fish habitat, aquatic life, and irrigation. The DEQ develops water quality standards, monitors water quality, and provides other services to control and monitor point and nonpoint source pollution. The DEQ also establishes Total Maximum Daily Loads (TMDLs) on water bodies that do not meet water quality standards. A TMDL identifies the amount of a pollutant that a water body can receive and still meet water quality standards. Throughout the 2021-2023 biennium, DEQ continued to develop and implement TMDLs. During this period, DEQ also developed water quality status and trend reports statewide. Water quality status and trend reports evaluate water quality standards attainment and trends using water quality monitoring data available in public databases. The results are used to support a number of water programs including DEQ's review of Agricultural Water Quality Management Area plans and rules; and for assessment of progress implementing TMDLs.

During the 2021-2023 biennium, DEQ continued to improve the process for biennial assessment and reporting of statewide surface water quality data to EPA. Recent upgrades to the modernized 'Integrated Report' framework include a consistent process for conducting a statewide data call, enhanced methodology for evaluating waterbodies using narrative water quality criteria, expanded use of continuous monitoring data, modernized displaying of results, and transparency in the process. DEQ also continued to co-manage the implementation of the Oregon Pesticide Stewardship Partnership Program (PSP) with ODA.

In December 2021, DEQ and Oregon Department of Forestry (ODF) updated the agencies' memorandum of understanding on collaboration on achieving water quality goals with the key change of ODF developing TMDL implementation plans. In January 2023, DEQ and ODA updated a memorandum of agreement between the agencies to optimize efficiencies between efforts toward the shared goal of reducing nonpoint source pollution to protect and improve water quality related to agricultural lands and activities throughout the state. Key changes included adding information on existing enforcement processes and better supporting implementation of TMDLs by adapting Agricultural Water Quality Management Area plans and rules or ODA developing TMDL implementation plans.

Oregon Department of Fish and Wildlife (ODFW)

ODFW develops conservation, recovery, and management plans for Oregon's native fish and wildlife species. These plans assess populations and describe management strategies and actions for the species and their habitat. Plans are developed in pursuit of ODFW's mission to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations and they support the Oregon Plan. Many different parts of the agency are involved in developing and implementing these plans, and certain plans have specific Implementation Coordinators that guide internal and external plan actions. In the 21-23 biennium, ODFW completed a comprehensive 12-year assessment of the Oregon Coast Coho Conservation Plan and developed the Rogue-South Coast Conservation and Management Plan (RSP), a new plan that guides management of winter steelhead, summer steelhead, coho salmon and cutthroat trout in coastal basins from the Elk River south to the Winchuck River, including the Rogue River. The RSP included designation of a substantial network of wild fish emphasis areas in southwest Oregon, identified habitat strategies and actions to minimize the impacts of climate change, and implemented new monitoring efforts in southwest Oregon. ODFW also has numerous programs dedicated to watershed protection and improvement, including programs covering Wildlife Habitat, Water Quality and Quantity, Fish Passage, Fish Screening, and Western Oregon Stream Restoration.

Railroad culvert on Jones Creek after passage project.

Oregon State Police (OSP), Fish and Wildlife Division

The mission of the OSP is to develop, promote, and provide protection to the people, property and natural resources of the state, along with ensuring the state's safety and livability. The purpose of the OSP Fish and Wildlife Division is to assure compliance with laws which protect and enhance the long-term health and equitable utilization of Oregon's fish and wildlife resources. Recent issues and progress are published monthly in OSP's Fish and Wildlife newsletter.

Oregon Department of Forestry (ODF)

ODF manages state-owned forestlands in Oregon and administers the Forest Practices Act (FPA) on non-federal forestlands to ensure that water quality and resource protections are maintained during and after commercial forest operations.

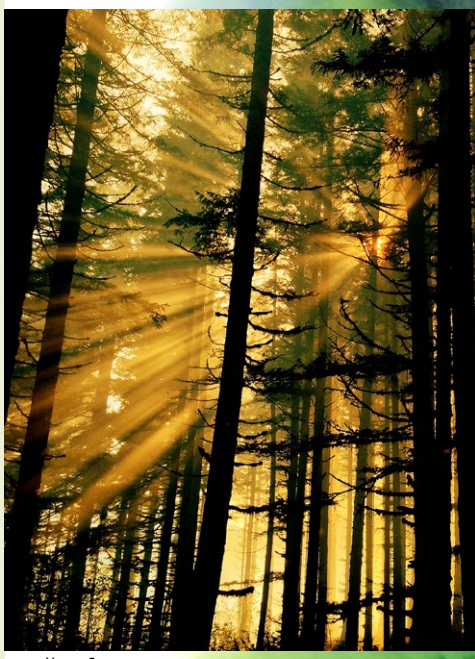
A large portion of the FPA rules are aimed at the protection of water resources. Forest landowners/operators are required by the FPA to implement forest operation activities in a manner that protects and maintains the designated beneficial uses of waters of the state. Through the ODF E-Notification system and site inspections, ODF Stewardship Foresters assist forest landowners with the planning, implementation, and management of their forest resources.

In addition to assuring compliance with the FPA rules, ODF also employs landowner voluntary measures and incentive programs to support water quality protection as part of the Oregon Plan for Salmon and Watersheds. ODF maintains a landowner assistance program that helps conserve working landscapes across non-industrial private forestlands. ODF leverages partnerships with federal, state, and local agencies to provide technical and financial assistance to non-industrial private forest landowners interested in managing their forests for a variety of economic, environmental, and social benefits. Primary federal partners include the USFS, Natural Resources Conservation Service (NRCS), and the Farm Service Agency. ODF's Stewardship Foresters are available to assist landowners with forest management planning that enables access to financial assistance grants – primarily through the NRCS Environmental Quality Incentives Program (EQIP) – for a variety of activities that are focused on reducing fire severity, as well as enhancing overall forest health and water quality. Funding is also available within ODF and through other agencies/partners that is used for community wildfire planning, fuels reduction projects, and post-fire restoration. Finally, ODF is a key partner in assisting landowners with planning and implementing riparian vegetation restoration projects through the Conservation Reserve Enhancement Program (CREP).

CREP

With the publication of the Private Forest Accord Report in February 2022 and subsequent passage of Senate Bill 1501, SB 1502 and HB 4055, substantial Forest Practices Act rule revisions were adopted by the Board of Forestry in October 2022. The new rules stem from negotiations and an agreement reached in October 2021 between timber industry advocates and conservation groups (i.e., Private Forest Accord). The resulting new and revised FPA rules and programs will provide increased protection of Oregon's water resources and will provide incentives and technical assistance for small forestland owners. The following programs are scheduled to go into effect January 1, 2024.

Small Forestland Owner Assistance Office: The Private Forest Accord recognizes that small forestland owners (SFOs) are inherently different from industrial landowners in their capabilities, property locations, and size. SFOs value and manage their properties for a variety of benefits, including but not limited to timber production. Senate Bill 1501 directed ODF to establish a Small Forestland Owner Assistance Office (SFO Office) to aid small forestland owners in understanding and following forest practices regulations. The SFO Office will provide technical assistance, supporting services, and administration of two new incentive programs, the Small Forestland Investment in Stream Habitat (SFISH) Program and the Forest Conservation Tax Credit (FCTC).



Dallas forest, ODF.

Small Forestland Investment in Stream Habitat Program (SFISH): Under OAR 629-607-0300 the SFISH grant program is being established to help SFO's implement projects that improve fish habitat and mitigate risks to natural resources arising from forest roads. The program provides up to 100 percent of the cost for eligible projects. The program will be administered by the Oregon Department of Forestry (ODF), in consultation with the Oregon Department of Fish and Wildlife (ODFW).

SFISH projects must benefit the habitat of aquatic species covered under the Private Forest Accord aquatic HCP, currently under development.

The following is a list of project types eligible for SFISH funding:

- Replacement of culverts or fords that are no longer functioning or do not meet the Oregon Forest Practices Administrative Rules design standards.
- Abandoned road repairs that prevent sediment delivery to waters of the state or improve fish passage.
- Remediation of roads with a perched fill that present a significant hazard to fish bearing streams.
- The ODF Small Forestland Owner office staff will be reaching out and educating SFO's on this new program. The funding available for the SFISH grant program is dependent on biennial legislative funding allocations.

Forest Conservation Tax Credit (FCTC): Under OAR 629-607-0400 through 629-627-0800 the Forest Conservation Tax Credit program was established to provide a financial benefit to SFO's who support conservation and habitat protection by retaining a larger unharvested area next to streams for protection of wildlife habitat and aquatic species. SFOs who agree to limit timber harvests in their conservation area for 50 years by following the standard practice for harvests rather than the small forestland owner minimum option can receive a tax credit based on the value of the unharvested timber inside the conservation area and related costs.

Oregon Department of Geology and Mineral Industries (DOGAMI)

DOGAMI is the state's primary source of geoscientific information. DOGAMI's two program areas, Mineral Land Regulation and Reclamation (MLRR) and the Geologic Survey and Services (GSS), each support the Oregon Plan in the following ways.

The MLRR program is a field-oriented regulatory program, working with industry and the public to minimize impacts of natural resource extraction, and to optimize opportunities for post-mining reclamation. If improperly planned and executed, mining can have detrimental effects on water quality and mining operations located within the floodplain can trap fish within constructed off channel ponds or channel destabilization. DOGAMI provides a critical role in ensuring mining is completed in a way that minimizes these risks and that sites are properly reclaimed after mining.

In a parallel effort, the GSS program gathers geoscientific data and maps mineral resources and hazards. This includes creating key primary datasets that inform decisions made by local planners, community leaders, emergency managers, watershed councils, soil and water conservation district staff, and residents of the communities, counties, and tribes across Oregon. These datasets include but are not limited to lidar data, channel migration zone studies, levee inventories, flood hazard studies, coastal change, and post-wildfire debris flow maps. This work helps to identify geomorphically dynamic rivers, floodplains, and estuaries that provide critical habitat and conservation opportunities for salmonids, allow us to investigate the impacts of climate change, infrastructure such as dams and levees, and better understand the risks from wildfires. In addition, GSS produces detailed geologic maps that inform Oregon's understanding of groundwater which is critical information for decision-makers who must allocate limited water resources. These projects and the outreach associated with them support the Integrated Water Resources Strategy (IWRS) and the goals of the Oregon Plan.

Oregon Department of Land Conservation and Development (DLCD)

DLCD oversees implementation of Oregon's Statewide Planning Goals. Several of the planning goals incorporate environmental objectives that support salmon and healthy watersheds. These goals and objectives are implemented through local comprehensive plans and development codes. DLCD provides assistance to local governments when they update their plans and codes to accommodate growing or shifting populations, resource protection, and economic development needs.

DLCD includes the Ocean and Coastal Services Division, which oversees the Oregon Coastal Management Program (OCMP). The program is carried out in partnership with other state agencies and coastal jurisdictions. OCMP provides funding and technical assistance on research and planning projects to improve our knowledge and management of natural resources in the coastal zone. OCMP also administers Oregon's federal consistency authority under the Coastal Zone Management Act. This authority provides the state a mechanism for applying state and local policies, including those applicable to the management of habitats, water quality, and harvest, to direct federal actions and federal permits/licenses, ensuring the activities comply with state coastal policies. Statewide Planning Goal 16: Estuarine Resources is particularly of relevance to water quality and habitat protection. Comprehensive estuary management plans are required for all of Oregon's major estuaries under Goal 16. This planning-based approach to estuary management has provided a strong foundation for estuarine resource conservation and development decisions over the last fifty years of Oregon's statewide land use program. In particular, the framework's strong emphasis on advance decision making based on spatial planning concepts has proven effective in providing a system-wide approach to management and habitat protection.

Likewise, the locally focused nature of the estuary planning process has produced estuary management plans with broad based support and has increased local awareness of the relationships between community development planning and aquatic resource management. The OCMP provides ongoing technical assistance and support to local governments in the administration, implementation, and update of these plans.

During the 2021-2023 biennium, OCMP worked with the jurisdictions around Coos Bay and Yaquina Bay to update their comprehensive estuary management plans. Updates continue to be ongoing, but these efforts have led to robust community engagement and updated resource inventories to support decision-making in these critical habitats. In 2023 OCMP was awarded a second grant from the National Fish and Wildlife Foundation to improve coastal community planning capacity for estuarine resilience in the face of threats such as sea level rise in Lincoln and Lane Counties. Over the previous biennium, work concluded in Tillamook and Coos Counties which led to the identification of many potential restoration projects to restore estuary function and reduce flood hazard, for local governments to employ as additional funds become available.

The department's Natural Hazard Mitigation Program is also relevant to salmon and healthy watersheds. Staff promote incorporation of mitigation strategies, such as steering development away from floodplains and landslide risk areas, into local comprehensive plans. When applied, these measures help preserve watershed functions.

During the 2021-2023 biennium, DLCD was a key partner in efforts to protect habitat and other resources crucial for salmon recovery. DLCD works to ensure that local land use regulations on rural lands consider the management of soil, air, water, and wildlife resources and that land use review appropriately protects these functions. While this objective has been included in the Statewide Land Use Goals since the early days of the program, its emphasis becomes more important as Oregon faces increased pressure for rural development.

Oregon Department of State Lands (DSL)

DSL works on behalf of the State Land Board to ensure a legacy for Oregonians and their public schools through sound stewardship of lands, wetlands, waterways, and the Common School Fund. The Department is also the state partner of the South Slough National Estuarine Research Reserve in Charleston, Oregon. The Department oversees the state's removal-fill and wetland conservation laws and the use of state-owned waterways. DSL's work to regulate the removal and fill of material in wetlands and waterways protects water quality and habitat. The Department's compensatory mitigation program directs activities to repair, restore, or minimize the impacts of projects on aquatic resources, including the purchase of mitigation credits. DSL also manages the state's waterway authorization program, for example, overseeing registrations for docks and leases of state-owned waterways for marinas and ports. Stewardship, research, and training activities at South Slough Reserve benefit the immediate Coos watershed and help improve statewide understanding of estuarine and coastal systems. Researchers monitor changes in environmental conditions, while tracking the impacts of climate changes. Staff and volunteers implement projects to help restore wetlands and streams, enhancing water quality and salmon habitat. Additionally, the Reserve's Coastal Training Program provides technical assistance and knowledge to coastal policy decision makers in the Pacific Northwest.

To fulfill its mission of sound stewardship DSL continuously works on developing and improving tools available to the public for identifying where aquatic resources may be. This includes the statewide and local wetland inventories used by cities and counties for land use planning. The Department also maintains Oregon's official Essential Salmonid Habitat (ESH) map. The map helps protect areas where salmon spawn and rear by using scientific data from Oregon Department of Fish and Wildlife to identify areas that are critical for salmonids to thrive and therefore require a permit to remove or fill any quantity of material.

During the 2021-23 biennium, the Department worked to mitigate the impacts of regulated projects on waterways and wetlands through the continued development of new stream mitigation accounting and support of the state's wetland mitigation program.

Oregon Department of Transportation (ODOT)

ODOT's Environmental Engineering Section provides continued guidance on ODOT's projects and programs, including a Biology program to help ODOT with all aspects of planning related to biological resources. For example, the Fish Passage Program was developed with ODFW and has fostered partnerships with government agencies, watershed councils, and other stakeholders to support the recovery of threatened and endangered fish and native migratory fish by removing fish passage barriers on the state highway system. The Program identifies high-value streams that bring the greatest benefit to native migratory fish and provides a list of priority barriers to address. During the 2022 - 2023 biennium, ODOT constructed a total of 15 projects that addressed fish passage. These projects opened or improved access to over 47.58 miles of habitat for native migratory fish. In addition, ODOT paid $4.41 million dollars into an ODFW managed account to address high priority fish passage barriers across the state in January of 2023 with another $4.41 million that will be paid in 2027. These funds were allocated to 7 projects that improved access to over 115.8 miles of habitat for native migratory fish in the 2022 – 2023 biennium.

ODOT manages stormwater runoff emanating from its impervious surfaces to minimize pollutant discharges as required by the Clean Water Act, the Endangered Species Act, and other local, state, and federal regulations. In doing so, ODOT treats runoff not only from expanded impervious surfaces, but also from reconstructed impervious surfaces and sections of existing highway which contribute runoff to those project areas. As a result, reductions of pollutant loading and concentrations are achieved which not merely mitigate for new construction, but also result in a net uplift in the quality of fish habitat.

Oregon Parks and Recreation Department (OPRD)

OPRD provides and protects outstanding natural, scenic, cultural, historic and recreational sites for the enjoyment and education of present and future generations. The agency manages state parks, ocean shores, scenic waterways, recreation trails and bikeways; manages the State Historic Preservation Office; and provides assistance to local governments for recreation and heritage conservation.

Funds for these projects come from Oregon Lottery revenues, proceeds of the sales of salmon license plates, and from other revenue sources. Projects include riparian plantings, stream bank stabilization, upland restoration, forest health thinning, invasive species removal, endangered species habitat enhancement, hydrological restoration, and restoration monitoring. Additionally, federal Land and Water Conservation Grants provide matching funds to local governments to acquire or enhance outdoor recreation areas and facilities for public use. OPRD's Central Park Resources offer guidance and supporting resources for trail and park development and improvements, and advise on natural resources and natural areas.

Oregon State Marine Board

Since 2009, Oregon State Marine Board has worked closely with ODFW to implement the Oregon Aquatic Invasive Species Prevention Program (AISPP). The purpose of the AISPP is to protect Oregon against the introduction and spread of aquatic invasive species through the management of recreational boat inspection stations. Each year, the AISPP provides a comprehensive report for the public which is also submitted to the Oregon Legislature.

The primary threats to Oregon's waterways are zebra and quagga mussels, hydrilla (an aquatic plant) and Asian carp. These aquatic invaders can spread to Oregon from boats that have not been properly cleaned after their prior use in an out-of-state infested waterbody. During the 2021 and 2022 calendar years, the AISPP operated six boat inspection stations on Oregon highways leading into the state and performed 34,209 boat inspections resulting in the cleaning of 553 boats that had some type of aquatic invasive species attached. In addition to this, there were 17 boats contaminated with either quagga or zebra mussels resulting in these boats being fully decontaminated before being allowed to enter Oregon.

Another important partnership within the program is with the Center for Lakes and Reservoirs at Portland State University (PSU). Increased resources have been provided to PSU so that sampling and monitoring for the presence of harmful aquatic invaders can occur more often at high-risk water bodies. Fortunately, these efforts have proven effective so far, and none of the invasive species mentioned above have been detected in Oregon.

Oregon Water Resources Department (OWRD)

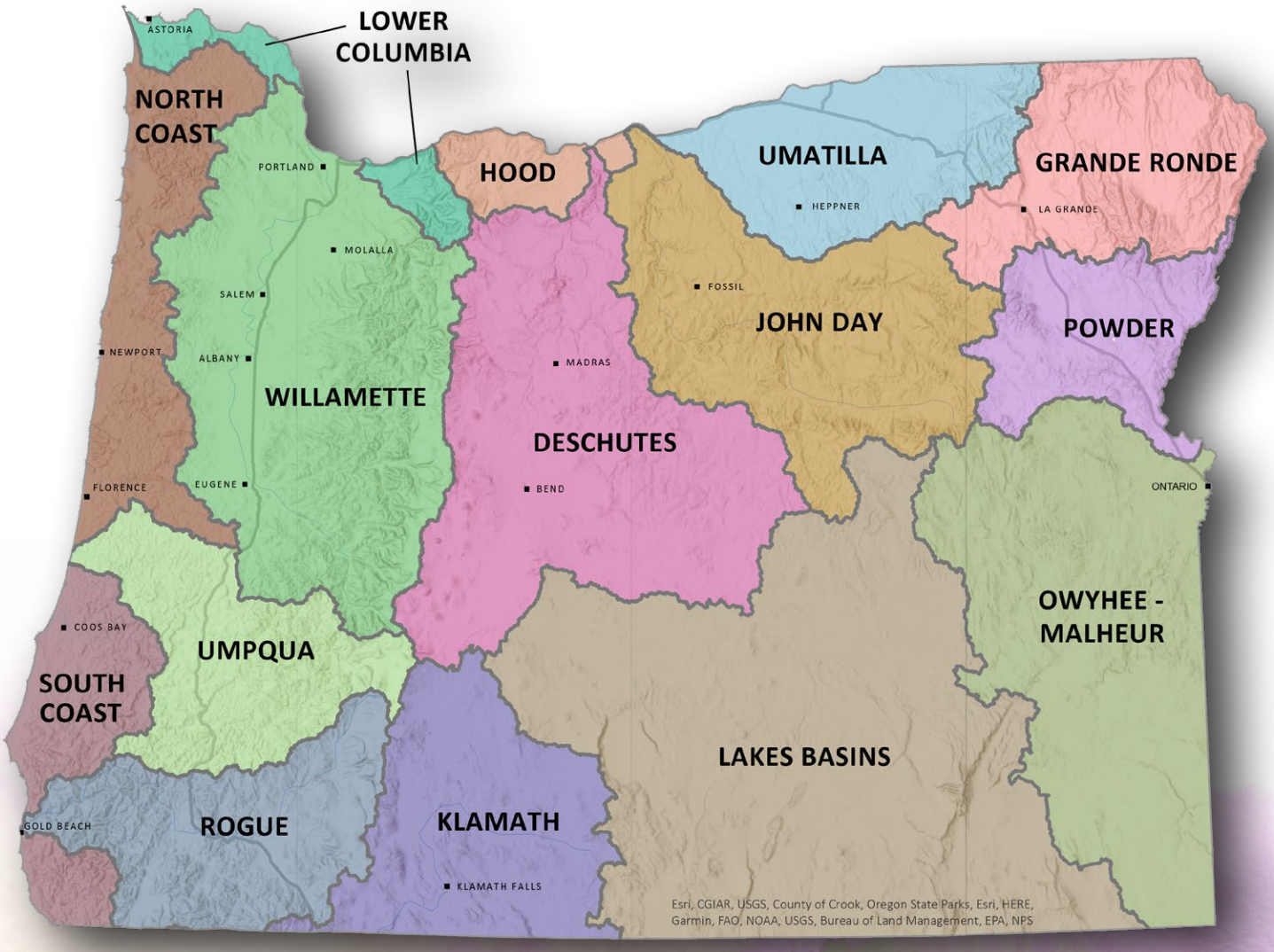
OWRD oversees water rights permitting as well as programs to monitor and regulate Oregon's groundwater and surface water. OWRD facilitates voluntary streamflow restoration efforts throughout the state, assisting with streamflow restoration projects, and reviewing final water applications (i.e., instream leases, new instream water right applications, instream transfers, and allocations of conserved water). OWRD monitors streamflows through a network of gaging stations and regulates for instream water rights. For example, in calendar year 2021, 50% of the total regulatory actions by OWRD (causing a change in water use) were conducted to benefit instream water rights. Additionally, in 2021, 26% of high priority watersheds had flow added, where needed, for fish. OWRD also ran about 250 stream gages. In addition, OWRD provides financial, technical, and planning assistance through its Water Resources Development Program. The Water Resources Development Program builds partnerships and incentivizes Oregonians to pursue integrated and innovative solutions for complex water challenges and an uncertain water future. This is done through cooperative partnerships, strategic investments, adaptive planning, accessible information, and effective coordination. Some program opportunities include: Place-Based Integrated Water Resources Planning, Feasibility Study Grants, and Water Project Grants and Loans.

Throughout the biennium, OWRD staff continued the review and processing of Water Management and Conservation Plans (WMCP) submitted by municipal and agricultural entities, thereby promoting the efficient use of water and implementation of water conservation programs by these entities. Additionally, Amendments to the water management and conservation plan rules (OAR Chapter 690, Division 86) related to small water suppliers have encouraged more entities to submit plans, resulting in a compliance rate of 87%. The purpose of a Water Management and Conservation Plan is to be a guide for the development and implementation of programs and policies to ensure sustainable use of Oregon's water resources by municipal and agricultural water users.

Oregon Plan Reporting Basins

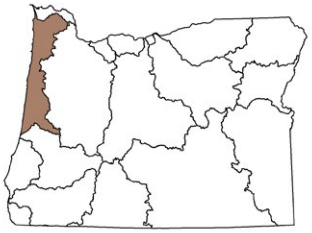
The Oregon Plan for Salmon and Watersheds defined 15 basins in which actions to benefit fish and wildlife habitat would be reported. Brief descriptions and locator maps for each of these basins are shown below.

Information is provided about the amount of OWEB funding awarded within each basin. Data is from the OWEB Grant Management System for grants awarded from 7/1/21 through 6/30/23 that were assigned to one of the Oregon Plan reporting basins. Some grants are applicable throughout the state and therefore not represented by a specific reporting basin. Because of this, the total OWEB biennial awards reported in the Investments and Accomplishments section of this report is slightly higher than the total of the basin by basin summary that follows.



North Coast

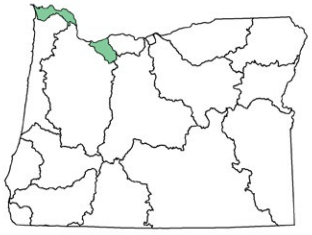
Total OWEB funds invested, 2021-23 biennium: $12,249,377



The North Coast Basin includes watersheds of the Nehalem, Wilson, Trask, Nestucca, Siletz, Yaquina, Alsea, and Siuslaw rivers, many medium and smaller coastal watersheds, and two lake areas: the Siltcoos and Tahkenitch in the southern part of the basin. The dominant land use in the basin is forestry. Agriculture is limited to the rich alluvial floodplains along the major streams.

Lower Columbia

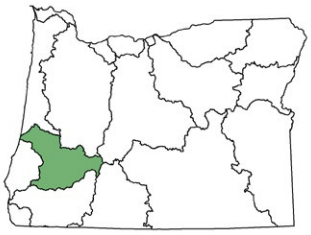
Total OWEB funds invested, 2021-23 biennium: $3,645,556



In the Lower Columbia Basin, a number of relatively small streams drain onto floodplains and into the tidal reaches of the Columbia River. Water flows either from the Coast Range, or from the west slope of the Cascades. Nearly all of the Columbia River floodplain has been diked to protect farms and urban areas. Undiked areas of the floodplain support high species diversity. Maritime shipping, fishing, forestry, and wood processing are key elements of the economy in this basin.

Umpqua

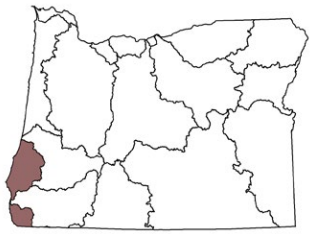
Total OWEB funds invested, 2021-23 biennium: $3,274,886



The Umpqua Basin includes the North and South Umpqua Rivers which join to form the mainstem of the Umpqua River. Cow Creek is a major tributary of the South Umpqua and the Smith River, the basin's other major tributary, joins the Umpqua near its mouth. The headwaters of the North and South Umpqua Rivers are found in the Cascade Ecoregion, come together in the Umpqua Interior Foothills Ecoregion of the Klamath Mountains, and flow through the Coast Range on the way to Winchester Bay and the Pacific Ocean. The land use for much of the basin is forestry with some agricultural activities such as pastures, vineyards, orchards, and row crops found in the narrow valleys and foothills in the central portion of the basin. Winchester Bay is an important shellfish area on the Oregon Coast.

South Coast

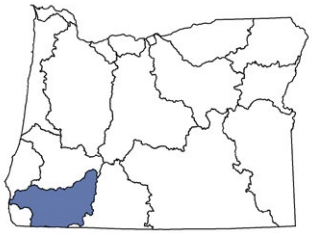
Total OWEB funds invested, 2021-23 biennium: $11,069,917



The South Coast Basin includes watersheds of the Coos, Coquille, Elk, Sixes, Pistol, Winchuck, and Chetco Rivers, a small portion of the Smith River Watershed, several smaller coastal rivers, and the Tenmile Lakes area. Forestry, ranching, agriculture, commercial and recreational fishing, and tourism are significant factors in the economy of communities in the basin. Significant portions of ancient marine terraces in this basin have been converted to cranberry or lily production. The Coos and Coquille valleys historically were large timber producers along with cattle and dairy industries.

Rogue

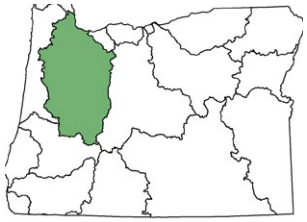
Total OWEB funds invested, 2021-23 biennium: $9,496,048



The Rogue Basin includes five drainages: Lower, Middle, and Upper Rogue, Illinois, and Applegate. The headwaters of the Rogue River begin in the wetter Cascade Mountains Ecoregion while the other major tributaries, Illinois and Applegate Rivers and Bear Creek, originate in the drier Klamath Mountains Ecoregion. The main towns in the interior of the Rogue Basin are located in the major river valleys which are surrounded by oak savanna foothills and, at higher elevations, the Siskiyou Mountains. Agricultural lands including orchards, vineyards, cropland, and pasture lands are found throughout these valleys.

Willamette

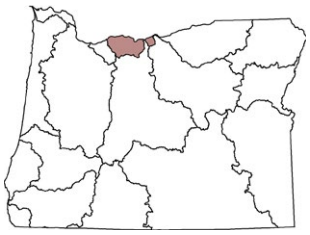
Total OWEB funds invested, 2021-23 biennium: $20,364,223



The Willamette Basin encompasses the Willamette Valley, the west slope of the Cascades Range, and the east slope of the Coast Range. The Willamette River is the 13th largest river in the lower 48 states and has 13 major water storage reservoirs on its tributaries. Much of the Willamette Valley was originally bottomland riparian hardwood forests, wet prairies, oak savannas, and oak woodlands. Extensive agricul- tural areas, urbanization, and fire suppression have greatly reduced these habitats. Today, the basin supports concentrated areas of high technology, diverse agricultural production, forestry and wood products industries, and roughly two thirds of the state's population.

Hood

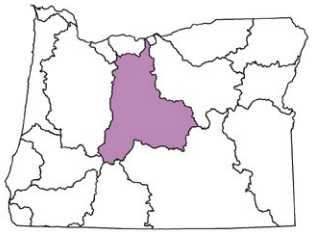
Total OWEB funds invested, 2021-23 biennium: $1,889,957



From east to west the Hood Basin includes: Spanish Hollow, Fifteenmile, Mill, and Mosier Creeks; Hood River; and Eagle Creek. All streams flow in a northerly direction discharging directly into the Columbia River either just upstream or downstream of The Dalles Dam. The headwaters for Hood River (Mount Hood), and the smaller Eagle Creek, are in the wetter Cascade Ecoregion. With the exceptions of Mosier Creek, entirely with the Eastern Cascade and Foothills Ecoregion, and Spanish Hollow Creek, entirely within the Columbia Plateau Ecoregion, all other streams flow through both ecoregions. These watersheds are mostly located in the rainshadow of the Cascades and receive most precipitation in the winter with an occasional summer thunderstorm. Land use is primarily forestry, agriculture, and recreation in the western part of the basin, with dryland wheat and range in the remainder.

Deschutes

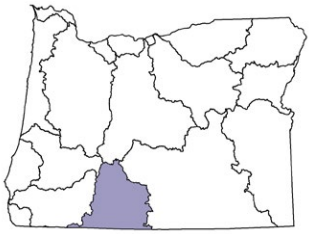
Total OWEB funds invested, 2021-23 biennium: $8,434,679



Bordered by the Cascade Range to the west, this basin includes the high Cascade lakes, wild and scenic waterways, and a rapidly growing human population. Tourism, agriculture, forestry, ranching, and the high technology industry dominate the economy of the basin. Fed by snowfields of the Cascade and Ochoco ranges, the basin's headwaters flow from springs through high elevation wet meadows and lava plains before dropping through scenic canyons and shrub steppe. Irrigated agriculture, rangeland, and wheat lands lie along the lower Deschutes. Historically, the Pelton (1958) and Round Butte (1965) dams on the Deschutes River completely blocked anadromous fish passage, but in recent years fish passage has been added to the dam complex, and anadromous fish are now using the upper Deschutes Basin.

Klamath

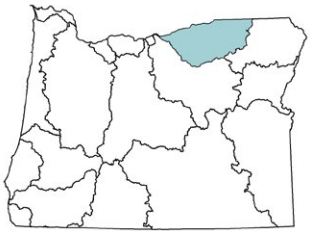
Total OWEB funds invested, 2021-23 biennium: $1,789,743



The Klamath Basin is located in the southern part of Klamath County in the Eastern Cascades Slopes and Foothills Ecoregion. The Basin includes the Klamath River: Sprague, Williamson, Upper Klamath Lake, and Upper Klamath River drainages. The Lost River drainage is also included in this reporting unit. The Oregon portion of the Klamath Basin is in the rain shadow of the Cascade Range. Lower elevations in the basin are arid semi-desert and upper elevations are dry alpine coniferous forests with precipitation higher closer to the crest of the Cascade Range. Primary land use along the basin's major streams is irrigated agriculture. The majority of these irrigated lands are drained wetlands. The Lost River begins and ends in California, and flows through one of Oregon's closed basin and begins. The Lost River is part of Bureau of Reclamation's Klamath Project. Most of the basin is within Klamath County with the eastern edge in Lake County and the southwestern section in Jackson County.

Umatilla

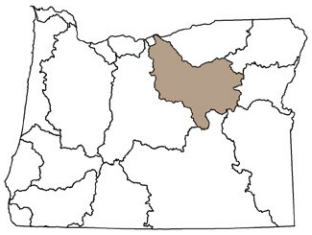
Total OWEB funds invested, 2021-23 biennium: $2,835,802



The three major rivers in the Umatilla Basin flow from their headwaters in the Blue Mountain Ecoregion through the Columbia Plateau Ecoregion to the Columbia River. The Umatilla and the Oregon portion of the Walla Walla River basins are mostly in Umatilla County with the majority of the Walla Walla Basin within Washington State. The Willow Creek drainage is located mostly in Morrow County and the confluence with the Columbia River is in Gilliam County. Lower elevations in the basin are arid sagebrush-steppe and grassland flanked by the moister and predominantly forested Blue Mountains. The Umatilla Basin is characterized by irrigated agriculture at lower elevations continuing upstream along the major river corridors and grazing at higher elevations.

John Day

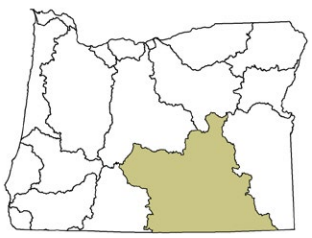
Total OWEB funds invested, 2021-23 biennium: $11,919,188



The John Day Basin includes the mainstem of the John Day River and the North, Middle, and South Forks. The John Day River is one of the most significant undammed stream systems in the West. The upper mainstem and the three major forks of the John Day flow from their headwaters in the Blue Mountain Ecoregion. The Lower John Day flows through an incised canyon that bisects shrub-steppe and wheat ranches in the uplands of the Columbia Plateau Ecoregion before flowing into the Columbia River at the eastern edge of the Columbia River Gorge. The tributary streams on the Lower John Day (Rock, Hay, Thirtymile, and Grass Valley Creeks) also originate in the Columbia Plateau Ecoregion. The economy of the basin is dependent on natural resource industries: forest products, farming, ranching, recreation, and mining.

Lakes Basin

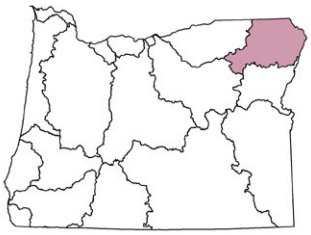
Total OWEB funds invested, 2021-23 biennium: $10,226,201



The Lakes Basin is an area of closed watersheds where streams flow through the desert landscape of Lake, southern Harney, and southwestern Malheur counties and eventually into inland lakes like Malheur, Abert, Silver, Summer, Goose, and Warner, instead of flowing to the ocean. Ranching and forest products principally support the basin's communities.

Grande Ronde

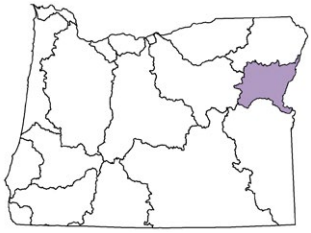
Total OWEB funds invested, 2021-23 biennium: $3,514,319



The Wallowa, Grande Ronde, and Imnaha rivers flow from the majestic Wallowa Mountains to the Snake River. Mountain headwater streams in subalpine forests transition through deep canyons and meander through agricultural communities in the lowlands before flowing once again through deep canyons to join the Snake River. This basin is the historic homeland of the Chief Joseph band of the Nez Perce Tribe. Ranching, agriculture, and forest products are important to the economy in this basin. Nestled between the Imnaha and Grande Ronde rivers, Zumwalt Prairie supports the highest density of raptors in Oregon.

Powder

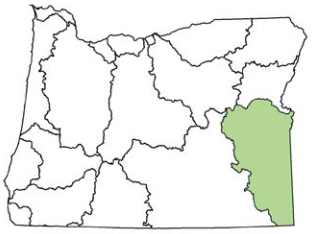
Total OWEB funds invested, 2021-23 biennium: $5,049,992



Draining south and east from the Blue Mountains, the Powder and Burnt Rivers flow to the middle Snake River and eventually to the Columbia River. The Powder Basin is a complex landscape which includes the Blue and Elkhorn Mountains to the west and the Wallowa Mountains to the northeast. This topographic complexity results in a diverse mix of ecosystems including shrublands, grasslands, and forests, as well as climatic zones. The basin receives from 10 to 60 inches of precipitation annually. A variety of economic activities occur in the basin including ranching, agriculture, and mining. The Powder Basin contains remnants of the original Oregon Trail traveled by settlers in covered wagons.

Owyhee-Malheur

Total OWEB funds invested, 2021-23 biennium: $3,873,228



The Owyhee-Malheur Basin is located on the eastern edge of the state and contains the Owyhee and Malheur Rivers. The landscape of the Owyhee-Malheur is harsh and dry, composed of scattered rock outcrops and vast expanses of semi-arid sagebrush- steppe. The lower portions of the Owyhee and Malheur basins, along the western edge of the Treasure Valley, support rich irrigated agriculture and are particularly known for onion production. Both the upper Malheur and Owyhee basins are primarily used for cattle ranching, including numerous ranches and large tracts of land managed by the BLM.