

Name

Anton Chiono
Bridget Moran
Chris Hall
Christina Witham
David Hohler
Doug Heiken
Evan Neyland
Gary Young
Harmony Burrigh
Jan Lee Weinberg
Jerry Linder
Kimberley Priestley
Mark Rogers
Matt Stouder
Myron Redford
Oregon Watershed Partnership
Rian vanden Hooff
Stan Dean
Susan L Smith
Suzanne Fouty

Organization

Confederated Tribes of the Umatilla Indians Reservation
U.S. Fish and Wildlife Service
Water League
Baker County

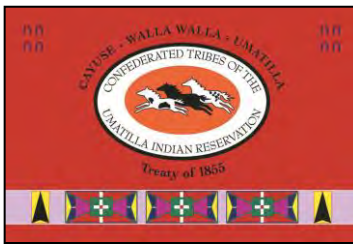
Oregon Wild

Water Resources Commission
Oregon Association of Clean Water Agencies
WaterWatch
Oregon Council Trout Unlimited
Metropolitan Wastewater Management Commission

Department of Environmental Quality
Oregon Association of Conservation Districts

**Confederated Tribes *of the*
Umatilla Indian Reservation**

Department of Natural Resources



46411 Timine Way
Pendleton, OR 97801

www.ctuir.org antonchiono@ctuir.org
Phone: 541-429-7268

March 7, 2024

Crystal Grinnell, IWRS Specialist
725 Summer St. NE, Suite A
Salem, OR 97301

Subject: 2024 Integrated Water Resources Strategy Proposed Revisions

Dear Ms. Grinnell:

The Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources (CTUIR DNR) appreciates the opportunity to comment on the proposed update to Oregon's Integrated Water Resources Strategy (IWRS). We participated closely in the development of the original IWRS and its subsequent update in 2017. While we understand that listening sessions were held on this most recent revision, we unfortunately did not have an opportunity to participate in this process before now.

Upon completion of the 2017 IWRS update, we felt that the document provided clear direction and a firm foundation for tackling the difficult water management issues facing Oregon, particularly with respect to restoring and protecting instream flows. Water and salmon are two of the Tribes' most culturally important "First Foods", and healthy, flowing streams are critical to providing cold, clean water and harvestable fisheries. Although much progress remains to be made in restoring Oregon's river ecosystems, we were confident that the 2017 IWRS update provided a firm foundation for doing so.

While we commend and wholeheartedly endorse the inclusion of updated climate and equity components in the IWRS, we are somewhat perplexed by the proposed revisions and what appears to be a wholesale restructuring of the 2017 version. We understand that an update is required every five years by statute, but this does not mean that the preceding version must be completely rewritten. Indeed, we fear that, in these proposed changes, much of the original intent is lost from the original 2009 legislation directing the creation of the IWRS, particularly with respect to understanding and meeting instream and out-of-stream needs. By drastically restructuring and rewriting the 2017 version, we are concerned that OWRD may be "fixing" a problem that does not actually exist. However, in this "fix," we fear that a very real problem may be created.

Rather, we suggest that the goal of making the IWRS more accessible to the general public be met through outreach and education to explain the objectives of the IWRS. This outreach should include progress reporting that is presented in ways that are approachable by the general public.

We thank you for your consideration of these comments and provide our specific thoughts on the proposed revisions in the following pages.

Specific Comments on Proposed 2024 IWRS Revision

Chapter 1

In the 2017 version of the IWRS Update, one of the “*Critical Issues*” included in Chapter 1 is to “*Improve Water Quality and Water Quantity Information.*” It appears that the proposed 2024 revisions have changed this to simply “*Funding*”. While funding is undoubtedly an important component of any water management strategy, this does not seem like an appropriate replacement for better understanding water quality and water quantity, which is the fundamental first step to improving water management. It is unclear why this was changed from the 2017 version, which seemed quite logical in terms of both substance and sequence in its focus on first understanding water quality and quantity.

Further, the removal of specific guidance from the proposed revision is concerning. The explicit “*Recommended Actions*” given by the 2017 version provide much clearer direction as to the steps necessary to address Oregon’s water resources management challenges. For instance, understanding groundwater is a key part of sustainable water management, and this has been tremendously important in the basins within CTUIR’s aboriginal areas, particularly the Umatilla Basin and the Walla Walla Basin. It is unclear why this clear and critical objective would be removed in favor of such a general heading that appears to provide very little specific guidance.

A similar concern arises with respect to Action 1B (“*Fund Water Resources Management Activities at State Agencies*”) in the proposed revision. The 2017 IWRS update provides clear direction as to the needs addressed under Action 1B and provides a series of examples of how this action would be implemented. Without fail, a lack of data is one of the largest obstacles we encounter when attempting to promote sustainable water management across the state. These needs are too important to not be explicitly stated and it is troubling to see them lost in the very general wording of the proposed revision. We feel the clear examples provided in the 2017 update provide much more direct guidance as to the specific actions the State of Oregon needs to implement. We would strongly advocate for such specificity to remain.

We also question the changed direction in Action 1C (“*Invest in Planning, Feasibility Studies, and Water Resource Project Implementation*”), which in the 2017 IWRS update stressed data collection and processing across agencies and the use of this information in decision making. In other words, the 2017 version underscored the importance of data-driven decision making, which is how any type of management must proceed if it hopes to be successful. While planning and feasibility studies are important, they do not rise to the same level as ensuring that high-quality, foundational data exist for decision making. The pivot to planning and implementation in the proposed revision is concerning, particularly when it appears to come at the expense of ensuring the collection and use of foundational data—which, as mentioned previously, has been the single biggest obstacle to sustainable water management in the areas where we work. Indeed, the Umatilla Tribes have had to work with USGS to install and operate multiple stream gages in our geography to ensure that the State of Oregon’s instream water rights are managed and enforced. Rather than planning and implementation, we strongly encourage action 1C to focus on data collection, as it did in the 2017 version.

Chapter 2

It is not clear as to why Chapter 2 appears to have been changed so considerably from the last IWRS update, starting with the proposed revision of the chapter's title. We felt that the 2017 version clearly and plainly defined the tasks outlined in Chapter 2: "*Understand Instream and Out-of-Stream Needs.*" We are uncertain as to why this fundamental need would be removed from the 2017 IWRS—particularly when "*Partnerships & Planning*" is what is being proposed to replace it. While we appreciate that OWRD is attempting to make the IWRS more accessible to the general public, we fear that the proposed changes to Chapter 2 risk blurring the separation between the IWRS goals and the steps necessary to achieve these goals. Partnerships and planning are important means to achieving the ends of sustainable water management, but they should not be the ends unto themselves.

Again, the proposed revision's diminished emphasis on data is concerning. Actions like partnership and planning are fundamentally different from ensuring that the core data exist to allow for informed decision making. It is unclear why these two actions, which are only two among many, are being elevated in this proposed revision. Certainly, the Umatilla Tribes are committed to partnerships and planning—but neither of these can succeed without a clear understanding of water demands, both instream and out of stream. We would strongly encourage the agency to retain the original Chapter 2 from the 2017 IWRS.

Consistent with our comments on Chapter 1, the proposed revisions on Chapter 2 seem to follow a trend of replacing clear, specific steps and recommendations from the 2017 IWRS with more generalized actions, many of which seem largely out of sequence. Rather than the necessary steps to quantify water demands that are in the 2017 IWRS update, the proposed revision replaces them with more generic actions related to outreach, coordination, and planning. It is troubling that these specific steps related to data are being proposed for removal, and it is also concerning that they are potentially being replaced by actions such as planning and outreach.

Chapter 3

We are pleased to see the emphasis on data in Chapter 3, but fear that the proposed restructuring of the chapter sacrifices clarity and urgency when compared to the 2017 IWRS update. This again seems to follow a broader trend in the proposed revisions that generalizes the specific details of earlier IWRS iterations. While a balance certainly must be struck, we find that Chapter 3 from the 2017 IWRS update is much clearer as to the goals of the chapter and the problems it seeks to address. We are encouraged to see a focus on quantifying instream and out-of-stream demand in this chapter, but we strongly disagree with seeing these components demoted to mere sections in a broader chapter entitled "*Data & Analysis.*" This is particularly inappropriate when "*Partnerships & Planning*" is being proposed for elevation to its own chapter at the expense of an emphasis on quantifying water demands. As stated in our earlier discussion of the other chapters, we do not feel that this proposed change in organization improves upon the 2017 IWRS; rather, we fear the opposite may be true. Understanding water demands is foundational and should remain the subject of its own chapter.

Chapter 4

Again, we are concerned that the overall trend toward generalization in these proposed revisions compromises clarity and creates ambiguity as to priorities. This issue is apparent again in the re-naming of Chapter 4 in the proposed revisions. In the 2017 IWRS update, Chapter 4 was entitled “*Meet Oregon’s Instream and Out-of-Stream Needs.*” This clearly articulated the objectives of the chapter and the recommendations included therein. The proposed change of this chapter’s name to merely “*Stewardship*” creates ambiguity and, we fear, deprioritizes the original intent of this chapter, namely the objective to meet instream needs. “Stewardship” is a term that can mean multiple things to multiple people; we therefore feel its use is not appropriate for a chapter that should have the clear instream objectives and strategies that were contained in the 2017 IWRS.

Further, we again note a puzzling emphasis on partnerships and planning in the proposed revisions for this chapter. While these undoubtedly are important strategies for water management, these should not overshadow the critical importance of the applicable statute and regulation that guide water management in the state. The Tribes have participated in many collaborative water planning efforts in both Oregon and Washington State, including Place-Based Planning in the Upper Grande Ronde and Lower John Day basins. While local partnerships are important, these efforts must not come at the expense of working within relevant agency missions and applicable rule and statute. Where we have seen these planning efforts fail time and again is where state agencies have been passive or absent altogether.

Indeed, one of the greatest challenges we experienced in working with the Place-Based Planning basins was resolving the tension between the local planning groups’ desires and the bounds of what was legally permissible within the state’s regulatory framework. We are concerned that by emphasizing partnerships and planning we risk implicitly minimizing the importance of working within applicable rule and statute. This may create false expectations and potentially exacerbate the challenges we already are experiencing when working on water management issues with local stakeholders. We fear that the emphasis on planning and partnerships in Chapter 4, and throughout the proposed revisions, may risk minimizing the importance of the broader framework of water law, policy, regulation, and the overall missions of our natural resource management agencies.

Summary

While we understand that an update of the IWRS is required every five years, we urge OWRD to not approach this update as if the preceding version needs to be discarded. The 2017 IWRS provides a strong foundation and clear guidance for improving water management in the State of Oregon. We do feel it could be improved in terms of climate change data and equity considerations, and it is in this respect that we would encourage you to focus your update. We do not think that the wholesale restructuring and revision of the IWRS as proposed is warranted or advisable. To OWRD's goals of improving the accessibility of the IWRS to the general public, we suggest that is better achieved through outreach, education, and thoughtful progress reporting, rather than de-emphasizing the clear goals that Oregon's agencies would pursue through the IWRS.

We thank you for your time and consideration.

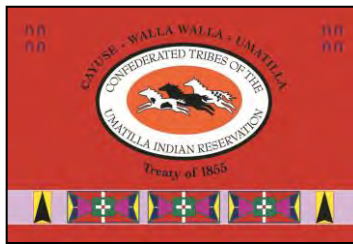
Respectfully,



Anton Chiono
Habitat Conservation Project Leader
CTUIR Department of Natural Resources

Confederated Tribes *of the*
Umatilla Indian Reservation

Department of Natural Resources



46411 Timine Way
Pendleton, OR 97801

www.ctuir.org antonchiono@ctuir.org
Phone: 541-429-7268

April 5, 2024

Crystal Grinnell, IWRS Specialist
Oregon Water Resources Department
725 Summer St. NE, Suite A
Salem, OR 97301

Submitted electronically on April 5, 2024.

Re: Comments on the 2024 Integrated Water Resources Strategy Proposed Revisions

Dear Ms. Grinnell:

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources appreciates the opportunity to submit additional comments on the proposed 2024 update to Oregon's Integrated Water Resources Strategy (IWRS).

Since its creation, the IWRS has been critical to furthering the understanding of Oregon's surface water and groundwater and promoting a more-sustainable management of these precious resources. It has been essential in providing both specific guidance to resource management agencies as well as a legislative impetus to better fund these agencies to accomplish the IWRS goals. For instance, the explicit direction given to Oregon Department of Fish & Wildlife (ODFW) to apply for instream water rights has been critical to preventing even further degradation of our rivers and streams across the state.

Given all this, CTUIR long has been a strong advocate for the IWRS and its emphasis on data, science, and the protection of instream flows. We engaged closely in the creation of the IWRS authorizing language codified under ORS § 536.220, the development of the original IWRS itself, and its subsequent update in 2017. We submitted comments, which are attached, on the one-page summaries of the 2024 revision during the comment period afforded to Tribes earlier this year. Now that we have had the opportunity to review the complete draft of the proposed revision, we would like to provide additional thoughts during this initial public comment period.

In considering the draft 2024 update, we think it is instructive to first revisit the direction given by the IWRS authorizing law, ORS § 536.220. With this statutory guidance in mind, it is striking how much of the preceding 2017 IWRS framework and content has been abandoned, particularly given that ORS § 536.220(3)(e) specifies that the Water Resources Commission only "review and update" the IWRS at least once every five years. Certainly, the proposed wholesale replacement of the previous IWRS appears to be more than simply the review and update contemplated by statute. If there were strong public sentiment for such a substantive overhaul, then perhaps such a course would be merited. But, absent that, such a drastic approach seems perplexing, particularly given that only now has there been an opportunity for the public to weigh in on the specific changes proposed.

We also note that the proposed draft seems incongruous with ORS 536.220 beyond just the scope of the update. In particular, ORS § 536.220(d)(A) specifically directs the IWRS to describe “Oregon’s in-stream and out-of-stream water needs, including but not limited to ecosystem services, water quality and water supply needs.” This is the foremost requirement of the IWRS as given by statute. With that in mind, we again question the removal of a chapter entitled “Understand Instream and Out-of-Stream Needs” from the 2017 version and its replacement with a chapter entitled “Partnerships & Planning” in the proposed 2024 draft.

While partnerships indeed are mentioned in statute, the direction given under ORS § 536.220(d)(E) is for the IWRS to describe “provisions to ensure communication and partnership with key stakeholders”. Given this, we would question the primacy the proposed draft seems to have given partnerships over understanding instream and out-of-stream needs. We feel that the explicit emphasis the 2017 IWRS gives to understanding instream and out-of-stream needs is much more consistent with statutory guidance.

In OWRD’s outreach on the IWRS revision, we have heard that simplification, greater public accessibility, and the advancement of “Oregon’s 100-Year Water Vision” (“Water Vision”) are all goals of this 2024 revision. While perhaps all admirable goals, we are not aware of any legislative or executive guidance dictating as much. We would like to better understand why these objectives were given such precedence in the 2024 IWRS revision. We also question the motivation of simplifying the document to create greater accessibility for the general public when the primary users of the IWRS should be agencies with trained professionals and specialists. The goal of making the document more publicly accessible likely can be achieved with the “Action Sheets” of this update and thoughtful progress reporting that puts terminology and progress in relatable terms and simple language. This would both enhance public accessibility while not undermining the specific technical direction that makes the IWRS such a valuable resource.

The proposed draft also states that “The 2024 Strategy borrows from the 100-Year Water Vision...” The Water Vision was an Oregon Watershed Enhancement Board (OWEB) led effort, and it points readers to “a state-supported Regional water planning and management work group” on the OWRD website, as well as the Tribal-State Agency Task Force, which was intended “*to engage tribes in the implementation of the Water Vision.*” How the IWRS, Water Vision, and Tribal-State Agency Task Force products interact and integrate is not clear even if the reader visits all three—or especially if a reader visits all three. Careful consideration does need to be given as to how these important documents work together, but simply having one subsume another seems to get us further from achieving this goal, not closer. We feel that both the Water Vision and the IWRS are too important to be merged in this way and are much stronger continuing to stand on their own.

We acknowledge that water management challenges are, by their nature, complex; as such, efforts to address our water challenges must face this complexity. The IWRS is critical to developing and implementing integrated agency efforts in a coherent, statewide manner. Oregon's agencies need this guidance—and this need is perhaps even more acute now than ever, given the high degree of leadership turnover in many of our key water resource management agencies, including OWRD, ODFW, and OWEB, to name a few. Going forward, we must ensure that the IWRS retains the structure and technical detail necessary to help this new leadership succeed in grappling with these complex challenges, not eliminate this detail.

We thank OWRD for all of the work that has gone into this proposed revision. The agency's efforts on this revision are an essential part of evaluating where we are, where we've been, and how we can improve going forward. However, in this instance, we feel that the best path forward is a return to the prior IWRS format that includes the following:

1. The addition of an introductory section that explains that water is a public resource;
2. The inclusion of a brief rationale for the IWRS itself; this would emphasize that the responsible use of public funds to develop, manage, and protect Oregon's water for public benefit requires a scientifically rigorous, integrated water management strategy;
3. Continued refinement of the "Actions Sheets"; and
4. A commitment to IWRS progress reporting with plain language for public information and accountability.

We believe that this should address the goal of making the document – and Oregon's progress – more accessible to the public while holding firm and clear the original tenets of the IWRS.

We thank you for your time and consideration,

Respectfully,



Anton Chiono
Habitat Conservation Project Leader
CTUIR Department of Natural Resources



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Bend Field Office
63095 Deschutes Market Road
Bend, Oregon 97701



In Reply Refer To:
TS-24-212

Crystal Grinnell
Oregon Water Resources Department
725 Summer St. N.E., Suite A
Salem, OR 97301

Subject: U.S. Fish and Wildlife Service comments on *Oregon's Integrated Water Resources Strategy, 2024*

Dear Ms. Grinnell:

The U.S. Fish and Wildlife Service (USFWS) appreciates the opportunity to provide comment on the Oregon Water Resources Department (OWRD) document, *Oregon's Integrated Water Resources Strategy, 2024* (IWRs). Per the IWRs [website](#), the USFWS understands the goal of this document is to, “provide a statewide inter-agency framework for better understanding and meeting Oregon's instream and out-of-stream water needs.” Our comments below are intended to support meeting this important objective.

We were pleased to find mutual understanding in the following introductory statement under the section entitled ‘Current Water Challenges: We are not currently meeting Oregon’s water needs...’ (p. 9): “Oregon’s ecosystems and human communities are both experiencing water quantity and quality challenges. There is too much demand for too little water. Some water bodies have inadequate flows and/or water quality to support fish and other wildlife.” The USFWS shares this perspective and was eager to see how the IWRs would delve into such a challenging topic, tell a compelling story, and provide a roadmap to resolve this difficult issue.

However, we struggled to find all these things fully and successfully effected in the sections that followed. We felt the IWRs missed an opportunity to tell a compelling story about Oregon’s water challenges, which in turn would convey a compelling strategy. Instead, we found the challenges presented more as a stiff series of fact sheets. We appreciate the difficulty in drafting large strategy documents, especially given the complexity of the issue and the breadth of the audience. Having developed many such documents ourselves, we share this feedback with respect. Broadly, our struggles likely largely reflect the departure of the structure of the IWRs from previous versions. Specifically, we found potential for improvement in the ways in which instream water needs were prioritized/balanced, instream water rights were described, climate change was addressed, and pre-listing conservation was discussed.

INTERIOR REGION 9
COLUMBIA–PACIFIC NORTHWEST

IDAHO, MONTANA*, OREGON*, WASHINGTON

*PARTIAL

Our primary concern pertains to how the IWRS framework seemed to balance addressing instream needs and out-of-water needs. Given our agency mission's focus on species and habitats, we recommend a stronger focus on ecological instream needs. This stronger focus should include broader consideration of aquatic wildlife rather than exclusively fish.

Another important area where we saw opportunity for improvement was in the section describing instream water rights. The current draft may leave readers with the idea that establishing instream water rights is a straightforward process and that, once completed, water is provided. Through our work statewide, and particularly in the Deschutes Basin, we are acutely aware that exercising a water right is entirely dependent on its date of issuance and therefore seniority. As we understand and have experienced, because instream values were not initially recognized under Oregon's Water Code, sufficiently fulfilling instream needs to protect ecosystem function is an ongoing challenge. Ultimately, we thought the strategy implied instream water rights protect instream flow, which they do not do in most instances due to their junior status. We recommend this section be updated to provide greater context and clarity.

Additionally, we noted that the IWRS took a different approach to addressing climate change in the 2024 strategy from previous iterations. The USFWS agrees that incorporating climate change effects into all portions of analyses is a valid approach given its pervasive impact. The disadvantage to spreading this information throughout the document, however, is that the subject can potentially become deemphasized. Omission of a dedicated section specific to climate change unfortunately misses an opportunity to remind readers how critical this factor is to water management. We recommend reinserting a section about climate change, in addition to its current inclusion in the various sections throughout the document, to continue to help educate the public.

Lastly, the IWRS could do more to highlight and promote the need for pre-listing conservation of fish, wildlife, and plant resources and the habitats upon which they depend in Oregon. This feedback is likely most applicable to sections discussing instream flow needs and groundwater dependent ecosystems (Instream & Ecosystem Water Needs, p. 115). By "pre-listing conservation," we are referring to water conservation to support the needs of a wide array of native species that are not Federally protected under the Endangered Species Act (ESA) but are recognized as in decline, at-risk, sensitive, or of concern. The IWRS is an important framework to reduce or avoid the need to add additional species to the ESA. For example, an action in 8A of the IWRS is listed as, "Prioritize basins and install monitoring equipment to help characterize the full suite of flows through these basins." In previous iterations of the IWRS, this was stated as, "Identify basins with listed species and install...". Perhaps a better edit would be "Prioritize basins, considering at-risk species and data gaps, and install monitoring equipment..."

Specific Comments:

P. 25. Second paragraph under the Endangered Species Act header: Suggest adding: *While there are some exceptions, generally speaking*, the U.S. Fish and Wildlife Service.....

P. 25. Suggested additions highlighted in yellow: *The state of Oregon and the federal government maintain separate lists of Threatened and Endangered species. Under state law (ORS 496.171-496.192) the Fish and Wildlife Commission through the Oregon Department Fish*

and Wildlife maintains the list of native fish and wildlife species in Oregon that have been determined to be either “threatened” or “endangered” according to criteria set forth by rule (OAR 635-100-0105). The Department leads the development of conservation and recovery plans for state ESA-listed fish and wildlife species. Coordinated action with citizens, and other local, state and federal agencies is essential for successful implementation.

P. 29 Forest Practices Act: The Senate and House bills referenced in the last paragraph of this section also included development of a new mitigation program to be managed by ODFW and funded with both state general fund and timber industry funds (PFA Mitigation Program). Given the significant dollars that will be invested in habitat restoration and species conservation (\$10 million + annually) a paragraph summarizing the mitigation program in this section may be warranted.

P 29 Fish Screening and Passage Laws – Suggest adding that guidance exists to provide fish passage to ESA listed salmonids ([West Coast Fish Passage Guidelines | NOAA Fisheries](#)) for waterways where they are present, as well as other native fish such as Pacific Lamprey that have unique swimming and passage needs ([Lamprey Technical Workgroup | Pacific Lamprey Conservation Initiative](#)).

P. 31. ***2015 The Oregon Chub and Modoc Sucker are the first and only de-listings of fish species under the Endangered Species Act***

Suggest this statement be revised to say: 2015 the Oregon Chub (Willamette Valley) and Modoc Sucker (SE Oregon) become the first and second fish species respectively in the nation to be delisted due to recovery under the Federal ESA. Two additional fish species in Oregon have been delisted since that time (Foskett Spring speckled dace and Borax Lake chub).

P. 55. Partner with Federal Agencies, Tribes, and Neighboring States in Long-Term Water Resources Management.

The USGS’ Integrated Water Science study (linked below) in the Willamette Basin should be summarized and referenced, probably in numerous sections of the IWRS document.
<https://www.usgs.gov/news/national-news-release/usgs-selects-willamette-river-basin-fourth-integrated-water-science>

P 63. in Chapter 2 on Partnerships and Planning

“Deschutes Basin Habitat Conservation Plan (HCP) – The Deschutes Basin is an area where irrigation interests and fish and wildlife needs had long been in conflict. Over 10 years ago, tribes, agencies, irrigation districts, and the public came together to forge a new approach to water management in the basin. The partners, led by the local irrigation districts, developed an HCP, which is a long-term plan that includes specific conservation measures to minimize and mitigate the effects to the covered species caused by the activity (managing water in this case). The Deschutes HCP was finalized and approved by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service in 2020, and 2023, respectively. The HCP offers many practices to better align the water management operations with the life-history needs of covered species. The aquatic species covered by the U.S. Fish and Wildlife Service in this HCP include the Oregon spotted frog and bull trout. The National Marine Fisheries Service permit covers

steelhead and sockeye salmon - all federally listed as threatened species. The HCP has resulted in increased coordination across many interests which has helped the area navigate irrigation and wildlife challenges during consecutive years of drought.”

P 65. in Chapter 2 on Partnerships and Planning, Action 3A “Partner with Tribes, Federal Agencies, and Neighboring States in Long-Term Water Resources Management” suggested changes in yellow highlight.

- Conduct collaborative planning to develop water management approaches to protect species and avoid **or minimize impacts to** endangered or threatened **species**.

Documents

Deschutes Basin Habitat Conservation Plan **Add link to story map? [Flowing to the Future \(arcgis.com\)](#)**
Federal Endangered Species Act species recovery plans (USFWS & NOAA)

P 96 in Chapter 2 on Natural Hazard Mitigation Planning, Action 6B
Examples could focus on “nature-based solutions” to minimize flood impacts via restoration and ecological approaches. Potential addition to current bullet shown below, various examples available if desired through restoration actions statewide. Suggested changes in yellow highlight.

- **Invest in built and natural infrastructure, including nature-based solutions, refer to Actions 5B, 10A-10E, 12C, and 13A”**

P. 103. Consider adding non ESA listed species to broaden conversation around pre-listing, species of significance, etc. Suggested changes in yellow highlight.

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

Chapter 3 on Data & Analysis

No specific USFWS comments in this chapter. Improved data on water use and needs is clearly important and will aid in planning for and prioritizing holistic ecosystem approaches to water management.

Chapter 4 on Stewardship

P 135 in Chapter 3 on Stewardship in Ecological Services. Link in reference to Klamath NWR does not work. Update: <https://www.fws.gov/refuge/lower-klamath>

Fix the link in the wetlands paragraph (not working) and consider updating the text based on the most recent report, Status and Trends 2009 to 2019. [2019 Wetlands Status and Trends Report | U.S. Fish & Wildlife Service \(fws.gov\)](#)

P 138 – 139 Section on Fish Passage and Fish Screening

Recommend adding a mention of Pacific Lamprey (an anadromous fish of tribal significance) as this species has specific passage and screening needs that are often inexpensive to integrate into passage or screening projects, native fish such as Pacific Lamprey, Sculpin, sturgeon, etc. are not as strong of swimmers as salmonids and generally get less attention in fish passage/screening conversations as they are not ESA-listed.

P 141 Section on Instream Transfers and Leases

Recommend adding mention of OWEB's water acquisition grant program which can fund these transfers and leases to improve water instream. Current budget is around 9M and only about 500k applied for funding in 2023/4 cycle, showing there is opportunity for more transfers or leases where ecologically beneficial.

P 145 Agency Programs

Include USFWS Partners for Fish and Wildlife Program and National Fish Passage Program, two funding programs that support watershed restoration efforts.

<https://www.fws.gov/program/partners-fish-and-wildlife>

<https://www.fws.gov/program/national-fish-passage>

Thank you again for the opportunity to comment. Please let us know if we can provide assistance addressing any of the comments we provided. If you have any questions, please contact me at (541) 383-7146.

Sincerely,

Bridget Moran
Field Supervisor

WATER LEAGUE

*Water League engages the public
in water stewardship.*

P.O. Box 1033
Cave Junction, OR
97523

chris@waterleague.org
(541) 415-8010

April 4, 2024

Crystal Grinnell
Oregon Water Resources Department
725 Summer St. NE, Suite A
Salem, OR 97301-1271

Board of Directors

President
Gerald Allen

Vice President
John L. Gardiner

Secretary
Tracey Reed

Treasurer
Linda Pace

Christine Perala Gardiner

William Joerger

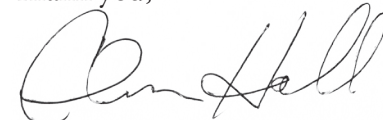
Gordon Lyford

Executive Director
Christopher Hall

Dear Ms. Grinnell,

Water League submits our comments to the 2024 Draft Integrated Water Resources Strategy on the following pages. We appreciate the opportunity to share our thoughts.

Thank you,



Christopher Hall
Executive Director

Comments & Testimony

Integrated Water Resource Strategy – 2024 Update

by Christopher Hall, Water League

Aside from this opening introduction, generally speaking, OWRD & WRC can assume if any section or provision of the IWRS is left unaddressed, it is because Water League agrees with or supports that part and no further discussion is needed. It is the nature of such critique, that if we were to comment on everything good in the document, our comments would be much longer than the IWRS itself.

Water League strongly supports the draft 2024 update to the IWRS. While we have numerous critiques throughout, none detract from our view that this IWRS update is anything less than visionary for our times and a model for all other states in the West to follow. Do not think for a second that the force of our critiques below belie our substantial support for this great work.

Introduction:

Key to understanding the 2024 IWRS update is the organizational logic, which is that there are three ways to look at how water flows through Oregon (place) and the lives of all entities (humans, flora, fauna). Prioritizing one perspective over the other necessarily causes a *misrepresentation* of the entire picture. Therefore, the 2024 IWRS update is a *holistic integration* that holds all three views together simultaneously to form the gestalt that has been missing in previous versions of the IWRS. This arrangement is excellent.

The IWRS labels the three perspectives as: 1) Goals, 2) Objectives, and 3) Chapters. In the 2012 and 2017 versions of the IWRS, only the Objectives were heading priorities, and everything else came under those four objectives. In the 2024 update, the IWRS holds the contents of the goals, objectives, and chapters together on a more interactive level.

While there are two Goals that oversee the entire strategy (*understanding* needs and *meeting* needs), the four Chapters articulate the entire structure of the strategy: Chapter 1 is about the funding, which is required for everything and anything to get done; Chapter 2 is about the people and planning, which again, is required for everything and anything to get done; Chapter 3 is about analysis of all aspects water touches, which is required to strategize, puts the the “S” in IWRS, and Chapter 4 is about solutions, which are required if anything is to get done – the purpose for the IWRS in the first place.

But then, the Objectives inextricably tie the goals and chapters together, and by doing so, appear in their own way to be major headings around which the Goals and Chapters orbit. This constellation is nothing less than a work of genius, where Goals, Objectives, and Chapters orbit each other in a heterarchical fashion, leading to a strategy that is elegantly simple in its ability to organize complexity that the public can understand and state agency professionals can use to work together effectively. If there was an answer to the Oregon Secretary of State's Water Security Advisory Report, it is the 2024 IWRS update.

Overall, and notwithstanding our numerous critiques below, Water League strongly supports

this draft version of the 2024 IWRS update, and urges the WRC to support OWRD staff in their current progress.

One central and over-arching correction to the IWRS is that it must use language to incorporate in-ground and out-of-ground needs simultaneously with in-stream and out-of-stream needs. There is no sense in ignoring groundwater in the 2024 update to the IWRS. See 8C on Groundwater Dependent Ecosystems on page 118. Also see page 142 under **Action 10E** is the argument in favor of this inclusion:

The Oregon Atlas of Groundwater Dependent Ecosystems, published in 2022, found that more than a third of all streams and rivers depend on groundwater, and about two-thirds of all lakes and ponds do as well. Groundwater discharge contributes to springs, wetlands, and streamflow throughout the state, often providing sustained flows and vital cold water for aquatic species during summer months. Contributions from groundwater support ecosystems (known as groundwater-dependent ecosystems) and human systems alike.

Land and water are one entity, how we separate land and water must be done more carefully; to view surface water as the only needs-based phenomenon and to exclude groundwater from the same is nonsensical and the double-standard must not be allowed to persist any longer.

The following comments and critiques are specific to the March 2024 IWRS draft update:

Part 1: Oregon's Water Context

Climate Change:

There are general anthropogenic (indirect) effects such as climate change and there are specific (direct) human effects such as over-appropriation of water sources by policy-makers and over-pumping of streams and aquifers by irrigators. Both indirect and direct forces lead to water scarcity. The IWRS should acknowledge both of these forces; however, the IWRS is long on climate change, moderately vocal on policymakers culpability, and virtually silent on large-scale irrigators who use 78% of all diverted water in Oregon. It's not until page 144 that there is a scant reference to the direct damage caused by over-pumping.

Because no one is solely responsible for climate change, it's easy and politically safe to blame our entire social structure for our water source problems resulting from climate change, but our specific human impacts withdrawing too much water for large-scale irrigation are also a major part of the equation that can no longer be ignored. The more the state chooses the 20th century political calculation to ignore certain and very specific non-beneficial uses of large-scale irrigation water uses that harm the public health, safety, and welfare, and foreclose upon the water future for posterity, the more the public will organize among itself for redress. Water League urges the OWRD and WRC to serve the greater public interest over the special interests of the very few who use too much of the water that belongs to the public.

The IWRS highlights the problems innocent people experience regarding their access to water, which is

important; however, the draft does not sufficiently hold the parties most *directly* responsible for causing the problem accountable. The decision to omit responsible parties (policy-makers and irrigators) is a political act and the silence on the matter is loud and clear. If it were not for the fact irrigators use four out of five gallons of all water diversions, and state policy-makers let them, we would not single them out.

Too many of the large-scale irrigation needs are highly destructive and pose direct risks to water supplies and others' needs. What happens when a *need* becomes a problem or challenge? The IWRS must acknowledge that some *out-of-stream needs* are actually significant problems. We know this to be the case in regions where irrigation depletes aquifers and the state must designate Critical Groundwater areas. Irrigation may be a need for the particular user, but in some cases it morphs into a problem for the general public. The IWRS cannot ignore this phenomenon because all water use authorized by water rights must be simultaneously in the water user's interest and the greater public interest in the present and the future. To be clear, when a need becomes a problem, it may still be a need to the individual user but is a problem to society.

For far too long, irrigators have been lambasting the ecosystem for “using” too much water and for taking water from irrigators. They invented the idea that the ecosystem, which is the source of all water, takes too much water from irrigators, even though irrigators are the most significant water diverters. This Orwellian chicanery is a racket devised by cunning water use attorneys and lobbyists in the 20th century.

The law requires water use must be in the public interest first and foremost before any one individual can seek to aggrandize themselves with that water which belongs to the public.

We note that it is the explicit policy of the state that water use must be for economic purposes. Presumably, this is one of the most important aspects of the public interest. ORS 536.220 *Policy on water resources generally; integrated state water resources strategy*, states [**emphasis added**]:

(1) The Legislative Assembly recognizes and declares that:

(a) The maintenance of the present level of the economic and general welfare of the people of this state and the future growth and development of this state for the increased economic and general welfare of the people thereof are in large part dependent upon **a proper utilization and control of the water resources of this state, and such use and control is therefore a matter of greatest concern and highest priority.**

Irrigation falls far short of this legal standard that water use must be in the greater public interest. While the business case for large-scale irrigation is nearly impossible to make (see comments below for Chapter 3), and its relative economic value to the state is grossly overstated by the public relations of its special interest class of proponents, the law requires that the future growth and development of the state is paramount. While much of the language in the IWRS reflects this perspective, none of the aspirations will amount to anything without concrete actions to identify the problems that once were viewed as needs.

Climate change is a serious existential threat, but so are drained aquifers and dewatered streams resulting from over-pumping. Without recognition of the impacts caused by such direct human uses, the problem of water scarcity will not be stopped; rather, negatively impacted people will be forced to adapt, and at best, they will only ever receive limited assistance.

Inequity is in letting the problems persist on the pretense that those who have been causing the problems have more influential lobbyists than those who are told to adapt to the resulting negative impacts. This is an insidious and pernicious form of victim-blaming. In too many locations, large-scale irrigation harms rural front-line communities by drying up their domestic wells and threatening municipalities.

Long-term municipal water plans looking 75 years out don't know where their water will come from, in part, because they are told animal forage crops and other export crops irrigated with senior water rights are more important than the junior municipal water rights. Today, lobbyists “equity-wash” large-scale irrigators by arguing during the Groundwater Allocation rule-making process that it's only fair that if irrigators cannot get new water rights, then neither should cities get new water rights, no matter the fact that irrigators use eight times as much water as all cities combined and much of it results in *Virtual Water Exports*.

The IWRS update cannot repeat this false assertion:

“Declining groundwater levels and low streamflows are also raising concerns about the ability for the state to take on additional development and growth.” pg. 10

There is a false equivalency that water use must be limited for future residential and municipal development because those uses are such a tiny fraction compared to large-scale irrigation. The governor's call for additional housing should not be confounded by large-scale irrigation over-pumping that is eight times more water than all municipal use combined.

An increase in population does not increase domestic/ municipal water use by a level that could ever compare to the volume of water already used by irrigators. Why? According to the Oregon Department of Agriculture, Oregon exports 40% of agriculture products to other states and 40% to foreign nations for a total of 80% of all agricultural products leave the state. Oregon's population and irrigation water use have not been coupled together over the past 75+ years. Whether there are two million, four million, or six million residents, the vast amount of water used by irrigation wouldn't increase commensurate with population growth.

Indeed, during the 20th century, irrigation water use increased many times faster than Oregon's population growth; then irrigation use plateaued in the second half of the 20th century. Since population growth does not correlate to more agricultural exports or large-scale irrigation water use, and since only 1.5% of the population are farmers, and since irrigation uses 78% of all water diverted from streams and aquifers, increases in water use associated with population growth are negligible.

5% of Oregon agricultural operations account for 80% of the \$5 billion industry. The other 95% of farmers account for only 20%, or \$1 billion. When making state policy on water use, the IWRS must consider these statistical facts: a very small number of very large agricultural operations not only imperil Oregon's water sources for a 1.5% return on GDP (See the Business Case below in Chapter 3), but they also threaten that vast majority of small farms, which are the leading sector that distributes farm product locally and within the state for a relatively small amount of water use.

Large-scale irrigation uses so much water to benefit others outside the state -- *Virtual Water Exports* -- that no amount of expected in-state population growth will ever negatively impact Oregon's water sources the way export crops do.

On page 9 typo “Federally recognized tribes are recognized as sovereign with control their of their governance, land, and resources.”

On page 11 the IWRS says “Environmental justice is closely linked to equity regarding the fairness of those experiencing negative environmental or health outcomes.” And what is the main source of unfairness? It is a tiny few who are authorized the right to over-pump our streams and aquifers and threaten the public and environmental health, not just for the present, but also for the future.

And a quote from the 100-year Water Vision strongly suggests Oregonians must stop the over-pumping of streams and aquifers and remediate the over-appropriation of water sources. Not addressing these two problems makes all others seem moot.

On page 26 is an extra space typo “The adjudication process is time-consuming , requires...”

On page 27 IWRS says there are “20 administrative river basins.” Aren't there 19 basin in Oregon? Also, it says here “The regulations categorize surface and groundwater based on permitted uses...” Is “categorize” supposed to be “classify”?

On page 36, Heading, “Guiding Principles:”

The sub-heading “Balance” states: “Actions should consider and balance tradeoffs between ecosystem benefits and traditional management of water supplies.” The IWRS should correct for the egregious decades-long imbalance between 1) the over-appropriation of water rights resulting in the over-pumping of our streams and aquifers by large-scale irrigators and 2) the natural environment from where all water originates and communities which suffer in myriad ways by the destruction of Oregon's water sources. The act of calling for “Balance” makes for a good aspiration to point to as political cover for when the state chooses, in fact, not to balance water uses. The IWRS must have concrete, measurable actions that repair the imbalance of the past, and balance water use in the present for the benefit of the future.

Under the sub-heading Conflict Resolution, the IWRS should suggest that the OWRD will develop a process for conflict and dispute resolution, preferably in coordination with the programs at UO and OSU.

The sub-heading Facilitation by the State, which says “the State should provide direction and maintain authority for local planning and implementation,” OWRD should consider the concept of mirroring the land use system DLCDC has, and create one for water use: WRC should work with the LCDC, EQC, governor, and legislators to form political sub-divisions along Oregon's 19 basin boundaries to establish statewide planning goals for water use and quality with which local Basin Districts can coordinate.

The sub-heading Implementation is similar to Facilitation by the State, and perhaps the two could be combined or reference each other.

The sub-heading Interconnection/Integration says that “that many actions (e.g., land-use actions) in some way affect water resources (quality and/or quantity)” is similar to Facilitation by the State, and could be combined or more closely connected (also with Implementation).

The sub-heading Sustainability, which says “Ensure that actions sustain water resources by balancing the needs of Oregon’s environment, economy, and communities,” is similar to Balance, and perhaps the two can be combined or more closely connected.

Part 2: Strategy Actions

Chapter 1 – Funding:

The IWRS says that “Climate change is increasing pressure on our ecosystems and water supplies and heightening awareness about the weaknesses in our water management systems.” Yes, quite true; however, for the past 70+ years, large-scale irrigation has been putting immense pressure on our ecosystems and water supplies. The IWRS should also acknowledge the substantial negative impacts large-scale irrigation has had and continues to have is a great injury to the public health, safety, and welfare and a betrayal of Oregon officials' fiduciary duty to hold water in trust for the public.

2023 Drought Resilience and Water Security Package on pages 40-41 – List in order of largest appropriation to smallest.

Remaining Funding Gaps on page 41, there is an awkward sentence: “Financial incentives continue to be needed to encourage the agricultural sector to or senior water rights holders to dedicate water instream.” The sentence could be re-written as “Senior water rights holders in the agricultural sector need financial incentives to dedicate water instream.”

Perhaps the state policy should pay annual amounts until a fixed amount per acre has been reached and at that point, the water right or the portion that was dedicated in-stream is canceled. This would be akin to the water right holder transferring their water right into oblivion for a fee. In basins where streams are over-appropriated, no new water rights should ever be permitted upon the cancelling of a right. This is the only way to return to a non-over-appropriated basin. This system should be articulated in the IWRS, which could recommend statutory language, if needed.

Action 1B, Fund Water Resources Management at State Agencies says “For day-to-day operations at state agencies, there are many examples of Strategy implementation activities that require funding,” but nowhere is there any call to fund monitoring irrigation water rights to audit their use to ensure water is not wasted on non-beneficial uses. Such an activity is central to (core) water resources management; indeed, it may be the most important facet of water resource management in which the state could and should engage. If OWRD staff believe statutory language is required to ensconce such a water resource management system into law, then this IWRS update could suggest such language. If OWRD staff can call for increased budget appropriations in the IWRS, which are inherently calls for legislation, then they certainly can call for funding new legislative concepts.

Also, there should be a clear and direct call for groundwater research funding for water availability information, such as: water levels in aquifers, studies of groundwater flows, (including transmissivity and storage coefficients), knowledge about excessively declining water levels, what are reasonable permissible total withdrawals, etc. More about this is discussed later on in the IWRS, but a direct call

for specific funds in this section would be helpful.

Sources of Agency Funds fix the awkward sentence that says on page 43 “The Legislatively approved budget for 2023-25 shows...” and change it to “The legislature-approved budget for 2023-25 shows...” Just below is this awkward sentence: “Federal funding sources can help support targeted agency projects, and most recently, provided a much-needed boost to help replace and upgrade water infrastructure.” Perhaps rewrite “Federal funding sources can help support targeted agency projects; most recently, they provided a much-needed boost to help replace and upgrade water infrastructure.”

On all **Action Summary Pages**, include OARs that are pertinent authorities along with the ORSs.

On the **Action Summary Page** for 1B, the authority referred to is the Governor's Budget – how did this compare to the legislature-approved budget the governor signed?

Chapter 2 Partnerships & Planning:

Page 49 IWRS says “Multi-year droughts, floods, and extreme temperatures will continue to affect both water resources and water needs now, and into the future.”

Comment: Too many of the large-scale irrigation needs are highly destructive and pose direct risks to water supplies and others' needs. What happens when a need, such as irrigation, is an issue -- a problem -- a challenge? The IWRS should consider the question of what to do about the intersection of needs and problems. We don't typically see the two as two sides of a coin and such an investigation into the idea has merit.

On page 50 Education & Outreach – IWRS says “Pressures on our water resources, including population shifts and climate change...”

Comment: First, population does not put much pressure on water resources compared to irrigation – not by a long shot; second, irrigation use should not be ignored alongside climate change. As much as some want to call irrigation a need, it is really more of a problem. This sentence should say "Pressures on our water resources by irrigation and climate change..."

On page 56 Provide Career Training for the Next Generation of Water Professionals is the same problem. IWRS says “Challenges posed by climate change, aging infrastructure, and population increases have increased the demand for water professionals.”

Comment: Population increases are not nearly as impactful as the ongoing over-pumping by irrigation, which is eight times as large as all municipal uses and domestic uses combined. Note the comments above that discuss how population growth is negligible regarding increased water use.

On page 62 State and Tribal Partnerships IWRS says “When requested by a tribe, agency directors engage in formal consultation with tribal leaders. These consultations often revolve around cultural and natural resource issues, water needs and water rights, water quality monitoring, or watershed management, protection, and restoration.”

Comment: UNDRIP is not just consultation; it is also free, informed, and prior consent preceding and following consultation. There should be extensive language discussing the process. Please include a

footnote for “Energy Storage and Environmental Justice: A Critical Examination of a Proposed Pumped Hydropower Facility in Goldendale, Washington” (Cantor, et. al., 2023) as part of the IWRS citations. The paper is an excellent survey of the process and issues.

On page 64 in the discussion of the Klamath dam removals – Update with more recent information, discuss the unprecedented nature of the project, and its success so far, and use more direct language -- less passive tense.

On page 65 State Agency Coordination Program – Yes -- call for an update to the OWRD and other agency SACs more deliberately and discuss some of what the content could be, such as more robust guidelines and requirements on comprehensive plans coordinating with the OWRD SAC. Too many localities are out of sync with the OWRD SAC. Comprehensive plans must be required by law to be updated within a reasonable period (every 10 years) and should be in compliance with all statewide planning goals and all agency SACs.

Also on page , IWRS says “Oregon Revised Statute 541.551 requires six state agencies to develop and adopt rules for best practices for community engagement.”

Comment: Now that a draft is out and been presented to the public, consider a longer description of the plans and proposed rule-making.

Under Action 3B IWRS says “agency actions are compatible with acknowledged city and county comprehensive plans and land use regulations.”

Comment: This logic is backward – it's not how SACs work. The localities must bring their comprehensive plans up to the standards of the statewide planning goals, and the various agency SACs, which many cities/ counties have not done. The state of Oregon preempts its political subdivisions, such as all the counties and cities, and the political subdivisions, for the most part, must write and update their comprehensive plans to coordinate with agency SACs and the statewide planning goals. While land use is a local power the state gives to its political subdivisions, the state has also retained substantial power to direct coordination of local land use plans with the state.

On page 69 Water Planning – some thoughts:

Plan has been called a "four-letter word" because the concept implies change, and change means the current unsustainable and destructive *status quo* would evolve into a system that ensures the public health, safety, and welfare of the present and future. The power politics entrenched over the past 70 years by the largest water users are at risk by planning.

Two typos here: “The process starts by building a collaborative and inclusive process with diverse water interests. Planning steps include characterizing water resources for the area and examining current and future instream and out-of-stream water needs Ultimately, a place-based plan...”

Replace “with” with “among” and add a period after “needs.”

On page 69 IWRS says in the blue box “Includes a balanced representation of water interests.”

Comment:

Water interests are not just those who use the water (that belongs to the public); people's interests reach far beyond to the greater public throughout the state and, most importantly, to the future public.

Oregon's current water policies treat the present members of the public as Senior water right holders, and the future public as junior water right holders who are being foreclosed upon and regulated off.

Oregon water policies should consider whose interests are represented and whose are alienated -- whose are disregarded by systemic and historic inequity, and what "water interests" means in our society more broadly. Not including future generations is wrong inasmuch as allowing those who mine groundwater and dewater streams is wrong.

On page 70 is the reference to "out-of-stream interests."

Comment:

The use of these terms -- in-stream/ out-of-stream -- creates and perpetuates partisanship, even if that is not the intention of the people using these terms. This inherent partisanship works against the well-intentioned efforts at community place-based planning.

The so-called human public interests "in and out" of stream are much more than the facile description here, where municipal and domestic users are labeled as "out-of-stream interests." Relative to their minuscule volume of water use compared to irrigation use, many domestic water users care for much larger volumes of water to be conserved in aquifers and left in streams for the present and for the future.

Their tiny domestic water use -- 3% of all diverted water -- is neither a threat to aquifers and streams, nor is it the way they should be labeled when they, as resident members of the public, may care a great deal for water left in the ground and in the stream. To say they eat their share of irrigation when they get hungry three times per day is a fallacy since only 20% of Oregon's agricultural products remain in the state.

The segregation of members of the public into units and labels makes sense only when the overwhelming and substantial water use they engage in is both responsible for injury/ damage and is the vast majority of all water diverted for use. Irrigators use 78% of all out-of-stream and out-of-aquifer water, and they do so for commercial profit, which is a significant and unmistakable out-of-stream/ out-of-aquifer interest. As a class, because they pump so much water out of the ecosystem, they can rightly be said to be out-of-stream interests. The same cannot be said to the same degree for all other interests because such terminology inequitably misrepresents who they are, what they do for a living, and what they care about. It's clear what irrigators care about: commercial out-of-stream water use on a massive scale. Decades of their lobbying and political pressure have made an indelible mark on the laws and ecosystem. Not so for other water users who have seen their water get exported out of the state in the form of products they never consume.

Since irrigation water use dwarfs all other water uses combined by a factor of four, there is no sense in labeling other smaller water use types into the segregated partisanship of instream vs. out-of stream; in-ground vs. out-of-ground. Of the four million domestic and municipal water users, many may wish to not be forced into the out-of-stream partisan camp, especially since their water use is so insignificant and wish to see the water that belongs to them in the streams and in the ground.

On page 70 Independent Evaluation and Regional Water Planning and Management Workgroup IWRS says “to document stakeholders’ perspectives regarding their experiences with the program...”

Comment:

There is a problem with the term "stakeholder" that can no longer be overlooked: the term necessarily excludes others who are not perceived, invited or allowed to be "stakeholders;" however, many members of the public would like to hold the stake -- especially those who are not here yet, people from the future whose lives are at stake. The exclusion of those who are not in the class as stakeholders is not acceptable and contrasts sharply with efforts to increase the diversity, equity, and inclusion of people in situations that impact their lives.

Too often and for too long, there has been a cynical use of the term *stakeholder* by officials and others in positions of management to intentionally exclude others they don't want around or included. Who determines if someone is a stakeholder or not? How often is that determination unjust and inequitable?

We urge you to work towards another perspective and set of ideals that can lead to actions which are more inclusive than the regressive notion of "stakeholder." Perhaps the the Regional Water Planning and Management Workgroup is a model for a solution.

Many members of the public care about water use in regions outside of where they pay rent/ mortgage, and where they go to work. Many have family and friends in various regions, they visit those regions, or once may have lived there themselves. Some may wish to hunt, hike, camp, fish, or practice cultural traditions of their ancestors. Some may even have come to know about regions they have never visited before through means of literature, education, and outreach from residents of those regions who ask for help and support (a common form of connection).

While Water League is from the Illinois Valley in Southwest Oregon, and all those who *Get in League with Water* are from all over the state and the West, what we all have in common is care and concern for regions near and far. There must be a resolution to the purpose of place-based planning that exalts community rights and preserves cultural heritage but also recognizes that many people have interests far and wide for many reasons.

On page 71 IWRS says “In order to succeed, place-based planning must be championed by local leaders, coordinated with state agencies, and supported by instream and out-of-stream interests across the state.”

Comment:

This is excellent and should be elaborated upon.

On page 75 IWRS says “The statewide land use program and its implementation by cities and counties is an important framework for integrating water resource issues with land use and development decisions.”

Comment: There should be a statewide water use program similar to the land use program. Right now, water use is not planned the way land is, and it should have its own program closely enmeshed with the DLCDC land use program.

On page 77 Periodic Review – The comprehensive plans should be made mandatory again. So many are out of date and out of sync with statewide planning goals and agency SACs, that they fail to achieve the vision of ensuring that each locality, in its own way and style, maintains standards the state has set. This is a legal issue of preemption, and the political subdivisions have preempted state authority.

On page 77 Plan for Population Changes in Oregon IWRS says “Recent population projections indicate a slowing of statewide growth, compared with what Oregon has experienced in recent years.”

Comment: This is correct; notably, in the political flurry to pass SB 1537, many false statements were made regarding the various conflicting population projections. See [Christopher Hall's testimony for SB 1537](#) on the matter of population speculation and housing.

On page 78 Oregon’s Climate Change Adaptation Framework IWRS says “The Framework addresses why we must adapt...”

Comment:

The problem with the term "adapt" is that it usually refers to accepting the consequences of climate change and learning to live with the negative impacts as opposed to taking action to reduce or reverse the forces causing climate change.

Decarbonizing our society's structure and economy while also drawing down carbon from the atmosphere and water is critically important and must not become subsumed by adaptation strategies. Surely, stopping climate change will not ever be more than a partial success (if there is any at all), and that a simultaneous need for adaptation is necessary; however, focusing on the term "adaptation" is unreasonable.

Such a focus on adaptation gives relief to the necessary requirement to stop the problems worsening climate change -- the reduction in water diversions for frivolous agriculture that is not in the greater public interest must stop. Water and land must not be separated with such impunity and the regulations on water diversions must be strengthened to ensure that land remains saturated in water. Desiccated lands cannot capture and hold carbon.

Marshes, forests, and grasslands must not be drained and desiccated by a failure of Oregon officials to regulate water use for only the highest and best purposes.

On page 84 IWRS says “Because droughts are a slow-moving disaster where impacts develop over time, persisting even after the rain and snow returns, building drought resiliency in Oregon requires a portfolio of water management methods that are put into place long before the next drought arrives.”

Comment:

Excellent summary of the problem.

During droughts, minimum stream flows must kick in to protect watersheds from permanent damage. These minimum stream flows cannot be subject to priorities and must be CFS measurements only. Due to the successive negative impacts that occur, one after the other, the desiccation of watersheds cannot be allowed to happen in favor of growing forage crops and export crops.

On page 85 Defining Drought

Comment:

Rank the types of drought from most to least important in order to set policy more effectively for the long-term public health, safety, and welfare.

The human built environment relies entirely on the natural environment for survival. Therefore, the health of the natural environment must come first above all. Addressing negative impacts of Meteorological Drought followed by Hydrological and ecological droughts will protect the built environment in the long term. If we reverse priorities and desiccate the ecosystem in favor of irrigated agriculture, and to a lesser degree (less by a factor of eight) prohibiting lawns, frivolous municipal water displays and other uses such as driveway rinsing, car washing, or other low-need non-potable water uses, then we are harming the public health, safety, and welfare in the present and future.

In order to artificially prevent Agricultural Drought, the Oregon officials impose hydrological and ecological drought. When in service to animal forage crops and export crops, such acts should be outlawed.

As described, the impacts of drought are insidious and pernicious; they lead to long-term destruction that in some cases is irreversible. While a multi-year drought may come and go, its after effects linger in the future, some permanently.

Socioeconomic drought must be prevented to the greatest extent possible, which includes shutting off as many non-potable water uses, especially irrigation of animal forage crops and export crops that do not feed Oregonians. Agricultural drought is an ongoing and serious problem that state officials erroneously resolve at the expense of the hydrological and ecological drought. Every year when irrigators dewater streams or reduce stream flows below a minimum for the flora and fauna to survive, the state has chosen to solve agricultural drought over hydrological and ecological drought. Agricultural drought is a fact just as drought is a fact in the eastern Oregon desert.

On page 85 Impacts of Drought

Comment:

It is notable that irrigation has a substantial impact on the top three items – Fisheries, Drinking/ Potable Water, and Recreation. It's not just climate change that harms these phenomena, it's over-pumping streams and aquifers. Oregon has reached the point when and where irrigation is a bigger problem than it is a need in many situations.

On page 91 Action 6A Example Actions

Comment: Add Minimum Stream flows Regime.

To fight hydrological and ecological drought institute minimum stream flows since the in-stream water rights system utterly fails during the hot summer months when it is needed the most because nearly all in-stream water rights are new junior rights. The act of transforming 500 minimum stream flows to junior water rights took meaningful and effective minimum stream flows and turn them into worthless

and useless junior in-stream rights.

End the in-stream water right system for all uses where minimum stream flows during the summer are needed and keep in-stream leases for irrigators who wish to dedicate unused irrigation water to the stream to avoid losing their water rights. Also, allow irrigators to dedicate their groundwater rights in-ground to prevent cancellation.

Chapter 3 Data & Analysis:

On page 95 IWRS says “Water is one of our most precious natural resources.”

Comment:

Water is our most important asset we can lose. We may foul our air, mow down our forests, mine the very earth out from under our feet, and decapitate our mountaintops, but still survive in a hellscape. We destroy our water, we utterly destroy ourselves. We are water; water animates us; without water, we are jerky as is every other living creature.

Also, IWRS uses the term “resource.”

Comment:

Change to “Sources” -- drop the “re.” Use the term "Water sources."

When I hear you say resource...I feel like you are treating me like a thing to be used, extracted and exploited.

We must move past the era of reifying entities and evolve our relationship with the world around us. We must stop "othering" Nature and adopt Biospheric Values that acknowledge our bodies as the closest to water we will ever get; that what we do to water we do to ourselves and each other. The more we reify water, the more we desiccate our lives by not caring sufficiently for how we use water. Water scarcity is a result of scaring away water.

Ignoring the disastrous effects of diverting too much water is made possible by calling it a resource.

Please consider renaming the water use agency the Oregon Water Sources Department.

On page 98 IWRS says “Oregon needs to understand the quantity and quality of available water to meet instream and out-of-stream waterneeds in a changing climate.”

Comment:

Please reword the sentence as: “Oregon needs to understand the quantity and quality of available water to serve the public interest -- the greater public health, welfare, and safety. The analyses are crucial to

empowering Oregon officials to conduct their fiduciary duty to hold water in trust as required by the Public Trust Doctrine.”

On page 101 Groundwater – Surface Water Interaction IWRS says “Groundwater is connected to surface water, and because Oregon water law recognizes this important connection...”

Comment: What is the alternative? Not to recognize facts, reality? In how many other instances does Oregon choose to recognize reality or choose to deny reality?

Irrigation causes significant negative impacts to the ecosystem and in too many cases, harms the public health, safety, and welfare. Given that vast amounts of water use by irrigators, the 1.5% return on GDP is not worth so much destruction and harm, both to the present and future.

Does Oregon choose to ignore these facts -- this reality? If so, does Oregon make a political decision based on the decades-long influence pressure from powerful lobbies. Does Oregon gaslight the public and declare that all political realities matter and that some are equal to or greater than real realities?

Also on page 101 IWRS says “new groundwater withdrawals must now be mitigated with a similar amount of water placed instream, to offset the impact to surface water flows.”

Comment:

The state must allow/ empower cities to practice eminent domain of irrigation water rights that are located closest to the city's boundaries so that cities can buy those water rights when they need them.

This forceful appropriation of those irrigation water rights would follow the laws all condemnations do, and pay fair market price or better for those water rights. If necessary, if such a condemnation sale were to put the irrigator out of business, then the city should be legally required to also buy out all the lands to which the irrigation water rights were appurtenant so the irrigator has the choice of buying a new property or starting a new business. Also include buying out the irrigator's business as well – pay for the water right, the land, and the business as needed. Cities should sell bonds if necessary to raise the money.

As a condition of the condemnation, the state should require all new water transfers as such to be appurtenant only to urban in-fill and not contribute to the expansion of Urban Growth Boundaries.

On page 102 Monitor and Evaluate Surface Water Quality IWRS says “...support multiple beneficial uses, including protection of public health...”

Comment:

Protection of public health is not a beneficial use. Beneficial uses of water may not impair or be a detriment to the public health, safety, and welfare is quite astonishing. This is a categorization error that must be fixed. Throughout Chapter 537, *Appropriation of Water Generally*, there are dozens of statutes that require lawful action to ensure that water uses do not impair or be a detriment to the public health, safety, and welfare. Water uses that do harm are not beneficial uses of water.

On page 103 IWRS says “in Oregon under the Endangered Species Act. To date, none of them have been delisted.”

Comment:

How much of this failure to improve conditions for fish is the result of over-pumping streams and groundwater to grow animal forage crops and crop exports that don't feed Oregonians? It's not just climate change causing the problem.

On page 104 IWRS says “Ecosystem services provide clean air, clean and abundant water, fish and wildlife habitat and other values that are generally considered public goods.”

Comment:

In all instance throughout the IWRS where the term “Ecosystem Services” is used, please change to say: "The ecosystem provides..." To characterize the ecosystem as providing a service is disrespectful and denigrating it as a servant to the human class/ population.

Also, not "generally" considered. The ecosystem is the source of the most fundamental building blocks of the world we live in and it is only in the destruction of the ecosystem that we wonder where more blocks will come from. The notion of holding biospheric values would never align with such a posture.

Such *conventional wisdom* terminology as "Ecosystem Services" is patronizing. It assumes a power relationship that is no longer tolerable, whereby humans dominate over nature and force it to provide services. The entirety of "man's domination over Mother Nature" lives and breathes in this regressive concept of “Ecosystem Services.” The rot of human society emanates from this core ideology that passes quite lightly as conventional wisdom.

The phrase "Ecosystem services are the benefits that nature provides" represents a 19th century anthropocentric world view that shows little regard for the intrinsic value of nature to which humans belong. The phrase harkens back to the British paternalism that saw everything it colonized around the world as some form of resource to consume, exploit, or extract -- be it natural, animal, or human resource.

The IWRS cannot be let to stand for another eight years with such regressive aspirations as its guide.

On page 106 Well Location Data Gaps IWRS says “An estimated 230,000 such wells exist today, with several thousand more drilled each year.”

Comment:

Exempt domestic wells are only 3% of all pumped groundwater. IWRS should put this quarter-million number of wells in the right and proper context; otherwise, the numbers misrepresent the truth of such water use, and as such are misleading. Yes, the data gaps must be closed, but Oregon should first and foremost be metering every single one of the 7,000 irrigation wells that use 90% of all the groundwater pumped each year.

On page 110 IWRS refers to Oregon’s Climate Change Adaptation Framework and to the Oregon Climate Action Commission

Comment:

The Oregon Climate Action Commission appears to relate to decarbonization and drawdown of carbon from the atmosphere, and the Oregon Climate Change Adaptation Framework focuses on adaption – are they working together. Are they partisan or cooperative? Though it is unspeakable in polite company, it's known that Republicans favor adaptation and Democrats favor decarbonization/drawdown. How do these two groups work?

On page 114 Action 7D IWRS says “Investigate potential shifts in the hydrograph, fish distribution/life history timing and impacts to agriculture and irrigation seasons.”

Comment:

This is backwards -- the action should read:

"Investigate potential shifts in the hydrograph, agriculture and irrigation seasons and impacts to fish distribution/life history timing.."

Also on this page IWRS says “Look for equity impacts of climate change (i.e., climate justice)”

Comment:

And look for equity impacts of over-pumping by irrigators (i.e., water use justice). Irrigation is a direct damaging impact on rural communities, proximate cities, and watersheds with anadromous fish and other threatened species.

On Page 117 8B – Determine the Flows Needed to Support Instream Needs (also see 10C pg. 140)

The junior status of in-stream water rights is contrary to the notion of minimum stream flows when the streams need water the most. During times when the stream is flowing well, there is no reason for the in-stream right to protect the minimum stream flows.

The quintessential example of a bad policy process is how special interests ply state officials to call the ecosystem “a water user” despite the fact all water originates from the ecosystem. Then they lambaste the environment for using too much water and seek to appear balanced by supporting the hoax called in-stream water rights, which have little authority under the inequitable and archaic system of prior appropriation – almost all in-stream water rights are junior so they are useless in the hot summer months when minimum stream flows are needed the most.

Oregon must reverse the damage of converting over 500 minimum stream flows to junior in-stream water rights. Minimum stream flows must be a statutory limit for each reach of stream in Oregon not to be surpassed. Minimum stream flows are the floor; a dry gravel bed cannot be the floor. All in-stream water rights must exist outside the destructive priority system and form the basis of minimum stream flows. How does a watermaster know when there is no more water left in the stream to divert? When the stream has hit its statutory limit for minimum flow.

In-stream leases are great where irrigators keep their water rights from being cancelled through non-use by transferring them to in-stream. The program must be expanded to in-ground leasing for groundwater

rights.

On page 124 Out-of-stream water uses – needs IWRS says: “Irrigated agriculture contributes significantly to the economy, food supply, and to local communities.”

Comment:

No, it does not – this is a falsehood. The WRC called for the publication titled *The Business Case for Investing in Water in Oregon* so that the case for water-based investment can help inform the IWRS update. Most notably, the report shows that irrigated agriculture uses 78% of all water diversions but returns only 1.5% of the state's GDP; whereas, all other water-dependent industry businesses use only 6% of water diversions, yet return 48% of the state's GDP.

The IWRS states that “Oregon agriculture directly and indirectly contributes 686,518 jobs, \$29.71 billion in wages, \$12.12 billion in taxes, and \$2.85 billion in exports to the state.” Double counting industries two and three degrees of separation is a fallacy used to overstate the very low-performing economic value of irrigation.

The Business Case lays out very clearly what a low-return investment irrigation is for Oregonians, insofar as economic value is concerned. This metric must be viewed in light of how much damage has been done by the over-appropriation of water by the state and over-pumping done by large-scale irrigators. In too many cases, large-scale irrigation over-pumping is just not worth the destruction to Oregon's water sources. Irrigation proponents use a common sleight-of-hand to pull in economic activity from other industries that are two and three degrees of separation away to artificially inflate the value of large-scale irrigation. They use this fallacy to overstate the infinitesimal economic impact produced by large-scale irrigators. This legerdemain double and triple counts that activity, which has been already counted once elsewhere in the economy. If the other water-dependent industry businesses that use only 6% of water diversions but return 48% of the state's GDP were to be extrapolated in a similar fashion, the result would be substantially over 100%, which on its face, is an absurdity.

The Business Case does say on page 198 that there are non-economic reasons why irrigation is valuable; ironically, the publication relies on the following logic for supporting the argument in favor of large-scale irrigation water use:

Irrigated agriculture is also deeply ingrained in Oregon’s spirit and sense of place and farmers and ranchers play an important role in managing both land and water across the landscape.

The authors cannot make the business case; rather, they must make a cultural heritage case for draining our aquifers, dewatering our streams, and foreclosing upon our water future. While large-scale irrigators may fashion themselves as playing “an important role in managing both land and water across the landscape,” the reality is quite different from this false Norman Rockwell portraiture. The IWRS cannot go along with the drama, which suggests that Oregonians must subsidize the destruction of their water sources to protect large-scale irrigators' way of life, especially when there are so few using so much water for so little financial return.

Action 9B --Regularly Update Out-of-Stream Water Demand Forecasts

The human demand for water diversions from groundwater and streams cannot be met as water scarcity

increases. New water allocations are becoming limited and water curtailments are underway in regions where there is not enough water to pump from aquifers.

If food is a problem, then Oregon irrigators could grow food humans need to eat with the precious little water available. Wasting water on forage crops and export crops must come to an end as water supplies go down and demand goes up. Regions that have more water than Oregon may be the best places for agriculture, and in that case, allocating such resources nation-wide must occur, and Oregon should press for such policy. There cannot be an assumption that demand trumps supply – it's just not physically possible.

Chapter 4 Stewardship:

Overall Comment:

IWRS can't discuss stewardship without a full expression of the Public Trust Doctrine, which has been in place for over 2,000 years in the West and since time immemorial among Indigenous people.

On page 131 IWRS says “All Oregonians serve as stewards of water as a public resource—managing water simultaneously for economic development, human health and safety, and for environmental protection.”

Comment:

Excellent Chapter on Stewardship.

Reorder the water management list to be "human health and safety, environmental protection, and economic development."

Economic development is in service to human health and safety, and environmental protection is the single most important act to ensure and secure our future. Wasting the environment today to aggrandize ourselves economically in the present is to put short term economic results ahead of long term stability.

This chapter on stewardship goes a long way acknowledging this important value. Excellent Work.

We all know the study of the kindergarten teacher who gives each student a marshmallow and says if they don't eat the first right away then they can get two. We cannot be the kid who seeks immediate self-centered gratification at the risk of our future selves.

Humans take the ecology and turn it into the economy, hammer and tong. We must not let the most selfish and short-sighted among us to rule over our society with their regressive values to treat the entire ecosystem as one big bank full of wealth just waiting to be exploited. Our future requires those of us in the present who care more for others to stand up for them -- others in the future.

The sad truth is that the entire ecosystem is subject to the "Tragedy of the Commons" effect, and elected and appointed officials must not let others destroy the ecosystem for their own temporary benefit. This includes not letting the private sector make an end run around the public sector by calling for water markets.

The law has said we can generally be free to do what we want so long as we do not harm others -- this is not just humans in the present, it is also humans in the future and it is all the flora and fauna in the present and the future as well.

We must get our priorities straight -- if not us then who?

Also on page 131 IWRS says “Oregon has an opportunity to integrate...”

Comment:

Change to fiduciary duty among officials and civic duty among the citizenry.

On page 134 IWRS says “Responsibility for stewarding Oregon’s ecosystems, including protection and restoration, falls to all Oregonians across a broad range of local, state, federal, and tribal agencies, as well as on private landowners and local organizations.”

Comment:

Discuss and distinguish between the fiduciary duty officials have and the civic duty the citizenry has. Discuss stewardship in the context of the Public Trust Doctrine.

To ignore the Public Trust Doctrine is a political act. Either the elected and appointed officials can use it to govern or the people will. We request the IWRS use the Public Trust Doctrine.

On page 134 “Ecosystem Services” IWRS says “Healthy ecosystems provide a wide variety of benefits and services to our communities.”

Comment:

This is a regressive way to view the ecosystem. The ecosystem is not some unpaid servant like a slave to work for humans -- its a form of institutional arrogance so that humans can point to that "nature over there" and then go exploit it.

This is the ideology that has caused ecological overreach and cause so much irreparable harm. We must have some humility before nature or we will continue to reap what we sow: destruction.

We must change our relationship with the ecosystem to see that we are part of it, and the more we "use" it, the more we use and abuse ourselves. We are the closest to nature we will ever get -- how does OWRD think this is going to work out if we keep thinking like 19th century colonizers that nature is out there for the taking to aggrandize ourselves?

On page 134 IWRS says “By degrading or neglecting the natural functions of ecosystems, we risk jeopardizing our own quality of life as well as the fish and wildlife that depend on these systems.”

Comment:

Yes -- Excellent point and examples! But...how we think and the terms we use to "other" nature, the ecosystem matter. The ecosystem, is not a servant!

On page 135 IWRS says “In southern Oregon, the Klamath National Wildlife Refuges’ shallow marshes, open water, and grassy uplands support one of the most biologically productive refuges within the Pacific Flyway migration route. Approximately 80 percent of the flyway's migrating waterfowl pass through the Klamath Basin on both spring and fall migrations.”

IWRS also says “Oregon must protect our remaining wetlands through rigorous permitting (e.g., Removal-Fill) and conservation on public and private lands.

Comment:

OWRD cannot approve water use for the proposed dump on the Klamath Marsh; nor can it stand by while the Aquatic Use that has rights that are time immemorial to be put at risk. The dump will severely disrupt the pacific flyway by confusing millions of birds about whether or not they've arrived at Shangri La. The smells, food source, and mayhem to migrations will be a serious permanent destruction to the marsh Aquatic Use.

Birds will be eating poisons, plastics, stopping their migrations, the dump will sit like a giant tea bag in the marsh vicinity, and will wreak havoc on the sensitive ecosystem. Importing California's waste to this most important wet node of the pacific flyway is unthinkable and OWRD cannot be party to permitting it.

On page 136 Forests IWRS describes Forests

Comment:

Excellent description -- please add information about how forests are giant sponges that soak up water from the rain/ snow season and slow down runoff to aid infiltration to the aquifers. The sponge effect is a critically important aspect of forests.

Trees are standing columns of water. They store massive amounts of water. Clear cuts desertify the watersheds and cause runoff to flood to the sea, taking with it top soil.

Where there are trees, there are summer clouds.

On page 139 Historic Klamath Dam Removal Effort IWRS says “a historic dam removal project in Oregon and California is underway.”

Comment:

Update this in late 2024 to say the dam removals are complete, they went as planned and are in the replanting river restoration phase. Seek a quote from the Klamath River Renewal Corporation.

On page 140 – Scenic Waterways Designation

Should have a much more in-depth discussion of the program – why it was a ballot initiative instead of legislative action, what the public wanted and wants, what the program does, what it takes to expand it, and locations where it should or could be expanded.

On page 140 Develop Additional Instream Protections IWRS says “In many areas of Oregon, streamflows are very low or even non-existent during late summer months, largely due to anthropogenic causes. Low streamflow conditions are further exacerbated by periods of intensive water use or drought.”

Comment:

Finally -- a statement about anthropogenic effects...which is code for the largest water-pumping sector by a factor of eight. IWRS should be more specific and just say it: over-pumping by irrigators who were approved by the state to dewater streams and drain aquifers.

On page 141 Allocation of Conserved Water IWRS says “The Allocation of Conserved Water Program at the Water Resources Department allows a water user who conserves water to use a portion of the conserved water on additional lands...”

Comment:

Conservation is necessary, especially when irrigation efficiencies create more demand for water. -- Jevon's Paradox. The way this plays out in the Harney Basin is a good example:

Every irrigator in the Harney Basin is mining groundwater, and conservation efforts are not so much to preserve water for posterity and the state as a whole as it is to extend the length of time water right holders can irrigate alfalfa before they fully drain the aquifer.

This is also the central problem with the Conserved Water program, whereby increased efficiencies expand water use on other lands, thereby not conserving water. This is a similar effect as described above going on in Harney County. The 25% allotment to in-stream in the Conserved Water program is a token effort; irrigators should want to conserve water use through efficiency to protect water. sources and future of society and the environment.

On page 143 Develop Additional Groundwater Protections IWRS says “...more than a third of all streams and rivers depend on groundwater, and about two-thirds of all lakes and ponds do as well.”

Comment:

In-ground/ out-of-ground terminology must be added to the concept of in-stream/ out-of-stream because in-ground water matters to the degree it saturates the land and provides the. basis of life for the ecosystem and the human built environment.

On page 143 IWRS says “public welfare, safety, and health.”

Comment:

The phrase should be reversed in order to conform with statutory language in ORS 537 – “public health, safety, and welfare.”

On page 143 – 10E Voluntary Agreements – Also page 172 (12E)

ORS 537.745 has never worked because irrigators have never been able to organize among themselves to voluntarily reduce their water use. The Harney Basin is the quintessential example of the term "The Tragedy of the Commons." Every irrigator in the Harney Basin is mining groundwater, and conservation efforts are not so much to preserve water for posterity and the state as a whole as it is to extend the length of time water right holders can irrigate alfalfa before they fully drain the aquifer. Water use must be beneficial to the entire public, not just the water user.

The privatization of public sector duties has been fraught with many failures over the past 70 years because some public sector activities are not well-suited to the private sector, and, likely, the Voluntary Agreements under ORS 537.745 are not feasible. The Voluntary Agreement's most effective result will be stalling the WRC's approval process, which could impose Corrective Control Orders. Such an effect runs counter to the legislative intent of HB 2192, which sought to remove stalling tactics by affected water users and their lobbyists by bringing the CGWA statutes into line with the Administrative Procedures Act (APA). OWRD Director, Bill Young, and others are clear on the matter, which became law.

If water users were serious about the content of their Voluntary Agreements, then I would expect that they would first offer those strategies and tactics as rules in the DIV 512 rule-making process. Perhaps, that is the kind of negotiation that the Sub-Basin proposal envisions: numerous non-priority areas offering up to Crane the rights to their water by voluntary means in the form of what can only be described as water right transfers. Voluntary Agreements would mostly amount to private-sector water right transfers, whereby one water user, for whatever reason (e.g.: monetary compensation), agrees to give up their water for another to use. The language of ORS 537.745 may seem innocuous on the surface, but once one looks beyond the facile interpretation of the wording, details become apparent that the statute may conflict with other statutes that require water right transfers to be authorized by the state through the water right application process in ORS 540.520 Application for change of use, place of use or point of diversion. Horse-trading water rights as part of Voluntary Agreements in the form of a shell game to avoid the statutory imposition of Corrective Control Orders by the WRC cannot be allowed because it is illegal.

This brings up the question of whether ORS 537.745 allows a water right holder to enter into a Voluntary Agreement with one's self. The scenario is that a water right holder has multiple water rights either in proximity to each other or within the same basin, and one or more senior water rights have run dry and are worthless. The water right holder seeks to enter into a Voluntary Agreement with themself to...ready for it...forbear water use on their dried up senior water right and let their other junior water right(s) continue running. That such a scheme would be permitted while the WRC has imposed Corrective Control Provisions on the basin, which regulates off the junior water right holders first, is incomprehensible. In this scenario, an irrigator located in a CGWA where Corrective Control Provisions are in effect, or are likely to go into effect, agrees with themself to horse-trade their dead senior water right with their live junior water right, effectively transferring the seniority to the junior water right. Not only is this scheme a brazen loophole/ workaround of the WRC's imposition of Corrective Control provisions (no water is regulated off since the senior water right wasn't pumping anyway), but it is also an unlawful misappropriation of water since the so-called Voluntary Agreement is a water right transfer without a formal application to transfer the water.

The OWRD must manage the water in the basin (every basin) to ensure that we do not return to the Wild West. It's problematic enough that too many of Oregon's water use policies still contain vestiges of the Wild West, not for the private sector to game the public sector and worsen those effects. While I am very much in favor of water use Place-Based Planning, that effort must be set in the context of

statewide planning goals. There must be equitable conformity across the state, which the WRC and OWRD must oversee. (Water League's call for Basin Districts details this concept.) The Voluntary Agreements, as envisioned so far, appear to be a workaround to the rule of law.

If there were any credible scenarios, and I'm not sure there are any, at a minimum, Voluntary Agreements would have to be state-enforced binding legal contracts with provisions for annual audits of metered water use so all parties have shared expectations and legal responsibilities to each other and the state. There would have to be contractual accountability to each other (among water users) and to the WRC who would oversee the contracts and those who sign onto them. There would have to be severe penalties for breaking the contracts, which would include other parties to the contracts suing each other for breach of contract (tort) followed by the WRC imposing its civil penalties in ORS 537.992 with statutory increases in those penalties and fines specific to a breach of ORS 537.745.

The effect of the Voluntary Agreements would have to result in water use reductions equal to or in excess of the water use reductions imposed by Corrective Control Orders approved by the WRC. Why would Voluntary Agreements, crafted by irrigators who proclaim they don't understand the hydrology or science presented in DIV 512 RAC meetings, be preferable to the water management and governance offered by the professionals at the OWRD and WRC? If the outcomes were to be the same, the push by proponents for Voluntary Agreements makes no sense. The purpose, however, is likely that proponents of Voluntary Agreements hope for an easier and softer resolution in their favor that would result in greater withdrawals than permitted in the Permissible Total Withdrawals listed in the DIV 512 rules. Since such hopeful thinking is statutorily impossible, the push for Voluntary Agreements is implausible so long as the law remains in effect.

On page 151 Source Water Assessments for Public Water Systems

Comment:

Must make these assessments and plans mandatory just like comprehensive plans are mandatory.

Mention the 2023 law passed to make grants to cities to buy land to protect their watersheds -- and change that law to require source water assessments and drinking water plans.

On page 165 Improve Water-Use Efficiency and Water Conservation IWRS says “Water conservation, as defined in state law, is a means of eliminating waste or otherwise improving the efficiency of water use...”

Comment:

Conservation is necessary, especially when irrigation efficiencies create more demand for water – this is Jevon's Paradox. The way this plays out in the Harney Basin is a good example:

Every irrigator in the Harney Basin is mining groundwater, and conservation efforts are not so much to preserve water for posterity and the state as a whole as it is to extend the length of time water right holders can irrigate alfalfa before they fully drain the aquifer.

This is also the central problem with the Conserved Water program, whereby increased efficiencies expand water use on other lands, thereby not conserving water. This is a similar effect as described above going on in Harney County. The 25% allotment to in-stream in the Conserved Water program is

a token effort; irrigators should want to conserve water use through efficiency to protect water. sources and future of society and the environment.

On page 165 Water Conservation within the Home and Cities

Comment:

We will never wring enough water out of the cities and suburbs to conserve our way out of aridification.

On page 166 Water Conservation within Agriculture IWRS says “The potential for reduced return flow or injury to other water users are also factors to consider when designing a water conservation project. Piping, lining, or other water efficiencies can greatly reduce the quantity and rate of return flows that traditionally make their way back to the stream or groundwater reservoir.”

Comment:

Oregon should change the law and not permit increased irrigation in expanded Places of Use with conserved water. Conservation must go into the ecosystem, not more arid land.

To say the irrigators will refuse to increase efficiencies unless they get to irrigate more land suggests that irrigators won't use less water to benefit the greater public interest; by extension, this demonstrates how irrigators' special interests are in tension with the public interest. This tension highlights the non-beneficial use of water as regards the public interest.

The state should make one-time payments to reimburse the costs of new equipment to make irrigation more efficient and cancel the rest of the irrigation water right. In basins that are over-appropriated, the canceled water should forever be contributed to restore minimum stream flows.

The state should use its power of eminent domain, and condemn wasteful portions of water rights that can be saved through efficiencies and pay the irrigators for that amount in the same way land is condemned through eminent domain for the greater public good/ interest. The payments should be strong incentives.

Eminent domain is used for large public infrastructure, of which minimum stream flows in our rivers is just such infrastructure. Since we all agree water is hydrologically connected throughout basins, and that many basins are drained by major navigable rivers, the connected groundwater and tributaries to those big rivers are important natural environmental infrastructure that the public has a substantial interest in using and preserving. The Public Trust Doctrine will be used to argue for the state to condemn wasteful portions of water rights until the problem of over-appropriation has been resolved and minimum stream flows have been restored.

If the state can use eminent domain for dams, it can surely use eminent domain for minimum stream flows. A stream is just a gravel road without water, and the public interest and good is in having streams be streams, not roads. If storing water is worthy of using condemnation, then so is restoring minimum stream flows.

On page 172 – 12E Market-based approaches

Comment:

Water markets are a system of privatizing of water away from the public sector -- it's a form of enclosure, as in the enclosure of the commons. Land and water are one entity, and it took a few hundred years for the landowners to figure out how to possess water instead of just having access to its use. Privatization is one among other frontiers in the effort to privatize what remains public that began in earnest 40+ years ago.

As with all privatization efforts, the public relations narrative is a sight to behold and exemplifies some of the very best storytelling coming out of the lobbies on behalf of those who seek to maintain control of water as it becomes an increasingly "scarce" entity (most will begin calling water a commodity). Aridification is driving up the value of water to be "worthy" of investment and possessory ownership. With water markets, we hear about how "scarce" water will flow to the highest and best uses and will only be used for what's most important (e.g.: most profitable to the owner/ holder). This is where the current debate is, and the subject of Water League's paper "The Beneficial Use of Water for Posterity." We've had policies shaped around the 'beneficial use of water for profit' and these policies are largely responsible for shaping the water problems we have today that threaten tomorrow.

For decades, water laws have required that water use be for the highest economic purpose, and in the hands of our state agencies that Scrooge-like ideology has been to varying degrees muted. Under the water markets regime, this rapacious ideology will be as if on steroids. Unless they are willing to pay a premium, rural and urban frontline communities are not high up on the water distribution list because water will flow to whoever places the highest bids. Water scarcity strikes with flora and fauna (salmon) first, then it works its way up the class structure, starting with the poor. The effort to codify water markets into law is to ensconce water inequity into our social structure. This is the essence of how water markets are envisioned: ongoing water right transfers away from their place of use to the highest-paying locations.

In water law, water rights are usufructuary -- people who are privileged to secure them have a right to use water that flows past them in streams and underground in aquifers. Most of the water use is for commercial profit. Until recently, the laws have prevented a possessory right to hold the water as a thing like furniture, money, and real estate. These ideas are not only derived from 2,000 years ago when Justinian envisioned what we now call the Public Trust Doctrine; they also reflect the wisdom of indigenous peoples worldwide.

Commercial agriculture uses require water rights. In Oregon, as with other regions in the West, irrigation is 78% of all diverted water. Water rights have always been managed by certain criteria, such as the point of diversion, the place of use, the character of the use (what it is used for), the time when it may be used, the rate of flow, and the annual or seasonal duty (total volume of water used). These strictures were put into place in 1909 to mitigate the problem of rampant over-appropriation, or water-mining.

Miners and settlers who extirpated indigenous people and claimed stakes to land and water set the standards for our contemporary water policies. They were the folks who invented the idea that all water left in streams was a waste of water. Our state agencies and officials have come to realize how wrong this view is and worked to set minimum stream flows, prevent the draining of aquifers, and conserve water for purposes of posterity. These are equity policies. While they are not sufficiently effective, they are important first steps. As equity policies, they cut into the profits and ownership control of powerful water users and would-be "water-kings" who view every drop as a penny and seek to control the most

important life-giving substance equal to the air we breathe.

Proponents of water markets seek to reverse Oregon's water equity policies; they are the next iteration of the miners who settled the West. Othering water as a 'thing' has enabled the perspective among humans to "use," "extract," and "exploit" water. Water markets add an entirely new layer by trading water to ensure it is exploited to the highest degree possible. Water markets are the water-miners' answer to water conservation -- conserve its use to whoever can pay the most.

The lobbies for the largest water users -- irrigators -- have bristled at water conservation efforts for many decades; however, as they have begun to pump themselves out of business, they have come to realize that trying to control the public sector in their favor has become a losing proposition and that taking control of water use policies from the public sector and putting it into the private sector is the only long-term solution to maintaining their control over water as it becomes more scarce and more valuable.

To get a better understanding of the scope of the power dynamic, generally speaking, 80% of all diverted water in the West is for irrigation, and in Oregon, only 5% of all farms account for 80% of the \$5 billion industry. A very small number of water users working in the big-ag industry have control of a vast amount of water in the West, and they aim to not only maintain control but also take greater control through the privatization efforts of establishing water markets and water banks. The greatest expression of inequity in water is the existing and proposed water market system and its sibling, water banking. Water banking is not the same as aquifer recharge; it is banking with water as if it were money.

Some of the highest-value crops are nut trees and forage crops that result in *Virtual Water Exports* out of state and overseas (80% of all Oregon agricultural products leave the state). When water markets concretely establish the equation water = money in a literal sense, the efforts to stop the mining of water will become ever more difficult. Since the Gold Rush era, water use has been generally promoted for economic purposes. Even by this standard, our elected and appointed officials permitted the over-appropriation of rivers and aquifers. Now, however, with the direct calculation of water as a tradable commodity and the removal of water rights' designated place of use and stated purposes, water use management flows to the offices of the private sector despite the guardrails put in place by statutes that declare all water belongs to the public.

Letting the free market control water use instead of our elected and appointed officials maintaining control is giving the private sector the power of governance and management over water use. This is what we mean when we say water market proponents are pushing for possessory ownership of water, away from the usufructuary model. Water League argues for a form of conservation where the non-beneficial water use must be curtailed per the public interest, and that public sector officials must solely oversee the effort to direct water use for posterity. Water marketers argue that the free market knows better where water should flow, which is mostly to the highest income-producing users.

We are concerned that rivers, aquifers, and frontline communities will suffer worse than at any time before under a water market regime; whereas, those with the clout to participate in the water markets will benefit. The conventional wisdom that says everyone benefits when the water user benefits has been extensively disproven and is becoming anathema to posterity as water scarcity drives the private sector's water grab. Water laws require that water use be not only beneficial to the user but also to the greater public. Water League argues that the future public has the greatest stake in the water we use in the present moment.

We have been seeing the encroachment of the neoliberal Chicago/ Austrian School of Economics into water use since the 1960s. Indeed, the Chicago School pioneered this ideology and put it into practice upon their successful intervention in the process that installed Pinochet as the Chilean dictator. There, the so-called Chicago Boys instituted a water market regime along with other U.S.-influenced ideas that made Pinochet a murderous puppet. Water League believes that as pumpers mine water from stream beds and aquifers, we become the mine tailings.

On page 173 Water Distribution IWRS says “The Department’s limited number of field staff is noteworthy, given the large geographic territory and responsibilities.”

Comment:

Then why is the regional manager in Lane County ordering staff to crack down on small-time 1/2 acre farmers market growers when there's such bigger issues elsewhere? Why are they scanning satellite imagery and making site visits to proactively target dozens of produce growers whose limited water use is the same whether they sold the produce to their neighbors or not?

On page 174 Water Right Transfers

Comment:

The state should not approve inter-basin water right transfers where surface and/ or groundwater is already over-appropriated. The effect of transferring water right from one basin to another where water is already over-appropriated has the effect of worsening over-appropriation. It has the same effect as if a new water right were permitted. At a time when all surface water appropriations have been shut down for decades, and now that groundwater allocations are also being limited due to over-appropriation, inter-basin transfers are unjustified and should be unlawful.

Transferring within the basin is also problematic for the same reasons, especially if the transfer is between tributaries to a main stem river.

The state is under no obligation to transfer water from one location to another that is over-appropriated. If a person has a water right and there's little or no water, then that's that. A water right certificate is not a right to water when it does not exist, it is only a right to water when it does exist. Over-appropriated basins are where water does not administratively exist.

On page 183 – 13A – Protect and Enhance Natural Infrastructure

Comment:

Here is the argument for natural infrastructure that is a public good/ benefit that the public has an interest in and should be the basis for eminent domain -- the state condemning water rights or portions thereof as part of the conservation of water due to increased efficiencies. See notes for 12(B) pg 166.

On page 201 Conclusion IWRS Quotes: Water is a finite resource with growing demands; water scarcity is a reality in Oregon. Water-related decisions should rest on a thorough analysis of supply, the demand / need for water, the potential for increasing efficiencies and conservation, and alternative ways to meet these demands.” - Policy Advisory Group (2016)

Comment:

The Policy Advisory Group left out an analysis of the required stream flows, aquifer levels, and full understanding of Natural Variability in water presence for each reach of stream and groundwater compartment.

On page 203 Closing Thoughts IWRS says “Since 2012, the Strategy has provided Oregon with a roadmap to improving our understanding of our water resources and working towards meeting our instream and out-of-stream needs.”

Comment:

Change the gerund verbs “improving” to improve, and “ working” to work.



Oregon Water Resources Dept.
Attn: Crystal Grinnell
725 Summer St., NE, Suite A
Salem, OR 97301

Submitted electronically: WRD_DL_waterstrategy@water.oregon.gov

March 18, 2024

Re: Oregon's IWRS Comments

Dear Ms. Grinnell,

Baker County appreciates the opportunity to make comments on the 2024 IWRS Draft document.

The County regards the statement, *“This includes a commitment to thoughtful and robust data collection, analysis, and sharing information with the public and those engaged in water management and decision-making”* as confusing. On one hand, the commitment to robust data collection and analysis is commendable, however, on the other hand, data is not “thoughtful”. Data collection is based on scientific approaches that use Quality Assurance Plans to ensure it is collected correctly and can be defended. In addition, “sharing the information with the public...” is minimizing the importance of data collected by NGOs and local governments. Instead of “sharing” information, try engaging with local governments and user groups to partner and get honest, on-the-ground information that you don’t get by just “sharing”.

“Oregon’s surface water and groundwater resources, by their very nature, are ever-changing. By day, month, and year, water and natural resources managers need up-to-date information to manage the resource and make sound decisions. This requires measurement of baseline conditions, trends over time, and evaluating the effectiveness of water monitoring programs.” A truer statement has never been written. Data collection must occur at the exact same location, the same day of each and every month, and be collected by a trusted source. Recently, Baker County has had an Oregon agency try to prove ‘trends’ over a several year hiatus, using old data, and

collected by various agencies and volunteers. The data has been rejected by the County and communities.

“The 2022 Integrated Report identified more than 85-percent of assessed water bodies as impaired and not meeting water quality standards...”. Is this because the water quality standards are unattainable in the real world?

Statements such as *“In many areas of Oregon, streamflows are very low or even not-existent during late summer months, which may be exacerbated by water withdrawals for irrigation, drinking water, industrial processes, hydropower, and other beneficial uses”* is true, however, it neglects to mention that historically streams have gone dry during the summer months because of natural environmental circumstances.

It’s a laughable statement that says, *“Low streamflows often mean higher water temperatures and increased nutrient concentrations, contributing to poorer water quality.”* That’s affirmative. It’s the same way flavorings in water are stronger when there’s less water in the glass.

Baker County’s biggest concern discussed in the Strategy, is the Total Daily Maximum Load (TMDL) program. The Strategy fully supports increasing the program and developing more *“programmatically implementation plans for common TMDL issues”*. One size does not fit all, and one solution does not fit all, especially when working with complex water issues. This program forces water users, in the name of improving water quality, to change land uses. For example, Baker County’s economic driver is ag production. Should the TMDL be implemented, it has the potential to cause many ag producers and hobby farmers to go out of business. The ODEQ based their speculations on old data and decided that DNA was not required to determine where E. coli was originating. Not only is this just poor scientific effort, it also shows the determination that State agencies have to regulate land users without knowing the facts. This method of developing regulations is completely unacceptable. It’s just enforcing regulations to the State, but, to us, it’s the destruction of our culture and customs.

The County agrees that more above-ground water storage sites (reservoirs) need to be developed. However, we do not agree that *“changing patterns of precipitation, snowpack, and heat have impacted the efficacy of existing water storage systems”*. It seems that even though water storage is an *“integral part of Oregon’s strategy to enhance public and private benefits...”*, the State is unwilling to pursue new above-ground water storage facilities due to lack of evaluation of potential sites. As suggested in the Strategy, existing dams should be evaluated to expand storage capacity. By raising a dam’s height, removing sediment, and repairing dams where safety restrictions have required lower water levels, significant storage could be obtained without working through the quagmire of permitting that new dams require.

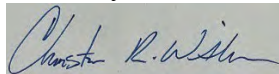
While there are several truisms within the document, *“Irrigated agriculture contributes significantly to the economy, food supply, and to local communities”*, *“Objective water management decisions are made possible when they are based on reliable, information about*

water use”, and “Forests are part of the essence of Oregon, and our water benefits from their sound management. However, many federal forestlands, particularly in drier regions, have massive ecological restoration needs”, most of the document is devoted to developing strategies that will result in more state sponsored bureaucratic agencies regulations and control. That fact is bluntly stated, “It also means a look at more efficient ways to coordinate and partner with other agencies to carry out our shared responsibilities and modernize and streamline regulatory and enforcement processes.”

Baker County suggests that instead of “providing” local governments, water control districts, and water users with data, that state agencies partner with them to promote coordination and guarantee of trusted data. It makes any project easier when there’s state agency staff that lives and works within the area and has created good relationships with the local government and community residents.

Thank you for the opportunity to comment. The County hopes that you take our comments to heart and develop a IWRS that is useful to everyone, not just state agencies.

Sincerely,

A handwritten signature in blue ink, appearing to read "Christina R. Witham", is placed over a light gray rectangular background.

Commissioner Christina Witham
Baker County Commission

Written by,

Doni

Doni Bruland
Baker County Natural Resources/Parks Coord.

From: [David Hohler](#)
To: [WRD_DL_waterstrategy](#)
Subject: Comments on latest update to the IWRS
Date: Thursday, March 28, 2024 12:45:26 PM

Some people who received this message don't often get email from dhohler@outlook.com. [Learn why this is important](#)

I am writing to express my concerns and make my voice heard to ensure the 2024 version of the IWRS continues to advance water management, climate change and pathways to meet instream needs as part of Oregon's water future. As a long term clean water and ecosystem management advocate I:

- **Support ecosystem additions:** Support the addition of new actions that advance instream, ecosystem, water quality, climate change and equity initiatives.
- **Support increased funding of state agencies to do water work:** Full implementation of the strategy is dependent on robust funding of state agencies, as well as state agency coordination on water work. To be clear the 2024 version does put more attention on this, and deserves support.
- **Elevate water management:** OWRD must focus greater attention on water management. Rigorous, smart water management — including enforcement, regulation and the modernization of laws and policies to ensure a sustainable water future — should be front and center of any state water strategy. The 2024 version elevates attention on voluntary planning and partnerships (making it one chapter of four), but does not grant improved, smart water management the same priority or urgency.
- **Focus on planning/dealing with climate change:** The 2024 IWRS proposes to remove the stand alone subsection on climate change found in the 2017 version. While additional “example actions” have been included in the 2024 IWRS related to climate, which I support, the OWRD has removed the previous standalone subsection directing

attention and action on climate change. This reorganization sends Oregon backwards and signals that climate change adaptation and resiliency is not a priority for the state's water future.

- **Don't abandon public engagement for staff rewrites of the IWRS:** We oppose the wholesale restructuring of the IWRS. This change in direction was an internal decision that did not arise out of the minimal public engagement efforts the OWRD undertook on the update of the strategy. The 2012 IWRS was developed after years of robust and transparent public engagement, with the intent being it would serve as the cornerstone framework for future iterations. The siloed decision to rework the whole document undercuts years of work that resulted in a clear and cohesive document that addressed both instream and out-of-stream needs in a balanced manner directed by governing laws.
- **Bring back balance:** The new iteration removes, relocates, or rewords key directives meant to ensure balanced attention to instream and out-of-stream needs. This could dilute agency and legislative attention to instream needs. The OWRD must reinstate balance into the framework.
- **Further engagement is required:** Unlike the 2012 and 2017 versions of the IWRS that were developed after years of vigorous public engagement and actual consensus hammered out after many meetings, the OWRD forged ahead with a wholesale restructuring of the 2024 version without the benefit of discussion or consensus within a policy advisory group made up of tribes, conservation groups, agricultural interests, municipal representatives, the governor's office, state and federal agencies and other stakeholders. This siloed approach is not aligned with the OWRD's general approach to transparent public engagement, and it is inconsistent with past public engagement on the IWRS. More work is needed.

- OWRD should start over by convening a policy advisory group (PAG) that is inclusive. The PAG should update the strategy following the authorizing legislation and, as in prior iterations of the IWRS, with considerable input from a wide variety of stakeholders and interests.

Thank you for your attention,

David Hohler



28 March 2024

TO: Oregon Water Resources Department
ATTN: Crystal Grinnell
VIA: WRD_DL_waterstrategy@water.oregon.gov

Subject: Integrated Water Resource Strategy —comments

Please accept the following comments from Oregon Wild concerning the Integrated Water Resource Strategy, <https://www.oregon.gov/owrd/programs/Planning/IWRS/Pages/default.aspx>. Oregon Wild represents 20,000 members and supporters who share our mission to protect and restore Oregon’s wildlands, wildlife, and water as an enduring legacy. Our goal is to protect areas that remain intact while striving to restore areas that have been degraded.

Oregon Wild supports further engagement to improve the IWRS. Unlike the previous versions of the IWRS that were developed after years of vigorous public engagement and actual consensus hammered out after many meetings, the OWRD forged ahead with a wholesale restructuring of the 2024 version without the benefit of discussion or consensus within a policy advisory group made up of tribes, conservation groups, agricultural interests, municipal representatives, the governor’s office, state and federal agencies and other stakeholders. This approach is not aligned with the OWRD’s general approach to transparent public engagement, and it is inconsistent with past public engagement on the IWRS. More work is needed.

Oregon Wild supports balance between instream and out-of-stream uses. The new iteration removes, relocates, or rewords key directives meant to ensure balanced attention to instream and out-of-stream needs. This could dilute agency and legislative attention to instream needs. The OWRD must reinstate balance into the framework.

Oregon Wild supports the addition of new strategic actions that advance instream, ecosystem, water quality, climate change and equity initiatives. There are still lots of streams that do not have instream water rights established.

Oregon Wild supports increased funding of state agencies to do water work. Full implementation of the strategy is dependent on robust funding of state agencies, as well as state agency coordination on water work. We appreciate that the 2024 version does appear to put more attention on this.

Oregon Wild supports elevating water management as a governing policy for Oregon's water. Rigorous, smart water management — including enforcement, regulation and the modernization of laws and policies to ensure a sustainable water future — should be front and center of any state water strategy. The 2024 version elevates attention on voluntary planning and partnerships (making it one chapter of four), but does not grant improved, smart water management the same importance. Voluntary programs are great, but they only get us part way there.

To fulfill the vision for an "integrated" water resources strategy there must be a mechanism for resolving conflicts between competing values such as increasing water storage and increasing power generation, on the one hand, and instream flows and ecological health and habitat on the other hand. The strategy must not give higher priority to consumptive and ecologically harmful uses of water, while giving lip service to ecological values.

Oregon Wild supports putting climate change front and center. The 2024 IWRS proposes to remove the stand alone subsection on climate change found in the 2017 version. While additional "example actions" have been included in the 2024 IWRS related to climate, which we support, the OWRD has removed the previous standalone subsection directing attention and action on climate change. This reorganization sends Oregon backwards and signals that climate change adaptation and resiliency is not a priority for the state's water future.

The IWRS must address climate change mitigation as well as climate change adaptation. This means recognizing the need to maintain carbon storage and minimize GHG emissions in every water-related decision. Some farming practices will accelerate the loss of carbon stored in soil, while others may help increase soil carbon storage. Water storage in reservoirs often causes increased carbon emissions, while water storage in healthy watersheds with cool, structurally complex streams, riparian areas, and watersheds can store carbon and transport carbon for storage in the ocean. The IWRS must consider these factors in decision-making. Water management decisions should shift water use over time from activities that are more likely to emit GHG to those more likely to sequester GHG.

Oregon Wild opposes the wholesale restructuring of the IWRS. This change in direction was an internal agency decision that did not arise out of the minimal public engagement efforts the OWRD undertook on the update of the strategy. The 2012 IWRS was developed after years of robust and transparent public engagement, with the intent being it would serve as the cornerstone framework for future iterations. The decision to rework the whole document undercuts years of work that resulted in a clear and cohesive document that addressed both instream and out-of-stream needs in a balanced manner as directed by governing laws.

All dams should be subject periodic review by the state to ensure that they are not only safe but also serve an important purpose that justifies the hydrologic and ecological harms caused by the

dam. Dams modify hydrologic function, fluvial function, and impeded movement of fish and wildlife.

Protect peak flows and ecological flows before allowing new storage projects. There is great interest in new water storage projects which can have adverse biophysical effects. Currently the state does not protect "peak and ecological flows" when issuing new storage permits. OWRD should identify peak and ecological flows needed by fish and rivers, and to protect those flows before allowing new storage.

Require water use efficiency standards for municipal and irrigation uses. Oregon's streams and rivers are already over-tapped. Requiring efficient water use is one step to meeting new demand without putting further strain on our rivers.

Protect the groundwater resources that feed Oregon's lakes, rivers, and streams. The state should place a priority on the designation of new groundwater limited areas to help manage groundwater use in areas where groundwater declines are hurting water users and streams.

OWRD should require permitting of "exempt wells" in groundwater limited areas and areas where groundwater feeds surface water or prevents saltwater intrusion. Currently exempt wells, even in areas where groundwater and river flow shortages are common, do not have to go through a permitting process or environmental review.

OWRD should conduct a "public interest review" of a transfer of a water right to ensure that when a water right holder is changing its place of use or type of use, that the state considers the effect of that change on Oregon's rivers and fish.

Sincerely,

A handwritten signature in black ink that reads "Doug Heiken". The signature is written in a cursive, slightly slanted style.

Doug Heiken
dh@oregonwild.org

GRINNELL Crystal A * WRD

From: Evan Neyland <egneyland@gmail.com>
Sent: Friday, April 5, 2024 4:41 PM
To: WRD_DL_waterstrategy
Subject: Public comments on proposed 2024 IRWS

Follow Up Flag: Follow up
Flag Status: Flagged

Some people who received this message don't often get email from egneyland@gmail.com. [Learn why this is important](#)

Good afternoon,

Below please find my comments on the proposed 2024 changes to the OR IWRS. Thank you.

Evan Neyland of Bend, OR

--

Support for ecosystem additions. I strongly support the addition of new actions that advance instream, ecosystem, water quality, climate change and equity initiatives.

Support for increased funding of state agencies to do water work. Full implementation of the strategy is dependent on robust funding of state agencies, as well as state agency coordination on water work. The 2024 version puts more attention on this, and deserves support.

Elevate water management. OWRD must focus greater attention on water management. Rigorous, smart water management — including enforcement, regulation and the modernization of laws and policies to ensure a sustainable water future — should be front and center of any state water strategy. The 2024 version elevates attention on voluntary planning and partnerships (making it one chapter of four), but does not grant improved, smart water management the same gravitas or urgency.

Ensure climate change is front and center. The 2024 IWRS proposes to remove the stand alone subsection on climate change found in the 2017 version. While additional “example actions” have been included in the 2024 IWRS related to climate, which I support, the OWRD has removed the previous standalone subsection directing attention and action on climate change. This reorganization sends us backwards and signals that climate change adaptation and resiliency is not a priority for the state’s water future. This is the wrong message.

Oppose the wholesale restructuring of the IWRS. This change in direction was an internal decision that did not arise out of the minimal public engagement efforts the OWRD undertook on the update of the strategy. The 2012 IWRS was developed after years of robust and transparent public engagement, with the intent being it would serve as the cornerstone framework for future iterations. The siloed decision to rework the whole document undercuts years of work that resulted in a clear and cohesive document that addressed both instream and out-of-stream needs in a balanced manner directed by governing laws.

Bring back balance. The new iteration removes, relocates, or rewords key directives meant to ensure balanced attention to instream and out-of-stream needs. Holistic in-stream rights with an eye towards the long term will yield myriad benefits for ecosystems, fisheries, recreation, and climate change mitigation and must be a pillar of the IWRS. This change could dilute agency and legislative attention to instream needs. The OWRD must reinstate balance into the framework.

Further engagement is required. Unlike the 2012 and 2017 versions of the IWRS that were developed after years of vigorous public engagement and actual consensus hammered out after many meetings, the OWRD forged ahead with a wholesale restructuring of the 2024 version without the benefit of discussion or consensus within a policy advisory group made up of tribes, conservation groups, agricultural interests, municipal representatives, the governor’s office, state and federal agencies and other stakeholders. This siloed approach is not aligned with the OWRD’s general approach to transparent public engagement, and it is inconsistent with past public engagement on the IWRS. More engagement is needed.

From: [Gary Young](#)
To: [WRD_DL_waterstrategy](#)
Subject: Water protection, enhancement, regeneration, resilience
Date: Thursday, April 4, 2024 12:20:48 PM

Some people who received this message don't often get email from gyoung@bluemtnranch.com. [Learn why this is important](#)

John Wesley Powell suggested all political boundaries should be based on watersheds.

I believe we need policies and rules that encourage aquifer recharge and large natural filtration basins/floodplains in any available area, beginning at and prioritizing the higher elevations of our watersheds, leaving the maximum opportunities for more retention at each successively lower level.

Gravity and erosion will tend toward rapid and concentrated drainage of watersheds. Thankfully beaver and buffalo helped brake this process until they were considered more valuable skinned. Hooved grazing animals, constantly moving, herd trained by predators or otherwise, leave in their wake a lightly tilled and manured stubble, not excessively harvested, ideal for enhancing grass production and cover. Man-made means for spreading, retention and recharge are merely modern extension of the beaver's eco-knowledge.

Artificial waterway channelization, for various purposes of convenience, has been way overdone. Compared to the 19th century, we have very little healthy functioning floodplain where waterways are constantly changing course, spreading and slowing the water, recharging our aquifers.

I believe we need policies and rules that tend against rapid channelization and encourage the slowing and spreading of early spring thaw, as high in watersheds as possible. We can no longer depend on or expect a slow melt off of winter snow pack.

<https://www.bluemtnranch.com/water-concerns>

Is it too late to regenerate the earth? *Call of the Reed Warbler* shows the way forward for the future of our food supply, our Australian landscape and our planet. This ground-breaking book will change the way we think of, farm and grow food. Author and radical farmer Charles Massy explores transformative and regenerative agriculture and the vital connection between our soil and our

health. It is a story of how a grassroots revolution – a true underground insurgency – can save the planet, help turn climate change around, and build healthy people and healthy communities, pivoting significantly on our relationship with growing and consuming food.

Using his personal experience as a touchstone – from an unknowing, chemical-using farmer with dead soils to a radical ecologist farmer carefully regenerating a 2000-hectare property to a state of natural health – Massy tells the real story behind industrial agriculture and the global profit-obsessed corporations driving it. He shows – through evocative stories – how innovative farmers are finding a new way and interweaves his own local landscape, its seasons and biological richness.

At stake is not only a revolution in human health and our communities but the very survival of the planet. For farmer, backyard gardener, food buyer, health worker, policy maker and public leader alike, *Call of the Reed Warbler* offers a tangible path forward for the future of our food supply, our Australian landscape and our earth. It comprises a powerful and moving paean of hope.

Gary Young
Box 13
Paulina, Oregon 97751
541-279-7572

Sent from my iPhone

GRINNELL Crystal A * WRD

From: Harmony (Paulsen) Burrigh [<harmonysimone@gmail.com>](mailto:harmonysimone@gmail.com)
Sent: Friday, April 5, 2024 5:00 PM
To: WRD_DL_waterstrategy
Subject: IWRS Update Comments
Attachments: HB 3100 - IWRS Testimony.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Some people who received this message don't often get email from harmonysimone@gmail.com. [Learn why this is important](#)

Good afternoon,

Please accept these comments on the current version of the Integrated Water Resources Strategy. I am submitting these comments as an interested member of the public and do not represent anyone other than myself.

In the 2023 legislative session, a bill ([HB 3100](#)) was introduced to make improvements to the statutory direction for the Integrated Water Resources Strategy. Amended bill language was ultimately included in the omnibus Bipartisan Drought Resilience and Water Security Package via [HB 2010](#). Although this bill does not formally take effect until this version of the IWRS is adopted by the Water Resources Commission, there were important changes made to the statute that, if implemented, could strengthen the statewide strategy. Attached to this email are comments that were submitted by myself as testimony on the proposed bill language and amendments, that highlight the areas where the IWRS could still stand to be strengthened. Several key aspects of the original language that sought to address weaknesses in the Strategy ultimately did not get adopted due to the concerns of a small subset of stakeholder groups. In addition to the attached, I offer the following comments:

1. State recognized place-based integrated water resources plans are not meaningfully incorporated into the Strategy. I was the planning coordinator for the Oregon Water Resources Department from 2015–2021. During that time the state partnered with four communities to develop state-recognized place-based integrated water resources plans. For nearly a decade the Department leadership and staff promised these communities that their plans would help to inform and would be reflected in the statewide strategy. The place-based planning guidelines state that “The Water Resources Commission will ultimately make the final decision about whether to formally accept a place-based plan as a component of the Integrated Water Resources Strategy.” Although the plans have been recognized by the Commission, it appears that they have not been incorporated in any meaningful way into the statewide strategy. What is the purpose of place-based planning if not to implement the statewide strategy at a basin scale and also inform how the state can actually achieve integrated and coordinated management? **Action:** Please incorporate state-recognized place-based plans in the statewide strategy. At a minimum show where place-based strategies and actions comport with or differ from proposed statewide actions.
2. The IWRS has become more focused on agencies and runs the risk of becoming an agency-centric strategy rather than a strategy for all Oregonians. Agencies undoubtedly play an important role in water management in Oregon, but if we are to successfully manage our water resources, it will

require integrated and coordinated action with many different sectors, not just state government. The strategy could go much further in describing how the state will work with and empower other entities who manage different aspects of water resources. We need all levels of government, tribes, water managers, instream advocates, water users, and the public to be able to see how the strategy pertains to them and can help them pursue a more secure, sustainable, and balanced water future. Over the past 10 years the IWRS has been a document that agencies point to during budget development but has not actually served a strategic function for Oregon. **Action:** Engage with non-state government partners to discuss how they could use the statewide strategy to support their water management efforts.

3. Oregon used to be at the forefront when the first IWRS was developed and adopted, but now we are falling behind as a state. Most western states, and also many eastern states, are now developing and implementing state water plans and supporting regional water planning efforts that inform the updates to the state water plan. OWRD should research and publish (or commission) a comparative analysis of efforts in other states and incorporate best practices and lessons learned into our approaches. **Action:** Learn from other states to make our statewide strategy more useful and impactful.

It has been the policy of the state to develop integrated and coordinated approaches to water management since 1955 ([ORS 536.220](#)), and yet we continue to fumble. Like many other Oregonians, I am deeply invested in and committed to the success of OWRD and the IWRS. I look forward to the day when we make effective use of our statewide strategy to set priorities and meaningfully guide action across diverse sectors towards a shared goal of sustainable water management.

I'm slowly assembling a timeline with important milestones in our history that I would invite you to take a look at: <https://www.sutori.com/en/story/integrated-water-resources-planning-in-oregon-full-version--wFd5VceCyQGgKwBdNGHFnQ6m>. There is a lot to learn from our past.

Thank you for the opportunity to comment.

With gratitude,
Harmony

Date: March 14, 2023

To: Chair Helm, Vice-Chair Owens, Vice-Chair Hartman and Members of the House Committee on Agriculture, Land Use, Natural Resources, and Water

From: Harmony Burrigh, Water Policy Advisor to Representative Mark Owens (HD 60)

Re: HB 3100 Amendments to Strengthen the Integrated Water Resources Strategy

HB 3100 was originally crafted to strengthen the Integrated Water Resources Strategy by addressing weaknesses that have been identified by state agencies, stakeholders, and the public through two updates and 10 years of implementation. The proposed amendments (attached) retain key elements of the original proposal while also addressing questions and concerns that have been raised via select stakeholder feedback. It is my professional opinion that these amendments will help create a more solid foundation to strengthen the IWRS but are ultimately insufficient to address many of the weaknesses identified. Oregon's water challenges will continue to intensify and the need for a coordinated framework will only increase. Unifying Oregonians around a coordinated framework will require a cohesive vision and purpose, steady leadership, a way to maintain social and political cohesion amongst different sectors and interests at multiple scales around a shared purpose, and sustained investments.

Background

Integrated water resources management is “a process that promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.”¹ In 2009 the Legislature authorized the development of an Integrated Water Resources Strategy (IWRS) through [HB 3369](#). The first Strategy was adopted by the Water Resources Commission and was last updated in 2017. The Oregon Water Resources Department is currently undertaking a 5-year update. After two updates and through ten years of implementation, a number of potential improvements have been identified.

Strengthening the IWRS: Proposed Amendments

Strengthening the IWRS so that it can truly help Oregonians understand and meet our instream and out-of-stream water needs will require a more concentrated undertaking than is possible through legislation alone. The base bill and amendments make minor adjustments to the existing statute to address some, but not all, of the weaknesses that have been previously identified. The amendments include:

Allowing More Time for Implementation Between Updates

- Require updates to the IWRS at least every 8 years rather than every 5 years to allow for more time to focus on implementation of recommended actions. Using an even number also allows the strategy to align with biennia.

Focusing on Implementation and Coordination with Other Relevant Plans

- Require that the IWRS describe how the Strategy will be implemented at multiple scales in a balanced, equitable, integrated manner. The current statute does not require specific provisions

¹ This definition is widely used and credited to the [Global Water Partnership](#).

describing how the strategy will be implemented. The lack of specific plans to implement the strategy has been identified as a weakness.

- Require that the IWRS describes how a biennial work plan will be developed to guide and support implementation. The current statute does not require development of a work plan. The amendment does not prescribe the contents of a work plan or the process for its development.
- Require that the IWRS identify how to support implementation of recommended actions in other state developed and state-recognized plans. The current statute does not encourage the IWRS to be coordinated with other relevant plans, despite the fact that coordination is a central tenet of integrated water resources management.

Tracking Progress and Accountability

- Require biennial progress reports to the Legislature on implementation progress, anticipated activities, policy changes needed, and investments needed. Reports to the Legislature do not occur on a regular, recurring basis, limiting the Legislature's knowledge of the Strategy as well as their ability to support the Strategy in an ongoing and cohesive manner.

Improving Inter-Agency Coordination

- Add agencies by reference to sections of the existing statute who play an important role in the updates to and implementation of the strategy, namely Oregon Department of Agriculture, the Oregon Watershed Enhancement Board, and Oregon Health Authority. Key agencies are not specifically called out in various sections of the statute where their inclusion might be beneficial.
- Require notification to the Boards and Commissions of core IWRS agencies when the Strategy is being updated or when an updated version is adopted. Only the Water Quality Commission is explicitly mentioned in the existing statute despite the fact that other commissions and boards have been notified in the past and should be notified in the future.
- Require that the IWRS describe provisions for inter-agency coordination and coordination with federal agencies during implementation. The statute explicitly calls for consultation with state and federal agencies in the development of the IWRS, but not in its implementation.

Communicating with and Engaging the Public During Implementation

- Require that the IWRS includes specific provisions for communication with the public and opportunities for public engagement during implementation. The statute explicitly calls for consultation with the public in the development of the IWRS, but not in its implementation.

Promoting Partnership with Tribes, Local Government, and Key Stakeholders During Implementation

- Require that the IWRS include specific provisions for partnership with the tribes, public bodies, and key stakeholders during implementation. The statute explicitly calls for consultation with Tribes and local governments in the development of the IWRS, but not in its implementation.

Recognizing Basin-Specific Critical Issues and Implementation at Appropriate Scales

- Require identification of critical issues at both the state and basin scales in the IWRS. Critical issues are currently a hallmark of the IWRS, but they are only identified at the state scales which may limit the relevance and effectiveness of the strategy at other scales. Building a shared understanding of critical issues is usually a necessary precursor for effective solution generation.

- Require that implementation of recommended actions should be considered at multiple scales. Some actions may be more appropriate at the state scale while other actions may be more appropriate at a regional, basin, or local scale.

Strengthening the IWRS: Unaddressed Issues

Unmet Need: Clarifying a Cohesive Purpose

- There is not a shared understanding of what the IWRS is and what it is meant to accomplish. It has been referred to as a blueprint and a framework though it does not appear that OWRD or state agencies use it as an organizing framework. It includes a broad suite of actions, but does not have include clear implementation pathways. Some view the IWRS as a potential vehicle for crafting broadly supported policy or coordinating water investments, though it has not effectively been used for either purpose in recent years. Some claim that the IWRS is Oregon’s Water Plan and some claim that Oregon doesn’t have a water plan and needs one. The 100 Year Water Vision confused stakeholders because they weren’t sure if the Vision was the framework for the Strategy or if the Vision was implementing the Strategy or if the Vision was replacing the Strategy. Regarding the link between the IWRS and place-based planning it is unclear whether place-based planning is a mechanism to implement the IWRS or whether place-based plans can roll up to inform the IWRS, or neither, or both. There is not a shared conceptual understanding of how the various efforts can or should fit together to achieve a specified purpose or outcome. There is also not consensus regarding whether the lack of a clear, cohesive purpose is a problem and whether or how to resolve it.

Unmet Need: Mechanism for Ongoing Coordination

- HB 3100 originally called for the creation of an Advisory Committee to support updates to and implementation of the Strategy, promote greater public participation, support a balanced approach to implementation, pursue partnerships and innovation between sectors, and identifying areas deserving of additional attention and resources. Preliminary outreach to some key stakeholders revealed very little support for an ongoing coordination mechanism with non-state actors. This section of the bill was removed. Integrated water resources management is a “*process that promotes the coordinated development and management.*” Integration will only occur through sustained, deliberative coordination between all sectors at multiple scales. The plan update process is and will be insufficient to ensure ongoing coordination. This is a core governance issue that remains unresolved. An analysis of how this is addressed in other states is in development.

Unmet Need: Technical Basis for the IWRS

- The current IWRS statute calls for agencies to “develop data on an ongoing basis to forecast Oregon’s instream and out-of-stream water needs,” which should provide a technical basis for updates to the IWRS. The last forecast was developed in 2015 and only included out-of-stream uses. Other states develop a technical product at the statewide and basin scales to inform both statewide and basin water planning. In Oregon there is not a consistent technical product developed by the state on a recurring basis to inform the statewide strategy or basin planning processes. An analysis of how this is addressed in other states is forthcoming. This may be addressed through the Responsible Water Accounting Bill (HB 3368).

Unmet Need: State Agency Capacity and Mechanism for Inter-Agency Coordination

- State agency capacity is not explicitly addressed in this bill but must be considered in any appropriations contemplated this session. Agencies need sufficient capacity to support updates to and implementation of the IWRS. No specific mechanisms for inter-agency coordination were introduced in this bill and will benefit from further consideration. An analysis of past and current mechanisms for inter-agency coordination is in development.

Unmet Need: Community Capacity and Public Participation

- Community capacity is not explicitly addressed in this bill but must be considered in any appropriations contemplated this session. Communities need sufficient capacity to support updates to and implementation of the IWRS. Public participation in the update process is also not explicitly addressed in this bill and will benefit from further consideration. An analysis of past and current public participation opportunities in the IWRS is in development.

Strengthening the IWRS: Identification of Weaknesses

Agency Testimony

Informational testimony provided to the House Interim Committee on Agriculture, Land Use and Water by the core IWRS agencies (the Water Resources Department, the Department of Environmental Quality, the Department of Fish and Wildlife, and the Department of Agriculture) in December 2022 highlighted progress made since 2017 and agency recommendations for continuing to make progress, including the following:

- Dedicated capacity is needed at OWRD and other key agencies to support ongoing coordination and implementation of the Strategy.
- More time is needed between IWRS updates to allow for an increased focus on implementation.
- The next update of the IWRS should clarify how the Strategy will be implemented, specifically:
 - Increase clarity about what entities should lead implementation of various recommended actions at the state and local levels.
 - Specify potential policy changes and/or investments needed to make progress on recommended actions.
- Funding has been inconsistent over time and sustained investments are needed to continue to make progress on recommended actions (e.g., the Water Data Portal will require investments over multiple biennia).
- Awareness and use of the IWRS across agencies varies significantly and there is a need for increased coordination to ensure that the Strategy is informed by and relevant to affected state agencies.

2022 Secretary of State's Water Advisory Report

The 2022 Secretary of State's Water Advisory Report identified a number of weaknesses with water governance in Oregon, including several findings immediately relevant to the IWRS:

- Many communities are not fully integrated into water decisions and often not even aware there is a problem.
- The Oregon Integrated Water Resources Strategy is not clearly connected to state and regional planning efforts and does not have clear implementation pathways.

- Oregon’s state leadership and agencies do not necessarily share water security priorities. Agencies have distinct areas of focus and limited resources and capacity that limit the ability to engage broadly with communities or work across agency lines.
- Oregon water data is disaggregated, sometimes incomplete, and not set up to support regional governance needs.
- Oregon lacks a water funding strategy that ties state and regional planning to investments. The state’s water infrastructure suffers from decades of disinvestment and natural resource agencies lack funding and capacity to properly enact their duties.
- State water regulatory agencies have broad discretion but face external pressures that may hinder them from fully using this discretion to benefit the public.

2016 Secretary of State’s Audit of the Water Resources Department

The 2016 Secretary of State’s Audit of the Water Resources Department also noted the limitations of the IWRS, noting the following:

- WRD staff across multiple divisions and in various field office locations indicated that the IWRS did not have much bearing on their jobs and many knew little or nothing about its implementation. The IWRS has not significantly influenced agency culture, functions, or priorities.
- WRD’s program planning seems to be siloed with limited coordination between divisions and priorities are not identified. In addition to improved inter-agency coordination, there is a need for improved internal coordination.
- The IWRS is not a replacement for agency-specific strategic plans to prioritize key functions and responsibilities.

Professional Observations

I had the opportunity to work closely with agency and community partners on implementation of many recommended actions in the IWRS at both the state and local levels when I worked for the Water Resources Department from 2015-2021. I assisted with public outreach for the 2017 update and have conducted extensive research on state and basin water planning in Oregon and other states. I experienced first-hand the challenges of pursuing an integrated approach in Oregon and walked away with the following observations:

- There is not a shared understanding of the purpose and function of the IWRS, which limits its overall effectiveness and increases divisiveness.
- The IWRS alone lacks information that is necessary to support implementation and should be accompanied by an implementation plan or work plan. The 2012 IWRS was accompanied by an inter-agency work plan. A work plan was not developed for the 2017 update.
- Many communities are unaware of the existence of the IWRS. Those that are aware are not sure whether and how the Strategy affects or benefits them.
- Information presented in the IWRS is aggregated to the state level, which dilutes its relevance to communities who have different hydrologic realities and water challenges.
- Agency outreach through the IWRS and related efforts such as the Water Vision have not resulted in visible follow-up or follow through for many communities, which has the effect of

diminishing trust. An extractive approach to outreach does not generate buy-in to the Strategy, especially when it occurs at infrequent intervals and does not appear to build on past efforts.

- While the IWRS is oftentimes referred to in agency documents, it has not been effectively used to coordinate agency activity.
- Various sectors and entities have different levels of buy-in to the Strategy, which generally corresponds with their level of participation in its original development, their experience with and perception of the process, and whether they feel that implementation has been balanced.
- Durable partnerships across sectors have been difficult to develop and sustain, and there is a tendency for agencies and stakeholders to revert to silos.
- Significant investments in water have resulted largely from intermittent efforts by enthusiastic individuals rather than through a cohesive, coordinated statewide investment strategy.

GRINNELL Crystal A * WRD

From: jan.lee@orwater.org
Sent: Wednesday, March 27, 2024 2:05 PM
To: GRINNELL Crystal A * WRD
Subject: RE: Comments on IWRS

Crystal, here are more comments:

I like the new formatting and especially the one pager action items. Thanks for all of your work in completing the revisions. I do not like the idea of going back to the old format for the sake of continuity.

I have just a couple of items I would like to see addressed as well if you concur.

Tribal Water Quality

In 1994 under the Clean Water Act EPA provided a process in which tribes can set up their own water quality authorities, similar to state authorities applicable to resources within their boundaries. In Oregon the Confederated Tribes of both the Umatilla and the Warm Springs have set up those authorities as well as the complex of Coos/Umpqua/Siuslaw. That authority could be mentioned under the tribal section and tribal water authorities as well as under the federal section.

Legislative Water Caucus

Someplace it might be good to list the legislature's new Water Caucus as a resource for working with water issues, funding, and partnering.

Natural Hazards

Under natural hazards, NRCS provides flood repair programs. Soil and Water Conservation Districts work with NRCS and citizens in each county to provide funding and technical services.

Water Portal

The water portal is mentioned in a couple areas of the IWRS. It's in the coordination section, but maybe it should also be called out specifically in the 1-C funding section as it will be an ongoing need for resources and maybe under the data gaps section as well.

Deschutes Water Mitigation Program

Reference perhaps under GW section as a model or maybe in GW stewardship.

Instream Water Rights Act

The IWRA of 1987 had two sections, as a compromise to pass the bill. In addition to setting up a foundation for instream water rights, the legislation also set up "reservations of water for economic development." Those reservations are not mentioned in regard to the act on page 26 although they were a part of it. They are mentioned in storage and water management. It might be good to state when referring to that act that it included two major policy directions.

In fact, the IWR bill was going down based on vote counts so this compromise allowed it to pass by a narrow margin.



*Working with community wastewater treatment and stormwater management agencies
across the state to protect Oregon's water quality since 1987.*

81 East 14th Avenue
Eugene, Oregon 97401
(541) 485-0165 www.oracwa.org

April 5, 2024

Crystal Grinnell
Oregon Water Resources Department
725 Summer St. N.E., Suite A
Salem, OR 97301

Sent via email to: WRD_DL_waterstrategy@water.oregon.gov

Subject: Oregon ACWA Comments on the Draft Integrated Water Resources Strategy Framework and Actions

Dear Crystal Grinnell:

Thank you for the opportunity to provide comments on the Draft 2024 Integrated Water Resources Strategy Framework and Actions (IWRS). These comments are provided on behalf of the Oregon Association of Clean Water Agencies (ACWA), which is a not-for-profit organization of Oregon's wastewater treatment and stormwater management utilities, along with associated professional consulting firms, dedicated to protecting and enhancing Oregon's water quality. Our members provide wastewater and stormwater services to over 3 million Oregonians, serving over 75% of Oregon's homes and businesses. ACWA shares with the Oregon Water Resources Department (WRD) the mission of protecting and enhancing Oregon's water quality (the "Mission"). ACWA's members have meaningful involvement and influence in nearly every Action area set out in the IWRS, including implementing water reuse strategies, groundwater and stormwater/surface water management, a focus on green infrastructure, in-stream flow enhancement using treated clean water from wastewater treatment plants, streamside tree-planting to reduce temperature, TMDL implementation, research partnerships, data collection, toxics reduction strategies, and Clean Water Act permit compliance. ACWA strongly supports the strategies and actions identified in the IWRS.

As an overall comment, the IWRS does a magnificent job of setting out the history, background, and regulatory context within which Oregon's water challenges can be solved. Key stakeholders and their roles in affecting the various strategies are clearly identified. Most importantly, *the strategies identified are the strategies needed* to protect and improve both water quantity and quality. The vision of what needs to be done and can be done to protect and beneficially use Oregon's water for the next 100 years (the "Water Vision") is inspirational. ACWA is particularly enthusiastic about the inclusion and

recognition of the importance of reuse water as a critical component for the long-term success of the IWRS and the need for supportive regulation to allow reuse to serve its many purposes.

A second overall comment regarding the strategies set forth is that a nice job is done of setting out the sorts of actions that should be considered by State agencies to advance the Water Vision. The challenge that ACWA would like to see elaborated is how the Water Vision drives agency priorities. How does the Water Vision fit into the actions of State agencies in such a way to drive budget and individual program plans to ensure adequate funding and support? ACWA suggests adding, at a minimum, suggested implementation paths that *include timelines and metrics*, that not only inform agency priorities but that lead to both immediate and long-term action. In short, how do we get from here to there? More specifically, ACWA would suggest including more detail about the type of planning, infrastructure, *prioritized* critical areas of funding and state investment, and the type of regulatory approaches that will move the IWRS forward. It is critical to our shared Mission to see the Water Vision not only be clearly announced but, more importantly, implemented.

ACWA also has some specific comments:

1. Chapter 2-Action 2A. Promote Community Education and Outreach

In addition to drinking water providers, the IWRS should recognize wastewater utilities and cities (most of whom are ACWA member agencies) for their contributions to public outreach and education. Some programs offer interpretative centers, tours, K-12 programs, and college field trips and internships. The state agencies promoting Action 2A should identify opportunities to network with, support, and draw from wastewater and municipal education resources, as those programs address frequently asked questions about water quality and treatment, including important roles the public plays in protecting our water resources and affordability.

2. Chapter 2-Action 2C. Provide Career Training for the Next Generation of Water Professionals

Career training is an ACWA priority and has been and remains the top action item for the ACWA Utility Management Committee. The IWRS should include a paragraph on the benefits of a career in the water and wastewater industry, include interesting scientific and technical work, job stability, job satisfaction in protecting public health, safety, and playing a key role in improving the environment. This action could include State efforts to implement a marketing campaign with resource materials in coordination with local agencies, non-profits, etc. The materials could be used at career days and local community events. The message can be expanded to support job shadowing, internships, and other outreach efforts. Outreach to historically underserved and marginalized communities is an opportunity here that should be highlighted. Finally, partnering with community colleges to offer courses in the field should be encouraged. ACWA has had great success utilizing community college partnerships.

3. Clear Recognition of the Connection between Stream Flow, Temperature and Beneficial Uses

While the IWRS certainly implies the critical connection between stream flow, temperature and beneficial uses, the connection should be made more explicit. The importance of prioritizing the actions necessary to make a difference again are recognized but need to be more concretely stated. ACWA supports the request of State funded *purchase or leasing of senior water rights*

from willing sellers that will result in leaving cold, clean water in streams. Similarly, purchasing or leasing water rights leaving cold, clean water in streams provides a valuable compliance option for ACWA members especially when paired with reuse strategies discussed below. These actions would make a meaningful and positive difference towards attainment of temperature TMDL compliance in many watersheds.

ACWA would like the IWRS to make a more direct statement of commitment and support beyond simply indicating that the purchase of instream water rights is the policy of the State and that the State is “working” to establish instream water rights. This should be recognized as an urgent priority. Further, while it important to acknowledge the impact of prior senior water rights resulting in extreme low flow by the end of many summers, this fact should be stressed to motivate the State of Oregon to do more now, and tomorrow, and next year to deliver more cold, clean instream flows in these places.

A relevant example is Johnson Creek (this creek’s watershed is in portions of Clackamas and Multnomah Counties), where a junior instream water right already exists, but the summer-season flows in the upper, agricultural portion of the watershed are typically too low and too warm to support aquatic life such as juvenile coho salmon. Having a junior instream water right, all on its own, doesn’t deliver even one drop of cold clean water to the stream. For many creek miles in the upper portion of the watershed, during most summer seasons the junior instream water right in Johnson Creek (1991 priority date) specifies that 4 CFS (cubic feet per second) should be in the stream in July, and 3 CFS in August, and 2 CFS in September, yet the actual flow during these months is often less than one CFS. The water which is present in the creek then is usually too warm to support juvenile coho salmon and other cold water aquatic life which is native to this watershed. If the instream flow could be increased to 3 or 4 CFS in the summer, the water temperature would certainly be much lower.

Although Action 10C identifies instream water rights as a tool for increasing or protecting instream flow, this strategy would be strengthened if it directly called for funding to be made available to purchase or lease instream water rights from willing sellers.

4. Chapter 10-Action 10E-Groundwater Management Rulemaking

Protecting groundwater is yet another ACWA priority consistent with the priorities of the IWRS. ACWA has a Groundwater Committee that would be a great technical resource to both WRD and the Oregon Department of Environment Quality (DEQ) as rulemaking progresses. ACWA requests that an ACWA representative be appointed to any groundwater Rulemaking Advisory Committee to share our scientific, technical, and practical experience.

5. Chapter 12-Action 12C- Encourage Water Reuse Projects

ACWA is deeply appreciative of the IWRS’ encouragement of the implementation of Water Reuse projects and the need for supportive legislation. Further elaboration of the benefits of reuse water is important, such as calling out the positive impact of water reuse for drought mitigation and climate resiliency. As Oregon, particularly western Oregon, faces longer and drier summers and increasing droughts, recycled water can fill a critical water resource need to maintain healthy green infrastructure essential for mitigating urban heat islands and ensuring wet

season stormwater flow storage and treatment capacity – all while reducing the withdrawal pressures on local rivers and aquifers. Also, reuse water applied to agricultural uses reduce the need for stream withdrawals and will be critical to maintaining stream flows that can support beneficial uses year-round and reduce stream temperatures. As an aside, ACWA is working closely with DEQ in support of HB 2010 to advance reuse projects in Oregon and this work should be mentioned and encouraged.

6. Chapter 12-Action 12E – Reach Environmental Outcomes with Non-Regulatory Alternatives

This section should include both the City of Ashland's and the Metropolitan Wastewater Management Commission's (MWMC) water quality trading programs to meet water temperature challenges – both implemented in partnership with The Freshwater Trust. Ashland's program restores riparian vegetation in the Rogue River watershed. MWMC's program includes riparian restoration and optional stream channel restoration projects. MWMC participated in an ACWA study in partnership with the U.S. Geological Survey that assessed the impact of riparian shade on stream temperature, and concluded that the benefits of riparian shade outweigh that of mechanical cooling infrastructure.

7. Chapter 12-Action 12G --_Strengthen Water Quantity and Water Quality Permitting Programs

The IWRS should include considerations in the 2023 HB 2010 Drought Package bill, especially related to Section 22 to improve and enhance Oregon's adoption of recycled water uses. Recycled water use can be a win-win for stream habitat by reducing reliance on freshwater withdrawals and reducing total discharge of treated wastewater, maintaining a better balance of instream flows and reducing impacts of temperature, nutrients, and other water quality factors. Water quantity and water quality permits should consider these opportunities. Action 12C addresses recycled water opportunities, but the nexus with water quality permits bears repeating the potential benefits here. This section should also emphasize the water quantity considerations on withdrawals and reduced streamflows on exacerbating water quality issues, including temperature, harmful algae blooms, lower capacity to handle nonpoint runoff, like nutrients and sediment, etc.

Thank you for your consideration of ACWA's comments. As discussed, ACWA's members have an interest and a meaningful impact on nearly every Action identified in the IWRS. ACWA is anxious and willing to participate in these efforts to advance toward achieving the Water Vision. If you have any questions, please do not hesitate to contact me.

Sincerely,

Jerry

Jerry Linder
Executive Director



WaterWatch of Oregon

Protecting Natural Flows In Oregon Rivers

April 5, 2024

Oregon Water Resources Department
Attn: Crystal Grinnell, IWRS Coordinator
725 Summer Street NE, Ste A
Salem, OR 97301

Re: Comments, Integrated Water Resources Strategy 2024 Update, Draft 1

Dear Ms. Grinnell,

Thank you for this opportunity to comment on the OWRD's proposed 2024 Integrated Water Resources Strategy (IWRS) update. These narrative comments offer a high level overview of some of the detailed mark-up comments we have offered on the 2024 Draft IWRS document itself (attached).

Background: The Integrated Water Resources Strategy is the state's blueprint for understanding and meeting Oregon's instream and out-of-stream needs. The legislation directing the OWRD to develop the IWRS, in coordination with ODFW and ODEQ¹, passed in 2009 and was very purposeful in directing that the strategy set a clear path forward for both understanding and meeting Oregon's instream and out-of-stream water needs. The inclusion of "instream" was heavily negotiated and passed via amendment. WaterWatch participated in those negotiations, and it is our assessment the bill would not have passed without the word "instream" to ensure balance between instream and out-of-stream needs.

The original 2012 IWRS was developed after roughly three years of robust and inclusive outreach and engagement. This included work of the Commission to develop issue papers to guide discussions, OWRD research and analysis of the various types of state plans/strategies from which to model the structure from, a broad based Policy Advisory Committee (PAG)² which met over a 24 month period, an agency project team, and agency advisory group, a federal liaison group, and others. There were nearly a dozen open houses across the state that had robust attendance, as well as a multitude of opportunities for written public comment on numerous drafts of the strategy. The final product was a solid product and was meant to serve as the scaffolding for the future. As noted previously by the OWRD, "[t]he 2012 Integrated Water Resources Strategy is a 50-year roadmap that will guide agency actions for years to come" and the goals, objectives and recommended actions were designed with a 50 year horizon in mind.³

¹ In 2023 the IWRS statute was updated to include ODA and OWEB as coordinating agencies; so the full suite of agencies are OWRD, ODEQ, ODFW, ODA and OWEB (HB 2010, 2023).

² The original policy advisory group was attended by the GNRO director, agency directors and staff, Water Resource Commissioners, tribes and representatives of conservation, agricultural, municipal interests, as well as public seats.

³ See e.g. MEMO to Water Resources Commission from Alyssa Mucken IWRS Coordinator, November 20, 2015.

The IWRS is required, by statute, to be reviewed and updated every 5 years (now 8). The law purposefully calls for an update, not a total reworking. The 2017 IWRS, by design, retained the original goals, objectives, and guiding principles from the 2012 version, and focused that update on refreshing information, filling important gaps, and shoring up or adding new recommended actions.

Despite early representations to stakeholders that the 2023 update (now 2024 update) would follow suit and simply focus on filling gaps (e.g. climate change and equity), the OWRD pivoted from this path and has released a draft that wholly reworks the IWRS. This reworking was not the result of recommendations from a PAG (none was convened), other public engagement efforts⁴, or direction from the Water Resources Commission or the Governor’s office.

GENERAL COMMENTS: As a general matter, while we support many of the new “action” items related to data, ecosystems, water quality and climate change, we have significant concerns with the draft 2024 IWRS released for public comment, including but not limited to the wholesale restructuring of the IWRS. High level topics are noted below, detailed remarks captured in our mark-up of the 2024 IWRS draft itself.

A. RESTRUCTURING OF THE IWRS⁵: As noted, the 2024 draft restructures the IWRS in whole. The 2024 draft changes the ordering, titles and subheadings in a manner that strips away the clear pathway to meeting the statutory directive of both understanding and meeting Oregon’s instream and out-of-stream needs. Critical guideposts that were present in the 2012 and 2017 versions have been removed, and key issues have been stripped from headings or subheadings. Action items were shuffled, and select narratives were substantially altered. While we have called this out throughout on the attached marked-up of the 2024 draft, some illustrative examples include:

1. Removing “instream and out-of-stream” from headings/directives: The 2024 version removes two chapters titled “understand instream and out-of-stream needs” and “meet instream and out-of-stream needs”. The “goals” guiding the 2024 version also leave these key words out of the headings, and

⁴ WaterWatch tracked all engagement efforts, and until the September OWRC meeting, where staff announced this pivot in direction, heard nothing about possible restructuring. The Oregon Kitchen Table Survey did not have any questions related to strategy organization, the regional convenings did not ask about IWRS restructuring, the “script” delivered to guide self-convenings did not reference or allude to this, the “interviews” noted in the September staff report were strictly on the subject of where regional outreach meetings should be held, and previous communications to the Commission meetings (prior to September) did not raise any indication that OWRD would be restructuring the IWRS. Moreover, we have procured all narratives submitted to the Oregon Kitchen Table as part of their survey and did not find one recommendation (among hundreds submitted) asking for the strategy to be reworked; listening session notes also are devoid of any request by any stakeholder to move in this direction.

⁵ The changes are most easily viewed when comparing the 2017 one page “framework” (found at the end of the strategy) to the 2024 one page framework (again, end of document); we would suggest the Commission review our comments on the restructuring with those two one pagers on hand. The reason for pointing to the “framework” as a reference is that our observation is that legislators rely heavily on the one page framework for the synopsis of what is in the document, rather than the actual document. It is that one page framework we have seen on legislator’s walls and/or referred to in hearings and meetings. Inclusion of key topics and guideposts in chapter and subchapter headings which are then captured in the one page framework are critically important.

simply refer to “water resources”. The importance of the words “instream and out-of-stream” cannot be overstated; these words provide an integral framework that follows the statutory mandates, and in previous versions, have heavily shaped recommendations and narratives. Adding to our concern that these words are not in the chapter or goal headings, is the fact that these words have been culled throughout the document. A word search of the 2017 IWRS found that “instream and out-of-stream” was used 119 times throughout the 190 page document; in contrast, the 2024 Draft IWRS drops usage by half, with the term “instream and out-of-stream” used only 59 times in a 221 page document.

As a reminder, the words “instream and out-of-stream” were heavily negotiated as part of the bill passage, the result being that ORS 536.220 mandates that “The department shall design the strategy to meet Oregon’s instream and out-of-stream needs.” The 2012 IWRS (carried over to 2017) built a clear and easily understandable scaffolding to meet this statutory directive; the 2024 version tears this down.

2. Undoing the “tagline” of the framework so it no longer conveys the overall statutory purpose of the IWRS: As noted, the one page “framework” is the document that is heavily used as a short cut to the full strategy for legislators, decision makers and the public; as such clear language identifying what the IWRS is is of critical importance. The title/tagline of the 2017 version compared to the 2024 version is as follows:

- **Oregon’s 2017 Integrated Water Resources Strategy**--A framework for improving our understanding of Oregon’s water resources and meeting our instream and out of stream needs, including water quantity, water quality and ecosystem needs.
- **Oregon’s 2024 Integrated Water Resources Strategy Framework and Actions**--Focusing on: Climate changes, population growth, land use change, economic impacts and energy demand

The problems of the 2024 version are self-evident; it simply does not clearly articulate what the strategy is, or what it is meant to do. Ironically, the word “water” does not even make it into the 2024 tagline, let alone the statutory direction that any strategy meet both “instream and out-of-stream” needs. One of the stated purposes for the IWRS redo was “to make the document more accessible”; this fails that metric.

3. Removing the 2017 stand-alone section on “Climate Change”: While the 2024 version adds additional “actions” related to climate change, which we support, it removes the stand alone subsection devoted to climate change. As such, climate change is no longer a designated “critical issue.” What this means is there is no heading or subheading in the summary framework or table of contents to let the reader know this is a central and urgent issue in the state’s eyes. It also makes finding climate change action items difficult; the reader is left to self-navigate the 220 page document. Long story short, by removing this as a standalone subsection there is no indication that the state’s blueprint for our water future includes movement forward on climate change adaptation/resiliency actions.

4. Elevation of “Planning and Partnerships” to an entire chapter without affording the same gravitas to other tools: The 2024 draft elevates Planning and Partnerships to a whole new chapter (one of the four). While we agree that planning has a role in moving Oregon towards a sustainable water future, it is only one tool of many. Previous iterations respected that and placed planning (specifically place based planning) together with other tools under the chapter dedicated to recommendations for meeting instream and out-of-stream needs. To elevate this one issue to a full chapter, undermines other

critical tools---such as water management.⁶ If the state is going to dedicate a full chapter to planning, it should also add full chapters to other important tools such as this.

5. Reshuffling the deck in a way that undermines instream initiatives: In places, the 2024 update has moved action items among subchapters, with some changes making no logical sense and/or worse, undercutting the very section in which they are placed. These are noted in our mark-up comments, but one illustrative example is as follows:

- Water and Energy: Statutory directive requires the IWRS to set a path to understand and meet instream and out-of-stream needs. It also requires attention to coming pressures. The 2012 scaffolding listed “Water and Energy” as one of a number of coming pressures. Under this coming pressure, the 2012/2017 IWRS included a recommended action that directed the state to “Analyze the effects on water from energy development projects and policies” sat, appropriately, under “Water and Energy”. The 2024 draft inexplicably moves this out of “Water and Energy”, to the data chapter’s subsection “Instream and Ecosystem Water Needs”. By doing so, the 2024 draft has essentially labeled hydropower projects, which generally harm rivers/ecosystems, as an instream need. This makes absolutely no sense; and worse greatly diminishes the force of instream need section to advance data that actually helps natural ecosystems not harms them.

6. Changing Titles/Changing Scope: In a number of places the 2024 draft changes titles of critical issues and example actions in ways that greatly change the scope. These are generally not identified to readers, so without reading the 2017 and 2024 strategies side by side it would be impossible for commentors to know this. Previous titles were heavily negotiated in PAGs and other transparent and inclusive conversations. One illustrative example of a changed critical issue is as follows.

- The 2024 draft has changed the 2017 subheading of the identified critical issue of “Place-Based Efforts” to “Support Integrated Based Planning and Other Water Planning Efforts”, greatly expanding the directive. The inclusion of “Place Based Efforts” was heavily negotiated in previous iterations; and was included as one tool of many to meet instream and out-of-stream needs. Importantly, a condition of its inclusion in the original 2012 IWRS was the development of sideboards to guide the program, which were accomplished after months of work. Many of these sideboards were then passed into the law that allows funding of these Place Based Planning. By changing the title to also direct support of “other water planning efforts” the 2024 draft has greatly broadened the directive in a way that would demand state support of any kind of planning, regardless of intent, lack of sideboards, balance of stakeholders, etc. Given the IWRS is “adopted” by the Commission, the IWRS serves as an endorsement of ideas therein. As such, expanding to water planning could have significant impacts on legislative budget discussions, among other things.

⁶ As of now, management only shares a “recommended action” subsection with water development, subsumed under the new title “stewardship”. This really doesn’t cut it. Rigorous water management is critical to a sustainable water future, it needs to be front and center of any water strategy. To leave as is could undercut the use and/or funding of important state tools and strategies not tied to planning. It also could stymie action forward on modernization of existing laws and regulations to better protect our surface and groundwater resources.

An example of the changing of a title, and therefore changing of scope, of an example action is:

- The 2017 IWRS included a recommended action to “Coordinate implementation of existing natural resources plans”. The 2024 draft has changed this “Coordinate State and Local Natural Resources Plans”. This not only greatly narrows the scope of the directive (so excludes federal and tribal plans), but also elevates local plans in a way that implies states must cede and/or somehow collaborate even if these local plans contradict state direction (new accompanying narrative confirms this). The state has rejected efforts to relinquish agency autonomy to local governments; this directive conflicts with that.

7. New funding chapter is not all inclusive as intended: The 2024 draft elevates funding to one of four chapters. The intent, as articulated at one Water Resources Commission meeting, was not only to elevate the issue but also to have all funding in one place rather than scattered throughout. Funding of state agencies to carry out the IWRS is, in our opinion, of critical importance and we support the elevation of this issue. The funding chapter also includes funding of grant and loan programs; we agree this makes sense to have a central location rather than have scattered funding directives throughout. That said, this latter point is not achieved; funding directives are not limited to Chapter 1. Funding directive tied to actions are scattered throughout the document⁷. The ad hoc direction of funding outside of Chapter 1 elevates some but not all the example actions, which does not seem equitable.

8. Use of the term “community” as a lever for exclusion: Oregon statutes are very clear that all water in Oregon belongs to the public, and up until now the state has been very purposeful in inviting all who are interested in water to have a seat at the table. This is a policy that is found in statute and in the day to day work of the agencies. The 2024 IWRS draft moves away from this in places by narrowing previously broad 2012/2017 narratives and/or directives that included a myriad of interests to “community”⁸ only. Regardless of intent, the effect of this is to move Oregon away from open, transparent, and inclusive discussions on water. This, in our minds, is a sea change in the state’s approach to planning and decision-making. This also enables those who have been seeking (but failing) to advance local control of water a state endorsed pathway forward.

9. One pager placement/presentation do not meet need: The 2024 version adds “one pagers” meant to synthesize information for each “action” into an easily accessible document. While we support the idea of some sort of synopsis document for the noted example actions, as executed it seems clunky and disjointed.

⁷ For example, funding directives can be found in action items under Water Infrastructure Action 13A, Water and Energy Actions 14A, 14B; Education and Outreach Actions 2A, 2B, 2D; Coordination and Collaboration Action 3C: Water Planning Actions 4A, 4B, 5A; Natural Hazard Mitigation Planning and Extreme Events Actions 6A, 6B and many other places. While we do not object to directives that are aimed at state agency funding to move forward on actions; we do have concerns with actions that direct funding to private projects absent a tie to the grant and loan funds that are, or should, all be referenced in Chapter 1.

⁸The OWRD does not incorporate the broad definition of community developed by the HB 5006 Regional Management Workgroup, namely that community means: People who live, work or play within the planning region; entities with an interest or obligation related to water and ecosystems in the region; and governments (federal, state, local, tribal). This should be added to the IWRS.

Rather than develop a stand-alone synopsis at that end of the document to accompany the one page “framework” document; the 2024 version adds one pagers at the end of each critical issue within each chapter to highlight “actions”. There are 15 critical issues, with 47 “actions” under which sit innumerable “example actions” spread across 200 plus page document. Long story short, rather than a one or two page synopsis document at the end that a legislator or other interested party could print out that simply has the chapter titles, critical issues, and then “actions” and then “example actions” under those, there are 47 one pagers spread across 4 chapters that are somewhat unwieldy (in current form) to navigate.⁹

The main purpose of the one pager, as we understand it, is to provide a one page guide to the “actions”, including calling out example actions. The 2024 one pagers are the only place the example actions are found. To compare, the 2012/2017 versions have a narrative for each critical issue, then within the body of those narratives pull out boxes are placed at the appropriate spots to highlight the relevant “recommended action” under which “example actions” are found. These boxes are tied directly to the places in the document where the narratives are discussing the issue and are very easy for the reader to follow. The 2024 version, on the other hand, removes any example actions from the body of the narrative. Instead, the narrative pull out boxes only identify the recommended action (though no longer called recommended action, simply action). To find the example actions tied to the “action”, the reader must continue to the end of the subchapter at the end of the narrative and flip through the many one pagers to find the one they are interested in. This organizational structure that moves the example actions from the narrative squanders an easy pathway to reader comprehension and instead requires the reader to toggle back and forth and try to understand on their own what ties with what. This is especially hard to navigate on the online version.

If the OWRD wants to offer an easier way for the reader to tie example actions to the larger umbrella action directives, we would suggest the following three things: (1) include example actions in pull out boxes with the narrative so readers can read in context (as was done in the 2012/2017 version), then in addition (2) compile a stand-alone synopsis as a companion to the one page “framework” at the end of the document (so the reader can easily print all the “short cut” documents out together), and (3) shorten that stand alone document to simply lists of example actions under each “action” without bogging down with much of what is noted below.

That said, if the OWRD retains the current structure, we would ask OWRD to address the following concerns.

- **Designation of partners:** The OWRD has designated partners for each “action item”. These groupings often exclude key players, among them (but not limited to) “conservation groups”. These “partner” lists could result in the elevation of some but not others in legislative or other policy making forums, could lead to bias against those not named. At its core, this works against the concept of inclusivity. It also creates a barrier to those new to Oregon’s water space.

⁹ As an example, it took this reader a full 6 minutes to toggle between the table of contents to the “actions” captured in each chapter’s “actions at a glance” to the one pagers for each “action” found at the end of each action narrative to come up with these numbers. A succinct action placemat of sorts at the end of the document to accompany the framework would largely solve this issue

OWRD either needs to expand to include all interested parties by general groupings¹⁰ such as tribes, conservation groups, agriculture, municipal, local governments, etc or cut altogether.

- **Designation of lead and supporting agencies:** While we appreciate the sentiment here; in a number of places the 2024 draft misses the mark in placing agencies in one bucket or another, with key agencies being relegated to supporting or visa versa. It is unclear if OWRD made these groupings internally, or if the full agency list was consulted. If not the latter, we would suggest that as follow up. We would also ask the OWRD to revisit putting lead agencies in alphabetical order as it could confuse readers as to which agencies really are leads.
- **Failing to include the statutory directives of “understanding and meeting instream and out-of-stream needs” in the one pagers:** The one pagers do not include the overarching directives of the IWRS to meet instream and out of stream needs. To the extent these are supposed to be standalone guides that people will print out to use separately from the full 220 page strategy, omission of this key directive leaves the reader with no guidepost as to the overall intent of the action.
- **Background Narratives:** The background pieces have heavily truncated background sections, and in many cases miss the mark in giving a short synopsis of what the action item is aimed at addressing. For example (one of many), Action 6A, Plan and Prepare for Drought, there are two very short paragraphs, the second reading:

Drought is one of 12 hazards discussed in Oregon’s 2020 Natural Hazards Mitigation Plan (NHMP). The state will release an updated version in 2025. A drought vulnerability risk assessment will be developed in preparation for the next NHMP.

Given these “one pagers” are supposed to be cheat sheets of sorts to educate decisionmakers and the public without requiring them to read the full strategy, populating the background description with a paragraph about process really serves no purpose. In other words, the process as to the NHMP update really is neither here nor there for someone wanting a quick “cheat sheet” on the effects of drought on Oregon; moreover, some of the language will be moot within a year. Recommend a reworking of all background narratives that don’t tell a story. We would also suggest that the drafting pens for these be handed to the agencies who are lead on the subject (so instream to ODFW, water quality to DEQ, etc).

B. POLICY DIRECTIVES WITHOUT TRANSPARENT PUBLIC PROCESS: The IWRS is adopted by the Oregon Water Resources Commission. As such, it is used in state decision making and legislative discussions as a representation of the state position on water. The 2024 version includes a number of changes that could shape legislative policy and funding and agency action for the next 8 years. These are not emerging from transparent processes. The public is seeing these for the first time in

¹⁰ Specific names should be cut given this is an 8 year timeframe and OWRD has no idea who or who will not be playing in that space in the future (e.g. FCA, Recode, Energy Trust, etc).

the 220 page document released on March 4. No PAG was convened to try to come to consensus, and no substantive information sessions were held to educate the public on the recommended changes and additions. Concerns include but are not limited to:

1. Addition of policy directives absent transparent, inclusive, and open process: In a number of places the 2024 IWRS draft is directing advancement of policies that have not been advanced by agencies or agency stakeholder workgroups via public discussions (e.g. water quantity trading, adaptive transfer tools, etc). The 2024 version also revives concepts that many stakeholders worked hard to defeat in the legislature, including directives related to planning, weakening agency autonomy, and elevation of local influence¹¹.

2. Merging the IWRS with Governor Brown’s 100 Year Water Vision into one document: The 2024 Draft IWRS states that “[t]o streamline Oregon’s water initiatives, the 2024 Strategy Combines the 100-Year Water Vision and strategy into a single document.” (pg. 2, 2024 draft). In doing so, the 2024 draft is proposing an action that is not supported by IWRS statutory directives and is advancing a policy direction that has not been publicly requested by the executive branch.

The law that directs the development of the IWRS was passed in 2009. As noted, the first IWRS was adopted in 2012, with an update in 2017. The statute charged OWRD, in coordination with DEQ and ODFW, to develop the strategy to meet instream and out-of-stream needs.

The 100-Year water vision, in contrast, was an initiative of Governor Brown’s and never codified in law. While there was multi-agency input; the 100-Year Water Vision development was largely led by OWEB and the Governor’s office, with the aid of Willamette Partnership and Oregon Consensus. OWRD, DEQ or ODFW, who are tasked with development of the IWRS, were not in leadership roles per se.

WaterWatch was very involved in the development of both the IWRS and the 100-Year Water Vision. And while we agree that a lot of good work went into the development of the 100-Year Water Vision, and some valuable insight gained, there was never a stated purpose that this work would somehow supplant the IWRS. In fact, in 2023 the Oregon Legislature amended the statute governing the IWRS, and in doing so did not include any directives related to the 100 year water vision. We also have heard no indication from the executive branch that Governor Kotek directed this merging. Long story short, had it been the state’s intention to merge these documents, the 2023 IWRS bill would have been the place to direct this.

It is also noteworthy that movement forward on the 100-Year Water Vision (referred to as Phase 2) was dependent on the formation of an advisory committee to guide the work. The Oregon Legislature failed to fund Governor Brown’s 2020 request for this work; thus, active implementation of the vision stalled. A few select projects were funded in 2021, but these were also tied to the IWRS and were projects limited in scope (e.g. Business Case for water, Water Portal, etc) and not a pathway forward to full implementation of the 100-Year Water Vision.

¹¹ See e.g. HB 2251 (2021), HB 3100 (2023), HB 3368(2023) among others.

Despite this somewhat disjointed history, the 2024 Draft IWRS is now declaring that the two documents are merged into one. While we do not object to the use of the 100-Year Water Vision as a reference of sorts, to merge these documents into one raises concerns on a number of levels, including what appears to be selective culling of the 100-Year Water Vision to advance some but not all focus areas (e.g. planning, collaboration, infrastructure are elevated, but not ecosystems). Long story short, these documents should stand alone--to merge them dilutes the intended force of each.

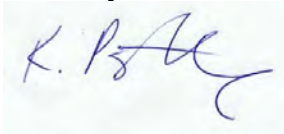
PUBLIC ENGAGEMENT: As we testified to at the June, September, November (written) and March Water Resources Commission meetings¹², WaterWatch has significant concerns with OWRD's public engagement efforts on the 2024 IWRS update.

Unlike the 2012 and 2017 versions that were developed after years of vigorous public engagement and actual consensus hammered out after many meetings, the OWRD forged ahead with a wholesale restructuring of the 2024 version without the benefit of discussion or consensus within a policy advisory group made up of tribes, conservation groups, agricultural interests, municipal representatives, the governor's office, state and federal agencies, water resources commissioners and others. This siloed approach is not aligned with the OWRD's general approach to transparent public engagement, and it is inconsistent with past public engagement on the Strategy; more work is needed.

CONCLUSION: While we appreciate that a lot of work went into the current draft, we would urge the state to step back, recalibrate and focus efforts on an update to the 2017 IWRS not a complete redo.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in blue ink, appearing to read "K. Priestley", is written over a light blue rectangular background.

Kimberley Priestley
Senior Policy Analyst

¹² WaterWatch identified concerns with 2024 public engagement approach include, but are not limited to, the nature of the survey questions (e.g. didn't include the word river once, tangled issues, etc), locating listening sessions in cities that were not conducive to broad public participation (The sum total of public attendance at these meetings were Seaside – 5, Ontario – 8, Hermiston – 5, John Day – 9, Corvallis – 9, Roseburg – 7 and Madras - 20, and after complaints about the locations, a virtual option was added to which 50 people showed up), failure to convene a Policy Advisory Group, internal decisions to redo rather than update the IWRS, etc.

2024

Oregon's Integrated Water Resources Strategy

Draft 1, March 2024



This page left intentionally blank.

TABLE OF CONTENTS

Introduction	1
PART 1 – Oregon’s Water Context	7
Current Water Challenges	9
Water Vision and Call to Action	11
Water Governance	13
References	32
PART 2 - Strategy Actions	33
Chapter 1 - Funding	
Chapter 1 Actions at a Glance	38
Critical Issue – Funding	39
References	48
Chapter 2 – Partnerships & Planning	49
Chapter 2 Actions at a Glance	51
Critical Issue – Education	52
Critical Issue – Coordination & Collaboration	62
Critical Issue – Water Planning	69
Critical Issue – Land Use Planning	75
Critical Issue – Natural Hazard Mitigation Planning & Extreme Events	84
References	94
Chapter 3 – Data & Analysis	95
Chapter 3 Actions at a Glance	97
Critical Issue – Water Resource/Supply Information	98
Critical Issue – Instream & Ecosystem Needs	115
Critical Issue – Out-of-Stream Needs	123
References	129
Chapter 4 – Stewardship	131
Chapter 4 Actions at a Glance	133
Critical Issue – Healthy Ecosystems	134
Critical Issue – Clean Water	150
Critical Issue – Water Use & Management	164
Critical Issue – Water Infrastructure	183
Critical Issue – Water & Energy	192
References	199
Conclusion – Implementation and Looking Forward	201
Acronyms	205
Acknowledgements	207
IWRS Call to Action & Vision	209
IWRS Framework	210
Appendix A - Crosswalk 2017 Strategy and 2024 Strategy Actions	211

This page left intentionally blank.

INTRODUCTION

Oregon's 2024 Integrated Water Resources Strategy

Oregon's Water Vision

"To address changes in climate and population dynamics, Oregonians will take care of our surface water, groundwater, and built and natural infrastructure to ensure we have enough clean water for our people, our economy, and our environment, now and for future generations. Oregonians will invest strategically in partnerships and planning, data and analysis, and water stewardship for instream and out-of-stream needs across all regions to support resilient communities, vibrant local economies, and a healthy environment for all who live here."

- Oregon Water Resources Commission (2024)

Commented [KP1]: OWRD took the vision for the 100 year water vision and morphed here. Concerns: (1) the water vision was designed as a document to shape strategic investment, the IWRS on the other hand is a blueprint for Oregon's water future that includes investment but is not limited to investment; (2) this elevates taking care of infrastructure as equally important as taking care of GW and SW which we do not support; (3) the 100 year vision marries "infrastructure and ecosystems" throughout the document, this leaves out ecosystems, (4) this elevates planning and partnerships in way no earlier version did, and w/o input of PAG or otherwise (5) this leaves out "water management" and/or "regulation", which misses the mark as far as one of Oregon's needs as far as ensuring a sustainable water future; (7) reliance on 100 year water vision is misplaced (see later comments).

This page left intentionally blank.

Oregon's Water Strategy

Why do we have a statewide Integrated Water Resources Strategy?

Water is essential to our communities, ecosystems, and economic activities; therefore a diversity of agencies have some role in managing our water resources. In 2009, the passing of House Bill 3369 identified the need for, and direction to, develop a statewide Integrated Water Resources Strategy (IWRS or from here forward referred to as the "Strategy") to coordinate water management efforts by many agencies and partners. The Strategy was needed to carry out two goals: to *improve our understanding of Oregon's water resources* and to *meet our state's instream and out-of-stream water resource needs*. House Bill 3369 was codified into law as [ORS 536.220](#), outlining the specifics of who should participate in the development of the Strategy, what it must include, and how often it must be updated. After three years of engagement with more than 15 state agencies, 10 federal agencies, tribes, interested parties, and the public, the first Strategy was published in 2012. The [2012 Strategy](#) inspired many improvements in water resources data collection, management, planning, and funding for water projects.

In line with the statutory requirement to update the Strategy every five years, the second Strategy was released in 2017. The [2017 Strategy](#) maintained the same goals, objectives, and recommended actions outlined in the 2012 Strategy, and added nine additional recommended actions. State agencies continued to make progress on the recommended actions, as agency budgets allowed. Just as water resources require constant care and management, many of the Strategy recommended actions require consistent effort and ongoing financial support. [\(PULL OUT BOX, INSTREAM USE\)](#)

"Instream Use" – water that is used, but not withdrawn, from a groundwater or surface water source for such purposes as hydroelectric-power generation, navigation, ecosystem support, water-quality improvement, fish propagation, and recreation.

In 2019, former Governor Brown initiated the [100-Year Water Vision](#) (Vision), a community engagement process to elevate water concerns of Oregonians and call for strategic investments to address these challenges. Completed in 2020, the Vision called for Oregonians to "invest strategically in infrastructure and ecosystems across all regions to support resilient communities, vibrant local economies, and a healthy environment for all who live here." Following the release of the Vision, the 2021 Oregon Legislature made historic investments in Oregon's water resources by passing a \$538 million water package. This funding allowed state agencies to make significant progress toward addressing the recommended actions identified in the 2017 Strategy. Participants in the Vision process called for the Vision findings to be applied to the next Strategy. This 2024 Strategy incorporates the Vision challenges, opportunities, and call for investments, providing a place for the Vision to be carried forward.

[To streamline Oregon's water initiatives, the 2024 Strategy combines the 100-Year Water Vision and Strategy into a single document.](#)

"Out-of-Stream Use" – water withdrawn or diverted from a groundwater or surface water source for aquaculture, commercial, domestic self-supply, industrial, irrigation, livestock, mining, public supply, thermoelectric power, and other uses.

In line with previous versions, the 2024 Strategy places an emphasis on collaboration and voluntary efforts, as well as the need for data. It identifies areas where incentives or new policies could serve as powerful tools for progress. It also identifies where public and private partnerships could stretch our dollars and further instream and out-of-stream efforts. Just as importantly, the Strategy does not remove or jeopardize existing water rights or other local, state, tribal, and federal authorizations. The Strategy does not itself change any existing authorities. [\(PULL OUT BOX, OUT OF STREAM USE\)](#)

Commented [KP2]: PULL OUT BOX FOR "INSTREAM USE": the IWRS strategy calls for the meeting of "instream needs", not "uses". Instream needs are defined in various parts of statute, rule, policy as water that remains in its natural channel/lake/wetland/etc to support fish and wildlife habitat, scenic values, water quality, recreation, ecosystem health and the like.

We would urge redrafting (in consultation with ODFW and DEQ) to capture what both statute and general understanding of instream needs means. E.g. phrases like "fish propagation" don't capture fish/wildlife needs.

Also, hydro is not an instream need and should be struck. Many/most hydro projects either pull water out of stream before dumping back in and/or are placed on stream altering dams, so in other words tend to harm instream needs.

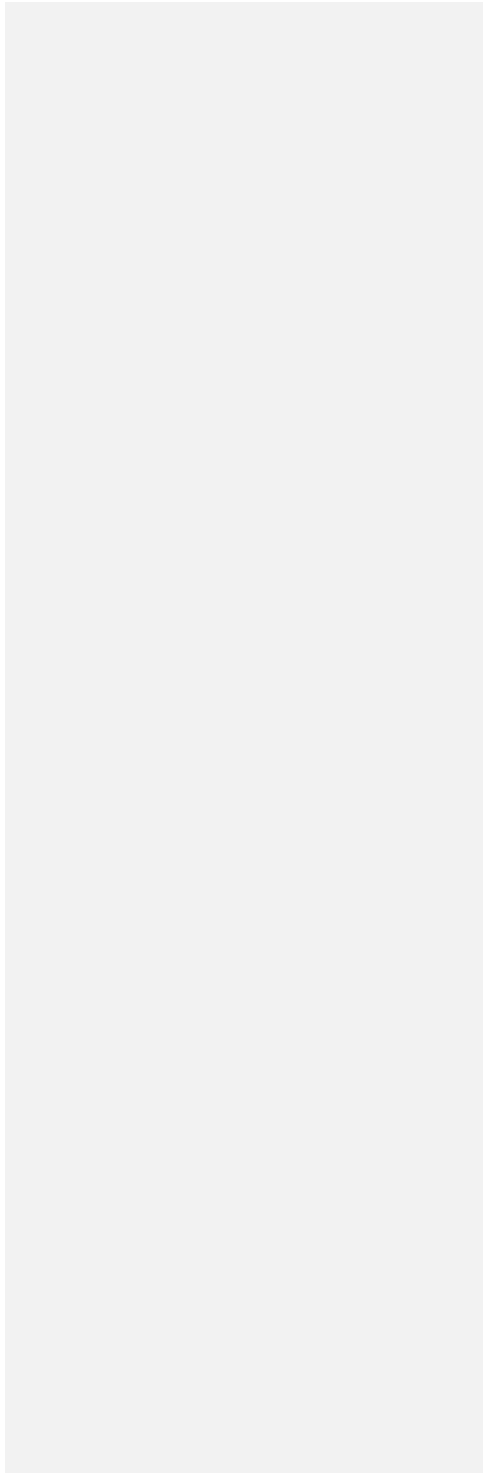
Commented [KP3]: The narrative here is not supported by OWRD budget reports for 2021 and 2023. As those documents show, the bump in spending was largely tied to the IWRS, not the 100-Year Vision. The Gov's office tried to get funding in 2020 session to move the 100 year water vision forward (e.g. creation of an advisory committee) and the legislature chose not to fund it. Since then, the effort has largely fizzled.

Commented [KP4]: This was not directed by statute or rule. Moreover, the IWRS statute was updated in 2023, the legislature did not include language directing that the 100 year water vision be merged with the IWRS. Additionally, we are not aware of any direction by Governor Kotek fold the 100 year vision into the IWRS.

Commented [KP5]: We do not agree that the previous version placed "an emphasis on collaboration and voluntary efforts". Many of the directives in the IWRS were directed at agency actions that fall under their missions and not related to collaboration and voluntary efforts. Place Based Planning (one recommended action among many in the 2012 and 2017 IWRS), is where there is an emphasis on collaborative and voluntary efforts lie, but that was one critical issue of many.

Commented [KP6]: Concern that the 2024 draft is directing "new policy" without the benefit of a PAG or other transparent process to discuss these recommendations.

Commented [KP7]: OUT OF STREAM PULL OUT BOX: This also could be reworked to be a bit clearer. Also, it seems odd this includes aquaculture?



The 2024 Edition

The fundamental purpose of this document remains the same, to better understand and meet Oregon’s instream and out-of-stream water needs — environmental and consumptive — including water quantity, water quality, and ecosystem needs.

Document Organization

Two prior versions built the foundation for the 2024 Strategy. Countless contributors came together and organized a Strategy around 2 goals, 4 objectives, 18 critical issues, and 51 recommended actions (2017). The goals, objectives, and most critical issues and recommended actions are still relevant today, however, there is an opportunity to refine the Strategy to reflect current interests and needs. Goals 1 and 2 remain unchanged. Objective 3, “Understand Coming Pressures that Affect Our Needs and Supplies” has been changed to “Understand the Pressures that Affect Our Needs and Supplies” so that current and future pressures are included.

The 2024 Strategy is no longer organized by one chapter per objective because actions accomplish more than one objective. For example, funding actions in Chapter 1 help us meet all four objectives. Actions found in Chapters 2 and 3 meet Objectives 1, 2, and 3. All actions under Chapter 4 help meet Objective 4.

The new document organization groups actions into four categories: funding, planning and partnerships, data and analysis, and stewardship. Each category is now a chapter.

Part 1: Oregon’s Water Context

Part 2: Strategy Actions

Chapter 1 – Funding

Chapter 2 – Partnerships & Planning

Chapter 3 – Data & Analysis

Chapter 4 - Stewardship

Goal 1: Improve Our Understanding of Oregon’s Water Resources		Goal 2: Meet Oregon’s Water Resources Needs
Objective 1: Understand Water Resources	Objective 2: Understand Instream and Out-of-Stream Needs	Objective 4: Meet Instream and Out-of-Stream Needs
Objective 3: Understand the Pressures that Affect Our Needs and Supplies		
Chapter 1 – Funding (Actions 1A-1C)		
Chapter 2 - Partnerships & Planning (Actions 2A-6C)	Chapter 3 - Data & Analysis (Actions 7A-9B)	Chapter 4 – Stewardship (Actions 10A-14B)

Part 1 provides background regarding current water challenges in the State, an overview of water governance, policies, and laws. Part 2 contains all strategy actions. Chapter 1 addresses the need for funding and investments. Chapter 2 outlines actions needed to engage many people, organizations, tribes, and agencies in addressing our water challenges, including education, coordination, collaboration, and planning. Chapter 3 identifies data and analysis needs to help inform coordinated water management responses to climate change, population growth, land use change, economic development, and energy demand. Chapter 4 identifies protection, restoration, conservation, reuse, management, and stewardship actions to meet current and future water needs.

Commented [KP8]: Appreciate the nod here; but this doesn’t carry through to the titles/chapters, including the framework one pager.

Commented [KP9]: Instream and out of stream needs have not necessarily changed; except meeting them has become more urgent with climate change, drought, etc.

Commented [KP10]: Strongly oppose new organization that moves away from titles that make clear the IWRS is designed to understand and meet instream and out-of-stream needs. This change in direction is not supported by public outreach efforts, a PAG and/or any other transparent decision making venue.

Commented [KP11]: This replaces the 2012/2017 directive to “understand Oregon’s instream and out of stream needs” and “meet Oregon’s instream and out-of-stream water needs”. Previous titles were much clearer as to what the critical issues were trying to address. An aligned with statute. Please retain the original titles.

Commented [KP12]: Need to add ecosystem values.

Changes to Critical Issues & Actions

Critical issues are the topics that have actions associated with them. For example, "Healthy Ecosystems" is a critical issue that has five actions (10A-10E) associated with it. The wording of several critical issues has been simplified or changed to better reflect the critical issue content. Climate Change, Economic Development, and Population Growth appeared as critical issues on the 2017 Strategy Framework. In the 2024 Strategy, these topics are covered in many places throughout the document and do not have standalone actions associated with them. One new critical issue has been added, "Coordination & Collaboration" to reflect the call for these activities during the 100-Year Water Vision and public engagement for the Strategy.

The 2017 Strategy recommended actions, now referred to simply as just "actions," have been updated, renumbered, and in some cases relocated under a different critical issue. Each action is still accompanied by a list of "example actions" that describe many possible ways to carry out the action. Altogether, the 2024 Strategy contains 47 actions, each accompanied with its own bullet list of example actions. A summary of new or deleted actions is provided, below. The 2024 Strategy Framework at the end of the document shows the proposed 2024 Strategy action numbers and former numbering in brackets. Appendix A provides a cross-walk of the 2017 Strategy and proposed 2024 Strategy action numbers, for comparison.

New Critical Issue

- Coordination & Collaboration

New Actions:

- Lead Meaningful Community Engagement (3D)
- Develop Instream & Ecosystem Water Demand Forecasts (8D)

Actions Moved to Example Action

- Assist with Climate Change Adaptation & Resiliency Strategies (2017 IWRS 5B) – example actions distributed throughout the Strategy
- Authorize the Update of Water Right Records with Contact Information (2017 IWRS 2D) - moved to example action under 12G
- Regularly Update Oregon's Water Related Permitting Guide (2017 IWRS 2E), moved to example action under 12G
- Continue the Water Resources Development Program (2017 IWRS 10E), moved to example action under 1C

Action Summary Sheets

New for the 2024 Strategy, each action is presented in a summary sheet that identifies the need for the action and detailed information to assist in implementation, including the likely lead and supporting state or federal agencies and partners contributing to the action. Resources, such as funding sources, are also provided. Action summary sheets are located at the end of each "critical issue" narrative.

Strategy Framework

The Framework (at the end of the document) presents the Strategy document organization of critical issues and actions in a one-page diagram. The Framework can be a helpful reference for viewing all Strategy actions on one page without the detail contained in the full Strategy narrative or action summary pages.

Implementation

In line with previous Strategies, implementation occurs after the Strategy has been adopted by the Water Resources Commission.

The statute guiding the development and implementation of the Strategy was updated in 2023 to require a biennial workplan. Following the adoption of the 2024 Strategy by the Water Resources Commission, the Water Resources Department will work with the Commission, agencies, and partners to develop the workplan. Developing a workplan provides the opportunity to coordinate work across many agencies and partners and must be done in a way that protects the public interest and balances instream and out-of-stream needs.

Commented [KP13]: Concerns with many of the changes made here including, place based efforts to water planning, water and land use to land use planning, and others. Also concerns with the changes to example action titles, e.g. coordinate with natural resource plans to coordinate with local natural resource plans, etc (all noted within the document).

Commented [KP14]: Object to the removal of a stand alone climate section. This issue needs to be front and center to this document. Agency rational behind the total rework was partially based on the goal of making the document more accessible, but to the public, legislators, agencies that want to skip right to climate change directives, the removal of the said title will make finding relevant climate change actions and narratives very difficult. This is emblematic of the problems of this redo/rewrite, where changes are being proposed in a silo without consideration to the effect and optics.

Commented [KP15]: Again, misplaced reliance on a document that is not part of the statutory structure of the IWRS, and which further/final development was stalled because legislature chose not to fund the next steps.

Commented [KP16]: Disagree that this was an overarching theme of the public engagement. WW has all survey results (including narratives) and open house notes; and while planning does pop up here and again it's not an overarching theme, in fact many comments as to planning are along the lines of "enough planning, execute!". The call for collaboration/planning was far far outweighed by the call for management, protection, etc yet those were not elevated. This is emblematic of a pattern we are seeing of author's picking and choosing from materials (100 year water vision, public outreach, sos, etc)

Commented [KP17]: The word "recommended" was purposeful in 2012 and 2017 and was meant to provide political backing to movement forward. This change erases the intent and force of the actions.

Commented [KP18]: Concerns with a whole new critical issue on coordination and collaboration. This elevates one pathway among many; if the state wants to expand critical issues there should be a PAG and a whole sweep of critical issues examined, e.g. increased enforcement/regulation, rigorous water management. Removal of critical issues also should be subject to PAG discussion. Again, we do not believe the author's suggested removal climate change as a critical issue (as well as population growth and economic growth) aligns policy discussions at every level of Oregon government.

Commented [KP19]: Implementation started after the adoption of the 2012 version. The 2012 version was supposed to serve as the scaffolding for the next 50 years. Updates were only meant to be iterative so that state agencies could continue their work forward, and not switch gears every 5 years.

Consistent with previous Strategies, actions are not given a prioritization. However, this can be addressed in partnership with the Governor's Office and interested parties as part of the Legislative process.

Steps Already Underway

The Strategy includes a large number of actions needed to improve water security, but much work is already underway. Due to historic investments from the 2021 and 2023 Legislature, described in more detail under "Funding" in Part 2, Oregon has made progress on many actions in the Strategy. New funding and agency programs, and new projects take time to distribute, create, and implement and the fruits of these labors will be apparent over the coming years. Agencies and partners have begun:

- Developing a permanent Place-Based Integrated Planning Program, preparing to distribute funding in 2025
- Developing a new Community Green Infrastructure Grant Program to manage stormwater and protect water quality with the use of green infrastructure projects
- Updating the statewide Natural Hazard Mitigation Plan, due in 2025
- Developing the Oregon Water Data Portal to increase sharing and access of statewide data
- Performing the first update to the Water Availability Reporting System in nearly 30 years
- Improving public safety through the modernization of the Dam Safety and Well Construction Programs
- Engaging Oregonians in sustainable groundwater management through community participation in rules advisory committees and groundwater allocation rulemaking
- Establishing a new inter-agency statewide Abandoned and Derelict Vessel Program to protect water quality and the environment
- Evaluating state reuse programs to find ways to increase reuse opportunities and preserve freshwater resources
- Distributing funds to communities for irrigation, water, and wastewater infrastructure improvements

Commented [KP20]: Strike: Any prioritization should be at the agency level and/or executive branch. Also, recall, 2023 statute updates call for the building of agency workplans, this work could be done there

Commented [KP21]: Agree with this; that said will note that elsewhere in the document author's represent that implementation will occur after adoption. Need to connect the dots.

Commented [KP22]: No mention of instream actions in this list; a bias that carries forward throughout the 2024 IWRS narratives.

Commented [KP23]: This misses the mark on the what the success is here. The success is that the state is moving forward to modernize rules to ensure sustainable gw allocation in alignment with statute..

Commented [KP24]: The \$\$ is not going to "communities"; the \$\$ is going to project proponents whether agricultural, municipal, conservation, etc. Just noting because authors have inserted the word "community" throughout the 2024 IWRS in a way that does not match statutory direction, or what is actually happening on the ground. It is unclear if this is a purposeful attempt to narrow Oregon's funding and management tools in a way that requires community buy in that is not borne out in state law, rule, policy. This has been a controversial subject in the legislature and agency workgroups; authors should not use the 2024 update to direct a policy pathway forward.

PART 1 - OREGON'S WATER CONTEXT

People and the environment across Oregon are experiencing a range of water challenges, including declining groundwater, reduced streamflows, and contaminated water. Oregonians do not have equitable access to water, there is widespread ecosystem degradation, and the decline of fisheries impairs cultural values vital to tribal heritage and way of life. Oregon has identified weaknesses in water management, infrastructure, and governance that have been exacerbated by climate change.

The Strategy offers a path forward in addressing the water challenges experienced by people and the environment by identifying actions needed to be undertaken by governments, organizations, businesses, and individuals.

Part 1 provides context for the Strategy by articulating the urgency for action, the aspirational vision for the future, call for action, and current water governance structure. The narrative describes roles of tribes and state and federal water-related agencies, as well as guiding laws and policies. This information provides the foundation for the Strategy, as it looks to improve collaboration, increase enforcement of existing laws, and identify new rules or policies needed to improve our water security.

Part 2 outlines the specific actions needed to better understand and meet our instream and out-of-stream water needs. Chapter 1 describes the main types of investments that are needed and underscores the need for resources to carry out the Strategy actions. Chapter 2 outlines the partnerships and planning related actions that are needed to increase engagement and collaboration in addressing our water challenges. Chapter 3 describes the data and analysis needed to better understand our water resources and instream and out-of-stream needs. Chapter 4 calls for stewardship actions that protect and restore our environment, protect and improve water quality, and responsibly manage our water resources.

Commented [KP25]: Should add "fish and wildlife" in addition to environment.

This page left intentionally blank.

Current Water Challenges

We are not currently meeting Oregon's water needs...

Oregon's ecosystems and human communities are both experiencing water quantity and quality challenges. There is too much demand for too little water. Some water bodies have inadequate flows and/or water quality to support fish and other wildlife. While some people may simply turn on their tap and enjoy clean water, this is not the case for every Oregonian. Some farmers do not have adequate water to grow crops or raise livestock.

Public engagement for the Strategy took place in 2023 and included in person meetings, one virtual meeting, several culturally specific conversations, youth-specific conversations, and a survey that was translated into nine languages. These engagement efforts provided an opportunity for state agencies to hear from the public about their water concerns. A [report summarizing public engagement](#)¹ efforts, facilitated by Oregon's Kitchen Table, revealed shared water concerns and areas where there is conflict or disagreement about what should be done. The report also outlined solutions the participants identified to address Oregon's water challenges, and specific guidance on how to strengthen Oregon's Strategy. [Specific solutions identified by the public have been incorporated into the 2024 Strategy](#). The relevant strategy action number is provided for reference:

- Desire to educate themselves and their fellow Oregonians about water (see Actions 2A-2C)
- People want public agencies to work better together (see Actions 3A, 3B, and 5A)
- Address water equity by including communities who have historically been excluded (see Action 3C)
- More proactive and preventative infrastructure development (see Actions 5A, 6A-6C, and 13A-13C)
- Make sure we have data about Oregon's water and that data is shared widely (see Actions 7A-7D)
- Need for instream monitoring/data and adequate instream flows (see Actions 7A-7D, 8B, and 10C)
- Increased support for well testing resources for safe drinking water (see Actions 7A and 11A)
- Need accurate information/data about groundwater measurements and use and coordinated management (see Actions 7A-7D, 9A, and 10E)
- Restore and protect floodplains and wetlands as part of supporting water systems and creating storage (see Actions 10A-10E)
- Address instream pollution and impacts from timber harvest near rivers and streams (see Actions 11A-11C)
- Additional reuse and storage (see Actions 12C and 12D)
- Better financial support of small towns for water infrastructure (see Actions 1C and 13A)
- Need for incentives provided by the state (see Actions 10C, 12B, 12E, and 14B)
- Stronger enforcement of current rules and regulations (see Action 12F and 12G)

Other findings from engagement point to improvements needed to the Strategy itself, along with improvements needed in communicating progress. These included:

- Offer a website that clearly lays out each part of the Strategy and includes what has been done or is being done
- Make it clearer what agencies' roles and responsibilities are for our water needs
- Ensure the Strategy and materials are in [plain language](#) and in multiple languages
- Increase accountability measures to carry out the Strategy
- Desire for action, convey a sense of urgency in addressing Oregon's water problems
- Continue engaging with communities about water, in-person and online

Climate Change

Over the past decade, Oregon has experienced six years that are among the hottest ten on record. In addition, the state has experienced the lowest snowpack ever observed, and had one of the most severe wildfire seasons. Since the development of the first Integrated Water Resources Strategy in 2012, research and science related to climate change has greatly increased, and Oregonians have been experiencing rising average temperatures, and increased intensities of droughts, wildfires, and floods. Climate change is no longer a separate consideration for water management, but rather an integral part of planning, monitoring, and project implementation. [For this reason, the](#)

Commented [KP26]: This section is missing a whole slew of challenges.

Commented [KP27]: Insert "instream and out-of-stream" before water. The inclusion of this term in the underlying statute was hard fought and deliberate; and was meant to ensure that instream interests garnered equal attention to instream. The 2012 and 2017 versions were true to statutory directives and used the term throughout (chapter headings, etc). We would ask that "instream and out of stream" be inserted back into the document throughout. Making this comment here rather than at every juncture in the document.

Commented [KP28]: Cross check with survey results and meeting notes.

Commented [KP29]: It is our assessment that the 2024 version fails to meet this goal; commonly understood words from the 2017 IWRS have been replaced with obtuse words through out.

2024 Strategy has distributed climate considerations, research needs, and adaptation and resiliency strategies throughout the Strategy actions.

The Oregon Climate Change Research Institute released the [Sixth Oregon Climate Assessment](#)² in early 2023. The assessment describes how climate change is affecting Oregon’s environment, natural systems, economy, and communities and presents projections of future impacts under varying emissions scenarios. Climate change will continue to stress ecosystems and the species that depend on them. Changes to the timing of precipitation and snow-melt alters the flows in rivers and streams. This can change the amount of stream channel that is accessible to fish and water that is available for other wildlife. Extended drought can cause wetlands to dry up and impact whole forests, causing trees to die and invasive species to take over. Some additional threats to ecosystems include:

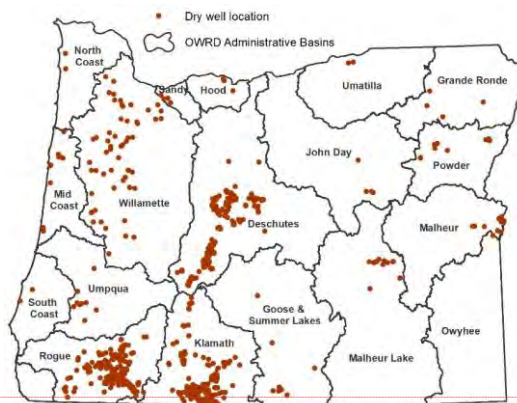
- Species mortality or displacement due to wildfires
- Arrival of exotic pests and pathogens
- Warming of freshwaters beyond thermal tolerances of some aquatic species
- Drying of some freshwater wetlands and headwater streams
- Changing of timing of biological events (e.g., migration, reproduction, flowering) potentially leading to mismatches in the life cycles of interdependent species

Climate change and ongoing drought has reduced the ability of some of our aquifers to recharge [in time for the next growing season](#). Groundwater levels have been declining in many areas across the state, and people have been reporting dry wells. Figure P1-1 shows the distribution of over 1,200 dry wells reported to the Water Resources Department through January 2024.

Declining groundwater levels and low streamflows are also raising concerns about the ability for the state to take on additional development and growth. Doing more with less water will require a multi-pronged approach. Incentives for water efficiency and water conservation efforts will continue to be needed but the Strategy also proposes investments in planning at the state and local levels, ongoing ground and surface water monitoring, technology to improve water management, watershed restoration to retain more water in our soils, wetlands, and floodplains, and market-based approaches to keeping more water instream.

[The Business Case for Investing in Water in Oregon](#)³, published in July 2023, highlights several water challenges and related climate dynamics across Oregon and offers solutions that require investment. Commissioned by the Oregon Water Resources Department, the report outlines case studies in seven regions throughout the state. Each case study highlights a unique challenge, with the purpose of testing how choosing to invest now can reduce the economic burden of inaction. The case studies help to illustrate the integrated nature of climate change and economic security, pointing to solutions that increase Oregon’s resiliency and flexibility to ability to recover from predictable and unpredictable challenges.

Figure P1-1: Reported Dry Wells Throughout Oregon Water Resources Department
January 2024



Commented [KP30]: While we agree climate change overlays everything, we think it is a mistake to peel out climate change as a “critical issue”. Legislators and other decision makers largely look at the “placemat” as their guide to the IWRS. That is where the story of Oregon’s water needs is synthesized. It is clear and understandable. In the new version, by stripping out climate change as a critical issue, the words don’t even show up as a stand alone in the one page guide; which will likely lead to bafflement and ultimately criticism of OWRD across many venues for failing to call out this pivotal issue.

Commented [KP31]: Suggested deletion by me; recharge issues affect both instream and out of stream needs, not just agriculture.

Commented [KP32]: Should note the study statement that it didn’t have enough funds/time to address the instream business case fully; more work is needed on the instream side

Equity and Environmental Justice

Oregon should strive for everyone to have access to clean water. Public engagement efforts for the Strategy revealed this is not currently the case. The [State of Water Justice in Oregon](#) report, published by the Oregon Environmental Council and Oregon Water Futures in 2022, identified several ways in which Oregonians do not have equitable access to clean water.⁴ Issues across Oregon include inadequate infrastructure and drinking water quality, lead exposure in drinking water, affordability of water utility rates, inadequate water in the workplace, and climate change impacts. Populations experiencing related challenges include frontline communities, or those that experience impacts “first and worst” and have fewer resources, capacity, safety nets, or political power to respond to water challenges. Oregon needs to find ways to improve the safety, affordability, reliability, and availability of water for all.

The 2024 Strategy seeks to infuse equity and environmental justice (EJ) into water-related engagement, decision-making, and resource allocation. It continues principles found in both the 2012 and 2017 Strategy documents related to equity for public process, specifically to “*Employ an open, transparent process that fosters public participation and supports social equity, fairness, and environmental justice. Advocate for all Oregonians.*”

Oregon state government has defined equity as “acknowledging that not all people, or all communities, are starting from the same place due to historic and current systems of oppression. Equity is an effort to provide different levels of support based on an individual’s or group’s needs in order to achieve fairness in outcomes. Equity actionably empowers communities most affected by systemic oppression and requires the redistribution of resources, power, and opportunity to those communities.”

Environmental justice is closely linked to equity regarding the fairness of those experiencing negative environmental or health outcomes. Oregon law defines environmental justice as “equal protection from environmental and health risks, fair treatment and meaningful involvement in decision making of all people regardless of race, color, national origin, immigration status, income or other identities with respect to the development, implementation and enforcement of environmental laws, regulations and policies that affect the environment in which people live, work, learn and practice spirituality and culture..”

The 2024 Strategy provides opportunities to address equity and environmental justice through funding for planning, studies, and projects (Chapter 1), partnerships and planning (Chapter 2), data and analysis (Chapter 3) and water stewardship (Chapter 4). Where appropriate, equity or EJ specific “example actions” have been included for many Strategy actions.

Water Vision

The 2024 Strategy borrows from the 100-Year Water Vision and builds upon prior Strategy visions to provide guidance for making present-day decisions that consider future generations.

To address changes in climate and population dynamics, Oregonians will take care of our surface water, groundwater, and built and natural infrastructure to ensure we have enough clean water for our people, our economy, and our environment, now and for future generations. Oregonians will invest strategically in partnerships and planning, data and analysis, and water stewardship for instream and out-of-stream needs across all regions to support resilient communities, vibrant local economies, and a healthy environment for all who live here.

Commented [KP33]: Clean water is one piece of the equity issue; but so is having water in our rivers for ecosystem, cultural, recreation, scenic, etc needs.

Also, as a number of Commissioners noted at one of the IWRS workshops; the prior appropriation is an inequitable structure (rewarding those who got water rights a century ago). OWRC members asked specifically that this be captured in the narrative; it is not here.

Commented [KP34]: Unclear where they got this definition. Most documents include “ecosystems” within definitions of equity. E.g. The 2023 SOS Advisory Report states that water security and water equity are assurances that safe, clean, available to use for basic human and ecosystem needs, and by all people. For this report we use the United Nation’s definition of water security which describes the ability of communities to access adequate, safe, clean water to sustain human well being, protect livelihoods and socio economic development, protect against pollution and water related disasters, and preserve ecosystems.

Commented [KP35]: Again, the decision to incorporate the 100 year water vision is not fully aligned with the intent behind the endeavor (which was intended to prompt funding of water infrastructure and ecosystems. We also now have a new Governor. The 100 year water vision was not “adopted” by any body in this state, or the subject of an ex order. That said, if the OWRD wants to integrate portions of the 100 year water vision; there should be a full and transparent discussion within a PAG or otherwise. As is, some things have been incorporated and some have not....and the draft is not fully transparent about decisions to include or omit certain pieces of the vision. There needs to be specific engagement on this.

Commented [KP36]: NOTE: the 100 year water vision calls for funding of infrastructure and ecosystems. So, to the extent OWRD does end up relying on the 100 year water vision; they should look at all it’s directives, not just pick and choose. That said, as noted previously we oppose the elevation of “infrastructure” as equal to taking care of sw/gw.

The 100 year water vision was a purposefully separate document that focused on funding needs, any reliance on that document should be tied to its intended use.

Commented [KP37]: Vision says “waters”, then later calls for investment in built and natural infrastructure AND ecosystems. If going to add infrastructure here (which again seems misplaced) should also add “ecosystem”

Call to Action

We must both act now and plan for the long term, otherwise we will place the safety of our communities, the health of our people and environment, and Oregon's economic future at risk. How we choose to care for our surface and groundwater and our built and natural infrastructure will determine if we pass a legacy of clean and sustainable water to future generations.

A coordinated effort of immediate actions and thoughtful planning for the future are needed. The Strategy outlines the inter-agency actions and public-private partnerships needed to understand and meet Oregon's instream and out-of-stream water needs, to create a foundation for coordinated action and funding.

Water Governance

In Oregon, all water belongs to the public and no single agency or entity has sole jurisdiction when it comes to water management. There are many public and private organizations with specific responsibilities and authorities related to the management of water resources. These organizations reside at the state, federal, and local level, and with tribal governments within the state, and each has a different mission, funding base, and constituency.

The 2024 Strategy recognizes the importance of Oregon's legal, scientific, and institutional foundation and commits to continue to improve it. This section provides an overview of tribal, state, and federal roles and authorities regarding water management.

Tribal Governments

Tribes in Oregon

Many tribes have established longstanding roots in Oregon, dating back to time immemorial, with nine of them currently holding federal recognition. Federally recognized tribes are recognized as sovereign with control their of their governance, land, and resources. This recognition establishes a formal government-to-government relationship between Oregon and these tribes. Unless otherwise specified, references to tribes in this document pertain to those federally recognized.

Historical Context of Sovereignty

It is critical to understand the history surrounding sovereignty of federally recognized tribes as independent nations, in order to understand the current state of water management in Oregon. Oregon's tribal history encompasses the ceding of land, reservation establishment, the loss of sovereignty during the 1950s termination era, and the subsequent efforts to reinstate sovereignty from the 1970s onwards. The impact of these events varied among tribes, with some facing challenges in fully restoring their sovereignty. There are currently at least 14 modern indigenous tribal nations in Oregon. The summary, below, provides an overview of the general history surrounding tribal sovereignty.

Excerpted from the [Oregon Blue Book, Introduction to Native Peoples of Oregon](#):

"Tribal governments are separate and unique sovereign nations with powers to protect the health, safety and welfare of their enrolled members and to govern their lands. This tribal sovereignty predates the existence of the U.S. government and the State of Oregon. The members residing in Oregon are citizens of their tribes, citizens of Oregon, and since 1924, citizens of the United States of America.

The U.S. Department of the Interior, Bureau of Indian Affairs, oversees tribal interests and administers the federal government's trust obligations. At times, the federal government has been supportive of tribal self-determination, and in other periods, has adopted policies and passed legislation having a negative impact on the ability of tribes to govern as sovereigns. "Termination," one such policy in the 1950s, was an attempt to sever federal trusteeship and support for tribal sovereignty. Of the 109 tribes and bands terminated nationwide, 62 were in Oregon. In 1975, the federal government recognized the failure of its termination policy and passed the Indian Self-Determination and Education Assistance Act, and later, the Tribal Self-Governance Act.

Several tribes began the process to restore their status as sovereign nations. In 1977, The Confederated Tribes of Siletz was the second tribe in the nation to achieve restoration. Following Siletz was the Cow Creek Band of the Umpqua Tribe of Indians in 1982, the Confederated Tribes of Grand Ronde in 1983, the Confederated Tribes of Coos, Lower Umpqua and Siuslaw in 1984, the Klamath Tribes in 1986 and the Coquille Indian Tribe in 1989. Another three federally recognized tribal governments exist in Oregon: The Confederated Tribes of Warm Springs (Treaty of 1855), the Confederated Tribes of Umatilla (Treaty of 1855) and the Burns Paiute Tribe (1972 Executive Order). Fort

Commented [KP38]: Would suggest that this is clearer on the fact that different state agencies have different responsibilities , e.g. OWRD/water quantity, DEQ/water quality, etc.

McDermitt Paiute Shoshone Tribe is a federally recognized tribe with reservation lands straddling Oregon and Nevada, but the tribe's population center is in Nevada. Celilo Village is a federally recognized tribal entity near The Dalles, jointly administered by the Confederated Tribes of Warm Springs, the Confederated Tribes of Umatilla, and the Yakama Indian Nation (Washington).

All Oregon tribal governments have reservation or trust lands created by treaties, statutes or executive branch actions. Tribal governments have regulatory authority over these lands, unless that authority has been removed by Congress. Nearly 904,000 acres, or at least 1.6% of land within Oregon's boundaries, are held in trust by the federal government or are designated reservation lands. Tribal governments have the authority to decide their own membership qualifications and have a right to exclude individuals from their reservations.

Public Law 280 gave the state certain civil and criminal jurisdiction over tribes with the exception of the Confederated Tribes of Warm Springs, the Confederated Tribes of Umatilla and the Burns Paiute Tribe, which are "non Public Law 280" tribes. Notwithstanding Public Law 280, all Oregon tribes have the authority to elect their own governments and adopt laws and ordinances. Oregon tribal governments have their own departments dealing with governmental services, including law enforcement and tribal court systems. In addition, each tribal government operates programs in the areas of natural resources, cultural resources, education, health and human services, public safety, housing, economic development and other areas to serve their members."

Websites for each of the nine federally recognized tribal nations in Oregon provide additional information about the Tribes' history, culture, and current projects:

- [Burns Paiute Tribe](#)
- [Confederated Tribes of Coos, Lower Umpqua, and Siuslaw](#)
- [Confederated Tribes of the Grand Ronde Community of Oregon](#)
- [Confederated Tribes of Siletz Indians of Oregon](#)
- [Confederated Tribes of the Umatilla Indian Reservation](#)
- [Confederated Tribes of Warm Springs Reservation of Oregon](#)
- [Coquille Indian Tribe](#)
- [Cow Creek Band of the Umpqua Tribe](#)
- [Klamath Tribes](#)

It is important to note that there are tribes that have pursued, but not received, federal recognition. Without formal recognition, these tribes are not able to engage in government-to-government processes or benefit from some federal resources.

Tribal Relations with the State of Oregon

Oregon was the first state to adopt a legal government-to-government relationship with tribes through both executive action and legislation. Even so, tribes have historically been left out of water planning and water rights decisions in Oregon. State agencies are continuing efforts to collaborate and consult with Tribes on water issues. Each state agency has a staff person assigned to the role of Tribal Liaison, and as part of this role, is tasked with identifying changes and initiatives in the agency which may impact tribes and/or tribal members, and then to engage early and appropriately with tribes. Each agency's Tribal Liaison is responsible for developing an annual Government-to-Government (G2G) report that outlines the agency's efforts and actions during the past year to consult, coordinate, collaborate, and enhance relations with tribal nations. These reports are submitted to the Legislative Commission on Indian Services.

Legislative Commission on Indian Services (LCIS)

LCIS was created by statute in 1975 to improve services to Indians in Oregon. Its 13 members are appointed jointly by the Senate President and the Speaker of the House to a two-year term. LCIS members select their own officers to serve one-year terms. Prior to its establishment, there was no suitable mechanism in state government to consider

Indian concerns directly. LCIS serves as the main forum in which Indian concerns are considered. It serves as a conduit through which concerns are channeled through the network to the appropriate entity; it serves as a point of access for finding out about state government programs and Indian communities.

Working Groups

There are several topic-specific working groups established between tribes and state agencies. Two groups that frequently discuss water-related work include the Cultural Resources Cluster and the Natural Resources Working Group.

Tribal Water Task Force

In September of 2021, the nine sovereign tribes of Oregon wrote to the Governor addressing Oregon's 100-year Water Vision. The letter shared tribal perspectives on water and noted the importance of tribal engagement in any water planning process. The letter requested the establishment of a Tribal Water Task Force, which would serve two primary functions:

- Educate Oregon's nine Tribes to the full complement of state agencies that touch upon water and that have a bearing on one or more of Oregon's water resources
- Educate Oregon's nine water-related agencies on the full complement of Tribal interests/issues that "Oregon's Water Vision" needs to acknowledge and address

The Task Force met five times during the summer and fall of 2022 and the 2023 Legislature has allocated funding for future facilitation. The Task Force released a [summary report](#) of their findings and recommendations from the 2022 meetings, also identifying a number of shared values about water that were agreed upon between both the Tribes and the State of Oregon:

1. The foundational and inherent importance of water for life and culture;
2. The need to plan for and invest in water with a long-term vision. The Tribes have an important value of making decisions with seven future generations in mind and the State has embarked on a 100-year water vision. It is clear that all parties understand the importance and need for long term visioning and planning;
3. Importance of Tribal engagement in water planning in Oregon at all levels;
4. Recognizing and emphasizing the urgency of the current and ongoing impacts of climate change on our environment and the effect climate change has on water; and
5. Understanding that we will all be better and stronger if we work together moving forward.

Tribal Water Authorities

As sovereign entities, tribal rights and authorities may be derived, retained, or defined from treaties, Congressional Acts, or Executive Orders, and are often further clarified through case law and adjudications. The right to hunt, fish, and gather is an important right to Northwest Tribes, and may extend to areas outside of reservation lands. The ability to fulfil a right to hunt, fish, and gather is notably dependent on ecosystem health, including water quality and quantity conditions necessary to sustain populations of culturally significant species.

Tribal reserved water rights are generally determined through an adjudication or settlement agreement . While several tribes are working closely with the Water Resources Department to resolve historic water right claims, many tribes hold water rights associated with the purchase of land. The priority date associated with a water right is maintained, even after the land changes ownership. Therefore, some tribes hold senior water rights based on the priority date of the water right they acquired through land purchase.

Refer to the section "Water Laws, Policies, and Regulations," below, for a more holistic description of water quantity, quality, and ecosystem regulations, including roles of tribal, state, and federal governments.

State Government

There are several agencies in Oregon with responsibilities related to water resources. The following text provides a brief description of each agency's role, to enhance coordination and help illustrate how they might best participate in the Strategy.

State Interagency Project Team

Many state agencies contributed to the 2024 Strategy, however, five of these agencies served on an interagency project team from 2022 to 2024 and significantly supported its development. Agencies are listed in alphabetical order.

Oregon Department of Agriculture (ODA)

ODA's mission is to "ensure healthy natural resources, environment, and economy for Oregonians now and in the future through inspection and certification, regulation, and promotion of agriculture and food." ODA oversees many programs that protect water quality and habitat. The Agricultural Water Quality Program implements a compliance and enforcement program, identifies Strategic Implementation Areas needing additional water quality improvement, and supports water quality monitoring. The Soil & Water Conservation District (SWCD) program administers grants to SWCDs to provide technical assistance, for education and outreach, and for voluntary water quality projects. The Confined Animal Feeding Operations (CAFO) and Pesticide Programs led by ODA also focus on collaboration and strategies to protect water quality. The Insect Pest Prevention & Management Program supports invasive species eradication.

Oregon Department of Environmental Quality (ODEQ)

ODEQ's mission is to "be a leader in restoring, maintaining, and enhancing the quality of Oregon's air, land, and water" and is responsible for implementing the federal Clean Water Act and state water quality law in the state. ODEQ has four Divisions: Air Quality, Land Quality, Water Quality, and Laboratory Administration. The Land Quality Division oversees programs that address pollutant management and cleanup, while the Laboratory performs various tasks in support of the agency mission, including many that are related to the Strategy, such as overseeing water quality monitoring programs. The Water Quality Division implements state and federal laws to protect and restore Oregon's rivers, lakes, streams, oceans, estuaries, and groundwater. This work plays a critical role in ensuring that Oregon's water resources are safe and available for both instream and out-of-stream beneficial uses, such as drinking water, fish and other aquatic organisms, recreation, the ability to consume fish safely, and irrigation. Programmatic and regulatory responsibilities within the Water Quality Division include: developing and implementing water quality standards and clean water plans; collecting and evaluating water quality data; developing and issuing permits for wastewater treatment systems and industrial and stormwater discharges that protect land, surface and ground waters; encouraging the beneficial reuse of wastewater and the solids from wastewater treatment through regulatory programs and oversight; protecting drinking water sources; providing grants and technical assistance to reduce and prevent nonpoint sources of pollution; and providing below market rate financing to communities to fund water quality improvement projects. ODEQ also coordinates with other state and federal natural resource agencies on actions that may affect Oregon waters including partnering with other state agencies (e.g. OHA, ODA, DOGAMI) to implement specific water quality programs.

Oregon Department of Fish and Wildlife (ODFW)

ODFW's mission is to "protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations." ODFW is responsible for implementing Oregon's Endangered Species Act (ORS 496.171-496.192). ODFW has three main Divisions - Fish, Habitat, and Wildlife - all of which provide some level of support for the Strategy. Fish Division programs include fish passage/screening, engineering, public education, conservation, and recovery. The Habitat Division programs collect and share data, identify conditions needed to support aquatic and terrestrial species including instream flow, and support restoration activities. The Wildlife Division includes a conservation program that implements the [Oregon Conservation Strategy](#) and a habitat

program that oversee 16 ODFW Wildlife Areas. ODFW also co-manages an Aquatic Invasive Species Prevention Program with OSMB.

Department of Land, Conservation, and Development (DLCD)

DLCD's mission is to "help communities and citizens plan for, protect and improve the built and natural systems that provide a high quality of life." DLCD fosters sustainable and vibrant communities and protects Oregon's natural resources legacy. DLCD's work is guided by Oregon's 19 Statewide Land Use Planning Goals, requiring each city and county to adopt and maintain a comprehensive plan addressing these goals. DLCD has been leading Oregon's [Climate Change Adaptation Framework](#) and Climate Change Vulnerability Assessment. Additionally, DLCD administers a variety of grants for comprehensive plan updates, public facilities plan updates, natural hazard mitigation planning, and climate change adaptation and mitigation. DLCD provides annual funding to Portland State University (PSU) to update county-level population forecasts. DLCD's work on housing production is relevant to the Strategy's focus on meeting water resource needs. Within the coastal zone – defined as the crest of the coast range out to three nautical miles offshore – the Oregon Coastal Management Program within DLCD uses its Federal Consistency authority under the Coastal Zone Management Act to review federal permits, licenses, and federal agency-led activities against the enforceable policies of the coastal program. These include state policies related to water quality, water appropriation, submerged land uses, archaeological resources, and species and habitat protection.

Oregon Water Resources Department (OWRD)

OWRD's mission is "to serve the public by practicing and promoting responsible water management through two key goals; one, to directly address Oregon's water supply needs, and two, to restore and protect streamflows and watersheds in order to ensure the long-term sustainability of Oregon's ecosystems, economy, and quality of life." Under Oregon law, all water belongs to the public, and with some exceptions, all water users must obtain a permit or license from OWRD to use water from any source. OWRD collects, analyzes, and provides water quantity data to other agencies and to water users. OWRD processes water rights transactions, adjudicates claims to water uses which predate Oregon Water Law and federal and tribal reserved water claims, distributes water under the water rights system of prior appropriation, and addresses unauthorized uses of water. OWRD also protects public safety through the well construction and dam safety programs. OWRD provides planning, technical assistance, and funding to address instream and out-of-stream water supply needs. OWRD is responsible for developing and updating the Strategy, in collaboration with other state agencies, tribes, interested parties, and the public.

Other Water-Related State Agencies

Many state agencies play a role in the Strategy and include natural resource agencies in addition to agencies that support economic development and public health. Agencies are listed in alphabetical order.

Business Oregon (BizOR)

BizOR is the state's economic development agency, with a mission to "invest in Oregon businesses, communities, and people to promote a globally competitive, diverse, and inclusive economy." BizOR administers a variety of loan and grant programs that support site assessment, remediation, and water infrastructure planning, design, and implementation. The types of water infrastructure projects that receive funding include drinking water supply, stormwater conveyance, wastewater treatment, water storage, and levees.

Department of Geology and Mineral Industries (DOGAMI)

DOGAMI's mission is to "provide earth science information and regulation to make Oregon safe and prosperous." DOGAMI works to increase understanding of Oregon's geologic resources and hazards through science and stewardship. There are two main programs at the Agency: Mineral Regulation and Reclamation (MLRR) and Geological Survey and Services (GS&S). The MLRR Program oversees the state's mineral production and works to minimize impacts of natural resource extraction and to maximize the opportunities for land reclamation. This includes extensive interagency coordination to enforce mining permits that protect water quality, among other environmental concerns. The GS&S program has much more extensive interaction with the Strategy, including earth

science data collection, information sharing, natural hazard mapping, and identification of risk reduction strategies. Staff in the GS&S program lead the [Oregon Lidar Consortium](#) which organizes the collection of lidar data in coordination with dozens of local, state, and federal partners.

Oregon Department of Energy (ODOE)

ODOE's mission is to "help Oregonians make informed decisions and maintain a resilient and affordable energy system." The agency accomplishes this through a combination of data collection/analysis, education, technical assistance, regulation, oversight, and administration of energy programs. ODOE offers a variety of incentive programs to encourage energy and water conservation.

Oregon Department of Forestry (ODF)

ODF's mission is to "serve the people of Oregon by protecting, managing, and promoting stewardship of Oregon's forests to enhance environmental, economic, and community sustainability." The Forest Practices Act (FPA) guides ODF's management of private and federally owned forests. Publication of the Private Forest Accord Report and legislation passed in 2022 has guided modifications to the FPA and ODF administrative rules, providing additional protections to habitat and water quality. ODF also manages over 700,000 acres of state-owned forests and the state's Common School Fund Forest Lands. Management approaches to both private and public forests provide an opportunity to protect water quality, conserve and restore habitat for native species, and eradicate invasive species.

Oregon Department of Higher Education, Oregon Climate Change Research Institute (OCCRI)

OCCRI was created by the Oregon Legislature in 2007. OCCRI serves several functions regarding conducting and sharing climate change research and provides technical assistance to local governments in developing climate change policies, practices, and programs. OCCRI publishes [biennial assessments](#) on the state of climate science and the likely effects of climate change on the state.

Oregon Department of Human Services (ODHS)

ODH's mission is "to help Oregonians in their own communities achieve well-being and independence through opportunities that protect, empower, respect choice, and preserve dignity." The ODHS Office of Resilience and Emergency Management coordinates with governmental and non-governmental agencies to provide food, water, and shelter during a major emergency or disaster, in accordance with [Oregon's Comprehensive Emergency Management Plan](#). In recent years, ODHS provided emergency water to communities impacted by drought, wildfire, and contaminated groundwater.

Oregon Department of State Lands (DSL)

The Department's mission is "to ensure Oregon's school land legacy and protect wetlands and waterways of the state through superior stewardship and service." DSL oversees permitting associated with removal or fill in wetlands and or waterways, as defined in Oregon's Removal-Fill Law (ORS 196.795-990). The Department maintains programs and training to support natural resource identification, included the Oregon Rapid Wetland Assessment Protocol (ORWAP), Stream Function Assessment Method (SFAM), and Aquatic Resource Mitigation Framework. DSL also coordinates with state, federal, and community partners to address abandoned or derelict vessels in waterways.

Oregon Department of Transportation (ODOT)

ODOT's mission is to "provide a safe and reliable multimodal transportation system that connects people and helps Oregon's communities and economy thrive." ODOT holds a single National Pollutant Discharge Elimination System MS4 permit issued and regulated by Department of Environmental Quality that covers the operation of all ODOT storm drain systems statewide. ODOT has implemented the Guide "[Routine Road Maintenance: Water Quality and Habitat Guide Best Management Practices](#)" since 1999. The guide is considered the cornerstone of ODOT's Office of Maintenance and Operations Environmental Section. ODOT Maintenance crews use the Guide to help minimize impacts to the environment while performing day to day highway maintenance activities and to comply with provisions of the Endangered Species Act.

Oregon Health Authority (OHA)

OHA's mission is "ensuring all people and communities can achieve optimum physical, mental, and social well-being through partnerships, prevention, and access to quality, affordable health care." OHA is the primacy agency for implementing the federal Safe Drinking Water Act. While OHA encompasses many divisions and programs that promote public health, it is the Environmental Public Health (EPH) and Drinking Water Services (DWS) sections of the Public Health Division that includes the most relevant activities in relation to the Strategy. OHA-EPH identifies, assesses, and reports on threats to human health from exposure to environmental and occupational hazards, and also advises the people and communities of Oregon on how to best understand potential risks where they live, work and play. OHA-EPH's involvement with water is through the Healthy Waters program that includes Fish Consumption Advisories, Harmful Algae Bloom Surveillance (HABS), Beach Monitoring, and Domestic Well Safety. In addition, OHA-DWS has primacy from the federal Environmental Protection Agency to implement the Safe Drinking Water Act. OHA-DWS administers and enforces drinking water quality standards for public water systems. OHA-DWS provides water system operator training, technical assistance for water systems, emergency planning and response, and infrastructure funding for the federally regulated public water systems. OHA-DWS implements Drinking Water State Revolving Funding jointly with Business Oregon and source water protection program jointly with the Department of Environmental Quality.

Oregon Parks and Recreation Department (OPRD)

OPRD's mission is "to provide and protect outstanding natural, scenic, cultural, historic and recreational sites for the enjoyment and education of present and future generations." OPRD manages and maintains state parks, campgrounds, and beaches. They administer several grant programs, all aimed at increasing access to recreation. OPRD manages the State Natural Areas Program to protect and recognize high quality native ecosystems and rare plant and animal species. OPRD also manages the Scenic Bikeways, Scenic Trails, and Scenic Waterways Programs. Waterway designation places restrictions on the types of activities that can occur within or near the banks of the waterway.

Oregon State Marine Board (OSMB)

OSMB's mission is to serve "Oregon's recreational boating public through education, enforcement, access, and environmental stewardship for a safe and enjoyable experience." OSMB titles and registers motorized boats and sailboats, issues titles for floating properties, issues Waterway Access permits for nonmotorized boats a minimum of 10 feet in length, make rules for boat operation, register outfitter guides, manage mandatory motorized boater education, contract with Counties and Oregon State Police for on-water law enforcement, administer a variety of boating access grant programs, provide technical assistance to boating access facility owners to improve access at more than 1,600 locations, manage Clean Marina Program, and Aquatic Invasive Species Prevention Program in partnership with ODFW. OSMB encourages safe boating practices, such as wearing life jackets, having sound signaling devices and following all operation and waterway rules. OSMB does not own public access sites but provides significant grant funding and assistance to improve, develop and maintain access for recreational boating.

Oregon Watershed Enhancement Board (OWEB)

OWEB's mission is "to help protect and restore healthy watersheds and natural habitats that support thriving communities and strong economies." The agency provides grants to a variety of public and private entities to accomplish habitat conservation, restoration, and monitoring. OWEB currently offers 17 different grant programs. OWEB's work supports the Oregon Plan for Salmon and Watersheds, including the task of coordinating watershed monitoring data from a variety of private landowners, federal, and state agencies. OWEB maintains the [Oregon Watershed Restoration Inventory](#) (OWRI) database which quantifies conservation and restoration results to inform future efforts.

Federal Government

Key Federal Agencies & Primary Roles

There are several federal agencies that collaborate with the tribes and state agencies regarding water management.

Bonneville Power Administration (BPA)

BPA delivers hydropower produced in the Columbia River Basin to communities across the Northwest. BPA markets wholesale electrical power from 31 federal dams in the Northwest that are operated by the U.S. Army Corps of Engineers and the Bureau of Reclamation. They also market power from one nonfederal nuclear plant and several small nonfederal power plants. BPA funds the Northwest Power and Conservation Council's [Columbia River Basin Fish and Wildlife Program](#). The program funds regional efforts to mitigate the impacts of the federal dams on the region's fish and wildlife species.

Bureau of Reclamation (USBR)

USBR's mission is "to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public." USBR is a water management agency, established in 1902, responsible for the construction of over 600 dams and reservoirs across the western United States. They provide water deliveries, conservation, recycling, and reuse and have developed partnerships with customers, states, and tribes. Most [USBR projects in Oregon](#) were built in eastern half of the state. USBR's current efforts focus on improving the safety of existing dams and reservoirs, enhancing stream flows and fish passage, and working with partners on watershed restoration projects.

Bureau of Land Management (BLM)

BLM's mission is to "sustain health, diversity, and productivity of public lands for the use and enjoyment of present and future generations." BLM manages 15.7 million acres of federal land in Oregon, providing resource management, recreation, and education. The BLM Fire Program performs fire suppression, preparedness, predictive services, vegetative fuels management, community assistance and protection, and fire prevention through education. BLM provides funding for watershed restoration projects.

Federal Emergency Management Agency (FEMA)

FEMA's mission is "helping people before, during and after disasters." They develop flood maps – identifying various flood zones, or locations likely to flood during specified storm events. FEMA manages the National Flood Insurance Program and provides resources for floodplain management and risk reduction. FEMA coordinates with the Oregon Department of Land Conservation and Development regarding Oregon's Statewide Planning Goal 7 and floodplain management. FEMA also administers the [National Dam Safety Program](#) and takes actions to encourage and promote state and federal dam safety programs to reduce risks from dam-related hazards.

National Oceanic and Atmospheric Administration (NOAA and NOAA-Fisheries)

NOAA's mission is to "understand and predict changes in climate, weather, ocean, and coasts, to share that knowledge and information with others, and to conserve and manage coastal and marine ecosystems and resources." NOAA's monitoring and research provide critical information for understanding impacts from climate change. NOAA provides funding for watershed restoration projects. The National Marine Fisheries Service (NOAA-Fisheries) is an office within NOAA responsible for the stewardship of the nation's ocean resources and their habitat. NOAA-Fisheries jointly administers the federal Endangered Species Act with US Fish and Wildlife Service and is responsible for marine and anadromous species. NOAA Fisheries manages marine and anadromous species pursuant to the Endangered Species Act, The Magnuson-Stevens Fishery Conservation Management Act, and the Marine Mammal Protection Act. NOAA's Office for Coastal Management funds the Oregon Coastal Management Program.

U.S. Army Corps of Engineers (USACE)

USACE's mission is to "deliver vital engineering solutions, in collaboration with our partners, to secure our Nation, energize our economy, and reduce disaster risk." USACE has constructed many types of infrastructure including coastal fortifications and flood control systems throughout the country, including some dams, dikes, and levees in Oregon. USACE also collaborates with DSL on Clean Water Act Section 404 and Oregon's Removal-Fill permitting programs. During natural disasters and other emergencies, USACE can respond in four main ways: under its own authority, Public Law 84-99, under the National Emergency Preparedness Program, and as the designated lead agency in support of FEMA for Emergency Support Function Number 3, Public Works and Engineering.

U.S. Department of Agriculture, Forest Service (USFS)

The mission of the USFS is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The agency manages almost 16 million acres of national forest lands in Oregon which comprise about 25 percent of the state and are the source of nearly 45 percent of its mean annual water supply. USFS implements diverse watershed, forest and rangeland management and restoration practices, per its Organic Act, to "improve and protect the forest, secure favorable conditions of water flows, and furnish a continuous supply of timber for the use and necessities of citizens of the United States." The agency also conducts research and provides assistance to state and local governments, forest industries, and private landowners to help protect and manage non-federal watersheds, forests and rangelands. USFS lands support many watersheds for municipal drinking water supply within Oregon. USFS undertakes and provides funding for habitat and watershed restoration projects.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)

NRCS's mission is to "deliver conservation solutions so agricultural producers can protect natural resources and feed a growing world." NRCS works with producers, tribes, soil and water conservation districts, and others to plan, design, and implement conservation practices and activities, while also providing funding through its programs. NRCS conservation programs help people address resource opportunities relating to soil, water, air, animals, plants, and energy.

U.S. Environmental Protection Agency (USEPA)

USEPA's mission is to "protect human health and the environment" and works to ensure that Americans have clean air, land and water. USEPA develops and enforces regulations, administers grants, sponsors partnerships, studies environmental issues, and educates people about the environment. They lead the implementation of the Clean Water Act, Safe Drinking Water Act, and provide oversight of states that have been delegated to administer the federal program, such as ODEQ. USEPA provides funding for watershed restoration, water infrastructure, toxics reduction, water quality monitoring, nonpoint source pollution reduction, and environmental justice projects in Oregon. USEPA helps fund ODEQ's implementation of Clean Water Act and Safe Drinking Water Act programs through a Performance Partnership Grant. The workplan for this grant can be found in appendix C of the [Oregon Performance Partnership Agreement](#).

U.S. Fish and Wildlife Service (USFWS)

USFWS's mission is to "conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people." The federal Endangered Species Act is jointly administered by USFWS and the National Marine and Fisheries Service. The USFWS primarily has oversight for terrestrial and freshwater species and some marine mammals. USFWS also implements the Bald and Golden Eagle Protection Act; and partners with all entities to conserve and restore habitats, conduct research and monitoring, and provide community education and outreach.

U.S. Geological Survey (USGS)

USGS's mission is to "monitor, analyze, and predict current and evolving Earth-system interactions and deliver actionable information at scales and timeframes relevant to decision makers." They are a "primary Federal source of science-based information on ecosystems, land use, natural hazards, water use and availability, and updated maps

and images of the Earth's features available to the public." USGS collaborates with OWRD on basin studies and place-based planning efforts.

Water Laws, Policies, and Regulations

The actions described throughout the Strategy fit within an existing state and federal legal framework. Some water challenges we face in Oregon can be addressed with improved enforcement of existing regulations, modifications to laws or policies, or rulemaking within an agency program. This section provides an overview of the key federal and state laws and policies that are referenced throughout the document. This section provides a single location to return to, to reduce repetition of these concepts later in the document.

Both federal and state laws operate within an intricate legal structure, each with its own jurisdiction and authorities. Federal laws, enacted by congress have supremacy and apply uniformly across all states and territories. State governments retain significant authority to legislate and regulate matters not explicitly addressed by federal law. Each type of law—statutes, regulations, and policies—carries distinct levels of authority and serves specific functions within the legal system, with statutes generally holding the highest authority. This section outlines the primary federal and state statutes, regulations, and policies that guide Oregon's management of water quantity, quality, instream, and out-of-stream needs. The section is organized featuring federal laws first and their associated state-run programs followed by state laws.

Federal Statutes and Associated Regulations and Policies

The Clean Water Act (CWA) 33 U.S.C. § 1251

The primary regulatory tool used to reduce or prevent pollutants from entering surface waters is the [Federal Clean Water Act](#), which requires states to establish water quality standards to protect all beneficial uses of water. In Oregon, the Department of Environmental Quality administers the Clean Water Act with oversight from the U.S. Environmental Protection Agency. The state establishes water quality standards to protect defined beneficial uses (e.g., fish and aquatic life, water contact recreation, domestic water supply). Oregon DEQ is required to review and update standards every three years. Information about Oregon's Water Quality Standards can be found on the Department of Environmental Quality's [website](#).

Tribes may apply to the U.S. Environmental Protection Agency for authorization to administer water quality standards under the Clean Water Act. This means they may obtain similar authority to the Oregon Department of Environmental Quality.

Assessing, Listing and Reporting Requirements [Section 303\(d\) & 305\(b\)](#)

Total Maximum Daily Loads (TMDLs)- Requires states to identify waters that are not meeting water quality standards and establish TMDLs for those pollutants impairing water quality. TMDLs specify the maximum numerical amount of a pollutant that a water body can receive while still meeting water quality standards. As part of the 303(d) requirements, each state must assess the quality of water bodies across the state. The state must then determine TMDLs and implementation plans for all waterbodies that do not meet the state's water quality standards. The Oregon Department of Environmental Quality is responsible for managing, implementing, and enforcing this program. Certain federal, state, and local governments and agencies, including cities, counties, and special districts, may be identified by the Department of Environmental Quality as a Designated Management Agency, with authority to manage and regulate water pollution listed in a TMDL.

Water Quality Status and Monitoring Reports– States are mandated to submit biennial reports known as "Water Quality Status and Monitoring Reports" to the Environmental Protection Agency. The result of these analyses and conclusions is called the "Integrated Report" because it combines

Commented [KP39]: This is critical; there should be a critical issue tied to this. If OWRD is going to elevate partnerships and planning as one of the 4 chapters, then it should expand the framework so there is a Chapter 5 which is all about enforcement and modernizing statute/rule and otherwise vigorously managing our waters so as to better protect the resource. The "stewardship" chapter does not do an adequate job of this. As is, the 2024 version is very unbalanced.

the requirements of Clean Water Act sections 303(d) and 305(b) into one report. Waters identified as not meeting water quality standards ("303(d) listed") require the development of a Total Maximum Daily Load (TMDL). These reports provide comprehensive information on the condition of waters within the state.

Federal Certification [Section 401](#) – Gives states and authorized tribes the authority to grant, deny, or waive certification of proposed federal licenses or permits that may discharge polluted waters into Oregon's waters to ensure they meet Oregon's water quality standards. The Department may issue a Section 401 water quality certification, along with permit conditions.

Point Source Permitting: National Pollutant Discharge Elimination System (NPDES) [Section 1342](#)- The Clean Water Act prohibits anybody from discharging "pollutants" through a "point source" (e.g., pesticide use, industrial or wastewater treatment plant discharge) into a "water of the United States" unless they have a NPDES permit. While a federal program, NPDES permits are issued by the state Oregon Department of Environmental Quality. The Department also issues state Water Pollution Control Facility (WPCF) permits to regulate the point source discharge of wastewater onto land. Both types of permits set limits on the amount of pollution that can be discharged and require specific practices and monitoring to safeguard surface waters and groundwater aquifers.

For livestock operations, the Oregon Department of Agriculture is the lead agency responsible for issuing WPCF permits for Confined Animal Feeding Operations (CAFOs) to owners so manure does not pollute ground and surface water.

Nonpoint Source Pollution Program [Section 1288](#) - - A nonpoint source of pollution is any pollution entering a waterbody, surface, or groundwater source, that does not come directly from a pipe. Nonpoint sources are often linked with agricultural, forestry, urban, and rural residential land use activities where rain or snow runs off to surface waters. As the runoff moves, it picks up and carries away pollutants (e.g., metals, nutrients, sediment) resulting from human activity, finally depositing them into lakes, rivers, wetlands, coastal waters, and groundwater. The Clean Water Act requires that each state develop a plan for controlling pollution from nonpoint sources and improving water quality. The Oregon Department of Environmental Quality is the lead agency in developing the plan. The most recent [Nonpoint Source Management Program Plan](#) was published in 2022.

Also significant in addressing nonpoint source pollution, the [Coastal Zone Act Reauthorization Amendments](#) (CZARA) established the national Coastal Nonpoint Pollution Control Program, mandating states with federally funded coastal management programs to tackle nonpoint source coastal pollution. This program is jointly overseen by the US Environmental Protection Agency and the National Oceanic and Atmospheric Administration. In 2015, Oregon's latest Coastal Nonpoint Pollution Control Program was disapproved by the USEPA and NOAA which led to temporary reductions in federal support for grant. USEPA and NOAA have said they will revisit the issue the next time they review the state's program for compliance.

Clean Water State Revolving Fund (CWSRF) [Section 1381](#) – The CWSRF was established by Title VI of the 1987 amendments to the Clean Water Act. The CWSRF program is a partnership between the U.S. Environmental Protection Agency and the Department of Environmental Quality to provide low-cost financing for a variety of infrastructure projects including municipal wastewater facilities, nonpoint source pollution control, decentralized wastewater treatment systems, stormwater runoff mitigation, green infrastructure, estuary protection, and water reuse.

Beaches Environmental Assessment and Coastal Health (BEACH) Act [Section 1311](#) – The BEACH Act amended the Clean Water Act by requiring the US Environmental Protection Agency to develop performance criteria for testing, monitoring, and notifying public users of possible coastal recreation water quality problems. The Act authorizes US Environmental Protection Agency to award grants to states, territories, tribes, or local governments to develop and implement beach monitoring and assessment programs.

The Safe Drinking Water Act (SDWA) [42 U.S.C. § 300\(f\)](#)

The 1974 federal Safe Drinking Water Act mandates the U.S. Environmental Protection Agency to establish and enforce standards that public drinking water systems must follow. These standards encompass a range of programs and requirements such as source water protection, treatment, monitoring, compliance, and public information. These measures aim to ensure that water system operators maintain a safe supply of drinking water for communities. The EPA delegates primary enforcement responsibility, known as primacy, to state and tribal governments.

The Oregon Health Authority administers and enforces drinking water quality and notice standards for public water systems in Oregon. Public water systems are defined as having more than three hookups or serving more than 10 people year-round. The SDWA regulates over 90 naturally occurring and man-made contaminants. Water quality data for Oregon's public water systems can be found at [Drinking Water Data Online](#).

Oregon has more than 3,300 public water systems that are fed by more than 200 surface water diversions, nearly 4,000 groundwater wells, and 225 springs. The Safe Drinking Water Act does not regulate private wells that serve less than 25 individuals. Water quality data for Oregon's public water systems can be found at [Drinking Water Data Online](#).

Unregulated Contaminant Monitoring Rule [40 C.F.R. 141 Subpart O](#)– “Emerging contaminants” are chemicals found in drinking water that might be harmful to health and are not yet regulated by the federal government. The Safe Drinking Water Act mandates the USEPA to list such contaminants every five years for monitoring by public water systems. The Unregulated Contaminant Monitoring Rule specifies which chemicals need testing and is regularly updated. Data gathered under this rule helps the USEPA assess the extent of these contaminants nationwide and informs decisions about future regulations.

Reduction of Lead in Drinking Water Act [42 U.S.C. § 300\(g\)- 6](#)- The Reduction of Lead in Drinking Water Act amends the Safe Drinking Water Act regarding the use and introduction into commerce of lead pipes, plumbing fittings or fixtures, solder, and flux. The Act defines the percentage of lead allowed in plumbing products and provides for exempt uses where the water is not anticipated to be used for human consumption (e.g., industrial processing, fire hydrants).

In 2017, the Oregon Legislature passed Senate [Bill 1062](#), requiring all school districts, education service districts, and public charter schools to adopt a Healthy and Safe Schools Plan. These plans must include provisions for testing and reducing exposure to elevated levels of lead in water used for drinking or food preparation, as required under guidelines adopted by the Oregon Health Authority. Rules outline that initial testing be done at all drinking and food preparation taps at all schools by 2020, and every 6 years thereafter according to a schedule determined by the Oregon Department of Education. Initial testing is intended to identify problem taps or plumbing, and once resolved, should not have issues in the future. Ongoing testing is required to determine whether water quality changes or plumbing deterioration has caused more lead to be released.

Endangered Species Act (ESA) [16 U.S.C. § 35](#)

The federal Endangered Species Act aims to protect and restore endangered or threatened species and their habitats. "Endangered" means a species faces extinction in its range, while "threatened" means it's likely to become endangered soon. Administered by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, the former handles land and freshwater species, while the latter oversees marine wildlife and anadromous fish.

The State of Oregon and the federal government maintain separate lists of Threatened and Endangered species. Under state law ([ORS 496.171-496.192](#)) the Fish and Wildlife Commission through the Oregon Department Fish and Wildlife maintains the list of native fish and wildlife species in Oregon that have been determined to be either "threatened" or "endangered" according to criteria set forth by rule ([OAR 635-100-0105](#)). The Department also maintains a list of state sensitive species ([OAR 635-100-0040](#).)The Department leads the development of conservation and recovery plans for state ESA-listed fish species. Coordinated action with citizens, and other local, state and federal agencies is essential for successful implementation. State [plant ESA listings](#) are managed by the Oregon Department of Agriculture.

Oregon Statutes and Associated Regulations and Policies

Water Rights - Oregon's 1909 Water Code

In Oregon, water is recognized as a public resource ([ORS 537.110](#)). Since the enactment of Oregon's Water Code in 1909, a structured system for the allocation and management of water has been established statewide. Typically, individuals or entities seeking to utilize water from any source must obtain a permit from the Water Resources Department. Landowners do not inherently possess the right to utilize water flowing past, through, or beneath their property without appropriate state authorization, although certain exemptions from permitting requirements exist.

The allocation and use of water rights are governed by four fundamental provisions. Firstly, water may only be diverted for beneficial purposes without waste, whether from surface or groundwater sources. Secondly, the priority of water rights determines allocation during times of shortage, with older rights taking precedence. Thirdly, water rights are typically tied to the land they serve, known as appurtenancy, meaning they transfer with the land upon sale. Lastly, once established, water rights must be utilized as specified at least once every five years to remain valid. Failure to do so may result in forfeiture and potential cancellation, except under certain legal exceptions.

Doctrine of Prior Appropriation

Oregon's water laws operate under the principle of prior appropriation, which dictates that the first individual or entity to secure a water right on a stream maintains priority access. In practice, this means, that when senior water rights cannot be fulfilled, junior rights may be restricted. In other words, the first person to obtain a water right on a stream is the last to be shut off in times of shortage. For more details, read *Water Rights in Oregon: An Introduction to Oregon's Water Laws*.⁶

Water Rights Permits and Certificates

The Water Resources Department administers nearly 90,000 water rights, which includes both permits and certificates, for both instream and out-of-stream uses. When the Department evaluates new requests for out-of-stream uses, various factors are taken into account, such as the needs of existing users, including established instream protections, as well as potential impacts to sensitive, threatened, or endangered fish species, and compliance with existing water quality standards.

Adjudication

Claims to the use of surface water that predate Oregon's Water Code are required to go through a formal administrative judicial process known as an adjudication. This process documents, quantifies, and eventually incorporates their water rights into the prior appropriation system. Similar procedures are conducted for groundwater uses that pre-date the Water Resources Department's authority to issue groundwater rights.

Federal and tribal reserved water rights, along with pre-1909 claims, are typically determined through adjudication processes. Federal reserved rights are linked to specific federal land allocations that require water, while tribal reserved rights may stem from treaties, executive orders, or congressional acts, covering uses associated with tribal lands or resources. These claims are not necessarily older than the water code, as their priority dates are tied to the respective federal actions or, in the case of tribal water rights, to time immemorial.

The adjudication process is time-consuming, requires significant state resources, and often takes decades. The primarily involved agencies include the Water Resources Department, Department of Justice, Office of Administrative Hearings, and many others. Strategy Action 12A addresses the need to continue undertaking adjudications.

Oregon's 1987 Instream Water Right Act [ORS 537.332 through 537.360](#)

Oregon's 1987 Instream Water Right Act was designed to protect instream flows for public benefit by establishing instream water rights. Instream water rights are a legally recognized beneficial use of water. The Department of Fish and Wildlife, Parks and Recreation Department, and Department of Environmental Quality can submit applications to protect water instream. Acceptable reasons for protecting instream flows include the conservation, maintenance and enhancement of aquatic and fish life, wildlife, and fish and wildlife habitat ([OAR 635-400-0000](#)).

Since 1987, more than 1,000 instream rights have been established through this process and are held in trust on behalf of the public by the Water Resources Department. However, even as far back as the 1950s, Oregon put streamflow protections in place to support aquatic life and protect water quality. The State has converted more than 500 of these older protections, called "minimum perennial streamflows," into instream water rights, bringing the total certificated instream water rights to over 1,500.

Instream rights are usually set for a certain stream reach or at a specific point on the stream. Instream water rights have an established priority date, which means they can be regulated in a similar way as out-of-stream water rights. Many instream rights are junior water rights, the practical effect is that they are often not fulfilled during the summer months. Nonetheless, these water rights do establish flow targets essential for safeguarding aquatic life. Strategy Action 8B addresses data needs for establishing instream water rights and Action 10C identifies instream water rights as a tool for instream protections.

Groundwater

Groundwater Act of 1955 [ORS 537.505 to 537.795 and ORS 537.992](#)

The Groundwater Act of 1955 established the authority for groundwater management and monitoring statewide for the preservation of public welfare, safety, and health. The Act directs the Oregon Water Resources Department and Water Resources Commission to determine rights to the use of public groundwater. Furthermore, it mandates managing groundwater alongside surface water within the prior appropriation system, acknowledging their interconnectedness.

The Groundwater Act also directs the Water Resources Department to determine the extent, capacity, quality, and other characteristics of its groundwater bodies. These metrics are then used to inform resource management decisions. Other important aspects of Oregon's groundwater management policy provide that rights to use groundwater be protected, reasonably stable groundwater levels be determined and maintained, and groundwater overdraft be prevented.

The Water Resources Department is in the process of undertaking groundwater allocation policy rulemaking changes. More detail is covered in Chapter 4, Action 10E.

Commented [KP40]: The instream water rights act also provides the authority for instream leases and transfers

Commented [KP41]: Should update to include language in the statute that the state is highlighting in the RM, e.g. capacity of the resource, reasonably stable aquifers, etc

Groundwater Quality Protection Act [ORS 468B.150-190](#)

The Groundwater Quality Protection Act was adopted in 1989 and aims to prevent contamination, conserve, and restore groundwater resources in Oregon. It mandates all state agency rules and programs align with protecting drinking water resources and public health. The Department of Environmental Quality oversees groundwater quality protection and uses a combination of water quality and land use programs to implement the Act.

Under this law, the Department of Environmental Quality has the authority to designate Groundwater Management Areas when groundwater has elevated contaminant concentrations. The Department has designated three Groundwater Management Areas because of elevated nitrate concentrations.

Water Rights Management

Administrative Basins [OAR 690-500](#)

To allocate water resources, the Water Resources Department has organized the state into 20 administrative river basins. Basin programs are administrative rules which establish water management policies and objectives, and which govern the appropriation and use of the surface and groundwater within each of the administrative basins. The regulations categorize surface and groundwater based on permitted uses, preferences among uses, potential for withdrawing water from further appropriation, reservation of water for specified future uses, and establishment of minimum perennial streamflows. These rules supplement statewide regulations that govern the allocation and utilization of water resources.

Water Use Measurement & Reporting

[ORS 537.099](#) requires government entities (e.g., federal and state agencies, cities, counties, schools, irrigation districts and other special districts) to annually report monthly water use data to the Water Resources Department. Governments and water right holders in serious water management problem areas have unique reporting requirements, outlined in [OAR 690-085](#).

Distribution and Regulation

Separate and distinct from the Administrative Basins, there are 23 watermaster districts used for water right distribution and regulation. Watermasters at the Water Resources Department are responsible for distributing water in accordance with the doctrine of prior appropriation. Each summer as streamflows drop, Watermasters regulate junior users to provide water to the more senior users. By the end of summer, there is typically only enough water to supply users who established their rights in the late 1800s in many areas of the state.

Enforcement

The Water Resources Department enforces the state's water laws and implements the Water Resources Commission's policies in the field. Enforcement staff are responsible for regulating water use based upon the water rights of record.

Conservation

According to Oregon's Water Code, the diversion of surface or groundwater for use is permissible only when it serves a beneficial purpose and avoids wasteful practices. Many municipal and irrigation water suppliers are required to prepare and submit a [Water Management and Conservation Plan](#) (WMCP) to the Water Resources Department as conditions of their water use permits, a final order approving a previous plan, or permit extensions. A WMCP provides a description of the water system, identifies the sources of water, and explains how the water supplier will manage and conserve supplies to meet future needs.

The Allocation of Conserved Water Program recognizes that improved technology and distribution methods may enable water users to use less water than was required in the past. The program allows a water user who conserves water to use a portion of the conserved water on additional lands, lease or sell the water, or dedicate the water to instream use. At a minimum, 25 percent of the conserved water is allocated to the state and 75 percent to the water right holder, unless the entity proposes a higher allocation to the state, or more than 25 percent of the funds used

Commented [KP42]: This misses some critical points. E.G. The state has been conditioning all new water rights issued since 1993 with M/R conditions; the state has broad authority to require measurement and associated reporting, OWRC strategic measurement plan, etc.

Commented [KP43]: Add " and stopping illegal use of water"

Commented [KP44]: Would suggest all stand alone laws be given their own title, e.g. the Conserved Water Act. OWRD and legislators have had many conversations about elevating the use of this statute; calling it out in the strategy as a stand alone law. would be a good first step.

to finance the conservation project comes from federal or state public sources and is not subject to repayment. If non-reimbursable funds are used, the state receives a percentage equal to the percentage of funds used to finance the project. In no event, however, shall the applicant receive less than 25 percent of the conserved water unless they propose a higher allocation to the state. Use of this program is voluntary and provides benefits to both water right holders and instream values.

Transfers and Leases

The use of water under a water right is restricted to the terms and conditions described in the water right certificate: place of use, point of diversion or appropriation, and character of use. The water right holder must file a transfer application with the Department to change a point of diversion, point of appropriation, type of use, place of use, or any combination of these. Permanent, temporary, and drought transfers are just a few of the types of transfers that may be applied for by an existing water rights holder.

Oregon's instream leasing program ([ORS 537.348](#) and [OAR Chapter 690, Division 77](#)) provides a voluntary means to aid in the restoration and protection of streamflow. This arrangement provides benefits to both water right holders and to instream values by providing water users with options that protect their water rights while leasing for instream benefits. Instream leases can be for up to 5 years and there is no limit on renewals.

Drinking Water

Oregon's Drinking Water Quality Act [ORS 448.119 to 448.285; 454.235; and 454.255](#).

Enacted in 1981, the Act establishes a program for drinking water systems, ensuring safe drinking water for all Oregonians, and offering a mechanism to enhance deficient drinking water systems.

Domestic Well Testing Act [ORS 448.271](#)

The Domestic Well Testing Act requires that wells that supply groundwater for domestic purposes be tested for arsenic, nitrates, total coliform bacteria, and any other contaminants of public health concern that Oregon Health Authority has established in rule. Wells must be tested when they are included in any real estate transaction and the seller accepts an offer to purchase or exchange that real estate. Only laboratories accredited according to Oregon Environmental Laboratory Accreditation Program can conduct the samples analysis. The results must be sent to the buyer and to Oregon Health Authority where they are made publicly available in the real estate transaction well report database. This data provides the public and state agencies with critical information on groundwater quality in private domestic wells, statewide. There is no enforcement mechanism with this requirement, and recent studies indicate that only about 10% of the applicable real estate transaction data is being submitted to the state.

Land-use Planning and Agriculture

Statewide Land Use Planning Goals - The Department of Land Conservation and Development implements Oregon's land use planning program, which influences how land is used throughout the state. The program began in 1973 under [Senate Bill 100](#), it directs cities and counties to protect water resources when planning for and permitting development in their jurisdictions. The land use program plays a significant role in managing nonpoint source pollution by promoting compact urban development in designated urban areas and minimizing the impact of rural development on working lands and natural resources through rules and incentives.

Agricultural Water Quality Management Act - The Agricultural Water Quality Management Act enabled the Oregon Department of Agriculture to develop plans and rules to prevent and control water pollution from agricultural activities in order to achieve water quality standards. These rules both advance federal Clean Water Act objectives and serve as the foundation for Oregon's Agricultural Water Quality Program. There are 38 area [Agricultural Water Quality Management Plans](#) and Rules around the state.

Ecosystems and Waterway Protections

Fish Screening & Passage Laws

The Oregon Department of Fish and Wildlife oversees the state's fish screening and fish passage programs. Screens prevent fish from being caught in water diversion structures. Further, in locations where native migratory fish are currently or have historically been present, fish passage over man-made dams and diversions has also been a requirement since before statehood. Where applicable, Oregon requires fish screens, bypass devices, and/or passage as a condition of new uses (permits). Only fish screens (not fish passage) are addressed during authorized changes to an existing water right (e.g., transfers).

Forest Practices Act

The Forest Practices Act (FPA) of 1971 sets standards for all commercial activities involving the establishment, management, or commercial harvesting of trees on nonfederal forestlands. Many of the rules are aimed at protecting water sources. For example, regulations require landowners to leave forested buffers and other vegetation along streams, wetlands, and lakes to protect water quality and fish and wildlife habitat. The Oregon Board of Forestry has primary responsibility to interpret the Act and to set rules for forest practices. The FPA statute and rules are the mechanisms to implement water quality standards and Total Maximum Daily Loads (TMDLs) on nonfederal forestlands..

In March 2022 [Senate Bill 1501](#) became effective and requires the Board of Forestry to adopt a comprehensive set of new rules and revisions to the FPA. These changes, along with the aerial herbicide buffers established in 2020 under Senate Bill 1602, are expected to significantly enhance water quality protection on private forestlands. The new rules stem from an agreement reached in October 2021 between timber industry advocates and conservation groups known as the Private Forest Accord. The Private Forest Accord also resulted in Senate Bill 1502 and House Bill 4055 which became effective in 2022. Senate Bill 1502 provides tax credits for small forestland owners complying with riparian timber harvest restrictions, while House Bill 4055 modifies taxation of forest products and allocates certain tax revenue to mitigate forest practice impacts on aquatic species. The fish-bearing stream rules for large forestland owners went into effect July 1, 2023, with other provisions going into effect January 1, 2024. Currently, the state is writing a Habitat Conservation Plan for the aquatic and riparian species covered by the PFA, and the Adaptive Management Program to review and, as needed, update the new forestry rules as operational.

State-owned forests are managed according to forest management plans that are based on geographic area (Northwest, Southwest, and Eastern Oregon). State forests are managed in compliance with and often surpass the standards established by the FPA. The State Forest program has voluntarily entered a long-term Stewardship Agreement that recognizes a commitment to meet and exceed regulatory requirements that cover forest land in western Oregon and is currently working on a Habitat Conservation Plan for aquatic, riparian, and terrestrial species-at-risk.

Oregon's Removal-Fill Law [ORS 196.795-990](#)

Oregon's Removal-Fill Law requires people who plan to remove or fill material in wetlands or waterways to obtain a removal-fill permit from the Department of State Lands. The law applies to all landowners, whether private individuals or public agencies. The purpose of the law, enacted in 1967, is to ensure protection and the best use of Oregon's water resources for home, commercial, wildlife habitat, public navigation, fishing and recreational uses. In most cases, a permit is required if an activity involves filling or removing 50 cubic yards or more of material in a wetland or waterway. For activities in state-designated Essential Salmonid Habitat, within a quarter mile of a state-designated scenic waterway, and compensatory mitigation sites, a permit is required for any amount of removal or fill. [ORS 468B.025](#) prohibits causing pollution or discharging waste to waters of the state and other state permits from DEQ may be required for in-water activities to ensure the protection of waters of the state is consistent with the Oregon Environmental Protection Act at [ORS 468.149](#).

Commented [KP45]: Add Division 33 and Hydro instream conversion statutes. Also, maybe a nod to instream water rights here as well?

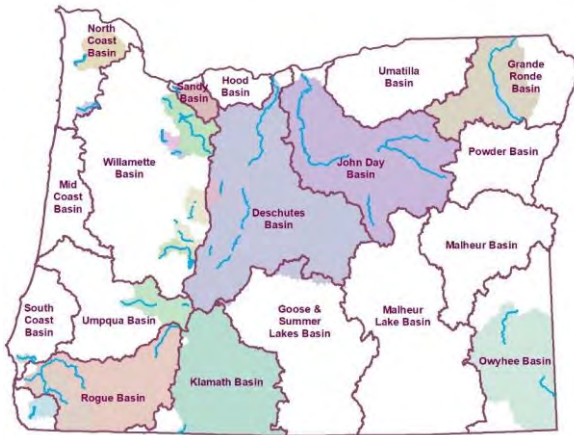
No-Net Loss Wetland Policy - Although Oregon's wetland management and protection authorities date back to the early 1970s, legislation passed in 1989 adopted policies maintaining the acreage, functions, and values of the state's wetlands. Oregon has adopted a goal of *no-net loss* of freshwater wetlands, administered by the Department of State Lands.

Oregon's Scenic Waterways Act [ORS 390.805-925](#)

Oregon's Scenic Waterways Act protects over 1,100 river miles, Figure P1-2. The Act was passed in 1970 to maintain the free-flowing character of designated rivers and lakes in quantities necessary to support recreation, fish, and wildlife. The Act includes criteria for outstanding scenic, fish, wildlife, geological, botanical, historic, archeologic, and outdoor recreation opportunities.

The Scenic Waterways Act prohibits construction of dams or other impoundments within a scenic waterway. It limits new surface water rights within or above scenic waterways as well as groundwater rights where pumping (individually or cumulatively) will reduce surface water flows. Land use activities that can affect a scenic waterway or adjacent land—such as constructing roads or buildings, mining, and forest harvesting—are limited or regulated by this Act. The Oregon Parks and Recreation Department has primary responsibility for implementing the Scenic Waterways Act and consults with several natural resource agencies, including the Water Resources Department. See Action 10C for more information about recent designations.

Figure P1-2: State Scenic Waterways and Contributing Areas



Outstanding Resource Waters

Outstanding Resource Waters are “high quality waters that constitute an outstanding state resource due to their extraordinary water quality or ecological values, or where special protection is needed to maintain critical habitat areas.” Oregon's Outstanding Resource Waters policy is part of the state's antidegradation policy described in [OAR 340-041-0004\(8\)](#). The public can nominate waterbodies for designation and Oregon's Environmental Quality Commission has the ability to designate Outstanding Resource Waters. Designation adds water quality protections, including restrictions on point source discharges, to ensure that no degradation of the high water quality, exceptional ecological characteristics, and other outstanding values of the waters occurs. See Action 10C for more information about recent designations.

Timeline of Water Resources Management

Many of the laws, plans, and policies noted in the following timeline represent major achievements and serve as a strong foundation for economic development, environmental restoration, and protection of human health in Oregon.

- 1889** Oregon enacts a state law **prohibiting pollution of waters** used for domestic or livestock purposes
- 1898** Oregon's first **fish screening law** protects fish from injury or mortality in diversion ditches, machinery, or irrigated fields
- 1909** **Oregon Water Code** creates a system of water allocation and distribution
- 1927** Oregon Legislature establishes requirements for obtaining water rights for the use of **groundwater in eastern Oregon**
- 1929** Oregon Legislature establishes current **dam safety laws**
- 1955** **Oregon's Ground Water Act** authorizes the state's management of groundwater resources statewide
- 1955** **Oregon's Minimum Perennial Streamflow Act** creates minimum flow requirements to support fish and aquatic life or minimize pollution
- 1964** **Columbia River Treaty** between the United States and Canada brings significant flood control and power generation benefits to both countries
- 1967** **Oregon's Beach Bill** gives the public free and uninterrupted use of the beaches along the Oregon Coast
- 1967** **Oregon's Removal-Fill Law**, established in 1967 and amended in 1971, requires landowners who plan to remove or fill materials in wetlands or waterways to obtain a permit from the Department of State Lands
- 1970** **Oregon Scenic Waterways Act** maintains the free-flowing character of designated rivers and lakes in order to support recreation, fish, and wildlife uses
- 1971** **Oregon Forest Practices Act** regulates commercial forest operations on non-federal forestlands, including management of soil, air, water, fish, and wildlife resources
- 1972** **Federal Clean Water Act** regulates the water quality of streams, lakes, rivers, and estuaries
- 1973** **Federal Endangered Species Act** makes all species of plants and animals, except pest insects, eligible for listing as endangered or extinct
- 1973** **Oregon Land Use Act** requires all cities and counties to develop comprehensive land use plans
- 1974** **Federal Safe Drinking Water Act**, later amended in 1996, regulates the quality of drinking water delivered through community water systems
- 1987** **Oregon's Instream Water Right Act** recognizes water instream as a beneficial use and authorizes instream water rights
- 1989** **Oregon's Groundwater Quality Protection Act** is passed to conserve, restore, and maintain the high quality of Oregon's groundwater
- 1989** **Oregon's "No Net Loss" Wetlands Policy** is designed to maintain the acreage, functions, and values of the state's wetlands
- 1989** A **Water Allocation Policy** ensures that surface waters of the state are allocated within the capacity of the resource and protected from over allocation
- 1993** **Oregon's Agricultural Water Quality Management Act** provides a mechanism for agricultural operations to address water quality problems in watersheds
- 1997** The **Oregon Plan for Salmon and Watersheds** helps restore healthy watersheds that support the economy and quality of life in Oregon
- 2000** The Water Resources Commission adopts a **Water Measurement Strategy**, focusing on diversions with the greatest impact on streamflows in areas with the greatest needs for fish
- 2001** Oregon's **State Tribal Government-to-Government Law** passed, directing state agencies to include tribes in the development of programs
- 2005** The **Deschutes Groundwater Mitigation Program** was developed to provide for new groundwater uses while maintaining scenic waterway and instream water right flows in the Deschutes Basin
- 2006** The **Oregon Conservation Strategy** provides an action plan for the long-term conservation of Oregon's native fish and wildlife and their habitats
- 2007** Oregon Legislature establishes an **Environmental Justice Task Force**, calling for a greater voice and protection for underrepresented groups in agency decisions involving natural resources (In 2022 the task force was renamed the Environmental Justice Council)
- 2009** Oregon Legislature establishes an **Ecosystem Services Policy**, focusing on the protection of land, water, air, soil, and native flora and fauna
- 2010** The Environmental Quality Commission revises water quality and human health standards based on a **Fish Consumption Rate** of 175 grams per day per person—the most protective criteria in the nation
- 2011** The Environmental Quality Commission approved rules allowing the issuance of **Graywater Permits** to reduce demand on other sources, such as potable water, surface water and groundwater
- 2012** Oregon adopts its first **Integrated Water Resources Strategy**, a blueprint for meeting the state's instream and out-of-stream needs
- 2013** Oregon delivers the **Klamath Adjudication Findings of Fact and Order of Determination** to Klamath County Circuit Court
- 2015** Oregon Chub and Modoc Sucker become first and second species in the nation to be de-listed due to recovery under the **Endangered Species Act**
- 2015** Oregon initiates **Place-Based Integrated Water Resources Planning** with local communities
- 2017** The Oregon Environmental Quality Commission designates the North Fork Smith River and its tributaries as Oregon's first **Outstanding Resource Waters**
- 2019** Foskett Speckled Dace de-listed as a federal **Endangered Species**
- 2020** Borax Lake Chub de-listed as a federal **Endangered Species**
- 2021** Waldo Lake and Crater Lake were designated as **Outstanding Resource Waters**
- 2022** Enhanced water quality protections from the **Oregon Forest Accord** and Senate Bill 1501

References

-
- ¹ Oregon's Kitchen Table. 2023. Community Engagement on Oregon's Integrated Water Resources Strategy. <https://www.oregonskitchentable.org/results/integrated-water-resources-strategy-2023-community-engagement>
- ² Fleishman, E., editor. 2023. Sixth Oregon Climate Assessment. Oregon Climate Change Research Institute. Oregon State University, Corvallis, Oregon. DOI: 10.5399/osu/1161. <https://blogs.oregonstate.edu/occri/oregon-climate-assessments/>
- ³ Pilz, D., Kruse S., Raucher R., Clements J., Gardner T., Odefey J., Madsen T., Purkey A., Sheridan C., McCoy A., Ehrens A. 2023. The Business Case for Investing in Water in Oregon. https://www.oregon.gov/owrd/WRDPublications1/230721_FINAL_Business_Case_for_Water_in_OR.pdf
- ⁴ Dalgaard, Stacey. 2022. State of Water Justice in Oregon. Prepared for Oregon Environmental Council and the Oregon Water Futures Project. Portland, Oregon. <https://www.oregonwaterfutures.org/water-justice-report>
- ⁵ State of Oregon. 2023. Oregon Blue Book – Almanac & Fact Book. Tribal Governments Webpage. Accessed November 3, 2023. <https://sos.oregon.gov/blue-book/Pages/national-tribes-intro.aspx>
- ⁶ Oregon Water Resources Department, 2016. Water Rights in Oregon: An Introduction to Oregon's Water Laws. Salem, Oregon. <http://www.oregon.gov/owrd/PUBS/docs/aquabook.pdf>

PART 2 - STRATEGY ACTIONS

Engagement efforts for the 2024 Strategy identified water challenges and potential solutions that were similar to those heard during the 100-Year Water Vision effort in 2020, and reinforced the need for the recommended actions identified in the 2017 Strategy. People and the environment continue to have water challenges, although the severity or reach of the issues has increased. Therefore the 2024 Strategy carries forward most of the recommended actions from the 2017 but has placed an emphasis on making the Strategy more accessible, and elevating tools to support implementation. Details about changes to the Strategy organization and modifications to the 2017 actions was provided in the Strategy Introduction.

The following four chapters include narrative describing Oregon's critical water issues and the actions needed to address these issues. New for the 2024 Strategy, each action includes an action summary page to provide a quick reference regarding who might take this action, examples illustrating the action, and resources including existing workgroups or funding programs. Action summary pages include the following types of information:

Lead agency – identifies the primary state or federal agency or agencies where this action falls into their mission, current or recent activities, or an existing program. Identification as a lead agency does not indicate obligation to contribute to the action, acknowledging that participation is voluntary and dependent upon agency resources and funding. Agencies are listed in alphabetical order.

Supporting agency – identifies the state or federal agencies that may participate in the action but have less involvement than the lead agencies. This category recognizes agencies that provide support through technical assistance, workgroups, funding, or other contributions. Agencies are listed in alphabetical order.

Partners – any non-federal or state agency entity that has participated in this action, or likely would, given the type of action. Tribes are often listed as a partner to promote partnership and/or consultation when appropriate. This list is not intended to be exhaustive but highlights the major interested parties.

Background – succinct description of why this action is needed. More context is provided in the narrative preceding the action summary page.

Example Actions – black text includes example actions that were taken directly from the 2017 Strategy. Items that have been crossed out have been completed or are no longer needed. Red text indicates a proposed addition for the 2024 Strategy. Equity and environmental justice example actions have been added for many actions.

Resources – include agency programs, workgroups, websites, and documents. Documents often include state agency plans or strategies (e.g., Oregon's Conservation Strategy), helping to show how the Strategy complements and supports other state initiatives. Other items to include here might be work products (reports, studies, etc.) from agencies working on that action.

Commented [KP46]: Again, concerns with framing as: (1) engagement efforts were not robust or transparent, (2) folding in 100 year water vision w/o statutory authority, governor direction and/or any documented reason (including fact legislature chose not to fund, not adopted by any body, etc).

Commented [KP47]: Disagree-the new structure makes it much harder to understand the pathway forward to meeting instream and out of stream needs (and the IWRS statute). Also, fails with the "plain speech" throughout.

Commented [KP48]: This does not make clear to the reader who has the primary responsibility. E.g. some actions that have many agencies have OWRD at the end of the listing, which discounts when they are primarily responsible.

Commented [KP49]: Note that NGOs are largely absent from the partner lists, despite their prolific involvement in water allocation/reallocation, funding, conservation, leg/budget, etc. Also, listing partners serves as an exclusionary lever and does not invite new voices

Commented [KP50]: Background sections should be authored by agencies with expertise on the given subject (e.g. ODFW for instream, DEQ for water quality, ODA for ag, etc). Many of the background sections do not really paint the story behind the actions; more attention needed here.

Commented [KP51]: Note, some black text has been changed but this is not redlined for the reader (e.g. water and land use is now land use).

Agency Acronyms

The action summary pages use acronyms for the lead and supporting state and federal agencies.

State Agencies

BIZOR	Business Oregon
DAS	Department of Administrative Services
DOGAMI	Department of Geology & Mineral Industries
DLCD	Department of Land Conservation & Development
DSL	Department of State Lands
ODA	Department of Agriculture
ODEQ	Department of Environmental Quality
ODF	Department of Forestry
ODFW	Department of Fish & Wildlife
ODHS	Department of Human Services
ODOE	Department of Energy
ODOT	Department of Transportation
OEM	Office of Emergency Management
OHA	Oregon Health Authority
OPRD	Parks and Recreation Department
OSMB	Oregon State Marine Board
OSU	Oregon State University
OWEB	Oregon Watershed Enhancement Board
OWRD	Water Resources Department

Federal Agencies

BLM	Bureau of Land Management
BPA	Bonneville Power Administration
FEMA	Federal Emergency Management Agency
NFWF	National Fish and Wildlife Fund
NOAA	National Oceanic and Atmospheric Administration
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

The 2024 Strategy carries forward the goals and objectives from the 2012 and 2017 Strategies. Actions needed to accomplish the goals and objectives of the Strategy are described throughout the following four chapters. Many actions accomplish more than one objective. A summary is provided below. Relevant objectives are also listed at the beginning of each chapter, under “Actions at a Glance.”

Goal 1 – Improve Our Understanding of Oregon’s Water Resources

Objective 1 – Understand Water Resources

Chapter 1 Funding, Actions 1A-1C	Chapter 2 Education, Actions 2A-2C Coordination & Collaboration, Actions 3A-3D Place-Based Efforts, Action 4A Land Use Planning, Actions 5A Natural Hazard Mitigation Planning & Extreme Events, Actions 6A-6C	Chapter 3 Water Resource/Supply Information, Actions 7A-7E
--	--	--

Commented [KP52]: The visuals are much less clear than the 2012 and 2017 versions, and we would say do not meet “plain speak” goal (as far as organization)

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

Chapter 1 Funding, Actions 1A-1C	Chapter 2 Education, Actions 2A-2C Coordination & Collaboration, Actions 3A-3D Place-Based Efforts, Action 4A Land Use Planning, Actions 5A Natural Hazard Mitigation Planning & Extreme Events, Actions 6A-6C	Chapter 3 Instream & Ecosystem Water Needs, Actions 8A-8C Out-of-Stream Water Needs, Actions 9A-9B
--	--	---

Objective 3 – Understand the Pressures that Affect our Needs and Supplies

Chapter 1 Funding, Actions 1A-1C	Chapter 2 Education, Actions 2A-2C Coordination & Collaboration, Actions 3A-3D Place-Based Efforts, Action 4A Land Use Planning, Actions 5A Natural Hazard Mitigation Planning & Extreme Events, Actions 6A-6C	Chapter 3 Improve Water Resource/Supply Information, Actions 7A-7E Define Instream & Ecosystem Water Needs, Actions 8A-8C Define Out-of-Stream Water Needs, Actions 9A-9B
--	--	---

Goal 2 – Meet Oregon’s Water Resource Needs

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

Chapter 1 Funding, Actions 1A-1C	Chapter 4 Healthy Ecosystems, Actions 10A-10E Clean Water, Actions 11A-11C Water Use & Management, Actions 12A-12G Water Infrastructure, Actions 13A-13C Water & Energy, Actions 14A-14B
--	--

Guiding Principles

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

Accountable and Enforceable Actions

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

Balance

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

Collaboration

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

Conflict Resolution

Be cognizant of and work to address longstanding conflicts.

Facilitation by the State

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

Incentives

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

Implementation

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

Interconnection/Integration

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

Public Process

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

Reasonable Cost

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

Science-Based, Flexible Approaches

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

Streamlining

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

Sustainability

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

CHAPTER 1

Funding

The chronic underfunding of state agencies, ~~local governments, and water infrastructure~~ has contributed to the water insecurity people and the environment are now experiencing. Climate change is increasing pressure on our ecosystems and water supplies and heightening awareness about the weaknesses in our water management systems.

Documents published in recent years further emphasize the need to invest in water:

“The state’s water infrastructure suffers from decades of disinvestment and natural resource agencies lack funding and capacity to properly enact their duties.”
-Secretary of State Advisory Report 2023-04 (2023)

“Management Challenge: We have underinvested in our built and natural water infrastructure, and our ecosystems. Investments in water planning and projects are not fully coordinated at the community, regional or state levels, and there has not been a concerted conversation about how Oregon will fund its future water needs.

Management Opportunity: We can coordinate our current investments and seek new sustainable, dedicated public and private funding for restoration of ecosystems, and built and natural infrastructure. Coordinated and new investments will ensure communities – including Oregon’s federally recognized tribes and those people living in disproportionately impacted and rural communities - can afford and access adequate clean water, and return it to our rivers for downstream users, fish, and wildlife.”
-Oregon’s 100-Year Water Vision (2020)

Commented [KP53]: RED deletions suggested by me, re: (1) the inclusion of infrastructure as underfunded is not aligned with the vast amounts of state and federal funding that have gone to infrastructure in recent years (2) adding in “local governments” and “infrastructure” changes the narrative of past years; and elevates these over say “ecosystems”. ((3) inclusion of local governments advances a pathway that is not universally supported, unclear why included here. Long story short, this should be narrowed to state agencies. If you do not do this; then reword so that it is inclusive of the many sectors and issues that have been chronically underfunded.

Commented [KP54]: This is one of a number of noted challenges in the 100 year vision related to funding, others include investing in ecosystems and data, for example. If the OWRD is going to borrow from the 100 year vision, any reliance should be comprehensive. As is, the document seems to pick and choose snippets to further certain outcomes but not others

Chapter 1 Actions at a Glance

Objective 1: Understand Oregon's Water Resources

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

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

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

Critical Issue - Funding

- 1A Fund Development and Implementation of Oregon's Integrated Water Resources Strategy
- 1B Fund Water Resources Management Activities at State Agencies
- 1C Invest in Planning, Feasibility Studies, and Water Resources Projects

The 2023 Secretary of State Advisory Report regarding water security (Report 2023-04) identified that natural resource state agencies are chronically underfunded and understaffed in relation to their respective responsibilities¹. Meeting the water challenges of today and tomorrow will require an increased investment in state agencies and programs.

Most Strategy actions require some type of funding, whether it is to hire or keep agency staff, purchase equipment, hire a specialist/consultant, or design and implement a project. Recent progress has been made increasing the state’s spending on water. Highlights from the 2021 and 2023 Legislative sessions are provided, below. This section concludes with three distinct Strategy Actions; funding the development/implementation of the Strategy, funding water resources management by state agencies, and assisting with local water challenges by funding planning, feasibility studies, and instream and out of stream water projects.

The Business Case for Investing in Water

The Business Case for Investing in Water in Oregon² outlines the risks, opportunities, and benefits associated with making some specific investments in water. The report finds that “Oregon should invest in ways that increase resiliency and flexibility and should do so in advance of crises rather than in response to crises.” Figure 1-1 outlines the reports five guideposts for investment and offers the corresponding location in the Strategy where these issues and actions are discussed.

Commented [KP55]: Authors have rewritten the 2017; the earlier version was much more readable and strategic in setting forth the needs.

Commented [KP56]: The business case supply issues captured in the graphic on pg. IV (of business case) is a balanced and understandable graphic, might consider inserting

Figure 1-1 Business Case Guidance for Investment and Associated Strategy Actions

Business Case Five Guideposts to Meet Oregon’s Current and Future Water Challenges	Actions in the 2024 Strategy most closely aligned with Guidepost
Invest in whole-watershed and nature-based approaches for a range of benefits including future avoided costs of potential negative impacts from climate change	Funding, Action 1C Land Use Planning, Action 5B Instream & Ecosystem Needs, Actions 8A-8D Healthy Ecosystems, Actions 10A-10E Infrastructure, Action 13A
Fund innovative governance and policy adaptations to increase flexibility of water management and capitalize on collaboration and creativity	Funding, Action 1B Healthy Ecosystems, Action 10E Water Use & Management, Actions 12E-12G
Focus on modernizing infrastructure across the landscape in ways that help address specific risks like flooding, stormwater management, reduced summer baseflow, shrinking glaciers, fish passage, etc.	Healthy Ecosystems Actions 10A-10B Infrastructure, Actions 13A-13C Energy & Water, Actions 14A-14B
Enhance water justice by authentically engaging frontline communities in policy and power and targeting investments so that benefits are distributed to these communities equitably	Funding, Action 1C Coordination & Collaboration, Action 3C
Recognize and invest to support Tribal economic, spiritual, and cultural values for water and fish and engage with Tribes as sovereign co-managers of the resource	Funding, Action 1C Coordination & Collaboration, Action 3A Instream and Ecosystem Needs, Actions 8A-8D Healthy Ecosystems, Actions 10A-10E Clean Water, Actions 11A-11C Water Use & Management, Action 12A

Recent Legislative Investments in Water

2021 Legislative Water Package

The 2021 Oregon Legislature made historic investments in Oregon’s water future, with the passing of a \$538 million water package. Approximately \$500 million of the funding package came from the federal American Rescue Plan Act (ARPA). This funding resulted in investments in many types of water infrastructure across Oregon, through grants, loans, and direct appropriations and came at a time when many communities had experienced several years of consecutive drought and/or devastating wildfires. While funding was provided to agencies for some additional staff capacity, much of the water package included pass through funding where agencies used the money for contracting services or increasing funding through grant and loan programs. Continued funding for agency day to day operations remains a consistent funding challenge.

Commented [KP57]: A number of agency positions were supported, e.g. ODFW water program, OWRD groundwater staff, etc.

Figure 1-2 Investments from the 2021 \$538 Million Water Package and Related Strategy Actions

Investment Amount	Description	Related Strategy Actions
\$275.7 M	Direct appropriations of ARPA funding for drinking water, wastewater, and stormwater infrastructure projects throughout Oregon	1C, 11A-11C, 13A-13C
\$135.7 M	Public works funds and financial assistance programs to repair and replace water infrastructure	1C, 11A-11C, 13A, 13C
\$46.5 M	Regional and basin-specific projects (Deschutes & Willamette Basins, Wallowa & Newport dams, Umatilla County)	1B, 1C, 4A, 12B-12D, 13A-13C
\$39.9 M	Increase Oregon’s water supply	1B, 1C, 6B, 12D-12G, 13C
\$11.2 M	Modernize the data collection and technology used to monitor Oregon’s water supply	1B, 7A-7C
\$17.7 M	Water quality improvements (included research and technical assistance, TMDL development, fish screen/passage projects)	1B, 7A, 10B, 10E, 11A-11C, 13A
\$6.5 M	Make Oregon’s water infrastructure safer and more resilient	6A-6C, 11A-11C, 13A, 13C
\$5 M	Support Oregon’s 100-Year Water Vision, equitable water access, and state, local, and regional water planning	1B, 1C, 3A, 4A, 11A

Commented [KP58]: Please explain to reader what this is? I cannot find in the summary reports any budget items titled “increase water supply” . As a general matter, I would recommend using the titles from Agency reports so as not to confuse issues.

Commented [KP59]: Is this dam safety? If so, please say so that is much clearer to understand than this.

Commented [KP60]: Unclear what they are referencing here; OWRD leg reports for 2020, 2021 and 2023 show: .

- 2020 requests by 3 state agencies for 100 year water vision work was NOT funded.
- In 2021 OWEB got one position to do vision but also climate change work; this did not carry over into 2023 that we could find. No requests and/or appropriations to OWRD tied directly to 100 year water vision (at least according to OWRD staff reports to the commission)
- 2023 no OWRD or OWEB budget items tied to 100 year water vision reported in agency summary reports.

If going to list “support Oregon’s 100-Year water vision” maybe pull out the amount for that specific work, where agency budgets actually used those words (e.g. some IWRS funding has been labeled vision funding elsewhere)

Commented [KP61]: Please change to “place based planning”, which is what the legislature funded

Commented [KP62]: There was a \$25 million drought package for ecosystems that passed in 2022; that should be included in this document.

2023 Drought Resilience and Water Security Package

The 2023 Oregon Legislature passed a Drought Resilience and Water Security Package, marking an important milestone in achieving support for many Strategy actions that address not only drought resilience, but many parts of water security. A fifteen-page summary of the [2023 Drought Resilience and Water Security Package](#) provides a list of the numerous pieces of legislation that support building drought resilience across Oregon. This funding package contains seven priority “focus areas,” related to actions found throughout the Strategy.

1. Planning, Coordination, and Capacity - \$8.3M

This focus area included permanent funding for Place-Based Integrated Water Resources Planning, grants to support other types of planning and coordination, and staff to address water distribution and water rights and protest backlog reduction.

2. Data and Analysis - \$8.8M

Notable investments included funding to update the statewide water availability model (WARS), continued support for the Oregon Water Data Portal, and expanded authority for the Water Resources Department to require water use reporting.

3. Water for Families: Drinking Water Security - \$7.5M

Drinking water security will be enhanced by a new grant program to help water suppliers protect drinking water source areas, administered by the Oregon Watershed Enhancement Board. Additional investments include funding to research small community water system vulnerability and funding to expand the existing Water Well Abandonment, Repair, and Replacement Fund (WARRF).

4. Water for Farms: Agricultural Resilience and Food Security - \$9.7M

Funding has been allocated to help small-scale agricultural producers increase their resilience to drought and support the Oregon Community Food Systems Network to develop food hub infrastructure and drought resilience. Support was also provided for increasing access to agricultural water technical assistance through Oregon State University's Extension Service and Agricultural Experiment Station.

5. Water for Fish: Instream Priorities and Watershed Health - \$35.2M

Increased investments were made to Oregon Department of Fish and Wildlife's existing Fish Passage Fund and to the Oregon Conservation and Recreation Fund to improve wildlife passage and mobility and increase drought resilience in natural systems. Various funding sources were allocated for restoration across the state, including wetlands, floodplains, and watersheds impacted by western juniper.

6. Water Project Investments – \$68.9M

Funding associated with water project investment included direct appropriations for a range of water infrastructure projects, support for irrigation modernization projects, and a new grant program to complete feasibility studies and testing for potential aquifer recharge projects.

7. Outreach and Engagement - \$4.4M

This funding focus area included \$1.6M for the construction of a water system training center, to be managed by the Oregon Association of Water Utilities, facilitation support to continue the Tribal Water Task Force, and resources for the University of Oregon's Just Futures Institute to research and address water needs of environmental justice communities.

Remaining Funding Gaps

Even after the two consecutive biennia of significant investments in water infrastructure, planning tools, and technical assistance, funding needs remain. Underinvestment in water infrastructure has been a problem for decades and will take time to adequately address. Small communities continue to need technical and financial support for water infrastructure, including assistance in pursuing grants. Financial incentives continue to be needed to encourage the agricultural sector to or senior water rights holders to dedicate water instream. Some agencies have seen flat funding for carrying out regulatory responsibilities and water management duties that do not keep up with increased costs or increased responsibilities. Funding for technology infrastructure and administrative support have not been increased proportionally with growth in some agency programs.

Commented [KP63]: Nothing about ecosystem funding needs (aside from nod to ag to instream rights which is a very small piece of the restoration puzzle)

Commented [KP64]: It's a bigger list, e.g. agency staff, agency programs, DATA (big one!). This truncated list feeds into what seems to be the theme of the 2024 draft: infrastructure, planning and tech assistance to communities. Narratives need to be comprehensive and not be used as a backdrop tool to advance certain interests over others

Fund Oregon's Integrated Water Resources Strategy

Funding is needed to carry out a robust public process in updating the Strategy, as well as guiding the ongoing implementation of the Strategy actions. In 2013, the Water Resources Department was successful in establishing a full-time position dedicated to implementing, tracking, and updating the Strategy. Agency priorities later shifted, leading to a loss of the position. However, during the 2021 Legislative session, the Department was awarded one limited duration position, with the position becoming permanent during the 2023 Legislative session. The 2023 Legislative session also resulted in the addition of staff positions at other agencies to support the Strategy, including one staff member to the Department of Agriculture, two at the Department of Environmental Quality, and three at the Water Program at the Department of Fish and Wildlife.

Action 1A
Fund Development and Implementation of Oregon's Integrated Water Resources Strategy

Commented [KP65]: This is too much detail for one position; the big need is funding of agency staff to implement (across all water agencies).

Since 2009, Oregon has been required to update the Strategy every five years. However, in 2023, the Oregon Legislature extended this period to a maximum of every eight years, also adding the requirement for developing a biennial agency work plan to implement the Strategy. These changes go into effect after the adoption of the 2024 Strategy. Staff support across many agencies will be needed to coordinate efforts in developing the biennial work plan and implementing the Strategy's four objectives and 47 actions.

Commented [KP66]: Double check statute, re: I believe only the change related to 8 years is pushed off until after the 2024 version, all other changes apply to this version.

Ongoing implementation of the Strategy requires effort for coordination and communication. Updating the Strategy involves coordination with tribes, interested parties, the public, multiple federal and state agencies, briefings of boards and commissions, and countless hours collecting information on Oregon's water-related policies, programs, and practices. Consistent resources for Strategy coordination, implementation, and updates will allow for steady progress towards understanding and meeting our states instream and out-of-stream needs.

Commented [KP67]: Should make clear this is ALL agencies, not the one position w/o OWRD

Fund Water Resources Management at State Agencies

Although some of the Strategy actions fall under the purview of the private sector, nonprofit organizations, or academic institutions, the majority of actions will fall to the public sector, particularly state agencies. The state plays a complex role when it comes to water resources management—supporting economic development while also protecting the public interest in areas like the environment, public health, and public safety.

Action 1B Fund Water Resources Management Activities at State Agencies

Commented [KP68]: "by" state agencies. RE: it is not management of the agency, but of the water resource and other laws by the agencies.

In light of the historic investments Oregon has made in water over the last two biennia, it is important to continue to build upon these investments, while not losing sight of core responsibilities related to water. For day-to-day operations at state agencies, there are many examples of Strategy implementation activities that require funding:

- Coordinating and partnering with other agencies and public and private entities
- Updating plans and participating in federal, state, and local planning activities
- Improving scientific information, including data collection, analysis, sharing, and use in decision-making
- Updating technical tools, including software, databases, maps, models, field equipment, and education/outreach materials
- Protecting and restoring instream flow, habitat, and access, including fish passage and fish screening
- Providing engineering, scientific, permitting, regulatory and other technical expertise to partners, interested parties, and customers
- Developing, issuing, and renewing permits that are protective of water resources
- Conducting compliance, public health/safety monitoring and inspections
- Monitoring for and preventing invasive species, toxics, pollution, and hazards
- Enforcing statutes and regulations
- Enforcing permits (water rights, water quality, removal fill, etc.)

Commented [KP69]: What is meant by this? This basically seems like it is setting the state up to serve as a consultant to private interests. Maybe reword?

Commented [KP70]: The verbs here are centered on "issuance"; there is also the important component of state rejection of harmful or unsustainable permit requests. This should be reworded

Commented [KP71]: Note to OWRC: Please compare this list to the 2017 list on page 164 of 2017 IWRS. The 2024 list is missing some key work.

Commented [KP72]: Red enforcement actions added by me; these are critical.

Sources of Agency Funds

The operating budgets of Oregon's natural resource agencies depend on a variety of funding sources, and the source can dictate the activities of an agency's time, staff, and resources. There are four primary funding mechanisms for most natural resource agencies: General Funds, which comprise the majority of agency operating budgets, lottery funds, federal funds, and fees. Economic development activities, for instance, are often partially supported by fee revenues or contract funds for work performed. Environmental protection activities have often depended on federal funds.

Commented [KP73]: Not sure this is accurate across agencies, e.g. ODFW and DEQ rely heavily on fees as I understand it.

The General Fund is used for a variety of public purposes and the amount of General Fund is limited, meaning there is competition for these dollars. The Legislatively approved budget for 2023-25 shows the General Fund investment in natural resources agencies equated to almost 2 percent, or \$606 million, of the \$31.9 billion General Fund budget. The budget for 2021-2023 was also about 2 percent of the General Fund, however, the previous decade consistently allocated closer to 1 percent of the General Fund to natural resource agencies.

Over the years, natural resources agencies have become increasingly reliant on lottery funds and federal funds, which are often geared toward specific, local projects, rather than maintaining core functions and daily operations. Many natural resource agencies also rely on fees however, these funds do not cover the real cost of conducting transactions.

An agency's ability to maintain consistent levels of staffing and services requires consistent general fund and fee revenue. When fee revenue is low, an agency must administratively manage the budget to control costs. This includes leaving positions across the agency open as they become vacant and shifting general funds, or other available funding sources, to cover fee gaps. This ultimately results in misalignment between staffing levels and workloads agencywide. Often, as water becomes scarcer, the work required of natural resource agency staff becomes more complex and time consuming and fees are typically not enough to recoup the costs.

Federal funding sources can help support targeted agency projects, and most recently, provided a much-needed boost to help replace and upgrade water infrastructure. Many federal funding opportunities require state matching funds, highlighting the need to have state resources available to leverage federal dollars. Federal funding for many core environmental protection programs carried out by the state, such as the Clean Water Act, have remained flat for many years. As a result, program service levels have been reduced, elevating the need for additional sources of funding.

Commented [KP74]: Given the huge infusion of federal funds in recent years, and gov/agency coordination on this, seems like it should have it's own subsection (?)

Invest in Planning, Feasibility Studies, and Project Implementation

Planning

Planning is done successfully by ensuring that resources exist to help organize people and facilitate the conversation. It also takes resources to gather existing information and to complete new technical assessments that fill key knowledge gaps. In any planning effort, communication and outreach are fundamentally important and require investment of both time and resources.

Action 1C
Invest in Planning,
Feasibility Studies, and
Water Resource Project
Implementation

Investments are needed to support existing state agency planning programs and new planning initiatives. The Strategy identifies planning actions throughout Chapter 2, Planning and Partnerships (Actions 3A-6C).

Commented [KP75]: Need to note that all these funds allow for the funding of both instream and out of stream projects/studies/etc. By leaving out the word instream, the general public could be mislead to think this is all about consumptive use. The legislature made sure governing statutes were inclusive of instream; OWRD should honor legislative intent and language (this comment carries throughout the document).

Feasibility Studies

Local communities find it most difficult to secure feasibility study funding as part of their project development. Such studies help determine the viability of a project as well as the environmental, engineering, economic, and social implications of proposed water projects.

One way Oregon can help with costs is to bridge the existing funding gap for feasibility studies. In 2008, the Water Resources Department began providing funding for Feasibility Study Grants. Since then, approximately \$9.9 million has been awarded to support 120 feasibility studies. The funding opportunity underwent a programmatic review in 2020-21 and several improvements were identified and will be implemented over time.

Commented [KP76]: Feasibility studies are not limited to local communities. Authors need to cross check funding statutes/rules before making generalized comments. As a larger point, the 2024 version has inserted "communities" throughout, which narrows the application and effect of many narratives/actions and in many cases are not an accurate reflection of statute, rule or policy. We object to this narrowing of intent.

Business Oregon and Oregon Health Authority provide funding for feasibility studies through the Sustainable Infrastructure Planning Projects forgivable loan program. Business Oregon also funds feasibility studies through other programs, including the Safe Drinking Water Revolving Loan Fund and Water/Wastewater Financing Program.

Oregon Watershed Enhancement Board can also fund feasibility studies through their Technical Assistance Grants, if the applicant can demonstrate it is necessary for an acquisition or restoration project. The Department of Land Conservation and Development offers Technical Assistance Grants for public facilities feasibility studies in support of housing production.

Water Resource Project Implementation

The Strategy identifies many actions needed to meet instream and out-of-stream water demands. Many of these actions point to types of projects that are needed, such as ecological restoration (Actions 10A-10E), modernizing irrigation infrastructure (Actions 12B & 13A), or upgrading water infrastructure to be more resilient to climate change and natural hazards (Actions 6A-6C, 13A, and 13C). Fortunately, many state agency programs currently exist that can help fund a wide range of water projects. The Oregon Watershed Enhancement Board has grant programs that can fund many aspects of a restoration project including community engagement, technical assistance, construction, and monitoring. Business Oregon has numerous grant and loan programs that fund site assessment, remediation, and water infrastructure planning, design, and implementation. The types of water infrastructure projects that receive funding include drinking water supply, stormwater conveyance, wastewater treatment, water storage, and levees.

The Water Resources Department's Water Projects Grants and Loans Program funds evaluation, planning, and the development of instream and out-of-stream water projects that have an economic, environmental, and social or cultural benefit. The Irrigation Modernization Funding program is also led by the Department, providing grants for projects that improve water use efficiency on currently irrigated agricultural lands.

The Oregon Department of Environmental Quality leads the Clean Water State Revolving Fund, which provides below-market rate loans for water infrastructure projects. Business Oregon and the Oregon Health Authority partner on the Drinking Water State Revolving Fund which provides low-cost loans to community and non-community water systems for planning, design, and construction of drinking water facility improvements.

Many federal funding sources are available to support restoration and infrastructure projects.

Commented [KP77]: NOTE: OWRD has stated at Commission meetings that the goal is to have all funding in one section. This largely tracks past discussions. That said, some of the new actions (e.g. infrastructure actions) include funding of those initiatives. Funding should either all be in one place, or every initiative (including instream) should have a call for funding. As is, some work gets a bump over others which puts some funding needs at a disadvantage

Funding

Action 1A

Fund Development and Implementation of Oregon's Integrated Water Resources Strategy

Lead Agencies

OWRD

Supporting Agencies

BIZOR, DLCD, DOGAMI, ODA, ODEQ, ODF, ODFW, ODOE, ODSL, OHA, OPRD, OSMB, OWEB, Many federal agencies

Partners

Tribes, local governments, individuals, interested parties, Legislature

Background

Oregon Revised Statute ([ORS 536.220](#)) directs the Oregon Water Resources Department to lead the development and implementation of the Integrated Water Resources Strategy (Strategy), with support from other agencies and with input from tribes, the public, and interested parties. Statute also identifies specific state agency roles and responsibilities.

Funding is needed to guide Strategy development, updates, and implementation.

Example Actions

- Fund implementation **and OWRD-led coordination of the** Integrated Water Resources Strategy
- **Fund the development and implementation of biennial Strategy workplans**
- Fund the required **Integrated Water Resources Strategy updates, including support from partner agencies**
- **Fund communication resources regarding the Strategy including web-based information and translations**

Resources

Agency Programs

OWRD's Director's Office (leads development/updates to the Strategy)

Refer to state agency programs listed on Strategy Action Summaries for Actions 1B through 14B

Workgroups

Interagency IWRS Project Team, OWRD IWRS Team, Federal Liaison Team, Water Core Team, Tribal Water Task Force

Authorities

Oregon Revised Statute, [ORS 536.220](#)

Commented [KP78]: This is not aligned with statute, which calls on OWRD to develop in coordination with ODFW and DEQ, and as of the 2023 legislative change update also ODA and OWEB. As noted throughout, authors should look to statutory mandates regarding the strategy. NOTE ALSO that implementation is not at the direction of OWRD. Agencies can and should implement actions that further their missions; regardless of whether OWRD determines a given action is a priority.

Commented [KP79]: This needs to align with statute. Suggest inserting the actual directives.

Commented [KP80]: Agencies have their own missions and autonomy, OWRD does not have statutory authority to coordinate and/or direct implementation of other agencies programs. This should be struck and/or reworded so it is clear agencies retain full autonomy to fulfill their missions

Commented [KP81]: This should be clarified that this funding should go to ALL agencies to do work; as is, some could read that this goes to OWRD for their one IWRS position. It needs to be broader than that.

Lead Agencies

Legislature

Supporting Agencies

BIZOR, DOGAMI, DLCD, ODA, ODEQ,
ODF, ODFW, ODOE, ODSL, OHA,
OPRD, OSMB, OWEB, OWRD, Many
federal agencies

Partners

Tribes, local governments,
individuals, interested parties

Commented [KP82]: The legislature is not an agency.

Background

The state's core responsibilities related to water, including those described throughout the Integrated Water Resources Strategy, must continue to receive funding to protect the public's water resources. State agencies lead the budget development process, working with interested parties, local governments, tribes, and others to understand resource needs for the next biennium. Agencies must communicate the importance of investing in water to the Oregon Legislature.

The Oregon Legislature made significant investments in water during the 2021 and 2023 sessions, and it is critical maintain the momentum and interest in water to address water security and protect Oregon's natural resource legacy for future generations.

Example Actions

- Fund those water management activities for which the state has responsibility
- Ensure increased and adequate funding from the General Fund
- Seek additional funding sources (e.g., federal funding, bonding)
- Provide funding for agency operations and equipment (e.g., administration, information technologies, interagency coordination, data acquisition and management)
- Allow agencies to adjust fees to ensure that their programs protecting water resources are sustainably funded
- Evaluate and implement opportunities to improve equitable delivery of services by state agencies
- Support agency capacity to carry out the Strategy

Commented [KP83]: Please either strike or expand the "example list" to include other possible funding sources. This open ended action item was originally included to leave the door open for a numerous funding discussions, including past commission and legislative discussions on a water right administrative fee.

Resources

State agency biennial budgets
[2023-2025 Governor's Budget](#)

Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Lead Agencies

BIZOR, DLCD, ODA, ODEQ, ODF, ODFW, OPRD, OWEB, OWRD

Supporting Agencies

DOGAMI, ODOE, ODSL, OSMB, OHA

Partners

Tribes, local governments, utilities, irrigation districts, SWCD's, watershed councils

Background

Investing in planning, feasibility studies and water resources-related project implementation is critical to ensuring communities and the environment can adequately meet their future water needs. Planning is done successfully by ensuring that resources exist to help organize people, apply for and administer funds, and facilitate the conversation. It also takes resources to gather water resources information and to develop new data that fill key knowledge gaps. Feasibility studies help determine the environmental, engineering, economic, and social implications of proposed water projects prior to significant investment. Finally, reliable and sufficient funds are needed to implement a wide range of water resource projects aimed at meeting Oregon's instream and out-of-stream needs.

Commented [KP84]: All OWRD funding sources note "instream and out of stream" In contrast, the 2024 version sets up a narrative where it seems like it is all about consumptive use. Any recommendation and/or narrative should be aligned with statutory directives.

Example Actions

- Continue to authorize and fund public and private investments in efforts such as Place-Based Integrated Water Resources Planning, including plan implementation
- Provide funding to assist small water systems to develop and implement water management and conservation plans
- Provide funding to support hazard mitigation planning (e.g. droughts, floods) at the local level
- Support river basin-planning updates
- Continue to provide OWRD administered Feasibility Study Grants to help evaluate the feasibility of water conservation, storage, and reuse projects
- Review and update the Feasibility Study Grants program based on lessons learned since 2008
- Authorize bonds to finance these investments in water resource-related projects
- Ensure that basic water infrastructure maintenance needs continue to be eligible for grant and loan funding
- Advocate for continued state and federal funding for water and wastewater-related infrastructure
- Develop funding and technical support for low-income, small communities, and districts to maintain, upgrade, and operate water and wastewater-related infrastructure
- Continue funding and support for watershed restoration and OWEB Focused Investment Partnerships
- Continue to fund Oregon Water Resources Department OWRD Feasibility Study Grants, Water Project Grants and Loans, and Water Well Abandonment, Repair, and Replacement funding opportunities Program
- Review and update the Water Project Grants and Loans program based on lessons learned
- Continue to provide BIZOR and OWEB administered grants that cover feasibility studies
- Support water project community engagement, including participation by representatives of disproportionately impacted communities (See HB 3293 (2021) that applies to BIZOR, ODEQ, ODFW, OHA, OWEB, and OWRD)
- Targeting investments so that benefits are distributed to frontline communities equitably
- Look for ways to support the federal Justice40 Initiative, a goal that 40 percent of benefits of specific federal investments are directed toward those marginalized, underserved, and overburdened by pollution

Commented [KP85]: ?

Commented [KP86]: NOTE: 2023 PBP statute amendments did include language on implementation; but that was limited to implementation coordination costs, not implementation of projects. See HB 2010(2023) Sections 15/16.

Commented [KP87]: Cross check statutes to see if funding of WMPC implementation is included

Commented [KP88]: Expand to "instream and out of stream"

Commented [KP89]: Unclear why added? If keep, please expand to built and natural, as well as retirement of infrastructure (e.g. dam removal, hydro decommissioning).

Commented [KP90]: This need more discussion, e.g. for CU projects the OWRD's funding programs were meant to be the "go to" for water projects, the BIZOR fund does not have the same standards and some view as an end run the OWRD programs.

Commented [KP91]: This needs more discussion, e.g. what benefits? Are frontline communities defined? Do you mean benefits of \$\$ or benefits of projects?

Resources

Agency Funding Programs

BIZOR grant, loan, and tax incentive programs, DLCD Housing Technical Assistance Grants (for public facilities feasibility studies in support of housing production), OWEB Grant Programs, OWRD Place-based Water Planning Fund (under development), Feasibility Study Grants, Water Projects Grants and Loans, ODEQ Clean Water State Revolving Fund

Many additional agency funding programs exist for project implementation

References

¹ Oregon Secretary of State. 2023. Advisory Report: State Leadership Must Take Action to Protect Water Security for All Oregonians. Salem, Oregon. <https://sos.oregon.gov/audits/Documents/2023-04.pdf>

² Pilz, D., Kruse S., Raucher R., Clements J., Gardner T., Odefey J., Madsen T., Purkey A., Sheridan C., McCoy A., Ehrens A. 2023. The Business Case for Investing in Water in Oregon. https://www.oregon.gov/owrd/WRDPublications1/230721_FINAL_Business_Case_for_Water_in_OR.pdf

CHAPTER 2

Partnerships & Planning

Oregon must plan and prepare for existing and unexpected challenges in meeting instream and out-of-stream water needs. Multi-year droughts, floods, and extreme temperatures will continue to affect both water resources and water needs now, and into the future. Ensuring access to water is imperative, as is addressing environmental justice issues through the inclusion of impacted communities in planning. Adequate preparation for these challenges will require strengthening partnerships and providing the public broader access to decision-making processes that shape long-range plans.

The first critical step is providing a foundation of education around water, ensuring youth and adults have access to information about water science, how it is governed, water challenges, how they can conserve and protect water resources, and other stewardship practices. Expanding our collective knowledge about water can increase the attention and care we devote to protecting our shared resource.

Partnerships require coordination and collaboration at many levels, with tribal, local, federal, and state governments working closely together with a broad spectrum of people and communities. In 2016, a pilot place-based integrated water resources planning process began, led by four communities across Oregon. Place-based planning efforts hold promise by bringing together resources to help communities chart a path, in partnership with the State, towards meeting instream and out-of-stream water needs. In 2023, the Legislature authorized the Water Resources Department to establish a permanent program to support more community-initiated water planning efforts.

Beneficial water uses on land have implications for both water quantity and quality, therefore thoughtful land use planning can help communities prepare for climate, population, and economic changes. Identifying potential risk from natural hazards is also an important planning objective, so it is important to help communities prepare for extreme weather events like droughts and floods.

Commented [KP92]: Somewhere in this document it should explain that water security and water equity includes "ecosystems". This sentiment is found in state, federal and UN documents and should be included here.

Also, somewhere in doc it should include the definition of "community" developed by the HB 5006 Regional Water Management Workgroup, namely: People who live, work or play within the planning region; entities with an interest or obligation related to water and ecosystems in the region; and governments (federal, state, local, tribal).

Commented [KP93]: Equally important is regulation of existing environmental protection laws, modernizing outdated laws/policies that favor consumptive users (e.g. see SOS Advisory Report on the inequities of the prior appropriation doctrine).

Commented [KP94]: This is a shift from the 2012 and 2017 versions where education was included but was not the first tier issue and was not declared to be the "first critical step". From WW's perspective the first critical step would be to enforce laws meant to protect people/ecosystems. The water situation in Oregon is dire, we need to act now.

Commented [KP95]: The 2017 language should be retained. There were many political considerations that went into the 2017 drafting related to PBP.

Commented [KP96]: This is NOT accurate; the legislature passed a law specific to PBP not undefined "community-initiated water planning efforts"; please look to the language of HB 2010 Section 16 (2023) for how PBP is characterized—importantly it is in terms of "place", not community. The 2024 version appears to be trying to shape agency/legislative work in a way that will contravene existing statutes and efforts

This page left intentionally blank.

Chapter 2 Actions at a Glance

Objective 1: Understand Oregon's Water Resources

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

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

Critical Issue – Education & Outreach

- 2A Promote Community Education and Outreach
- 2B Support Implementation of K-12 Environmental Literacy Plan
- 2C Provide Career Training for Oregon's Next Generation of Water Professionals
- 2D Identify Water Research Needs & Partnerships

Commented [KP97]: The 2024 version elevates the issue; while important, this is not Oregon's most critical issue under this section .

Critical Issue - Coordination & Collaboration

- 3A Partner with Federal Agencies, Tribes, and Neighboring States in Long-Term Water Resources Management
- 3B Improve State Agency Coordination
- 3C Lead Meaningful Community Engagement

Commented [KP98]: Object to insertion of an entirely new critical issue w/o any discussion. This also feeds into recent FAILED legislative attempts to make agency management action dependent upon collaboration and/or agreement of local communities (again, narrow definition of community not broad as developed by the HB 5006 work group).

Critical Issue – Water Planning

- 4A Support Integrated Place-Based Planning and Other Water Planning Efforts
- 4B Coordinate State and Local Natural Resource Plans

Commented [KP99]: Suggest the document go back to the 2017 grouping,, under heading "place based efforts"

Critical Issue - Land Use Planning

- 5A Improve Integration of Water Information and Land Use Planning (and visa versa)
- 5B Encourage Low Impact Development Practices and Green Infrastructure

Attempts in the regional water workgroup and also the legislature by certain interests to try to cede agency water management to local planning and county commission efforts failed to gain consensus. Rewording of this section appears to give that viewpoint a leg up; even though past agency staff/directors have worked hard to ensure state authority. Unclear who is influencing author's here

Critical Issue - Natural Hazard Mitigation Planning & Extreme Events

- 6A Plan and Prepare for Drought & Wildfire Resiliency
- 6B Plan and Prepare for Flood Events
- 6C Plan and Prepare for a Cascadia Earthquake & Tsunami Event

Commented [KP100]: The old title was water and land use; there was general agreement that this topic needed a lot more attention in future version. Author's seem to be trying to narrow, unclear why

Commented [KP101]: Added by me, this was how the 2017 version read and is an important point.

Commented [KP102]: Wildfire and drought should have separate action item. Drought has many effects beyond risks connected to wildfire

Pressures on our water resources, including population shifts and climate change, make careful use and management critical to Oregon's future for both people and the environment. Assisting the public with access to information and continued understanding our water resources and challenges, can help the public engage in water stewardship actions.

Promote Community Education and Outreach

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

Action 2A Promote Community Education and Outreach

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

The important role that state agency field staff play in on-the-ground education is further supported by Strategy Action 12F in Chapter 4.

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

Watershed Councils - The 1995, the Oregon Legislature unanimously passed House Bill 3441 to provide guidance on the formation of watershed councils. Oregon watershed councils are groups of people who meet regularly in local communities to assess conditions in a given watershed and implement projects that support ecological restoration or enhancement that benefits local economies, fish and wildlife, people, and water quality and quantity. Watershed councils work with local, state, and federal partners and private landowners and serve an important role in community education. Councils are designated by county governments and are expected to have broad and balanced representation and viewpoints. There are 76 locally designated watershed councils as defined by Oregon Revised Statutes 541.890 (14) and 541.910. Other watershed organizations and groups exist, but do not meet this definition. The Oregon Watershed Enhancement Board currently funds 56 of the 76 watershed councils and maintains an [interactive map](#) showing council service areas.

Commented [KP103]: The narrative in this section has largely been reworked and expanded in length quite a bit (while other sections related to instream have been cut). This version adds whole section on SWCDs and Watershed councils, unclear why and/or need (except maybe to elevate one sector of the community above others).

Commented [KP104]: The 2017 version is more accessible, reading "Education and outreach by state agencies and their partners should be targeted to all age levels and should address water quality, water quantity and ecological needs issues." As the HB 5006 Regional Workgroup discussed, state generated data is needed to inform local efforts; should retain language consistent with this.

Select Educational Resources

State and federal agencies offer a wide range of educational resources. A brief list of resources addressing water conservation, water quantity and quality, environmental stewardship, and recreation are provided below, reflecting some of the educational needs heard during the Strategy engagement efforts throughout 2023. Several resources focusing on youth-specific education are provided in Action 2B.

Water Efficiency & Conservation

One of the most mentioned concerns during outreach and engagement for the 2024 Strategy was access to information and tools for accomplishing water conservation. Education resources are listed below, and resources for implementing conservation practices are address in Strategy Action 12B "Improve Water Use Efficiency and Water Conservation." The Water Resources Department currently offers the following resources that provide information regarding water conservation:

- [Water Conservation Fact Sheets](#) (for residential, farm/ranch, and municipal users)
- [Allocation of Conserved Water Program](#)
- [Instream Lease](#)
- [Instream Transfer](#)
- [Water Projects Grants and Loans and Irrigation Modernization Funding](#)
- [Guidebook for Municipal Water Management and Conservation Plan](#)
- [Guidebook for Agricultural Water Management and Conservation Plan](#)

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

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

Water Quality Information and Advisories

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

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

Harmful algal blooms (HABs), can make water unsafe in which to drink or recreate. HABs can also make it unsafe to consume fish from affected waters. The Oregon Health Authority has expanded its [education and outreach resources](#) and offers a communications toolkit for drinking water providers. The Oregon Health Authority also provides [recreational advisories](#), informing the public about the presence of HABs, high levels of bacteria at Oregon's beaches, and shellfish harvest closures. More information about HAB monitoring and advisory programs is provided in Chapter 4, Actions 11A-11C.

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

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

Environmental Stewardship & Recreation

Awareness and enjoyment of [water resources](#) helps people use water responsibly and promotes water resource protection. The Recreation Trails, Scenic Waterways, and grant programs for local governments administered by the Oregon Parks and Recreation Department, for example, help increase access to water-based outdoor recreation and enhance stewardship of the state’s waterways. Support for responsible, sustainable recreation is one way to encourage social investment in protection of these resources.

Another example is the Oregon State Marine Board, which offers numerous environmental and recreation-based boating safety programs, often partnering with other agencies such as the Department of Fish and Wildlife and Parks and Recreation Department. Some of these programs include:

- [Water Wits](#), a K-12 curriculum with interactive lessons in boating, water safety, and marine stewardship
- [Interactive Boat Oregon Map](#) of public boating access facilities, launch ramps, boating obstructions, Certified Clean Marinas, pumpouts and floating restrooms, clear gasoline locations, rivers where personal watercraft (e.g. jets skis) are allowed, boating regulations, and boating waterways.
- Information on boating obstructions, found at www.boatoregon.com/obstructions.
- Nationally accredited [boater education courses](#)
- [Free online paddling education](#) and promotion of Oregon Water Trails
- [Aquatic Invasive Species Prevention Program](#)
- [Clean Marinas](#)
- [Clean Boaters](#)
- Oregon Department of Fish and Wildlife’s [Angler Education Program](#)

Commented [KP105]: Missing many environmental protection/restoration work that enhances ecosystems for ecosystems sake.

Commented [KP106]: Plain speech would be “rivers, streams, lakes.....”

Support Oregon’s K-12 Environmental Literacy Plan

Environmental Literacy Plan

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

Action 2B
Support Implementation
of K-12 Environmental
Literacy Plan

Commented [KP107]: Should mention which governor (Kulongoski).

Other Resources

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

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

Salmon and Trout Enhancement Program’s Fish Eggs to Fry – The Oregon Department of Fish and Wildlife’s Salmon and Trout Enhancement Program provides valuable tools, resources, and support to provide education opportunities in and outside the classroom as well as in the community. One of the most popular programs is “Fish Eggs to Fry” where salmon or trout eggs are raised in a classroom incubator, giving students first-hand experience with how water quality impacts fish survival.

Project WET - An additional source of high quality, water-related curricula exists for K-12 educators. Project WET, established in 1984, has a coordinating center at Western Oregon University, and other coordinating centers located nationally and internationally. Project WET’s materials, available for a fee, provide a good overview of water quality and quantity issues, focusing on topics such as watersheds, wetlands, oceans, sanitation and hygiene, water history, and more.

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

Provide Career Training for the Next Generation of Water Professionals

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

Action 2C
Provide Career Training
for the Next Generation of
Water Professionals

An alarming national shortage of workers exists in the water utility sector, including water and wastewater treatment operators. This shortage will become more critical as a large percentage of the utility industry becomes eligible for retirement. Upcoming retirements from the Baby Boomer generation will impact other job sectors too, elevating a need for more graduates are needed to fill the demand.¹

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

Water Utility Workforce

During the 1970s and 80s, the water and wastewater treatment industry grew rapidly to fulfill the requirements of the federal Clean Water Act and the Safe Drinking Water Act. In the next ten years, approximately one-third of drinking water and wastewater operators will be eligible for retirement, and filling those jobs requires a new set of technical skills.² In 2020, the U.S. Environmental Protection Agency launched the [America's Water Workforce Initiative](#) to respond to this challenge, acknowledging the environmental and public health implications associated with operations and maintenance of essential drinking water and wastewater infrastructure. The Initiative identifies needed partnerships across federal, state, tribal, and local governments along with public utilities, the private sector, community groups, and educational institutions. The Initiative's goal is to help make water a career of choice through education and sustained public outreach.

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

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

In 2023, the Oregon Legislature authorized \$1.6 million to the Oregon Association of Water Utilities to construct a Water System Training Center.

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

Legislation passed in 2015 led to the establishment of "Oregon STEM" and several regional Science, Technology, Engineering, and Math (STEM) Hubs across the state to increase access to STEM education

and develop a skilled workforce. The program has since been expanded to include art, now referred to as “STE(A)M” learning opportunities. There are currently 13 STE(A)M Hubs that provide equitable learning opportunities for students through partnerships with local leaders, PreK-20 education, after school programs, local industry, and community-based organizations serving youth. Oregon STEM published an [impact report](#) in 2023, which included a finding that STE(A)M Hubs advance equity for historically underserved students.⁶

Other Careers in Water

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

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

Identify Water Research Needs & Partnerships

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

Action 2D Identify Water Research Needs and Partnerships

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

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

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

- Research into the application of artificial intelligence (AI) into data processing (e.g., processing streamflow data) (also see Action 7C)
- Continued development of techniques to quantify ecological flow needs, particularly channel maintenance and pulse flows (also see Action 8B)
- Improved techniques for remote sensing of water use (also see Action 9A)
- Prediction of water temperature through remote sensing (also see Action 7A)

Lead Agencies

DSL, ODA, ODEQ, ODF, ODFW,
ODOE, OHA, OPRD, OSMB,
OWEB, OWRD

Supporting Agencies

USEPA, USFWS, USGS

Partners

Tribes, OSU Extension Service,
SWCD's, watershed councils,
community-based organizations

Background

Public engagement for the 2024 Strategy revealed a desire for more access to information about water. Oregonians want to learn more about water, how it is governed, how they can conserve and protect water resources, and other stewardship practices. State and federal agencies and partners need to increase capacity to provide this education, and partner with community-based organizations to reach more people. Communications efforts need to be responsive to community language and format needs. See Action 2B for additional educational resources.

Example Actions

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

Resources

Agency Programs

OPRD's Recreation Trails and Scenic Waterways Programs, OSMB's Water Wits and Interactive Boat Oregon Map, Soil and Water Conservation Districts, Watershed Councils, OHA Drinking Water and Domestic Well Safety Programs, ODFW Angler Education Program, OWRD Well Safety Program, Field Services Division, Technical Services Division, and Water Rights Services Division, Interagency Pesticide Stewardship Partnership

Documents/Websites

OHA Drinking Water – links to several [videos](#)

OHA Domestic Well Safety Program – visit healthoregon.org/wells

[2018 Water Rights in Oregon: An Introduction to Oregon's Water Laws](#)

[2015 OWRD Fact Sheets for Strategies to Save Water](#)

[Well Owner's Handbook](#)

[Well Owner's Handbook \(Español\)](#)

[Human Health and Well Water](#)

[Water Quality and Pesticides](#)

[Agricultural Water Quality Resources](#)

[Water Wits](#)

[Free online paddling education](#) and promotion of Oregon Water Trails

[Aquatic Invasive Species Prevention Program](#)

[Clean Marinas and Clean Boaters Programs](#)

[Angler Education Program](#)

Lead Agencies

Oregon Department of
Education, OSU

Supporting Agencies

BLM, ODEQ, ODFW, OPRD, OWRD, USGS

Partners

Many cities, utility districts, non-
profits

Background

Oregon's Environmental Literacy Plan is aimed at helping students become lifelong stewards of their environment and community. Administered by Oregon State University Extension, the current Environmental Literacy Program [website](#) provides resources for teachers and community members. The goals of the plan are to: prepare students to understand and to address the major environmental challenges; contribute to students establishing a healthy lifestyle through outdoor experiences in the school curriculum; and give teachers opportunities for enhanced professional development.

Example Actions

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

Resources

Agency Programs

Oregon's Environmental Literacy Program, Oregon's Outdoor School Program, Outdoor School Education Fund
ODFW's Salmon and Trout Enhancement Program ([Fish Eggs to Fry](#))

Events

Children's Clean Water Festival, <https://www.cleanwaterfestival.org/>

Documents

[2013 Environmental Literacy Plan](#)
[Environmental Literacy Resource Directory](#)

Education & Outreach

Action 2C

Provide Career Training for the Next Generation of Water Professionals

Lead Agencies

ODA, ODEQ, ODFW, OHA, OWRD

Supporting Agencies

NRCS, NOAA, USEPA

Partners

Tribes, Oregon Association of Water Utilities, community colleges, OSU, Oregon STEM, American Water Works Assoc.

Background

In the next ten years, approximately one-third of water and wastewater operators in the U.S. will be eligible for retirement. The water utility workforce has important implications for environmental and public health protections. Additionally, challenges posed by climate change, aging infrastructure, and population increases has increased the demand for a wide variety water of professionals. Water professionals are needed in a wide range of specialties, including water and wastewater treatment, well drilling, science, engineering, risk assessment, policy, law, planning, engagement, and science communications.

Example Actions

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

Commented [KP108]: Unclear who these are aimed at? All sectors? The state?

Commented [KP109]: State agencies are already understaffed to fulfill all their statutory mandates; I'm not sure adding this to the work is all that helpful (?). OSU and others already have robust water programs.

Resources

Agency Programs

OWRD Certified Water Right Examiner Annual Training, OWRD Well Constructor Continuing Education, OHA Drinking Water Systems Operator Certification

Websites

Oregon Association of Water Utilities

Oregon STEM Hubs

Pacific Northwest Section – American Water Works Association

USEPA's Water Sector Workforce Initiative

Workforwater.org – website promoting career choices in the water sector

Office of Community Colleges and Workforce Development – provides a listing of colleges that offer water-related courses, degrees, and programs throughout Oregon

OSU Traditional Ecological Knowledge Lab, <https://tek.forestry.oregonstate.edu/>

Funding

NOAA's National Sea Grant College Program, <https://seagrant.noaa.gov/>

USEPA's Innovative Water Infrastructure Workforce Development Grant Program

Lead Agencies

DLCD, ODA, ODEQ, ODF, ODFW, ODOE,
OWRD

Supporting Agencies

DOGAMI, NOAA, NWS,
OWEB, USGS

Partners

Tribes, local governments, OSU Extension Service,
public & private research institutions, Oregon
Climate Change Research Institute

Background

The water resources sector will need to continue identifying ongoing research needs that could use assistance from undergraduate and graduate students, public and private universities, research institutions, and other partners. Partnerships between higher education and both the public and private sectors can result in innovative solutions for addressing water quantity and quality challenges. Research collaboration between agencies and higher education may be mutually beneficial, as research institutions can bring innovative tools, technology, and other resources to the effort, while agencies can bring expertise in agency data, evidentiary and scientific standards, and management knowledge.

Example Actions

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

Resources*Agency Programs*

ODA Natural Resources Programs, ODEQ Water Quality Program, ODFW Water Program, OWRD Technical Services Division and Field Services Division

Workgroups

[Climate Impacts Research Consortium](#)
[Oregon Climate Change Research Institute](#)
[Oregon Water Futures](#)

Documents

[2022 State of Water Justice in Oregon](#)
[2022 Water Justice Framework](#)
[2021 Oregon Climate Change Adaptation Framework](#)
[Oregon Climate Equity Blueprint](#)

Coordination and collaboration continues to be a consistent theme in the Strategy. One of the 2017 Strategy "Guiding Principles" carried forward into the 2024 Strategy calls for collaboration to "support formation of regional, coordinated, and collaborative partnerships that include representatives of all levels of government, private and non-profit sectors, tribes, interested parties, and the public. Collaborate in ways that help agencies cut across siloes."

Actions described below address ways to partner with the various levels of government, the public, and other interested parties to make meaningful progress on water challenges.

Partner with Tribal Governments, Federal Agencies, and Neighboring States

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

Action 3A
Partner with Tribes, Federal Agencies, and Neighboring States on Long-Term Water Management

State and Tribal Partnerships

The Strategy presents an opportunity to strengthen state and tribal government-to-government relationships. As described in Part 1, state agencies are directed by law to improve working relationships with the nine federally recognized tribes in Oregon. When requested by a tribe, agency directors engage in formal consultation with tribal leaders. These consultations often revolve around cultural and natural resource issues, water needs and water rights, water quality monitoring, or watershed management, protection, and restoration. Tribal members are represented on various agency boards, commissions, and committees to provide perspective and guidance.

Management of fisheries is an area where state and federal agencies work closely with tribal governments. In the Columbia River Basin, the Oregon Department of Fish and Wildlife works with the Columbia River Treaty Tribes (Nez Perce, Umatilla, Warm Springs, and Yakama), the Shoshone-Bannock Tribe, state fish and wildlife agencies in Washington and Idaho, the U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration on a variety of fisheries management and fish production issues under the 2008 - 2017 U.S. v. Oregon, Management Agreement. The Agreement was developed and is being implemented under the ongoing supervision of the U.S. District Court.

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

State and Federal Partnerships

The role of the federal government in natural resources management, land management, and therefore, water resources management is significant. The federal government manages 53 percent of all land in Oregon, including 60 percent of forestlands. Part 1 discusses the roles of key federal agencies with water-related responsibilities. State

Commented [KP110]: Note: unclear why 1 of 13 guiding principals is being elevated. Also of note, some of the 2024 version's narratives go against some of the 2017 guiding principles, e.g. the guiding principle that states: "Facilitation by the state: the state should provide direction and maintain authority for local planning and implementation. Where appropriate the state sets the framework, provides tools and defines the direction."

Commented [KP111]: Might want to consider full names

and federal agencies often work together on cooperative studies, such as groundwater basin studies, discussed in Chapter 3. Oregon also uses its Federal Consistency authority under the Coastal Zone Management Act to facilitate coordination between federal, state, and local authorities concerning federal actions in the coastal zone that have the potential to impact water resources.

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

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

A recent Biological Opinion by the Federal Emergency Management Agency will have implications for the State and local governments, relating to the National Flood Insurance Program. This emerging issue will require staff resources, at the state and local level, to understand and respond to the impacts of this biological opinion.

Deschutes Basin Habitat Conservation Plan – The Deschutes Basin is an area where irrigation interests and fish and wildlife needs have often been in conflict. Over 10 years ago, tribes, agencies, irrigation districts, and the public came together to forge a new approach to water management in the basin. The Deschutes Basin Habitat Conservation Plan (HCP) was finalized and approved by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service in 2020, and 2021, respectively. The HCP offers many practices to better align the water management operations with the life-history needs of covered species. The aquatic species covered by the U.S. Fish and Wildlife Service in this HCP include the Oregon spotted frog and bull trout - both federally listed as threatened. The HCP has resulted in increased coordination across many interests which has helped the area navigate irrigation and wildlife challenges during consecutive years of drought.

Partnerships with Neighboring States

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

Oregon is collaborating with the State of Washington and the U.S. Geological Survey on a cooperative groundwater study in the Walla Walla Basin to better understand the hydrologic system and enable holistic water management decisions.

United States, Canada, and Tribes: Columbia River Management

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

Commented [KP112]: This is not a fully accurate portrayal. The districts formed the discussion table because of ESA liabilities. A lawsuit helped bolster commitments to instream flow. Long story short the regulatory hammer of the ESA combined and a lawsuit were important drivers at the HCP table. The ESA, lawsuits and HCP development are not a new approach.

Commented [KP113]: Should add walla walla; 2024 legislature just passed a bill on this (tho has been a topic of discussion for the last decade or so). This is important because one goal is to protect water saved in Oregon through WA (so protect against appropriation in WA).

some unresolved domestic matters.⁵ The U.S. Department of State is now leading efforts for updating the Columbia River Treaty.

On September 27, 2023 a Presidential Memorandum by the Biden-Harris Administration made a commitment to honor the United States' obligations to Tribal Nations to protect and restore America's natural wonders for future generations, while also recognizing the important co-benefits that the Columbia River provides to communities and businesses throughout the region. The Presidential Memorandum prioritizes the restoration of healthy and abundant wild salmon, steelhead, and other native fish populations to the Columbia River Basin.

Federal Columbia River System Operations

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

Oregon, California, and Tribes: Restoration Agreements

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

The Klamath Hydroelectric Settlement Agreement has been amended twice and continues to be in place. The Agreement lays out the process for additional studies, environmental review, and a set of decisions by the Secretary of the Interior regarding the removal of four PacifiCorp dams. Removal of the four hydroelectric dams on the Klamath River, one in Oregon and three in California, are undergoing decommissioning in 2023 and 2024. A non-profit organization was formed to carry out the dam removal, the Klamath River Renewal Corporation. Following dam removal, restoration work is expected to continue for five to ten years. Over the next five years, there is a significant opportunity for the tribal nations, irrigators, and other interested parties in the Klamath to consider integrating water rights and requirements under the federal Endangered Species Act. Doing so will require collaboration to consider reworking irrigation infrastructure and water management practices while also addressing species recovery.

Improve State Interagency Coordination

Given the distribution of water-related responsibilities across multiple [state](#) agencies, it is critical that agencies coordinate to support one another's work. Agencies should seek to improve interagency coordination to ensure an efficient use of public resources. Communication tools are needed to help the public, local government, and community-based organizations navigate state agencies.

Action 3B
Improve State Interagency Coordination

Commented [KP114]: This should be the first action item; agency coordination is one of a few things that stakeholders have been advocating for with regards to the 2017 version (the others being implementation and funding).

NOTE: missing from below is coordination on the IWRS.

Commented [KP115]: Added by me

Interagency Permit and Grant Review

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

Grants awarded for water or restoration projects often require review by multiple agencies. Some existing review teams include: Oregon Plan Monitoring Team (for the Oregon Plan for Salmon & Watersheds), Oregon Watershed Enhancement Board Technical Assistance Review Team, Water Resources Department feasibility study grants and water project grants and loans, and Business Oregon's process for awarding water infrastructure grants and loans.

Interagency Teams & Work Groups

Several state agencies perform monitoring activities, collect data, and have a need to share information to make timely decisions. The Oregon Stream Team represents many agencies with monitoring duties and has published a [Monitoring Strategy](#) to help guide these efforts. It is important to support work groups that provide for staff-staff coordination, as well as those that function at the leadership level.

State Agency Coordination Program

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

Lead Meaningful Community Engagement

Tribal communities, communities of color, low-income, and rural communities have faced years of inequitable environmental policies and exclusionary decision-making practices created and maintained by government institutions.^{9, 9} These communities are experts based on their lived experiences and this expertise must be centered in climate resilience and water planning work. However, common community engagement challenges such as resource allocation and trust-building with historically marginalized communities have limited meaningful engagement.

Action 3C Lead Meaningful Community Engagement

Environmental Justice Tools and Resources

The U.S. Environmental Protection Agency has developed an environmental justice (EJ) mapping and screening tool called [EJSCREEN](#). It is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. This screening tool highlights places that may have higher environmental burdens and vulnerable populations. EJSCREEN can also be used to support educational programs, grant writing, and community awareness efforts.

Oregon's Environmental Justice Council was created by the Legislature to help protect Oregonians from disproportionate environmental impacts on minority and low-income populations. The Council is developing a statewide environmental justice mapping tool to provide more detail than EJSCREEN. The mapping project is scheduled to be completed in 2025.

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

[Oregon's Climate Equity Blueprint](#) (2021) helps state agencies center equity at the forefront of climate adaptation work, not as an afterthought. The Blueprint provides a set of best practices for agencies to apply an "equity lens" as they design state policies, processes, and programs to address climate change. The Blueprint provides solutions to common challenges regarding meaningful engagement, which have been incorporated into the Action 3C summary, below.

Oregon Revised Statute 541.551 requires six state agencies to develop and adopt rules for best practices for community engagement. These practices have broad application for other state agencies as well. A report outlining the top ten best practices will be made available in 2024.

Commented [KP116]: I would suggest the authors use the statutory definition: "Community engagement plan" means a plan to meaningfully engage and provide suitable access to decision-making processes for disproportionately impacted communities, underrepresented communities, tribal communities and all persons regardless of race, color, national origin or income in planning for water projects using identified best practices

Commented [KP117]: STRIKE: This statement could be viewed as inflammatory as it appears aimed at undermining resource protection laws. Language is misplaced in targeting environmental laws/policies as they are generally aimed at curbing harm caused by agriculture, industry, and other private business, so generally protect disadvantaged communities (unless not enforced). Maybe what is meant is that environmental laws don't go far enough; but that is not how it reads to me.

Also of note, the 2023 Advisory report includes a narrative about how inequitable the prior appropriation doctrine is, and how water permitting laws/policies favor extractive use and harm communities and ecosystems. Those should be included here. A WRC commissioner requested inclusion of this language at the June meeting.

Commented [KP118]: Use of "must" amounts to a directive; and could lead to elevating community over science. Agree we need to lead meaningful engagement, but state should be careful how they characterize.

Commented [KP119]: This seems to be casting subtle aspersions at agencies with no real documentation (e.g. agencies are dishonest, agencies are inauthentic, etc). Agree with engagement goals, but there is a probably a less antagonistic way to state.

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

Lead Agencies

ODA, ODEQ, ODF, ODFW, ODOE, OWRD

Supporting Agencies

BPA, BLM, FSA, NOAA, USACE, USBR, USEPA, USFWS, USGS, USDA, BIA, US Dept of Interior

Partners

Tribes, State of California, State of Idaho, State of Washington, Canada

Background

Partnerships with tribes, federal agencies, and neighboring states have and will continue to play an important and necessary role in Oregon’s management of water resources. A large percentage of Oregon’s landscape is managed by federal agencies, and Oregon shares groundwater and surface water, including three major waterways, with California, Washington, and Idaho. The Columbia Basin drainage basin includes a portion of Canada, large portions of Oregon, Washington, and Idaho, and small portions of Montana, Nevada, Utah, and Wyoming.

Oregon is also home to nine federally recognized tribes, all of which have cultural ties to and an interest in water, as well as responsibilities for protecting and managing water resources. The Strategy presents an opportunity to strengthen these government-to-government relationships.

Example Actions

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

Resources

Workgroups

Tribal Water Task Force
 Natural Resources Working Group
 Cultural Resources Cluster Group
 Legislative Commission on Indian Services
 Interstate Workgroups (Walla Walla, Idaho Power)
 Klamath River Compact Commission
[Klamath River Renewal Corporation](#)
[Kaizen pre-application teams](#)

Treaties, Inter-state Agreements

Columbia Basin Fish Accords
 Klamath River Compact
 U.S. Department of State website: [Columbia River Treaty](#)
 Summary of [Active and Inactive Klamath Basin Agreements](#)

Documents

[Walla Walla Groundwater Study](#)
[Deschutes Basin Habitat Conservation Plan](#)
[Federal Endangered Species Act species recovery plans \(USFWS & NOAA\)](#)

Coordination & Collaboration

Action 3B Improve State Interagency Coordination

Lead Agencies

BIZOR, DLCD, DOGAMI, ODA, ODEQ, ODF, ODFW, ODOE, ODOT, ODSL, OHA, OSMB, OWEB, OPRD, OWRD, and others

Supporting Agencies

DAS

Partners

OSU

Commented [KP120]: Unclear why OSU is a partner?

Background

Given the distribution of water-related responsibilities across multiple agencies, it is critical that agencies coordinate to support one another's work. Agencies should seek to improve coordination to exercise efficient use of state resources. Currently, coordination occurs through various interagency workgroups and forums, identified below. Agencies will need to collaborate on the development of interagency workplans to implement the Strategy.

Commented [KP121]: Narrative should include something about need for coordination relating to the IWRS. That is the big need identified by stakeholders.

Another opportunity for improved coordination is through the State Agency Coordination Program. Twenty five state agencies have a State Agency Coordination (SAC) Program, which are intended to assure their "rules and programs affecting land use" comply with the [statewide planning goals](#), and that agency actions are compatible with acknowledged city and county comprehensive plans and land use regulations. (See [ORS 197.180](#), [OAR 660-030](#) and [OAR 660-031](#).) Additional ways for agencies to improve coordination includes continuing existing or establishing new interagency permit review teams and program or topic-specific workgroups.

Example Actions

- Update State Agency Coordination Programs in partnership with the Department of Land Conservation and Development
- ~~Design each agency permit "contingent" upon approval of all other state agency permits~~ Establish **efficient** procedures for cross-agency coordination and approval of relevant state agency permits
- **Develop interagency biennial workplan for implementing Strategy actions**
- **Develop formal memorandum of agreement/understanding (MOA/MOU) between agencies to establish clear and transparent expectations for interagency cooperation where agencies share affiliated authorities/responsibilities**
- Support new and existing interagency review teams or interagency work groups
- **Create tools to help the public, local government, and community-based organizations navigate state agencies**
- Support the development and use of Oregon's Environmental Justice Mapping Tool
- Support interagency communication around community engagement (also see HB 3293 (2021))
- Address water quality and quantity concerns in Oregon's Natural Hazard Mitigation Plan (also see Actions 6A-6C)
- Support interagency coordination on **waterway-specific management plans**

Commented [KP122]: Need to understand what this means; agencies have distinct missions so we wouldn't, for example, want OWRD (via an MOU) to be able to somehow restrict or influence ODFW or DEQ's analysis/work on interrelated tasks (e.g. water right reviews).

Commented [KP123]: This is not really "state agency coordination"

Commented [KP124]: Reader likely needs more info here

Resources

Workgroups

Conservation Effectiveness Partnership, Environmental Justice Council, Interagency Review Team, Oregon STREAM Team, Oregon Technical Advisory Committee, Regional Solutions Team, Water Core Team, Water Supply Availability Committee, Climate Change Adaptation Framework Implementation Team, Drought Readiness Council, Technical Review Teams for agency grant programs, Oregon Water Data Portal Steering Committee, Pesticide Stewardship Partnerships, Water Quality Pesticide Management Team, Willamette Action Team for Ecosystem Restoration, Natural Resource Enforcement Team

Documents

[State Agency Coordination Plans](#)

[ODA-DEQ Nonpoint Source Pollution Memorandum of Agreement](#)

Coordination & Collaboration

Action 3C [new] Lead Meaningful Community Engagement

Lead Agencies

DLCD, ODA, ODEQ, ODF, ODFW,
OWEB, OWRD

Supporting Agencies

BIZOR, OPRD, USEPA

Partners

Tribes, community leaders,
community-based organizations,
non-profits, SWCD's, watershed
councils, OSU Extension Service

Background

Solutions to water challenges can often be found through collaboration with the impacted communities. Tribal communities, communities of color, low-income, and many rural communities have faced years of inequitable environmental policies and exclusionary decision-making practices created and maintained by government institutions. These communities are experts based on their lived experiences and this expertise must be centered in climate resilience and water planning work. Resources need to be made available for engagement, including to organizations that represent underserved/under-represented populations, as well as providing services necessary to facilitate engagement of members of those populations. Funding and resources to support participation in state-led planning, engagement, policy development and management activities will help ensure plans and projects meet the needs of those most impacted by them.

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

Example Actions

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

Resources

Policies

Oregon's Environmental Justice Law, [House Bill 4077](#) (2021), [House Bill 3293](#) (2021)

Workgroups

[Environmental Justice Council](#)

Documents

Climate Change Adaptation Vulnerability Assessment Report (coming in 2024)

[State of Oregon Climate Equity Blueprint](#)

[State of Oregon Diversity, Equity and Inclusion Action Plan](#)

[State of Oregon Environmental Justice Task Force: Environmental Justice: Best Practices for Natural Resources Agencies](#)

Funding

[EPA's Community Change Grants](#)

Commented [KP125]: "instream and out of stream" should be inserted throughout the document; the 2024 version has moved away from this keystone mandate of the governing statute.

Commented [KP126]: Water equity as defined by the SOS report, the UN and elsewhere includes "ecosystems". Authors have not included this anywhere in the document that we can find.

Commented [KP127]: STRIKE: Note previous comment on this.

Commented [KP128]: Authors should rely on state/federal policies and laws to create the narrative.

Commented [KP129]: Somewhat repetitive of what you have in the last subsection

Water planning can occur in many forms and at different scales. Oregon currently has several water-infrastructure related planning mechanisms (e.g., water management and conservation plans, Goal 11 facilities plans, water master plans, wastewater facility plans) but would benefit from more holistic and integrated water planning. In the coming years, an effective statewide Strategy will require more extensive and integrated planning at the local/regional and state levels. Water is a finite resource, and effective planning will ensure its sustainable management for present and future generations. Water planning and management is crucial for balancing competing demands, mitigating water scarcity, protecting public health and the environment, and building resilience to climate change. Done properly, water planning can also facilitate dialogue, negotiation, and cooperation among stakeholders to resolve conflicts and promote equitable access to water resources.

Place-Based Integrated Water Resources and Other Water Planning

Forging partnerships between local communities and state agencies through planning offers a unique opportunity for the implementation of a wide range of recommended actions described in the 2024 Strategy. From land-use practices to natural resources management and emergency preparedness, communities are well-positioned to build trust, hold difficult conversations, and make progress on issues beyond what state agencies can do on their own.

Action 4A Support Integrated Place-Based Planning and Other Water Planning Efforts

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

Key Place-Based Planning Principles

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

Providing Financial & Technical Assistance

In 2015, the Oregon Legislature passed [Senate Bill 266](#),¹⁰ providing the Water Resources Department with authority to issue grants, enter into contracts or agreements, and provide technical assistance to pilot place-based planning. Following a funding solicitation process, four areas were selected to form planning collaboratives and develop place-based integrated water resources plans. These planning collaboratives have been able to leverage this funding to pursue significant in-kind and cash contributions from other funders and organizations.

In addition to serving an advisory role and providing financial support, state agencies also provide technical assistance to the planning collaboratives. Several state agencies – primarily Water Resources, Fish and Wildlife, Agriculture, and Environmental Quality – contributed time and resources to the planning efforts to better integrate

Commented [KP130]: The narrative creates bias. Planning is not just about infrastructure, but also streamflow restoration, conservation, management, etc.

Commented [KP131]: Do not believe that this sentiment is based on any Oregon law or policy, or public statements of agencies (?)

Commented [KP132]: This is not necessarily true. A sustainable water future is dependent on many things, modernizing laws to protect the resource, enforcement, stopping the overallocation of the resource, restoration/protection of ecosystems, measurement/reporting and other management, etc. Effective planning is not the be all end all to "ensuring a sustainable management", it is one of many tools. Narrative should set it up as that.

Commented [KP133]: Strongly oppose expanding this to "other water planning". Legislature rejected this proposal in 2023. HB 5006 workgroup did as well, greatly narrowing scope to PBP. Legislative funding is for PBP, not any local plans (as was being advanced by counties, but rejected by legislators). Inclusion here appears to be trying to influence policy and/or future legislative direction by expanding this.

Commented [KP134]: There were multiple attempts in the 2023 session to cede agency authority to local communities and/or PBP. Those were all defeated. Most directives in the IWRS are for state agencies to undertake regardless of local plans.

Commented [KP135]: New bill in 2023

Commented [KP136]: Insert guideposts of this bill; they were included in the 2017 version.

Commented [KP137]: Technically the PBP guidelines require "partnership" with the state; which put state in more than an advisory role. Also, if PBP is to be recognized by the state, agencies must sign off. So again, more than "advisory" role.

agency efforts at the local level. Many federal agencies, non-profits, private individuals, and foundations have also contributed resources, including staff, funding, and expertise.

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

Communities Undertaking Place-Based Planning

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

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

Planning groups that formally adopt a plan can seek recognition from the Water Resources Commission. Three planning groups – the Upper Grande Ronde, Lower John Day, and Mid-Coast – have successfully adopted an integrated water resources plan, receiving the Commission’s recognition in 2022. Implementation is underway with federal funding through the American Rescue Plan Act. The Harney planning group took a slightly different planning approach due to pressing groundwater issues in the basin. The groundwater portion of the plan is complete, following an intensive groundwater study conducted by the US Geological Survey and the Water Resources Department. Partners are finalizing the surface water element of the plan and anticipate adoption and seeking the Commission’s recognition in 2024.

Independent Evaluation and Regional Water Planning and Management Workgroup

In 2021, the National Policy Consensus Center and Oregon State University’s Cooperative Extension Program conducted an extensive independent evaluation of the place-based planning program to document stakeholders’ perspectives regarding their experiences with the program as well as to suggest ways that the program could be improved. The Participatory Evaluation report highlights nine key lessons and notes positive outcomes from the planning process, beyond simply creating a plan.¹¹ These included productive discussions between previously polarized water interests, increased local support for plan implementation, the ability to use the plan to leverage funding, identifying key data gaps, increased knowledge of water resources, and the establishment of an actively engaged water planning network.

Place-Based Planning Groups
Upper Grande Ronde River Watershed Partnership Convened by Union County. union-county.org
Lower John Day Place-Based Partnership Co-convened by the Gilliam County Soil and Water Conservation District and the Mid- John Day/Bridge Creek Watershed Council. lowerjohndaybbp.com
Mid-Coast Water Planning Partnership Initially co-convened by the City of Newport and the Water Resources Department. Other conveners include Gibson Farms and Seal Rock Water District. midcoastwaterpartners.com
Harney Community-Based Water Planning Collaborative Co-convened by the Harney County Watershed Council and the Harney County Court. harneywaterfuture.com

Commented [KP138]: Note that these are technically “pilot” place based plans.

Commented [KP139]: NOTE: the Upper Grande Rhonde group basically barred any conservation group unless they “lived” there; so would not say they brought together instream folks; this is evident in the resultant plan.

Commented [KP140]: Should import the definition of communities developed by the HB 5006 workgroup

Commented [KP141]: The independent review of the PBP process should be separate from the Regional water management workgroup.

Commented [KP142]: The evaluation also sets forth negative outcomes; those also need to be represented here to avoid bias, encourage adaptation and honor the process and also the whole purpose of the exercise. Suggest language from the Oregon Consensus document be lifted.

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

In 2022, the Regional Water Planning and Management Workgroup was formed, made up of diverse interests, place-based planning participants, tribes, and agencies to develop a framework and path for state-supported water planning and management at the region and/or basin level. After holding facilitated discussions for a year, the workgroup made a set of recommendations to inform policy development, funding, and guidance around water planning and management as well as recommendations for the next generation of place-based integrated water resources planning.¹²

The workgroup report highlights the need to make significant investments in water planning in order to meet statewide goals and mandates for managing instream and out-of-stream water needs with a changing climate . Specifically, any state-supported regional water planning effort must be underpinned with the budgets and capacity needed to do this work at the state level and to meet this need, state leadership must prioritize and address the current overarching system-level need for funding related to state agency data collection and analysis, agency capacity, and interagency coordination.

Next Steps for Place-Based Integrated Water Resources Planning

In 2023, the Oregon Legislature made the place-based integrated water resources planning program permanent and allocated \$2 million to the Water Resources Department to support place-based planning. Work is underway to incorporate the lessons of the pilot phase, the independent evaluation, and recommendations of the Regional Water Planning and Management Workgroup into a permanent program. In order to succeed, place-based planning must be championed by local leaders, coordinated with state agencies, and supported by instream and out-of-stream interests across the state. It will require new partnerships, creative approaches to problem-solving, a continued commitment to improved coordination and integration, and sustained investments of time and money from the public and private sectors.

Other Water Planning Efforts

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

Other water planning efforts should be supported. Water management and conservation plans, typically developed by larger public water suppliers, are planning tools that lay out steps to meet long-term water demands in the future. These plans can be costly and often small water systems lack the technical or financial capacity to develop these on their own. Providing funding to support development of municipal or agricultural water management and conservation plans could help those communities most in need. Refer to Action 1.C regarding investments in other water planning effort s.

Commented [KP143]: Stakeholder group was not limited to PBP participants; they were a small subset of the broader stakeholder group of tribes, conservation groups, ag groups, municipal interests etc.

Commented [KP144]: Note: the group early on purposefully limited its scope to PBP. While there were a couple overarching recommendations relating to funding state agencies for planning (see next paragraph); the bulk of the report focused on state place based planning. The group purposefully did not engage on other planning, as there is not wholesale agreement of other regional planning efforts (it’s more a case by case thing, e.g. Deschutes and Walla Walla). So again, to extend what was currently PBP to “other planning efforts” does not follow consensus based discussions or legislative direction;

Commented [KP145]: The broad recommendation that “other water planning efforts should be supported” has been heavily discussed in both legislative and policy forums, and has been rejected as a general policy statement and/or bill (see e.g. HB 2251 (2021), HB 3100 (2023)). Previous iterations of the IWRS were purposefully limited to PBP because of the sideboards attached.

Of note, this vague and undefined statement could be used by stakeholders who want to seek financial and other support for planning efforts that would undermine state work and/or actually harm Oregon’s water resources as there are no sideboards or purposes attached to this vague statement. This addition should be STRUCK.

Commented [KP146]: Leaves out plans related to environmental protection and/or ecosystem needs (conservation strategy, etc)

Many western states have made water planning at the regional level an essential component to further develop and periodically update statewide water plans. In Oregon, water planning was completed river basin by river basin and largely implemented through administrative rule adoption. However, this type of comprehensive river basin planning has not occurred in more than thirty years. Over the years, the Water Resources Department has been able to update some of its rules with minor revisions, but a more comprehensive update would require planning-level support. Oregon will need to consider this gap in basin-level water planning in tandem with next steps for place-based integrated water resources planning. Gathering information and assessing the critical issues within each basin or region is essential for informing future updates to the Strategy.

Commented [KP147]: IMPORTANTLY, these were state plans, this needs to be clarified

Coordinate Existing State and Local Natural Resource Plans

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

Commented [KP148]: STRIKE the added word of "local": The 2012 and 2017 versions had a call to "coordinate implementation of existing natural resource plans". The addition of "local" changes the section and elevates local plans in a way that stakeholders, state agencies and legislators have rejected at various junctures.

Within a basin or sub-basin, multiple state and local planning documents that involve water management, directly or indirectly, exist. These plans can be contradictory or complementary. Coordination of these plans will lead to improved collaboration, resulting in greater benefits for natural resources.

Action 4B Coordinate State and Local Natural Resource Plans

Commented [KP149]: Strike local

In envisioning a place-based approach to water planning, these existing plans and programs do not go away, but instead provide a baseline of information, history, and rules that must be integrated into the water plan. A place-based approach can help reconcile and implement the state's programs and plans more effectively.

Commented [KP150]: Took out narrative explaining the breadth of plans, including TMDLs, watershed restoration plans, etc.

Any new water planning initiative should account for the time and resources needed to compile, review, and reference relevant statewide or local natural resource plans. Refer to the action summary below for a list of common state and local plans that should be consulted during new planning efforts.

Commented [KP151]: See previous comment; Compare this language to pg 118 in 2017 version

Support Integrated Place-Based Planning and Other Water Planning Efforts

Lead Agencies

OWRD

Supporting Agencies

DLCD, DOGAMI, ODA, ODEQ, ODFW, OHA, OWEB, USGS

Partners

Tribes, local governments, citizens, SWCD's, watershed councils, interested parties

Background

Forging partnerships between local communities and state agencies offers a unique opportunity for implementing of a wide range of recommended actions described in the 2024 Strategy. From land-use practices to natural resources management and emergency preparedness, communities are well-positioned to build trust, hold difficult conversations, and make progress on issues beyond what state agencies can do independently.

In 2015, the Oregon Legislature passed Senate Bill 266 giving the Water Resources Department authority to support place-based planning with grants and technical assistance. Four communities were chosen to pilot the program, using the [2015 Draft Planning Guidelines](#). The Oregon Legislature made the Place-Based Integrated Water Resources Planning Program permanent through the passage of House Bill 2010 during the 2023 Legislative Session. House Bill 2010 allocated \$2 million to the Water Resources Department to establish a permanent program and fund to assist communities with place-based planning and provided staff at several state agencies to support this work.

Example Actions

- Promote success by continuing to support the places currently following the draft planning guidelines **and as they develop integrated implementation plans**
- Continue to provide financial and technical assistance to support collaborative water planning
- **Develop or recapitalize funding pathways for plan implementation to achieve instream and out-of-stream objectives**
- Promote peer-to-peer learning between communities pursuing collaborative water planning
- ~~Assess and review efforts thus far, soliciting input on place-based planning,~~ Refine planning guidelines, and implementing process improvements
- **Update the program and establish rules in coordination with agencies identified in statute**
- **Include public outreach and engagement activities to encourage participation by under-represented populations**
- **Consider OWEB Focused Investment Partnership model to support plan implementation**
- **Offer place-based planning training for interested people and community groups**
- **Support a range of local or regional planning efforts (e.g., river basin-planning updates, water management and conservation plans)**

Resources

Agency Programs

OWRD's Planning, Collaboration, and Investment Section, OWRD's Place-Based Planning Fund

Workgroups

Harney Community-Based Water Planning Collaborative

Lower John Day Basin Work Group

Mid-Coast Water Planning Partnership

Upper Grande Ronde River Watershed Partnership

Deschutes Basin Water Collaborative

Walla Walla 2050

Documents

[2015 Draft Planning Guidelines](#)

[2022 Report of the Work Group on State-Supported Regional Water Planning & Management](#)

[2022 Oregon's Place-Based Integrated Water Resources Planning Program: A Participatory Evaluation](#)

Commented [KP152]: As noted previously, this should be reworked to move away from ceding state authority but also to add balance so that instream and out-of-stream needs are of equal import.

I would say the background needs to be reworked; this really doesn't tell the story of PBP. The OWRD has developed compelling narratives in the past; I would insert here.

Commented [KP153]: The highest recommendations of the regional water management workgroup were to provide funding to state agencies for participation and technical/data work. Authors should look to that document. Other recommendations included funding of neutral facilitators, etc.

Commented [KP154]: Again, more discussion needed about implementation. The regional water management workgroup noted that as a future topic for discussion. 2023 legislation limited to funding implementation coordination..

Commented [KP155]: Needs more discussion

Commented [KP156]: Oppose "local planning"; regional planning should be limited to state basin plans and PBP.

Lead Agencies

DLCD, ODA, ODEQ, ODFW, OWRD

Supporting Agencies

USEPA, USFWS, NOAA, OWEB

Partners

Tribes, Utilities, Irrigation Districts, SWCD's, Watershed Councils, Local gov'ts, non-profits

Background

Within a basin or sub-basin, multiple planning documents that involve water management, directly or indirectly, may exist. These plans may be contradictory or complementary. Coordination of these plans can lead to improved collaboration, resulting in greater benefits for natural resources.

Existing natural resource plans can provide baseline information, history, and rules to consider and build upon during a place-based or other water planning efforts.

Example Actions

- Dedicate resources to coordinate and reconcile existing planning documents
- Support updates to local comprehensive land use plans
- Support Water Management and Conservation Plan development in conjunction with local land use planning
- Dedicate resources for state and local implementation of existing plans
- Support the application of equity and social justice principals in plan reconciliation and updates

Resources

Documents

DLCD – [Estuary Management Plans](#)
ODA - [Agricultural Water Quality Plans](#)
OWRD - [Water Management and Conservation Plans](#) (developed by municipal or irrigation water suppliers)
OWRD [Administrative Basin rules and studies](#)
ODFW - [Fish Conservation and Recovery Plans](#)
ODEQ - [Total Maximum Daily Loads](#) and associated Water Quality Management Plans
Local land use plans
[Place-Based Integrated Water Resources Plans](#)
Watershed restoration action plans
[Oregon Statewide Strategic Plan for Invasive Species \(2017-2027\)](#)
[Oregon Plan for Salmon and Watersheds](#)
[Oregon Conservation Strategy](#)
[Oregon Resilience Plan](#)
[Oregon Climate Change Adaptation Framework](#)
[Oregon Diversity, Equity, and Inclusion Action Plan](#)
[Local, Tribal and State Natural Hazards Mitigation Plans](#)

Commented [KP157]: NOTE: the title here narrows to "local plans" which was not in the title of the original section on planning

Commented [KP158]: This appears to direct support regardless of what the updates are.

Commented [KP159]: This gives land use plans added weight; again, depending on the plan this could be good or bad

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

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

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

Plan for Changes in Land Use

Oregon's statewide land use planning program was designed to: foster livable and sustainable development; protect agricultural land, forest lands, and other natural resources; to conserve coastal and ocean resources; and to improve the well-being and prosperity of Oregon's citizens, businesses, and communities. Originating in 1973 under Senate Bill 100, the program positioned Oregon as a nationally recognized leader in the arena of land conservation and development.¹³ Changes in land use in urban and rural areas can affect the function of forested lands, wetlands, riparian habitat, and other landscapes. When natural functions are impacted, there are consequences for our water resources.

Local Comprehensive Plans

Land use planning is a function that resides with local planners, local planning commissions, boards, and councils, all of which include a public process and oversight from the Oregon Department of Land Conservation and Development. Local governments in Oregon are responsible for developing and implementing their own comprehensive land use plan that complies with the statewide planning goals, shown in Figure 2-1. The Land Conservation and Development Commission and the Department of Land Conservation and Development are responsible for reviewing city and county comprehensive plans for consistency with the Statewide Land Use Planning Goals.

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

Commented [KP160]: Urge commissioners to compare this language to the 2017 opening found on page 90 of that document. It reads: Land and water are connected in many ways. The way in which we manage the landscape—our forests, farmlands, rangelands, and urban spaces—can have positive or negative implications for water resources. Policies have been put in place to ensure that streams, rivers and groundwater resources are managed for the long term sustainability of Oregon's ecosystems, economy and quality of life. Proper land management zoning can play a critical role in the health and availability of water resources for future generations.

Commented [KP161]: 2017 language is clearer and also sets a framework better. That said, there was much discussion in previous PAGS about bolstering this section in a way that would impact local planning so that counties had to align with state natural resource limitations (e.g. Thorburgh is a good example of where it has gone wrong). . Taking "water" out of the heading is a step in the wrong direction and silos the discussion.

Commented [KP162]: This section removes the easily understood narratives from 2017 explaining land use goals; suggest reinstating

Commented [KP163]: Would suggest lifting language from the state's description Here it is for reference sake: The system now preserves vast areas of land for farm and forest production, protects habitat, conserves natural resources, and protects air and water, all while continuing to allow development of land for homes and businesses. .

Commented [KP164]: Should insert words rivers, fish, groundwater, water quality, etc.

Figure 2-1: Oregon's Statewide Land Use Planning Goals

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

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

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

Goal 7 directs local governments to adopt measures to reduce the risk to people and property from natural hazards, such as floods, landslides, earthquakes, tsunamis, coastal erosion, and wildfires. This goal directs jurisdictions to apply appropriate safeguards, such as hazard overlay area zones and review standards when planning for and authorizing new development. A local government addresses natural hazards in its comprehensive land use plan by adopting a natural hazard inventory and supporting plans and policies. A limited amount of [planning grant money](#) is available through the Department of Land Conservation and Development to help communities address these planning needs. There is no implementing rule for Goal 7, so comprehensive plans have been acknowledged for consistency with the goal based solely on participation in the National Flood Insurance Program. Additional information about planning for natural hazards is provided in the next section, Natural Hazard Mitigation Planning and Extreme Events (Actions 6A-6C). Funding for natural hazard inventories and Goal 7 rulemaking may help further protect people and the environment from flood hazards.

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

Periodic Review - Periodic review is a process for certain local governments in Oregon to examine and, as necessary, update their comprehensive land use plan and implementing codes. The process was once mandatory, but now is voluntary. The intent of periodic review is to make sure that local comprehensive plans respond to changes in local, regional, and state conditions, are coordinated with other comprehensive plans and investments, and are in compliance with statewide planning goals, statutes, and rules. Requirements for who must complete periodic review and which statewide goals are addressed have been scaled back to focus on economic development and housing needs and no longer includes Goal 5 Natural Resources, Scenic & Historic Areas, and Open Spaces.

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

Plan for Population Changes in Oregon

Recent population projections indicate a slowing of statewide growth, compared with what Oregon has experienced in recent years. Oregon's Demographic and Population Outlook, published in March 2023 by the Oregon Office of Economic Analysis shows that Oregon's growth rate from 2020-2030 will be the lowest in recent history. This is due to an increase in deaths and rapid decline in births, with migration into the state providing for the only population increase. ¹⁴ Population changes will likely be experienced differently across the state, with some areas growing while others decline. Some areas that experienced growth in population over the last decade were also areas with known water resources issues. Planning for future development must consider pressures on Oregon's water resources, in terms of both water quantity and water quality and impacts to the environment and ecosystem services.

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

Oregon's statewide planning program discourages "sprawling" development that takes place in rural areas, outside an urban growth boundary. However, rural development is permitted under certain circumstances. A county decides where rural development should be allowed by following what is called the "exceptions process." Rural residential, recreational, commercial, and industrial zones (in "exception areas") allow development in certain rural areas. The Land Conservation and Development Commission has listed allowed rural uses in its administrative rules. For example, non-farm and non-forest uses are permitted in exclusive farm use and forest zones. Goal 11 (public facilities) limits extension of urban services such as sewerage to areas outside of urban growth boundaries in order to lessen demand for urban development in rural areas.

Housing

The Oregon Legislature passed House Bill 2001 in 2023 which aims to help communities meet the housing needs of Oregonians. The law requires Oregon's cities with a population over 10,000 to plan for and encourage housing production, affordability, and choice through the regular completion of a Housing Capacity Analysis and a Housing Production Strategy. The Department of Land Conservation and Development is responsible for the rulemaking associated with House Bill 2001 (2023).

This bill includes a new accountability system by which the state allocates need to all local governments, assigns housing production targets to cities above 10,000 population, and measures production and outcomes in these cities over time. If a city is falling behind relative to the region and peer cities, the Department of Land Conservation and Development is required to conduct an audit of the potential state and local barriers to production. This audit

process should take water availability and conservation measures into account in communities where future water supplies are known to be limiting factor for housing production. Meeting housing need will require cities to implement strategies that reduce per capita water demand to successfully facilitate production while minimizing impacts on water supplies. Developing or updating a Water Management and Conservation Plan may help communities plan for their housing needs, while sustainably utilizing and managing our limited water resources.

Plan for Climate Change

Oregon's Climate Change Research Institute published the sixth [Oregon Climate Assessment](#) in January 2023. The assessment outlines the status of climate science and future projections for temperature, precipitation, and wind speeds. The report also outlines climate-related natural hazards including extreme temperatures, drought, changes to the water cycle, wildfire, and coastal hazards and offers adaptation strategies. These assessments provide a reliable source of information for climate projections to consider for planning at the local and state level.

Oregon's Climate Change Adaptation Framework

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

A Climate Change Vulnerability Assessment, supporting the Framework, began in 2022 and is being completed in 2024. The Assessment will help us understand how climate change may affect existing and future social vulnerabilities across Oregon. The information gathered during the assessment will be used by agencies and policymakers to propose adaptation measures that support community needs, acknowledging that future community engagement will be needed before adaptation measures are implemented.



Adaptation Strategies – The Framework outlines several adaptation strategy goals that are supported by actions in this Strategy. Figure 2-2 shows the Framework goals, and corresponding Strategy critical issues and actions.

Figure 2-2: Alignment of Framework Adaptation Goals and the 2024 Strategy

Climate Change Adaptation Framework (2021) Adaptation Goals	2024 Integrated Water Resources Strategy Strategy Actions
Economy – Promote resilient, innovative, and inclusive Oregon economies that address climate change challenges and opportunities	Education & Outreach, Actions 2A-2C Water Resource/Supply Information, Actions 7C, 7F Healthy Ecosystems, Actions 10A, 10B
Natural World – Support robust functioning of Oregon’s terrestrial, aquatic, coastal, and marine ecosystems as the climate changes	Land Use Planning, Actions 5A, 5B Water Resource/Supply Information, Action 7C Instream & Ecosystem Needs, Action 8B, 8C Healthy Ecosystems, Actions 10A-10E
Built Environment and Infrastructure – Ensure Oregon’s building, utilities, and infrastructure are resilient to extreme weather and climate change	Natural Hazard Mitigation Planning & Extreme Events, Actions 6A-6C Water Use & Management, Actions 12B-12D Water Infrastructure Actions 13A-13C Energy & Water, Actions 14A, 14B
Public Health – Reduce climate-related health risks and promote Oregon community resilience, especially among people and communities who are disproportionately affected	Coordination & Collaboration, Action 3C Place-Based and Other Water Planning Efforts, Action 4A Healthy Ecosystems, Actions 10A-10E Clean Water, Actions 11A-11C
Cultural Heritage – Research, plan for and adapt to the impacts of climate change on Oregon’s cultural landscape	Coordination & Collaboration, Actions 3A-3C Natural Hazard Mitigation Planning & Extreme Events, Actions 6A-6C Water Resource/Supply Information, Actions 7C, 7E Instream & Ecosystem Needs, Actions 8A-8C Healthy Ecosystems, Actions 10A
Social Relationships and Systems – Create equitable, livable, and engaged Oregon communities in response to the impacts of climate change	Coordination & Collaboration, Action 3C Place-Based and Other Water Planning Efforts, Action 4A Natural Hazard Mitigation Planning & Extreme Events, Actions 6A-6C

Commented [KP165]: Author’s TOOK OUT the previous recommended action under land use planning that called for protection of streams, wetlands, etc....
STONGLY OPPOSE THAT DELETION

Integrate Water Information and Land Use Planning

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

- Laws and policies that force coordination through certain approval processes
- Financial incentives that link land use development proposals to beneficial water management strategies or projects (e.g., incentives for green infrastructure, see Action 5B)
- Training sessions and workshops where land use planners and water management staff interact
- Requirements for consultation with water agencies during updates to land use plans

Action 5A
Improve Integration of Water Information and Land Use Planning

How Local Governments Utilize State or Federal Agency Information

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

Natural Resource Information - To protect and plan for Goal 5 resources, local governments may utilize data from the Oregon Department of Forestry’s stream classification maps, Oregon Department of Fish and Wildlife’s fish and

wildlife distribution maps, local, state, and federal wetland inventories, and the Federal Emergency Management Agency's floodplain maps.

Source Water Assessments -Source water assessments were developed by the Oregon Department of Environmental Quality and Oregon Health Authority and provide improved information about the natural- and human-caused risks within municipal drinking water source areas. Some local governments use maps showing municipal drinking water source areas and source water assessment reports (when available) to voluntarily initiate a process to protect drinking water sources. Cities and other public water suppliers are encouraged to use their source water assessment to identify risks and develop measures for protection of drinking water supply.

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

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

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

Stormwater Management – Local urban governments have many potential permitting relationships with the Oregon Department of Environmental Quality associated with stormwater. As noted in Part 1, the Department of Environmental Quality can identify certain federal, state, and local governments and agencies, including cities, counties, and special districts as a Designated Management Agency, with authority to manage and regulate water pollution listed in a Total Maximum Daily Load (TMDL) plan. Municipalities may also hold a municipal separate storm sewer (MS4) permit. A MS4 is a conveyance or system of conveyances, such as roads with drainage systems, municipal streets, catch basins, curbs, gutters, constructed channels or storm drains, owned or operated by a governmental entity that discharges to waters of the state.

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

Data Gaps

There are areas where data is lacking and improvements can be made to connect land use planning and water resources planning. Of primary concern, local land use decision makers need more information about groundwater quality and availability at specific locations, as well as the long-term ability of local aquifers to yield water, when making decisions about appropriate locations for development, particularly in those rural areas already designated as groundwater administrative areas. Available groundwater information tends to be either too broad (based on regional studies) or too narrow (based on specific project sites) to help with land use planning decisions. Refer to

Strategy Action 7B, calling for additional groundwater basin studies, for a list of priority basins that will be studied in the coming years.

The land use planning program at the Department of Land Conservation and Development needs accurate geographic information regarding water rights and district boundaries to better support local governments.

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

Low Impact Development and Green Infrastructure

Runoff from urbanized lands and impervious surfaces such as paved streets, parking lots, and building rooftops during rainfall and snow events often contain pollutants that adversely affect water quality. This polluted runoff commonly includes heavy metals, pesticides and fertilizers, oil and grease, bacteria, and sediment that impair human health and aquatic habitat. Urban runoff is a major source of water quality impairment in surface waters and can also contaminate groundwater. In addition to pollution, the increased volume and peak timing of runoff from impervious urban areas can have negative impacts on receiving streams. This action focuses on incorporating stormwater management into planning and development. See Actions 10A, 11C, 11B, and 13A for additional ways to manage point and non-point sources of pollution.

Action 5B
Encourage Low Impact
Development Practices
and Green Infrastructure

Commented [KP166]: Green infrastructure should be broadly defined, including streamflow restoration, etc

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

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

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

Lead Agencies

DLCD, ODEQ, ODFW, OWRD

Supporting Agencies

DAS, DOGAMI, DSL, ODA, ODF

Partners

Local governments, utilities, districts

Background

Local government land use planners do not always have the information they need when making long-term decisions that affect water resources. Oregon can help remedy this issue by improving communication and coordination between state and local governments on land use matters and water resources. Local governments need increased access to several types of agency generated information, including water availability, site suitability for stormwater and wastewater management, and the presence of sensitive natural resources. Enhanced coordination and resources also provide opportunities for improved land use protections within the local comprehensive planning process.

Example Actions

- ~~Protect natural water bodies in the course of land use decisions, such as wetlands, estuaries, groundwater aquifers, rivers, and lakes. Update land use protections for water bodies incorporating best available data~~
- Integrate regulation of water master plans with local comprehensive land use plans to sustainably support municipalities' development
- Make accurate geographic information on water rights and district boundaries available to local governments and DLCD
- Support local governments to perform periodic review of their comprehensive plans
- Update Goal 5 resource inventories in local comprehensive plans (e.g., riparian areas, wetlands)
- ~~Locate and document Underground Injection Control Systems (completed)~~
- Develop and share information with local governments regarding the location, quantity, and quality of water resources for that can be used by local governments in land use decisions; consider mechanisms for increasing access to water data such as through the Oregon Water Data Portal
- Improve coordination, technical guidance, and assistance to local governments for land use decisions with regard to that rely on water availability or could have negative impacts to water quality
- Take next steps to implement land use goals related to water resources—establishing implementing rules, supporting local government updating updates to acknowledged plans, and the completing local government plans, applying application of appropriate safeguards during permitting
- Build partnerships with state agencies and local governments to provide share land use information, such as tax lot information
- Increase resources for local governments to update their natural hazard inventories (supporting Goal 7)
- Increase resources for local governments to update their facilities plans (Goal 11)
- Work towards achieving a statewide dataset of tax lots (identified as a priority by DAS)
- Update State Agency Coordination Programs and associated rules (see Action 3B)
- Include environmental and social justice information in land use planning

Resources

Agency Programs

DLCD Community Service Division, Rural Planning, Urban Planning, Housing, and Transportation & Growth Management Programs, ODEQ Underground Injection Control Program, ODFW Land Resources and Water Programs, DSL Waterways & Wetlands Program, OWRD Surface Water, Groundwater, and Planning Programs

Documents/Websites

- Oregon's Statewide Planning Goals
- State Agency Coordination Plans

Integrating Water Efficiency into Land Use Planning in the Interior West: A Guidebook for Local Planners

Commented [KP167]: Again, no inclusion of conservation groups.

Commented [KP168]: Replace with "plain speak", e.g. Oregon's rivers, streams, groundwater, wetlands and the species that depend upon them.

Commented [KP169]: Should look at removal fill laws; odfw land recommendations, etc.

Commented [KP170]: Strongly OPPOSE this deletion. This is in fact what is needed. Please restore directive

Commented [KP171]: And the public (who weigh in on decisions)

Commented [KP172]: This assumes support is what the state should do; in some cases local governments want to undermine resources the state is in charge of protecting; this is not the appropriate document to try to elevate local control. Please strike

Commented [KP173]: Need to understand how this meshes with current practice/funding

Encourage Low Impact Development Practices
and Green Infrastructure**Lead Agencies**

DLCD, ODEQ

Supporting AgenciesBIZOR, NRCS, ODF, ODSL, OHA,
OWEB, OWRD, USEPA, USFS**Partners**Local governments, Oregon Environmental
Council, OSU Extension Service, SWCDs,
watershed councils, developers, utilities**Background**

Land development often alters the natural hydrology of a site, resulting in a decrease in water infiltration and increase in stormwater runoff that can pollute waterways. Low Impact Development (LID) practices, including ecologically sensitive site design and the installation of natural or green infrastructure, act to retain rainfall close to where it falls and promote infiltration and pollution reduction. The techniques appropriate for a development project need to be determined early on in project planning. LID also has the potential to provide climate resilience. Regulatory benefits include meeting requirements for a TMDL plan, meeting MS4 permit post-construction requirements, the Safe Drinking Water Act, state land use planning goals 5 and 6, and reducing impacts on Endangered Species Act listed species.

Also see related Actions 10A, 11B, 11C, and 13A.

Example Actions

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

Resources*Agency Programs*

DLCD & ODOT Transportation & Growth Management Program, ODEQ Total Maximum Daily Load Program, ODEQ Nonpoint Source Pollution Program, ODEQ MS4 Program

Websites

[ODEQ LID Resources](#)

[ODEQ MS4 Resources](#)

EPA - <https://www.epa.gov/nps/urban-runoff-low-impact-development>

Documents

[Low Impact Development in Western Oregon: a Practical Guide for Watershed Health](#)

LID Overview Fact Sheet http://oeonline.org/wp-content/uploads/2014/11/LID_OVERVIEW_FACT_SHEET.pdf

[Oregon Smart Guide for Rainwater Harvesting](#)

2016 ODOT Green Infrastructure Study [Green Infrastructure Techniques for Resilience of the Oregon Coast Highway](#)

Funding

DLCD Green Infrastructure Grant Program

Commented [KP174]: This is not "plain speak"; should be revised.

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

Oregon uses a natural hazard mitigation planning process to prepare for such events. Natural hazard mitigation focuses on identifying risk and taking actions to reduce potential impacts that a natural hazard might have on people, property, and the environment. Oregon has developed a Natural Hazards Mitigation Plan (NHMP) that addresses twelve hazards (coastal hazards, dam failure, drought, earthquakes, extreme heat, floods, landslides, tsunamis, volcanic hazards, wildfires, windstorms, and winter storms). The Oregon NHMP was last updated in 2020, is required to be updated and reapproved by the Federal Emergency Management Agency every five years to maintain eligibility for certain pre- and post disaster funds, and has two primary parts: (1) risk assessment - characterizing each hazard, assessing probabilities, vulnerabilities, and describing risks; and (2) mitigation strategy - mitigation goals, a capability assessment, mitigation actions, and an implementation plan. Tribes may work directly with the Federal Emergency Management Agency to develop and update their own NHMP's. Cities, counties, and special districts create and update local NHMPs. Jurisdictions the Oregon Interagency Hazard Mitigation Team oversees provides expertise and information for Oregon NHMP updates.

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

Build Drought Resiliency in Oregon

Drought is not an abnormal occurrence in Oregon, with notable droughts in the 1930s, 1976-77, 1992, 2001-02, 2012-2015, 2018, and 2020-2023, but the severity and frequency have increased in recent years. Precipitation and temperature are the main drivers of drought, and largely determine snowpack, soil moisture, and streamflow levels, which are commonly used as indicators of drought. In Oregon, many watersheds depend heavily on snowpack for annual water supply, and the timing of peak runoff from snowmelt is critical to providing water when and where it is needed most. Climate change predictions indicate that warm winters may be more common, with more precipitation falling as rain rather than as snow, leading to earlier runoff. **PULL OUT BOX**

Action 6A Plan and Prepare for Drought and Wildfire Resiliency

In the case of severe or multi-year droughts, soil moisture does not recover in time for the next growing season. Parched soils can absorb precipitation before it can become available to streams. Increased temperatures can lead to increased evaporation and fish die-off. Groundwater levels do not rebound and refilling reservoirs can prove difficult. Fish populations may suffer loss of a year-class. These conditions can lead to limited water quality and quantity for fish, wildlife, livestock, and crops, reduced irrigation deliveries, and poor yields. Warm summer temperatures can also cause changes in the timing of water supply and water quality issues (e.g., algae blooms and waterborne diseases), as well as shift fish distribution. Because droughts are a slow-moving disaster where impacts develop over time, persisting even after the rain and snow returns, building drought resiliency in Oregon requires a portfolio of water management methods that are put into place long before the next drought arrives.

Commented [KP175]: Note: water allocation practices have led to what essentially are annual drought conditions for fish (little to no water in streams) across the state. In other words, every year is a drought year for Oregon's rivers. This should be incorporated here somewhere.

Commented [KP176]: Drought and wildfire should have separate boxes in our opinion

Defining Drought

As noted in Oregon's [2016 Drought Annex](#), a drought response plan within the state's emergency operations plan, droughts can generally be characterized by an increased demand or decreased supply of water.¹⁵ In the early 1980s, researchers with the National Drought Mitigation Center (NDMC) and the National Center for Atmospheric Research located more than 150 published definitions of drought. To simplify analysis, the NDMC now provides five different ways in which drought can be defined.

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

Impacts of Drought

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

Commented [KP177]: Missing public health bullet (deaths during heat domes, health risks to agricultural workers, etc)

Fisheries

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

Drinking/Potable Water

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

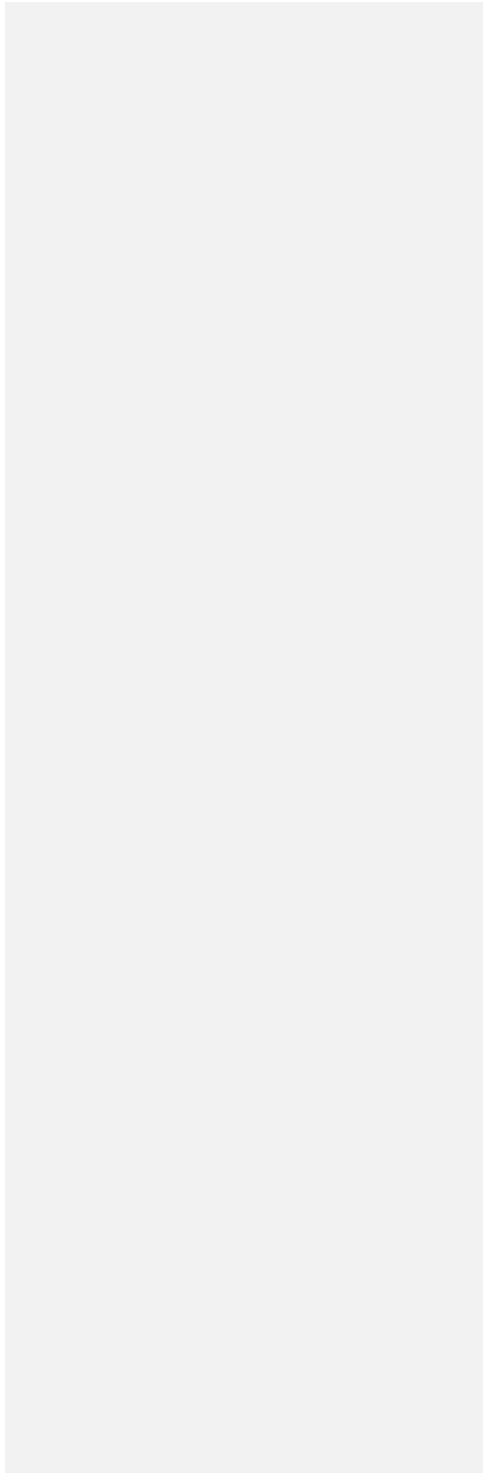
Recreation

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

Agricultural

- Crop damage
- Reduced yields

Commented [KP178]: Restricted access doesn't quite cut it, e.g. dry or nearly dry streams, lethal temperatures. Etc



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

Wildfires

- Lost/damaged property
- Crop damage (e.g., viticulture)
- Economic losses associated with property damage/loss
- Damage to water supply systems (health and economic impacts)
- Damages from smoke (health and economic impacts)
-

Commented [KP179]: Ecosystems also take a hit. Suggest adding: Destruction of terrestrial and aquatic ecosystems, displacement of fish and wildlife , Damage/Loss of culturally important lands/waters

A Closer Look at Drought Declarations

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

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

Commented [KP180]: Should note that expedited process does not provide a loophole to protective laws; this is a big misconception on the landscape

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

2024 Drought Vulnerability Assessment

In 2023, the Water Resources Department contracted with the National Drought Mitigation Center, the Oregon Climate Change Research Institute, and the University of Oregon to complete a statewide drought vulnerability assessment, addressing Recommendation B from the [2016 Task Force on Drought Emergency Response](#) (HB 4113): "Provide resources for assessments of drought impacts, risks, and vulnerabilities on instream and out-of-stream sectors in order to better prepare for, respond to, and recover from drought," and part of the 2017 Strategy Recommended Action 5.5A: "Plan and Prepare for Drought Resiliency." The drought vulnerability assessment examines drought exposure, drought sensitivity, and adaptive capacity with a focus on drinking water supplies, agriculture, and water-dependent recreation. The final assessment is anticipated in 2024.

Drought Early Warning System

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

MISSING:

Commented [KP181]: Maybe reference to Drought Taskforce Report, 2015

Plan and Prepare for Flood Events

This section focuses on the public safety and emergency nature of flooding. Floodplain protection and restoration is called for in Chapter 4 under “Healthy Ecosystems” Action 10A. Dam safety is discussed in Chapter 4 under “Water Infrastructure” Action 13C. Statewide efforts to prepare and respond to floods are addressed in the Oregon Emergency Operations Flood Annex.

Action 6B Plan and Prepare for Flood Events

Commented [KP182]: Agree with commissioner comments that floodplain restoration should be included here.

Oregon’s mountain ranges are part of the reason there is tremendous variation in the types of flooding we experience. Although floods are a common natural hazard in Oregon, floods west of the Cascades tend to be large-scale events, while eastern Oregon typically experiences more localized, intensive events. The four types of flooding described in the 2020 Natural Hazard Mitigation Plan include:

- **Riverine flooding** – This is the most common flood hazard in Oregon and usually occurs during winter. The most severe flooding conditions occur in “rain on snow” events, when heavy rainfall is augmented by rapid snowmelt. Longer duration storms and floods are more common in western Oregon. Very large and widespread floods occurred in parts of western Oregon in 1861, 1891, 1948, 1964, 1996 (three separate storms), and 2007.
- **Flash flooding** – Flash floods are caused by extremely intense rainfall over a short period of time, commonly within a single drainage. Such events usually occur in the summer during the thunderstorm season. In eastern Oregon, local convective thunderstorms often produce the most severe flooding. One of the worst flash floods in history occurred in eastern Oregon in June 1903, killing 247 people (one-fifth of the population at the time) in the town of Heppner.¹⁶
- **Coastal flooding** – Coastal floods result from different conditions. Winds generated by tropical storms or intense offshore low-pressure systems can drive ocean water inland, causing significant flooding.
- **Urban flooding** – Urban floods occur because land is converted from fields or woodlands to roads, roofs, and parking lots, losing its ability to absorb rainfall. This transition from pervious surfaces to impervious surfaces results in more and faster runoff of water. During periods of urban flooding, streets can become swift moving rivers, and basements can fill with water. Storm drains may back up with yard waste, causing additional nuisance flooding.

Dam and Levee Failure

In addition to the types of flooding described above, large precipitation events can also place stress on dams and levees. Dam or levee failures can cause catastrophic downstream flooding, risking both life and property. The Dam Safety Program, administered by the Water Resources Department, works to evaluate the safety of dams. More information about the program can be found in Chapter 4, “Water Infrastructure,” Action 13C.

Atmospheric Rivers

Atmospheric rivers are relatively long, narrow regions in the atmosphere – like rivers in the sky – that transport water vapor from the tropics. When atmospheric rivers make landfall, they often release this water vapor in the form of rain or snow. Although atmospheric rivers come in many shapes and sizes, those that contain the largest amounts of water vapor and the strongest winds can bring extreme rain and floods, often by stalling over watersheds vulnerable to flooding. These events can disrupt travel, induce landslides or mudslides, and cause catastrophic damage to life and property.¹⁷

The Water Resources Department is currently leading a project to analyze the extreme atmospheric river precipitation potential for Oregon. The first phase was completed in 2023, analyzing how extreme precipitation is influenced by ocean and air temperature, and other factors. The second phase, targeted for completion at the end of 2024, will provide an updated method and procedure for determining extreme precipitation in Oregon and guidance on how that precipitation could result in flooding. This project, once complete, will provide the Dam Safety Program with better information to evaluate the Probable Maximum Flood potential when assessing new and existing dams and ensuring proper design in order to prevent dam failures.

Understanding Oregon's Flood Risk

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

Uncertainty in precipitation information coupled with climate change and possibly more extreme precipitation events has significant implications for the design and safety of water resources infrastructure. Oregon now relies mostly on information from 1973, with a very partial update completed in 2008. Without better information, infrastructure is more likely to fail during a major flood and as a result, imperil public safety and property.

Increased Risk Following Wildfires

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

Interagency Coordination

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

Plan and Prepare for a Cascadia Earthquake and Tsunami

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

Action 6C
Plan and Prepare for a
Cascadia Earthquake and
Tsunami Event

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

Earthquakes and Tsunamis in Oregon

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

There are two major types of earthquakes that occur in Oregon: megathrust earthquakes that occur along the Cascadia Subduction Zone near the coast, and smaller crustal earthquakes. For the most part, crustal earthquakes

occur on shore on much smaller fault systems. The two largest earthquakes in recent years occurred in Scotts Mills (magnitude 5.6) in March 1993 (known as “The Spring Break Quake”) and six months later in Klamath Falls (magnitude 5.9 and magnitude 6.0), both of which were crustal earthquakes. The last major subduction zone (megathrust) earthquake and tsunami occurred more than 300 years ago in 1700.

A Cascadia Earthquake

The Cascadia Subduction Zone fault, shown in Figure 2-1, spans from Northern California to southern British Columbia and can produce earthquakes as large as magnitude 9.0 with corresponding tsunamis. Scientific evidence indicates that an earthquake of this size occurs along the fault on average once every 200 to 500 years.

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

When a Cascadia earthquake occurs, it will affect mostly western Oregon, and in particular, coastal communities. Following such an event, it is estimated that it will take one to three years to restore drinking water and sewer services in the coastal zone.

Available studies estimate that a Cascadia earthquake and resulting tsunami could result in 1,250 to more than 10,000 fatalities, tens of thousands of buildings destroyed or damaged so extensively that they will require months to years of repair work, tens of thousands of displaced households, more than \$30 billion in direct and indirect economic losses (close to one-fifth of Oregon’s gross state product), and more than one million truckloads of debris.¹⁸

Figure 2-1: Cascadia Subduction Zone



2013 Oregon Resilience Plan

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

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

- Begin aggressive public information efforts to re-set public expectations for a realistic response time. The old guideline of having a 72-hour emergency survival kit falls far short.
- Public agencies should be advised that the Oregon Water/Wastewater Agency Response Network is a vital resource and membership is recommended.

- Service providers from all sectors should be required to have a business continuity and seismic response plan that includes resources normally provided by functioning infrastructure (e.g., food, water, and communications).
- Service providers should plan for and support employee preparedness.
- Water-related industry associations and manufacturers should evaluate the need for seismic design standards for pipelines.
- Seismic vulnerability criteria should be incorporated into overall capital improvement project planning and asset management priorities, particularly updates to water system master plans.
- The Oregon Health Authority should be encouraged to include a seismic design requirement as part of routine design review of water system improvements.
- Encourage the Oregon Department of Environmental Quality and the Oregon Health Authority to establish goals and expectations for post-earthquake regulatory compliance and applicable standards. For example, will it be acceptable to discharge into waters of the state the chlorinated water from main breaks and main repairs?
- Encourage public health, water, and wastewater agencies to plan for significant water quality impacts to rivers downstream from urban areas.

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

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

Seismic Retrofits

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

Natural Hazard Mitigation Planning & Extreme Events Action 6A

Plan and Prepare for Drought and Wildfire Resiliency

Lead Agencies

DLCD, ODA, ODEQ, ODF, ODFW, OEM, OWRD

Supporting Agencies

NOAA, NRCS, ODHS, OWEB, USBR, USEPA, USFS

Partners

Tribes, individuals, local governments, Oregon Climate Change Research Institute/Oregon Climate Service, utilities, irrigation districts, farmers

Commented [KP183]: Again, like most sections does not call out conservation groups.....

Background

Although there have been individual years of wet conditions over the past two decades, on average the span between 2000-2021 have been drier than any other 22-year period in the past thousand years.¹⁹ Drought conditions impact water supplies, streamflow, agricultural productivity, wildfire danger, and ecosystem health.

Drought is one of twelve hazards discussed in Oregon's [2020 Natural Hazards Mitigation Plan \(NHMP\)](#). The state will release an update version in 2025. A drought vulnerability risk assessment will be developed in preparation for the next NHMP.

Commented [KP184]: This does not seem like a needed piece of the one pager? I think this whole background needs reworking, would include ODFW and other agencies in drafting background

Example Actions

- Implement recommendations from the [2023 Drought Vulnerability Assessment](#)
- Identify, assess, and assist those communities and ecosystems most vulnerable to drought and wildfire (e.g., assess water supply systems for vulnerability)
- Develop the appropriate set of indicators that signal and forecast differing stages of drought
- Document the economic, social, and environmental impacts of drought and wildfire, including the frequency, distribution, intensity and duration
- Prepare for, respond to, and mitigate for the impacts of drought and wildfire
- Improve the drought toolbox through education and outreach, drought contingency plans, more efficient water distribution systems, and additional voluntary measures to improve streamflow
- Increase education and outreach efforts to help landowners minimize risk to their property from wildfires
- Invest in built and natural infrastructure, refer to Actions 5B, 10A-10E, 12C, and 13A
- Provide technical assistance and funding to local governments to evaluate the need and opportunities for inter-tie projects in Local Natural Hazards Mitigation Plans
- Prioritize resources for planning and preparation to those most vulnerable to drought and wildfire impacts

Commented [KP185]: Incorporate ideas in the 2015 drought task force report, including ideas in the parking lot (e.g. protection of survival flows for fish, etc)

Commented [KP186]: Wildfire should not be tacked on to drought examples, it should have stand alone directives. While wildfires can be exacerbated by drought, they are not limited to drought years

Commented [KP187]: Unclear what the scope of this is (?)

Commented [KP188]: If going to put in an example for humans, should also include an example aimed at ecosystems

Resources

Agency Programs

DLCD Natural Hazard Mitigation Planning Program, OWRD Technical Services Division, ODHS Office of Resilience and Emergency Management

Workgroups

Multihazard Mitigation Council, Drought Readiness Council, Water Supply Availability Committee, State Interagency Hazard Mitigation Team

Documents/Websites

[OWRD Drought webpage](#), [OWRD Summary](#), [State Drought Declaration Process and Emergency Tools](#)

[Drought.gov](#)

[Oregon's Emergency Operations Annex – Drought](#), [Oregon's Emergency Operations Annex – Wildlands Fire](#)

[Drought and Public Health](#)

[Oregon Department of Emergency Management: Local Water Supply Emergency Planning Guidance](#)

[Drought Mitigation Policy Aid \(fema.gov\)](#)

[Federal Disaster Declaration Process](#)

Commented [KP189]: Add odfw resources. The omission of that highlights a concern we have with the resource lists in general—they are not fully comprehensive

Lead Agencies

DLCD, DOGAMI, ODOT, OEM,
OWRD, USACE

Supporting Agencies

FEMA, NOAA, NRCS, ODA, ODEQ, ODF,
ODFW, OHA, USEPA

Partners

Tribes, individuals, local
governments, SWCD's, watershed
councils, diking and drainage
districts

Background

Floods are one of twelve hazards addressed in Oregon's [2020 Natural Hazards Mitigation Plan \(NHMP\)](#). The state will release an update in 2025. The plan contains mitigation actions, which are meant to reduce or eliminate the long-term risk to people and property from flooding. Potential funding sources for mitigation activities are included in the NHMP.

This recommended action focuses on the public safety and emergency nature of flooding and is further supported by several other Strategy Actions. Action 13A supports decommissioning unsafe or outdated dams and levees and Action 13C supports Oregon's Dam Safety Program and the development of a Levee Safety Program. Improvements in stream gaging data are called for in Action 7A. Floodplain protection and restoration is discussed under Action 10A.

Example Actions

- Develop indicators of flood emergency stages, using information about meteorologic, hydrologic, hydraulic, and watershed conditions
- Document the economic, social, and environmental impacts of floods
- Evaluate potential for extreme flooding, under atmospheric rivers and climate change scenarios
- Establish early flood and debris-flow warning systems in areas where recent drought and wildfire have affected forests and vegetation
- Complete update of precipitation frequency estimates for Oregon
- ~~Complete the development of a statewide maximum flood document~~ Update methods and procedure for determining extreme precipitation and flooding
- Support DLCD to continue providing assistance and training to local floodplain managers, property owners, surveyors, real estate agents, and other to support compliance with the National Flood Insurance Program
- Increase education and outreach efforts to help landowners minimize risk to their property from floods
- Invest in built and natural infrastructure, refer to Actions 5B, 10A-10E, 12C, and 13A
- Prioritize resources for planning and preparation to those most vulnerable to flood impact
- Develop an inventory of levees in Oregon and assess their condition and risk (also see Action 13C)

Resources

Agency Programs

DLCD's [Natural Hazards Program](#), DLCD's [National Flood Insurance Program](#), OWRD's Dam Safety Program

Workgroups

[USACE Silver Jackets Flood Risk Program](#), Flood Core Team, [State Interagency Hazard Mitigation Team](#)

Websites

National Flood Insurance Program

Documents

[2020 Natural Hazards Mitigation Plan \(NHMP\)](#)

[Oregon's Emergency Operations Annex - Flood](#)

Commented [KP190]: Again, this does not seem like the appropriate synopsis for the one pager. This does not provide a clear narrative or problem statement

Natural Hazard Mitigation Planning & Extreme Events Action 6C

Plan and Prepare for a Cascadia Earthquake & Tsunami Event

Lead Agencies

DLCD, DOGAMI, ODEQ, OEM, OHA, OWRD

Supporting Agencies

USEPA, NRCS, ODF, OWRD, USFS

Partners

Tribes, individuals, local governments, utilities, OSU Extension Service

Background

Earthquakes and tsunamis are two of twelve hazards discussed in Oregon's [2020 Natural Hazards Mitigation Plan \(NHMP\)](#). DLCDD and OEM are leading an update of the Oregon Natural Hazards Risk Assessment in 2023, and a five-year update to the NHMP that will be released in 2025.

A large earthquake such as the Cascadia Earthquake could have widespread impacts on [water infrastructure and water quality for years to come.](#)

Example Actions

- Follow the recommendations provided by the Oregon Seismic Safety Policy Advisory Commission, [including](#) in its 2013 Oregon Resilience Plan [and](#) 2021 [Tsunami Resilience on the Oregon Coast Report](#)
- [Incorporate earthquake and tsunami resilience regulations in local land use plans \(see model policies developed by DLCDD\)](#)
- Evaluate and retrofit dams and other water infrastructure to meet new seismic standards ([see Action 13C](#))
- See recommended actions in the infrastructure section of the IWRS ([7A-7C 13A – 13D](#))
- [Consult or develop a local Tsunami Evacuation Facilities Improvement Plan](#)
- [Prioritize resources for planning and preparation to those most vulnerable to earthquake and tsunami impacts](#)
- [Evaluate and mitigate the seismic vulnerability of bulk oils or liquid fuel terminals \(SB 1567, 2022\) that pose significant pollution risks to critical waterways](#)

Resources

Agency Programs

DLCD Hazard Mitigation Planning Program, DOGAMI Geological Survey and Services Program, OWRD Dam Safety Program

Workgroups

Oregon Seismic Safety Policy Advisory Commission, State Interagency Hazard Mitigation Team

Websites/Documents

[DOGAMI clearinghouse of tsunami information](#)
[DLCD tsunami land use planning information](#)
[2020 Natural Hazards Mitigation Plan](#)
[Oregon's Emergency Operations Annex – Earthquake](#)
[Oregon's Emergency Operations Annex - Tsunami](#)
[2020 DOGAMI Oregon Coastal Hospital Resilience Project](#)
[2013 Oregon Resilience Plan](#)
[2021 Tsunami Resilience on the Oregon Coast](#)
[2012 DOGAMI Earthquake Risk Study for Oregon's Critical Energy Infrastructure Hub](#)
[Earthquake and Tsunami Community Disaster Cache Planning Guide](#)
[Fuel Tanks and Seismic Stability Assessments](#)

Commented [KP191]: This does not meet "plain speak" goal as ; this likely really means nothing to the average reader. Suggest including language on the risks and effects? The 5 year update is neither here nor there.

Commented [KP192]: Leaves out ecosystems, public health, etc.

References

- ¹ ECONorthwest. 2022. 2022 Oregon Talent Assessment, Prepared for the Oregon Workforce and Talent Development Board. https://www.oregon.gov/workforceboard/data-and-reports/Documents/2022%20Talent%20Assessment%20FINAL%2006-09-22.pdf?utm_medium=email&utm_source=govdelivery
- ² U.S. Environmental Protection Agency. 2020. America's Water Sector Workforce Initiative: A Call to Action. https://www.epa.gov/sites/default/files/2020-11/documents/americas_water_sector_workforce_initiative_final.pdf
- ³ Oregon STEM. 2023. 2023 Impact Report. <https://static1.squarespace.com/static/650876e28eef0e4dafc239e9f654be4edefb8d78d6690611/1699472631185/STE%28A%29M+Hubs+of+Oregon+Shared+Impact+2023.pdf>
- ⁴ U.S. Fish and Wildlife Service. 2008. 2008-2017 U.S. V. Oregon, Management Agreement. https://www.fws.gov/pacific/fisheries/hatcheryreview/Reports/snakeriver/SR-079.revised.2008-17USvOR_Mngmt_Agrmt.pdf
- ⁵ U.S. Army Corps of Engineers and Bonneville Power Administration. 2013. U.S. Entity Regional Recommendation for the Future of the Columbia River Treaty after 2024. <https://www.crt2014-2024review.gov/Files/Regional%20Recommendation%20Final,%2013%20DEC%202013.pdf>
- ⁶ State of Oregon and State of California. 2010. Klamath Basin Restoration Agreement: for the Sustainability of Public and Trust Resources and Affected Communities. <https://klamathrestoration.gov/sites/klamathrestoration.gov/files/Klamath-Agreements/Klamath-Basin-Restoration-Agreement-2-18-10signed.pdf>
- ⁷ State of Oregon and State of California. 2010. Klamath Hydroelectric Settlement Agreement.
- ⁸ Dalgaard, Stacey. 2022. State of Water Justice in Oregon. Prepared for the Oregon Environmental Council and the Oregon Water Futures Project. <https://www.oregonwaterfutures.org/water-justice-report>
- ⁹ Secretary of State. 2023. Advisory Report: State Leadership Must Take Action to Protect Water Security for All Oregonians. Report 2023-04. https://sos.oregon.gov/audits/documents/2023-04.pdf?utm_source=SOS&utm_medium=egov_redirect&utm_campaign=https%3A%2F%2Fsos.oregon.gov%2Fwater
- ¹⁰ Oregon Legislature. 2015. Senate Bill 266. <https://olis.leg.state.or.us/liz/2015R1/Downloads/MeasureDocument/SB266/Enrolled>
- ¹¹ McLain, R., et al. 2022. Oregon's Place-Based Integrated Water Resources Planning Program: A Participatory Evaluation. Prepared for the Water Resources Department. <https://www.oregon.gov/owrd/Documents/McLain%20et%20al%20April%2027%202022%20place%20based%20planning%20evaluation.pdf>
- ¹² Oregon Water Resources Department. 2022. Report of the Work Group on State-Supported Regional Water Planning & Management: House Bill 5006 (2021). [https://www.oregon.gov/owrd/Documents/HB%205006%20Work%20Group_FINAL%20REPORT.docx%20\(2\)%20\(2\).pdf](https://www.oregon.gov/owrd/Documents/HB%205006%20Work%20Group_FINAL%20REPORT.docx%20(2)%20(2).pdf)
- ¹³ Oregon Legislature. 1973. Senate Bill 100. <https://www.oregon.gov/LCD/docs/bills/sb100.pdf>
- ¹⁴ Oregon Office of Economic Analysis. 2023. Presentation titled "Oregon's Demographic and Population Outlook." Accessed February 16, 2024. <https://olis.oregonlegislature.gov/liz/2023R1/Downloads/CommitteeMeetingDocument/263849>
- ¹⁵ Oregon Office of Emergency Management and Water Resources Department. 2016. Drought Annex: State of Oregon Emergency Operations Plan. Salem, Oregon. [http://www.oregon.gov/owrd/WFR/docs/OR%20EOP_2015_IA%2001%20drought\(2\).pdf](http://www.oregon.gov/owrd/WFR/docs/OR%20EOP_2015_IA%2001%20drought(2).pdf)
- ¹⁶ Taylor, George and Raymond R. Hatton. 1999. The Oregon Weather Book: A State of Extremes. Corvallis: Oregon State University.
- ¹⁷ National Oceanic and Atmospheric Association. 2015. What Are Atmospheric Rivers? <http://www.noaa.gov/stories/what-are-atmospheric-rivers>
- ¹⁸ Oregon Seismic Safety Policy Advisory Commission. 2013. The Oregon Resilience Plan Executive Summary. <http://www.oregon.gov/oem/Councils-and-Committees/Pages/OSSPAC.aspx>
- ¹⁹ Williams, A.P., Cook, B.I. & Smerdon, J.E. Rapid intensification of the emerging southwestern North American megadrought in 2020–2021. *Nat. Clim. Chang.* 12, 232–234 (2022). <https://doi.org/10.1038/s41558-022-01290-z>

CHAPTER 3

Data & Analysis

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

Oregon has a continuing need to understand its water resources. This includes how climate change impacts the form and timing of precipitation, the amount and timing of streamflow, the location and volume of groundwater, the quality of the water, the condition of our ecosystems, and overall accessibility of water to communities and the environment. There is also a need to understand the instream and out-of-stream demands we have for these resources, to achieve a secure water future.

While the need for more data is a consistent message throughout every update to the Strategy, it is important to recognize the recent progress that has been made possible by state and federal funding. Significant investments from the 2021 and 2023 Legislative sessions have helped Oregon make substantial progress on data needs. Groundwater studies, data modernization efforts, and surface and groundwater data collection equipment all received support from the 2021 Legislature. In 2023, almost \$3 million in carry over funds from the federal American Rescue Plan Act was authorized for water measurement cost share fund and groundwater data collection and field equipment. Over \$2 million was allocated to modernize Oregon's data, analytical, and modeling approaches to determining water availability.

The 2024 Strategy continues to be a forum for interagency collaboration. This includes a commitment to thoughtful and robust data collection, analysis, and sharing information with the public and those engaged in water management and decision-making.

Commented [KP193]: In general, this misses an opportunity to message that the need for data is urgent. 2012 and 2017 versions really drove this home. Agencies, legislators and stakeholders used past language to bolster data funding across agencies; would be helpful to have stronger language in this whole section

This page left intentionally blank.

Chapter 3 Actions at a Glance

Objective 1: Understand Oregon's Water Resources

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

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

Critical Issue - Water Resource/Supply Information

- 7A Improve Water Resource Data Collection and Monitoring
- 7B Conduct Additional Groundwater Basin Studies
- 7C Enhance Interagency Data Coordination
- 7D Support Basin-Scale Climate Change Research

Critical Issue - Instream and Ecosystem Water Needs

- 8A Analyze the Effects on Water from Energy Development Projects and Policies
- 8B Determine Instream Flow Needs (Quality and Quantity)
- 8C Determine Needs of Groundwater-Dependent Ecosystems
- 8D Develop Instream & Ecosystem Water Demand Forecasts

Critical Issue - Out-of-Stream Water Needs

- 9A Improve Water-Use Measurement and Reporting
- 9B Regularly Update Out-of-Stream Water Demand Forecasts

Oregon needs to understand the quantity and quality of available water to meet instream and out-of-stream water needs in a changing climate. Improving our knowledge of water resources requires investments in interagency work, analytical methods and approaches, scientific modeling tools, and platforms to share information with the public and other partners. This section includes Actions 7A-7D which address acquiring and sharing water resource quality, quantity, and ecosystem information. The following two sections cover data needs for defining instream water needs (Actions 8A-8D) and out-of-stream water needs (Actions 9A-9B), respectively.

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

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

Improve Water Resource Data Collection and Monitoring

The Water Resources Department uses the [2016 Oregon Water Resources Monitoring Strategy](#)¹ to identify the Department's monitoring priorities (e.g., climate change, groundwater protection), for both surface and groundwater resources. The Department of Environmental Quality uses the [2020 Water Quality Monitoring Strategy](#) to propose, evaluate, prioritize, and implement monitoring activities.² The 2017 [Monitoring Strategy for Oregon's Waters, An Interagency Approach](#) helps natural resource agency scientists identify and collect the right information needed to inform policy-makers about emerging water issues, the status and trends of Oregon's waters, and the effectiveness of current agency actions.³

Action 7A
Improve Water Resource Data Collection and Monitoring

Monitor and Evaluate Surface Water Flows

A gage is a structure installed next to a stream that includes equipment to measure water levels. Scientists use the water level information to calculate streamflow. The Water Resources Department operates more than 260 gages on streams, canals, and reservoirs throughout the state, maintaining an extensive long-term record for about 70 of them. This network of gages informs water planning, permitting, and management decisions. About 240 of these gages are operated as near real-time, transmitting data once every hour. The state's objective is to continue expanding and maintaining this network. As shown in Figure 3-1, the Department also provides access to data from an additional 345 gages, primarily operated by the U.S. Geological Survey.

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

This network of gages is essential for the management of Oregon's surface water and groundwater resources. The data is used by a variety of agencies, water users, and other entities for making daily decisions, distributing water, protecting and monitoring instream flows, forecasting floods, and designing infrastructure such as bridges and

Commented [KP194]: Again, restructuring dilutes the intent of the IWRS statute. Previous structure has the words understand Oregon's instream and out of stream needs in the title, which not only tells a story but also, importantly, aligns with statute. And yes, this is included in the "narrative" but by removing from the title/header it is then removed from the "placemat" and the "table of contents" and thus unless someone dives into the 220 page document, will be missed. The placemat is really where people look to for the framework, means the directive is Also, getting the words "instream and out of stream" into the statute was part of the legislative negotiations. Conservation interests and many legislators would have opposed without the inclusion of "instream" and it would likely not have passed into law. Disregard for the statute and also the legislative process behind every negotiated word is not aligned with transparent or good public process.

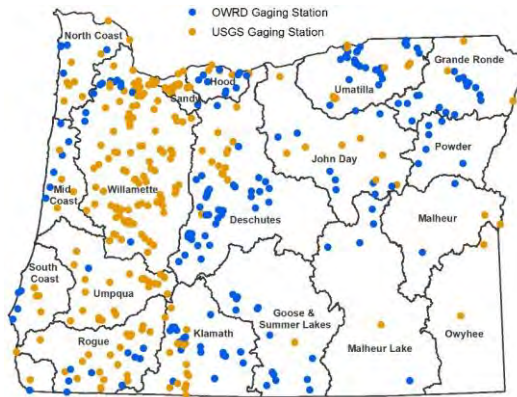
Commented [KP195]: This discounts the effect of water extraction on Oregon's surface and groundwater. This is not the nut of the problem—overallocation, climate change, destroyed aquatic ecosystems, etc

Commented [KP196]: Missing ODFW documents, e.g.. Conservation strategy

culverts. The data is also useful for planning for recreational activities, better understanding how much water is available for new uses, and tracking long-term trends such as climate change and drought. The Department of Environmental Quality for example, uses streamflow data to calculate the loading capacity of certain pollutants during development of Total Maximum Daily Load (TMDL) plans to improve water quality.

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

Figure 3-1: Active Surface Water Gaging Stations
January 2024



Surface Water Availability

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

With funding provided in 2023, the Water Resources Department is in the early phases of planning the first update to WARS in nearly 30 years. At a minimum, the update is focused on calculating water availability to better align with today's climate and practices in water resources management. This work includes designing a system that permits more frequent updates to WARS, incorporating more recently collected stream flow data, and utilizing technological advances in recent decades (e.g., satellite-based remote sensing data) to better understand water use and demands. The Department is also evaluating existing policies and determining policy needs to support decision making related to water allocation. Gaps exist in the monitoring network and policies that inform responsible water resources management.

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

Commented [KP197]: While next section gets at SW/GW interaction, missing is an independent section on groundwater availability. Given the OWRD's heavy focus on this the last few years; it is very confusing as to why this is not included. Recommend a whole section on GW (Commissioners requested this on earlier reviews of structure).

Commented [KP198]: Don't disagree in theory, but my recollection is OWRD staff has said in public forums that this is not really feasible. This came up in 2023 legislative conversations around HB 3368 and was rejected.

Commented [KP199]: Should be expanded to stream/temperature gages; which is what some agencies are advocating for

The Water Resource Department's practice is to determine whether water is available for monthly natural flow based on water being available 80 percent of the time (80% exceedance), and 50 percent of the time (50% exceedance) for storage. Figure 3-2 shows (in shades of purple) where water is available for natural flow allocation during the month of August, the month most representative of low summer flows and high out-of-stream demands. With some exceptions, the mostly tan map indicates that throughout the state, very little surface water is available to allocate for new uses during August. However, some water is available during the winter months to allocate for storage. Figure 3-3 illustrates (in shades of purple) water availability for new uses during the month of January. Many water rights authorize storage of surface water during the winter and early spring to supplement summer water supplies.

Commented [KP200]: 1)80% is actually in RULE; by signaling "practice" you might invite readers to push back against this as it is not clear this is an actual regulatory directive.
2)Should include the reasoning behind this (e.g. protect water right holders and the resource)

Other administrative rules, in addition to water availability, are used to determine whether a new water right can be approved for a beneficial use. For example, although surface water is available in portions of the Willamette River Basin, many uses of water are not classified or allowable during the summer months for several reasons. Protections for water quality and habitat for sensitive, threatened, and endangered fish species are also considered when evaluating new water right applications.

Increasingly, water users are relying on tools such as water conservation, reuse, water right transfers, and water storage to meet their needs during the summer months. Some of these tools are designed to benefit instream flow. See Chapter 4 and Strategy Actions 10C, 10E, and 12B-12D.

Figure 3-2: Available Streamflow in August
(calculated at 80 percent exceedance)

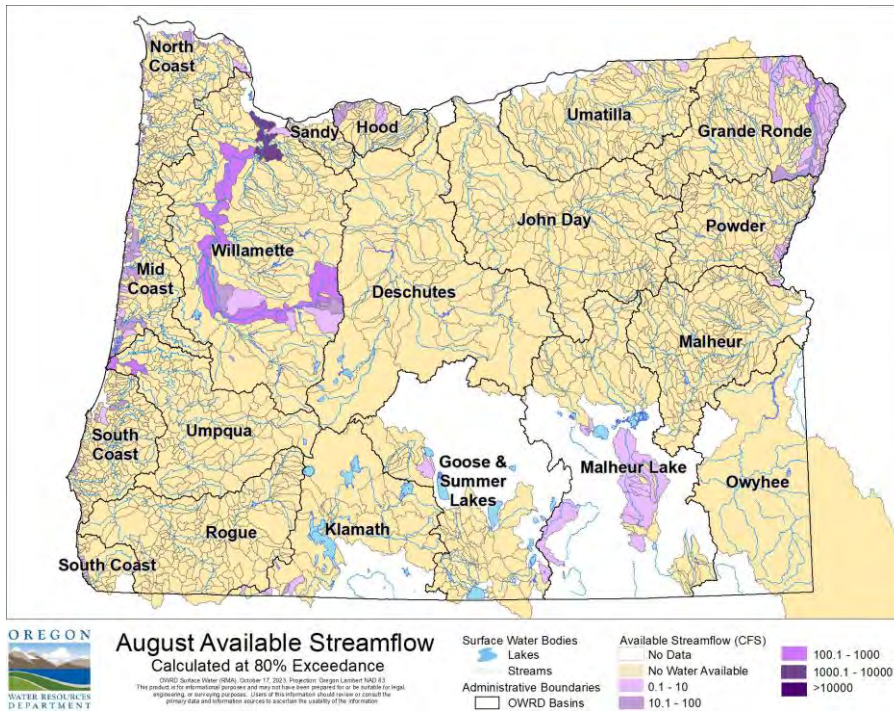
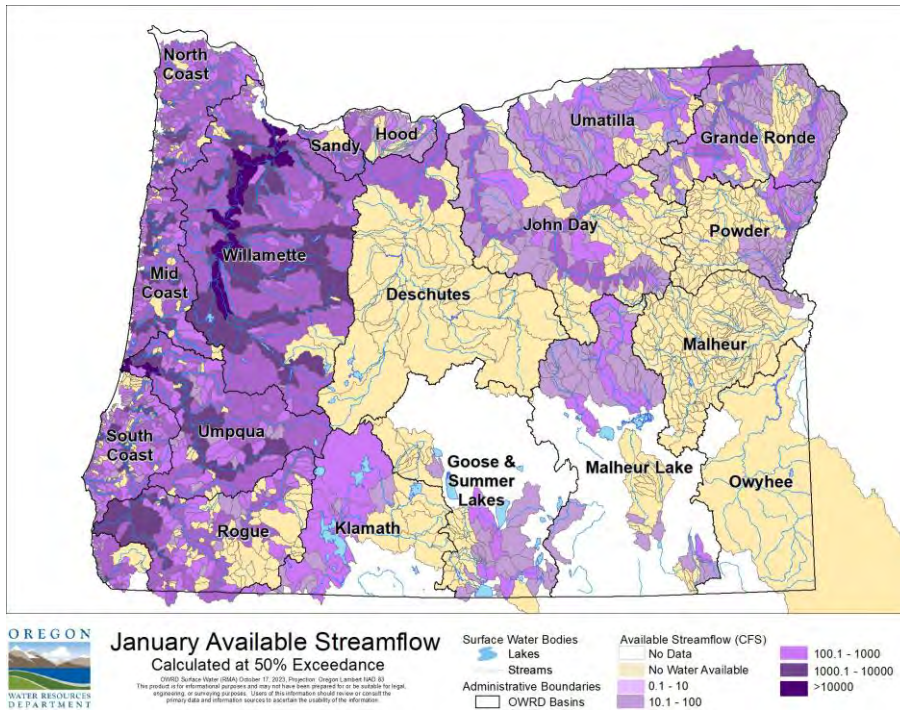


Figure 3-3: Available Streamflow in January
(calculated at 50 percent exceedance)



Groundwater – Surface Water Interaction

Groundwater is connected to surface water, and because Oregon water law recognizes this important connection, the state manages these resources as one. This is called conjunctive management.

The hydraulic connection of groundwater to surface water means that groundwater use can deplete streamflow and reduce important cold-water discharge. However, this depletion is often difficult to measure due to delayed effect and natural variability, making conjunctive management a challenge. Climate change, including multi-year droughts, intensifies this challenge.

Generally, the Water Resources Department denies or limits new groundwater applications in instances where use from an aquifer could substantially interfere with a surface water source that is already fully appropriated. One example of conjunctive management stems from a 2001 study* conducted by the Water Resources Department and U.S. Geological Survey that quantified the hydraulic connection between groundwater and surface water within portions of the Deschutes River Basin. Because of this connection, and rules around protecting Scenic Waterway flows and instream rights within the Deschutes River, new groundwater withdrawals must now be mitigated with a similar amount of water placed instream, to offset the impact to surface water flows.

Commented [KP201]: Where owrld/usgs have done groundwater investigations it is actually pretty clear; If you haven't already, please run this language by GW staff.

Monitor and Evaluate Surface Water Quality

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

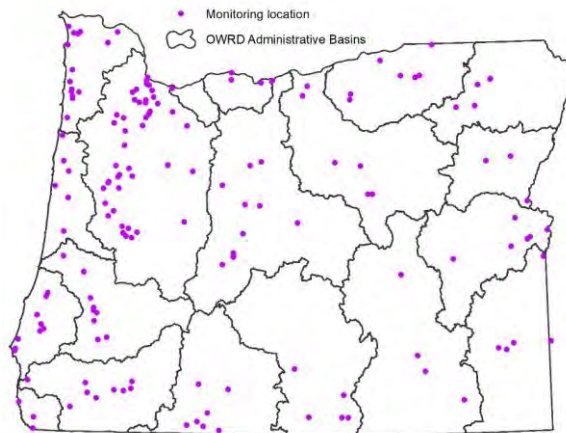
The Department of Environmental Quality monitors and evaluates water quality through a variety of programs that provide information on Oregon's waterbodies. Some of these activities are statewide assessments of water quality, whereas others focus on geographically-specific assessments of water quality or narrow categories of pollutants and/or beneficial uses. Established monitoring programs and projects include:

- Ambient Water Quality Monitoring System (AWQMS) and [Oregon Water Quality Index \(OWQI\)](#) (See Fig 3-4)
- Oregon beach monitoring (with Oregon Health Authority)
- Cyanotoxin monitoring
- Biomonitoring
- Groundwater monitoring
- Pesticide Stewardship Partnership
- Response monitoring
- Watershed monitoring (TMDLs)
- Toxics monitoring
- Volunteer water quality monitoring
- National aquatic resource surveys
- Drinking water protection
- Other special projects

Harmful Algal Blooms (HABs) - Historically, Department of Environmental Quality only sampled active HABs in support of Oregon Health Authority's recreational advisory program. During the 2021-23 biennium, the Department of Environmental Quality received legislative direction to start actively monitoring Oregon waterbodies to promote early detection. The summer of 2024 will include expanded monitoring efforts to include six routes throughout the state, each with 5-8 waterbodies. Rotating these weekly, the Department will sample each of about 40 waterbodies four times throughout the season. The waterbodies were selected for monitoring based on high recreational use. This active monitoring approach is in addition to ongoing recreational response monitoring which uses satellite imagery to identify HABs and prompt visual inspections. The results of satellite monitoring are published [and updated](#) regularly.

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

Figure 3-4: Ambient Water Quality Monitoring Stations
January 2024



The Department of Environmental Quality conducts fish and shellfish monitoring as part of their water quality toxics monitoring efforts.

Water Quality Impairments and Oregon's Integrated Report - The Federal Clean Water Act requires the Department of Environmental Quality to report on the quality of Oregon's surface waters every two years. Oregon's surface waters are assessed to determine if they contain pollutants at levels that exceed protective water quality standards. The result of these analyses and conclusions is called the "Integrated Report" because it combines the requirements of Clean Water Act section 305(b) to develop a status report and the section 303(d) requirement to develop a list of impaired waters.

The [2022 Integrated Report](#) identified more than 85-percent of assessed water bodies as impaired and not meeting water quality standards, including more than 150 lakes and reservoirs, and about 2,300 stream and river segments. Additional information regarding the 2022 Integrated Report can be found on the Department of Environmental Quality's website, including a story map, web map, and downloadable database.⁵

Monitor and Evaluate Habitat Conditions and Watershed Functions

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

The Oregon Watershed Enhancement Board maintains the [Oregon Watershed Restoration Inventory](#) of more than 19,000 completed projects since 1995.⁶ This database is used to report on the progress of the Oregon Plan for Salmon and Watersheds, to support effectiveness monitoring of restoration activities, and to inform watershed assessments and future restoration project planning and implementation.

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

Indicator Species - One way of tracking the status of both water quality and ecosystem health is with a designated indicator species. The health of an indicator species can offer early warning signs of stress, such as disease or pollution.

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

In addition to these indicator species, the U.S. Fish and Wildlife Service, which has authority for monitoring non-anadromous fish species that reside year-round in Oregon's rivers and streams, has listed five species as either threatened or endangered (Bull trout, Lahontan cutthroat trout, Hutton tui chub, and Shortnose and Lost River

Commented [KP202]: agencies need more funding and resources to COLLECT and synthesize the data, would be good to work that into the title.

suckers). Several other aquatic species are proposed for listing or being assessed for potential listing, including the Northwest pond turtle and the Western ridged mussel. The high number of aquatic species listed as threatened or endangered are worsened by declining water quality and quantity in many areas of the state during critical life history periods and can be an indicator of inadequate ecosystem health. Recovery efforts by local, state, tribal, and federal entities are underway for these listed species, which include improving habitat connectivity, increasing habitat quantity, and improving habitat quality.

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

Impacts to indicator species can serve as an early warning sign of broader impacts to the benefits that Oregonians enjoy as a result of natural processes and biological diversity. All Oregonians benefit from a healthy aquatic ecosystem and the services it provides as freshwater is vital to human life and economic well-being. Ecosystem services provide clean air, clean and abundant water, fish and wildlife habitat and other values that are generally considered public goods.

See Strategy Actions 8B-8D for additional data needs related to ecosystems. For Strategy actions that support ecosystem protection and enhancement, see Chapter 4 Strategy Actions 10A-10E.

Measuring Ecosystem Services – Ecosystem services are the benefits that nature provides, including producing clean water, storing water, and cooling. The Oregon Conservation Strategy highlights ecosystem services markets as a way to create economic incentives to protect or restore the environment. More work is needed in Oregon to quantify ecosystem service benefits to support conservation, restoration, or mitigation solutions associated with environmental impacts from development. Also See Action 12E for examples of voluntary and market-based approaches for increasing environmental protection and restoration.

Conduct Groundwater Basin Studies

Monitor and Evaluate Groundwater Levels

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

Action 7B
Conduct Additional
Groundwater Basin
Studies

Groundwater development has occurred primarily in areas where the geologic conditions are favorable or where additional surface water is no longer available for new allocations. In most locations, groundwater aquifers are no longer capable of sustaining additional development without leading to declining supplies for existing water users and reducing streamflows where surface water and groundwater are hydraulically connected. Groundwater quality can also limit use.

A recent increase in complaints from people experiencing dry domestic wells has elevated awareness regarding declining groundwater levels associated with climate change, consecutive years of drought, wildfire damage, and

over-pumping. The Department's Water Well Abandonment, Repair, and Replacement Fund (WARRF) awarded 202 grants in 17 counties to assist primarily low to moderate income households to repair, replace, or abandon wells between June 2022 and December 2023.

Prioritize Groundwater Basin Studies

Oregon has a need for additional basin studies to further understand the relationship between groundwater and surface water, and the availability of both. Conducting groundwater studies is a priority for the state, which typically evaluates groundwater resources at the basin scale through cooperative, cost-share programs. These studies result in a conceptual model of the basin, including a description of the basin geology, groundwater flow paths, and a water budget quantifying annual volumes of groundwater recharge, discharge, and changes in dynamic storage. A numerical groundwater flow model is also developed and used to better understand the outcome of potential management scenarios.

Support for conducting groundwater basin studies has increased in recent years. The 2019 Legislature provided \$1.3 million and 2 positions to enable the agency to conduct two concurrent cooperative basin studies. The 2021 Legislature provided \$2 million and 7 positions to expand the agency's capacity for producing groundwater budgets for each basin in Oregon, expanding water level and water use data collection, and communicating the results of expanded data collection to the public. However, budget to install dedicated observation wells was eliminated in the 2023 legislative session. Groundwater basin studies and groundwater budgets are complex efforts and work will continue over the next several years.

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

- The [Umatilla Basin's Lower Umatilla Sub-Basin](#), where senior surface water users are asking the Department for help in addressing the cumulative impacts of alluvial and shallow basalt groundwater development.
- The [Hood Basin's Fifteen Mile Creek Sub-Basin](#), where there are declining groundwater levels and indications that groundwater extraction is affecting surface water flow.
- The [Grande Ronde Basin](#), where residents have asked the Department to identify potentially available groundwater and to describe potential over-allocation.
- The [Powder Basin](#), where the county and community have asked the Department to identify potentially available groundwater and to describe potential over-allocation.

Groundwater Budgets for Major Hydrologic Basins

The 2021 Legislature passed House Bill 2018 which directed the Water Resources Department to:

- Enter into a cost-sharing agreement with the U.S. Geological Survey to develop and publish groundwater budgets for all major hydrologic basins in the state,
- Contract with a qualified person to produce a peer-reviewed report on statewide consumptive water use,
- Expand the groundwater level monitoring network, and
- Help communities use the data collected under this bill to inform local water planning efforts.

The water use measurement component of this work is addressed in more detail under Action 9A.

Groundwater Administrative Areas

The Water Resources Department oversees 22 Groundwater Administrative Areas (Figure 3-5, below) designated to limit further water level declines or groundwater interference with surface water. The Oregon Department of Environmental Quality oversees 3 Groundwater Management Areas where groundwater has elevated contaminant concentrations resulting, at least in part, from nonpoint sources. As hydrological conditions change with climate change, monitoring data may reveal the need to designate additional Groundwater Administrative Areas and Management Areas.

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

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

Improve Groundwater-Related Records

The state collects and maintains a variety of groundwater-related records that well owners, consultants, and state agencies need to better understand Oregon's water wells, some examples are described below.

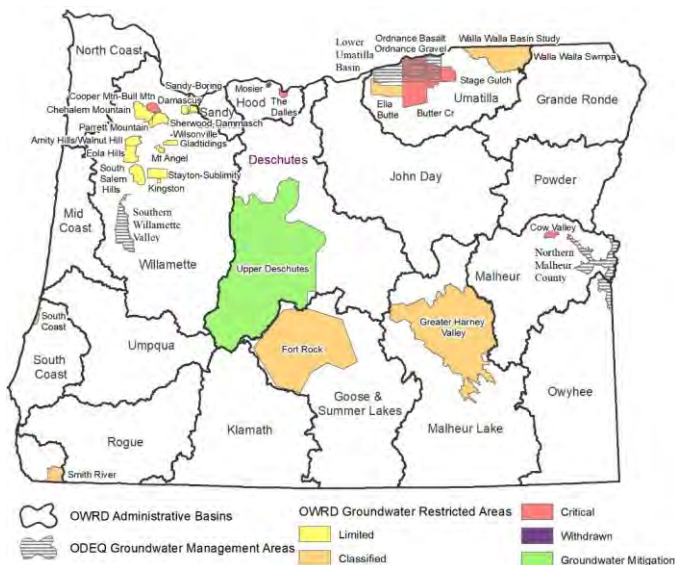
Well Location Data Gaps – Wells were not required to be registered with the state until 1955. Since then, most well location information has been reported at a very coarse scale (within a 40-acre area). In 2009, requirements were put in place to obtain more precise location information for newly drilled exempt-use wells, which are most often used for domestic purposes. An estimated 230,000 such wells exist today, with several thousand more drilled each year. In 2014, the state updated its online mapping program to help well drillers and landowners record the location of new, existing, and unused water wells—including both exempt-use wells and permitted wells. On July 1, 2023 statutory changes require all well reports submitted to include the GPS coordinates of the well's location. Despite those efforts, Oregon has inadequate documentation of the number, location, and average water use of water wells.

Water-Level Access – Installation of measuring tubes help to ensure that accurate measurements or samples can be taken in water wells, without measurement equipment getting tangled in pumps or wires. This can be helpful particularly in deep wells. Several locations in Oregon, such as Eola Hills in Polk County, Pete's Mountain in Clackamas County, and Mosier in Wasco County have requirements to install measuring tubes during new well construction.

Scheduled Measurements – Agency scientists collect baseline information at the start of each irrigation season before any significant groundwater pumping begins. This activity is a high priority because it provides an annual snapshot of groundwater conditions that can be compared over time, and contributes to Oregon's long-term understanding of the resource. If measurements are not taken each spring, the opportunity for measurement—and therefore good information—is lost.

Commented [KP203]: Please add language directing adoption of new gw administrative areas; that is what the state is and will be doing

Figure 3-5: OWRD Groundwater Administrative Areas and DEQ Management Areas



Monitor and Evaluate Groundwater Quality

Groundwater contamination is also a serious issue in some areas of Oregon. Private domestic wells may face contamination issues from nearby failing septic systems, industrial or agricultural sources, or from surface water and groundwater interactions. Naturally occurring elements such as arsenic, uranium, and boron can also make water supplies unsuitable for some uses.

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

Groundwater Management Areas - The Oregon Department of Environmental Quality designates an area as a “Groundwater Management Area” (Figure 3-5, above) when groundwater has elevated contaminant concentrations. Commonly analyzed contaminants include nitrates, bacteria, and arsenic. Once a Groundwater Management Area has been declared, a local groundwater management committee is formed and then works with state agencies to develop an action plan to address the contamination. Three Groundwater Management Areas have been designated in Oregon due to elevated nitrate concentrations in groundwater:

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

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

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

Enhance Data Coordination

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

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

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

Action 7C
Improve Interagency Data
Coordination

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

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

A Strategic Enterprise Approach to Monitoring

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

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

Make Water-Related Information Available Electronically

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

A significant milestone in the process to share information among agencies and with the public has been achieved through the initiation of the [Oregon Water Data Portal](#) Project in 2022.⁸ The project, led by the Department of Environmental Quality, is still in the early phases including developing a beta version of the portal during the 2023-2025 biennium. Eventually, if funded, the portal will be a single location for agencies and the public to access a variety of data that has been collected by many agencies and partners.

Statewide Lidar – Oregon's Lidar Program (Airborne Light Detection and Ranging) uses a remote sensing tool to provide three-dimensional surface terrain data (i.e., topographic information) for the state. In 2007, the Oregon Legislature designated the Department of Geology and Mineral Industries as the lead agency for lidar acquisition in Oregon. The Department established the Oregon Lidar Consortium to build funding for the acquisition of large swaths of lidar across the state. These data help create geologic maps, flood hazard maps, evaluate tidal channel topography, locate infrastructure, model water quality, delineate wetlands, evaluate habitat restoration, assess hazards, and inventory forests. As of 2020, the Oregon Lidar Consortium has acquired high-resolution lidar data for approximately 48 percent of the state. A web-based [mapping application](#) shows which parts of Oregon are completed or in-process for lidar coverage.⁹

Support Climate Change Research and Partnerships in Oregon

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

Action 7D
Support Basin-Scale
Climate Change Research

Oregon Climate Change Research Institute

The Oregon Climate Change Research Institute (OCCRI) has been tasked by the Oregon Legislature to lead climate change research among faculty of the Oregon University System. In 2023, OCCRI released the [Sixth Oregon Climate Assessment](#), a compendium of research on climate change and its impacts on Oregon.¹⁰

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

Oregon’s Climate Change Adaptation Framework

[Oregon’s Climate Change Adaptation Framework](#), introduced in Chapter 2, provides a broad-scale qualitative assessment of risks to people, infrastructure, communities, and natural resources that are expected to result from the effects of variable and changing climate conditions.¹¹ The Framework calls for additional research in several areas, including social, economic, and climate change impacts related to forest management and other types of management.

Oregon Climate Action Commission (formerly Oregon Global Warming Commission)

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

In 2023, the Oregon Legislature ([Senate Bill 522](#)) changed the name of the Oregon Global Warming Commission to the Oregon Climate Action Commission. The Commission developed an [Oregon Climate Action Roadmap](#) that provides foundational information on state climate impacts, emission trends, and progress towards achieving Oregon’s greenhouse gas emissions goals. The Commission has also authored several other documents including the [2021 Natural and Working Lands Proposal](#), in collaboration with the Department of Agriculture, Department of Forestry, and the Oregon Watershed Enhancement Board.

Next Steps

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

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

Lead Agencies

ODEQ, ODFW, OWEB, OWRD, OHA

Supporting Agencies

BLM, BOR, NRCS, ODA, USEPA, USFS, USGS, NOAA-NWS, USACE

Partners

Local governments, irrigation districts, watershed councils, SWCD's

Background

Oregon has several water resource data collection and monitoring programs. However, resource constraints limit the geographic scope and frequency of data collection and analysis. On-going statewide groundwater and surface water quantity monitoring supports active management of the resource and establishes long-term data sets to evaluate climatic, seasonal, and water use impacts on rivers and aquifers. Additional resources are needed for surface water monitoring and data analysis to identify impaired waterbodies and measure the effectiveness of actions taken to meet water quality standards. Monitoring data are also pivotal for ensuring that water quality improvement strategies and investments, such as ecological restoration, achieve the desired habitat function or water quality targets and are cost-effective.

Example Actions

- Use agencies' monitoring strategies, or similar methods, to design, expand, and maintain real-time monitoring networks for surface water and groundwater quality and quantity
- Prioritize basins for data collection and monitoring by centering the needs of people and ecosystems most affected by water quantity or quality challenges
- Improve agency capacity to collect, share, analyze, and report data, bringing records to final form and make them available to the public
- Implement an on-going Assure that statewide groundwater quality monitoring programs are responsive to community need
- Update water quality standards and develop additional TMDLs (see Action 11C)
- Increase the number of stream gages with reportable water temperature data to support water quality programs
- Increase resources to help disadvantaged homeowners and renters access water quality testing in private drinking water wells; update real estate transaction database and pursue statutory changes to increase compliance with the Domestic Well Testing Act
- Monitor habitat and watershed conditions and evaluate the effectiveness of restoration efforts (e.g., OWEB restoration inventory)
- Establish methods for measuring ecosystem services and incorporate results into planning efforts (moved from 10A)
- Increase monitoring and evaluate the effectiveness of pollution control plan implementation (moved from 12C)
- Identify and address gaps in staffing or process that prevent agencies from sharing in the collection of, or already collected, data (e.g. temperature data)
- Work with water distribution partners (BOR, Irrigation Districts) to develop funding and staffing structures that allow for effective gaging and staffing of storage and irrigation distribution systems
- Work with state, federal, and local monitoring partners (e.g., USGS) to analyze gage network to identify gaps

Commented [KP204]: Check with various agencies to see if this aligns with needs

Commented [KP205]: Was this suggested by DEQ? Previous language is stronger, unclear why change made

Commented [KP206]: TMDLs should be included here as well

Commented [KP207]: Why limit? .Seems like the state would want all people living in Oregon to have access to water quality testing??

Resources

Agency Programs

ODEQ Water Quality Programs, ODFW Water Program, OWEB Oregon Watershed Restoration Inventory Program, OWEB Grant Programs, OWRD Technical Services Division

Documents/Websites

OWEB Oregon Watershed Restoration Inventory, OWRD 2016 Monitoring Strategy, OWRD Surface Water Availability Reporting System (WARS), Groundwater Information System (GWIS), Groundwater Administrative Areas/Critical Groundwater Areas, and Realtime Streamflow and Lake Level Data, ODEQ Water Quality Monitoring Strategy, Groundwater Management Areas

Workgroups

Oregon Plan Monitoring Team, Water Quality Pesticide Management Team, Oregon STREAM Team, Oregon Water Data Portal Steering Committee and Oregon Water Data Portal

Water Resource/Supply Information

Action 7B

Conduct Additional Groundwater Basin Studies

Lead Agencies

ODEQ, OWRD, USGS

Supporting Agencies

DOGAMI, ODA, ODFW, OHA, USEPA, USFS

Partners

Tribes, local governments, OSU
Extension Service, Universities

Background

Accurate well location and use information, aquifer water-level data, and water quality data are critical for assessing groundwater resources. Oregon has a need for additional basin studies to further understand the relationship between groundwater and surface water, and their availability. Conducting basin studies is a priority for the state, which typically evaluates groundwater resources through cooperative, cost-share programs with federal agencies.

OWRD's groundwater administrative areas should be periodically evaluated to assess whether these areas are meeting the goals of groundwater stabilization, groundwater recovery, and protection of existing water rights. The state needs to dedicate resources to determine whether additional areas require groundwater designations. Additionally, ODEQ needs additional resources to support the Statewide Groundwater Monitoring Program, which has seen funding and staffing reductions since 2017.

Example Actions

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

Resources

Agency Programs

ODEQ Groundwater Protection Program and Groundwater Monitoring Program, [OWRD Groundwater Monitoring Program](#)

Workgroups

ODEQ & OWRD Groundwater Technical Advisory Team

Documents

[2021 Oregon Groundwater Resource Concerns Assessment](#)

[2021 Review of Deschutes Groundwater Mitigation Program Report](#)

[2021 DOGAMI Bulletin 108 - Geology of the North Half of the Lower Crooked River Basin, Crook, Deschutes, Jefferson, and Wheeler Counties, Oregon](#)

Data

[OWRD Groundwater Information System \(GWIS\)](#)

Commented [KP208]: Missing SW/GW interaction

Commented [KP209]: Need to include groundwater use measurement and reporting, outside of observation wells.

Lead Agencies

DSL, ODA, ODEQ, ODF, ODFW,
OWEB, OWRD

Supporting Agencies

BLM, BPA, DLCDD, NRCS, , NWS, USACE,
USBR, USFS, USGS

Partners

Tribes, Local Gov'ts, SWCD's,
watershed councils, OSU

Background

Federal, state, and local agencies monitor and study Oregon's waterways. This data collection and analysis is critical to the understanding and management of Oregon's surface water and groundwater resources. The lack of stable resources to maintain the state's monitoring networks, to collect and share data, to conduct studies, and to develop modeling tools presents a significant, ongoing challenge. Consistent coordination among agencies can support efficient use of limited resources. Several years' worth of water quantity and quality data still needs to be processed, analyzed, and shared with the public and other partners.

Example Actions

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

Commented [KP210]: What is meant by local?

Commented [KP211]: What is meant by this?

Commented [KP212]: Need to call out "ecosystems".

Resources

Agency Programs & Workgroups

DSL Waterways & Wetlands Program, ODA Agricultural Water Quality Program, ODEQ Water Quality Program, ODF Compliance Monitoring Program, ODFW Water Program, OWEB Effectiveness Monitoring Program, OWRD Surface Water Hydrology Section, OWRD Groundwater Hydrology Section
Conservation Effectiveness Partnership, Oregon Plan Monitoring Team, Water Quality Pesticide Management Team, Oregon STREAM Team, Oregon Water Data Portal Steering Committee and [Oregon Water Data Portal](#)

Documents

2017 [Monitoring Strategy for Oregon's Waters: An Inter-Agency Approach](#)
[Oregon Open Data Portal](#)
[DEQ Water Quality Monitoring Data](#)

Water Resource/Supply Information

Action 7D

Support Basin-Scale Climate Change Research

Lead Agencies

DLCD, ODA, ODEQ, ODFW,
OWRD

Supporting Agencies

DOGAMI, NOAA, NRCS, USFWS, OWEB,
USGS,

Partners

Tribes, OSU, OCCRI, Oregon Climate
Action Commission

Background

Many local, state, federal, and tribal governments are conducting climate change research, identifying and assessing risks, and developing actions specific to the Pacific Northwest. Basin-scale research aids water managers and natural resources agencies in developing strategies for addressing climate-related impacts on water quality, water quantity, and ecosystem health.

Example Actions

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

Commented [KP213]: Suggest adding something like "incorporate climate change forecasts in water availability analysis and permitting decisions"

Commented [KP214]: Add ecosystems

Resources

Agency Programs

DLCD Natural Hazards, ODA Natural Resources, ODEQ Water Quality, ODFW Water Program, OWRD Field Services and Technical Services Divisions

Policies

ODFW's Climate and Ocean Change Policy

Workgroups

OWEB's Climate and Water Committee, Climate Impacts Research Consortium

Documents/Websites

[OWRD 2016 Monitoring Strategy](#)

[2023 Final Report: Foundational Elements to Advance the Oregon Global Warming Commission's Natural and Working Lands Proposal](#)

[2022 State of Water Justice Report](#)

[2021 Oregon's Climate Change Adaptation Framework & Equity Blueprint](#)

[South Slough National Estuary Research Reserve](#) (research regarding watershed health and resiliency)

[2024 Climate Change Vulnerability Assessment](#)

“Instream” means within a stream channel, lake bed, or place where water naturally flows or occurs. “Instream flow” means the minimum quantity of water necessary to support the public use requested by an agency (ORS 537.332). Instream flows sustain fish, wildlife, and the habitats they depend on as well as overall ecosystem health. Instream flows provide ecosystem services that support society’s economic development needs, including energy production, navigation, transportation of goods, recreation, tourism, and fishing.

This section describes the data and studies needed to better understand instream water needs in the context of a changing climate. Actions to protect and enhance ecosystems and secure instream water rights are discussed in Chapter 4, Actions 10A-10E.

The practice of securing a water right and taking water out of streams and aquifers to use, in addition to a changing climate, has resulted in reduced amounts of water instream. Without adequate water in the system and legal protection of water instream, instream uses and the associated economic and ecological benefits are threatened and further degraded.

Water Instream Supports Economic Health

Energy

Hydropower facilities at dams produce affordable energy, however, statewide goals to reduce greenhouse gas emissions elevates the need for improving efficiency of existing facilities and developing alternative energy projects. Dam operations, including procedures for maximizing power production, can alter streamflow amounts and timing and oppose needs for fish and other aquatic wildlife.

Action 8A
Analyze the Effects on Water from Energy Development Projects and Policies

There is an increasing global demand for lithium, a mineral used in cell phone and electric vehicle lithium-ion batteries. Oregon’s climate goals call for an increase in the use of electric vehicles, increasing the demand for this mineral. Lithium deposits are known to exist in Oregon but have not been commercially extracted. The Department of Geology and Mineral Industries is responsible for mine permitting.

There is a need to analyze the impact of existing and potential energy development projects and policies on both water quality and quantity. Energy is discussed in more detail in Chapter 4, Actions 14A and 14B.

Navigation

Oregon’s waterways have long served as important routes for travel and trade. According to the American Society of Civil Engineers (ASCE),¹³ Oregon boasts 680 miles of inland waterways, ranking 15th nationally. Many of the agricultural products grown in Oregon and elsewhere in the United States move down the Columbia River by barge. Instream flows facilitate ocean-going and river-going commerce and promote economic activity at ports and cities throughout Oregon.

Water-Related Recreation and Tourism

The focal point of many recreational activities in Oregon is often a river, waterfall, lake, wetland, or snow-covered mountain. Water resources offer opportunities for skiing, boating, kayaking, rafting, canoeing, camping, hiking, fishing, and observing wildlife, all of which greatly contribute to Oregon’s economy. In their 2020 analysis, Earth

Commented [KP215]: Would be much clearer to the reader (including decisionmakers) if previous headings were used, in this case: FURTHER DEFINE instream needs/demands.

Commented [KP216]: Economic health should be moved to the end of this section; strike any narrative on energy. Energy projects HARM ecosystems. . Placing this here has changed the scope and purpose of this section to move away from ecosystem health.

Commented [KP217]: This should be moved back to the water and energy section; unclear why this section was placed here (and listed first) when this is supposed to be about meeting instream NEEDS, meaning fish, wI, water quality, etc. many hydropower projects divert water away from stream before dumping it back in, and/or on fish killing dams. Long story short, it does a disservice to the instream section to add this here. It also just makes no logical sense.

Economics¹⁴ estimated that all outdoor recreation in Oregon generates \$15.6 billion annually in consumer spending, and supports 224,000 direct jobs—\$9.3 billion in wages and salaries.

Many of Oregon's counties receive a significant boost to their local economy from those who travel to participate in fish and wildlife recreation activities. The economic value of fish and wildlife recreation is one of the many reasons for protecting water instream for the benefit of future generations.

Many of the state's day-use parks and overnight camping facilities reside along rivers and lakes. The Oregon Parks and Recreation Department manages more than 250 properties that include day-use areas and overnight camping facilities available for public use. Each year, these facilities¹⁵ host over 50 million daytime visitors and 3 million campers.

Boating and kayaking are popular recreational activities as well, with more than 159,000 recreational boats in the state.¹⁶ According to the Earth Economics analysis of outdoor recreation in Oregon, in 2019, boaters spent over 6.8 million activity days power boating, over 650,000 activity days canoeing, kayaking, rowing, or tubing, and over 500,000 activity days on personal watercraft (jet skis, etc.). Boaters divide their time evenly between rivers and lakes/reservoirs. The Columbia and Willamette Rivers are the most popular rivers, and Lake Billy Chinook, Brownlee Reservoir, Detroit Lake, Wallowa Lake, Prineville Reservoir, and Diamond Lake are the most visited lakes and reservoirs.

Fisheries

Healthy fisheries support the traditional and cultural identity of many Oregon communities. Northwest tribal communities, for example, have historically relied on salmon and other fish species as a major food source and a foundation of life, culture, economy, and spirituality. Because of Oregon's collective interest in the health of its fisheries, management responsibilities are shared among state, federal, and tribal agencies.

Adequate instream flows are necessary to support tribal treaty rights and Oregon's recreational and commercial fisheries. Native fish such as salmon, steelhead, and trout are an Oregon icon and support a vigorous recreational and commercial fishing economy. In their 2020 analysis of outdoor recreation in Oregon, Earth Economics reported that in 2019, anglers spent over 3.5 million activity days fishing Oregon's waters. The [Recreational Boating & Fishing Foundation](#)¹⁷ reported that, as of 2019, the number of anglers in America aged 6-years or older reached 50.1 million, accounting for approximately 1/6 of all Americans.

According to an Oregon Department of Fish and Wildlife briefing report on the commercial fishing industry,¹⁸ more than 334 million pounds of fish were delivered to Oregon ports in 2019. The harvest value of onshore landings was \$160.7 million. The estimated total personal income generated by Oregon's commercial fishing industry (onshore and distant water fisheries) in 2019 was \$558 million. The Dungeness crab fishery typically dominates the commercial fishing industry, accounting for about 22% of the state's economic contributions from major fisheries in 2019. In 2019, commercial fisheries supported over 9,000 jobs and a number of communities along the Oregon Coast, providing up to a third of the annual earned income in some towns. A healthy fishery can support a cluster of fish processing plants, mechanics, machine shops and welders, refrigeration specialists, marine electronics sales and service firms, boat yards, and marine suppliers.

Hatcheries

The construction of dams, beginning in the 1800's, has had negative impacts to fish populations, leading to the construction of fish hatcheries to mitigate fish losses and augment the fish populations. The need for hatcheries continues today, with hatcheries distributed across the state.

The Oregon Department of Fish and Wildlife operates more than 30 hatcheries and several rearing ponds statewide. Five of the hatcheries include tribal co-management. These facilities raise salmon, steelhead, and several species of trout. Hatcheries play a vital role in the state's overall efforts to maintain healthy fish populations and

Commented [KP218]: Drafting pen should be handed to ODFW.

Commented [KP219]: Also necessary to keep fish and other aquatic species alive. Need to connect the dots here.

supplement recreational and commercial harvests. Each year, the state raises and releases 45 million fish on average from hatcheries. Clean, cold water is critical for the proper functioning of these facilities.

Water Instream Supports Ecosystem Health

Along with supporting the economy, water is needed within the environment to ensure overall ecosystem health. Streamflow from rainfall and snowmelt sustains aquatic and terrestrial life. Springs, rivers, lakes, and wetlands are also dependent on the discharge of groundwater to the surface. Other ecosystems, such as riparian areas, wetlands, and some types of forests are dependent upon a water table located close to the surface. Aquifer and subterranean ecosystems rely on groundwater further below the surface.

There are certain stream conditions that are necessary to support the life cycle of fish species. The water quality, water quantity, and habitat needs also vary by species. Coho salmon, for example, need clean gravels of various sizes to create nests and deposit their eggs. They prefer to spawn and rear in small, relatively flat streams. Adequate amounts of cool, clean water are a requirement for all life stages of salmonids, as well. Wetlands, off-channel pools, and other slackwater areas provide small fish (fry) with safe areas to reside during the winter when the current is swift. The complexity of the habitat directly contributes to the health and function of fish-bearing streams.

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

In 2015, the Oregon Department of Environmental Quality, U.S. Environmental Protection Agency, and the National Oceanic and Atmospheric Administration developed a partnership under the Clean Water Act to locate, protect, and restore zones of cold water habitat for fish in the Columbia and lower Willamette Rivers.¹⁹ [The Lower Willamette River Cold-Water Refuge Narrative Criterion Interpretation Study](#) was submitted to the National Oceanic and Atmospheric Administration by the Department of Environmental Quality in March of 2020, and the [Columbia River Cold Water Refuges Plan](#) was prepared by the U.S. Environmental Protection Agency in 2021.

Determine the Flows Needed to Support Instream Needs

Healthy streams are dynamic, and different streams exhibit different patterns of variability to which native species are adapted. Ecosystems and species depend upon a range of flow conditions (such as frequency, magnitude, and timing). Site-specific data and studies are typically required to quantify these variable instream flows throughout the year. This section looks at next steps for understanding instream flow needs.

Action 8B
Determine Instream Flow
Needs (Quality and
Quantity)

Commented [KP220]: A LOT was cut from this section; check with ODFW (commissioners should compare to the 2017 version).

Data Needs for Instream Water Rights

Instream water rights – a water right held in trust by the Water Resources Department and described in Part 1 – are one tool that can be used to protect instream needs (Action 10C). Approximately 10,000 river miles in Oregon are covered by an instream water right, but the state has very little capacity to monitor whether instream water rights are being met. There are more than 1,500 certificated instream water rights across the state, and while the state has taken steps to enhance measurement activities, only 205 of them have an associated stream gage in place to monitor whether the instream flows are being met.

Commented [KP221]: Authors Removed the 2017 sentence that says “To fill this gap, the OWRD field personnel often take additional streamflow measurements in locations that are not monitored with permanent equipment”. Removing this key sentence advances some narratives over others (legal and political).

There is also a need to identify ecological and environmental flows needed to support future instream water rights applications. Understanding the full suite of flows needed to support stream ecosystems can better inform future management actions.

Commented [KP222]: Took out language related to ODFW; check with ODFW to see if the changes to this section were in line with ODFW recommendations or were instigated by OWRD authors. As a general matter, agencies with the expertise should be granted the writing pen for relevant sections.

Ecological Flows – These flows are defined as “quantifiable metrics that describe ranges of flows that must be maintained within a stream and its margins to support the natural functions of healthy ecosystems” (California Environmental Flows Working Group, 2021)

Environmental Flows – These flows include the quantity, timing, and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and wellbeing that depend on these ecosystems (Arthington et al., 2018). The inclusion of human needs is an important distinction in this definition. Spiritual, recreational, and tribal access to First Foods should also be considered.

Some water projects receiving funds from Water Projects Grants and Loans from the Water Resources Department under [Senate Bill 839 \(2013\)](#)²⁰ will need flow prescriptions that describe the duration, timing, frequency, and volume of flows required to maintain the biological, ecological, and physical functions of the watershed.

There are other mechanisms that can be used to protect water instream, such as water leases and transfers. Additional discussion about these tools can be found in Chapter 4, Action 10C.

Assess Groundwater-Dependent Ecosystems

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

Action 8C
Determine Needs of
Groundwater-Dependent
Ecosystems

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

While some continued characterization of these systems is needed, the next important step is to quantify their groundwater quantity and quality requirements. This information can be used to help meet the needs of people, species, and ecosystems. For example, in the Oregon Dunes National Recreation Area, municipal wells pump water from an unconfined sand dune aquifer that also supports two sensitive species of amphibian that breed in the swale wetlands. By quantifying the groundwater needs of amphibians and wetland plants, compatible pumping levels supportive of wetland species were identified.²¹

Commented [KP223]: Removed language that helped explain the importance of these. Request authors put it back. In narrowing, makes it much less understandable

Develop Instream & Ecosystem Demand Forecasts

The state has completed two long-term demand studies (2008 and 2015) that focused on forecasting water demands for agricultural, municipal, domestic, and industrial uses (See Action 9B). A parallel statewide analysis is needed for instream needs. Climate change will continue to affect water timing, availability and use, and balanced solutions are not achievable without understanding the full suite of instream and out of stream needs.

Action 8D
Develop Instream &
Ecosystem Water Demand
Forecasts

Instream & Ecosystem Water Needs

Action 8A

Analyze the Effects on Water from Energy Development Projects and Policies

Lead Agencies

ODOE, ODEQ, ODFW

Supporting Agencies

BPA, DLCDC, NOAA, OWRD,
USACOE, USFWS

Partners

Tribes, Public Utility Commission, Oregon
Climate Action Commission

Background

Energy projects have the potential to impact both water quantity and quality. The development of renewable power systems to achieve a cleaner energy mix and new economic opportunities brings with it as-yet-unquantified demands for water. An analysis of water demands for energy development projects and policies across energy technologies (e.g., hydroelectric, solar, wind, geothermal, bio-energy, natural gas, etc.) is needed. This analysis would provide a better scientific understanding of the state's future water commitments.

Example Actions

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

Resources

Agency Programs

ODOE Energy Planning & Innovation Division, ODEQ Water Quality Program, ODEQ Section 401 Hydropower Program, ODFW Land Resources Program, OWRD Hydroelectric Program

Workgroups

Hydroelectric Application Review Team (ODEQ, ODFW, OWRD)

Documents

2022 ODOE's [Biennial Energy Report](#)

2021 [Oregon's Climate Change Adaptation Framework](#)

Commented [KP224]: Again, as with many/other sections the grouping of lead, supporting and partners misses the mark of what is actually happening in this field. Additionally, The universal exclusion of conservation groups on most of the actions is not going unnoticed.

Commented [KP225]: Again, this should be in the energy section. It really makes no sense here, unclear what the author's motivation or intent was here. Basically, advancing narratives on projects that HARM instream values, which is not the intent of this section.

Also, author's should talk to agencies about the current process, a lot missing here (but again, all this should be in the energy section)

Instream & Ecosystem Water Needs

Action 8B

Determine Instream Flow Needs (Quality and Quantity)

Lead Agencies

ODEQ, ODFW, OPRD, OWRD

Supporting Agencies

BPA, NOAA, ODA, ODF, ODSL, OWEB,
USACE, USEPA

Partners

Tribes

Background

Oregon’s water resources directly support the habitat needed for species to live and thrive. Our rivers and streams, lakes, reservoirs, aquifers, wetlands, and estuaries all contribute greatly to our economy and health. Without adequate water quality and supply, instream uses and their associated economic and ecological benefits are greatly diminished. Instream flows are also critical for spiritual and recreational opportunities and supporting Tribes’ access to First Foods. To improve instream flow protections (Action 10C), Oregon should prioritize identifying ecological flow criteria (metrics characterizing the range of flows needed to support ecosystem health) for streams throughout the state.

Example Actions

- ~~Prioritize and install gages in additional locations to monitor the status of instream flows and water rights (See Action 7A, and bullet below)~~
- **Use existing data to develop statewide preliminary ecological flow criteria for streams**
- ~~Identify~~ **Prioritize** basins with ~~listed species~~ and install monitoring equipment to help characterize the full suite of flows through these basins
- Conduct instream needs studies, such as ~~base flow studies and elevated~~ **ecological and environmental** flow requirements or prescriptions, **including pollution abatement, recreation, spiritual, and cultural needs**
- Pursue a consistent, model-based framework for characterizing long-term instream need **in the context of climate change to support the development of a long-term instream forecast (Action 8D)** and ~~integrate projections of future climate for planning purposes~~
- **Review, synthesize, and update** ~~Develop~~ models/studies to quantify the **ecological, economic, social, and cultural value** of instream uses
- Support state agency instream flow efforts and programs (e.g., ODFW, ODEQ, OPRD)
- **Support ODFW and ODEQ collaboration regarding temperature modeling**
- **Support ODFW and OWRD collaboration regarding monitoring for instream water rights**
- **Fill data gaps regarding fish passage barriers**
- **Conduct studies to determine if wetland restoration or reconnection to streams could benefit instream flow**

Resources

Agency Programs

ODEQ Water Quality Program, ODFW Water Program, OPRD Scenic Waterways, OWRD Water Rights Division, OWRD Technical Services Division

Workgroups

Oregon STREAM Team

Policies

Oregon’s Instream Water Right Act

Documents

[Oregon Plan for Salmon and Watersheds](#)

[2023 ODFW Guidance for Determining Instream Flow Needs](#)

Commented [KP226]: Should be reworked so that species survival and habitat functionality is tied to rivers, streams, wetlands, etc rather than “water resources” This is done for human needs, but not for fish and wildlife, unclear why.

Commented [KP227]: Is ODFW okay with these words? Generally their documents call for the understanding/study of instream flow needs.

Commented [KP228]: 1.Support all edits and additions requested by ODFW.
2.Would urge contributions by DEQ to call for flow studies to understand flows for water quality needs (for iswr, tmdl, etc).

Commented [KP229]: Should retain an action that calls for increase in flow/temperature gages. The Oregon Legislature has been funding these the past few year.

Commented [KP230]: Did this come from ODFW or OWRD?

Commented [KP231]: Odfw or owrld recommendation?

Lead Agencies

ODEQ, ODFW, OWRD

Supporting Agencies

DLCD, DOGAMI, ODF, USFS, USFWS, USGS

Partners

Tribes, The Nature Conservancy

Background

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

Example Actions

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

Commented [KP232]: Would add something about studies to assess the affect of human activities (pumping, canal lining, etc on springs), e.g. the odfw/owrd ask in the Deschutes as an example.

Resources

Agency Programs

ODEQ Water Quality Program, ODFW Water Program, ODFW Technical Services Division

Documents/Websites

Online mapping tool by The Nature Conservancy, [Global Groundwater Dependent Ecosystems](#)

Instream & Ecosystem Water Needs

Action 8D [new]

Develop Instream & Ecosystem Water Demand Forecasts

Lead Agencies

ODEQ, OWRD

Supporting Agencies

DLCD, DOGAMI, ODA, ODFW, USGS

Partners

Tribes, local gov't's, municipal
water providers

Background

There is a need to understand how the demand for water instream, is projected to change over time. This can help inform planning and water management decisions to anticipate these demands and respond to climatic impacts that alter water timing and availability. The state has created two water demand forecasts quantifying only out-of-stream needs (see Action 9B). A parallel statewide analysis is needed for instream needs. Climate change will continue to affect water timing, availability and use, and balanced solutions are not achievable without understanding the full suite of instream and out of stream needs.

Example Actions

- Develop a statewide instream water demand forecast in collaboration with an update to the statewide out-of-stream water demand forecast
- Periodically update demand projections with new climate projections
- Study potential impacts to environmental justice and other frontline communities in demand forecasts

Resources

Agency Programs

ODFW's Water Program, OWRD's Planning, Collaboration, & Investment Section, OWRD Technical Services Division

Documents

[2015 Statewide Long-Term Water Demand Forecast](#)

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

Commented [KP233]: This isn't really "plain speak". Would suggest "from surface water and groundwater sources". Or even better "from rivers, streams and aquifers."

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

Out-of-Stream Water Uses

Statewide Consumptive Use Estimates

House Bill 2018, passed in 2021, called for the production of a report on statewide consumptive water use. The Water Resources Department is leading this work and expects to have consumptive water use estimates for all major hydrologic basins in Oregon in 2024. In absence of this more detailed data, generalizations about out-of-stream water use are summarized below using the 2023 Business Case for Investing in Water report. The report utilized data from the U.S. Geological Survey.

Water Use in Agriculture

The majority of water diverted for out-of-stream use is for irrigation to grow crops. According to the [2023 Business Case for Investing in Water in Oregon](#)²², almost 80-percent of all water withdrawn from surface or groundwater sources is used for irrigation (Figure 3-6).

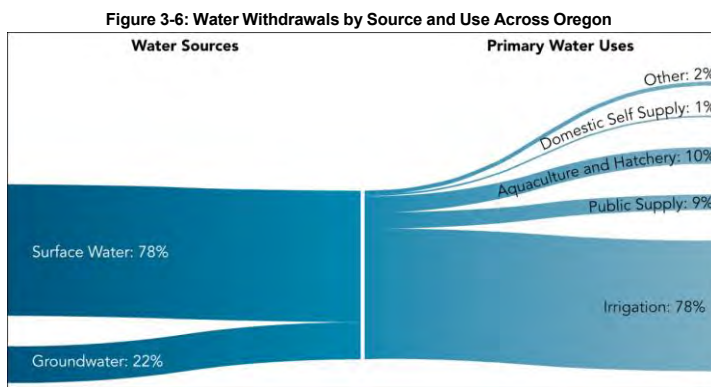


Image Source: AMP Insights, Data Source: USGS Water Use Data for Oregon²³

Increases in agricultural water demand are expected from a range of possible changes in the climate, including increased temperatures and drier summers, resulting in prolonged agricultural growing seasons and increased evapotranspiration. Many basins are over appropriated, meaning there is not enough water to meet the full water rights held by people. This means that increasing irrigation to respond to warmer, drier conditions may simply not be an option. Actions including increasing irrigation efficiency, water conservation, water reuse, storage, and market based solutions are all potential management approaches outlined in Chapter 4, Actions 12B-12E.

Irrigated agriculture contributes significantly to the economy, food supply, and to local communities. The Department of Agriculture reports that Oregon's 37,200 farms produced more than 220 different products in 2021.²⁴ Oregon agriculture directly and indirectly contributes 686,518 jobs, \$29.71 billion in wages, \$12.12 billion in taxes, and \$2.85 billion in exports to the state. In Oregon, irrigation with its related water rights more than doubles the value of crop land, from \$2,340 per acre to \$5,800 per acre, according to the 2022 Oregon Agricultural Statistics and Directory.²⁵

Although much of the water is used to irrigate crops, there are many other uses for water within agriculture, such as water for livestock operations, which supports one of Oregon's highest-ranking commodities – cattle and calves – valued at almost \$588 million in 2020.

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

Public Supply – Municipal, Commercial & Industrial Water Use

Municipal water systems may be shared water systems operated by homeowner associations, larger systems managed by private water companies, or public systems operated by cities, towns, or water districts. Most commercial, industrial, and high-tech facilities receive water from municipal water systems. Public supply to meet municipal, commercial, and industrial demands, account for approximately 9 percent of out-of-stream diversions (Figure 3-6).

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

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

Economic growth in Oregon depends, in part, on the availability of water and wastewater services, and the ability of municipalities to serve these needs. Through their planning efforts, municipalities will continually need to estimate long-range water supply demands and to identify options, including water conservation programs, to meet future needs. Municipal Water Management and Conservation Plans, introduced in Part 1, are one such tool to plan for the future.

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

Domestic Wells

Domestic self-supply makes up just one percent of the water withdrawals. While this is not a large amount of the total water diverted in the state, this water supply is critical to meeting many people’s basic household needs. Nearly 23 percent of Oregonians rely on domestic or private wells as their primary source of potable water.²⁶

Improve Water-Use Measurement and Reporting

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

Action 9A
Improve Water Use Data
and Reporting

2022 Legislative Report on Water Use Measurement and Reporting

The [2022 Legislative Report on Water Use Measurement and Reporting](#), published by the Water Resources Department, outlines recommendations for improving collection and use of water use data.²⁷ Implementation of these recommendations is expected to provide information needed to facilitate planning, protect existing water right holders, maximize instream and out-of-stream beneficial uses, and minimize costly water conflicts. The report’s six key recommendations include:

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

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

Invest in Evapotranspiration Monitoring and Programs - Evapotranspiration (ET) is water that transpires from the leaves of plants and evaporates from soil and reservoirs. ET data can be used to quantify how much water is consumed by irrigated agriculture and other lands (e.g. forest, lawn). Understanding how much water crops use can help farmers, water managers, and communities manage current supplies and plan for their future needs. The Water Resources Department uses estimates of ET for several important programs and projects ranging from studies to water right transfers.

Satellite-based ET data provides more accurate data over a larger area, over a broader period of time, and more affordably than any other approach. The Water Resources Department uses satellite imagery, supported with ET models, and other well-established methods to calculate consumptive water use from irrigated fields and open water bodies. With legislative support from House Bill 2018 in 2021 and House Bill 2010 in 2023, the Department is working to establish a consistent, accurate, and well-validated ET and water use dataset across Oregon to support water planning and management.

Future applications of satellite-based ET data sets include:

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

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

Regularly Update Out-of-Stream Water Demand Forecasts

The most recent water demand forecast was developed by the Water Resources Department in 2015. Oregon’s [2015 Long-Term Water Demand Forecast](#)²⁸ describes potential long-term consumptive use demands in Oregon that may not be able to rely on historic patterns to predict future rainfall and snowpack. The 2015 scenarios and assumptions included both a projected increase in population and a longer, warmer growing season, leading to more demand by agricultural, commercial, residential, and industrial water uses in 2050. The forecast was done at a coarse scale, offering projections in increased water demands at the county level.

Strategy Action 9A described improvements needed to statewide water use measurement and reporting. These improvements, outlined in the [2022 Legislative Report on Water Use Measurement and Reporting](#), are needed to develop the data and modeling tools needed to improve our statewide approach to water demand forecasting. Future out-of-stream water demand forecasts must be produced at the appropriate scale to inform collaborative approaches to water planning and management. Demand forecasts should identify trends in water use, economic development, urban-rural population growth/shift, per capita demands, and changing crop water requirements due to a changing climate.

Out-of-stream water demand forecasting is needed to support future place-based, integrated water resources planning and other planning efforts. For further discussion of place-based planning, refer to Chapter 2, Action 4A.

Forecasting is also needed for instream flow and ecosystem needs, see Action 8D.

Action 9B
Regularly Update Out-of-Stream Water Demand Forecasts

Define Out-of-Stream Water Needs

Action 9A

Improve Water-Use Measurement and Reporting

Lead Agencies

OWRD

Supporting Agencies

ODEQ, ODFW, USGS

Partners

AgriMet, water rights holders,
OSU Extension Service

Background

Objective water management decisions are made possible when they are based on reliable information about water use. Availability of water use data is fundamental to ensure efficient water management, effective water distribution, and to help plan for future water needs. The information is also used to ground-truth demand projections or models. The Water Resources Department has the authority to require new users to measure and report water use and can require existing users who already measure water use to report the resulting data. Water users who keep track of their use are better able to demonstrate the validity of their water rights, to develop water management and conservation plans, and to determine the design and funding needs of their future water systems.

Example Actions

- Continue to **work with Information Services** to improve the software and tools used for water-use measurement and reporting
- **Improve the state's-Implement new authority that allows OWRD to require reporting of water use, where measurement is required, including aligning the reporting with the Water-Use Reporting program**
- Update and implement the Water Resources Commission's Strategic Measurement Plan, measuring significant diversions
- Coordinate the Water-Use Reporting Program and **Water Resource Commission's Strategic Measurement Plan**
- **Review the effectiveness of the 2000 Strategic Measurement Plan and associated OWRD key performance measure, and determine appropriate path for measurement and documentation of water use in Oregon**
- **Improve Water Use [Reporting] Database functionality and public access, including establishing and maintaining quality assurance procedures to verify the accuracy of water use and other data**
- Invest in water use measurement devices in priority watersheds
- Invest in evapotranspiration monitoring and programs
- Develop accurate statewide annual water use summaries for water rights using all available water use data sets
- Produce annual values of consumptive use by water right to allow for analysis of trends in water use over time
- Install and monitor groundwater observation wells
- Provide resources to assist with installation of measurement devices; update cost-share program
- Work with USGS to integrate water use data from OWRD into USGS water use products
- Seek authority to require water use reporting in areas of scientific interest in preparation for Serious Water Management Problem Areas (SWMPAs), basin studies, or planning exercises like updates to basin plan rules
- Increase documentation and data collection of decommissioned wells and well construction history
- Include equity considerations for assistance through measurement cost share programs

Resources

Agency Programs & Workgroups

OWRD Water-Use Reporting Program

Funding

OWRD Water Measurement Cost Share Program

Documents

[2022 OWRD Legislative Report on Water Use Measurement and Reporting](#)

[2000 Oregon Water Resources Department Strategic Measurement Plan](#)

Commented [KP234]: NOTE: the headings here include "define", which we support. That said, the authors did not use this word in the companion section on "instream". Instream and out-of-stream need to mirror each other, with both saying "define"

Commented [KP235]: Support additional directives on M/R generally. Should add in continue to invest in water measurement cost share fund.

Commented [KP236]: I would add "invest in telemetry" and/or edit some of the existing bullets to include this.

Commented [KP237]: This has already been reviewed; the big take away was that w/o reporting it was not as effective as it could be. Now that there is reporting authority, we would suggest simply overlaying that. The previous bullet hints at that; not sure you need to include this.

Commented [KP238]: Also need to improve the reporting system so that RATE is reported. Right now its only in terms of volume so it is very hard to understand if water right users are within their rate limitations

Define Out-of-Stream Water Needs

Action 9B

Regularly Update Out-of-Stream Water Demand Forecasts

Lead Agencies

ODEQ, OWRD

Supporting Agencies

DLCD, DOGAMI, ODA, ODFW, USGS

Partners

Tribes, local gov't's, municipal water providers

Background

There is a need to understand how the demand for water, across many use sectors, is projected to change over time. This can help inform planning and infrastructure decisions to anticipate these demands and respond to climatic impacts that alter water timing and availability.

Oregon must regularly update its fifty-year forecast of out-of-stream water needs and coordinate this effort with understanding instream forecasted needs (See Action 8D). These updates to the forecast should include identifying trends in water use, economic development, urban-rural population growth/shift, per capita demands, and changing crop water requirements due to a changing climate.

Example Actions

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

Commented [KP239]: In updating demand forecasts, the state should layer with conservation requirements. This has been a topic of discussion since OWSCI

Resources

Agency Programs & Workgroups

OWRD's Planning, Collaboration, & Investment Section, OWRD Technical Services Division

Documents

[2015 Statewide Long-Term Water Demand Forecast](#)

References

- ¹ Oregon Water Resources Department. 2016. Water Resources Monitoring Strategy. Salem, Oregon. <http://www.oregon.gov/owrd/LAW/docs/IWRS/MonitoringStrategy.pdf>
- ² Oregon Department of Environmental Quality. 2020. DEQ Water Quality Monitoring Strategy 2020. Portland, Oregon. <https://www.oregon.gov/deq/FilterDocs/DEQMonitoringStrategy2021.pdf>
- ³ Oregon Watershed Enhancement Board. 2017. Monitoring Strategy for Oregon's Waters: An Inter-Agency Approach, Oregon Stream Team. <https://www.oregon.gov/oweb/Documents/Monitoring-Strategy-for-Oregon%27s-Waters.pdf>
- ⁴ U.S. Geological Survey. 2001. Groundwater Hydrology of the Upper Deschutes Basin, Oregon. Water-Resources Investigations Report 00-4162. <https://pubs.usgs.gov/wri/wri004162/pdf/WRIR004162.pdf>
- ⁵ Oregon Department of Environmental Quality Integrated Report website. Accessed January 10, 2024. <https://www.oregon.gov/deq/wq/Pages/epaApprovedIR.aspx>
- ⁶ Oregon Watershed Enhancement Board Website, Oregon Watershed Restoration Inventory. Accessed January 11, 2024. <https://www.oregon.gov/oweb/data-reporting/Pages/owri.aspx>
- ⁷ Oregon Department of Fish and Wildlife. 2016. Oregon Conservation Strategy. Salem, Oregon. <https://www.oregonconservationstrategy.org/>
- ⁸ Oregon Department of Environmental Quality Website, The Oregon Water Data Portal. Accessed February 27, 2024. <https://www.oregon.gov/deq/wq/Pages/owdp.aspx>
- ⁹ Department of Geology and Mineral Industries Website, Lidar Viewer. Accessed January 24, 2024. <https://gis.dogami.oregon.gov/maps/lidarviewer/>
- ¹⁰ Fleishman, E., editor. 2023. Sixth Oregon Climate Assessment. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon. DOI: 10.5399/osu/1161.
- ¹¹ Oregon Department of Land Conservation and Development. 2021. 2021 State Agency Climate Change Adaptation Framework. Salem, Oregon. https://www.oregon.gov/ldc/CL/Documents/2021_CLIMATE_CHANGE_ADAPTATION_FRAMEWORKandBlueprint.pdf
- ¹² Oregon Legislature. 2007. House Bill 3543. Salem, Oregon. <https://olis.leg.state.or.us/liz/2007R1/Downloads/MeasureDocument/HB3543/Enrolled>.
- ¹³ American Society of Civil Engineers. 2017. Infrastructure Report Card: Oregon Infrastructure Overview. <http://www.infrastructurereportcard.org/state-item/oregon/>
- ¹⁴ Mojica, J., Cousins, K., Madsen, T. 2021. Economic Analysis of Outdoor Recreation in Oregon. Earth Economics. Tacoma, Washington. <https://industry.traveloregon.com/resources/research/oregon-outdoor-recreation-economic-impact-study/>
- ¹⁵ Oregon Parks and Recreation Department. 2023. News Media Webpage. Salem, Oregon <https://stateparks.oregon.gov/index.cfm?do=v.news>
- ¹⁶ National Marine Manufacturers Association. 2023. Economic Impact of Recreational Boating in Oregon. <https://www.nmma.org/statistics/publications/economic-impact-infographics>
- ¹⁷ Recreational Boating & Fishing Foundation. 2020. 2020 Special Report on Fishing. https://asafishing.org/wp-content/uploads/2020/08/2020-Special-Report-on-Fishing_FINAL_WEB.pdf
- ¹⁸ Oregon Department of Fish and Wildlife. 2019. Oregon Commercial and Recreational Fishing Industry Economic Activity Coastwide and in Proximity to Marine Reserve Sites for Years 2018 and 2019. Executive Summary. Salem, Oregon. <https://www.dfw.state.or.us/agency/docs/TRG%20ec%20summary%20Oregon%20Coast%20fishing%20industry%202018-2019%20ES.pdf>
- ¹⁹ U.S. Environmental Protection Agency. 2015. State, Federal Agencies to Map and Protect Cold Water Refuges for Fish in Columbia and Willamette. Seattle, Washington.
- ²⁰ Oregon Legislature. 2013. Senate Bill 839. Salem, Oregon. <https://olis.leg.state.or.us/liz/2013R1/Downloads/MeasureDocument/SB839>
- ²¹ Aldous, A.R., R. Congdon, E. Blevins, J. Christy, Z. Freed, J. Gurrieri, L. Bach, and T. Carroll. 2017. Environmental Flows and Levels for Groundwater-Dependent Ecosystems of the Oregon Dunes National Recreation Area of the Siuslaw National Forest.
- ²² Plitz, D., Kruse S., Raucher R., Clements J., Gardner T., Odefey J., Madsen T., Purkey A., Sheridan C., McCoy A., Ehrens A., 2023. The Business Case for Investing in Water in Oregon. https://www.oregon.gov/owrd/WRDPublications/230721_FINAL_Business_Case_for_Water_in_OR.pdf

-
- ²³ U.S. Geological Survey Website. Water Use Data for Oregon. Accessed April 26, 2023. https://waterdata.usgs.gov/or/nwis/water_use/
- ²⁴ Oregon Department of Agriculture. 2023. Oregon Agriculture Facts and Figures. <http://www.oregon.gov/ODA/shared/Documents/Publications/Administration/ORAgFactsFigures.pdf>
- ²⁵ Oregon Department of Agriculture. 2022. Oregon Agricultural Statistics and Directory.. <https://www.oregon.gov/ODA/agriculture/Pages/Statistics.aspx>
- ²⁶ Oregon Health Authority Website. Accessed February 15, 2024. <https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/SOURCEWATER/DOMESTICWELLSAFETY/Pages/index.aspx>
- ²⁷ Oregon Water Resources Department. 2022. 2022 Legislative Report: Water Use Measurement and Reporting. Salem, Oregon. https://www.oregon.gov/owrd/WRDReports/OWRD_2022_LegislativeReport_WaterUse_Measurement_Reporting.pdf
- ²⁸ Oregon Water Resources Department. 2015. Statewide Long-Term Water Demand Forecast. Salem, Oregon. http://www.oregon.gov/owrd/LAW/docs/IWRS/OWRD_2015_Statewide_LongTerm_Water_Demand_Forecast.pdf

CHAPTER 4

Stewardship

All Oregonians serve as stewards of water as a public resource—managing water simultaneously for economic development, human health and safety, and for environmental protection. Oregon has an opportunity to integrate strong planning and partnerships (Chapter 2) with data and analysis (Chapter 3) into meaningful stewardship actions that help meet Oregon’s instream and out-of-stream needs.

Chapter 4 describes a host of actions needed to adapt and mitigate for climate change and build a more secure water future for people and the environment. Protection, enhancement, and restoration of our ecosystems is needed to increase resiliency by increasing natural storage capacity, improving instream habitat and fish passage, protecting and restoring wetlands and water instream, eradicating invasive species and protecting native plant communities, and protecting groundwater-dependent ecosystems. Land management activities need to protect and improve water quality, including protecting our watersheds and drinking water sources from contamination and pollution. Voluntary and regulatory approaches can help keep toxics and pollutants out of our waterways.

Water management activities shared across agencies, tribes, businesses, and individuals are needed to ensure adequate water now and into the future. Water conservation and reuse, and in some cases storage, can all help stretch our supplies further. We also need to develop non-regulatory water management approaches and water conservation incentives. Agencies need continued support to implement permitting programs and need adequate field staff to support water users and protect both water quality and quantity. Responsible water management also includes maintaining, upgrading, and sometimes decommissioning infrastructure to protect public health and safety and our environment. Acknowledging that water use has an energy demand associated with it, and that we rely heavily on hydropower to meet our energy needs, we need to continue to explore creative approaches to energy conservation and production.

Commented [KP240]: Concerned that this new language promotes a path forward where undefined planning could influence state management and/or priorities that are part of their mission planning or not (which something agencies have pushed back against in the past). A lot of the measures needed are REGULATORY and/or are within state agency missions to advance on their own, not tied to planning in anyway. Concern that this is setting a narrative that is aligned with 2023 bills that were defeated.

Commented [KP241]: And quantity

Commented [KP242]: Need to tie in ecosystems. WM are not limited to serving users; other agency field staff are not tasked with protecting water users. Suggest using 2017 narrative which includes but is not limited to: Field personnel collect data—including hydrological, biological and chemical data—to protect the public and environmental health through inspection and enforcement action. SEE page 135 of 2017 version for more.

This page left intentionally blank.

Chapter 4 Actions at a Glance

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

Critical Issue - Healthy Ecosystems

- 10A Improve Watershed Health, Resiliency, and Capacity for Natural Storage
- 10B Protect and Restore Instream Habitat and Fish Passage/Screening
- 10C Develop Additional Instream Protections
- 10D Prevent and Eradicate Invasive Species
- 10E Develop Additional Groundwater Protections

Critical Issue - Clean Water

- 11A Ensure the Safety of Oregon's Drinking Water
- 11B Reduce the Use of and Exposure to Toxics and Other Pollutants
- 11C Implement Water Quality Pollution Controls

Critical Issue - Water Use & Management

- 12A Determine Unadjudicated Water Right Claims
- 12B Improve Water-Use Efficiency and Water Conservation
- 12C Encourage Water Reuse Projects
- 12D Improve Access to Storage
- 12E Reach Environmental Outcomes with Non-Regulatory Alternatives
- 12F Provide an Adequate Field Presence
- 12G Strengthen Oregon's Water Quantity and Water Quality Permitting Programs

Critical Issue - Water Infrastructure

- 13A Maintain, Upgrade, and Decommission Water and Wastewater Infrastructure
- 13B Encourage Regional (Sub-Basin) Approaches to Water and Wastewater Systems
- 13C Support Dam and Levee Safety

Critical Issue - Water & Energy

- 14A Use Existing Infrastructure to Develop Non-Traditional Hydroelectric Power
- 14B Promote Strategies that Increase/Integrate Energy and Water Savings

Commented [KP243]: Language has changed so it is no longer clear that dam removal falls under this. The 2017 version read: Protect and restore instream habitat and **habitat access for fish and wildlife**.

Commented [KP244]: This dropped down in ordering; please restate ordering.

Commented [KP245]: 1. Water use and water management are very different things. These should be separated out
2. This document needs to call out regulation explicitly; while captured in the narrative of early chapters, it does not find its way into any recommended actions.

Commented [KP246]: Had concerns with this in 2017, continue to have concerns now. While there are some voluntary approaches that can be utilized, wording here appears to direct use of non-regulatory pieces only, knocking out regulation. Would suggest a stand alone section on regulation to balance this

Commented [KP247]: Again, add back the bullet that requires the state to analyze the effects on water from energy development projects and policies. The 2024 draft moved it to instream section; which is not the appropriate spot

Responsibility for stewarding Oregon's ecosystems, including protection and restoration, falls to all Oregonians across a broad range of local, state, federal, and tribal agencies, as well as on private landowners and **local** organizations. Oregon has a rich history of work in this area, using numerous tools and institutions to help address and improve ecological conditions. Chapter 3 described the actions needed to support measurement and monitoring efforts, and better define instream and ecosystem water quantity and quality needs. The Healthy Ecosystems section describes five actions to improve ecosystem function and resilience. Actions address improvements needed in watershed protection and restoration, instream habitat and fish passage, instream flow protections, invasive species eradication, and groundwater protections.

Commented [KP248]: Not just "local"; this narrative limits involvement of NGOs who do not "live" in the basin, which is an increasing problem (e.g. Grande Ronde Place Based Planning).

Ecosystem Services

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

Commented [KP249]: Wrong title for this section; Ecosystem services are generally viewed as the direct and indirect benefits that ecosystems provide humans. This section is focused on healthy ecosystems, which means ecosystems for ecosystem sake. Please change title.

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

For instance:

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

Habitat & Ecosystem Functions

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

Actions such as reconnecting rivers and streams to their floodplains; restoring stream channel location and complexity; removing dikes and revetments; allowing seasonal flooding; restoring wetland and riparian habitats; and removing priority high-risk structures within floodplains' and other actions described in [Oregon's Conservation Strategy](#) can restore floodplain functions.

Flowing Water and Riparian Areas – Flowing water habitat includes all naturally occurring freshwater streams and rivers, including intermittent streams, as well as springs and seeps. These systems support a wide variety of species, including fish, invertebrates, amphibians, birds, plants, and algae. Human activities such as constructing dams, deepening, widening, or straightening stream channels has had the unfortunate impact of degrading habitat and water quality. See Action 10B for recommendations regarding improving flowing water (e.g., stream) habitat including stream channel restoration and fish barrier removal. Mechanisms to enhance the amount of water remaining instream are discussed in Action 10C.

Riparian areas are plant communities located in a zone of transition from an aquatic ecosystem to a terrestrial ecosystem, often containing a mix of trees and shrubs adjacent to a stream or river. Riparian areas provide important functions like bank stabilization, shade to keep water cool for fish, filtration of runoff before it enters the stream, and habitat for many species. Riparian habitats directly affect natural water storage, hydrology, water quality, water temperature, and habitat quality through their ability to hold and slowly release water, filter and biologically process nutrients, and provide shade and habitat. Riparian ecosystems are dependent upon surface or subsurface water through the zone's soil-vegetation complex to support their overall health.

Oregon should continue encouraging efforts to prevent further degradation and improve riparian conditions through voluntary restoration, such as the efforts conducted under the [Oregon Plan for Salmon and Watersheds](#)², [Oregon's Agriculture Water Quality Management Plans](#)³, [Forest Practices Act](#)⁴ and [Riparian Lands Tax Incentive Program](#)⁵.

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

Large wetlands in Oregon, such as the Klamath Basin National Wildlife Refuge Complex and Malheur Wildlife Refuge support continental bird diversity by providing habitat for migrating species. In southern Oregon, the Klamath National Wildlife Refuges' shallow marshes, open water, and grassy uplands support one of the most biologically productive refuges within the Pacific Flyway migration route. Approximately 80 percent of the flyway's migrating waterfowl pass through the Klamath Basin on both spring and fall migrations.⁶ The refuge provides habitat for 25 species of special concern listed as threatened or sensitive by California and Oregon.

Oregon has lost about 40 percent of its original wetlands. The U.S. Fish and Wildlife Service estimates that Oregon has 1.4 million acres of wetlands today, compared to about 2.3 million acres of tidal and non-tidal wetlands that covered the same area in the late 1700s.⁷ Oregon must protect our remaining wetlands through rigorous permitting (e.g., Removal-Fill) and conservation on public and private lands. The state must also restore degraded wetlands to regain water storage capacity and other hydrologic benefits and support the many declining species reliant on these ecosystems.

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

There are 22 major estuaries in Oregon. Although most estuaries along the coast are relatively small, the Columbia River estuary at Astoria is the largest in area at more than 80,000 acres. Some of the issues affecting the health of Oregon's estuaries include increased sedimentation and nutrient loading, introduced nuisance and invasive species,

Commented [KP250]: Also: reduce flooding, keep water clean, provide important habitat, and support recreation.

Commented [KP251]: Should note why, e.g. from DSL's website: Land development has changed Oregon's landscape, eliminating and degrading wetlands and waters

recreational and development pressures, and low freshwater inflows. Managers along the West Coast are concerned about how sea-level rise and ocean acidification will alter estuaries and impact threatened species.⁸ Some communities are restoring tidal inundation to estuarine lands to build resiliency for coastal sea level change and tidal flooding.

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

Most of Oregon's municipal water systems rely on water that originates from forestlands, including those managed for wood production. At the state scale, data collected from the Department of Environmental Quality's ambient monitoring network indicates that public forestlands have the highest percentage of excellent or good water quality sites, compared to agriculture, urban areas, rangelands, and mixed land uses.⁹

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

Forest diversity can offer a range of benefits when land managers account for values such as wood production, aesthetics, recreation, habitat, water quality, and clean air. The [Forestry Program for Oregon](#) emphasizes the importance of efforts to maintain healthy, resilient, and functional forested areas, in part, for the benefit of water resources.¹⁰ Keeping forests as forests, however, requires public support, investment, and resource protection policies that make continued forest ownership an economically viable alternative to conversion.

Improve Watershed Health, Resiliency, and Capacity for Natural Storage

Ecosystem resilience is the capacity to absorb and adapt to disturbance and change—while maintaining essential functions. Healthy water resources are directly related to the resiliency of an ecosystem. Oregon's floodplains, rivers, riparian areas, wetlands, estuaries, forests, and other uplands provide valuable ecosystem services and essential habitat for fish and wildlife. These places have been modified to support human needs including flood control, irrigation, navigation, hydropower, recreation, and land development and use. Watershed restoration is needed at many scales, including uplands and lowlands, to improve degraded habitat, restore resiliency, improve water quality and capacity for natural storage. While this Strategy action addresses the need to improve watershed health, the next action, Action 10B, specifically addresses instream habitat improvements including fish passage.

Action 10A
Improve Watershed Health,
Resiliency, and Capacity for
Natural Storage

This section describes existing statewide planning documents guiding ecosystem protection, restoration, and recovery. Actions outlined in these documents must be supported by public-private partnerships and a variety of funding sources.

The Oregon Conservation Strategy

The [Oregon Conservation Strategy](#) was developed in 2006, for the goal of maintaining healthy fish and wildlife populations by maintaining and restoring functioning habitats, preventing declines of at-risk species, and reversing declines where possible. The Conservation Strategy is revised every 10 years, with the next updated version available in 2026. The Oregon Department of Fish and Wildlife leads the implementation of the Conservation Strategy.

Commented [KP252]: STRIKE: This, again, is directing "partnerships". This amounts to a policy directive that could tie agency hands to follow their missions and workplans absent collaboration or partnership/

The Oregon Conservation Strategy takes a non-regulatory, statewide approach, while recognizing that conservation issues vary by region and must be tailored to the unique needs of the fish, wildlife and human communities that coexist. The Oregon Conservation Strategy engages citizens in addressing Oregon's conservation needs by offering recommended voluntary actions and tools and encourages monitoring key species and attributes of ecosystems as well as measuring the effectiveness of conservation actions.

The Conservation Strategy has several components, including identifying key conservation issues (e.g., climate change, water quantity/quality), conservation opportunity areas, and 294 strategy species of greatest conservation need.

The Oregon Plan for Salmon and Watersheds

The [Oregon Plan for Salmon and Watersheds](#) (the "Oregon Plan"), is a statewide initiative launched in 1997 to help restore healthy watersheds that support the economy and the quality of life in Oregon. The Oregon Plan has a strong focus on salmon, largely because of the significant cultural, economic, and recreational importance to Oregonians—and because they are important indicators of watershed health. The Oregon Plan makes recommendations to improve water quality and quantity and to address factors that contribute to declines in fish populations and watershed health. Many of these measures are voluntary and depend upon the willingness of private citizens to implement restoration projects. These voluntary measures continue to be fundamental to the success of the Oregon Plan.

Landowners and other private citizens, community organizations, interest groups, and all levels of government come together to organize, fund, and implement these measures in a coordinated manner. Oregon's watershed councils and soil and water conservation districts assist landowners with projects and lead restoration efforts in many watersheds throughout the state. The Oregon Plan has bolstered interagency and state-federal coordination and collaboration.

Along with the Oregon Watershed Enhancement Board, several state agencies, federal agencies, and non-profit organizations provide financial assistance for these restoration projects. The U.S. Department of Agriculture's Natural Resources Conservation Service, U.S. Bureau of Land Management, National Fish and Wildlife Foundation, the U.S. Environmental Protection Agency, the U.S. Forest Service, the U.S. Fish and Wildlife Service, NOAA Fisheries, and the Oregon Departments of Fish and Wildlife and Environmental Quality are actively funding watershed restoration projects. As part of its responsibilities, the Bonneville Power Administration funds regional efforts to protect and enhance fish and wildlife populations affected by federal dams in the Columbia River Basin. Other state agencies may administer programs or undertake actions that help advance the work of the Oregon Plan.

Future conservation efforts will be enhanced by continuing to implement and build upon the successful collaborative efforts of the Oregon Plan for Salmon and Watersheds, and other relevant documents including the Oregon Conservation Strategy, Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program, Conservation and Recovery Plans and Biological Opinions, and water quality implementation plans. The Integrated Water Resources Strategy should be used to strengthen and forge new partnerships.

A Restoration Tool – Beaver Modified Landscapes

American beaver (*Castor canadensis*), Oregon's state animal, are common to Oregon's riparian areas and waterways (rivers, streams, lakes, ponds, marshes, and wetlands) where they have an ample supply of food and year-round water flow for shelter and protection from predators¹¹. Beaver-modified floodplains and wetlands can trap sediment, filter or bind excess nutrients and toxic chemicals, thereby improving water quality. The sponge-like properties of these floodplain-wetland habitats may also reduce the severity of drought, wildfire, or flooding events.¹² Many planning and conservation efforts have identified the importance of beaver and beaver-modified habitats (e.g., beaver dams, pools, and wetlands) for Oregon's state sensitive and federally listed fish and wildlife species in a changing climate^{13,14,15,16,17,18,19,20}. In 2023, the Oregon Department of Fish and Wildlife published the 3-

Year Action Plan for Beaver-Modified Landscapes, August 2022-2025, which outlines goals and actions to be taken by the Department to advance the protection and restoration of beaver-modified habitat in Oregon²¹.

Wetlands and slow-moving water created by beaver dams provide key habitat for amphibian, reptile, and bird populations. Beaver dams, pools, and off-channel habitats such side-channels and meanders, can provide juvenile rearing and overwintering areas for salmon and steelhead.

Legislation from the 2023 legislative session (House Bill 3464) acknowledged the benefits of beaver to fish, wildlife, habitat, and humans in a changing climate and removes beavers from the “predatory animals” definition under ORS 610.002 to simplify management of beaver in Oregon. While beavers play an important role in healthy ecosystems, their burrowing, foraging, and damming activities can damage timber, crops, landscaping, human infrastructure, and property.

Installing planting protections (e.g., fencing, gritted paint) or beaver flow devices (e.g., pond levelers, culvert exclusion devices) can reduce beaver-human conflict and prevent further property damage. Oregon Department of Fish and Wildlife’s [Living with Beaver](#)²² guidance document provides facts about Oregon’s beaver and tips for coexisting with them on the landscape. Additionally, the U.S. Fish and Wildlife Service developed a [Beaver Restoration Guidebook](#), updated in 2023, summarizing information for landowners, restoration practitioners, managers, and other parties who are interested in working with beaver to restore streams, wetlands, and floodplains.

Commented [KP253]: This seems misplaced; this section is supposed to be about healthy ecosystems not damage that animals can possibly cause to ecosystems.

Protect and Restore Instream Habitat and Fish Passage

Freshwater ecosystems including rivers, perennial and intermittent streams, and wetlands are essential for providing habitat to many at-risk species, including important spawning and rearing habitat for salmonids, amphibians, freshwater mussels, and other invertebrates. However, most river systems in Oregon have been heavily modified to achieve various flood control, irrigation, navigation, hydropower, recreation, and other water supply benefits. The construction of roads and their associated bridges, culverts, and tidegates have altered many river and stream systems. These modifications have greatly reduced the amount of accessible stream habitat for many aquatic species, degraded habitat and water quality, and caused the decline of many species and subsequent Endangered Species Act listings.

Commented [KP254]: The heading has changed in a way that narrows scope; 2017 version said “and habitat access for fish and wildlife” which meant more than fish passage and included, importantly, dam removal. Please put back original title and/or add “dam removal” to the title.

Oregonians can be proud of the work that has been done to protect and restore the condition of rivers and streams throughout the state. Tens of thousands of degraded stream miles have been improved through riparian habitat projects, removal of fish passage barriers, instream habitat enhancement, and restoration of streamflows. All of these efforts have helped improve the ecological and economic health of Oregon’s communities. Our cooperative, community-level approach to watershed and stream restoration, through the Oregon Plan for Salmon and Watersheds and partnerships with watershed councils, has significantly improved water quality and fish and wildlife habitat. Oregon should build upon this good work to further enhance stream restoration and fish protection efforts.

Action 10B
Protect and Restore
Instream Habitat & Fish
Passage/Screening

Habitat for Aquatic Species

Freshwater habitats contain an incredible proportion of Oregon’s biodiversity. Water is crucial for all fish and wildlife, and high quality freshwater aquatic systems provide essential habitat for many at-risk species. Beyond the multitude of Oregon’s iconic fish species, many species of wildlife, such as the Oregon Spotted Frog, rely on instream habitat for a portion or all of their life cycle.

Ways to improve instream habitat conditions include protecting streams from degradation, including channelization, riparian vegetation removal, erosion, runoff, and pollution, and restoring channel and floodplain function and complexity with restoration projects. For example, ongoing efforts to replace culverts present

opportunities for developing, testing, and implementing methods to maximize habitat connectivity for a variety of aquatic and terrestrial species. There are many regional, state, and local documents and plans outlining species-specific protection and recommended habitat improvements, including the [Oregon Conservation Strategy](#). For example, the Oregon Conservation Strategy provides a list of “[Strategy Species](#),” or species of greatest conservation need, along with voluntary conservation actions and resources.

Fish Passage – Barriers such as dams, dikes, road fill, culverts, and tide gates change hydrological conditions and alter natural flow regimes. Many of these artificial obstructions create safety hazards for fish, can prevent fish passage altogether, alter transport of sediment, boulders, gravel, and wood, and create an uneven distribution of habitat. Since the early 1990s, the state has required fish passage as a condition of approval for applicable surface water and reservoir permits.

The Department of Fish and Wildlife works with owners or operators of artificial obstructions in several ways to address barriers to fish passage. Recognizing the unique nature of migratory fish in the Pacific Northwest, many other agencies and organizations have helped Fish and Wildlife to compile data on fish passage barriers throughout the state. Compiling this information is a first step in a long-term process to fill existing gaps related to fish passage data and fish habitat distribution data, with the hope of integrating the two datasets to further fish passage restoration opportunities.

This ongoing effort has resulted in the identification of approximately 45,000 potential barriers to fish passage, which includes both natural (waterfalls, steep gradients, etc.) and artificial obstructions (dams, bridges, culverts, tide gates, etc.). Almost 70 percent of the potential barriers that were compiled are culverts. Although significant progress has been made to compile data on fish passage barriers and fish habitat distribution, more work is needed to fill data gaps, including the inclusion of several local, county, tribal, and federal agency inventories.

Fish Screening – Another aspect of fish protection is fish screening, an important part of the Oregon Plan’s efforts for the protection, restoration, and recovery of native migratory fish, such as salmon and steelhead. Fish screening significantly reduces juvenile fish mortality at water diversions by preventing fish from entering diversion ditches, machinery, pumps, or irrigated fields. Since the early 1990s, the state has required fish screening and/or bypass devices as a condition of approval for surface water permits and transfers, when applicable. The Department of Fish and Wildlife operates the state’s fish screening program and has helped install more than 1,500 fish screens through its cost-share and tax credit programs. The 2023 Legislature extended the sunset for fish screen tax credits through January 1, 2030.

Installing fish screens, replacing culverts with bridges, building fish-friendly culverts, constructing fishways, stabilizing road fill material, and removing obsolete infrastructure (also see Action 13A) are all techniques that can be used to restore and protect habitat and passage for fish.

Historic Klamath Dam Removal Effort

As introduced in Chapter 2 (Action 3A), a historic dam removal project in Oregon and California is underway. Four Pacificorp dams, JC Boyle, Copco No. 1 & 2 and Iron Gate, located on the Klamath River are slated for removal with the purpose of returning a free-flowing river and providing access to over 400 stream-miles of historic spawning and rearing habitat for Chinook, Coho, steelhead, and lamprey. The dam removals are also expected to improve water quality, reducing stagnant water that can support harmful algal blooms (HABs), and support the cultural lives, health, and economic well-being of Native American communities in the Klamath Basin.

This dam removal project took decades of negotiations and is currently the largest dam removal project in the country, possibly the world. As of February 2024, the initial drawdown phase of emptying water from behind the dams is now complete. The Klamath River Renewal Corporation leading the effort has contracted with the Yurok Tribe to begin revegetation of the land exposed from draining the dams. Physical removal of the dams will happen

Commented [KP255]: This is a great example; but narrative should be inclusive of the many other dam removal efforts in the state

later this year. Restoration activities along the Klamath River will continue for about the next 10 years. More information about the project can be found on the Klamath River Renewal Corporation's [website](#).

Develop Additional Instream Protections

In many areas of Oregon, streamflows are very low or even non-existent during late summer months, largely due to anthropogenic causes. Low streamflow conditions are further exacerbated by periods of intensive water use or drought. Low streamflows often mean higher water temperatures and increased nutrient concentrations, contributing to poorer water quality for humans and fish and wildlife. Oregon needs to conserve and protect streams by developing additional instream flow protections and finding opportunities for enhancing streamflow and streamflow restoration.

Action 10C
Develop Additional Instream Protections

Part 1 described several laws, policies, and regulations that can be used to protect Oregon's rivers and streams. Links have been provided back to Part 1 for this information to reduce redundancy. Recent efforts utilizing these tools are provided below.

Scenic Waterways Designation

Oregon's Scenic Waterways Act provides for state designation that may be granted to a river or lake to protect its unique character and protect it from future degradation. A portion of the Nehalem River was the most recent waterbody receiving scenic waterway designation, in 2019. There are currently portions of 22 rivers and one mountain lake [designated as scenic waterways](#).

Outstanding Resource Water Designation

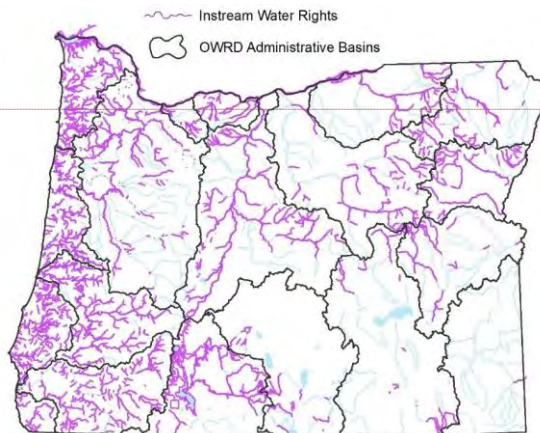
Outstanding Resource Waters designation, by Oregon's Environmental Quality Commission, adds water quality protections, including restrictions on point source discharges, to ensure that no degradation of the high water quality, exceptional ecological characteristics, and other outstanding values of the waters occurs. In July 2017, the North Fork of the Smith River and its tributaries and associated wetlands became the first Outstanding Resource Water designated in Oregon. In 2021, Waldo Lake and Crater Lakes were designated as Outstanding Resource Waters.

Instream Water Rights

As described in Part 1 under the Instream Water Rights Act, the Department of Fish and Wildlife, Parks and Recreation Department, and Department of Environmental Quality can submit applications to protect water instream. The State's policy is to obtain an instream water right on every stream river, and lakes which can provide significant public benefits. Oregon is working to establish additional instream water rights to protect instream flows and continues to resolve existing protested instream water right applications (Figure 4-1).

Additional data needs regarding instream water rights were discussed in Chapter 3, Action 8B, including the need to identify the full suite of flows necessary for creating and maintaining habitat (e.g., ecological flows) and

Figure 4-1: Instream Water Rights
January 2024



Commented [KP256]: Note this has moved down in order; should be reinstated to original spot

Commented [KP257]: Should add Hydro Conversion statutes; since the OWRD rulemaking was completed the OWRD is moving forward on this.

Commented [KP258]: Not really "plain speak", I would suggest you state in simple terms diversion of water for irrigation, municipal and other out of stream needs

Honestly, I would go back to the 2017 blurb or hand the drafting pen to ODFW for this entire section.

Commented [KP259]: For fish and wildlife, water quality, recreation and scenic values

inform the amount of flow requested in the instream water right application. Mechanisms should be explored to protect these types of flows, including a potential Department of Fish and Wildlife rule change to accommodate ecological and environmental flows in future instream water rights. In most instances, achieving instream water right flow targets will depend on voluntary partnerships with senior water right holders to be effective.

Instream Transfers and Leases

Water users with valid, existing surface water rights can voluntarily transfer water instream to restore streamflow, through a program administered by the Water Resources Department. An out-of-stream use, such as irrigation for agricultural crops, can be transferred instream to restore flows on a temporary or permanent basis. The water user has the option of transferring an entire water right instream, or a portion thereof. One of the basic tenets of instream transfers and instream leases is ensuring that other water users are not injured as a result of the changes to the use. Incentives are needed to encourage voluntary actions such as instream transfers or leases.

Instream flow restoration activities have predominantly occurred in a handful of basins, although streamflow restoration needs have been identified in every basin. As of 2022, there were 452 active instream leases and instream transfers in place. Active instream leases resulted in 4993.92 cubic feet per second (cfs) protected instream, with most of that flow reflecting leases for power rights protection. Approximately 422 cfs is kept instream associated with permanent or long-term transfers. In addition, the majority of water put instream on a permanent basis is associated with senior water rights, resulting in an impactful instream benefit.

Flow restoration through instream transfers and leases benefits greatly from active partnerships between private landowners and Oregon's conservation organizations, including The Freshwater Trust, the Deschutes River Conservancy, and Trout Unlimited. Incentives offered by these organizations and others can help land remain productive and profitable, while also benefitting freshwater ecosystems.

Allocation of Conserved Water - The Allocation of Conserved Water Program at the Water Resources Department allows a water user who conserves water to use a portion of the conserved water on additional lands, put the portion of water to a new use, lease or sell the water, or dedicate the water to instream use. In order to participate in the program, the water user must make a physical change to their water delivery system, being a change to how the water is distributed (piping of a canal) or making efficient changes to the on-farm delivery system (changing from pivots to drip irrigation). Use of this program is voluntary and provides benefits to both water right holders and instream values. By the end of 2022, the Water Resources Department had approved 99 applications resulting in approximately 250.23 cfs both permanently protected and temporarily reserved instream.

Prevent the Spread of Invasive Species

The Oregon Invasive Species Council defines an invasive species as a non-native species that can cause economic or environmental harm or cause harm to human health. It can be a plant, animal or any other biologically viable species that enters an ecosystem beyond its native range. Invasive species disrupt the natural function of an ecosystem by competing and replacing native species and disrupting the natural habitat.

Action 10D
Prevent and Eradicate
Invasive Species

Oregon experiences threats from invasive species in both aquatic and terrestrial ecosystems. Aquatic invasive species can flourish in waterways, reducing water quality, competing with native plants, and clogging boat, hydropower, municipal, and irrigation infrastructure. Native plant species in riparian and wetland areas adjacent to waterways face competition from invasive species, limiting their capacity to provide benefits such as shade, shelter, and food. Invasive species can also impact the health of uplands, where well-managed forests are critical to protecting source water quality.

Commented [KP260]: The law that allows for this is the 1987 instream water rights act.

Commented [KP261]: With the priority date of the original right. Just noting as the general public would not know this

Commented [KP262]: "and others"

Aquatic Invasive Species

Quagga and zebra mussels, along with hydrilla (a waterweed), and Northern Pike are currently among the top aquatic species of concern to keep out of Oregon. Quagga and zebra mussels and aquatic vegetation can be easily transported by trailered watercraft and have spread rapidly in portions of the United States due to their adaptability, lack of natural predators and physical transport. Species like Eurasian watermilfoil and New Zealand mudsnails already contaminate some Oregon waterbodies.²³

The [Aquatic Invasive Species Prevention Program](#) and invasive species actions contained in the Department of Fish and Wildlife's Oregon Conservation Strategy are key tools for fighting invasive species. Key elements of the Conservation Strategy are to prevent new introductions of invasive species, control the scale and spread of infestations, and eradicate invasive species, if possible through boat inspection stations. Inspections act as a line of defense and an opportunity to educate the public about the risk of aquatic invasive species entering our state.

Ballast Water – The discharge of ballast water, used to provide stability for large commercial ships, is a primary pathway of concern for introducing non-native species from foreign ports, potentially threatening our regional waterways. The Department of Environmental Quality implements and enforces ballast water management regulations in an effort to reduce the risk of introducing new aquatic invasive species by prohibiting ballast water discharge unless it meets specified criteria. Since 2012, the Department of Environmental Quality ballast water program has been supported by a 50-50 cost share between the General Fund and a fee on regulated vessels using Oregon waters. In addition to monitoring vessels for pre-arrival ballast management compliance, the Department identifies high-risk arrivals and conducts vessel inspections and compliance verification sampling on at least 12 percent of vessels calling on Oregon ports.

Invasive Species in Forests

Invasive species also cause issues in uplands, and their impact on Oregon's forests can lead to water quality and quantity concerns. Diseased or dying trees, on a large scale, are unable to provide the watershed benefits of filtering and storing water. The Oregon Department of Agriculture and Oregon Department of Forestry coordinate on monitoring and response to invasive species on forestlands.

Invasive Species Common in Oregon Forests and Uplands	
Insects:	Diseases:
Asian giant hornet	Sudden oak death
Elongate hemlock scale	White pine blister rust
Emerald ash borer	Port-Orford-cedar root disease
Larch casebearer	
Mediterranean oak borer	
Spongy moth	

Invasive Species in Agriculture

Invasive species in the agricultural landscape can pose water quality challenges if pesticides or herbicides are improperly used. Pesticide residue or runoff can find its way into local waterways, potentially harming aquatic wildlife or polluting drinking water sources. The Oregon Department of Agriculture leads the Oregon Invasive Species Council, which provides extensive resources on their [website](#). They have developed a [Digital Information Hub](#) that provides species profiles of the numerous invasive species of concern for agricultural landscapes.

Develop Additional Groundwater Protections

The Oregon Atlas of Groundwater Dependent Ecosystems, published in 2022, found that more than a third of all streams and rivers depend on groundwater, and about two-thirds of all lakes and ponds do as well²⁴. Groundwater discharge contributes to springs, wetlands, and streamflow throughout the state, often providing sustained flows and vital cold water for aquatic species during summer months. Contributions from groundwater support ecosystems (known as groundwater-dependent ecosystems) and human systems alike. Just as this Strategy calls for the development of additional instream protections (Action 10C), it also calls for the development of additional groundwater protections. Such protections should support a goal of sustainable groundwater management to benefit groundwater dependent ecosystems as well as water rights and public health.

Action 10E Develop Additional Groundwater Protections

In some locations of the state, groundwater withdrawals are occurring at a rate greater than what can be replaced with rain or snow. Consecutive years of drought and climate change are intensifying this situation. Groundwater contamination is also an issue, with ongoing nitrate contamination in the Lower Umatilla Basin Groundwater Management Area proving to be a difficult problem to improve or resolve.

The Groundwater Act of 1955, described in Part 1, established the authority for groundwater management and monitoring for the preservation of the public welfare, safety, and health. There are existing regulatory programs designed to protect groundwater quantity and quality, however, they are limited in effectiveness by the resources allotted to the respective responsible agencies and programs. Additionally, rules that guide groundwater management sometimes need to be updated to reflect new scientific analyses and current conditions.

Groundwater Management Rulemaking Underway

The Water Resources Department engaged in two rulemakings to address groundwater management. in 2023 and 2024. One effort focuses on future groundwater allocation state-wide while the other focuses on curtailment of existing uses to address over-appropriation in the Harney Basin.

Water Resource Department worked with the Water Resources Commission to conduct rulemaking to update the state's process for issuing new groundwater rights in a manner more sustainable and more protective of existing water rights. The updates focus on the definition of "water is available" for future allocation, and redefines the criteria for determining availability based on best available science and honoring the doctrine of prior appropriation. For example, the Ground Water Act of 1955 refers to determining and maintaining "reasonably stable groundwater levels," but the term is not defined in rule. Acknowledging the hydraulic connection between surface water and groundwater, these updated rules also set criteria to address the potential impacts of new groundwater permits on already depleted streams and other surface waters.

The Water Resources Department is also working with various community working groups in the Harney Basin to reduce groundwater use. This rulemaking is in response to findings from the Water Resource Department's observation wells and the 2022 Harney Basin groundwater study which found that groundwater withdrawals are not being recharged, where groundwater withdrawals in the lowlands of the basin exceed natural recharge by 110,000 acre-feet per year. The proposed rules designate a Critical Groundwater Area to control groundwater use in over-appropriated areas of the basin.

Voluntary Agreements

Voluntary agreements are a cooperative management tool available to groundwater users. Oregon Revised Statute 537.545 authorizes the Oregon Water Resources Commission to approve such agreements among groundwater users from the same basin or sub-area within a basin. These agreements must align with the intent, purposes, and requirements of the Ground Water Act of 1995, including the provisions pertaining to the designation of Critical Groundwater Areas. As of yet, this tool is untried; however, the Oregon Water Resources Department is exploring

Commented [KP263]: The 2017 language is clearer and includes important statutory directives; would review side by side.

Commented [KP264]: Sequencing issue: this is a 8 year strategy, seems like there is a different way to message rather than rm underway (??). Also work needed is much broader than the two RM noted.

Scope issue: that this version takes out the call for a groundwater workplan (work started under WRC Chair Roberts); that work was put on hold for other initiatives, but I am unaware of any commission direction to table it permanently (?).

opportunities to encourage its use among groundwater users as a means of either avoiding a Critical Groundwater Area designation or in place of one. The primary goal of these agreements is to reduce water use in basins and sub-areas experiencing excessive groundwater declines. One means of achieving this goal is for groundwater users to agree to use only a portion of their fully allocated groundwater right.

Related Strategy Actions

Many Strategy actions seeking to improve water management, increase water efficiency and water conservation, and protect people and the environment from pollution have the combined benefit of protecting surface as well as groundwater. Just a few such actions are listed below to illustrate the wide range of Strategy actions that seek to protect groundwater quantity and quality:

Strategy Actions to Protect Groundwater Quantity

- Fund water resource management activities such as distribution (Action 1B)
- Provide outreach and educational resources for communities regarding water conservation (Action 2A)
- Conduct additional groundwater studies (Action 7B)
- Improve water use measurement and reporting (Action 9A)
- Restore wetlands and floodplains to increase capacity for natural storage (Action 10A)
- Improve water-use efficiency and water conservation (Action 12B)
- Encourage water reuse projects to reduce use of potable water for non-potable uses (Action 12C)
- Support voluntary programs to reduce the amount of irrigated land (e.g., Conservation Reserve Enhancement Program) (Action 12E)
- Provide an adequate field presence to identify illegal water use (12F)
- Strengthen water quantity permitting programs (12G)
- Support modernization of Oregon's Well Construction Program (13A)

Strategy Actions to Prevent Groundwater Contamination

- Fund water resource management activities such as groundwater quality monitoring (Action 1B)
- Provide outreach and educational resources regarding domestic well and septic system maintenance/ownership (Action 2A)
- Engage with communities to develop plans to address contamination (Action 3C)
- Plan and prepare for flood events to minimize water quality issues (e.g. sewage releases into the environment) (Action 6B)
- Protect and restore watersheds, including wetlands, floodplains, etc. (Action 10A)
- Protect municipal drinking water source areas (Action 11A)
- Reduce pesticide use and educate pesticide users through the Pesticide Stewardship Partnership (Action 11B)
- Provide an adequate field presence to identify sources of pollution (12F)
- Strengthen water quality permitting such as the TMDL program (Action 12G)
- Protect groundwater quality from contamination through proper well construction or decommissioning (Action 13A)
- Support modernization of Oregon's Well Construction Program (13A)
- Repair or upgrade wastewater infrastructure that poses a risk to groundwater contamination (Action 13A)

Commented [KP265]: The attention to Voluntary Agreements arose from Harney discussions and a bill advanced by Rep Owens.. The narrative here does not align with statements/discussions I have heard regarding the state path forward. Cross check with GW staff. Also, there are a number of other things the state should address; should call those out here

Commented [KP266]: One commissioner called for a stand alone section; we agree that would be helpful. Then the document could flush out all issues. Pointing to other related strategy actions doesn't cover the full spectrum of needs.

Commented [KP267]: Some actions here can actually DEplete groundwater quantity such as water reuse, canal lining (e.g. Deschutes).

Healthy Ecosystems

Action 10A

Improve Watershed Health, Resiliency, and Capacity for Natural Storage

Lead Agencies

ODA, ODEQ, ODF, ODFW, DSL, OWEB

Supporting Agencies

BLM, BPA, DLCD, NOAA, NRCS, OPRD, OWRD, USBR, USFS, USFWS

Partners

Tribes, local governments, utilities, private landowners, watershed councils, SWCD's, non-profits, forest collaboratives

Background

Protecting and restoring ecological function to Oregon's watersheds supports adaptation to disturbance and climate change, provides habitat, protects water quantity and quality for humans and the environment, and supports Tribal access to First Foods. Many riparian areas, floodplains, wetlands, estuaries, and uplands have been significantly modified by human activities over the last 150-200 years. Restoration of Oregon's natural infrastructure provides many human and environmental co-benefits and can be a more cost-effective solution to constructing built infrastructure to accomplish things like water storage, flood control, and temperature regulation.

Example Actions

- Protect and restore watersheds to build climate change resiliency
- Improve and protect riparian conditions to provide habitat and protect create a healthy buffer between sensitive aquatic ecosystems and adjacent land use and development to be protective of water quality standards and terrestrial ecosystems
- Restore meadows, wetlands, and hydraulic connectivity to side channels and floodplains to maintain critical functions like processing nutrients, providing habitat, and natural storage storing water
- Protect and restore estuarine conditions to maintain a healthy buffer between the natural mixing of freshwater and marine systems and allow for safe tidal inundation to build resiliency for sea level change and flooding
- Establish methods for measuring ecosystem services and incorporate results into planning efforts (moved to 7A)
- Protect and restore beaver habitat and beaver-modified habitat
- Protect and restore floodplains and native riparian-floodplain vegetative communities
- Protect upland and forested areas, in part to maintain source water quality. Identify and implement actions to protect and maintain drinking water source areas quality and quantity in upland and forested areas
- Collaborate with Tribes and the state to prioritize locations targeted for protection and restoration and restore access to First Foods
- Invest in restoration projects led by Tribes, low-income communities, and communities of color to discover new approaches and best management practices that meet community goals for clean water
- Support juniper removal (where applicable) and the development of marketable juniper products
- Strengthen protections under Oregon Statewide Land Use Planning Goal 4 which limits development on non-federal forestlands.

Resources

Agency Programs

BPA's Fish and Wildlife Program, Private Forest Accord Grant Program, OWEB Grant Programs, Oregon Conservation and Recreation Fund, ODFW Private Forest Accord Mitigation Program, OWRD Water Projects Grants and Loans, ODF's Forest Resources and Uran and Community Forest Programs

Documents/Websites

[Oregon Plan for Salmon and Watersheds](#)

[Oregon's Conservation Strategy](#)

[Oregon Forest Practices Act \(January 2024\)](#)

[Oregon's Agriculture Water Quality Management Plans \(38 total\)](#)

[Oregon Removal/Fill Guide](#)

[The Beaver Restoration Guidebook](#)

[ODFW's 3-Year Action Plan for Beaver-Modified Landscapes August 2022 – 2025](#)

[South Slough National Estuary Research Reserve](#) (research regarding watershed health and resiliency)

Commented [KP268]: Waters and watersheds.....

Commented [KP269]: Missing "fish and wildlife"; they generally do not fall under "the environment" which is more about habitat not species.

Commented [KP270]: And "waters", e.g. rivers, streams, wetlands, aquifers

Commented [KP271]: Have changed meaning; make sure this was drafted by ODFW. Delete word "sensitive"

Commented [KP272]: Again, check with ODFW

Commented [KP273]: And actual beavers. Suggest adding to: Promote beaver co-existence to increase prevalence of beaver modified floodplains

Commented [KP274]: Suggest striking. This is not universally supported. Moreover, "the development of marketable juniper products" has nothing to do with "healthy ecosystems". If you keep juniper removal in pls tie to OWEB's standards, as required by statute (HB 2010) which passed in 2023) and strike the marketable juniper products. Without these changes, this bullet could have detrimental impacts on ecosystems. Possible language: support juniper removal where best available science plans for subsequent land use practices support findings of likely improvements to watershed health.

Commented [KP275]: Check with agency leads

Healthy Ecosystems

Action 10B

Protect and Restore Instream Habitat and Fish Passage/Screening

Lead Agencies

DSL, ODEQ, ODF, ODFW, ODOT, OWEB, OWRD

Supporting Agencies

BPA, BLM, NFWF, NRCS, NOAA, USBR, USEPA, USFS, USFWS

Partners

Tribes, local governments, utilities, private landowners, watershed councils, SWCD's, non-profits

Background

The quality of instream habitat has been degraded by modifications to rivers and streams including floodplain development, channelization, large woody debris and riparian vegetation removal, and bank instability worsened by livestock access. Changes in the hydrologic regime, older culverts, and many dams or other impassible barriers have greatly reduced historically accessible habitat for many aquatic species. Appropriate fish screening and fish passage barrier removal should be coupled with stream channel restoration efforts to improve habitat conditions.

Example Actionss

- Continue to update the inventory of fish passage barriers and high priority screening sites
- Remove fish passage barriers and support fish screening efforts
- Build upon existing ecological planning and restoration efforts by incorporating fish screening and passage needs and enhancing instream habitat conditions (e.g., water quality, channel complexity)
- Update streamflow restoration priority areas using new species distribution, and climate change projections, hydrologic data, and water quality impairments related to low flow
- Couple stream restoration projects with voluntary flow restoration projects (see Action 10C)
- Restrict livestock access to riparian areas and streambeds through cooperative fencing programs/efforts
- Provide financial and technical assistance for landowners implement projects that improve fish habitat and mitigate risks to natural resources (e.g., road construction with fish-friendly culverts, large wood placement)
- Identify opportunities to fund fish screening and/or adding or improving fish passage at the time of FERC hydroelectric project relicensing or when adding hydroelectric generation to an unpowered dam

Resources

Agency Programs

DSL's Waterways & Wetlands, ODFW Fish Screening and Passage Program, ODFW Water Program, ODFW Western Oregon Stream Restoration Program, OWRD Dam Safety Program, ODOT Environmental Program

Funding

ODFW's Oregon's Fish Screening and Passage Cost Sharing Program, OWEB's Grant Programs, ODF Small Forestland Investment in Stream Habitat (SFISH) Program
Many Federal Sources: BPA, BLM, USDA-NRCS, NFWF, USEPA, USFS, USFWS, NOAA

Documents

[Oregon Plan for Salmon and Watersheds](#)
[Oregon Conservation Strategy](#)

Northwest Power and Conservation Council's Strategy for Salmon
2020 ODOT's Routine Road Maintenance: Water Quality and Habitat Guide Best Management Practices

Commented [KP276]: Odfw should draft

Commented [KP277]: Suggest adding action: Prevent new obstructions that impair fish passage

Commented [KP278]: NOTE: this language in previous iterations was meant to capture dam removal. Author's have wholly changed the meaning of this section by changing the title from 2017 (access to habitat, to the above which is fish passage/screening)

Commented [KP279]: Shouldn't be limited to cooperative

Commented [KP280]: This should not be limited to "landowners"; this excludes conservation groups and others who work on restoration projects.

Commented [KP281]: DELETE: fish passage laws and/or reauthorization statutes are triggered by these actions, so these are already requirements. It is up to the dam owner to pay, not the state. OPPOSE inclusion if the intent here is to put the state on the hook for private projects.

Lead Agencies

ODEQ, ODFW, OPRD, OWRD

Supporting Agencies

BPA, DSL, NFWF, NOAA, OWEB,
USGS

Partners

Tribes, irrigation districts, private landowners,
Deschutes River Conservancy, National Fish and
Wildlife Foundation, Pelton Round Butte Water
Fund, The Freshwater Trust, Trout Unlimited

Background

In many areas of Oregon, streamflows are very low or even non-existent during late summer months, which may be exacerbated by water withdrawals for irrigation, drinking water, industrial processes, hydropower, and other beneficial uses. During a drought, low, or no-flow conditions can extend for many months of the year, threatening aquatic species' short and long-term survival. Low streamflows often mean higher water temperatures and increased nutrient concentrations, contributing to poorer water quality. During the winter, high flows are necessary to maintain aquatic habitat and trigger migration.

Example Actions

- Designate Scenic Waterways where needed to protect recreation, fish, and wildlife uses
- Designate Outstanding Resource Waters where needed to protect extraordinary water quality or ecological values
- Establish additional instream water rights where needed to protect the full suite of flows for fish and wildlife, water quality, recreation, and scenic attraction
- Utilize voluntary OWRD programs including Allocation of Conserved Water and instream transfers and leases
- Expand education, funding opportunities, and use of voluntary programs to protect and restore streamflow, lake levels, and cold water refugia
- Expand the geographic range and increase effectiveness of flow restoration efforts by identifying flow restoration priorities and focusing resources to priority areas
- Update ODFW Rules (OAR 635-400; last modified in 1989) to incorporate a broader range of techniques to determine flow amounts to protect ecosystem needs
- Effectively regulate and enforce water rights (Also See Actions 12F and 12G)

Resources

Agency Programs

ODEQ's Outstanding Resource Waters, ODFW Water Program, OPRD Scenic Waterways, OWRD's Water Rights Services Division

Policies

Allocation of Conserved Water Act, Instream Water Rights Act, Scenic Waterway Act, ODEQ's Antidegradation Policy, Outstanding Resource Waters Policy

Funding

OWEB Grant Programs, OWRD Water Projects Grants and Loans, BPA & NFWF Columbia Basin Water Transaction Program

Documents/Websites

- OWRD Allocation of Conserved Water Program
- OWRD Instream Transfer Program
- OWRD Instream Leasing Program
- Oregon Plan for Salmon and Watersheds

Commented [KP282]: Would just say conservation groups; WW wrote the instream water rights act, have been instrumental in moving forward SWW and instream rights, etc. Other conservation groups (not named) have also been very active. Listing is exclusionary and works against the principle of inclusion.

Commented [KP283]: This doesn't capture the gist of the problem; which is even the most stable of rivers can be completely dewatered because of Oregon's past water allocation decisions. This makes it seem like it is mostly weather related and only exacerbated by withdrawals. This doesn't frame things accurately; Consumptive water withdrawals have decimated Oregon's streams across the landscape.

Commented [KP284]: ADD: Modernize Oregon's Drought Statutes to incorporate more robust tools for ecosystem protection

Commented [KP285]: Add full scope of policy, so to this sentence add "or where it is needed to maintain critical habitat areas". Without the full directive stated; some could use this to limit scope of state support of designation

Commented [KP286]: I would change to "promote" or at least somehow make clear that establishing instream rights is NOT depended on voluntary programs.

Commented [KP287]: I "funding" is included with regards to voluntary programs; but not state programs (e.g. iswr, sww, etc). State programs also need funding. Either attach funding to all or put all funding messaging in Chap 1, Funding.

Commented [KP288]: Not universal agreement on this

Lead Agencies

ODA, ODEQ, ODF, ODFW, OSMB

Supporting Agencies

OWEB, USDA, USFS

Partners

Tribes, OSU Extension Service, private landowners, watershed councils, SWCD's

Background

The Oregon Invasive Species Council defines an invasive species as a non-native species that can cause economic or environmental harm or cause harm to human health. It can be a plant, animal, or any other microorganism that enters an ecosystem beyond its native range. Invasive species disrupt the natural function of an ecosystem by competing and replacing native species and disrupting the natural habitat. Preventing and removing invasive species helps support watershed health and resiliency.

Example Actions

- Support and continue funding for the Aquatic Invasive Species Prevention Program
- Support and continue funding for the Oregon Invasive Species Council
- Identify and implement projects to support the Oregon Conservation Strategy's seven statewide actions to prevent new introductions, and decrease the scale and spread of infestations
- Continue to implement and enforce ballast water management regulations
- Provide technical assistance and landowner education for invasive species detection and potential control and management actions on agricultural and forestlands
- Prioritize eradication projects that can be complimentary to water quantity projects
- Couple invasive species eradication with native species restoration efforts (see 10A)
- Support protection of culturally significant plants, animals, and ecosystems from invasive species

Resources

Agency Programs

ODA's Insect Pest Prevention and Management Program, ODFW & OSMB's Aquatic Invasive Species (AIS) Prevention Program, ODF Forest Health Unit, OWEB Grant Programs

Workgroups

[Oregon Invasive Species Council](#)

Documents/Websites

- [Oregon Statewide Strategic Plan for Invasive Species \(2017-2027\)](#)
- [Oregon Conservation Strategy](#)
- [ODA Noxious Weed Profiles](#)
- [ODA Insect Pest Alerts](#)
- [USDA National Invasive Species Information Center](#)
- [ODF Forest Health Unit](#)

Commented [KP289]: Unclear of why we would prioritize this? Seems like the state should prioritize work to address the highest risk. It would be great if that also is complementary of water quality; but to tie it to that could decimate certain populations and/or could be used to narrow agency discretion

Healthy Ecosystems

Actions 10E Develop Additional Groundwater Protections

Lead Agencies
ODEQ, OWRD

Supporting Agencies
DLCD, DOGAMI, ODFW

Partners
Tribes, local governments,
utilities, well owners

Background

Groundwater discharge contributes to springs, wetlands, and streamflow throughout the state. Contributions from groundwater support ecosystems and human systems alike. Protecting groundwater from over-use or contamination benefits groundwater-dependent ecosystems as well as existing water users. This action acknowledges the need for additional voluntary, incentive-based, and regulatory approaches to achieve sustainable groundwater management.

Related Actions 11A-11C, and 13A address specific ways to prevent sources of groundwater contamination.

Example Actions

- ~~Develop a long-term plan~~ **Implement actions** for sustainable groundwater management **through voluntary, incentive-based, and regulatory means**
- Develop clear objectives and metrics **for defining sustainable groundwater management**
- ~~Sketch out the necessary timelines, staffing, and resource needs~~
- **Protect groundwater through proper well construction (also see Actions 11A, 13A)**
- **Identify and protect and/or restore springs, cold water discharge to surface water, and wetlands (also see Action 10A)**
- **Prioritize resources where frontline communities are experiencing unsafe drinking water, with potentially serious health consequences**

Commented [KP290]: This was in fact a state directive that the OWRC/OWRD started on under Chair Robert's direction; previous OWRD Director Byler put on hold and it has not re-emerged; but should. IWRS should still direct of development of comprehensive gw plan (beyond the allocation rules, e.g. enforcement) AND also implement. Maybe break out into 2 sections.

Commented [KP291]: Is this defined anywhere? It seems like we as a state should work to ensure all oregonians have access to safe drinking water....

Also, shouldn't this go under 11 E, which is all about safe drinking water?

Resources

Agency Programs

ODEQ Water Quality Program, OWRD Technical Services Division, OWRD Policy Section

Agency Policies

The Groundwater Act of 1955, The Groundwater Quality Act of 1989, Areas of Groundwater Concern, Groundwater Management Areas

Documents

[2019 ODEQ Groundwater Quality Protection in Oregon](#)

Tools to protect water quality, and thereby protect public health and the environment, are shared among many entities. Actions described throughout this section are needed to further the protection of our drinking water, reduce the use and exposure to toxic chemicals and other pollutants, and reduce point and nonpoint sources of pollution of our surface and groundwater through sound land management and implementation of regulatory authority.

Ensure the Safety of Oregon’s Drinking Water

Drinking water is vulnerable to contamination from many potential threats. Climate change contributes to decreases in supply, increases in contaminant concentrations, and the potential for harmful algal blooms (HABs). Some drinking water contaminants, such as bacteria, can cause acute health effects that generally occur within a few days or weeks. Prolonged exposure of chemical contaminants, such as nitrate or arsenic, can cause cancer or organ damage.

Action 11A
Ensure the Safety of Oregon’s Drinking Water

Part 1 provides an overview of the laws and regulations protecting surface and groundwater quality and drinking water quality. The Oregon Health Authority and water system operators are instrumental in making sure the water that enters our homes is safe for consumption and use. Links to Part 1 are provided for the following:

- Federal Safe Drinking Water Act
- Oregon’s Drinking Water Quality Act
- Oregon’s Reduction of Lead in Drinking Water Act
- Oregon’s Domestic Well Testing Act

Drinking Water Source Protection

Whether people obtain their drinking water from a private well, a small community system, or a large municipal system, the original source of that water is from groundwater, surface water, or a combination of the two. Therefore, the means for protecting the safety of Oregon’s drinking water includes protecting those sources. Protecting the source of our drinking water can be accomplished by many parties, including individuals, private landowners, businesses, municipalities, tribes, and agencies. Land use planning, land use management, land acquisition, proper well construction, and wellhead protection are all useful ways to protect Oregon’s drinking water.

Land Use Planning – Described in Chapter 2, land use planning has the potential to protect drinking water sources from incompatible land uses. Data regarding the location of drinking water supplies (e.g., private wells, watersheds for municipal systems) can be used to inform land use zoning. Planning and implementing low impact development techniques can protect water resources. Also see Strategy Actions 3B, 5A, and 5B.

Land Use Management – The way we manage land for urban, agricultural, and forestry uses impacts the quality of water within a given watershed. Land management practices such as limiting stormwater runoff, minimizing erosion, limiting use of pesticides and herbicides, maintaining septic systems, and maintaining healthy vegetation and stream buffers can all reduce impacts to our shared water resources. Existing laws and regulations aim to limit the pollution of surface and groundwater sources but require adequate resources to implement and enforce. Also see Strategy Actions 10A, 11B, 11C, 12G, and 13A.

Land acquisition – Responsible land acquisition and ownership of land within a community’s drinking water source area is an effective way to manage water quality and quantity. Land ownership includes land management, this creates the opportunity to implement practices that maximize watershed health, groundwater recharge, and natural

Commented [KP292]: Please re-insert the background narrative on this, it is much more holistic and includes concepts of environmental justice.

This whole section appears to have been substantially changed; cross check with DEQ.

Commented [KP293]: Not seeing the word “nitrate” anywhere in this section (?); e.g. look to morrow/umatilla problem.

Commented [KP294]: Enforcement, etc.

filtration. Limited water supply options on the coast have led many coastal communities to prioritize acquisition of their watersheds to protect the quality and reliability of their water supply. The 2023 Legislature ([House Bill 2010](#)) allocated \$5 million and directed the Oregon Watershed Enhancement Board to develop a fund to “protect, restore, or enhance sources of drinking water,” which can be used for land acquisition.

Proper Well Construction – Proper well construction is critical for anyone using groundwater for domestic, municipal, industrial, environmental monitoring, or agricultural purposes. The Well Construction and Compliance Section at the Water Resources Department is responsible for several program areas to ensure that wells are properly constructed, altered, maintained, and decommissioned to prevent contamination, loss of artesian pressure, and waste of Oregon’s groundwater resources. Also see Strategy Actions 10E and 13A.

Wellhead Protection – A local government could choose to protect any wellhead protection area that is within their jurisdiction. Often wellhead protection areas extend into other jurisdictions, for example, from a city into a county. Periodic review of a county comprehensive plan may increase the opportunity to adopt protections for wellhead protection areas identified by a city. Also see Strategy Actions 3B, 4B and 5A.

Source Water Assessments for Public Water Systems

A source water assessment evaluates the potential contamination sources to a public water supply. An assessment is used to develop and voluntarily implement a drinking water protection plan. The Department of Environmental Quality has completed source water assessments for public water supplies that use surface water as their source. The Oregon Health Authority is updating delineated drinking water source areas and potential contaminant inventories for groundwater-supplied systems.

Many municipal watersheds are located on U.S. Forest Service lands, however source areas for smaller communities often include multiple private and public landowners. Source water assessments include property ownership information that allows drinking water providers to involve potentially affected parties when developing protection strategies for source water protection.

Source water assessments also provide key information that enable communities to focus limited resources on higher risks within their drinking water source area. The information can be supplemented with local water system and community knowledge and help address local water quantity and water quality challenges.

Desalination

Rising sea levels, over-pumping, or storm surges may lead to salt-water intrusion in some coastal aquifers.²⁵ Desalination is a technique that allows communities to stretch limited water resources by removing salt and other contaminants using reverse osmosis technology. Some of the greatest challenges to building a desalination plant include intense energy requirements to treat the water; expansive coastline to site an energy source, pumps, pipes, inflows, and outfalls; damage to marine organisms during water intake; and brine disposal options. These challenges make desalination one of the most expensive sources of drinking water.

In spite of the challenges associated with desalination, California has decided to invest in desalination, including it in [California’s Water Supply Strategy: Adapting to a Hotter Drier Future](#).²⁶ The California strategy acknowledges a

Find Data on Public Water Systems

<https://yourwater.oregon.gov/>

Oregon Health Authority Drinking Water Services maintains an online searchable platform to display data on public water systems in Oregon. You can find data such as coliform and chemical test results, violations, enforcements, public notices, and basic system information, such as sources used, treatment applied, and contact information.



preference for projects that desalinate brackish water instead of seawater, as much less energy is required to treat brackish water. California is part of the US Department of Energy's five-year \$100 million desalination innovation hub, looking for technological solutions to the challenges associated with desalination.

Regulating Public Water Systems

The Oregon Health Authority administers and enforces drinking water quality standards for public water systems. Public water systems are defined as having more than three service connections (i.e., hookups) or serving more than 10 people year-round. Service connections are defined as a piping connection that conveys water from a public water system to a user's premise (e.g., real estate and the structures on it). For example, a standpipe at a campground or RV park is not a "premise" so all standpipes at the campground are considered as one "connection." Public drinking water systems are regulated differently, depending on how many people they serve and/or the number of service connections.

The Oregon Health Authority has developed a [Public Water System Classification Guide](#) to help classify different types of public water systems into community, non-transient/non-community, transient non-community, and Oregon very small water systems. Oregon Health Authority maintains a webpage outlining [Oregon Drinking Water Rules](#), including recent rulemakings that address arsenic treatment monitoring and lead service lines.

Oregon Very Small Water Systems - Effective January 1, 2022, water systems that were called "State Regulated" have been renamed to "Oregon Very Small" (OVS) systems. The technical description of an OVS is a system serving 4 to 14 service connections and commercial or public premises used by 10 to 24 people at least 60 days per year. State resources to regulate or support these systems are limited, leaving OVS users potentially exposed to contaminants in drinking water. These systems would benefit from state technical support regarding contaminant standards, source water treatment options, and best practices to help prevent drinking water contamination. The [Oregon Health Authority website](#) provides several links to helpful resources for Oregon's very small water systems.

The Oregon Legislature has recently demonstrated support for increasing resources for OVSs. House Bill 2010 (2023) allocated funding for the Oregon Association of Water Utilities to study the needs and vulnerability of small and very small community water systems, design and construct water utility training center, and for the state to hire staff to provide related support and resources.

Private and Domestic Sources

Private and Domestic Wells – In rural areas, private wells are more commonly used to provide drinking water than public water systems. In fact, more than 90 percent of people living in rural areas rely on groundwater from such wells to meet their drinking water needs. The Safe Drinking Water Act applies to public water systems; however, it does not regulate private wells providing water for fewer than 25 individuals.

Pursuant to Oregon's Domestic Well Testing Act, the owner of a property with a private well must test for nitrate, coliform, and arsenic, but only if the property is being sold or changing ownership. There is currently no authority for the Oregon Health Authority to enforce this requirement. Public health officials estimate a 10 to 20 percent compliance rate. An amendment to the Domestic Well Testing Act requiring laboratories to electronically report testing results associated with a real estate transactions could increase compliance and improve public safety.

The Oregon Health Authority's Environmental Public Health Program administers the [Domestic Well Safety Program](#), providing information about water quality testing, treatment, maintenance, and other resources. In 2015, the Water Resources Department partnered with Oregon Health Authority to develop and distribute a [Water Well Owners Handbook](#) for rural homeowners.²⁷

Private and Domestic Surface Water Systems – In rural areas, some private and domestic water supplies are sourced from surface water. Just like domestic wells, these systems are not regulated for drinking water quality.

Contaminants of Emerging Concern (CECs)

Improved testing methods now reveal some chemicals previously undetected during sampling events. These chemicals referred to as “contaminants of emerging concern” (CECs) because the risk to human health and the environment associated with their presence, frequency of occurrence, or source may be unknown. State and federal agencies are working to improve the understanding of a number of CECs, particularly pharmaceuticals, personal care products, and perfluorinated compounds, among others. Increased monitoring of public drinking water for CECs can determine the occurrence and concentration of contaminants. This data is crucial to assess whether and how such contaminants may pose individual, cumulative, or synergistic health risks to the public. This monitoring data can be used in conjunction with the U.S. Environmental Protection Agency’s [Unregulated Contaminant Monitoring Rule](#) data to evaluate connections among source sensitivity, potential contaminant sources in the area, and overall system vulnerability to contamination.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) – The recent discovery of the widespread presence of perfluoroalkyl and polyfluoroalkyl substances (PFAS) in drinking water sources has gained attention from the U.S. Environmental Protection Agency and will likely result in future testing and treatment requirements. PFAS are also referred to as “forever chemicals” as they break down very slowly. The [Oregon Health Authority’s website](#) provides a list of potential health risks from PFAS including reproductive, developmental, liver, kidney, and immunological effects. Between 2021 and 2023, the Oregon Health Authority sampled 143 public water systems, finding that 22 of the systems had detections of at least one PFAS compound. Sampling results can be found at [Drinking Water Data Online](#).

The U.S. Environmental Protection Agency is continuing to study PFAS. Their [website](#) provides resources for better understanding the topic, and actions they are taking to address PFAS.

Manganese – Manganese is a naturally occurring element found in rocks, soil, water, air, and the food we eat. Humans need to consume small amounts of manganese to stay healthy. Some parts of Oregon have been identified as having elevated manganese in their drinking water which, may not be safe for long-term consumption. With additional study, manganese may eventually become regulated under the Safe Drinking Water Act. The Oregon Health Authority has developed a Manganese Fact Sheet in [English](#) and [Spanish](#).

Drinking Water Emergencies

Equipment failures, harmful algal blooms, natural hazards including drought (Action 6A), floods (Action 6B), and earthquakes (Action 6C), and chemical releases/spills (also see Action 11B) are just some events that can contribute to drinking water emergencies. The Oregon Health Authority requires public water systems to develop and maintain an emergency response plan. Community water systems serving more than 3,300 people also must conduct a risk and resilience assessment.

Oregon’s statewide emergency response system must be designed to quickly respond to drinking water emergencies. All water providers should be encouraged to join the [Oregon Water/Wastewater Agency Response Network](#), a statewide mutual aid agreement specific to water and wastewater agencies that provides access to equipment and personnel. The Regional Disaster Preparedness Organization and the Regional Water Providers Consortium in the Portland Metro area are two such networks that can help with the development of regional emergency preparedness, response and recovery, and coordination of resources.

Access and Affordability

Access to drinking water in Oregon is not equitable, with some people experiencing contaminated water coming from their tap, others unable to afford their utility bills, while others lack water access in [workplaces](#). The [State of Water Justice in Oregon report](#) and [Secretary of State Advisory Report 2023-04](#) outline these and many other challenges facing frontline communities across the state.

Commented [KP295]: Also in homes (e.g. multi-month emergency at Warm Springs)

House Bill 2010 (2023) directed the Legislative Policy and Research Office to research and report on approaches and funding sources for an ongoing statewide assistance program for low-income ratepayers of drinking water, wastewater, and stormwater services. This legislation also expanded eligibility for the Water Well Abandonment, Repair, and Replacement Fund (WARRF) to cover household water wells with contamination levels that exceed drinking water standards. The Water Resources Department administers the WARRF program, prioritizing financial assistance for low-to-moderate income households in areas impacted by drought or wildfire.

Addressing water access and affordability at a statewide scale will continue to be challenging, as water distribution happens at many scales (e.g., domestic well, municipal water system, etc.) and does not lie within the purview of one agency. Solutions to water access and affordability will need to reflect the varied circumstances found across urban and rural parts of the state.

Reduce Use of and Exposure to Toxics and Other Pollutants

Protecting Oregonians from the impacts of toxic pollutants is a top priority for the Department of Environmental Quality and Oregon Health Authority. Thousands of toxic chemicals are in products that are used daily. Old chemicals that may not be sold today but are stored in homes, schools, and businesses also pose risks. These chemicals are released into Oregon's air, water, and land as toxic pollutants in a variety of ways. Once in the environment, toxic pollutants can adversely affect the health of people and other living organisms. Additional pollutants including plastics and micro-plastics also pose risks to human and aquatic life, with the full impact of these waste products still being studied. Accidents, including chemical spills and train derailments also pose environmental and public health risks, emphasizing the need for prevention, planning, and expedient clean-up. Toxic pollutants that affect air, land, and water quality intersect with and become cumulative their impacts disproportionately affect frontline environmental justice communities.

Action 11B
Reduce the Use of and Exposure to Toxics and Other Pollutants

Addressing permitted discharges of pollutants, TMDLs, point and nonpoint sources of pollution, are covered in Strategy Action 11C.

Toxics Reduction Strategy

Oregon Department of Environmental Quality's 2018 [Toxics Reduction Strategy](#) emphasizes collaboration and partnerships with other agencies and organizations to reduce priority toxic chemicals in the environment and exposure to such chemicals by people.²⁸ The Strategy emphasizes reducing toxic pollutants at the source, rather than managing them after they are generated. In addition, [Executive Order No. 12-05](#) ("Environmentally Friendly Purchasing and Product Design") provides additional support for Department of Environmental Quality's Toxics Reduction Strategy by focusing the work of other state agencies on reducing toxics.²⁹ The Executive Order has become the official policy of the Department of Administrative Services and resulted in low toxicity procurement guidelines for state agencies, and other public entities that join state price agreements.

Two other high priority short-term actions identified in the 2018 Toxics Reduction Strategy were to expand and enhance the Pesticide Stewardship Partnership program and ensure support for pesticide waste collection events.

Water Quality Pesticide Management Plan

As the lead agency for the Federal Insecticide, Fungicide, Rodenticide Act, the Oregon Department of Agriculture's Pesticides Program holds the primary responsibility for pesticide registration and use regulation. Oregon's Pesticide Management Plan for Water Quality Protection outlines the roles, policies, and legal authorities of each government agency with responsibilities to protect Oregon's water resources from pesticides and the process by which these activities will be coordinated. Under this plan, the Oregon Department of Agriculture created an interagency team, the Water Quality Pesticide Management Team (WQPMT), composed of representatives the Department of Forestry, Department of Environmental Quality, Oregon Health Authority, Oregon Department of Fish and Wildlife, and Oregon State University. The goals of the WQPMT are to:

- Select and prioritize pesticides of interest and pesticides of concern;
- Establish guidelines and reference points;
- Conduct watershed vulnerability assessments;
- Design, conduct, and guide monitoring efforts (including the Pesticide Stewardship Partnership Program monitoring);
- Recommend and facilitate management options; and
- Develop communication strategies.

Pesticide Stewardship Partnerships

The Pesticide Stewardship Partnership (PSP) Program, led by the Oregon Department of Agriculture, is a voluntary program that relies on local partnerships to monitor pesticide levels in waterways and implement solutions to protect water quality while managing pests and maintaining crop yield. Efforts include technical assistance, outreach, and education-based projects. The PSP works as a feedback loop with the water quality sampling data continuously being used to evaluate pesticides of concern, the effectiveness of education, and collaborative projects on an annual basis. Many pesticide users support the PSP Program because it allows for voluntary pesticide management changes prior to the possibility of regulatory action by the Department of Environmental Quality.

The goals of the PSP Program are to:

- Identify potential concerns and improve water quality affected by pesticide use around Oregon.
- Combine local expertise in water quality sampling results to encourage voluntary changes in pesticide use and management practices.
- Find ways to reduce pesticide levels while measuring improvements in water quality and crop management.
- Advance measurable environmental improvements, making Oregon waters safer for aquatic life and humans.

As of 2023, there are PSPs established in nine watersheds: Amazon, Clackamas, Hood River, Middle Deschutes, Middle Rogue, Pudding, Yamhill, Walla Walla, and Wasco. PSP areas and sampling locations can be found at the [Oregon Department of Agriculture website](#). Several of the partnerships have shown improvements in water quality in response to education created around water quality data and subsequent changes in pesticide management practices. These successes demonstrate the Pesticide Stewardship Partnership approach can be an effective alternative to traditional regulatory approaches dealing with "nonpoint" sources of chemicals in water.

Pesticide Waste Collection – Pesticide waste collection events are part of the PSP program and provide an opportunity to bring pesticides from agricultural growers and other commercial or institutional pesticide users for free disposal. Some state pesticide collection funds are transferred to county and regional entities (representing Hood, Sherman, and Wasco counties) that operate permanent hazardous waste collection facilities to support periodic free agriculture pesticide collections for local growers and other pesticide users.

Contaminated or Hazardous Sites

Sites, facilities, or structures that were once used for industrial, military, transportation, energy, or other purposes may have historical releases of hazardous substances that pose a threat to water resources. The nature and degree

of such threats depend on the types and amounts of contaminants, when they were released, the likelihood of migration to surface water or groundwater, and remedial actions completed, if any.

Addressing hazardous and contaminated sites is not only important for protecting environmental and public health, but can also lead to economic development opportunities for local communities. The redevelopment of brownfields—sites where future use may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant—is changing the way contaminated property is perceived and addressed. In Oregon, brownfields have been cleaned up and turned into new businesses and creating new jobs. Brownfield redevelopments include urban community gardens; mixed-use developments that include housing, retail, and commercial facilities this includes food bank operation centers; thrift stores; and health-care centers in rural Oregon communities. Community health concerns and environmental justice are integrated throughout brownfield redevelopment and reuse planning to prevent future exposure to contamination.

Underground Storage Tanks – Oregon’s Leaking Underground Storage Tank Program, administered by the Department of Environmental Quality, identifies and addresses hazardous or contaminated sites and prioritizes investigative and remedial actions based on threats to human health and the environment – with a focus on protecting sensitive water resources. Site owners complete most work on a voluntary basis, with program oversight. The program uses enforcement mechanisms to eliminate or treat discharges to sensitive water resources as needed. This includes use of the Department of Environmental Quality’s Orphan Site Account when site owners are unknown – or unable (and in some cases unwilling) – to perform immediate cleanups.

Abandoned and Derelict Vessels – There are hundreds of hazardous boats and ships in Oregon’s public waterways, including large tugboats, barges, and former military vessels as well as recreational vessels. In April 2023, the Department of State Lands began working to propose a comprehensive program for abandoned and derelict vessels in Oregon, including identifying funding needs and potential sources. The passage of [House Bill 2914](#) (2023) directed the Department of State Lands to develop the program in coordination with other state agencies including the State Marine Board, Department of Environmental Quality, and the State Parks and Recreation Department.

Polychlorinated Bisphenyls (PCBs) – Monsanto Company manufactured many products (e.g., coolants, hydraulic oils, paint, caulk, copy paper, etc.) that contained PCB’s. PCB’s are highly toxic and were banned in 1977, however, they persist in Oregon’s land and water. In December of 2022, [Monsanto was ordered to pay Oregon \\$698 million](#) to address remediation associated with PCBs. House Bill 1561 (2024) has resulted in the establishment of the Oregon Environmental Restoration Fund to distribute money received from the Monsanto Settlement Agreement.

Unused Medications

Often, unused or expired medications are disposed of by flushing down drains in homes, care facilities, medical clinics, and hospitals. Wastewater treatment plants and septic systems, depending on the level of treatment, may only partially treat pharmaceuticals which allows certain chemical compounds to reach surface water or groundwater resources. Risks to aquatic organisms by long-term exposure to pharmaceuticals is still being studied.

More than 50 Oregon communities have established permanent, free collection boxes for unused medications, which can be located at the [Oregon Health Authority website](#). The U.S. Drug Enforcement Agency offers a national drug take-back event twice a year, in April and October. The Oregon Department of Environmental Quality also administers a [drug take-back program](#), in partnership with the Oregon Board of Pharmacy.

Public Health Advisories

Public health advisories alert the public to water quality issues and help prevent exposures to toxics and other pollutants that may negatively impact human health. Millions of people participate in recreational activities each year, including harvesting shellfish, fishing, swimming, boating, and enjoying Oregon’s coastline. State agencies use a variety of approaches and tools to protect people living, working, and playing near beaches, rivers, lakes, and

other water bodies. In addition to advisories, it is critical that land management activities do not contribute to further water quality degradation (see Action 11C).

Harmful Algal Bloom (HAB) Advisories – An overgrowth of cyanobacteria in lakes, rivers, and ponds can result in the development of a harmful algal bloom (HAB), which can produce extremely dangerous toxins (cyanotoxins) that can sicken or kill people and animals. HABs have become increasingly common across Oregon, impacting recreational waters as well as drinking water supplies. In July 2018, the City of Salem’s drinking water source, Detroit Lake, became contaminated with cyanotoxins, causing a public health emergency. Since then, the Oregon Health Authority has developed regulations that require drinking water systems using surface water sources susceptible to HABs to routinely test for cyanotoxins. Additional cyanotoxin resources for drinking water can be found on the Oregon Health Authority [website](#). See Action 11C for the Department of Environmental Quality’s HABs Strategy for reducing the occurrence of HABs.

The Oregon Health Authority is the agency responsible for posting warnings and educating the public about HABs at waters used for recreation. In Oregon, HAB advisories are issued for lakes, reservoirs, and rivers only after a lab has verified the presence and quantity of a harmful algae species or the toxins they produce. Current cyanobacteria recreational advisories can be found on the Oregon Health Authority [website](#).

The Oregon Beach Monitoring Program – The Oregon Health Authority and the Department of Environmental Quality are responsible for monitoring recreational water quality at coastal beaches in Oregon. Marine waters are tested for the bacterium enterococcus, which is an indicator of the presence of other illness-causing organisms. Enterococcus is present in human and animal waste and can enter marine waters from a variety of sources such as streams and creeks, stormwater runoff, animal and seabird waste, failing septic systems, sewage treatment plant spills, or boating waste. When bacteria levels are above normal, a water contact advisory is issued.

The goal of the program is to protect public health by providing information about water quality, monitoring water quality standards at beaches, and promoting scientific research. The public can sign up for [email alerts](#) to receive notices when advisories have been issued at certain beaches.

Fish and Shellfish Consumption – When fish and shellfish accumulate toxic chemicals because of legacy contamination, spills, or toxic algal blooms, they can pose health risks to those who consume them. The Department of Environmental Quality establishes the level of protection needed to ensure public health, by setting human health toxics criteria based on fish consumption rates. Oregon’s fish consumption rate is 175 grams per day is one of, if not the highest in the nation, in recognition of the consumption rates by tribes, subsistence fishers, and Asian and Pacific Islanders in the Pacific Northwest. The Oregon Health Authority issues [fish consumption advisories](#), due primarily to moderate-to-high mercury levels or PCBs (polychlorinated biphenyls) found in locally-caught fish. The Departments of Agriculture and Fish and Wildlife jointly issue [shellfish safety closures](#) to protect recreational shellfish harvesters from consuming clams or mussels contaminated with harmful biotoxins. The Department of Agriculture also maintains an online website with biotoxin results, recent news releases, and encourages the public to call the shellfish safety hotline before harvesting.

Implement Water Quality Pollution Controls

In addition to reducing the use of toxics and notifying the public of health risks (Action 11B), it is important that land management activities and their associated point and nonpoint sources of pollutants are managed to protect water quality for humans and the environment. As described in Part 1, the Clean Water Act, administered by the Oregon Department of Environmental Quality, provides the regulatory structure for addressing point and nonpoint sources of pollution.

Action 11C Implement Water Quality Pollution Controls

Total Maximum Daily Load (TMDL) Implementation

A Total Maximum Daily Load (TMDL) describes the maximum amount of a pollutant from all sources: municipal, industrial, commercial, surface runoff and background; that can enter a waterway without violating clean water standards associated with the Clean Water Act. TMDL implementation involves actions to be taken across agricultural, forest, urban, and rural residential land uses to reduce pollutants and improve water quality.

It is important to continue developing and implementing TMDL plans for waterbodies that do not meet water quality standards. This includes developing TMDLs for the remaining waterbodies and pollutants on Oregon's 303(d) impaired waters list and for those added in the future, in accordance with the federal Clean Water Act. It also includes reviewing and updating existing TMDLs and providing oversight to ensure that TMDL implementation measures are effective. By the end of 2023, the Department of Environmental Quality completed 46 TMDL actions that require pollutant reduction on more than 200,000 miles of streams and rivers in Oregon. In total, these TMDLs address 28 water quality parameters listed on the 303(d) list of impaired waters. The map in Figure 4-2 summarizes the number of parameters that have been addressed by a TMDL for each subbasin in Oregon. The full list of water quality parameters addressed can be found on the [Department of Environmental Qualities website](#).

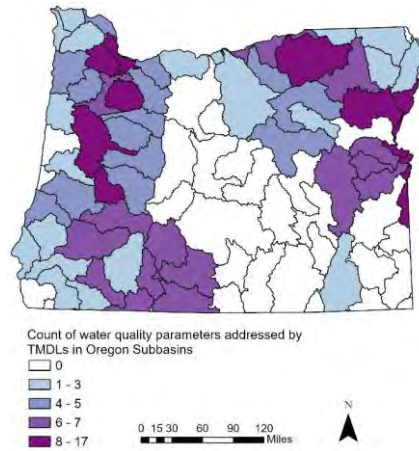
Oregon's Nonpoint Source Management Program Plan

A nonpoint source of pollution is any pollution entering a waterbody that does not come directly from a visible source such as a pipe or ditch. Unlike end-of-pipe (point source) pollution that originates from industrial and sewage treatment plants, nonpoint source pollution comes from many diffuse sources, including runoff from agricultural, forest, and ranching activities, construction sites, home landscaping, and road surfaces.

The Department of Environmental Quality leads the development of the statewide [Nonpoint Source Management Program Plan](#), which identifies programs and actions that will be implemented by multiple state agencies, local governments, non-governmental organizations, and local citizens. The Program's multi-agency strategy, including the Departments of Agriculture and Forestry, involves using water quality management programs in conjunction with regulatory, voluntary, financial, and technical assistance. The program's primary components are assessment, planning, implementation, and education.

The federal Clean Water Act provides states, territories, and tribal governments opportunities for funding, commonly referred to as Section 319 grants. These grants can be used for technical assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects. In 2010, Oregon was awarded more than \$1.38 million in Section 319 grants for 33 projects that address nonpoint source pollution. Since 2015, the amount of 319 funds Oregon has received annually has been reduced by 30-percent due to the disapproval of the states Coastal Nonpoint Source Pollution Program under the Coastal Zone Reauthorization Amendment (CZARA). In 2022 and 2023 only \$135,067 and \$137,567, respectively, in 319 grant funds were available to support on the ground projects from the state's total 319 allocation. To receive additional funding, Oregon must meet CZARA requirements.

Figure 4-2: Number of 303(d) listed parameters addressed by TMDLs in each Oregon sub-basin



The Nonpoint Source Management Program Plan refers to many other state programs that manage nonpoint sources of pollution. A selection of these programs is described, below.

Agricultural Water Quality Management Plans – The Department of Agriculture’s Agricultural Water Quality Program is part of the state’s effort to address the federal Clean Water Act, ensuring that farmers and ranchers do their part in meeting water quality standards. There are 38 area [Agricultural Water Quality Management Plans](#) and rules around the state. Water quality specialists with the Department of Agriculture work with farmers, ranchers, community leaders, and other interested parties who serve as members of local advisory committees for each management area. Each committee identifies local agricultural water quality problems and opportunities for improvement.

Coastal Nonpoint Pollution Control Program – The Coastal Zone Act Reauthorization Amendment (CZARA) established the national Coastal Nonpoint Pollution Control Program requiring coastal states to address nonpoint source pollution. The Departments of Land Conservation and Development and Environmental Quality lead the state’s management of the program. Oregon has not met CZARA requirements since 2015 due to forestland management issues. New rules and rule revisions to the Forest Practices Act in 2022 are expected to result in improved water quality associated with private forestland management along the coast.

Farm Bill Programs – There are several Farm Bill conservation programs, administered through the Natural Resources Conservation Service, for agricultural producers and landowners. Oregon ranchers have worked with public and private sector partners to install and monitor effective habitat restoration techniques, including fencing and building stock water troughs to protect sensitive riparian areas from livestock.

Forest Practices Act Implementation – Non-federal forestland is managed in accordance with the Forest Practices Act (see Part 1), as well as individual management plans based on geographic area (Northwest, Southwest, and Eastern Oregon). Example actions that can help prevent pollution of waterways include leaving vegetated buffers adjacent to streams, road placement and drainage to minimize runoff, and avoid harvesting on steep slopes.

Harmful Algal Blooms (HABs) Strategy – Once a waterbody is identified as having HABs, the Department of Environmental Quality is responsible for investigating the causes, identifying sources of pollution, and writing a pollution reduction plan. The Department developed a [Harmful Algal Bloom Strategy in 2011](#) to describe and recommend improvements to an overall strategy that they can implement in order to prevent and control, where possible, HABs in Oregon.³⁰ In 2023, the Department also published a [Freshwater Cyanobacteria Harmful Algal Blooms Strategy](#) that supports the continued implementation of many of the actions in the 2011 Strategy, but is written more specifically for agency staff and identifies additional needs to expand current operations³¹.

Commented [KP296]: Should import the directives of the 2023 legislation, including direction on studying the causes

Stormwater in Urban Areas

Stormwater runoff often contains pollutants that can adversely affect water quality. Strategy Action 5B calls for promoting low impact development and green infrastructure practices to reduce and manage stormwater. Strategy Action 13A supports the need to maintain and upgrade stormwater infrastructure, which is often a combination of built and natural infrastructure.

National Pollutant Discharge Elimination System (NPDES) permits, issued by the Department of Environmental Quality, are required for certain stormwater discharges that leave a site through a “point source,” often a pipe, and reaches surface waters either directly or through storm drainage. A municipal separate storm sewer system, or “MS4,” is a conveyance or system of conveyances (e.g., roads with drainage systems, municipal streets, catch basins, curbs, gutters, manmade channels or storm drains) owned or operated by a governmental entity that discharges to waters of the state. The population of an urban area determines whether they require an MS4 discharge permit. Oregon needs to ensure the effective management and oversight of stormwater in urbanized areas through the implementation of NPDES and MS4 permits, TMDL Implementation Plans for Urban Designated Management Agencies, best management practices, or through comparable voluntary plans.

Septic Systems in Rural Areas

State law provides the Department of Environmental Quality with regulatory authority over on-site (e.g., septic) sewage treatment and disposal. More than one million Oregonians, or about 35 percent of the state’s population, use on-site sewage systems, also known as septic systems. Most of these are single-family homes in rural areas without access to community sewer systems.

A failing septic system increases the risk of contamination of both surface water and groundwater and can be a public health hazard. Septic systems are required to be inspected at the time of construction to ensure they are correctly installed and functioning properly. Ongoing maintenance carried out by the system owner is critical to avoid system failures. Businesses that install septic systems or provide pumping services are regulated through a statewide licensing program. The Department of Environmental Quality provides direct service for on-site system permitting and installation in the counties of Baker, Coos, Curry, Grant, Jackson, Josephine, Morrow, Union, Wallowa, and Wheeler. The 26 remaining counties work directly with their local governments for permitting and installations, with oversight from the state.

The Department of Environmental Quality has established a new program, [Oregon Septic Smart](#), to provide Oregonians with easy access to information and improve access to certified industry professionals that can perform septic system inspections. The Department also administers an Onsite Financial Aid Program to provide grants and low-cost loans to address failing septic systems. The program will utilize \$15 million in federal American Rescue Plan Act funds that the 2021 Oregon Legislature allocated to the Department. The Department maintains a list of additional financial resources for onsite septic systems on their [website](#).

ADD SECTION

Commented [KP297]: Suggest adding a section “water withdrawals and water management” that discusses how water withdrawals and water management contribute water quality problems by making water bodies more susceptible to pollution and creating return flows that contribute to water pollution as both point (e.g. wastewater discharge) and nonpoint (e.g. irrigation runoff) sources of pollution.

Clean Water

Action 11A Ensure the Safety of Oregon's Drinking Water

Lead Agencies
ODEQ, OHA, OWRD

Supporting Agencies
ODA, ODF, USEPA, USFS

Partners
Tribes, local governments, utilities, municipalities, domestic well owners

Commented [KP298]: Again, missing conservation groups

Background

Whether people obtain their drinking water from a private well, a small community system, or a large municipal system, the original source of that water is from groundwater, surface water, or a combination of the two. Therefore, the means for protecting the safety of Oregon's drinking water includes protecting those sources, for example, through thoughtful land use planning, land use management (including ecological restoration, Action 10A), land acquisition, proper well construction, wellhead protection, and implementation of a drinking water protection plan.

Climate change may contribute to variabilities in supply, increases in contaminant concentrations and harmful algal blooms (HABs), and decreases in access and affordability of drinking water. Municipalities, utilities, and small/very small water systems that deliver drinking water need adequate resources to address the increasing challenges associated with climate change and changing regulatory environment. Upgrading and maintaining infrastructure (Action 13A) also contributes to protecting Oregon's drinking water.

Example Actions

- Assist drinking water systems of all sizes; increase technical, administrative, and funding resources for small and very small water systems (less than 15 connections)
- Protect drinking water sources (e.g., proper well construction, onsite septic system maintenance, responsible land management, nutrient reduction, riparian/upland/forest restoration, watershed land acquisition)
- Increase understanding of occurrence and health implications of contaminants of emerging concern (e.g. pharmaceuticals, personal care products, microplastics, perfluoroalkyl and polyfluoroalkyl substances (PFAS)).
- Encourage water providers to join the Oregon Water/Wastewater Agency Response Network
- Increase domestic well testing and provide updated support materials and education (including translations, when needed) (Also see Action 7A)
- Amend Domestic Well Testing Act to require laboratories to electronically report domestic well testing results associated with real estate transactions to the state
- Increase resources for education, outreach, monitoring, and treatment for disadvantaged/underserved domestic well users
- Support resiliency efforts for maintaining operation of drinking water systems during emergencies (e.g., solar/renewable energy, battery storage)

Commented [KP299]: Other important tools, e.g. flow restoration, enforcement against illegal use, etc

Commented [KP300]: Again, because not comprehensive it lends less import to other causes (e.g. nitrates, etc)

Commented [KP301]: You already got to this in bullet 5

Resources

Agency Programs

ODA's Agriculture Water Quality Program, OHA/ODEQ Drinking Water Protection Program, ODEQ's Underground Injection Control Program, OHA's Drinking Water State Revolving Fund, upcoming OWEB grants for source water protection

Workgroups

Drinking Water Advisory Committee

Policies

Clean Water Act, Safe Drinking Water Act, Domestic Well Testing Act, Forest Practices Act, Reduction of Lead in Drinking Water Act

Reduce the Use of and Exposure to Toxins and Other Pollutants

Lead Agencies

DSL, ODA, ODEQ, ODF, OHA

Supporting Agencies

DAS, ODFW, ODOT, OWEB, USEPA

Partners

Tribes, OSU, PSU, local governments, farmers and farmworkers, utilities

Commented [KP302]: Conservation groups

Background

Protecting public health and the environment from the impacts of toxic pollutants for all Oregonians is a top priority for ODEQ and OHA with regard to air, water, and land. Thousands of toxic chemicals are in products that individuals and businesses use daily. Old chemicals that may not be sold today but are stored in homes, schools, farms, and businesses also pose risks, including herbicides, pesticides, and fertilizers. Whether used in their raw form or in products, these chemicals can be released into Oregon's air, water, and land. Once in the environment, toxic pollutants can adversely affect the health of people and other living organisms. The accumulation of toxins in fish is a major concern for high fish consuming populations including many tribal members. Actions are needed to both reduce the use of toxics and adequately notify the public when health risks are present.

Example Actions

- Update and implement the Department of Environmental Quality's 2018 Toxics Reduction Strategy
- Implement green chemistry executive order, including revising purchasing practices related to toxic chemicals
- Update and implement Water Quality Pesticide Management Plan
- Support Pesticide Stewardship Partnerships and enhance program to focus on environmental justice communities
- Continue "take back programs" and develop partnerships with community-based organizations and tribes to facilitate culturally relevant "take back programs"
- Continue to identify and address hazardous or contaminated sites, including brownfields and abandoned, derelict vessels
- Prevent blue-green algae (including Harmful Algal Blooms or HABs) from forming beyond natural background levels and support advisory/notification efforts
- Update the 2011 Harmful Algal Bloom Strategy to reflect current climate, health, and equity factors and priorities
- Support implementation of the 2023 ODEQ Freshwater Cyanobacteria Harmful Algal Bloom Strategy
- Monitor recreational waters and inform the public when contaminants are present, including communications to reach non-English speaking, low-income, tribal, and rural residents and businesses
- Update Oregon's water quality criteria for toxic pollutants to protect aquatic life and human health based on the latest science
- Support programs and organizations to help communities and utilities prepare for and respond to chemical spills
- Engage historically or currently impacted communities in design of toxics source reduction and clean-up efforts so that they can experience the benefits of the effort, such as utilizing Community Benefits Agreements

Commented [KP303]: Insert ag related pollutants

Commented [KP304]: Also identify sources, this was included in the 2023 bill on this subject

Commented [KP305]: "and ecosystems"

Resources

Agency Programs

ODA Agricultural Water Quality Management Program, Pesticide Stewardship Partnership, ODEQ Air, Land, and Water Programs, ODOT's Spill Prevention, Control and Countermeasure Program, DSL's Abandoned and Derelict Vessels Program, OHA's Safe Drinking Water Program and fish consumption/HABs advisory programs, DEQ's drinking water source water protection program, OWEB Grant Programs

Policies

Executive Order No. 12-05 ("Environmentally Friendly Purchasing and Product Design"), Forest Practices Act

Workgroups

Abandoned and Derelict Vessels Workgroup, ODEQ Team Toxics, Water Quality Pesticide Management Team, Legislative Policy & Research Office Harmful Algal Bloom Workgroup, Coordinated Streamside Management

Documents

2018 ODEQ Toxics Reduction Strategy, 2023 ODEQ Freshwater Cyanobacteria Harmful Algal Blooms Strategy, 2011 Oregon's Water Quality Pesticide Management Plan for Water Quality Protection

Lead Agencies

ODA, ODF, ODEQ

Supporting Agencies

ACOE, BLM, ODFW, ODOT, DSL, NRCS,
USEPA, USFS

Partners

Tribes, private landowners, private
businesses, local governments, utilities,
irrigation districts, SWCD's, watershed
councils

Commented [KP306]: Conservation groups

Background

Land management activities and their associated point and nonpoint sources of pollutants must be managed to protect water quality for humans and the environment. The Clean Water Act, administered by the Oregon Department of Environmental Quality, provides the regulatory structure for addressing point and nonpoint sources of pollution in the state. The Oregon Department of Agriculture and Department of Forestry play important supporting roles.

Commented [KP307]: Title should add "enforce" in addition to "implement"

Nonpoint sources of pollution include runoff from agricultural, forest, and ranching activities, construction sites, home landscaping, and road surfaces. The ODEQ Nonpoint Source Pollution Program requires resources to address these sources of pollution using water quality management programs, in conjunction with regulatory and voluntary compliance and financial and technical assistance.

Oregon must continue developing and implementing Total Maximum Daily Loads (TMDLs), or pollutant reduction plans, for waterbodies that do not meet Oregon water quality standards. This includes developing TMDLs for the remaining waterbodies and pollutants on Oregon's 303(d) impaired waters list and for those added in the future. It also includes reviewing and updating existing TMDLs and providing oversight to ensure that implementation measures are effective.

Example Actions

- Continue to develop and implement TMDLs for water bodies that do not meet water quality standards
- Continue to address nonpoint sources of pollution across all land uses
- ~~Increase monitoring and evaluate the effectiveness of pollution control plans~~ (moved to 7A)
- Ensure effective management and oversight of stormwater in urbanized areas
- Assist communities with septic system challenges, **including technical and funding resources for underserved communities**
- **Continue to update and revise TMDLs to conform with current temperature standards**
- **Continue to work with Designated Management Agencies, as defined in each TMDL, to achieve water quality standards**
- **Develop more programmatic implementation plans for common TMDL issues**
- **Continue to meaningful engage with communities within the boundaries of new and updated TMDL's**
- **Review TMDL prioritization process to ensure geographic equity among places with a completed and approved TMDL**

Commented [KP308]: Add actions: (1) Recognize role of water management and water withdrawals in meeting TMDL objectives (2) OWRD should participate in compliance as a Designated Agency or other Responsible Party.

Commented [KP309]: Note---this is of interest to state and national conservation groups, should not limit engagement to people living in basins, which this implies. Should adopt definition of "communities" created in the regional water management hb 5006 workgroup, which is very expansive and includes ecosystems. Water belongs to the public generally, not the counties they overlay.

Resources

Agency Programs

ODA Natural Resources Program, ODEQ Total Maximum Daily Load, Nonpoint Source Pollution, Water Quality Permitting, and Onsite Wastewater Management Programs

Funding

Clean Water State Revolving Fund

Policies

Clean Water Act, Forest Practices Act

Documents

[Agricultural Water Quality Area Plans \(38 total\)](#)

Water Quality Management Plans (and implementation plans for an approved TMDL)

2020 ODOT's Routine Road Maintenance: Water Quality and Habitat Guide Best Management Practices

Oregon has developed several helpful management tools to meet its water needs today and into the future. The techniques and tools discussed in the Strategy should be considered and evaluated as part of any effort to address Oregon's instream and out-of-stream water needs as effectively as possible.

Several such tools are described further in this section: determining unadjudicated water right claims, water-use efficiency and conservation, water reuse, built storage, non-traditional techniques, the importance of a strong field presence, and strengthening our water permitting programs.

Determine Unadjudicated Water Right Claims

Part 1 describes the process for obtaining water rights in Oregon, and the need to resolve claims to the use of surface water that predate Oregon's 1909 Water Code. Adjudication is a formal administrative judicial process where water right claims are quantified, documented, and eventually incorporated into the prior appropriation system. In addition to pre-1909 claims, federal and tribal reserved water rights are generally determined through an adjudication. There are similar procedures for conducting adjudications for groundwater uses that pre-date the Water Resource Department's authority to issue groundwater rights.

Action 12A
Determine Unadjudicated Water Right Claims

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

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

The remaining unadjudicated areas for surface water consist primarily of river basins located west of the Cascades. In some instances, federal reserved rights, including tribal claims, still have not been determined in basins that have been adjudicated. Tribes and federal agencies play an important role in the resolution of water rights claims in basins throughout the West. The need to resolve tribal and federal rights in Oregon is real and significant.

Commented [KP310]: This really undersells what management in, and leaves out critical pieces such as regulation, permit condition enforcement, enforcement against waste, fishing restrictions, etc.

Also, built storage is supply not management. Out of stream needs should have a section separate from management; this is a carry over problem from past iterations. It really makes no sense.

Improve Water-Use Efficiency and Water Conservation

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

Action 12B Improve Water Use Efficiency and Water Conservation

This section notes many of the programs and funding resources that exist today and makes recommendations for improving access to information, incentives, and program participation. The next section, “Encourage Water Reuse” addresses the water savings that might be gained from a reuse or recycled water project, Action 12C.

Water Conservation within the Home and Cities

Water conservation is a tool that can be implemented in any water use sector, and much has already been done to conserve water within our homes and businesses. Replacing certain appliances, such as toilets, dishwashers, and washing machines with more water efficient models, adding faucet aerators to bathroom and kitchen sinks, or installing low flow showerheads to use less water are common activities today. However, outdoor water use for residential or municipal irrigation (e.g., lawns, parks, and golf courses) provides a continued opportunity for water savings. The U.S. Environmental Protection Agency notes that outdoor water use accounts for more than 30 percent of total household water use, on average, but can be as much as 60 percent of total household water use in arid regions.³² Water-saving technologies such as irrigation controllers, soil moisture sensors, and rain sensors can be incorporated into irrigation systems to improve their efficiency.

Commented [KP311]: Can also be “mandated”.....and should during drought periods (drought statutes allow)

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

Commented [KP312]: Appreciate this language, but the 2024 version removes zero scaping and taking water off irrigated lands from the narrative? This was part of the 2017 narrative. Took out a lot here actually.

WaterSense Program - WaterSense, a partnership program started by the U.S. Environmental Protection Agency in 2006, offers a quick and simple way to find water-efficient products and services. A WaterSense label means a product has been certified to use at least 20 percent less water, save energy, and perform as well as or better than regular models. Since the program’s inception through the end of 2022, it has helped consumers save a cumulative 7.5 trillion gallons of water and \$171 billion in water and energy bills. In Oregon, more than 40 organizations, including non-profits, drinking water providers, and various distributors promote WaterSense labeled products.³³

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

Municipal Water Management and Conservation Plans – Described in Part 1, some municipal water providers are required to prepare and submit a Water Management and Conservation Plan to the Water Resources Department. Examining conservation-based rate structures is a required element of Water Management and Conservation Plans. As a result, some water providers have modified their water rates, further driving down demands for water.

Water Conservation within Industry

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

Water-intensive industries in particular have an opportunity to use more efficient processes, or even recycled water (see Action 12C), for washing or flushing, in industrial processes, in chillers, and in cooling towers. Several water providers offer walk-through inspections to help commercial customers detect leaks or develop additional water-saving ideas. Some businesses also take the opportunity to convert their greenspaces to xeriscapes, or to install weather-based irrigation systems to improve irrigation efficiencies.

Water Conservation within Agriculture

Diverting an estimated 80 percent of the total water diverted in the state, agriculture is the largest user of water in Oregon, and therefore, offers the highest chance of conserving measurable amounts of water.³⁴ Statewide efforts should focus on increasing voluntary conservation and efficiency efforts in the agriculture sector. This could result in significant water savings statewide. Although there are several water conservation and efficiency technologies already in use by the agricultural community, there needs to be an increase in funding and incentive opportunities.

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

The potential for reduced return flow or injury to other water users are also factors to consider when designing a water conservation project. Piping, lining, or other water efficiencies can greatly reduce the quantity and rate of return flows that traditionally make their way back to the stream or groundwater reservoir. However, return flows can also be a major source of nutrient, sediment, and thermal loading to waterbodies. Some Agricultural Water Quality Management Plans call for a reduction in return flows for that very reason.

A number of funding resources exist to help water users make water-use efficiency gains. The Bureau of Reclamation offers competitive WaterSMART Water and Efficiency Grants, providing grants for water and energy efficiency projects. Examples of past awards to Oregon irrigation districts have helped pay for piping or lining canals and ditches and installing telemetry systems and related micro-hydro projects.³⁵ Federal funding for this program has been enhanced through the Bipartisan Infrastructure Law, which designated \$140 million for Water and Efficiency grants in 2023. Other funding sources are available from USDA's Natural Resources Conservation Service, Oregon Water Resources Department, and Oregon Watershed Enhancement Board.

Agricultural Water Management and Conservation Plans – Introduced in Part 1, irrigation districts and other agricultural water suppliers may be required to prepare and submit a Water Management and Conservation Plan to the Water Resources Department. Application of appropriate conservation tools may also lead to an increase in available water supplies to better meet their patrons' crop demands. Irrigation districts with plans approved by the Water Resources Department can take advantage of certain statutory provisions that allow the transfer of water rights from one district user to another to prevent forfeiture of the rights due to non-use.

Allocation of Conserved Water Program – Described in Action 10C, Oregon's Allocation of Conserved Water Program allows a water right holder who plans to implement a water conservation project to legally use a portion of the conserved water on additional lands, while another portion is permanently protected instream. Examples of eligible conservation projects include lining or piping open or leaky canals or ditches, or changing from a less efficient water distribution system, such as flood irrigation, to sprinkler or drip irrigation.

Commented [KP313]: OWRD should look at it's own rules, including but not limited to OAR 690-410 which creates a pathway for irrigation efficiency standards by basin, and also mandates enforcement against waste, etc

Commented [KP314]: These "can" but don't guarantee; if keep in change to "can contribute". As we understand it, there is some illegal use happening here, e.g. storing water without a permit, etc.

Commented [KP315]: Most of these also went through the Conserved Water Act

Commented [KP316]: As has TU, DRC, etc. Its more inclusive to say "conservation groups".

Future Water-Use Efficiency and Conservation Programs

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

Conservation tools, such as those offered by the Alliance for Water Efficiency and the Water Research Foundation that help entities calculate the economic benefits of conservation programs, are good examples to feature in the clearinghouse. Having analytical tools easily available is of critical importance in determining the feasibility of investing in water efficiency and conservation programs. Lastly, because water and energy are so closely tied, water conservation goals and efforts should be coordinated with energy efficiency programs, see Action 14B.

Encourage Water Reuse

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

Action 12C
Encourage Water Reuse
Projects

Reusing water can provide many benefits to both water quantity and quality. Reuse can provide a benefit to water quantity by reducing the demand on municipal drinking water. In general, recycled water places fewer demands on freshwater, leaving more water instream or in the ground for other uses. Laws allowing reuse projects take into consideration potential environmental and public health impacts.

Reuse Terminology

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

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

Agency Roles

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

The Department of Environmental Quality is the lead agency in regulating the use of recycled water. The Department of Fish and Wildlife identifies potential impacts to fish and wildlife and instream flow targets from proposed projects.

The Water Resources Department refers to recycled water as “reclaimed” water. The Department determines whether the reclaimed water use will cause harm to other water rights; it also tracks the reclaimed water use in the Water Rights Information System database, noting the source of the water and where and how the water will be

Commented [KP317]: Removed from narrative 2017 language about “removing irrigated landscapes” and “net zero systems”. Impt for the state to recognized these vital efficiency tools (e.g. summer peaks associated with lawn watering are driving, unnecessary, municipal growth in places like central Oregon).

Commented [KP318]: This section has been greatly expanded; but other critical actions related to fish/wl/streams have been cut. Unclear why.

Commented [KP319]: Only if standards are adhered to (and frankly need to be bolstered)

Commented [KP320]: Note, the reclaimed water statutes require sign off by ODFW to ensure there is no harm to fish/habitat in the stream that has traditionally benefit from the returning water.

reused. The Water Resources Department has two exemptions in statute where a new water right permit is not needed for recycled water; when water is used for municipal purposes and when groundwater associated with an industrial or Confined Animal Feeding Operations permit is used for irrigation.

Types of Reuse

Three general categories of water reuse include:

- **The Use of Graywater** – Graywater refers to water from showers, baths, bathroom sinks, kitchen sinks, and laundries. Graywater can be reused for limited activities, such as subsurface irrigation, with minimal treatment. Homeowners and small businesses can reuse graywater for toilet and urinal flushing with the appropriate plumbing permit from a local building department. Outdoor reuse of graywater can occur by carefully planning reuse activities and obtaining a Water Pollution Control Facility graywater reuse and disposal system permit from the Department of Environmental Quality.
- **The Use of Domestic Recycled Water** – Recycled water refers to treated effluent from a municipal wastewater treatment facility. Oregon has approximately 340 wastewater treatment facilities and there are more than 120 municipal facilities operating recycled water programs throughout Oregon. Communities have been taking advantage of State Revolving Fund loans for developing and upgrading recycled water systems, with seventeen such requests in 2022 alone.
- **The Use of Industrial Wastewater** – Industrial wastewater refers to treated effluent from an industrial process, manufacturer or business, or from the development or recovery of any natural resource. An example of industrial wastewater is water derived from the processing of fruit, vegetables, or other food products. A more recent development in industrial wastewater is the water left over from use as cooling water in data centers throughout Oregon.

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

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

Recent Legislative Support

In 2023, the Oregon Legislature enacted provisions for expanding the application of reuse. The Department of Environmental Quality, in consultation with other state agencies such as the Water Resources Department, must submit a report to the Legislature in 2024 that addresses:

- Changes agencies can make to their internal policies, guidance, or processes to increase reuse
- Recommended changes needed to administrative rules, or new rules needed
- Recommended changes need to amend existing law, or new laws needed
- Programmatic needs to support access to water reuse and beneficial land application projects
- Technical assistance resources and incentives needed to support jurisdictions in evaluating and pursuing reuse and beneficial land application projects

Innovative Approaches

Direct-Potable Reuse – Direct-potable reuse refers to the treatment of wastewater to a quality high enough that it can be used for drinking water. The technology used to accomplish this treatment is often at the municipal scale and includes reverse osmosis or other membrane technology. Direct potable reuse projects can include piping

highly treated water directly into a water distribution system or blending the treated water with raw water supply right before the drinking water treatment plant. States that commonly experience water supply shortages, such as Texas and California, have been using direct-potable reuse and other states are positioned to follow. In 2013, Texas became the first state to operate a direct potable reuse facility in the country.³⁶

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

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

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

Portland Living Building – The PAE Living Building in Portland provides a novel example of water conservation and reuse. The five-story office building collects rainwater from its roof to provide 100 percent of the buildings water demand. Graywater is collected, treated, and reused onsite, and composting toilets reduce water demand and wastewater production. The building was opened to the public in 2022.

Improve Access to Storage

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

Action 12D Improve Access to Storage

In Oregon today, there are more than 15,000 water rights authorizing the storage of surface water in reservoirs. Another 5,000 ponds were registered with the state in the mid-1990s. The Water Resources Commission adopted the state’s water storage policy, identifying water storage as an integral part of Oregon’s strategy to enhance public and private benefits from use of the state’s water resources.³⁷ The policy acknowledges that both structural and nonstructural methods should be used in Oregon to store water, with preferences for storage that optimizes instream and out-of-stream public benefits and beneficial uses. In 1993, the Oregon Legislature codified the state’s policy regarding water storage facilities, declaring it a high priority to develop environmentally acceptable and financially feasible multipurpose storage projects, and to enhance watershed storage capacity through natural processes using non-structural means (e.g., floodplain restoration). Watershed protection and restoration to improve natural storage capacity is addressed Action 10A.

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

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

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

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

The state has issued authorizations for approximately 20 ASR and 10 AR projects. The reasons for aquifer storage range from municipalities that need to supplement their water supplies for their communities, as in the case of Baker City and the City of Beaverton, to farmers and ranchers, who can use the tool to supplement irrigation water during the summer months. A barrier to advancing AR/ASR projects includes a lack of Water Resources Department's agency staff capacity. Figure 4-3 compares both technologies.

Figure 4-3: Comparing Artificial Recharge and Aquifer Storage and Recovery Technologies

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

Identifying Potential Below-Ground Storage Sites – In 2009, the Water Resources Department created an [inventory](#) of potential below-ground reservoir sites from past surveys conducted by different entities.³⁸ The purpose of developing the inventory was to create a clearinghouse of storage information. Unfortunately, no attempt was made to assess the ecological or economic feasibility of these sites, so additional work is needed to fully utilize the inventory. The Department has provided this information so that communities can avoid “reinventing the wheel,” in terms of site investigation.

Above-Ground Storage — Reservoirs

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

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

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

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

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

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

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

Evaluating Reservations for Storage – A reservation sets aside an amount of unappropriated water in some basins for storage to meet future needs. Although it assigns a priority date, it is not the same as a water right application or permit. For example, approval of a reservation does not mean that any future application will be approved, or that a reservoir may be constructed. Water users wishing to access reserved water must submit a water use application to the Water Resources Department, referencing the reservation. The Department then reviews the application based on current, applicable public-interest review standards and applicable basin rules regarding the reservation.

Reservations are in place in six basins: Grande Ronde, Hood River, Malheur, Malheur Lake, Owyhee, and Powder River, and are established by rule in basin programs.

Commented [KP321]: We are not sure further consultation is required given the 2019 BiOp on reallocation. Implementation should rely on the 2019 BiOp.

Commented [KP322]: Changed title from "identify non-traditional storage sites". The intent of the original language was to make clear state policy was targeting OFF CHANNEL sites; this change now makes it harder for reader to understand this right off.

Commented [KP323]: DELETE this phrase; even reservoirs on "very small streams" with "no effect on migration of fish and other aquatic life" will alter stream hydrology and water quality in significant detrimental ways that cannot reasonably be avoided.

Commented [KP324]: Delete. Any analysis should be limited to off channel storage

Commented [KP325]: This doesn't really capture it; authors should look at governing statutes and rules on reservations for future economic development. This could mislead readers about what tools are actually available.

Also removed the explanatory section of the 2017 iteration that informed the reader of how it interplays with allocation rules.

Reach Environmental Outcomes with Non-Regulatory Alternatives

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

Action 12E Reach Environmental Outcomes with Non-Regulatory Alternatives

Commented [KP326]: If going to have this section on non-regulatory alternatives; should also have a section titled "reach environmental outcomes with REGULATORY TOOLS"

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

Example Strategy Actions

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

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

Conservation Reserve Enhancement Program (CREP)

The Conservation Reserve Enhancement Program (CREP) is administered by the U.S. Department of Agriculture Farm Services Agency and supports private-land conservation. This voluntary program pays farmers and ranchers to remove environmentally sensitive land from production, paying them an annual rental rate and other incentives. A CREP contract period is typically 10-15 years. In 2018, eligible partners expanded beyond individuals, state and tribal governments to also include non-governmental organizations such as non-profits, private companies, and foundations.

Commented [KP327]: The harney CREP program requires them to permanently cancel their water rights

Water Quality Trading

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

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

The Deschutes Water Bank

The Deschutes River Conservancy is developing an expanded water bank program to help manage water resources in the basin. The Deschutes Water Bank provides a platform for both permanent and temporary voluntary water transactions among water users in the region. The goal of the Bank is to support flexible market-based opportunities to help address and balance complex water use and water management objectives. Example water

Commented [KP328]: This is pilot and has not been heavily vetted in any public forum.

transactions include permanent instream transfers, instream leasing, irrigation district “district-to-district” transfers, and mitigation banking.

Provide an Adequate Field Presence

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

Action 12F
Provide an Adequate Field Presence

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

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

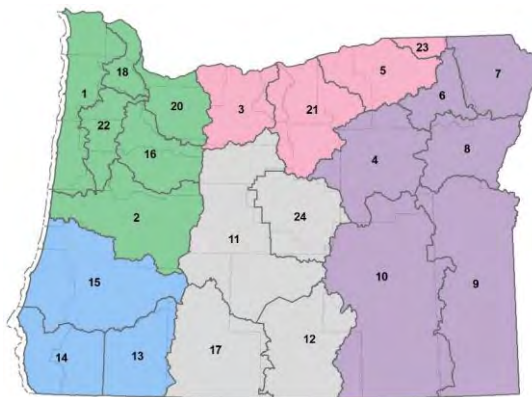
Inspections and Enforcement – Field personnel protect public and environmental health through inspections and enforcement activities. Field personnel conduct site inspections, confirm compliance with permit conditions, guard against waste and contamination, inspect for hazards, and pursue enforcement actions when necessary. Inspection activities associated with dam safety are supported by Action 13C.

Partnerships between the Oregon Liquor and Cannabis Commission, the Department of Agriculture, Water Resources Department, and local law enforcement have been instrumental in identifying and halting illegal water use associated with hemp and marijuana growing operations.

Water Distribution – At the Water Resources Department, field personnel implement [Oregon water law](#) and the Doctrine of Prior Appropriation. Under the Doctrine, field personnel—the state’s watermasters and assistant watermasters—are responsible for regulating and distributing water, curtailing the water use of junior water right holders during times of water shortage.

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

Figure 4-4: OWRD Watermaster Regions & Districts



Support Needed for Field Personnel

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

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

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

Coordination and Communication – Strengthening Oregon’s field-based work will require financial investments in communications equipment, information platforms, and outreach materials. It also means researching more efficient ways to coordinate and partner with other agencies to carry out our shared responsibilities. The Department of Fish and Wildlife and Water Resources Department are examples of state-agency partners. Department of Fish and Wildlife field staff provide expertise on instream flow needs and can help prioritize streamflow restoration efforts, water use measurement projects, and voluntary initiatives or projects. Department of Fish and Wildlife staff determine potential impacts to fish, wildlife, and habitats from proposed allocations of water and can recommend conditions and/or mitigation to offset the impacts.

Strengthen Oregon’s Water Quantity and Water Quality Permitting Programs

Several natural resources agencies in Oregon are engaged in water-related permitting. Just like the field staff described earlier, permit reviewers frequently answer calls or questions from water users, realtors, and others, conduct records research, and process case files. It is imperative that agencies have sufficient numbers of well-trained permitting staff in place to process requests in a timely, accurate manner.

Action 12G
Strengthen Water Quantity
and Water Quality
Permitting Programs

For staff to be effective, improving and expanding staff training and interagency coordination is critical. Investments need to be made to update technologies, manuals, and procedures that continue to improve transparency, efficiency, permit application processing time, and consistency between sections of the respective agency. Staff also need appropriate communications resources to inform permittees about their permit conditions.

Water Quantity Permits

As described in Part 1, the Water Resources Department administers several water right programs. Staff are responsible for preparing, reviewing, and processing water use permits, limited licenses, temporary drought permits, permit amendments, extensions, transfers (temporary and permanent), certificates, instream leases, conserved water projects, hydroelectric permits, reclaimed water use registrations, among others. The Department oversees water management and conservation planning efforts of local entities and completes adjudication proceedings.

There is a need for the Department to also evaluate each permitting program to ensure that it is helping the Department to accomplish its mission to ensure sustainable water supplies for both instream and out of stream purposes. For example, the Department is currently evaluating its groundwater allocations rules.

Water Right Permits and Certificates - In Oregon, reviewing water right permits is done in partnership with other state agencies. The Oregon Departments of Fish and Wildlife and Environmental Quality regularly review new water use permit applications to ensure that the proposed use is not detrimental to fish, wildlife, and habitats and the use is consistent with existing water quality standards, as outlined in Department rules. In many cases, a new permit application can only be approved if it is conditioned in certain ways or mitigation is provided to offset impacts due to water quality and quantity already being impaired across much of the state.

Failure to meet some permit conditions cannot be rectified and can result in cancellation of the permit. Early, up front customer service at permit-issuance helps water users avoid later compliance issues.

The Water Resources Department was allocated \$3 million of American Rescue Plan Act (2021) funding to work on water right related backlogs for the 2021-23 biennium. The Department focused resources on three major backlog areas: water rights, transfers, and reviewing claims of beneficial use for possible certificate issuance. Approximately \$1.5 million of the funding remained unused at the end of the biennium, however the 2023 Legislature reauthorized the remaining amount to be used on backlog reduction throughout the 2023-25 biennium. Figure 4-5 shows the progress that has been made on reducing the three different types of permit and certificate backlogs.

Commented [KP329]: Might be interesting to note that many applicants pulled their protested water rights when they were referred to contested case

Figure 4-5 Water Resources Department Backlog Reduction Efforts Between 2021 and 2024

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

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

Commented [KP330]: Should note need for environmental review of transfers; or at least note that that the status quo is no environmental review

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

Water Quality Permits

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

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

Water Use & Management

Action 12A Determine Unadjudicated Water Right Claims

Lead Agencies

OWRD

Supporting Agencies

USBR, ODEQ, ODFW

Partners

Tribes, private landowners

Background

In many parts of Oregon, landowners began using water long before the Oregon Water Code was enacted. Passage of the Water Code by the Legislature in 1909 established, for the first time in Oregon, a centralized administrative system for acquiring and recording rights to the use of surface water. These water rights are managed within a prior appropriation system of water allocation that gives priority to senior rights in times of shortage. Similar actions were taken for groundwater in the 1955 Groundwater Act. Court cases over the years have further established federal and tribal "reserved" water rights.

Adjudications may be conducted to determine pre-1909 Water Code surface water rights, and pre-1955 Groundwater Act groundwater rights, as well as federal and tribal reserved water rights. The ability to manage water resources has been greatly facilitated in those areas of the state where adjudications have been concluded. Adjudicating water right claims creates an enforceable system that is protective of senior users in times of shortage. Without the adjudication process, these claims cannot make calls for their water or take advantage of water management tools, such as transfers or leases.

Federal and tribal reserved water rights still have not been determined in many basins that have been adjudicated. The need to resolve tribal and federal rights in Oregon is real and significant.

Example Actions

- Conduct surface water and groundwater adjudications
- Settle federal reserved claims, including tribal claims

Resources

Agency Programs

OWRD's Water Rights Program

Documents

[Water Rights in Oregon](#)

Commented [KP331]: USFWS.

Commented [KP332]: Conservation groups

Commented [KP333]: No discussion of Klamath challenges?

Water Use & Management

Action 12B

Improve Water-Use Efficiency and Water Conservation

Lead Agencies

ODA, OWEB, OWRD

Supporting Agencies

ODEQ, ODFW, ODOE, USBR, NRCS

Partners

Utilities, municipalities, irrigation districts, individuals, farmers, ranchers, SWCD's, watershed councils, OSU Extension

Commented [KP334]: Conservation groups

Background

Water conservation is one of the more widely recognized approaches to managing water demand and stretching limited water supplies. Water conservation, as defined in state law, is a means of eliminating waste or otherwise improving the efficiency of water use by modifying the technology or method of diverting, transporting, applying, or recovering water. Water conservation can also be accomplished through reuse, addressed in Action 12C. Water conserved through the Allocation of Conserved Water Program can benefit water instream, Action 10C.

The state lacks a comprehensive program to lead a coordinated approach to conservation across multiple water use sectors to provide a central point of guidance, technical assistance, and information regarding existing incentives or funding resources. Additional incentives are needed to expand water conservation in Oregon.

Example Actions

- Establish a **comprehensive** water-use efficiency and conservation program that provides **incentives and** technical assistance to water users in all sectors
- Conduct a statewide water conservation potential assessment, **considering high priority water management needs**
- Prioritize **and provide funding for** agricultural water-use efficiency and conservation **projects (often saving energy and supporting Action 14B)**
- **Develop or continue municipal incentives (e.g., xeriscaping rebates, metering, tiered rate structures)**
- Develop an outreach strategy to expand participation in already-existing water-use efficiency and conservation programs
- **Develop outreach materials, a user-friendly website, and online clearinghouse that highlights best practices, funding, and technical resources**
- **Ensure disadvantaged communities are not overburdened by mandatory or voluntary water conservation measures**
- **Borrow best practices and experience from energy efficiency programs in implementing water efficiency programs**
- **Partner with broadly supported well-developed energy efficiency programs that also save water (See Action14B)**

Commented [KP335]: Add (1) "implement OAR 690-410 rules on conservation and efficiency, including setting agricultural efficiency standards statewide", (2) enforce against waste, etc

Resources

Agency Programs

OWRD's Water Management and Conservation Planning Program, OWRD's Allocation of Conserved Water Program

Funding

OWRD's Grants & Loans Program, Statewide Irrigation Modernization Program, OWEB Grant Programs, USBR's Water and Energy Efficiency Grants, Energy Trust of Oregon incentive programs

Resources

[Water Conservation Fact Sheets](#) (for residential, farm/ranch, and municipal users)

[Allocation of Conserved Water Program](#)

[Instream Lease](#)

[Instream Transfer](#)

[Water Projects Grants and Loans and Irrigation Modernization Funding](#)

[Guidebook for Municipal Water Management and Conservation Plan](#)

[Guidebook for Agricultural Water Management and Conservation Plan](#)

[Oregon Smart Guide: Rainwater Harvesting](#)

Alliance for Water Efficiency

Water Research Foundation

Water Use & Management

Action 12C Encourage Water Reuse Projects

Lead Agencies

ODA, ODEQ, OWRD

Supporting Agencies

OHA, ODFW, DCBS

Partners

Tribes, local governments, Oregon
Association of Clean Water
Agencies, Recode, utilities

Commented [KP336]: Conservation groups

Background

Water reuse is the practice of treating “used” water (or effluent) and making it available for another beneficial use. Examples include treating municipal wastewater effluent for golf course irrigation or treating and reusing water within a closed loop (e.g., industrial data center cooling). When considering water reuse, it is most cost effective to match the correct level of treatment to the planned secondary use of the water.

Reusing water can provide many benefits to both water quantity and quality. It can provide a benefit to water quantity by reducing the demand on municipal drinking water. In general, recycled water places fewer demands on freshwater, leaving more water instream or in the ground for other uses. Laws allowing reuse projects take into consideration potential environmental and public health impacts.

Example Actions

- Conduct a statewide assessment of the potential for additional water reuse, **considering impacts and benefits to water quantity and quality**
- Ensure that state agencies coordinate and communicate various policies, procedures, and regulations to facilitate reuse projects
- Provide incentives to increase and track water reuse
- **Complete evaluation and updates of ODEQ and OWRD water reuse programs as required in 2023 legislation (House Bill 2010)**
- **Develop technical assistance capacity to promote and inform water reuse practices and projects**
- **Develop and maintain adequate staffing to support increased utilization of state reuse programs**
- **Develop water reuse rules to ensure implementation of an effective and protective reuse program**
- **Connect reuse actions to the Water Management and Conservation Plan Program**
- **Explore opportunities for the state, tribes, and other interested parties to partner on water reuse projects**
- **Evaluate who benefits, or is negatively impacted by, reuse projects**

Commented [KP337]: This could be used to elevate funding for this work over other agency work; if going to include then please look at every action in the IWRS to ensure equity among agencies (e.g. fund ODFW to do instream work, fund DEQ, etc)

Resources

Agency Programs & Workgroups

ODEQ's Water Reuse Program, OWRD's Reclaimed Water Program, DCBS Building Codes Division

Funding

ODEQ Clean Water State Revolving Fund, OWRD Water Projects Grants and Loans

Websites

[Oregon Association of Clean Water Agencies](#)

[WateReuse.org](#)

[Recode](#), frequently asked questions about reuse alternatives

Water Use & Management

Action 12D

Improve Access to Storage

Lead Agencies

ODEQ, OWRD

Supporting Agencies

ODA, ODFW, USFWS, USBR, USACE

Partners

Tribes, local governments, utilities, irrigation districts

Background

Storage has the potential to extend access to water for both instream and out-of-stream uses during dry summer months and provide resilience in the face of climate change. The Oregon Water Resources Department can authorize storage in reservoirs or ponds through the water right permitting process. Oregon's storage policy acknowledges that both structural and nonstructural methods must be encouraged to enhance watershed storage capacity, with preferences for storage that optimize instream and out-of-stream public benefits and beneficial uses. In 1993, the Oregon Legislature codified the state's policy regarding water storage facilities, declaring it a high priority to develop environmentally acceptable and financially feasible multipurpose storage projects, and to enhance watershed storage capacity through natural processes using non-structural means (e.g., floodplain restoration). Restoration activities, which accomplish many other benefits including natural storage, are outlined in Action 10A.

Example Actions

- Encourage increased use of **environmentally acceptable** below-ground storage sites and practices
- **Assess and make improvements to the Aquifer Storage and Recovery and Artificial Recharge Programs to promote and increase the use of this tool**
- **Re-allocate water in federal reservoir systems that have not undertaken formal allocation processes in Oregon**
- **Carry out implementation of the Willamette Basin reallocation recommendations**
- Investigate potential off-channel sites for above-ground storage projects
- Evaluate the status of storage infrastructure, including the maintenance and rehabilitation needs of reservoirs, **and potential for expanding existing storage capacity**
- **Investigate the use of incorporate** existing reservations of water during planning efforts
- **Consider equity, environmental justice, and water insecurity in the prioritization of storage sites**

Commented [KP338]: I do think natural storage fits here

Commented [KP339]: Where is this coming from; have not heard this policy direction in public forums. Need to work in protection of water quality and quantity so that this directive is not used to try to advance increased use of tool regardless of environmental impact

Commented [KP340]: Why removing?

Commented [KP341]: Not sure what is meant by "recommendations"; suggest changing to "recommendations as directed by Congress in the Water Resources Development Act of 2020"

Resources

Agency Programs

BIZOR's Aquifer Recharge Due Diligence Grant and Forgivable Loan Program, OWRD Groundwater Hydrology Section and Water Projects Grants and Loans Program

Documents/Websites

[2009 OWRD Inventory of Potential Below Ground Storage Sites](#)

[OWRD Artificial Groundwater Recharge \(AR\)](#)

[OWRD Aquifer Storage and Recovery \(ASR\)](#)

Water Use & Management

Action 12E

Reach Environmental Outcomes with Non-Regulatory Alternatives

Lead Agencies

ODA, ODEQ, ODF, ODFW, OWEB, OWRD, USDA

Supporting Agencies

DSL, USEPA

Partners

Tribes, local governments, SWCD's, watershed councils

Background

Water conservation, reuse, and storage are a set of traditional tools for meeting water needs (Actions 12B-12D). These traditional water supply tools are used in conjunction with state and federal regulatory tools that protect water resources for future generations. Today, however, we also need to consider forward-looking approaches to meeting our collective and often competing demands for water and consider holistic strategies to meet water quality, water quantity, and ecosystem needs. These alternatives require strong partnerships with senior water users. Potential solutions include voluntary actions by water users that often include technical assistance from agencies. This action overlaps with programs described in Actions 10A-10C, 11B, 12B, and 12D.

Example Actions

- Assist in the Research and development of voluntary, non-regulatory tools to meet environmental outcomes
- Continue to develop water quantity and quality trading programs
- Develop protocols for translating streamflow restoration into credits and accounting strategies
- Investigate and establish incentives for voluntary efforts to achieve positive environmental outcomes
- Make improvements to transfer processes and develop potential adaptive transfer tools
- Develop an outreach strategy for informing the public about non-regulatory alternatives
- Support agencies to provide technical assistance regarding voluntary efforts
- Develop a voluntary agreement framework (O.R.S. § 537.745) for water right holders
- Partner in implementation of federal Conservation Reserve Enhancement Programs
- Identify community benefits from improved environmental outcomes
- Support the development of managed aquifer recharge and aquifer storage and recovery projects to improve water quantity and quality (also see Action 12D)

Resources

Agency Programs

ODA Strategic Implementation Areas, ODF & ODA Stewardship Agreement Program, ODEQ Water Quality Trading Rules, ODFW Grant and Tax Incentive Programs, OWEB Grant Programs, OWRD Transfer and Conservation Section, OWRD Water Projects Grants and Loans, Pesticide Stewardship Partnership, USDA Farm Services Agency Conservation Reserve Enhancement Program

Commented [KP342]: Conservation groups, irrigation districts, etc

Commented [KP343]: We have concerns about what is meant by water quantity trading; this is not a concept that has been raised in the legislature and/or agency workgroups. Please strike.

Commented [KP344]: We have concerns water quality trading is not being implemented with enough rigor to ensure it prevents water quality from getting worse. Should strike

Commented [KP345]: Should change to "modernize water transfer statutes". As is it gives a leg up to water users, which is not fair.

Commented [KP346]: Money was granted to the harney; beyond that more discussion is needed.

Commented [KP347]: What does this mean? In the Harney the state provided matching funds because the participation required permanent retirement of groundwater rights. If that is what is meant, it should be spelled out clearly.

Commented [KP348]: "community" in too narrow, should add ecosystems as that is part of the HB 5006 definition of community

Commented [KP349]: This is already in 12d, doesn't need to be here too. Plus, it's location and resource dependent., the state cannot just say "we support". If it is an appropriate tool in a particular place that is one thing; if it is not this kind of language can lead to political pressure

Water Use & Management

Action 12F Provide an Adequate Field Presence

Lead Agencies

ODA, ODEQ, ODF, ODFW, OLCC,
OSMB, OWRD

Supporting Agencies

DSL, OHA, OPRD

Partners

Tribes, community-based organizations,
SWCD's, watershed councils, local and
state law enforcement, city/county
planning/building departments

Background

Oregon's natural resources agencies have personnel in the field that are responsible for data collection, site inspections, education, permit compliance, conducting enforcement activities, and responding to inquiries, complaints, or emergencies. Communities have strong compliance with rules and laws in areas where field presence is robust and public education is strong and consistent. Areas of the state with a long history of regulation and partnership with the state have higher rates of compliance, resulting in more timely and efficient water management.

Strengthening Oregon's field-based work will require financial investments in staff capacity, communications equipment, information platforms, and outreach materials. It also means a look at more efficient ways to coordinate and partner with other agencies to carry out our shared responsibilities and modernize and streamline regulatory and enforcement processes. Field staff can also benefit from actions to streamline data reporting outlined in Strategy Actions 7C.

Example Actions

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

Commented [KP350]: Field staff is already located in rural oregon (?);

Commented [KP351]: Should also increase field staff for enforcement, restoration consultation, etc.

Commented [KP352]: Should be anyone who is interested in the water resources of a "place"; this could silo interests

Resources

Agency Programs

ODA Natural Resources Program, ODEQ Water Quality Program, ODF Compliance Monitoring Program, ODFW Water Program, ODFW & OSMB Aquatic & Invasive Species Prevention Program, OWRD Dam Safety Program, OWRD Regulation Program, OWRD Enforcement Section, OWRD Well Construction & Compliance Section

Policies

[2022 Water Hauling & Cannabis Laws](#)

Websites

Locate your local [Watermaster](#)

Water Use & Management

Action 12G

Strengthen Water Quantity and Water Quality Permitting Programs

Lead Agencies

DSL, ODA, ODEQ, OWRD

Supporting Agencies

ODFW, USACE, USEPA

Partners

Certified Water Rights Examiners, SWCD's, watershed councils

Commented [KP353]: Usfws, noaa, etc

Background

Several natural resources agencies in Oregon are engaged in water-related permitting. Permit reviewers frequently answer calls or questions from water users, permit holders, and realtors, conduct records research, and process case files. It is imperative that agencies have enough well-trained permitting staff to process requests in a timely and accurate manner.

Water rights permits and certificates, water rights transfers, and well construction special standards are examples of permitting programs through the Water Resources Department. There are many types of water quality permits administered by the Department of Environmental Quality through the National Pollution Discharge Elimination System (NPDES) and Clean Water Act 401 Water Quality Certifications. Other agencies also administer permitting systems, often associated with water quality; for example, the Department of State Lands issue removal/fill permits, while the Oregon Department of Agriculture administers Confined Animal Feeding Operations Permits. State agencies also provide permit review for other agencies and provide recommendations to regulators.

Example Actions

- Expand staff training opportunities, including interagency trainings; provide adequate staffing
- Update technologies, processing manuals, and expand guidance documents for transparency
- Develop outreach materials and follow-up procedures to help water users understand the application process and permit, transfer, or extension requirements
- Develop a statewide mitigation strategy
- Create stronger linkages among partner agencies
- Develop and implement a workplan to improve the quality and timeliness of individual NPDES National Pollutant Discharge Elimination System permits
- Authorize the update of water rights records with contact information (moved from 2017 Strategy Action 2D)
- Regularly update Oregon's water-related permitting guide (moved from 2017 Strategy Action 2E)
- Improve the timeliness of water right transactions and reduce backlogs
- Create and modernize for more efficient and user-friendly permitting processes
- Develop programs and resources to support BIPOC farmers and business owners, as well as farmers and business owners for whom English is not a primary language, in obtaining and managing permits and other authorizations
- Improve resources for NPDES monitoring and permitting to help attain water quality that aligns with fish consumption standards for Oregon Tribes

Commented [KP354]: Add, modernize transfer statutes to require an environmental review

Commented [KP355]: Confer with upper management; our understanding of the state's position on mitigation (at least water quantity) does not really align with this.

Commented [KP356]: Not sure the OWRD wants to put this on themselves without resources and without clear directives that they will not shortcut environmental reviews, public process, etc

Commented [KP357]: Efficiencies should not include reducing public process or undermining environmental protections. Would suggest amending to protect this in this action item.

Commented [KP358]: Also farm workers, conservation groups, etc. In other words BIPOC communities that care about public health and the environment.

Resources

Agency Programs

DSL Removal-Fill Permits, ODA Water Quality Program, ODEQ Water Quality Program, ODEQ 401 Hydropower Program, ODFW Aquatic Invasive Species Prevention Program, ODFW Water Program, OWRD Water Rights Program, OWRD Well Construction & Compliance Program

Documents/Websites

[2012 State Water-Related Permits User Guide](#)

[OWRD Certified Water Rights Examiner \(CWRE\) training materials](#)

Infrastructure to store, transport, distribute, disperse, collect, and treat water is an important, but often overlooked, piece of our collective water management and stewardship responsibilities. Maintenance of our water and wastewater infrastructure is critical for maximizing equipment longevity and minimizing the risk to water resources from equipment failures. Ensuring that Oregon’s water-related infrastructure is well maintained and functioning is important for a variety of public health and safety reasons, but also for meeting our state’s economic needs.

Commented [KP359]: This ignores natural infrastructure; author’s say they are weaving in the 100 year water vision, this does not do that (that document mentions built and natural at every possible juncture)

It takes an extensive system of pumps, pipes, treatment, and storage facilities to deliver water to our homes, businesses, and fields every day. Water infrastructure includes storage, drinking water, stormwater, irrigation-related, and wastewater treatment infrastructure.

Examples of water infrastructure include:

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

Commented [KP360]: Removing dams!

Maintain, Upgrade, or Decommission Water Infrastructure

In addition for the need for ongoing maintenance, climate change and associated changes in weather patterns have implications for infrastructure. Infrastructure may need to be upgraded to improve resiliency, also providing an opportunity to improve fish passage (Action 10C), and improve water and energy efficiency and water conservation (Actions 12B and 14A). When wells or dams have significantly deteriorated, the costs of repair may exceed the expected benefits, and proper decommissioning may be a less expensive and more environmentally beneficial alternative.

Action 13A
Maintain, Upgrade, or Decommission Water Infrastructure

Protect and Enhance Natural Infrastructure

Built infrastructure, such as pipes, tanks, dams, reservoirs, and wastewater treatment plants, are constructed by humans to accomplish a water management objective such as flood control, conveyance, storage, and treatment. In contrast, natural infrastructure can meet an infrastructure need, but using a naturally occurring feature (e.g., floodplain, forest, wetland) or created or enhanced natural feature (e.g., constructed wetland) to provide multiple benefits for humans and the environment. Investing in natural infrastructure projects helps communities adapt to and mitigate for climate change. There is overlap between this action and Action 10A, to protect and enhance the natural infrastructure that provides valuable ecosystem services and can sometimes reduce our reliance on built infrastructure to accomplish a similar function. For example, it can be more cost effective to enhance riparian vegetation to cool water rather than construct infrastructure to accomplish the same task.

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

Plans Guiding Infrastructure Investments

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

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

Wastewater Facility Plans – As described under Action 11C, failing wastewater systems increases the risk of contamination of both surface water and groundwater and can be a public health hazard. A wastewater facility plan presents alternatives to meet a community's wastewater needs and is often required when seeking funding for improvements. Oregon Department of Environmental Quality must review wastewater plans at least every five years. Business Oregon provides support for developing wastewater plans and financing system improvements.

Support Irrigation Infrastructure Modernization

Irrigation infrastructure is used throughout Oregon, from small-scale to large-scale applications. Oregon is home to many irrigation districts, water control districts, drainage districts and water improvement districts which manage the distribution of irrigation water. In central and eastern Oregon, these districts often utilize manmade canals or flumes to convey and distribute water. Water losses often occur in unlined canals through porous soils, and evaporative losses occur from the water surface from both canals and flumes. In the last twenty years, irrigation districts have been implementing projects to pipe their distribution canals to reduce these losses. In cases where a state funding source is used to finance a portion of the piping, some or all of the conserved water is allocated to remain instream, through the Allocation of Conserved Water Program at the Water Resources Department.

There a need to continue supporting irrigation modernization projects that lead to water conservation and benefit agriculture as well as fish and wildlife. The Oregon Watershed Enhancement Board's Irrigation Modernization Grants and Oregon Water Resources Department's Water Projects Grants and Loans are just two funding sources that help finance irrigation infrastructure improvements.

Support Oregon's Well Construction Program

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

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

The Water Well Abandonment, Repair, and Replacement Fund (WARRF), established by House Bill 2145 in 2021 authorized the Water Resources Department to provide financial assistance to low or moderate income households where the well has gone dry or is no longer able to provide sufficient water for household use. The Special

Commented [KP361]: Should include dam removal

Commented [KP362]: Also through the requirements of oward's water project grant and loan fund.

Legislative Session in December 2023 modified the focus of the fund to prioritize financial assistance to those domestic wells in areas recently impacted by drought or wildfire. In 2023, House Bill 2010 revised WARRF again to include eligibility for wells with contamination levels that exceed drinking water standards. As of January 2024, WARRF provided funding that restored water to 175 homes located within 17 counties across Oregon.

Improve Oregon's Levees

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

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

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

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

Given the large number of un-accredited levees and public safety risk, the State should establish a levee safety program (similar to its Dam Safety Program) See Action 13C.

Wildfire Damage & Public Health Risk

Drinking water and wastewater infrastructure can be damaged during a fire in unexpected ways. Intense heat from wildfires can release toxic chemicals into a public drinking water system, interruption of electrical power can cause a loss of pressure in the system and risk of contamination, and systems served by surface water can experience a spike in sediment, minerals, and nutrients. Septic systems that sustained only partial damage during a fire may still

Commented [KP363]: Loss of riparian buffers, function, etc

need to be replaced. The Department of Environmental Quality maintains a [website](#) with several resources for addressing infrastructure issues following a fire.

Encourage Regional Systems

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

Action 13B
Encourage Regional (Sub-basin) Approaches to Water and Wastewater Systems

Commented [KP364]: Should also incorporate moving off sensitive systems as part of regionalization

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

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

Support Dam & Levee Safety

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

Action 13C
Support Dam & Levee Safety

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

As mentioned in Chapter 2 Action 6B, dam safety and flood events are included in the state's Natural Hazard Mitigation Plan, being updated in 2025.

Establish a Levee Safety Program

Levees, described under Action 13A, have received less recognition than dams regarding their potential for failure and ability to cause life and property loss. The US Army Corps of Engineers estimates that there are as many as 2,000 levees in Oregon. However, the Water Resources Department is only aware of about 260 levees. Oregon needs to establish a Levee Safety Program, in concert with the Dam Safety Program, to protect public safety and increase resilience to climate change and natural hazards (e.g., floods, earthquakes).

Managing Oregon's Dam Safety Program

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

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

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

Those Subject to the Dam Safety Program – Approximately 1,200 dams in Oregon are at least 10 feet high and store 3 million gallons or more (9.2 acre-feet of water), making them subject to Oregon’s dam safety program. The largest dams, however, are regulated by federal agencies. The Water Resources Department is the lead public authority responsible for 941 non-federal dams.

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

Hazard Ratings – Like most states, Oregon rates dams by hazard classification—high, significant, or low (Figure 4-6). A dam’s hazard rating is based on what could happen if the dam fails, not on the condition of a dam. A high hazard dam, for example, means that failure would likely cause fatalities. There are currently 76 non-federal dams rated as high hazard. These dams are inspected annually.

The condition of High hazard dams is evaluated using four categories: satisfactory, fair, poor, and unsatisfactory. The condition analysis of each high hazard dam is updated after its formal inspection.

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

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

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

Figure 4-6: Hazard Classifications for Dams

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

Source: OWRD, February 2024

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

Emergency Inspection after Extreme Events – Oregon has no interagency agreements in place to inspect multiple dams damaged by an earthquake or widespread flood. After extreme floods and multiple dam failures in 2013 and 2015, Colorado and South Carolina had to improvise, but fortunately, both states had federal and local dam safety engineers available to make inspections quickly. In Oregon, this will be difficult after a Cascadia Earthquake or flood if access via roads is no longer possible. Emergency access and dam inspections are essential to avoid dam failures in the aftermath of a Cascadia Earthquake or significant flood. Additional arrangements are needed for effective and coordinated response during extreme events so that the public can be reassured that dams are safe, or can be evacuated, if necessary.

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

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

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

Lead Agencies

ODEQ, OHA, OWRD

Supporting AgenciesBIZOR, DLCD, DOGAMI, ODFW, ODOE,
USACE, USEPA, USFWS**Partners**Tribes, Local governments,
utilities**Background**

Ensuring that Oregon's water-related built and natural infrastructure is maintained and properly functioning is important for a variety of environmental, public health, and safety reasons, but also for meeting our state's economic needs. It takes an extensive system of pumps, pipes, treatment, and storage facilities to deliver water to our homes, businesses, and fields every day. A network of built and natural infrastructure is necessary for conveying and treating stormwater and wastewater produced by residences, businesses, and industry. Updating aging infrastructure improves resilience, water security, and may also result in water and energy conservation. In some cases, decommissioning or removing infrastructure may be a more cost-effective and environmentally beneficial alternative. Protection and restoration of natural infrastructure (also see Action 10A) is also critical for maintaining infrastructure benefits such as flood control, stormwater management, water quality improvement, and storage.

Safety improvements and decommissioning of dams and levees is covered under this action and Action 13C.

Example Actions

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

Resources**Agency Programs**

ODFW Fish Passage Program, OWRD Well Construction Program and Dam Safety Programs

Funding

BIZOR grant and loan programs, including Community Development Block Grants, [Safe Drinking Water Revolving Loan Fund](#), Special Public Works Fund, Sustainable Infrastructure Planning Projects Forgivable Loan Program, Tidegate Fund, Water/Wastewater Fund, ODEQ Clean Water State Revolving Fund Program, [OHA Drinking Water State Revolving Fund Program](#), OWRD [Water Well Abandonment, Repair, and Replacement Fund](#) and [Water Projects Grants and Loans](#)

Water Infrastructure

Action 13B

Encourage Regional (Sub-basin) Water and Wastewater Systems

Lead Agencies

ODEQ, OWRD, BIZOR, OHA

Supporting Agencies

DLCD, ODFW, ODOE

Partners

Tribes, local governments, utilities,
Oregon Association of Clean Water
Agencies

Background

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

Developing a regional water and/or wastewater system may be more cost-effective and provide co-benefits such as improved water quality. A regional system could include physical consolidation, system redundancy, or shared contracts, services, purchases, mutual assistance agreements, interties, and back-up supplies. State and federal agencies often provide incentives such as funding and technical assistance to encourage a regional approach to meeting water needs.

Example Actions

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

Commented [KP365]: A little unclear what is meant here?

Resources

Agency Programs

BIZOR grant and loan programs, including Community Development Block Grant, Safe Drinking Water Fund, Special Public Works Fund, Water/Wastewater Fund

Funding

ODEQ Clean Water State Revolving Fund and Overflow Sewer and Stormwater Municipal Grant Program, OHA's Safe Drinking Water State Revolving Fund, OWRD's Water Projects Grants & Loans
OWRD's Place-Based Planning Fund
OHA's [Drinking Water State Revolving Fund](#)

Lead Agencies

ODA, OEM, OWRD

Supporting Agencies

BPA, ODEQ, ODFW, USACE

Partners

Homeowners, farmers, irrigation districts, private industry, municipalities

Background

Approximately 1,200 dams in Oregon are at least 10 feet high and store at least 3 million gallons of water (9.2 acre-feet of water), making them subject to Oregon's Dam Safety Program. The largest dams, such as the Bonneville Dam on the Columbia River, are regulated by federal agencies like the Bonneville Power Administration and the United States Army Corps of Engineers. The Water Resources Department is the lead public authority responsible for 950 non-federal dams.

The original focus of Oregon's Dam Safety Program was the review and approval of designs for new dams. Many of Oregon's dams were constructed decades ago, with some more than 100 years old. As a result, the Dam Safety Program now focuses on evaluating the condition of existing dams through regular inspection feedback to owners regarding needed safety improvements. Oregon also needs to establish a Levee Safety Program

Safety improvements and decommissioning of dams and levees is also covered under Action 13A.

Example Actions

- ~~Modernize state laws to improve the safety and resiliency of Oregon dams (completed)~~
- Authorize resources to determine if dams have safety deficiencies; evaluate and retrofit dams to meet new seismic **and hydrologic** standards
- ~~Authorize emergency actions and encourage cooperative~~ **Implement** actions to improve the safety of dams
- Properly decommission dams **and levees** at the end of their useful life
- Coordinate interagency emergency response regarding dam inspection, communication, and evacuation
- Define the legal responsibilities of dam owners
- ~~Authorize a requirement for remote monitoring on deficient, high hazard, dams (completed)~~
- ~~Dam owners should prepare and implement an Emergency Action Plan for all existing dams rated as High Hazard (completed)~~
- ~~Authorize a fee for review of plans and specifications (completed)~~
- Dedicate grant and loan resources for rehabilitation of deficient dams
- **Improve clarity of statute and rule regarding enforcement mechanisms to ensure dam owners follow through with Emergency Action Plan exercises and updates**
- **Map potential impacts to critical infrastructure (e.g. schools, hospitals, water treatment facilities) and demographics of who will be impacted by dam failures**

Resources

Agency Programs

OWRD's Dam Safety Program

Workgroups

Association of State Dam Safety Officials

Funding

FEMA High Hazard Potential Dam Grant, FEMA National Dam Safety Program Grant

The use of water and energy are highly interdependent. Water is critical for energy production, and energy is used to pump, treat, and convey water through pipes for residential, commercial, industrial, and irrigation purposes. Water conservation also conserves energy, and energy conservation reduces the amount of water used in energy production. Across various locations and times of the year, climate change presents the challenge of having reduced availability of both water and energy. Actions and policies to reduce greenhouse gas emissions and diversify Oregon's energy portfolio will change the ways in which we use water in energy production. Severe weather events threaten energy and water infrastructure and climbing temperatures also increase the demand for water for many types of cooling processes.

Since 2018, the Oregon Department of Energy has delivered Biennial Energy Reports to inform local, state, regional, and federal energy policy, planning, and investments. The most recent report from 2022 provides information on key energy resources, policies, trends, and forecasts, and what they mean for Oregon. The document serves as a helpful education tool, including a section called 'Energy 101' that provides the reader with foundational knowledge about energy planning and management in Oregon. The report concludes with calling for the development of a state energy strategy. The Oregon Department of Energy will be leading the development of a state energy strategy due November 1, 2025.

Energy-Water Interdependence

Water is critical for electricity production. The U.S. Department of Energy estimates that nearly half of all fresh surface water withdrawals in the United States are used at thermoelectric power plants.³⁹ Oregon has relatively minimal water withdrawals for thermoelectric power plant cooling and the largest water withdrawals are for irrigation. The 2020 Biennial Energy Report, [Agriculture Sector Profile](#), shows that irrigation is also one of the largest uses of electric energy in agriculture. In Oregon, the electricity we use comes from energy production plants throughout the West, including hydroelectric, coal, natural gas, wind, solar, and other sources (see Figure 4-7). About 40 percent of the electricity used in Oregon is generated by hydroelectric facilities. The Oregon Department of Energy's website offers interactive features to see how Oregon's [electricity mix](#) has changed over time.

Oregon's Renewable Portfolio Standard (RPS)

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

As the state considers additional renewable energy projects, we will need a better understanding of how such projects will affect water resources (see Action 8A). Wind and solar generation facilities have minimal water needs, but new thermoelectric generation may be added to supply electricity when wind and solar are not meeting demands. Energy storage advancements could reduce the need for new thermoelectric generation. Potential low carbon alternative fuels such as hydrogen and biofuels may grow in demand and production to meet decarbonization targets. Production of these fuels requires the use of water and may lead to greater water demand from the energy sector.

Commented [KP366]: Need to add back the directive to analyze the impacts of hydro projects on streams/fish/wildlife/etc. This has been moved to the ecosystem bucket which makes no sense.

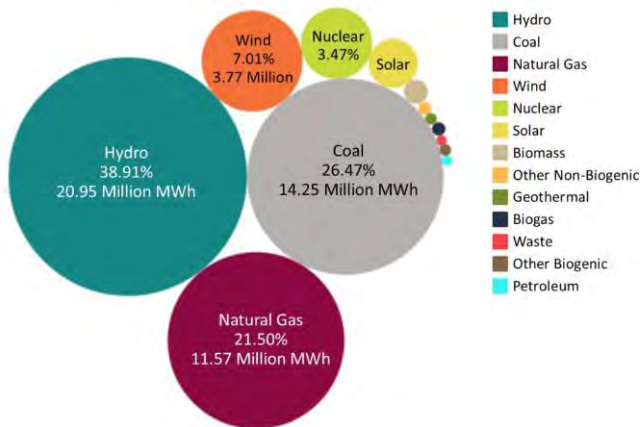
Commented [KP367]: In addition to this, should add a stand alone section on Oregon's laws that protect the environment in hydro development, reauthorization and decommissioning. This is a critical piece of the Energy discussion.

Commented [KP368]: Note, the author's don't carry these limitations over into the one pagers; as is those read to be implying that adding hydro power on to OLD dams counts as RPS.

Figure 4-7 Resources Used to Generate Oregon's Electricity

Source: Oregon Department of Energy 2022 Biennial Energy Report

Based on 2020 data, this chart shows the energy resources used to generate the electricity that is sold to Oregon's utility customers.



Develop Non-Traditional Hydroelectric Power

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

Action 14A
Develop Non-Traditional Hydroelectric Power

Modify Existing Hydroelectric Dams

Existing hydroelectric dams can be modified to increase power production without increasing the water flow through the facility. This option takes advantage of existing infrastructure and advances in power generation technology.

Certified Low-Impact Hydropower Facilities – Low Impact Certification of a hydropower facility indicates it has met or exceeded eight criteria that address environmental, cultural, and recreational considerations. This voluntary nation-wide program incentivizes hydropower facilities to minimize their impacts.

Modify Existing Dams to Add Power Production

The Northwest Power and Conservation Council's [Columbia River Basin Fish and Wildlife Program](#) has designated certain river reaches as "protected areas," finding that new hydropower development in those areas would have unacceptable risks of loss to fish and wildlife.⁴⁰ Exemptions to this policy include adding hydroelectric facilities to already-existing non-hydroelectric dams or diversion structures. These projects must be designed to avoid and minimize potential impacts to fish, wildlife, and water quantity and quality.

Commented [KP369]: This is controversial and appears to be advancing the agendas of those who have failed in legislative pushes on this, e.g. Bowman Dam bills have failed 2x. Urge commissioners to compare to 2017 version. This section has greatly expanded and added controversial directives associated with dams without the benefit of any PAG discussions or otherwise.

Commented [KP370]: NOTE: these also trigger fish passage requirements.

In-Conduit Hydroelectric Development

Irrigation Distribution System - Oregon has an expedited review process for proposed hydroelectric projects at existing artificial delivery systems, such as within an irrigation district distribution systems. The amount and timing of water diverted for an existing water use must remain unchanged (Oregon Revised Statutes 543.765). Holders of water right certificates under these provisions can secure approval to install hydroelectric generation inside or at the end of existing transmission pipelines or conduits. The resulting hydroelectric water rights certificate will include requirements for fish screens, by-pass devices, and fish passage, with some exceptions.

In 2013, the Oregon Legislature passed [Senate Bill 837](#), giving in-conduit hydro developers a choice: install fish passage as required by the Oregon Department of Fish and Wildlife or pay into a statewide fish passage restoration account that will fund fish passage at priority locations identified by Fish and Wildlife.⁴¹ The Department of Fish and Wildlife is required to report on the deposits and expenditures from this restoration account. As of December 31, 2021, the account had a balance of \$1,900.35. This was the entire revenue generated by the program at that time, an amount far less than originally anticipated. The Department of Fish and Wildlife has not expended any funds from the account and may consider revisions to this program due to the small generation of funds.

Commented [KP371]: This does not divulge full legislative history. The law that originally allowed for this required fish passage; then despite agreements stakeholders came back with a bill to undermine negotiations.

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

Pumped Storage Systems

A pumped storage system consists of two reservoirs, one at a higher elevation than the other, where water moves from the upper reservoir to the lower reservoir to generate power when demand is high. Water is then pumped back up to the higher reservoir, using electricity, when pricing and demand is low, usually at night. Pumped storage systems can be considered both a power management tool and an energy storage device, but notably consume more energy than they produce. These systems must be designed to avoid and minimize potential impacts to fish, wildlife, and water quantity and quality. Currently, there is one pumped storage project that has been licensed by the Federal Energy Regulatory Commission in Oregon, and a number of pumped storage projects are currently being proposed. Utilizing a brownfield, or land that was once developed, would reduce the ecological footprint associated with this power generation technique.

Promote Water and Energy Savings

There are many options when selecting energy-efficiency and water efficiency techniques. Significant efficiencies could be realized from coordinating energy conservation and water conservation efforts. Also see Action 12B for water efficiency and conservation resources.

Action 14B
Promote Strategies that Increase/Integrate Energy and Water Savings

Saving Water and Energy in Agriculture

Pumping and moving water, especially groundwater, can require significant energy for agriculture and businesses.

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

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

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

Saving Water and Energy at Wastewater Treatment Plants

Energy is needed to pump, treat, and deliver water to homes and businesses. For a municipality, the energy costs for managing water and wastewater can represent one-third of electricity costs. The [Oregon Association of Clean Water Agencies](#) has actively partnered with its member agencies, providing training and best practices to drive down the use and cost of electricity in Oregon's wastewater treatment plants.⁴² The association named the City of Gresham its outstanding member agency in 2015 for becoming a "net-zero energy" wastewater treatment plant. Gresham's activated sludge treatment plant generates all the power it needs to drive the wastewater plant through best-in-class energy conservation, a ground-mounted solar photovoltaic array, and co-generation engines driven in part by fats, oil, and grease collection. The City saves \$500,000 annually on power bills, while generating \$250,000 annually from fats, oil, and grease hauler tipping fees. Gresham is the first wastewater utility in the Pacific Northwest to reach net-zero energy status and one of only a handful in the United States.

Saving Water and Energy through Building Codes and Standards

Building codes and standards provide a basic starting point for water and energy savings in both residential and commercial buildings. Oregon has mandatory [building codes](#) in 11 different specialty areas, including plumbing (e.g., faucets, showerheads, urinals, and toilets) and residential energy efficiency.⁴³ To provide guidance to local jurisdictions on water conservation, the State of Oregon Building Codes Division approved [Statewide Alternative Methods](#) in 2008 for rainwater harvesting (applicable to both commercial and residential construction as well as potable and non-potable uses) and for the use of graywater for toilet flushing.⁴⁴ The Building Codes Division updated these Statewide Alternate Methods in 2017 and is also directed by Executive Order 17-20⁴⁵ to amend the code by October 1, 2025 to require water efficiency improvements in all newly constructed commercial buildings through standards for capture and safe reuse of water for irrigation purposes.

The Building Codes Division has also published a series of [Oregon Smart Guides](#) for consumers; two of those guides focus on rainwater harvesting and water conservation systems.⁴⁶

The Oregon Department of Energy sets efficiency standards for certain products that must be met in order for those products to be sold or installed in Oregon. In 2021, ODOE in coordination with the Building Codes Division completed rulemaking and subsequent legislation to establish efficiency standards for showerheads and faucets to require high-efficiency fixtures that align with the most efficient standards in the country and exceed WaterSense[®] fixture efficiencies.⁴⁷ The Building Codes Division's 2023 Oregon Specialty Plumbing Code adoption included updates to align with these standards.⁴⁸ Also, in 2022 the Department of Energy updated rules for demand-response capable water heaters and completed rulemaking to establish minimum standards for spray sprinkler bodies (residential irrigation sprinklers).

Saving Water and Energy in the Home

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

Cross-Sector Coordination

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

Lead Agencies

ODEQ, ODFW, ODOE, OWRD

Supporting Agencies

BIZOR, BPA, DLCD, ODA, ODOT, DSL,
OEM, NRCS, USEPA

Partners

Tribes, Local gov'ts, Energy Trust,
Farmers Conservation Alliance, Oregon
Climate Action Commission, Oregon
Public Utility Commission, irrigation
districts, water utilities

Background

Oregon's 2016 Renewable Portfolio Standard (RPS) update requires that 50 percent of the electricity sold by Oregon's large utilities comes from eligible renewable resources by 2040. Oregon's 100 percent clean energy target established by House Bill 2021 (2021) also requires the state's large investor-owned electric utilities to achieve a 100 percent reduction in the greenhouse gas emissions associated with their electricity mixes by 2040. **Non-traditional hydroelectric projects can help meet Oregon's RPS.**

Non-traditional hydroelectric power projects include certified low-impact hydropower facilities, pumped storage systems, in-conduit (within-a pipe) hydropower systems, modifications to increase the efficiency of existing hydropower turbines (I.e., increase the amount of electricity produced by the same amount of flow), and **modifications to existing dams that don't currently generate power.**

Example Actions

- Utilize the state's expedited application process to develop hydroelectric projects at existing infrastructure
- **Invest in alternative energy projects**
- **Promote modifications to increase the efficiency of existing hydropower turbines (I.e., increase the amount of electricity produced by the same amount of flow – eligible per Renewable Portfolio Standard)**
- **Offer incentives for low-impact hydropower projects that provide local co-benefits, such as in-conduit micro-turbines installed in irrigation pipes**
- **Add hydroelectric to non-powered dams using newer fish-friendly hydroelectric turbine designs (will require capital intensive fish screening at intake and/or fish passage fish)**

Resources

Agency Programs

ODEQ Section 401 Hydropower Program, ODFW Hydropower Program, OWRD Hydroelectric Program

Workgroups

Hydroelectric Application Review Team (ODEQ, ODFW, OWRD), River Management Joint Operating Committee (BPA, USACE, USBR)

Documents/Websites

[2022 ODOE Biennial Energy Report](#)

[Pumped Storage Hydropower | Department of Energy](#)

[Low Impact Hydro Certification](#)

[BPA/USACE/USBR 2018 Hydroclimate Projections and Analyses](#)

Funding

[Energy Trust Irrigation Modernization, Farmers Conservation Alliance, NRCS Environmental Quality Incentives Program](#)

Commented [KP372]: Concerned with this lead in given the new action item of putting power on dams; need to look at Oregon's RPS laws.

Commented [KP373]: I do not believe that adding power to old dams is considered non-traditional (?), or updating existing hydro on dams. See e.g. ODOE website and materials.

Commented [KP374]: This is far too broad; need to be environmentally sustainable projects.

Commented [KP375]: This is controversial should not add without discussion

Promote Strategies that Increase / Integrate Energy and Water Savings

Lead Agencies

ODA, ODOE, OWRD

Supporting Agencies

BCBS, BIZOR, BPA, DLCD, ODA, USDA, USEPA

Partners

Tribes, Local gov't's, Energy Trust, Farmers Conservation Alliance, irrigation districts, Oregon Association of Clean Water Agencies, Oregon Climate Action Commission, Oregon Public Utility Commission, OSU Extension Service, water utilities

Background

Water is critical for energy production, and energy is used to pump, treat, and convey water through pipes for residential, commercial, industrial, and irrigation purposes. Water conservation also conserves energy, and energy conservation reduces the amount of water used in energy production. Across various locations and times of the year, climate change presents the challenge of having reduced availability of both water and energy. In order to increase water/energy efficiency and conservation, there is a need to increase the sharing of information about efficiency and conservation strategies, along with financial incentives to implement the strategies.

Example Actions

- Move toward energy independence and resiliency for publicly operated treatment works (wastewater treatment)
- Continue to implement and evaluate building codes that encourage water and energy efficiencies
- Encourage individuals, communities, industries, and businesses, including agriculture, to look for and integrate ways to conserve both energy and water
- Encourage cross-sector and cross-agency collaboration to achieve energy and water savings
- Strive to capture and publicly report energy and water savings data
- Promote resources that expand irrigation water and energy efficiency and conservation
- Promote regenerative agriculture and permaculture practices
- Improve availability of cost savings associated with ENERGY STAR and similar programs to low-income or disadvantaged households and businesses
- Explore new or innovative technologies to accomplish energy and water savings
- Consider developing an energy/water nexus efficiency programs that could support industrial water and energy intensive uses (e.g., data centers, paper mills)
- Increase interagency and energy/water sector collaboration, to identify co-benefits and opportunities for water efficiency (See Action 12B)

Commented [KP376]: The 2024 version appears to be advancing a policy directive in advance of legislative bills that are developing for the 2025 session (outside agency workgroups); see e.g. capitol press articles

Commented [KP377]: Unclear what is intended here; if this is intended to cede agency authority to "collaborative efforts" this is of concern.

Resources

Agency Programs

ODOE Community Renewable Energy Grant Program, ODOE Energy Planning & Innovation, ODOE Energy Development Services, ODEQ Climate Protection Program, BCBS Building Codes Division Energy Code

Workgroups

Northwest Power and Conservation Council
Oregon Climate Action Commission (formerly Oregon Global Warming Commission before 2023)
Energy Facility Siting Council
Energy Advisory Work Group

Documents

Oregon Global Warming Commission [2023 Oregon Climate Action Roadmap to 2030](#)
Oregon Global Warming Commission [2021 Natural & Working Lands Proposal](#)

References

- ¹ Oregon Department of Fish and Wildlife. 2016. The Oregon Conservation Strategy. <http://www.oregonconservationstrategy.org/>
- ² State of Oregon. 1999. Oregon Plan for Salmon and Watersheds. Salem, Oregon. <https://www.oregon.gov/OPSW/Pages/archived.aspx>
- ³ Oregon Department of Agriculture. 2023. Agricultural Water Quality Plans webpage. Accessed January 5, 2024. <https://www.oregon.gov/ODA/programs/NaturalResources/AgWQ/Pages/AgWQPlans.aspx>
- ⁴ Oregon Department of Forestry. 2023. Forest Practices Act Webpage. Accessed January 5, 2024. <https://www.oregon.gov/ODF/Working/Pages/FPA.aspx>
- ⁵ Oregon Department of Fish and Wildlife. 2023. Riparian Lands Tax Incentive Webpage. Accessed January 5, 2024. https://www.dfw.state.or.us/lands/tax_overview.asp
- ⁶ U.S. Fish and Wildlife Services. 2024. Lower Klamath National Wildlife Refuge. Website. Accessed January 5, 2024. https://www.fws.gov/refuge/Lower_Klamath/about.html
- ⁷ Dahl, T.E. 1990. Wetlands Losses in the United States: 1780s to 1980s. U.S. Department of the Interior's U.S. Fish and Wildlife Service. Washington, D.C. <https://www.fws.gov/wetlands/Documents/Wetlands-Losses-in-the-United-States-1780s-to-1980s.pdf>
- ⁸ Thorne KM, Powelson KW, Bui TD, Freeman JY, Takekawa CM, Janousek CN, Buffington KJ, Elliott-Fisk DL. 2016. Assessing coastal manager science needs and disseminating science results for planning. Data Summary Report Prepared for the California and North Pacific Landscape Conservation Cooperatives. USGS Western Ecological Research Center: Vallejo, CA, 110. http://www.occri.net/media/1050/4ocar3_final_coast.pdf
- ⁹ Oregon Department of Environmental Quality. 2023. Oregon Water Quality Index Data Summary Water Years 2013-2022. Hillsboro, Oregon. <https://www.oregon.gov/deq/wq/Documents/WQ2022datasummary.pdf>
- ¹⁰ Oregon Board of Forestry. 2011. The Forestry Program for Oregon: A Strategy for Sustaining Oregon's Public and Private Forests http://www.oregon.gov/ODF/Board/Documents/BOF/fpo_2011.pdf
- ¹¹ Oregon Department of Fish and Wildlife. 2016. Oregon Conservation Strategy. Salem, Oregon. <https://www.oregonconservationstrategy.org/>
- ¹² Jordan, C.E. and Fairfax, E., 2022. Beaver: The North American freshwater climate action plan. Wiley Interdisciplinary Reviews: Water, 9(4), p.e1592. <https://doi.org/10.1002/wat2.1592>
- ¹³ Oregon Department of Fish and Wildlife. 2007. Oregon Coast Coho Conservation Plan for the State of Oregon: prepared by Oregon Department of Fish and Wildlife in Partnership with State and Federal Natural Resource Agencies, Salem, Oregon. https://www.dfw.state.or.us/fish/CRP/coastal_coho_conservation_plan.asp
- ¹⁴ Oregon Department of Fish and Wildlife. 2010. Conservation and Recovery Plan for Oregon Steelhead Populations in the Middle Columbia River Steelhead Distinct Population Segment, (Appendix A of NMFS 2009). Carmichael, R. W. and B. J. Taylor, eds. Oregon Department of Fish and Wildlife, La Grande, Oregon https://www.dfw.state.or.us/fish/CRP/mid_columbia_river_plan.asp
- ¹⁵ Oregon Department of Fish and Wildlife. 2010. Lower Columbia River Conservation and Recovery Plan for Oregon Populations of Salmon and Steelhead. Oregon Department of Fish and Wildlife, Salem, Oregon. https://www.dfw.state.or.us/fish/CRP/lower_columbia_plan.asp
- ¹⁶ Oregon Department of Fish and Wildlife and National Marine Fisheries Service. 2011. Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead. Oregon Department of Fish and Wildlife, Corvallis, Oregon. https://www.dfw.state.or.us/fish/CRP/upper_willamette_river_plan.asp
- ¹⁷ Oregon Department of Fish and Wildlife. 2014. Coastal Multi-Species Conservation and Management Plan. Oregon Department of Fish and Wildlife, Salem, Oregon. https://www.dfw.state.or.us/fish/CRP/coastal_multispecies.asp
- ¹⁸ Oregon Department of Fish and Wildlife. 2020. Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon: Pacific Lamprey, Western River Lamprey, Western Brook Lamprey, Pacific Brook Lamprey. Salem, Oregon. https://www.dfw.state.or.us/fish/CRP/coastal_columbia_snake_lamprey_plan.asp
- ¹⁹ Oregon Department of Fish and Wildlife. 2021. Rogue–South Coast Multi-Species Conservation and Management Plan. Salem, Oregon. https://www.dfw.state.or.us/fish/CRP/rogue_south_coast_multi-species_conservation%20and%20Management_plan.asp
- ²⁰ Oregon Department of Forestry. 2022. Oregon Private Forest Accord (PFA) Report. Salem, Oregon. 196p. Online at: <https://www.oregon.gov/odf/aboutodf/documents/2022-odf-private-forest-accord-report.pdf>
- ²¹ Oregon Department of Fish and Wildlife. 2023. Three-Year Action Plan for Beaver-Modified Landscapes: August 2022 – 2025. Salem, Oregon. https://www.dfw.state.or.us/agency/commission/minutes/23/06_Jun/ODFW_3YBeaverHabitatActionPlan_Final_20230616.pdf

- ²² Oregon Department of Fish and Wildlife. 2023. Living with Wildlife: American Beaver. Salem, Oregon. https://www.dfw.state.or.us/wildlife/living_with/docs/beaver.pdf
- ²³ Oregon Department of Fish and Wildlife and State Marine Board. 2023. Oregon's Aquatic Invasive Species Prevention Program: 2022 Legislative Report. https://www.dfw.state.or.us/conservationstrategy/invasive_species/docs/AISPP_2022_Annual_Report.pdf
- ²⁴ Freed, Zach & Schindel, Michael & Ruffing, Claire & Scott, Shonene. 2022. Oregon Atlas of Groundwater-Dependent Ecosystems. https://www.researchgate.net/publication/372574012_Oregon_Atlas_of_Groundwater-Dependent_Ecosystems
- ²⁵ Jasechko, S., Perrone, D., Seybold, H. et al. 2020. Groundwater level observations in 250,000 coastal US wells reveal scope of potential seawater intrusion. *Nat Commun* 11, 3329. (2020) <https://doi.org/10.1038/s41467-020-17038-2>
- ²⁶ California Department of Water Resources. 2023. California's Water Supply Strategy – Adapting to a Hotter, Drier Future. <https://resources.ca.gov/-media/CNRA-Website/Files/Initiatives/Water-Resilience/CA-Water-Supply-Strategy.pdf>
- ²⁷ Oregon Health Authority and Water Resources Department. 2015. Water Well Owner's Handbook: A Guide to Water Wells in Oregon. http://www.oregon.gov/owrd/pubs/docs/Well_Water_Handbook.pdf
- ²⁸ Oregon Department of Environmental Quality. 2018. DEQ Integrated Toxics Reduction Strategy: 2018 Update. <https://www.oregon.gov/deq/FilterDocs/ToxicsStrategy.pdf>
- ²⁹ Office of the Governor, State of Oregon. 2012. Executive Order No. 12-05: Environmentally Friendly Purchasing and Product Design. https://www.oregon.gov/gov/Documents/executive_orders/eo_12-05.pdf
- ³⁰ Oregon Department of Environmental Quality. 2011. Harmful Algal Bloom Strategy. <http://www.oregon.gov/deq/FilterDocs/HABstrategy.pdf>
- ³⁰ Oregon Department of Environmental Quality. 2020. Freshwater Cyanobacteria Harmful Algal Blooms Strategy. <https://www.oregon.gov/deq/wq/Documents/habFwCyanobachHABstrat.pdf>
- ³¹ Oregon Department of Environmental Quality. 2023. Oregon DEQ Freshwater Cyanobacteria Harmful Algal Blooms Strategy. Portland, Oregon. <https://www.oregon.gov/deq/wq/Documents/habFwCyanobachHABstrat.pdf>
- ³² U.S. Environmental Protection Agency. 2021. Water-Smart Landscapes Start with WaterSense. <https://www.epa.gov/sites/default/files/2017-01/documents/ws-outdoor-water-efficient-landscaping.pdf>
- ³³ U.S. Environmental Protection Agency. 2016. 2015 WaterSense Accomplishments. https://www3.epa.gov/watersense/docs/ws_accomplishments2015_3page_508.pdf
- ³⁴ U.S. Geological Survey. 2015. Water Use Data for Oregon. Accessed January 5, 2024. https://waterdata.usgs.gov/or/nwis/water_use/
- ³⁵ U.S. Bureau of Reclamation. 2016. Water and Energy Efficiency Grants, Previous Grant Selections. Website. Accessed March 22, 2017. <https://www.usbr.gov/watersmart/weeg/prev.html>
- ³⁶ Texas Water Development Board Website. Accessed January 10, 2024. <https://www.twdb.texas.gov/innovativewater/reuse/index.aspx>
- ³⁷ Oregon Water Resources Commission. 1992. Water Storage Policy and Principles.
- ³⁸ Oregon Water Resources Department. 2008. Above-Ground Potential Storage Project Search. http://apps.wrd.state.or.us/apps/planning/owsci/sw_project_search.aspx
- ³⁹ US Geological Survey. 2021. Water Withdrawal and Consumption Estimates for Thermoelectric Power Plants in the United States. <https://www.usgs.gov/data/water-withdrawal-and-consumption-estimates-thermoelectric-power-plants-united-states-2015-ver>
- ⁴⁰ Northwest Power and Conservation Council. 2014. Columbia River Basin Program.
- ⁴¹ Oregon Legislature. 2013. Senate Bill 837. <https://olis.leg.state.or.us/liz/2013R1/Downloads/MeasureDocument/SB837>
- ⁴² Oregon Association of Clean Water Agencies. 2017. ACWA Awards Webpage. <http://www.oracwa.org/a-acwa-awards.html>
- ⁴³ Oregon Department of Consumer and Business Services, Building Codes Division. 2017. Adopted Codes Online. <https://www.oregon.gov/bcd/codes-stand/Pages/adopted-codes.aspx>
- ⁴⁴ Oregon Department of Consumer and Business Services, Building Codes Division. 2017. Statewide Alternate Methods. <https://www.oregon.gov/bcd/codes-stand/Pages/alternate-methods.aspx>
- ⁴⁵ Oregon Executive Order 17-20. 2017. https://www.oregon.gov/gov/eo/eo_17-20.pdf
- ⁴⁶ Oregon Department of Consumer and Business Services, Building Codes Division. 2017. Reach Program. <https://www.oregon.gov/bcd/codes-stand/Pages/reach.aspx> and <http://www.oregon.gov/bcd/Documents/brochures/3660.pdf>
- ⁴⁷ Oregon Department of Energy. Energy Efficiency Standards Rulemaking. 2020. <https://www.oregon.gov/energy/Get-Involved/Pages/EE-Standards-Rulemaking.aspx>
- ⁴⁸ Oregon Plumbing Specialty Code Adoption. Oregon Building Codes Division. 2023. <https://www.oregon.gov/bcd/codes-stand/pages/opsc-adoption.aspx>

CONCLUSION

Implementation and Looking Forward

Water is a finite resource with growing demands; water scarcity is a reality in Oregon. Water-related decisions should rest on a thorough analysis of supply, the demand / need for water, the potential for increasing efficiencies and conservation, and alternative ways to meet these demands.”

- Policy Advisory Group (2016)

This page left intentionally blank.

Remaining Resource Gaps

In spite of the resources for addressing water challenges recently made available by the 2021 and 2023 Legislature, some gaps in funding or support remain. The following list outlines major gaps by Strategy chapter.

Funding

- Action 1B - Adequately fund staff capacity for carrying out water management duties including monitoring, permitting, regulation, and enforcement to protect water quantity and water quality
- Action 1C - Continue to make funds available for communities to plan and implement water projects that contribute to water conservation, increased water remaining instream, upgrade infrastructure, and improve ecological resilience

Partnerships & Planning

- Actions 7A-7D - Data and technical assistance to support place-based and other local/regional planning efforts
- Action 5A - Enhanced coordination with local governments to provide them with their water data needs
- Action 5A - Support for local governments to protect their water resources (support updated Goal 5 inventories)
- Actions 5A and 6A-6C- Support for local governments for natural hazard planning (Goal 7) to avoid future damages

Data & Analysis

- Action 7A – Support for observation well monitoring
- Action 7A - Support for groundwater quality monitoring

Stewardship

- Actions 10A-10E and 13A - Protection and enhancement of natural infrastructure
- Action 10E – Increased protections for groundwater and allow for sustainable groundwater management
- Action 12B – Increased incentives for water conservation, specifically in the agricultural sector
- Action 12E – Need for additional market-based approaches to support environmental outcomes
- Action 11A - Increased support for vulnerable drinking water systems
- Action 11C - Development of additional TMDLs and water quality protections

Strategy Workplan and Implementation

The statute guiding the development and implementation of the Strategy was updated in 2023 to require a biennial workplan. Following the adoption of the 2024 Strategy by the Water Resources Commission, the Water Resources Department will solicit input from the Commission, agencies, and partners about how best to develop the workplan. Developing a workplan provides the opportunity to coordinate work across many agencies and partners and must be done in a way that protects the public interest and balances instream and out-of-stream needs.

Consistent with previous Strategies, actions are not given a prioritization. However, this can be addressed in partnership with the Governor's Office and interested parties as part of the Legislative process.

Commented [KP378]: Prioritization can take place at the agency level; I doubt anyone wants legislative interference here.

Closing Thoughts

Since 2012, the Strategy has provided Oregon with a roadmap to improving our understanding of our water resources and working towards meeting our instream and out-of-stream needs. Most years, steady progress has been made on the Strategy actions, with the last three years providing the most significant increase in activity. Private landowners, communities, non-profits, businesses, local governments, utilities, tribes, and state and federal agencies have come together to discuss difficult topics, develop creative solutions, find funding, and implement projects on the ground.

Projects that seemed impossible just ten years ago have now become a reality. Four dams on the Klamath River will be removed this year, restoring over 400 miles of habitat for endangered species, making it one of the biggest dam removal projects ever undertaken.

During public engagement for the 2024 Strategy, differences in opinion were shared about how to address our water challenges. But commonalities were also shared, across different communities throughout the state. Participants also shared a message of hope:

- Encouragement about the development of new devices and technology for both addressing water quantity (such as more efficient tools for agriculture or for households) and water quality
- Empathy and care for what people in other parts of the state might be facing with water in their communities (or as one Marion County resident put it, "There are so many of us who care deeply about water, and there are not many ways to show that or ways to find each other if we are not already involved in water management as large-scale customers, professional experts, or administrators.")
- A desire to learn more
- Hope in future generations as water and land stewards
- Appreciation for opportunities to be part of the statewide conversation on water

More work is yet to be done. Let the Strategy be the springboard for conversations about water, water problems, and water solutions. We can't live without water and we can make choices now that make future conversations easier rather than harder. To quote many Strategy engagement participants, "water is life."

The next edition of the Strategy is due no later than 2032.

ACRONYMS

Ag	Agriculture
AgriMet	Agricultural Meteorology
AIS	Aquatic Invasive Species
ACFFOD	Amended and Corrected Findings of Fact and Order of Determination
AR	Artificial Recharge
ASR	Aquifer Storage and Recovery
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
BiOp	Biological Opinion
BIZOR	Oregon Business Development Department
CFS	Cubic Feet per Second
DCBS	Department of Consumer and Business Services
DEQ, ODEQ	Oregon Department of Environmental Quality
DLCD	Department of Land Conservation and Development
DOGAMI	Oregon Department of Geology and Mineral Industries
DSL	Department of State Lands
EAP	Emergency Action Plan
ESA	Endangered Species Act
ET	Evapotranspiration
FEMA	Federal Emergency Management Agency
FTP	File Transfer Protocol
GDE	Groundwater Dependent Ecosystem
GNRO	Governor's Natural Resources Office
GPS	Global Positioning System
GWMA	Groundwater Management Area (DEQ designation)
IPCC	Intergovernmental Panel on Climate Change
Lidar	Airborne Light Detection and Ranging
MS4	Municipal Separate Storm Sewer System
MW	Megawatt
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source of Pollution
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
OAR	Oregon Administrative Rule
OCAR	Oregon Climate Assessment Report
OCCRI	Oregon Climate Change Research Institute
ODA	Oregon Department of Agriculture

ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
OHA	Oregon Health Authority
OLCC	Oregon Liquor and Cannabis Commission
OPRD	Oregon Parks and Recreation Department
ORS	Oregon Revised Statutes
OSMB	Oregon State Marine Board
OSU	Oregon State University
OWEB	Oregon Watershed Enhancement Board
OWRD	Oregon Water Resources Department
PSP	Pesticide Stewardship Partnership
RISA	Regional Integrated Science and Assessments
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UICs	Underground Injection Control Systems
USDA	U.S. Department of Agriculture
WMCP	Water Management and Conservation Plan

ACKNOWLEDGEMENTS

Documents of this scope and depth are the product of a talented team and a public who cares deeply about the future of water in Oregon. With gratitude for their time, expertise, and patience, we would like to thank:

The IWRS Project Team:

- Crystal Grinnell (Project Manager), OWRD
- Hilary Foote and Amanda Punton, DLCD
- Danette Faucera and Chandra Ferrari, ODFW
- Kevin Fenn, ODA
- Cole Hendrickson, Rian Hooff, and Steve Parrett, ODEQ

The Water Core Team:

- Kyle Abraham, ODF
- Janine Belleque, OSMB
- Chris Castelli, DSL
- Courtney Crowell, GNRO
- Tom Elliot, ODOE
- Chandra Ferrari, ODFW
- Kirstin Greene, DLCD
- Chris Havel, OPRD
- Jason McClaughry, DOGAMI
- Andre Ourso, OHA
- Stephanie Page, OWEB
- Amanda Punton, DLCD
- Bill Ryan, DSL
- Isaac Stapleton, ODA
- Jon Unger, BIZOR
- Jennifer Wigal, ODEQ
- Paul Wirfs, ODOT
- Doug Woodcock, OWRD

The Federal Liaison Team:

- Chris Allen, USFWS
- Hilaire Bojonell, USFS
- Paula Calvert, BPA
- Sydney Clark, USEPA
- Alex Etheridge, USGS
- Salina Hart, USACE
- Amy Hendershot, USDA-NRCS
- Erin Kaczmarczyk, USDA-NRCS
- Bridget Moran, USFWS
- Matt Schwartz, BPA
- Brian Staab, USFS
- Joanna Thamke, USGS
- Becky Veiga, USEPA
- Kathryn Warner, USACE
- Kate Wells, NOAA
- Ashely Zanolli, USEPA

Other State Agency Contributors and Reviewers:

- Marian Lahav, DLCD
- Meg Reed, DLCD
- Chris Shirley, DLCD
- Melody Rudenko, DSL
- Grey Wolf, DSL
- Daniel T Brown, ODEQ
- David Cole, ODEQ
- Paige Evans, ODEQ
- David Gruen, ODEQ
- Julie Harvey, ODEQ
- Pat Heins, ODEQ
- Ryan A Johnson, ODEQ
- Michael Kucinski, ODEQ
- Alex Liverman, ODEQ
- Chris Marko, ODEQ
- Pablo Martos, ODEQ
- Andrea Matzke, ODEQ
- Smita Mehta, ODEQ
- Derek Sandoz, ODEQ
- Deb Sturdevant, ODEQ
- Valerie Thompson, ODEQ
- Karen Williams, ODEQ
- Thomas Whittington, ODF
- Rebecca Anthony, ODFW
- Adrienne Averett, ODFW
- Rick Boatner, ODFW
- Anne Hayden-Lesmeister, ODFW
- Katherine Nordholm, ODFW
- Spencer Sawaske, ODFW
- Janna Stevens, ODFW
- Joy Vaughan, ODFW
- Michael Freels, ODOE
- Ruchi Sadhir, ODOE
- Amy Schlusser, ODOE
- Wendy Simons, ODOE
- Tom Pattee, OHA
- Kari Salis, OHA
- Cordelia Schimpf, OHA

- Brian Wolcott, OWEB
- Ryan Andrews, OWRD
- Jordan Beamer, OWRD
- Lanaya Blakely, OWRD
- Kris Byrd, OWRD
- Meredith Carine, OWRD
- Kerri Cope, OWRD
- Corey Courchane, OWRD
- Clara Eshaghpour, OWRD
- Dwight French, OWRD
- Kim Fritz-Ogren, OWRD
- Ivan Gall, OWRD

- Bob Harmon, OWRD
- Laura Hartt, OWRD
- Sarah Henderson, OWRD
- Bryn Hudson, OWRD
- Justin Iverson, OWRD
- Tony Janicek, OWRD
- Travis Kelly, OWRD
- Jon LaMarche, OWRD
- Annette Liebe, OWRD
- Rachel LovellFord, OWRD
- Richard Marvin, OWRD

- Margo Mashkovskaya, OWRD
- Mike McCord, OWRD
- Emelie McKain, OWRD
- Kara Morris, OWRD
- Alyssa Mucken, OWRD
- Tom Paul, OWRD
- Racquel Rancier, OWRD
- Molly Schmelzle, OWRD
- Lisa Snyder, OWRD
- Jason Spriet, OWRD
- Doug Woodcock, OWRD

The Oregon Board of Agriculture:

- Chad Allen
- Barbara Boyer
- Bryan Harper
- Miguel Lopez
- Elin Miller
- Eric Orem
- Luisa Santamaria
- Josh Zielinski

The Environmental Quality Commission:

- Kathleen George, Chair
- Sam Barasco, Vice-chair
- Mark Webb
- Amy Schlusser

The Fish and Wildlife Commission:

- Kathayoon Khalil, Chair
- Becky Hatfield-Hyde
- Dr. Leslie King
- Mary Wahl
- Robert (Bob) Spelbrink
- Mark Labhart

The Water Resources Commission:

- Eric Quaempts, Chair
- Kathy Kihara
- Jan Lee
- Joe Moll
- Meg Reeves
- Julie Smitherman
- Woody Wolfe



Oregon's 2024 Integrated Water Resources Strategy - Draft 1, March 2024

Water Challenges Across Oregon

Oregon faces a number of water challenges that impact the quality and quantity of water for instream and out-of-stream needs, including:

- Too much demand for too little water for in-stream and out-of-stream uses;
- A half century of underinvestment in our water resources and infrastructure;
- Our changing population and associated development - growing in some areas, shrinking in others; and
- Climate change and associated increases in temperature, wildfire, drought, damaging floods, and harmful algal blooms.

Vision

To address changes in climate and population dynamics, Oregonians will take care of our surface water, groundwater, and built and natural infrastructure to ensure we have enough clean water for our people, our economy, and our environment now and for future generations. Oregonians will invest strategically in partnerships and planning, data and analysis, and water stewardship for instream and out-of-stream needs across all regions to support resilient communities, vibrant local economies, and a healthy environment for all who live here.

Call to Action

We must both act now and plan for the long term, otherwise we will place the safety of our communities, the health of our people and environment, and **Oregon's** economic future at risk. How we choose to care for our surface and groundwater and our built and natural infrastructure, will determine if we pass a legacy of clean and sustainable water to future generations. A coordinated effort of immediate actions and thoughtful planning for the future are needed. The Strategy outlines the inter-agency actions and public-private **partnerships needed to understand and meet Oregon's instream and out-of-stream water needs, to create a foundation for coordinated action and funding.**

The 2024 Integrated Water Resources Strategy proposes actions for improving our understanding of **Oregon's** water resources and meeting our instream and out-of-stream needs, including water quantity, water quality, and ecosystem needs, in the following categories:

Funding

Oregon must invest now to secure our water future

- Funding

Partnerships and Planning

All Oregonians must work together and plan for our water future

- Education & Outreach
- Coordination & Collaboration
- Water Planning
- Land Use Planning
- Natural Hazard Mitigation Planning & Extreme Events

Data and Analysis

Oregon needs foundational information to make wise decisions and pursue innovation

- Water Resource/Supply Information
- Out-of-Stream Water Needs
- Instream & Ecosystem Water Needs

Stewardship

Oregon must secure its water future through active management and stewardship of its resources

- Healthy Ecosystems
- Clean Water
- Water Use & Management
- Water Infrastructure
- Water & Energy

Oregon's 2024 Integrated Water Resources Strategy Framework and Actions - Draft 1, March 2024

Focusing on: Climate change, population growth, land use change, economic impacts, and energy demand



Goal 1: Improve Understanding of **Oregon's** Water Resources

- Objective 1: Understand Water Resources
- Objective 2: Understand Instream and Out-of-Stream Needs
- Objective 3: Understand the Pressures that Affect Our Needs and Supplies

Goal 2: Meet **Oregon's** Water Resources Needs

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

Chapter 1: Funding

Funding

- 1A [13A] - Fund Development and Implementation of **Oregon's** Integrated Water Resources Strategy
- 1B [13B] - Fund Water Resources Management Activities at State Agencies
- 1C [13C-13E] - Invest in Planning, Feasibility Studies, and Water Resource Project Implementation

Chapter 2: Partnerships and Planning

Chapter 3: Data and Analysis

Chapter 4: Stewardship

Education & Outreach

- 2A [8C] - Promote Community Education and Outreach
- 2B [8A] - Support Implementation of K-12 Environmental Literacy Plan
- 2C [8B] - Provide Career Training for the Next Generation of Water Professionals
- 2D [8D] - Identify Water Research Needs & Partnerships

Coordination & Collaboration [new]

- 3A [9C] - Partner with Tribes, Federal Agencies, and Neighboring States in Long-Term Water Resources Management
- 3B [6B] - Improve State Interagency Coordination
- 3C [new] - Lead Meaningful Community Engagement

Water Planning

- 4A [9A] - Support Integrated Place-Based Planning and Other Water Planning Efforts
- 4B [9B] - Coordinate State and Local Natural Resource Plans

Land Use Planning

- 5A [6A] - Improve Integration of Water Information and Land Use Planning
- 5B [6C] - Encourage Low Impact Development Practices and Green Infrastructure

Natural Hazard Mitigation Planning & Extreme Events

- 6A [5.5A] - Plan and Prepare for Drought & Wildfire Resiliency
- 6B [5.5B] - Plan and Prepare for Flood Events
- 6C [5.5C] - Plan and Prepare for a Cascadia Earthquake & Tsunami Event

Water Resource/Supply Information

- 7A [1B] - Improve Water Resource Data Collection and Monitoring
- 7B [1A] - Conduct Additional Groundwater Basin Studies
- 7C [1C] - Enhance Interagency Data Coordination
- 7D [5A] - Support Basin-Scale Climate Change Research

Instream & Ecosystem Water Needs

- 8A [4A] - Analyze the Effects on Water from Energy Development Projects and Policies
- 8B [3A] - Determine Instream Flow Needs (Quality and Quantity)
- 8C [3B] - Determine Needs of Groundwater-Dependent Ecosystems
- 8D [new] - Develop Instream & Ecosystem Water Demand Forecasts

Out-of-Stream Water Needs

- 9A [2B] - Improve Water-Use Measurement and Reporting
- 9B [2A] - Regularly Update Out-of-Stream Water Demand Forecasts

Healthy Ecosystems

- 10A [11A] - Improve Watershed Health, Resiliency, and Capacity for Natural Storage
- 10B [11D] - Protect and Restore Instream Habitat and Fish Passage/Screening
- 10C [11B] - Develop Additional Instream Protections
- 10D [11C] - Prevent and Eradicate Invasive Species
- 10E [11E] - Develop Additional Groundwater Protections

Clean Water

- 11A [12A] - Ensure the Safety of **Oregon's** Drinking Water
- 11B [12B] - Reduce the Use of and Exposure to Toxics and Other Pollutants
- 11C [12C] - Implement Water Quality Pollution Controls

Water Use & Management

- 12A [2C] - Determine Unadjudicated Water Right Claims
- 12B [10A] - Improve Water-Use Efficiency and Water Conservation
- 12C [10C] - Encourage Water Reuse Projects
- 12D [10B] - Improve Access to Storage
- 12E [10D] - Reach Environmental Outcomes with Non-Regulatory Alternatives
- 12F [10F] - Provide an Adequate Field Presence
- 12G [10G] - Strengthen Water Quantity and Water Quality Permitting Programs

Water Infrastructure

- 13A [7A] - Maintain, Upgrade, Decommission Water and Wastewater Infrastructure
- 13B [7B] - Encourage Regional (Sub-Basin) Water and Wastewater Systems
- 13C [7C] - Support Dam and Levee Safety

Water & Energy

- 14A [4B] - Develop Non-Traditional Hydroelectric Power
- 14B [4C] - Promote Strategies that Increase/Integrate Energy and Water Savings

Note: 2017 IWRS numbering is shown in [brackets].

Appendix A

Cross-walk of 2017 Strategy and 2024 Draft 1 Strategy Actions

2017 Strategy Action	Proposed 2024 Strategy Action
1A	7B
1B	7A
1C	7C
2A	9B
2B	9A
2C	12A
2D	Moved to example action 12G
2E	Moved to example action 12G
3A	8B
3B	8C
4A	8A
4B	14A
4C	14B
5A	7D
5B	Distributed throughout
5.5A	6A
5.5B	6B
5.5C	6C
6A	5A
6B	3B
6C	5B
7A	13A
7B	13B
7C	13C
8A	2B
8B	2C
8C	2A
8D	2D
9A	4A
9B	4B
9C	3A

2017 Strategy Action	Proposed 2024 Strategy Action
10A	12B
10B	12D
10C	12C
10D	12E
10E	Moved to example action under 1C
10F	12F
10G	12G
11A	10A
11B	10C
11C	10D
11D	10B
11E	10E
12A	11A
12B	11B
12C	11C
13A	1A
13B	1B
13C	Combined into 1C
13D	Combined into 1C
13E	Combined into 1C



April 2, 2024

Oregon Water Resources Department

Via email to: WRD_DL_waterstrategy@water.oregon.gov

Re: Oregon Council TU's Recommendations for the Integrated Water Resources Strategy 2024

Dear Ms. Grinnell,

The Oregon Council of Trout Unlimited (OCTU) is the statewide, grassroots affiliate of the national Trout Unlimited organization. We have approximately 3,500 members, and our mission is to care for and recover rivers and streams so our children can experience the joy of wild and native trout and salmon.

We have reviewed the Draft 2024 version of the Integrated Water Resources Strategy (IWRs), and believe the document requires significant revision to fully describe some of the most pressing issues and actions needed to protect and restore instream values. OCTU respectfully submits the following comments and recommendations for the IWRs team to consider:

1. This next iteration of the Integrated Water Resources Strategy must ensure instream flows and water quality to maintain healthy ecosystems in every region of our state. The 2024 IWRs seems to remove much of the "instream" terminology and related discussion, and OCTU disagrees with those changes. The IWRs should place a strong emphasis on instream value and ecology, not minimize or delete those considerations. As examples:
 - a. One of the actions in Action 5A deletes "Protect natural water bodies in the course of land use decisions, such as wetlands, estuaries, groundwater aquifers, rivers, and lakes" and replaces that with "Update land use protections for water bodies incorporating best available data." OCTU disagrees with that change because protecting functioning, natural waterbodies should be a top-tier goal of the Strategy; the new language is not similar and does not have the same result.
 - b. Action 11B regarding Clean Water includes a new example action of "Support programs and organizations to help communities and utilities prepare for and respond to chemical spills" but does not mention fish or aquatic communities. The authors should review the entire document and add back references to "instream" values and "fish and wildlife," and include those in new language that currently focuses on "environment" and "communities."
2. OCTU appreciates the references to the Allocation of Conserved Water Program (which we strongly encourage use of), but references to it in the 2024 IWRs need some adjustment. On p. 184, the document states that "In cases where a state funding source is used to finance a portion of the piping, *some or all of the conserved water is allocated to remain instream*, through the Allocation of Conserved Water Program at the Water Resources Department." Much as some of OCTU's members may wish that were true, the ACW program is voluntary and projects are only routed through it if the project proponent wishes to apply a project through it (often so some of the conserved water can be applied on new lands). In our view, irrigation modernization projects that use non-refundable public money *should* result in public benefit by

legally protecting a portion of conserved water instream, but that is not always required. On the topic of irrigation modernization, we also feel that the “Water Conservation within Agriculture” discussion on p. 166 would be more accurate if it included discussion of the opportunity and importance of legally protecting conserved water instream when doing irrigation modernization projects.

3. The 2024 IWRS has been restructured to an unnecessary and unhelpful degree. The 2012 and 2017 versions were based on years of public engagement resulting in a clear and cohesive document. For example, the framework/chart used on p. 187 of the 2017 version of the IWRS provided a useful and digestible summary of how the document worked, and it’s familiar to policymakers, agency staff, and stakeholders. The version on p. 209-210 of the 2024 Draft is significantly different and more difficult to understand because it doesn’t include the same breakdown of issues, objectives, and recommendations. On the topic of restructuring the document, OCTU *would* recommend changing the structure of the “Instream & Ecosystem Water Needs” Issue (on pp. 115-118) because both the 2017 and 2024 versions begin with a discussion of energy and navigation; in our view, the authors should begin that Issue discussion with the fisheries and ecosystem health topics because that’s likely the content most readers are looking for in the section.
4. The Background paragraph on Healthy Ecosystems Action 10C does not fully state the cause of low streamflows that cause issues for native fish. It states that in “many areas of Oregon, streamflows are very low or even non-existent during late summer months, which may be exacerbated by water withdrawals for irrigation, drinking water, industrial processes, hydropower, and other beneficial uses.” In a great number of instances, the low summer streamflow (or entire lack thereof) is directly caused by consumptive use; the existing language entirely avoids that fact. We recommend clarifying that low summer streamflows are often caused by consumptive out-of-stream uses and are not merely a natural process that’s “exacerbated” by them.
5. The 2024 Draft misses opportunities to address the State’s necessary role in regulatory and enforcement matters. The 2024 Draft continues the 2017 IWRS’s emphasis on voluntary and collaborative efforts on water, and those voluntary projects are undeniably important. However, they’re sometimes not enough to safeguard instream values and other natural resources. For example, in Action 1B (which lists water resource management efforts at state agencies that require funding), the authors should add language about water rights enforcement and regulation—which is a key role of state water managers that protects instream values and fish.
6. The climate change subsection included in the 2017 Strategy should be included in the 2024 IWRS. The 2024 Strategy must provide renewed emphasis of the necessity to adapt to climate change for a successful strategy to sustain our water resources.

Thank you for considering this input.

Sincerely,

Mark W. Rogers
Chair
Oregon Council Trout Unlimited
P.O. 740
Gladstone, OR 97027



Metropolitan Wastewater MANAGEMENT COMMISSION



partners in wastewater management

MWMC Commission

April 3, 2024

Jennifer Yeh
Eugene City Councilor
MWMC President

Oregon Water Resources Department
Attn: Crystal Grinnell
725 Summer St. N.E., Suite A
Salem, OR 97301

Joe Pishioneri
Springfield City Councilor
MWMC Vice President

Sent via email to: WRD_DL_waterstrategy@water.oregon.gov

Pat Farr
Lane County Commissioner

Subject: Metropolitan Wastewater Management Commission comments on the 2024 Draft Integrated Water Resources Strategy (IWRS)

Christopher Hazen
Eugene Citizen

The MWMC is the regional wastewater service partnership of the City of Eugene, the City of Springfield, and Lane County serving a population of over 250,000 – as such, we are one of the largest wastewater utilities in Oregon. The MWMC’s mission is to protect our community’s health and the environment by providing high-quality wastewater services to the Eugene-Springfield metropolitan area. In order to fulfill these obligations, the MWMC strives to be recognized as a leader in protecting water quality through sustainable and fiscally responsible practices. The MWMC actively pursues opportunities to protect and restore the environment, enhance sustainability and recovery of resources, and forge partnerships with state agencies, local government and utilities, advocacy and conservation organizations, and local industry. Our efforts are closely aligned with Oregon’s Water Vision. The MWMC offers the following comments to improve the 2024 IWRS.

Doug Keeler
Springfield Citizen

Peter Ruffier
Eugene Citizen

Bill Inge
Lane County Citizen

Education & Outreach

Administration

2A – Promote Community Education and Outreach

Matt Stouder
MWMC Executive Officer
City of Springfield
225 Fifth Street
Springfield, Oregon 97477
(541) 726-3694
FAX (541) 726-2309

Comment:

In addition to drinking water providers, the IWRS needs to call out wastewater utilities and cities for their contributions to public outreach and education. Some programs offer interpretative centers, tours, K-12 programs, and college field trips and internships. The state agencies promoting Action 2A should identify opportunities to network with, support, and draw from wastewater and municipal education resources, as those programs address frequently asked questions about water quality and treatment, including important roles the public plays in protecting our water resources and affordability.

Operations

2C – Provide Career Training for the Next Generation of Water Professionals

Michelle Miranda
Wastewater Director
City of Eugene
410 River Avenue
Eugene, Oregon 97404
(541) 682-8600
FAX (541) 682-8601

Comment:

There is no language about why someone would want a career in the water and wastewater industry and compel them to enroll. This action could include state efforts to implement a marketing campaign with resource materials that local agencies, non-profits, and other outreach

April 3, 2024

Page 2 of 2

organizations could tap into. This would expand the scope of the state's messaging and use of statewide materials when participating in career days and offering job shadows and internships, and other outreach efforts.

Water Use & Management

12C – Encourage Water Reuse Projects

Comment:

This section should be enhanced to call out the importance of water reuse for drought mitigation and climate resiliency. As Oregon, particularly western Oregon, faces longer and drier summers and increasing droughts, recycled water can fill a critical water resource need to maintain healthy green infrastructure essential for mitigating urban heat islands and ensuring wet season stormwater flow storage and treatment capacity – all while reducing the withdrawal pressures on local rivers and aquifers.

12E – Reach Environmental Outcomes with Non-Regulatory Alternatives

Comment:

This section needs to be updated to include both the City of Ashland's and the MWMC's water quality trading programs to meet water temperature challenges – both implemented in partnership with The Freshwater Trust. Ashland's program restores riparian vegetation in the Rogue River watershed. The MWMC's Water Quality Trading Plan was approved by DEQ in 2022 and implemented with the MWMC's renewed NPDES permit in 2022. The MWMC is a founding member of Pure Water Partners, a partnership of local drinking water utility Eugene Water & Electric Board (EWEB), several conservation organizations and the US Forest Service to protect and restore the McKenzie watershed and other upper Willamette tributaries. The MWMC's program includes riparian restoration and optional stream channel restoration projects. The MWMC participated in an Oregon Association of Clean Water Agencies study in partnership with the U.S. Geological Survey that assessed that the benefits of riparian shade outweigh that of mechanical cooling infrastructure.

12G – Strengthen Water Quantity and Water Quality Permitting Programs

Comment:

The 2024 IWRS should include considerations of the 2023 HB2010 Drought Package bill, especially related to Section 22 to improve and enhance Oregon's adoption of recycled water uses. Recycled water use can be a win-win for stream habitat by reducing reliance on freshwater withdrawals and reducing total discharge of treated wastewater, maintaining a better balance of instream flows, and reducing impacts of temperature, nutrients, and other water quality factors. Water quantity and water quality permits should consider these opportunities. Action 12C does address the recycled water opportunities, but the nexus with permit warrants calling out under Action 12G.

This section should also more specifically call out the water quantity considerations on withdrawals and reduced stream flows on exacerbating water quality issues, including temperature, harmful algae blooms, and lower capacity to handle nonpoint runoff, like nutrients and sediment, etc.

Thank you for considering our comments on this important strategy document.

Sincerely,



Matt Stouder
Executive Officer
Metropolitan Wastewater Management Commission

From: [Myron Redford](#)
To: [WRD_DL_waterstrategy](#)
Subject: Water Watch
Date: Wednesday, March 27, 2024 8:39:46 PM

[Some people who received this message don't often get email from myronamity@yahoo.com. Learn why this is important at <https://aka.ms/LearnAboutSenderIdentification>]

I support Water Watch's position on revising your master plan.
Thank you
Myron Redford
Sent from my iPhone

DATE: April 5, 2024

VIA EMAIL: WRD_DL_waterstrategy@water.oregon.gov



TO: Crystal Grinnell, OWRD Integrated Water Resources Strategy Specialist

FROM: Oregon Water Partnership

RE: Comments, **Draft 1, March 2024 Oregon's Integrated Water Resources Strategy**



Dear Ms. Grinnell,

Oregon Water Partnership submits these comments to raise serious concerns with Draft 1 of the 2024 update of Oregon's Integrated Water Resources Strategy (IWRS).

Oregon Water Partnership (OWP) is a diverse partnership of statewide conservation groups with a common goal: to advocate for balanced water policies that ensure cold clean water to sustain healthy communities, livelihoods, and ecosystems. Our priorities are to build resilience for Oregon's water future, bring water data into the 21st century, support smart water management, and protect and restore our waters. We collectively have tens of thousands of members in Oregon communities across the state, and our organizations work collaboratively with cities, counties, Tribes, farmers, ranchers, and forest owners to restore habitat and improve watershed function.

OWP supports Oregon's efforts to manage our surface and groundwater resources in a coordinated, sustainable and equitable manner, protecting in-stream flows as well as senior water rights. Several of our member organizations have been involved with the IWRS since its inception, and all of our groups recognize the importance of the IWRS as a framework for understanding and meeting Oregon's instream and out-of-stream needs, addressing water quantity as well as water quality. While each of our organizations has its own priorities and perspectives, we are united in urging you to consider the following overarching comments in the forthcoming update of Oregon's Integrated Water Resources Strategy:

Concerns with the wholesale restructuring of the IWRS: The IWRS was adopted in 2012 after three years of rigorous and inclusive public engagement, and was intended to serve as the guiding structure for decades into the future. Governing statutes call for periodic review and update, not a wholesale restructuring of the strategy. Despite this, the 2024 version wholly reworks the longstanding underpinnings of the strategy, including stripping statutory directives to understand and meet instream and out-of-stream needs from chapter titles, goal headings, and narratives; changing chapter titles to elevate some tools over others; removing the stand-alone section on climate change; and otherwise reorganizing and/or reframing the whole of the strategy a way that removes statutorily required balance.

Public Engagement Concerns. The 2024 update has been drafted without the guidance and input of a Policy Advisory Group (PAG)—a significant and detrimental deviation from the well-vetted process used to draft both the 2012 IWRS and the 2017 update. For a change of this magnitude—essentially a wholesale reorganization—the state should have undertaken rigorous and inclusive public outreach and engagement. Unlike previous IWRS update iterations, engagement efforts in 2023 offered no opportunity for the building of consensus recommendations. The product itself reflects the dis-integrated process; not only is this unlikely to lead to the consensus that the 2012 and 2017 revisions enjoyed but it could jeopardize the widespread stakeholder acceptance of this document and the strategy it embodies into the future.



Framework Concerns. The one-page IWRS “Framework” document that synthesizes the IWRS is the go-to reference for legislators, agencies, decisionmakers, and the public. The Framework follows the structure of the IWRS, and in the past has provided a clear visual map for the work necessary to understand Oregon’s instream and out-of-stream needs and the tools required to meet those needs. The Framework no longer stands alone as a logical and comprehensive summary of Oregon’s water resource challenges and opportunities; a casualty of the wholesale restructure of the underlying IWRS draft that further threatens its utility for decision makers and stakeholders alike.

OWP supports many of the new example actions that uplift ecosystem, data, and management needs. The addition of these new tools, however, does not mitigate our collective concerns related to the overall structural problems. Incorporating this feedback will honor the original intent of Oregon’s IWRS statute and will help the Oregon Water Resources Department achieve its mission to “ensure the long-term sustainability of Oregon’s ecosystems, economy, and quality of life.”

Thank you for considering Oregon Water Partnership’s comments and please reach out to the organizational contacts below if you have any questions.

Oregon Water Partnership

Zach Freed, The Nature Conservancy in Oregon, zach.freed@tnc.org

Kimberley Priestley, WaterWatch of Oregon, kjp@waterwatch.org

Karen Lewotsky, Oregon Environmental Council, karenl@oeconline.org

Caylin Barter, Wild Salmon Center, cbarter@wildsalmoncenter.org

James Fraser, Trout Unlimited, james.fraser@tu.org

Dylan Kruse, Sustainable Northwest, dkruse@sustainablenorthwest.org

Rachel O’Connor, Environmental Defense Fund, roconnor@edf.org

cc: Doug Woodcock, OWRD Acting Director (Douglas.E.WOODCOCK@water.oregon.gov)

Leah Feldon, ODEQ Director (leah.feldon@state.or.us)

Lisa Charpiloz Hanson, ODA Director (Lisa.CHARPILLOZ.HANSON@oda.oregon.gov)

Sejal Hathi, OHA Director (sejal.hathi@oha.oregon.gov)

Stephanie Page, OWEB Acting Director (stephanie.page@oweb.oregon.gov)

Geoff Huntington, Governor’s Senior Natural Resources Advisor (geoff.huntington@oregon.gov)



Oregon

Tina Kotek, Governor

Department of Environmental Quality
Agency Headquarters
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5696
FAX (503) 229-6124
TTY 711

April 5, 2024

Oregon Water Resources Department
Attn: Crystal Grinnell
725 Summer St. N.E., Suite A
Salem, OR 97301

Re: Review of the Draft 2024 Integrated Water Resources Strategy

To whom it may concern,

DEQ would like to extend our deepest gratitude to WRD for the work, time, and energy poured into this document. It is full of incredibly valuable information – critical to protecting, conserving, and managing Oregon’s water. The draft clearly represents a significant amount of effort and coordination, and generally provides an abundance of detail and critical information towards understanding water management in Oregon. DEQ has appreciated being a part of the strategy update and development thus far.

For this review opportunity, we have attempted to engage a breadth of our water quality sub-program areas to ensure a range of perspectives within our agency have provided feedback and insight to, and evaluation of this draft. In general, we believe that some aspects of reorganization and document slimming will ensure that the IWRS reaches its full potential for all readers and become truly digestible by all parties. Our suggestions have been captured and summarized into two sections, below: 1) overarching comments, including those regarding readability, formatting, and scope; and 2) detailed comments or editorial suggestions referencing specific passages or sections within the document. We make these recommendations but also recognize that resource and time constraints may challenge or limit the ability to address all issues raised.

We hope that these comments and suggestions provide constructive feedback as WRD prepares a second draft for further review and public engagement in the coming months. DEQ looks forward to an ongoing partnership with WRD, other natural resource agencies, and the breadth of interested parties as we seek to establish an updated statewide water management strategy that will serve as a resource and decision-making guide for the next 8 years.

Sincerely,

Rian vanden Hooff
Sr. Water Quality Policy Analyst



Oregon

Tina Kotek, Governor

Department of Environmental Quality
Agency Headquarters
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5696
FAX (503) 229-6124
TTY 711

Cc:

Jennifer Wigal, Water Quality Division Administrator
Steve Parrett
Cole Hendrickson

Oregon DEQ Comments on Draft (V1) 2024 IWRS:

1) Overarching Comments

- The current version of the 2024 IWRS struggles to present a feasible and implementable strategy. In addition to being an important reference document for water management programs and considerations, where possible, the IWRS should also strive toward presenting a vision for prioritized actions needed to secure a sustainable water future. If the “strategy” for solving Oregon’s water issues it is to invest more in three categories of actions (e.g. partnerships and planning, data and analysis, and stewardship), then this needs further explanation and some prioritization of actions within those categories.

1.1) Language, Grammar, and Readability

- DEQ recommends that WRD performs a readability assessment of the current draft strategy. The strategy should be readable and digestible by a diverse range of audiences, including those with minimal background in water management and natural resource science or policy. Some of the current language may be too technical for a wide range of readers.
- The strategy should use culturally appropriate terminology and consider a DEI lens when doing so. A thorough review to ensure that appropriate and consistent terminology referencing various interest groups may be needed.
- The public and DEQ staff have noted the need for a more interactive version of the IWRS like a story map, or something more dynamic than a pdf document. DEQ encourages WRD to invest in constructing the IWRS with user-friendliness and accessibility in mind. This will ensure the frequent and sustained use by a broader audience.
- The language in the document is largely passive. This is an actionable document – it should be strong and active in its language.
 - Example: Incentives are needed to encourage voluntary actions such as instream transfers or leases. This could be written as: Developing incentives will encourage voluntary actions such as instream transfers or leases.
 - Consider the use of an application, such as [Grammarly](#), for the version editing to assist with passive language.



Oregon

Tina Kotek, Governor

Department of Environmental Quality
Agency Headquarters
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5696
FAX (503) 229-6124
TTY 711

- The Action summaries often contain duplicate language from sections prior. This is repetitive and unnecessary.
 - As indicated later in DEQ’s comments, moving them to an appendix will help reduce redundancy and improve readability of the document.
- While the strategy document has historically been a very dense and packed document with valuable and comprehensive information, it may be time to modernize the document and move it away from this structure. The current draft is very long and dense. Extensive background information and compound sentences may be burdensome for readers. In considering the digestibility of the draft, the spare images and graphics will be a turnoff for many readers. It is important to consider all learning types (Visual, Auditory, Read/Write, and Kinaesthetic).
 - When introducing new concepts, it may be worth providing one-line or simple and quick definitions. Additional information can be moved to the appendix. Doing so will take a lot of the load off the reader - especially if they are familiar with these concepts.
 - Language is repetitive and clunky in places:
 - Example: “There is currently no authority for the Oregon Health Authority to enforce this requirement.” – page 152
 - Example: “...to improve resiliency, also providing an opportunity to improve fish passage (Action 10C), and improve water...”

1.2) Formatting

- The document often provides external links to programs, acts, rules, and documents. This is a great tool to encourage further learning by readers and can help cut down on the detail necessary in each section. However, there are still many programs, acts, rules, and documents referenced in this draft that do contain links. If the hyperlinks of text start to become overwhelming/distracting for readability, it may be worth exploring whether links could be referenced via footnotes.
 - Example: Page 140, Chapter 4 there is a link to “designated as scenic waterways” but there is not a link to “Instream Water Rights Act”.

1.3) Document Structure

- The Draft is organized into two parts, Part 1: Oregon’s Water Context, and Part 2: Strategy Actions. Strategy Actions then contains 4 chapters. It may be more structurally fluid to break the entire document into five chapters and eliminate the two parts. Chapter 1 would be Oregon’s Water Context, and Chapter 3-5 would be the Strategy Actions.
- We recommend changing the title of Chapter 4 to Stewardship and Management. This will better reflect the continued importance of water “stewardship” and reiterate the importance of water management.
- The Action summary sheets that follow each Critical Issue section interrupt the flow of the document. Readers can often get “hung-up” on these rather than continuing through the



document. It is recommended that the summary sheets either be moved to an appendix, or to the end of the chapter. In either of these locations, the summary sheets can act as a resource of further detail and from which work plans can start.

1.4) Context

- While climate change is no longer a stand-alone critical issue, it is incorporated into the Draft in numerous places. However, it may be beneficial to highlight Critical Issues or Actions related to climate change on the “IWRS Framework” page (page 210 in current draft).
- The Draft could provide more emphasis around the need for help from the public and organizations to implement various aspects of the IWRS. The agencies alone cannot do all the work needed; it must become a public-private partnership to a greater extent.
- The Water Governance background information that provides context about water related agencies and programs is very in-depth and detailed. It will be beneficial to either condense this section or move it to an appendix. The information here is very valuable but may detract from conveying the strategies need/sense for urgency or may overwhelm or discourage readers from continuing into the Critical Issues and Actions that come later in the document.

1.5) Policy and Implementation

- It may be valuable to further explore and evaluate the ways with which water projects can receive funding. Projects may receive the best feedback and become the most successful when they are funded through a grants program with a strong technical review and evaluation process. In contrast to direct appropriations from the legislature increased attention and reliance to funding program processes could better ensure that funding is distributed to projects that have been vetted for readiness, worthiness of investment, and likelihood of achieving desired outcomes.
- There are references in the draft strategy of Place Based Plans informing its development. It is not clear where or how this was done. A review of the approved Place-Based Plans may further inform the current draft of the IWRS.
- Similar to the need for a centralized data platform, there may also be a need for a centralized funding platform. The number and complexity of various funding sources and programs may be difficult to track down or sift through for certain applicants. This would make for a possible example action under Action 1C.

1.6) Conclusions and Actionability

- The Conclusions section lacks a strong vision and hope for where the Strategy is headed after its adoption by the Water Resources Commission. Does the State have a plan or preferred approach on how to coordinate and oversee implementation? How will the proposed work plans be completed and on what timescale?



- The Conclusion section indicates that prioritization was not done for this 2024 edition of the IWRS (consistent with the previous editions), but that it could be done with the Governor’s office and stakeholders as part of the legislative process. However, since lack of prioritization has been regarded as a weakness of previous editions and has complicated implementation of the IWRS, it may be optimal or preferable to pursue (or propose) a mechanism by which prioritization preferences could be captured from executive branch and various stakeholder perspectives.

2) Specific Comments on Content

Part 1

- **Page 7:** Consider starting with description of Part 1 – provides context...
 - The broader phrase “degraded water quality” is better than “contaminated water” in first paragraph since it includes elevated temperature and low dissolved oxygen.
- **Page 9:** Current Water Challenges, the fourth sentence could elaborate somewhat on some challenges faced by those who do not turn on tap and enjoy clean water.
 - The list of OKT report solutions, are they pulled directly from OKT report or were reworded slightly for clarity? Should note this or stick with OKT report language for accuracy/transparency.
- **Page 16:** ODEQ description, Comment: Should add municipal to the list of stormwater permits on page 35. And, on page 16 replace language in middle with " developing and issuing permits for wastewater treatment systems and industrial, construction, and municipal stormwater discharges that protect land, surface, and ground waters"... And replace last sentence with “ODEQ coordinates with other state and federal agencies on actions that may affect Oregon waters including partnering with other state agencies to support water quality programs and implement water-related regulations.”
- **Page 23:** The sentence should read – “Oregon Department of Agriculture is the lead agency responsible for assigning WPCF and NPDES permits...” (as DEQ actually issues them)
- **Page 26:** The 1987 Instream Water Rights Act description should include all three ways to create instream rights including by changing character of use of existing rights to instream use through transfers, leases, and allocation of conserved water, and, importantly, that the seniority date stays the same as the original right. (This is important because water transactions will become an ever-increasing tool for how we move water from where and how it is used now, to meet new uses and demands, for instream benefits and other beneficial uses). In the Draft, the success and promise of voluntary environmental water transactions is understated. Also, all acceptable reasons for protecting instream flows should be listed or include pollution abatement in the short list please.
- **Page 27:** Conservation, the formula is always confusing to people even when explained. Easier to just say at least 25% instream and possibly more depending upon the amount of public funding or other agreements.



Part 2

- **Page 36:** Should the IWRS guiding principles have been introduced sooner in the document, such as in the Introduction?

Chapter 1

- **Page 41:** Currently there may be adequate incentives for dedicating water instream, the gap may be organizational capacity to develop and negotiate the voluntary agreements. Currently Trout Unlimited and Deschutes River Conservancy are the only non-profit conservation organizations actively developing projects.
- **Page 43:** The Clean Water State Revolving Fund is currently (2024) offering forgivable loans up to \$100,000 with BIL funds for feasibility studies and planning documents of many kinds.
- **Action 1A:** could include example action of Fund biennial progress reporting.

Chapter 2

- **Chapter 2 (and Chapter 4):** The draft should mention the work planned on the Stewardship and Supply Initiative being led by WRD. No mention was noted in the draft document.
- **Page 56:** What will the Water System Training Center do and where will it be located? It sounds like some added details would be helpful here, if known.
- **Page 69:** The introduction to the critical issue Water Planning does not adequately capture the reason or importance of good planning to ensure follow-on investments are focused on the actions and sequenced to achieve efficient progress, and other considerations.
- **Page 72:** The transition to state basin studies seems confusing. Somehow make this more distinct from place-based planning which also happens at the regional level.
- **Page 81:** LID and Green Infrastructure: second paragraph last sentence, reducing downstream impacts to receiving streams...please add ...' *which also reduces stormwater infrastructure maintenance*'.
- **Page 84, last paragraph:** These conditions can lead to....please add '*drinking water beneficial uses*' to that list.

Chapter 3

- **Page 115:** How is lithium related to the heading "Water Instream Supports Economic Health"? Lithium mining seems out of place here.
- **Page 117:** It should be clarified whether instream rights are monitored in addition to the 250 with stream gages.
- **Action 8D:** This Action seems brief and not fully developed. Consider revisiting this to provide greater detail.
- **Page 123:** Out of Stream Water Needs, is this too broad of a critical issue? It covers so many needs and so much use in Oregon.



Chapter 4

- **Page 140:** State Scenic Waterways are administered by the Oregon Parks and Recreation Department –this is valuable context as we are linking agencies to actions etc.
- **Page 143:** Groundwater management rulemaking underway. This rulemaking should be referred to as Groundwater Allocation Rulemaking
- **Action 10D:** Additional example action – Promote the growth, propagation, and sale of native plants.
 - This action can easily be assigned to ODA or OSU Extension and be used in following/well abandonment projects, restoration projects (post-fire or restoration), etc.
- **Page 153:** E.coli outbreaks at drinking water sources might be a good example to include in the drinking water emergencies list.
- **Page 154:** Move Pesticide Stewardship Program to after the Toxics Reduction Strategy because it will naturally transition better due to the mention of the PSP in the last sentence of the section.
- **Page 155 (PSP):** The PSP program is co-led by ODA and DEQ.
 - **PSP, last sentence before goals:** It is best if this sentence is removed, as it does not provide much value. “Many pesticide users support the PSP Program because it allows for voluntary pesticide management changes prior to the possibility of regulatory action by the Department of Environmental Quality.”
 - **PSP, final sentence of section:** There is no purpose for referencing nonpoint pollution here, it is unnecessary.
- **Action 11A:** Assist drinking water systems of all sizes; increase technical, administrative, and funding resources for small and very small water systems (less than 15 connections)
 - What about sources that serve less than 25 people?
- **Page 171, Evaluating Reservations for Storage:** Reserved water is to be used specifically for future economic development uses within agriculture and was created by ODA. This section lacks detail/context about the program. Review OAR-690-079 or specific basins under basin rules (OAR 690-500) for the basins listed. Here is a useful [reference](#).
- **Action 12D:** Improve access to storage sounds like developing more above ground storage projects. Would it be applicable to change the title to “Improve Access to Storage Alternatives?”
 - Restoration activities and flood plain connectivity projects should also be listed here because they can help store water in the system due to slowing flows.
 - The above action can also be applicable to Action 13A.
- **Action 12G:** Link this action to the need for water data, such as supporting the development of the Oregon Water Data Portal to ensure applicants and agencies have access to accurate, quality data on which to design projects or base permitting decisions. Such as:
 - “Create stronger linkages among partner agencies” specifically during the permitting process
 - “Create and modernize for more efficient and user-friendly permitting processes” continue to update and modernize online/virtual access to permits and permit records



April 3, 2024

To: Oregon Water Resources Department

From: Oregon Association of Conservation Districts (OACD)

Re: Integrated Water Resource Strategy (IWRs), Draft 1, OACD Comments

OACD represents Oregon's 45 Soil and Water Conservation Districts (SWCDs), special districts governed by elected boards. The Districts protect and enhance soil quality, water quality and quantity, and habitat by supporting voluntary conservation in partnership with private landowners and managers as well as federal, state, and nonprofit partners.

Overall, Draft 1 of the IWRs provides a comprehensive description of the issues and approaches that are necessary to manage our water resources. We appreciate that the scope of the document is not just limited to the mission of OWRD and really does cover the work done by all the key natural resource agencies in Oregon.

BIG PICTURE COMMENTS

Information on costs to implement the IWRs is substantially deficient. We recognize that it would be difficult to cost load all the actions in the IWRs, but we feel it is important to make an attempt to estimate what it will take to pay for the water future that we desire. We had hoped that the "Business Case for Investing in Water in Oregon," published in July 2023, would provide more robust information on what a good statewide level of investment would be, but it did not do this. It largely provided cost information on a few examples of actions that are important in certain regions of the State.

The draft IWRs mentions the upticks in funding through the last two legislative sessions, and applauds the increases, but we are still left wondering whether these upticks are sufficient. How much more do we really need in the coming decades?

In the conclusion of the Draft IWRs there is a short section titled "Remaining Resource Gaps." The information in this section seems to woefully underrepresent the funding challenge we face. First of all, there are no dollars attached to each of the identified gaps. Second, we believe that there are many more actions that need additional funding. For example, no gaps in funding were identified for the critical issues of education and outreach, coordination and collaboration, and water planning. Does this mean that current funding levels for these issues are sufficient to carry us into the future? Another example is in Chapter 3, where funding gaps are not identified for two

critical issues, instream and ecosystem water needs and out of stream water needs. Again, are we saying that we can do all the work that is needed on these critical issues within the existing budgets? In chapter 4 there appears to be several very important high-cost actions that are not identified to have funding gaps. Some of these are action 12C (Encourage Water Reuse Projects), action 12D (Improve Access to Storage), action 13A (Maintain, Upgrade, and Decommission Water and Wastewater Infrastructure) action 13B (Encourage Regional (Sub-Basin) Approaches to Water and Wastewater Systems), action 13C (Support Dam and Levee Safety) action 14A (Use Existing Infrastructure to Develop Non-Traditional Hydroelectric Power) and action (14B Promote Strategies that Increase/Integrate Energy and Water Savings.)

We might hope that we can get closer to the answer of “how much funding we need going forward” in the forthcoming progress reports to the legislature. However, we do not expect that the legislature will ever be able to answer this question on their own and the answer should be provided in the IWRS, even if it needs to be a wide-ranging estimate.

Climate mitigation is largely missing in the IWRS. We appreciate that our changing climate and its effects on our water environment are recognized throughout the IWRS. This discussion is largely framed in the context of what we need to do to adapt to the changes. Chapter 2, provides good discussion on climate adaptation. Also, action 7D which focuses on climate research is positive. There is also a brief mention of Oregon's goals for greenhouse gas levels and the work of the Climate Action Commission and the Natural and Working Lands Proposal under action 7D. Action 8A mentions the need for energy from hydropower as clean energy.

Despite all the discussion mentioned above, little is mentioned about climate mitigation, i.e. actions that result in less greenhouse gas emissions. A key aspect of climate mitigation for the water world is implementing technologies that use less energy as this directly correlates to less greenhouse gas emissions. Good examples of how this can best be accomplished are energy efficient pumping and irrigation systems and water conservation. Another good example is use of natural systems to sequester carbon. The IWRS does a good job of noting the importance of natural systems in retaining and cleaning water, but there is no mention of their benefits in terms of carbon capture.

Guidance on setting priorities is needed. On page 6 it is stated that “actions are not given a prioritization. However, this can be addressed in partnership with the Governor's Office and interested parties as part of the Legislative process.” While it will be necessary for the governor and legislators to be involved, this is not enough because this approach has often resulted in underfunding and is likely to lead to the same situation in the future. The IWRS should attempt to highlight some of the most important and underfunded actions that need attention immediately. Perhaps this problem can be partially addressed in the forthcoming biennial work plans, but it should not be ignored in the IWRS.

OTHER COMMENTS

Action 2B pertains to K-12 education. A good and important program, Oregon Envirothon is missing and should be acknowledged. This is a program in which high school students learn about environmental science and then teams compete to demonstrate their knowledge. Competitions are held regionally, and winners advance to the State level, and the best go on to compete nationally.

The role of Soil and Water Conservation Districts in helping to achieve our desired water future is mentioned at various points throughout the document. We greatly appreciate the acknowledgement of how we help, but we would be remiss to not point out that funding is also necessary to support continued and expanded work to meet the goals.

Thank you for the opportunity to provide input.



Stan Dean, Advocacy Committee Chair
Oregon Association of Conservation Districts
stan.dean@jswcd.org
(530) 902-7415



April 3, 2024

To: Oregon Water Resources Department

From: Oregon Association of Conservation Districts (OACD)

Re: Integrated Water Resource Strategy (IWRs), Draft 1, OACD Supplemental Comments, New Format

OACD submitted our main comments in a separate letter on this same date. However, we want to add our support for the new format of the IWRs. We believe that the new format is conducive to presenting a wholistic view of the actions that must be taken in the future and at the same time capturing detail on specific topics.

Thank you for the opportunity to provide input.

A handwritten signature in blue ink, which appears to read "Stan Dean", is positioned below the thank you message.

Stan Dean, Advocacy Committee Chair
Oregon Association of Conservation Districts
stan.dean@jswcd.org
(530) 902-7415

From: [Susan L Smith](#)
To: [WRD_DL_waterstrategy](#)
Subject: Integrated Water Resources Strategy Comments
Date: Friday, April 5, 2024 1:29:20 PM

Some people who received this message don't often get email from susanlsmithor@gmail.com. [Learn why this is important](#)

I have the following comments:

Most importantly, having recently served on the groundwater allocation RAC, I believe process is important. OWRD developed the 2024 IWRS without the benefit of an advisory group with tribes, conservation groups, agricultural interests, municipalities, political leaders, state and federal agencies, and other stakeholders. The Department doing independent consultations with various groups is not the same as sitting around a table and working together on a wicked and crucial problem. The process was inconsistent with the OWRD's generally outstanding approach to transparent public engagement and with the prior approach used to formulate the IWRS. OWRD needs a do-over.

Second, **climate change is the issue.** The 2024 IWRS mistakenly obscures it by removing the climate change section in the 2017 version. The inclusion of "example actions" in the 2024 IWRS related to climate is great, but needs to be prefaced by a section directing attention to and action on climate change. It is essential that the 2024 IWRS explicitly discuss the impact of climate change on water and make climate change adaptation and resiliency the top priority for the state's water future.

Third, drop the Pablum: voluntary planning and partnerships are great. But Oregon cannot primarily rely on volunteerism with the one public resource more valuable than gold. We need to do intelligent thoughtful management of this most precious resource -- backing our decisions with good data, rigorous regulation, and real enforcement. If statutory changes are necessary to make this happen, propose them. Despite our reluctance to move away from 19th century water management, we have and should tweak prior appropriation doctrine to assure it serves us well in the reality of the 21st century. Water must be protected with a strong, well-designed regulatory system, not thoughts and prayers.

Finally, I strongly approve of the emphasis given to ecosystem protection and endorse the need for adequate funding. Please ignore any pushback you get on these matters. Let's prevent destruction of, and prioritize restoration of, ecosystems so that we don't need to spend billions upon billions of dollars in what may ultimately be vain attempts to save endangered fish.

Thank you for listening,
Susan

GRINNELL Crystal A * WRD

From: Suzanne Fouty <suzannefouty2004@gmail.com>
Sent: Friday, April 5, 2024 4:42 PM
To: WRD_DL_waterstrategy
Cc: Suzanne Fouty
Subject: Integrated Water Resources Strategy comments

Follow Up Flag: Follow up
Flag Status: Flagged

Some people who received this message don't often get email from suzannefouty2004@gmail.com. [Learn why this is important](#)

Dear Oregon Water Resources leadership,

Please accept these comments related to the 2024 Integrated Water Resources Strategy (IWRS).

I am a retired USDA Forest Service hydrologist and have spent much of my career in eastern Oregon where water quality and water availability are major concerns for human and wild communities. I have experienced firsthand the challenges that come when agencies are underfunded and lack the needed staff to address complex issues and respond to changes. To successfully implement this strategy requires that all state agencies addressing water issues be well-funded and work together to maximize efficiencies and effectiveness.

I urge you to retain the stand-alone subsection on climate change found in the 2017 version. With climate changes accelerating and impacts on communities increasing, climate change must continue to be a focal point of this important water-driven strategy. Keeping it as a stand-alone section will help OWRD keep climate change and improving system resiliency as a major priority. We cannot afford to lose ground on this issue.

New initiatives need to be added to document that advance instream, ecosystem, water quality, climate change and equity. These issues are interrelated and each enhances the success of the others. Their inclusion makes sure that this plan is properly focused on the future given the challenges before us.

The strategy must undertake a smart, enforceable water management strategy that is rigorous given that water is an essential resource and demands on stream and groundwater systems are increasing. This include enforcement, regulation and the modernization of laws and policies to ensure a sustainable water future. Voluntary planning should not be part of this strategy. Requests for voluntary plans or actions rarely produce anything.

Instream flow needs must be given equal weight to out-of-stream needs. Ignoring instream flows or treating them as secondary importance fails to keep intact a vital component of healthy ecosystems – essential to all communities. As has too occurred, instream flows are sacrificed leaving some communities severely impacted for the benefits of others or industry. The strategy must prevent this

The OWRD decision to restructure the strategy without public involvement in such a vital resource compromises trust in the agency. It suggests that there are forces at work which seek to diminish the challenges we face so that others can benefit. I urge you to keep what has worked and reengage with the public in areas that merit major changes.

In summary, ODWR's recent approach to updating the IWRS without active public input is troubling. Before approving, the department leadership needs to take a step back and engage with the wide variety of stakeholders who will be impacted by this document. We need a quality document that will help us all navigate an increasingly difficult future with as much success as possible.

Sincerely,

Suzanne Fouty, PhD
Hydrologist/Soils Specialist
Retired USDA Forest Service