

Willamette Basin Situation Assessment

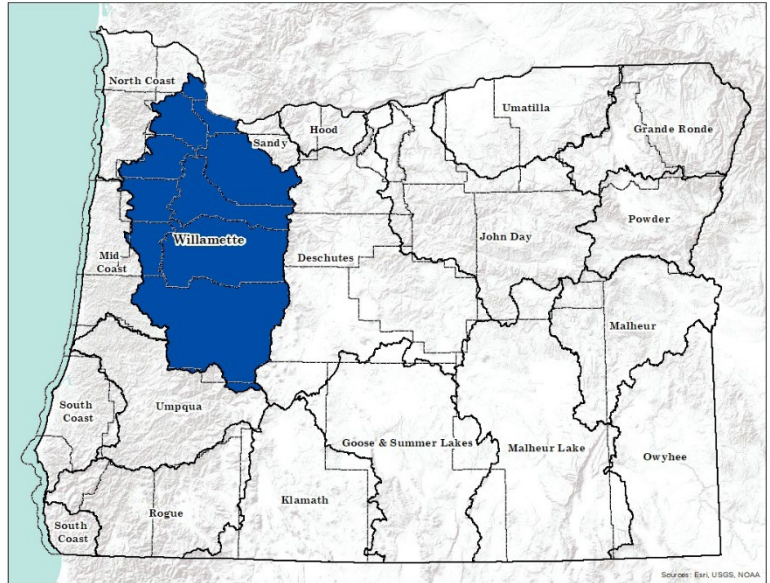
Summary of Issues & Challenges

June 2023

Background

In 2022, the Oregon Water Resources Department (OWRD) conducted an initial situation assessment to gain a greater awareness of the complex water management challenges facing the Willamette River Basin. The assessment focused primarily on seeking input via interviews and discussions with Department staff, sister agencies, stakeholders, and other interested parties. A similar effort was undertaken in the Deschutes River Basin.

The objective for this project was to utilize information gathered to identify and prioritize the range of water challenges that can and cannot be addressed in the next five years, while defining the roles and responsibilities of the agency (e.g., lead or support-role, coordination, awareness).



This document summarizes the process used and input received from the assessment. OWRD utilized this information to inform work priorities in the coming years, hear about efforts or initiatives led by others, and develop an understanding of where the agency can work together with partners on projects of mutual interest. A five-year [Willamette Basin workplan](#) has been created showing projects the agency will lead, projects staff will support, and issues that likely need further scoping or discussion before projects are identified.

Recent Willamette Basin Efforts

The assessment was conducted using two parallel steps: (1) to assess the complex water management issues across the Willamette River Basin, and (2) to more specifically identify the actions needed for implementation of the Willamette Basin Review (WBR) reallocation study.

Since 2013, participation in the Willamette Basin Review feasibility study has been a focus of the agency's efforts. The feasibility study was co-sponsored by OWRD and the U.S. Army Corps of Engineers to determine whether stored water could be re-allocated to multiple uses of water to help meet future water demands in the basin. The Corps finalized its Chief's Report in December 2019 and reallocation of stored water was approved by the passage of the federal Water Resources Development Act (2020). Implementation-related actions will be part of the agency's planned activities.

Key Assumptions

Similar to the Deschutes River Basin, staff laid out a set of assumptions for this project to help partners understand the scope of this effort. The following assumptions guided discussions:

- **Initial Assessment** – This was an initial assessment and will not represent a comprehensive summary of every complex water issue facing the basin. The focus was on water quantity issues – both instream and out-of-stream – while recognizing the interconnectedness to water quality, land-use management, and other resource issues. Not all issues or projects identified will be a priority for OWRD in the next five-year period (2023-2027).
- **Stakeholder Engagement** – The sheer size and complexity of the Willamette River Basin makes it difficult to reach all interested parties and efforts were made to include as many stakeholders as possible.
- **Agency Roles** – The intent of the assessment was to identify work that can be completed or coordinated by the newly funded Northwest Region Basin Coordinator. Some water issues or projects may be better suited for staff experts in other sections or divisions of the agency. Some external partners will lead projects, while OWRD may play a support role. Although the basin coordinator position was designed to focus on the Willamette Basin, it also has responsibilities for the larger NW Region. This includes providing implementation support for the Mid-Coast Water Planning Partnership’s Water Action Plan, recognized as a place-based integrated water resources plan by the Water Resources Commission.

Interviews & Discussions

OWRD developed a small list of interview questions to spark conversations about priorities and issues of concern. For internal discussions with staff, staff created additional discussion prompts to learn about the agency’s history of water regulation or water shortages in various parts of basin. Staff also reviewed existing plans or studies to situate the work and understand known issues and established basin priorities. Questions used to form the basis for discussion included:

- **Challenges** – In the Willamette River Basin, what complex water management challenges are of greatest concern to you?
- **Setting Priorities** – Which of those challenges do you think should be a priority for OWRD to address over the next five years?
- **The Department’s Role** – What role(s) should OWRD play in these issues or challenges? (Examples: lead, facilitation, coordination, general awareness, technical, or policy support)
- **Collaboration & Information** – Do you have an interest in partnering or supporting work on future projects? How would you like to receive information on progress?

Discussions were held with internal staff from several sections of the Department. Following those discussions, invitations were sent to various stakeholder organizations that had participated or shown interest in the Willamette Basin Review Reallocation Study. From there, meeting invitations were expanded to include organizations not involved in the study but may have an interest in its implementation or could shed light on other water related challenges facing the basin. The discussions were also an opportunity to learn about what people care about in the Willamette and what they view as a priority.

Project Prioritization & Scoping

OWRD undertook a prioritization of the water challenges identified through the interview process, grouping by themes or potential projects. The complexity of a project – such as associated risks, uncertainty, dependencies, near-term deadlines, and internal and external drivers – was considered when evaluating potential projects. Projects of significance, those that help OWRD achieve the goals or recommendations of the 2017 Integrated Water Resources Strategy and 2019-2024 Strategic Plan, ranked higher in the evaluations process. Following project evaluation and prioritization, discussions were held with OWRD’s managers to determine what should move forward with further scoping and which sections or staff may play a role in project implementation.

Willamette Assessment Participants

The following is a list of interview participants. Most interviews were conducted between late summer and early fall 2022. Although not all invitations were accepted to participate in the assessment process, staff will continue to make efforts to meet new and diverse stakeholders with the objective of building relationships and learning more about the concerns and challenges related to water in the Willamette Basin.

Internal Discussions

Dam Safety Section
Groundwater Section
Surface Water Section
Field Services Division (Districts 2, 16, 18, 20, 22)
Water Right Services Division
Well Construction Section
Agency Management Group

State Agencies

Dept. of Environmental Quality
Dept. of Fish & Wildlife
Dept. of Agriculture
Oregon Watershed Enhancement Board

Federal Agencies

U.S. Army Corps of Engineers
U.S. Bureau of Reclamation
U.S. Geological Survey

Participating Stakeholders

Oregon Association of Nurseries
Oregon Farm Bureau
Oregon Water Resources Congress
Santiam Water Control District
Special Districts Association of Oregon
League of Oregon Cities
City of Hillsboro
City of Salem
City of Wilsonville
Eugene Water and Electric Board
GSI Water Solutions
Joint Water Commission
Tualatin Valley Water District
Benton County
Marion County
Polk County
Linn County
Yamhill County
McKenzie River Trust
Native Fish Society
South Santiam Watershed Council
Trout Unlimited
WaterWatch of Oregon
League of Women Voters
North Santiam Council of Water Leaders

Summary of Input: Issues and Challenges

This section summarizes the thoughts, concerns, and priorities shared by stakeholders, staff, and agency partners, grouped by themes commonly heard.

Willamette Programmatic EIS & Biological Opinions

- OWRD should take a leadership position in the EIS process; look for opportunities to engage.
- Fear that the federal agency assertions over Endangered Species Act enforcement in the Klamath Basin will play out in the Willamette Basin through the EIS process, Biological Opinions, and court case implications. It could have devastating effects on the economy, considering the population and sheer size of the Willamette Basin.
- Confusion surrounding the existing Reasonable and Prudent Alternatives in the 2019 Biological Opinion; need a better handle on how those are being interpreted.
- EIS is a critical component and will likely have implications for water management. Concerned that the EIS will negatively impact progress made under the Willamette Basin Review.
- Difficulty in balancing the need to fill the reservoirs with using that water downstream to support fisheries-related needs (e.g., flows, passage, etc.). Protection of the instream flows and trying to mimic the historic river flows as much as possible is a priority.
- Interested in better understanding the BiOp flow targets and whether those will change under the new EIS process.

Reallocation Study & Implementation

- Reallocation implementation should be the top priority
- Important questions regarding regulation and future water management left unanswered under the study.
- There will be a flurry of lawsuits filed when the transfer application for stored water is submitted and processed by the Department. Concerns about how the change in storage volumes will cause harm to irrigated agriculture. How will the Department address the harm and how will budget needs be factored into the process?
- Hiring a coordinator was a key legislative priority among stakeholders, and the reallocation work should be a priority.
- Several partners stated they would like to be involved in discussions on storage transfer and other associated work.
- In District 18, the Tualatin Basin has a good model for agency cooperation and regulation of water rights involving both stored water and live flow. Agency and local stakeholders are in constant contact with one another. An annual report summarizing operations has been published for 20+ years and includes information on streamflow, water quality, etc. Most users have both live flow and stored water as options, only a few, use stored water only. This is likely unique from the Willamette Projects where there is a mix of live flow, stored water, and a combination of both for each user. In Tualatin, gaging stations are key to determining when live flow is off and when users need to switch over to stored water (e.g., when the river drops to 20 CFS, the first batch of regulation notices are issued). The Pendleton watermaster's office also tracks stored water releases.
- Many landowners don't have access to river frontage, making it difficult to obtain a stored water contract when easements would be needed. Financial means also an issue for landowners and small towns or cities.

- Reallocation implementation will be a big lift for OWRD field staff. Measurement and installation of new stream gages will be a significant undertaking. Need a better system to track live flow and stored water secondary rights.

Fish Passage and Restoration

- Generally interested in fish passage and seeing it occur above Foster Reservoir
- FEMA's changes to floodplain rules have changed the permitting process, requiring more engineering assessments for construction and development on floodplains. New requirements also impact floodplain restoration projects via new permitting requirements.
- Loss of side channel habitats due to changing hydrology. River is more incised, seeing groundwater levels drop on adjacent farms. Channelizing of the upper Willamette River watersheds is a concern.
- Partners, such as the Corps, are working on augmenting gravels in different river reaches below the dams. Interested in learning what opportunities exist to work on that elsewhere in the Willamette Basin.
- Concerned with existing and new revetments being permitted and negatively impacting river dynamism.

Municipal and Small Domestic Water Uses

- State is not tracking municipal water use development closely. These water rights have long development timelines, high quantities, and at full development and fully exercised, they could deplete salmon/steelhead water. An example – the ongoing court case in Clackamas with water providers.
- Some diversions are located high in the watershed, with not enough sufficient flow, and options to resolve are limited, place drinking water supplies at risk.
- Small municipalities are struggling to understand future development, some need new water sources, with large developments underway. Some cities do not have a staff person dedicated to taking care of their water rights and their water future. OWRD field staff can provide some technical assistance and help with basic understanding of water law, but entities still struggle to understand the limitations and constraints of water rights.
- Uncertainty and potential conflicts surrounding protested water right applications currently pending and newly filed instream water rights and how approval of those rights could impact future water supply options for growing cities or other out-of-stream needs.
- Very concerned about small unincorporated areas that lack a redundant supply, especially those that have a small tax base and cannot afford upgrades to their water systems to improve intakes, replace old wooden pipes, expand storage capacity, etc.

Instream Water Rights

- Will instream flows be additive? For instance, live flow, stored water, and new instream water rights?
- A priority for some conservation groups is trying to restore streamflows and lease water rights back instream. Important to look at our laws, like "use it or lose it" and remove associated barriers to implement instream flow projects.
- When the remaining minimum perennial streamflows are converted, it will impact regulation and associated workload priorities. Public education/outreach is needed to understand how water

regulation could change in the future. OWRD needs to elevate the collective knowledge about this process, and more generally about water - for all water users.

- Water users who hold live flow water rights need to understand impacts associated with newly established instream water rights, including conversions.
- Understand and explain to stakeholders how new instream water rights or conversions will change regulation in the basin.
- Define whether agencies will regulate off drinking water supplies for protection of instream water rights.

Water Quality

- Harmful algal bloom events at Detroit Lake are concerning. Water quality will continue to get worse with less water overall.
- Local jurisdictions are required to keep sediment out of local rivers; how can we slow down the water, retain it in ponds, to prevent further contamination - are state water rights needed, or exemptions? Help navigating the regulatory landscape for new or innovative ideas is needed.
- Willamette TMDL is underway; may have implications for water management.
- Landowners concerned about the development of new Confined Animal Feeding Operations (CAFO) out near Scio. Overland flows will contribute to North Santiam, but effluent will be directed to S. Santiam River.

Hydropower

- Support efforts to de-authorize hydropower at Army Corps dams to allow greater management flexibility for fish.

Funding for Infrastructure, including Water Delivery Systems

- State is not effective in funding new infrastructure.
- Some farmers have had difficulty accessing funds to modernize irrigation systems, especially for private systems using 100-year-old ditches, and a series of in-channel ponds.
- Lack of incentives to move to more efficient delivery systems. Some systems are on leaky old canals and other irrigation delivery systems use shared canals for drinking water systems (e.g., Lebanon-Albany Canal)

Groundwater

- Support Department's current efforts to update its groundwater allocation policy.
- OWRD should not be issuing new water rights when it cannot determine whether groundwater is over-appropriated or available.
- Fractured basalt domestic wells in rural areas represent 25-33 percent of residents in my county; OWRD doesn't have answers to water problems, leaving residents with uncertainty and the situation continues to worsen and conditions will become drier in the future.
- Understand and explain how OWRD will regulate hydraulically connected wells in the basin.

- In the GWLA area in Clackamas County, they adopted a county code that requires the hiring of a hydrogeologist for starting a new business or subdividing land, even it's an exempt use. Could be an example for other counties?
- Rock Quarry near Tonquin Rd area – major groundwater issue. Dry domestic wells. Near Sherwood & Tualatin.
- Chehalem Mountain Groundwater Limited Area (in WM District 18)– concerns from neighbors regarding active cannabis development.
- Domestic wells are being used for cannabis, rather than legally obtaining irrigation water rights.
- OWRD field staff receive many calls from concerned landowners having well issues, but commonly the problem is old or failing infrastructure, rather than interference with neighboring properties.
- Investigating groundwater complaints is time consuming for field staff.
- Although groundwater supply issues aren't a basin-wide concern, there are individual issues, and impacts of groundwater use on surface water flows is a concern and the problem will likely be exacerbated by future groundwater development. It's not just Willamette, but a statewide issue.
- Concern regarding the cumulative impacts of groundwater use on surface water and associated water rights. The continuing issuance of groundwater permits in areas where stream systems and water users are regulated on a regular basis will continue to exacerbate conflicts. The Molalla River is an example of regulation and continued groundwater development.
- The public often turns to field staff to assess when to apply for a groundwater permit and to learn what factors are considered when making an agency determination. Any changes in the state's groundwater policies should be well communicated throughout the agency to manage expectations.

Irrigation-Related Challenges

- A lot of dryland farming for grass seed and hazelnuts exists in the basin. Farmers are beginning to irrigate those crops, but likely don't understand the legal mechanisms for obtaining water rights.
- Large areas from Albany to Brownsville, between the Willamette River and the Calapooia River, are not irrigated; likely interest among landowners for agricultural development.
- Land use developments that divide small, irrigated farms into lots can cut off access to the source of water for some property owners. This happens quite often and will continue as rural residential demand increases (e.g., lot line adjustments and other factors).

Planning

- Unclear to external stakeholders how the Integrated Water Resources Strategy, the 100-year Water Vision, and the recently funded USGS study all fit together in relation to the Willamette Basin work and other priorities.
- State needs to act, not continue only with studies.

Climate Change

- Basin has a standard duty of 2.5 acre-feet/acre. The consumptive demand will change under a new climate; it will not be sufficient.
- Do not believe the state properly considered or analyzed future demands of water, especially when we consider climate change. Grass seed is the largest crop in the basin, isn't irrigated today, and all of it will require irrigation.

Engagement & Public Education

- Continue to engage stakeholders; show progress made on projects and initiatives.
- OWRD needs a tool that is more interactive than just the Aqua Book to better communicate when and what water rights are needed, what transaction options are available, and what uses are exempt from permitting requirements. It could be a click-thru mention option with a customized user interface.
- The water right and transfer application mapping requirements are a significant equity issue for the agency. Not everyone can afford to hire a consultant to prepare a map, the map standards require surveying experience, and there are no online tools to assist landowners with a map. Either invest in do-it-yourself online map making tools, as other agencies have done (e.g., ODA) or the alternative is to provide sufficiently packaged training modules to all applicants.
- Public understanding of water law is lacking in many ways (history of farmers relying on neighboring farmers to advise, based on experience). When approached by department field staff, often hear the response, "I've been using this water for 50 years and there has never been a problem."

Water Right Application Processes

- Unpredictable and untimely application processing hinders capital improvement projects for drinking water. For small communities that lack the rate base for improvements, being able to plan for permitting decisions is critical.
- General frustration among applicants and consultants about the mitigation recommendations resulting from inter-agency Division 33 reviews pertaining to listed fish species. Applicants are unclear about the suitable pathways or potential modifications needed to avoid mitigation requirements.
- Transfers are a good tool for water users; however, the review process lacks key public interest considerations for fish, instream flows, and habitat needs.

Water Rights Regulation

Five watermaster districts cover the Willamette Basin with some districts covering areas outside of the basin. Districts 18 and 22 are located west of the Willamette River, and Districts 16 and 20 are east of the river. Regulation of water rights does occur in the basin, but not to the same extent as Eastern, Central, or Southwest Oregon. During internal discussions, watermasters were asked to share information about regulation history in their districts, recognizing that regulation will likely increase over time and water users may need back-up water supplies.

- **Watermaster District 2:** Geographic area: covers all of Lane County, extending to the coast and includes Mid-Coast basin, includes a portion of Linn County). Regulated streams include the Mohawk River (tributary to the McKenzie River), and the Calapooia River for three instream water rights (significant time commitment), along with several streams outside of the Willamette Basin.
- **Watermaster District 16:** Geographic area: covers most of Linn and Marion Counties, and a small portion of Clackamas County). Regulated streams include Butte Creek, Abiqua Creek, Thomas Creek, Crabtree Creek. In lean years, Crabtree Creek is regulated based on calls from senior irrigators. The Pudding River (measured at Aurora, OR) is also regulated.
- **Watermaster District 18:** Geographic area: Washington and Columbia Counties. Regulation-related activities: On Gales Creek, several water users are regulated off each year, and lack a back-up water supply. This area is not within the Tualatin Valley Irrigation District distribution area, nor is it good for groundwater development. The East Fork of Dairy Creek & McKay Creek are regulated in favor of instream water rights. Not as many users are shut off, compared to Gales Creek. Likely don't have a

backup supply. The Tualatin River is managed river system with regulation affecting both live flow water rights and stored water releases.

- **Watermaster District 20:** Geographic areas: most of Clackamas County and all of Multnomah County. Regulated streams include the Molalla River and Milk Creek, a tributary; Tickle Creek, Eagle Creek, North Fork of Deep Creek, and Deep Creek, Clear Creek, all tributaries to Clackamas River. Beaver Creek, tributary to the Willamette, is regulated every year per a condition on a water right.
- **Watermaster District 22:** Geographic area: covers Yamhill, Polk, most of Benton County. Regulated streams: the Luckiamute River, Rickreal Creek, and South Yamhill River.

Water Rights Adjudication

- Willamette Falls are ancestral fishing grounds. When the Willamette is adjudicated, tribes can make a call for water. Municipalities are moving to the Willamette as a source of water. Conflicts over water use in the Willamette are likely to continue and could become exacerbated by continued development. This is a very long-term issue.

Monitoring

- Washington County has ~45 groundwater monitoring wells where quarterly static water level measurements are collected.
- Most streamgages located in the Willamette Basin are owned and operated by the USGS.
- In District 16, 10 wells are measured on a quarterly basis.
- Improved measurement of live flow vs. stored water releases from the dams. Currently, dam releases are published online, however, in order to understand differences in water stored vs. bypassed flow, additional monitoring would be needed on inflows coming into the reservoirs. That would require extensive instrumentation, which may not be feasible.
- Demand exists from some small residential communities for additional measurement and/or monitoring of groundwater wells; however, that is not always feasible for the agency. OWRD may need to provide technical assistance to establish volunteer-led monitoring program to meet the need.

Notes from State and Federal Agencies

The following section is a summary of ongoing or planned activities in the Willamette Basin by state and federal agencies that may be of significance to OWRD or water management generally. As mentioned earlier, the Department will continue to look for opportunities to engage with tribal governments to hear and understand perspectives of the water challenges, concerns, or priorities in the basin.

- **Dept. of Environmental Quality (ODEQ)** – TMDL temperature replacement work in the Willamette will occur over the next two years. Work in 2023 will focus on Willamette River sub-basins (Coast Fork, McKenzie, Middle Fork, Upper Willamette, Middle Willamette, Molalla-Pudding, North Santiam, South Santiam, Lower Willamette, and Clackamas). Following this work, ODEQ will start a separate project for the Willamette mainstem and other major tributaries. Per a court order, DEQ must complete rulemaking and submit the TMDL to EPA by January 2024 for the sub-basin project and February 2025 for the mainstem work. Temperature TMDL's are planned for other major rivers basins in other parts of the state through 2028. Online resources: [Temperature TMDL Replacement Project webpage](#), [Map of Affected Areas](#), and the [January 2023 Informational Webinar Slide Deck](#). DEQ is also participating in the Willamette EIS as a cooperating agency. Additionally, DEQ may have in interest in discussions

surrounding conversion of minimum perennial streamflows, which were established to support aquatic life and minimize pollution.

- **Dept. of Fish and Wildlife (ODFW)** – the agency will be hiring a Willamette Water Coordinator and continues its participation in the Willamette EIS process as a cooperating agency. ODFW will also engage in the Willamette Basin Review Reallocation study implementation, which includes efforts to pursue conversion of minimum perennial streamflows to instream water rights.
- **Oregon Watershed Enhancement Board (OWEB)** – as the primary habitat restoration agency, OWEB has existing regional capacity to support watershed councils and other partners in the Willamette Basin. Water quality tends to be more of focus for restoration partners in the basin, whereas water quantity/conservation hasn't been as actively pursued by watershed councils through OWEB's grants.
- **Dept. of Agriculture (ODA)** – ODA focuses primarily on water quality issues but does engage on water supply issues when needed or requested. ODA will continue as a cooperating agency for the Willamette EIS process and contribute to implementation discussions for the Willamette Basin Review study, when needed.
- **U.S. Geological Survey (USGS)** – the USGS is undertaking a 10-year study of the Willamette Basin as part of its Integrated Water Science program to help improve water availability assessments as a national scale. The effort will include a basin-specific study (2023 – 2026) and a comprehensive study with national applicability (2027-2031).
- **U.S. Army Corps of Engineers** – The Corps is completing a programmatic Environmental Impact Statement for the continued operation and maintenance of the Willamette Valley Project reservoirs. In conjunction with this effort, the U.S. National Marine Fisheries Service and U.S. Fish and Wildlife Service will be developing new Biological Opinions. Both the EIS and Biological Opinions are currently planned for completion in June 2024, but could be delayed if a jeopardy opinion is issued.