

February 21, 2023

To: Michelle Tucker
 USEPA Region 10

From: Tom Pattee
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 Drinking Water Services
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Subject: Oregon’s Implementation of Source Water Protection

The Oregon Health Authority’s Drinking Water Services and its partner agency the Department of Environmental Quality’s Drinking Water Protection Program are, through the attached June 2022 update and tables, supplying information to the EPA regarding the status of implementation of Source (Drinking) Water Protection in Oregon and activities directed toward that end during the FY2021-2022 time period. A summary of the implementation efforts is given below, more definitive information follows in the June 2022 update document.

Summary:	Implementation Number of PWSs (includes "Buyers")	Implementation Population (Population + Buyer Pop)	Total Number (Active CWSs - includes SWP/GWP/GU)	Total Population (Population of Active CWSs including SWP/GWP/GU)	% by number of CWSs	% population
Substantial Imp - GW CWS	173	369,785				
Substantial Imp - SW CWS	169	2,699,688				
Substantial Imp All CWS	342	3,069,473	919⁽¹⁾	3,583,427⁽¹⁾⁽³⁾	37%	86%
Substantial Imp – NTNC	44	15,257	339	77,836		
EPA Target⁽⁴⁾					49%	59%

(1) The total number of systems and population includes PWSs with substantial implementation plus wholesale buyers that have the PWS listed as their primary source. It does not include PWSs listed as "inactive" or PWSs where the seller is indicated as an emergency or secondary source. It also does not include transient non-community (NC) water systems or NP (non-public) water systems regulated under Oregon regulations.

(2) Population and Wholesale (buyer) Population for systems with substantial or initial implementation were updated 20JUL2022.

(3) Numbers in red (total number of systems and total pop) are estimates from Data Online for Community PWSs as of 20JUL2022. EPA will insert these numbers for the final reporting based on their SDWIS data pull. Oregon has adjusted SDWIS population numbers to remove double counting for systems that strictly provide wholesale water (JWC, SFWB, NCCWC, LO-TWS).

(4) EPA national targets are taken from “National Water Program Guidance FY 2019-2020”, Publication Number: 800D17001, U.S. Environmental Protection Agency.

During this reporting period, Oregon has again focused on recognizing individual and collective steps that community water systems or other regional entities take that result in a reduction of risk to drinking water resources. The definitions Oregon uses for initial and substantial implementation are given below.

Initially implemented is defined in Oregon as any protection follow-up to the Source Water Assessment, including enhancing the delineation and/or inventory, using the assessment data to clarify the potential risk that a specific activity may pose, forming a local team to address protection issues, etc.

A **Substantially implemented Strategy** occurs when Oregon agencies determine that strategic protection actions have been taken to appropriately reduce the risk of potential contamination within the community water system drinking water source area, based on the state/local identified significant threats and sensitivity of the source water or source area. These strategic protection actions can be performed at the state, regional, and/or local levels. If single source water areas can be grouped (i.e., wells in a single aquifer, wells in a cluster, intakes or intakes and wells in the same watershed) each of the community water systems would be considered to have taken strategic protection actions.

Oregon’s source water protection activities for both the DEQ and OHA for the period ending June 30, 2022 are summarized in the attached text.

Oregon Drinking Water Protection Activities

The Oregon Health Authority's (OHA) Drinking Water Services and its partner agency, the Department of Environmental Quality's (DEQ) Drinking Water Protection Program, implement Drinking Water Protection in Oregon. Oregon's Drinking Water Protection activities for both the DEQ and OHA for the period ending June 30, 2022 are summarized in the following format:

June 2022 Update Contents

Source Water Assessments Data Availability and Use

Assisting Individual Public Water Systems

- Small System Outreach Project
- Enhancing Drinking Water Resiliency through Land Conservation
- Technical Assistance for Coastal Public Water Systems
- Regional Public Water System Projects

Funding for Oregon Public Water Systems

- State Revolving Fund: Drinking Water Source Protection Loans and Grants
- Pacific Northwest Drinking Water Providers Partnership
- Natural Resource Conservation Service (NRCS) Source Water Protection

Statewide and Regional Projects

- Oregon Public Water System Resource Guides
- Assessing Per- and Polyfluoroalkyl Substances (PFAS)
- Non-Point Source Coordination
- Harmful Algae Blooms
- Coordination with Soil & Water Conservation Districts and Watershed Councils
- Forest Wildfires – Drinking Water Risk Tracking
- Coordination with the Oregon Toxics Reduction Strategy
- Certification of Updated Groundwater Drinking Water Source Area Delineations

Coordination with State and Federal Agencies

- Forest and Agriculture
- Groundwater Management Areas
- Oregon Water Resources Department
- Other OHA Programs
- Other DEQ Programs

Coordination with Rural Nonprofit Organizations

- National Rural Water Association (NRWA)
- Rural Community Assistance Corporation (RCAC)

Information Sharing

Training and Workshops

Implementation Results as of June 2022

Percentage of Community Water Systems Protected

Percentage of Population Protected

Year-to-Year comparison

Attachment A – Oregon DWP Implementation Status as of 30 JUN 2022

Attachment B - Figures

Source Water Assessment Data Availability and Use

Updated Source Water Assessments (SWAs) provide public water systems information on geographic setting and point and non-point pollution risks to drinking water supplies. OHA and DEQ encourage and assist public water systems and local communities to use the information in the assessments to voluntarily develop place-based plans and implement drinking water protection strategies.

DEQ had previously completed all updated SWAs for Community and Non-Transient Non-Community water systems that are either using surface water or are determined to be groundwater under the influence of surface water. All updated SWAs for surface water have been provided to surface water systems and are available on [DEQ's Source Water Assessment](#) web site.

OHA continued to complete SWA updates for groundwater systems, completing 153 updates. As of the end of FY2021-2022 OHA has completed 671 SWA updates representing 70% of the 954 Community and Non-Transient Non-Community groundwater systems that are to receive an update.

Oregon maintains a robust [Drinking Water Protection](#) web site that provides public access to multiple data sources on drinking water source area assessments and routinely fulfills public requests for data. DEQ and OHA also regularly provide drinking water data to local governments, Federal contractors, and consultants (when effective security of the data is ensured). [Mapping and GIS data](#) of the groundwater and surface water drinking water source areas and potential contaminant sources identified within those drinking water source areas are available in several formats including an online interactive mapping tool, GIS data layers, and in a print-ready format. The online mapping tool helps public water systems and their communities identify drinking water source areas, the land uses, and potential sources of pollutants identified in regulatory databases within those source areas. Statewide surface water maps with land use/ownership data, soil erosion potential, landslide potential, and treatment system susceptibility are also available on the web site.

Assisting Individual Public Water Systems

During FY2021-2022, both agencies focused assistance efforts not only on traditional source water protection activities but also on providing critical assistance to public water systems and partners impacted by the Western Oregon catastrophic wildfires that occurred during the summer and fall of 2020. Wildfire recovery planning in Oregon has relied in part on source water protection-related data, tools, and staff time.

As of June 30, 2022, a total of 342 community water systems (37% of Oregon's community water systems) have "substantially implemented" a strategy to protect their drinking water. Based on last year's numbers, the percent of community water systems that minimized the risk to public health through substantial source water protection

efforts increased by about 1%. Fourteen community water systems achieved substantial implementation. All fourteen of those systems were found to have implemented protection activities or were substantially protected by activities implemented by water systems that had overlapping protection areas. At the same time, the total number of community water systems in Oregon increased by twelve in the last year which diminished our overall percentage gain.

Substantially protected water systems include most of Oregon's larger communities. Collectively, substantially protected community water systems serve approximately 3,069,473 Oregonians, accounting for 86% of our estimated 3,583,427 Oregonians served by community water systems.

"Substantial implementation" occurs when Oregon agencies determine that actions have been taken to appropriately reduce the risk of potential contamination within the community water system drinking water source area. These strategic actions can be performed at the state, regional, and/or local levels.

Both OHA and DEQ regularly contact water systems to offer technical assistance and provide support to those that request it, whether the water system's intention is to develop a full drinking water source protection plan or to simply identify and implement key protective measures for their source water. Much of this work by water systems and drinking water program staff does not qualify for "substantial implementation" status. However, water system interest and continued efforts to reduce risk demonstrates an awareness of drinking water protection issues and a desire to be involved to the extent their resources allow.

Small System Outreach Project

In Oregon, Small Public Water Systems (PWSs) with populations of 500 or less account for about 70% of all PWSs. Although these small PWSs are primarily groundwater dependent and have smaller drinking water source areas, they are still subject to a variety of potential contaminant sources and contaminant detections. Developing an outreach effort focused on these PWSs is critical as most lack the resources, personnel, or knowledge of funding opportunities and, the technical assistance and training options to help protect their drinking water source areas. In addition, many are Manufactured Home Communities (MHCs) whose populations may have increased vulnerability to drinking water quality issues as their customer base tends to contain disproportionately more low-income households and senior residents.

To address this resource gap, DEQ developed and implemented an outreach process designed to build the capacity of small PWS operators and reliant communities to protect their drinking water source areas through education, technical assistance, and relationship building. As part of this project, initiated in Fall 2021, DEQ developed outreach materials that describe Source Water Protection, potential contaminant sources, and best management practices that target different audiences; conducted GIS spatial analysis to visualize and highlight patterns across MHC locations; contacted local partners for awareness and collaboration; and contacted over 100 small water

systems that are MHCs. Through this process approximately 50 small public water systems have initiated some protection activities and 8 MHC PWSs reached substantial implementation. A story map of progress and lessons learned can be found [here](#).

Enhancing Drinking Water Resiliency through Land Conservation

Supporting natural infrastructure through land purchase/conservation easements within drinking water source areas has become increasingly important to Oregon's public water systems. The challenges for water systems are becoming more complex as our built infrastructure ages, natural systems continue to be degraded, climate change stresses water supplies, and the state's population grows. Protecting the land upstream of drinking water intakes is critical to protecting public health and reducing treatment costs for communities as well as supporting economic stability, recreation opportunities, and wildlife/aquatic habitat. Without land protection, many communities are being forced to rely on backup supplies, make expensive upgrades, and even shut off water to address land uses that are negatively impacting their water supply. However, small communities are at a disadvantage when they try to protect their source areas due to the limited ratepayer base, eligibility requirements, and funding restrictions within the Clean Water and Drinking Water SRFs. DEQ is working with several Oregon water systems, land trusts, and local partners to leverage voluntary tools like land acquisition and conservation easements to help communities and landowners. In addition, DEQ presented material supporting water system needs to our State Legislature Source Water Workgroup and is working on legislative concepts to improve funding options. Highlights of our progress in FY2021-2022 include the following:

Arch Cape Water District: In 2021 the final funding was obtained to permanently protect Arch Cape's drinking water, from the headwaters to the tap, through purchase of the watershed for a [community forest](#). Funding for the project came from a variety of sources, including approximately \$3.5 million from the U.S. Forest Service's Forest Legacy Program, \$2 million from the American Rescue Plan Act (ARPA), local match funds/in-kind contributions from North Coast Land Conservancy (NCLC), pro-bono legal services, \$250,000 from Clatsop County, and nearly \$300,000 from community contributions. Between 2015 and 2021, Arch Cape WD received 4 OHA Drinking Water Source Protection Fund grants for a total of \$102,000 for Forest Watershed Plan development; conducting due diligence and appraisal; forest road maintenance, removal, and relocation to minimizing erosion within the source area, and non-chemical brush removal along roadways. The District, with DEQ input and assistance, created a forest management plan that the board approved in December 2021. Two Arch Cape Forest Advisory Committees are currently reviewing a Multi-Resource Management Plan. These plans minimize risks to the drinking water source and result in a resilient working forest that produces quality raw water for the water treatment plant.

City of Port Orford: The City of Port Orford worked with partners to ensure the protection of 152 acres of forested land in the Hubbard Creek Watershed that was slated for possible harvest. The parcel is near the City's intake on Hubbard

Creek and includes land identified by the State as highly vulnerable to erosion. The Conservation Fund currently holds the parcel and Port Orford is pursuing funding options to acquire full ownership. In 2022, the City completed a forest management plan funded by an OHA Drinking Water Source Protection grant. The forest management plan ensures long-term protection of City-owned land within their drinking water source area and provides a baseline for the City to apply for Clean Water SRF funding for property purchase. The City is also addressing invasive gorse management in the watershed using non-chemical methods for water quality protection.

Rhododendron Water Association: Rhododendron Water Association (RWA) is a small privately owned water district. Most of the drinking water source area is owned by US Forest Service, however, there are two parcels that span Henry Creek near the intake that are privately owned. In 2019, the Association received an OHA Drinking Water Source Protection grant to explore acquisition of the privately held properties. However, the landowners were either non-responsive or not willing to sell. In 2021, one of the properties was sold and the new owner filed harvest plans with Oregon Department of Forestry. RWA applied for emergency OHA Drinking Water Source Protection funds to purchase conservation easements for ~43 acres on Henry Creek on this parcel. The contract is attached to deed in perpetuity, forgoing harvest in the 150-acre parcel on northeast side of Henry Creek (where non-fish streams enter Henry Creek) and putting 150ft buffer on southwest side of Henry Creek. Total cost of \$175,000 was funded through a \$100,000 OHA Drinking Water Source Protection loan (DWSRF local set-aside) and a three-year bridge loan while the water system seeks the additional \$75,000 in funding.

There are a number of other public water systems that are also exploring property acquisition or conservation easements for sensitive portions of their drinking water source area. DEQ is developing an inventory of water system needs and opportunities and in partnership with EPA will be conducting two workshops in November 2022 to assist communities in land conservation.

Technical Assistance for Coastal Public Water Systems

Due to their geographic setting, drinking water supply watersheds adjacent to Oregon's coast have a high risk of impacts from intense storms and erodible geology, as well as unusual drought conditions. In FY2021-2022, DEQ Drinking Water Protection staff provided focused technical assistance and guidance to several coastal water systems with high risk potential contaminant sources in their supply areas. This included working with Oregon Department of Forestry, local partners, and private forestry owners in the source areas for Oceanside WD, Neahkahnie WD, Panther Creek WD, Garden Valley WD, Beverly Beach WD, and the cities of Carlton, McMinnville, Lincoln City, Newport, Toledo, Siletz, Tillamook, Port Orford, Willamina, Yachats, Yamhill, and Waldport.

Regional Public Water System Projects

Oregon has several regional projects where multiple public water systems, all using the same surface water source or are in the same geographic area, are working with local partners to develop and implement strategies to protect drinking water.

Clackamas River Drinking Water Protection Work

The Clackamas River Water Providers (CRWP – a coalition of municipal water providers that serve over 300,000 people with intakes on the Clackamas River) continue to implement regional strategies in the Clackamas watershed that serve as a statewide and national model for effective protection activities and regional partnerships. In FY2021-2022, their efforts addressed risk from septic systems, river debris, pesticide use, potential spills, hazardous chemical use, algae blooms, climate change, and other point and non-point sources. Highlights of these activities include:

- Developed an outreach campaign to support low impact recreation and promote river stewardship with a drinking water source protection fund grant.
- Signed a Joint Funding Agreement with USGS to continue water quality and stream flow monitoring for 5 years (2021-2026).
- Continued post wildfire water quality sampling downstream of the Riverside Fire which burned ~23% of the watershed.
- Partnered with others to develop high resolution climate water temperature data for the watershed, evaluate impacts of climate change on the water supply, and evaluate agricultural water rights and potential for acquiring in-stream rights.
- Completed a Source Water Assessment Plan for a portion of the Clackamas River Watershed where the predominant land use is agriculture using grant funding from Natural Resources Conservation Service (NRCS) National Water Quality Initiative.
- Conducting septic system education and outreach through referring the public to online resources including a recording of a previous septic system workshop and providing financial assistance for two reimbursement requests.
- Partnered with Clackamas Soil and Water Conservation District to host an Agricultural Pesticide collection event and develop a video series on Pesticide Reduction Practices.
- Continued funding of spill prevention efforts for businesses located within the Clackamas Industrial area and created three new geographic response strategies for protecting intake structures.
- Continued partnership with Portland General Electric (PGE) on cyanobacteria monitoring and other mitigation.
- Reviewing water quality permit public notices and providing public comment where relevant.
- Supporting partner for the Down the River cleanup, Eco Biz Certification, Pesticide Reduction efforts by the Clackamas River Basin Council, Clackamas Partnership 6-year Oregon Watershed Enhancement Board Implementation Grant, and several community outreach events.

See the Clackamas River Water Providers Annual Report at <https://www.clackamasproviders.org/resources/> for more information on their risk reduction programs.

Molalla River Drinking Water Protection – Cities of Molalla, Canby, and Colton

The Clackamas Soil and Water Conservation District (Clackamas SWCD) completed the National Water Quality Initiative (NWQI) grant from Natural Resources Conservation Service (NRCS) by submitting the Source Water Assessment including an Area Protection Plan in June 2021. Although the NWQI grant focuses on agricultural-related impacts to source water quality, the SWCD has taken a holistic approach and is assessing both point and non-point sources that have potential to impact drinking water quality across the entire Molalla River watershed. In FY2021-2022, the partners worked with NRCS to address comments on the plan and are developing a monitoring strategy to identify next steps. More information on the project including the draft assessments, project maps, data review, and outreach materials for the public can be found at <https://molallariverdrinkingwater.com/>.

North Santiam Drinking Water Protection and Wildfire Response

A number of public water systems that have intakes directly on the North Santiam River participate in the North Santiam Council of Water Leaders to share information and partner on water resources management in the North Santiam Basin. DEQ participates in this group which also includes municipal water providers, Tribes, city and county governments, businesses, interest groups, irrigators, State and Federal agencies, and elected officials. Many of these partners have been active in post-2020 wildfire restoration, emergency planning, HABs assessment and reservoir management, water quantity issues, and other source water protection topics. The City of Salem continues to work closely with the North Santiam watershed council on riparian projects for post-fire recovery. Oregon's Department of Geology and Mineral Industries (DOGAMI) is currently evaluating potential for post-fire debris flows in several of the wildfire areas with the initial work focused on the Detroit area on the North Santiam.

McKenzie River Drinking Water Protection Work – EWEB and SUB

Eugene Water & Electric Board (serving nearly 200,000 people) continues to work with partners (McKenzie Watershed Council, USFS, USGS, McKenzie River Trust, landowners, and many others) to fund and implement robust drinking water protection strategies in the McKenzie River watershed that address risks from forestry, agriculture, septic systems, development, and potential spills as well as having highly effective watershed monitoring and education/outreach programs. Source water protection activities in the McKenzie basin during FY2021-2022 included continued post-wildfire restoration, monitoring for harmful algal blooms, maintaining the Septic Maintenance Program, leading floodplain restoration projects, restoration in the Deer Creek watershed, maintaining watershed emergency response capability, and various landowner incentive programs. As part of EWEB's commitment to post-wildfire restoration, their Commissioners approved a community-funded watershed recovery and restoration program funded by a flat fee to all residential and commercial customers based on meter size. This fund, initiated in mid-2021, supplements EWEB's McKenzie River Source Protection Program to safeguard drinking water for Eugene residents by addressing immediate risks such as erosion from high burn areas and redevelopment along the river, as well as longer-term resiliency investments to restore floodplain areas

that are critical to water quality and habitat. See their website for more information: <https://www.eweb.org/community-and-environment/mckenzie-watershed-protection>

Springfield Utility Board primarily uses groundwater sources in the McKenzie Basin. SUB continues to help implement the City of Springfield's groundwater protection ordinance that reduces risks to drinking water associated with commercial land-uses and hazardous materials. Additional ongoing efforts include youth education activities and continued coordination of their local Groundwater Guardian team that receives support and recognition from the Groundwater Foundation for actions to protect groundwater resources. SUB's user-friendly best management practices for pesticide applicators, published in June 2018, continues to serve as a resource for other water systems concerned about potential pesticide risks.

Rogue Drinking Water Partnership

The Rogue Drinking Water Partnership formed in 2017 to initiate regional collaboration on drinking water protection. The Rogue River is the drinking water source for 13 water providers including City of Rogue River, Grants Pass, Medford Water Commission (with nine wholesale buyers), Gold Hill, Country View Mobile Home Estates, Hiland WC – Shady Cove, and Anglers Cove/SCHWC. Combined, these water systems serve ~175,000 people. In 2021 and 2022 the partnership was focused on emergency response planning and communication, wildfire risk and response, and water quality and quantity projects. The partnership funded a graduate student to complete an assessment of urban and commercial stormwater concerns for several cities within Rogue Basin, continued work on their Geographic Response Plan to protect sensitive drinking water sources in the event of hazardous spills or natural disasters such as wildfires, expanded the region's water quality monitoring and sampling network, continued work on the Natural Resource Conservation Service National Water Quality Initiative grant to evaluate agricultural-related impacts to source water quality in the area surrounding Medford's intake, and is continuing to complete restoration work on Little Butte Creek and Elk Creek.

North Ashland Area Groundwater Protection Plan

Public water systems in the North Ashland area including Bear Creek Mobile Home Park and Jackson Well Springs, along with their partners including Jackson SWCD, OSU Extension, and local and regional government, completed a Drinking Water Protection Plan in February 2022. The plan included updates to the delineated drinking water source areas within the larger project area (conducted by OHA staff); conducting an enhanced assessment of potential contaminant sources; evaluating and prioritizing protection strategies; and developing a contingency plan. Management strategies identified for future implementation include addressing abandoned wells in the project area, develop and evaluate long-term protection strategies such as ordinances and overlays; and provide education and technical assistance to inform businesses and residents about best practices. OHA and DEQ staff continue to provide technical guidance and review on this project.

Umpqua Basin Efforts

Surface water systems, partner agencies, and organizations focused on water quality improvements continue to implement restoration and drinking water monitoring projects throughout the Umpqua Basin. Partnership for the Umpqua Rivers (PUR) began their turbidity monitoring work in the South Umpqua at prioritized locations, as well as helped Glide Water Association address impacts by the 2020 and 2021 fires in the North Umpqua. PUR continued oversight of contracted watershed assessment work (funded by an NRCS NWQI grant) for the Olalla Lookingglass watershed (Winston-Dillard's source area) in preparation for future projects that will reduce risks from agricultural activities. PUR also worked with DEQ to expand the scope of basin monitoring work to include cyanotoxin indicators and expanded turbidity sampling in the fire-impacted areas in the North Umpqua. Funding for these additional tasks is from unused DEQ 319 nonpoint source grant money. The South Umpqua Rural Community Partnership continued to work with public water systems including Tiller Ranger Station and Milo Academy on restoration efforts.

Mid-coast Watersheds

Toledo, Newport, and several other mid-coast water providers including Lincoln City, Kernville-Gleneden, Yachats, Waldport, Depoe Bay, Seal Rock Water District, Beverly Beach WD, Southwest Lincoln Co. WD, and Oregon State Parks, continue to participate in the Mid-coast Water Planning Partnership, funded by Oregon Water Resources Department. In FY2021-2022, the Partnership and their consulting team finished the [Oregon Explorer Landing Page](#) and Map Viewer, completed and submitted the draft Mid-Coast Water Action Plan for state agency review, addressed the state's required improvements, and adopted a final plan on May 11th, 2022. Several of the partners have also completed actions to address source water protection. Lincoln City and USFS continued to collaborate with the local watershed council and County to address road sediment transport issues in the Schooner Creek drainage. Work completed includes evaluation and assessment, soil removal, culvert replacements, and sediment and drainage improvements to address chronic roadway sediment sources. DEQ and OHA approved the Drinking Water Protection Plan for the City of Yachats and assisted City of Toledo with plan development. Both drinking water protection plans are funded by OHA Drinking Water Source Protection Fund grants.

Polk County Groundwater Systems

Polk Soil and Water Conservation District and partners, including OSU Extension and Luckiamute Watershed Council, completed an outreach and education project to help inform residents in the region about elevated nitrate levels in public and private drinking water, and provide technical assistance for improved practices. Affected communities include Monmouth, Rickreall, and Luckiamute, as well as owners of private domestic water wells in the area. The partners continue to offer multiple workshops to residents and the agricultural community, focusing on contributing sources and effective strategies to reduce nitrate; articles and mailings; and free well-water screening for nitrate. DEQ and NRCS provided support and technical assistance.

Funding for Oregon Public Water Systems

One of the key functions for OHA and DEQ is to connect drinking water systems and communities with partner organizations that may be able to assist with drinking water protection efforts that cannot be performed with existing staff and resources at the water system. Partner organizations such as County Soil and Water Conservation Districts, watershed councils, OSU Extension staff, land trusts, etc. can help with implementing strategies or developing a strategic protection plan, as well as assist with grant writing and additional funding when significant collaboration work is necessary. Guidance on partners, resources and funding sources is available in the DEQ Resource Guides for [Groundwater](#) and [Surface Water](#) Systems as well as on [DEQ's Funding website](#). Updates on some of the key funding sources for risk reduction in drinking water source areas are provided below.

State Revolving Fund: Drinking Water Source Protection Loans and Grants

Oregon DEQ and OHA continue to promote the use of the [Drinking Water Source Protection Fund](#) for drinking water source protection grants and loans. These grants and loans are available to fund water system projects directed at activities such as drinking water source area delineations, enhanced potential contaminant source inventory and/or evaluation, drinking water source protection planning, implementation of protection strategies, and implementing security strategies for highly sensitive aquifer/watershed areas near drinking water intakes and/or wells.

As of June 30th, 2022, the Drinking Water Source Protection Fund has provided roughly \$2,187,213 of funding to 74 completed drinking water source protection projects. Completed projects represent drinking water source protection work that has impacted approximately 97 Community and Non-Transient Non-Community water systems with populations totaling 1,722,137 customers. These include fifteen completed projects during FY2021-2022 that received \$424,165 in funding assistance.

Each year, OHA accepts Letters of Interest (LOI) from eligible water systems for Drinking Water Source Protection funds during an open period that occurs from mid-January through mid-March. During FY2020–21, nine LOIs were received for Drinking Water Source Protection Fund evaluation. Six LOI for surface water systems were reviewed and scored by DEQ and three LOI for groundwater systems were reviewed and scored by OHA. Final project rankings were compiled once scoring was completed and a project priority list of recommended projects was sent to Business Oregon in July 2022 for contract management and fund disbursements. Business Oregon will be working with the selected water systems to complete required contract paperwork before grants and loans are awarded.

The project priority list sent to Business Oregon recommended five drinking water protection projects with funding requests totaling \$235,300. Two of the recommended projects involve water systems that were not previously considered substantially protected. The remainder of the recommended projects are for water systems that continue to add to their drinking water source protection efforts. The Drinking Water

Source Protection Project Priority List can be viewed on the OHA website:
<https://www.oregon.gov/oha/PH/HealthyEnvironments/DrinkingWater/SRF/Pages/ppl.aspx>:

Pacific Northwest Drinking Water Providers Partnership

The [Drinking Water Providers Partnership](#) (DWPP) is a collaboration of USDA Forest Service Region 6, the U.S. Bureau of Land Management OR/WA Office, U.S. Environmental Protection Agency Region 10, Oregon Department of Environmental Quality, the Washington Department of Health, and several NGOs including the Geos Institute, WildEarth Guardians, and The Freshwater Trust. The partnership coordinates an annual, competitive grant solicitation and award program for environmental conservation and restoration projects in municipal watersheds across the Northwest.

In January 2022 the DWPP completed project selection for their seventh year as a regional partnership. A total of \$268,000 was awarded in Oregon by the federal partners (USFS, BLM and EPA) supporting six projects in drinking water source areas for habitat and riparian area restoration, invasive species removal, placement of large instream wood complexes, re-establishing off-channel habitat, culvert replacements, and partnership coordination for the North Santiam Council of Water Leaders. The funded projects will benefit the drinking water and aquatic habitat in watersheds providing source water for several small communities and larger cities. Two projects (one for full funding and one for ½ funding) were referred to the OHA Drinking Water Source Protection Fund. A summary of funded projects can be found here:
<https://geosinstitute.org/wp-content/uploads/2022/10/DWPP-2022Projects.pdf>.

Natural Resource Conservation Service (NRCS) Source Water Protection

DEQ has assisted Oregon NRCS in submitting a total of twelve National Water Quality Initiative (NWQI) Source Water Protection readiness phase proposals between 2020 and 2022. DEQ coordinated with NRCS regarding FY23 NWQI grants and conducted outreach to several partners with completed or nearly completed watershed plans to gauge interest in implementation planning grants. Based on the outreach, there was not enough interest or momentum to select new watersheds for the FY23 grant cycle. In addition, DEQ provided a letter of support for withdrawing the implementation phase for the McKenzie due to low producer interest.

For ongoing watershed assessments, DEQ provides data and technical assistance as local partners complete their assessments and outreach strategies to address agricultural-related impacts to source water quality. DEQ has provided technical assistance to Oregon conservation partners in these areas: Cities of Canby and Molalla – [Molalla River Drinking Water Project](#); City of Myrtle Point – North Fork Coquille River; Cities of Winston and Dillard, South Umpqua River, Lookingglass Creek Sub-Watershed SWPA; Clackamas River Water Providers (multiple PWSs) - Clackamas River watershed; City of Monroe - Long Tom River; City of Medford and other water providers in the Rogue basin; and Cities of Albany, Jefferson, Lebanon, Salem, and Stayton - Santiam River.

Following completion of the Watershed Assessment, SWPAs will then be eligible to receive federal Farm Bill funding to implement the measures identified in their plans specific to agricultural impacts.

Statewide and Regional Projects

Oregon Public Water System Resource Guides

Statewide “Resource Guides” for both groundwater and surface water sources continue to be available on the [Drinking Water Protection](#) website. The Resource Guides expand on updated Source Water Assessment content and provide additional information and tools to determine local priorities and strategies for protecting the source water areas. DEQ plans to update the guides in FY2022-23.

Assessing Per- and Polyfluoroalkyl Substances (PFAS)

In FY2019 the leadership teams at DEQ, OHA and other state agencies initiated a workgroup to address per- and polyfluoroalkyl substances (PFAS) as emerging chemicals of concern in Oregon. As part of the interagency workgroup, the OHA and DEQ Drinking water programs developed and initiated a PFAS Screening and Assessment Project Plan to determine if and where PFAS may be present in Oregon’s public water system drinking water sources.

One of the goals of the assessment is to address equity issues by evaluating potential risk to all public water systems. The 2013-2015 UCMR analysis previously focused on large water systems (serving over 10,000) and a handful of randomly selected smaller water systems. Evaluating potential PFAS sources and public health implications will complement and support other ongoing agency programs including DEQ’s Toxics and Cleanup Programs.

During FY2021-2022, DEQ used the previously completed mapping of potential PFAS sources along with OHA Source Water Assessment data to prioritize water system sources for PFAS sampling based on water system size, sensitivity to infiltration, and proximity of potential contaminants. Based on the results of the PFAS Screening and assessment, OHA and DEQ selected 156 PFAS sampling locations: 136 related to groundwater sources and 20 related to surface water sources. On behalf of OHA, DEQ collected the samples between Oct 2021 and March 2022 and the samples were analyzed by the DEQ lab using EPA method 533. Samples were collected at the entry point (finished water) when the susceptible source(s) was in use. Having DEQ lab staff collect the samples had several benefits including ensuring the correct sample location, verification that the targeted source was in use, trained samplers reduced the chance of sampling error or cross-contamination, and it reduced packaging and shipping issues.

Sampling results were compared to state specific PFAS Health Advisory Levels established by OHA’s Environmental Public Health Testing Program. As part of the project, OHA developed and implemented a Response Protocol for PFAS detections at water systems that involves recommendations based on PFAS types and

concentrations for the PWS that range from sharing results with their water users, continued monitoring, issuing advisories, and installing treatment (if needed). An Interagency Communications Plan was also developed to provide information to the public and for multiple media requests.

The sample results indicated that 149 samples had PFAS compounds below reporting limits. PFAS compound(s) at concentrations above reporting limit but below Oregon HALs were detected in a total of 7 samples. One PWS outside of this sampling project issued an advisory because independent sampling detected PFAS compounds above Oregon's HALs. Overall, 6 PFAS compounds were detected at 8 PWSs including PFOS (6 PWSs), PFOA (3 PWSs), PFHxS (4 PWSs), PFHxA (4 PWSs), PFHpA (4 PWSs), and PFBS (1 PWS). More information and full analytical results are available on [OHA's PFAS](#) website.

In addition to the PFAS PWS sampling project, DEQ drinking water protection staff were part of a PFAS workgroup that provides for consistent collaboration between all DEQ media and the laboratory to develop a PFAS Strategic Plan in Oregon which aligns with US EPA's PFAS Strategic Roadmap. The Strategic Plan will inform future implementation work at DEQ.

Non-Point Source Coordination

DEQ Drinking Water Protection staff regularly assists the Nonpoint Source program with forestry and agriculture issues, provides reviews on NPS program efforts, and participates in committees working to improve forest and agricultural practices to benefit fish and drinking water sources, especially in western Oregon. Through research, data analysis, evaluation of potential pollutant sources, and work with partners, staff are determining which forestry and agricultural practices are likely to be protective of drinking water quality with regard to turbidity/sediment, bacteria, and organic material. Pesticide applications on agricultural and forest lands within Drinking Water Source Areas is a common community concern. Ongoing studies, existing research, and new analysis of data are evaluated in cooperation with the Oregon Departments of Forestry (ODF) and Agriculture (ODA) and other partners.

FY2021-2022 activities completed by DEQ have included:

- Provided data on drinking water sources, drinking water quality issues, potential contaminant sources, and recommendations for action for the following Agricultural Water Quality Management Plans: Lower Deschutes, Inland Rogue, Mid John Day Basin, Powder-Brownlee, Burnt, Lost River, Tualatin, and Umatilla. Note that when finalized these reports are posted on DEQ's Non-Point Source Implementation Strategies webpage.
- Provided comments on DEQ's MOA with ODA to encourage addressing and considering DW sources.
- Discussions with US EPA Region 10, conservation groups, and timber industry regarding abandoned logging roads and projects to characterize and reduce the impact on water quality. Coordination with conservation and

- timber industry groups to combine efforts on this topic. This work was incorporated into Private Forest Accords.
- Habitat Conservation Plan and related Forest Management Plan preparation, conversations, and technical assistance with managers for Oregon State Forests to ensure inclusion of public and private drinking water protection in future State Forest management. Discussions with interested parties about the same.
 - Ongoing work on State Forest Habitat Conservation Plan (which has an indirect benefit to drinking water sources), and related Forest Management Plan and Implementation Plans (which directly addresses public and private drinking water supply).
 - Provided information, research, analysis, and interagency coordination for private forest HCP (Private Forest Accords) discussions (implications for increased de facto drinking water protection on non-federal forestlands in Oregon).
 - Provided information to water systems and partners in Malheur County about project ideas for reducing contaminants of concern.
 - Providing additional Drinking Water Source Area (DWSA) information to OSU for Trees to Tap Atlas including percent of DWSA areas and streams with high erosion potential and information on backup supplies. The Atlas will also include fire susceptibility information for surface water DWSAs.
 - Initiated and continuing TMDL development for water quality impairments in Schooner Creek (Lincoln City's source) as first step in expanding TMDL strategy to include turbidity impairments to drinking water sources. Tasks include project management, data evaluation and analysis, and writing of Quality Assurance Project Plan.
 - Assisted TMDL program staff (for the Willamette Mercury TMDL) with forestry and agricultural erosion hazard methods utilized by Drinking Water Protection program in updated Source Water Assessments. Note that the Mercury TMDL restricts erosion to prevent mercury contamination and will require additional forestry and agriculture management measures, consistent with drinking water protection goals.
 - Completed DWP sections for DEQ's Annual Non-Point Source Report. This helps support drinking water as a beneficial use for EPA funding and consideration and is a requirement for nonpoint source program funding for drinking water projects.
 - Consulted/assisted Nonpoint Source program with drinking water and forestry-relevant revisions to Nonpoint Source Program Plan update and annual report to EPA.
 - Assisted DEQ WQ Assessment team in replying to comments from Forest Waters Coalition regarding turbidity listings for drinking water sources in the 2022 Integrated Report.
 - Provided input to Nonpoint Source Program on 319 grant funding proposals with a drinking water nexus and managed to completion the 319 grant agreements for the Oregon State University Extension project on Assessing Pesticide Use and Groundwater Vulnerability for Drinking Water Protection in

Oregon Watersheds and the Partnership for the Umpqua Rivers South Umpqua Nonpoint Source Turbidity Monitoring project.

- Ongoing work with Sustainable Northwest, Pacific Forest Trust, and Ecotrust and Oregon Coalition of Land Trusts, in conjunction with Clean Water SRF staff, about drinking water protection efforts around forestry, specifically around funding for community forest acquisition and conservation management.
- Worked with DEQ Standards and Assessment team to include drinking water impacts to a story map on how DEQ establishes WQ limited waterbodies.
- Attended and presented at Tillamook Working Lands and Water Cooperative (a producer group) on collaborative work between Drinking Water Protection program, forestland managers, and public water systems in the North Coast. Made contacts with additional landowners for future drinking water protection consultation.

Harmful Algae Blooms

OHA's permanent rules for Cyanotoxin Monitoring and Public Notification at Public Drinking Water Systems (OAR 333-061-0510 through 333-061-0580) became effective January 28, 2019. Approximately 60 public water systems were identified as susceptible to harmful algae blooms and were subject to the cyanotoxin rules that included seasonal monitoring between May 1 and October 31. A total of 55 of these facilities participated in the 2022 monitoring. DEQ and OHA track the biweekly HAB monitoring results and recreational advisories to provide technical assistance where needed.

During the 2022 season, microcystins were detected in raw water for ten water systems (Buell-Red Prairie Water District, City of Cottage Grove, City of Creswell, Josephine County Parks – Lake Selmac 1, Josephine County Parks – Lake Selmac 2, Winston-Dillard Water District, Tri-City JW&SA, Roseburg Forest Products – Dillard, City of Myrtle Creek, and Green Area Water and Sanitary Authority). Three of these water systems had detections above the 0.3 ug/L “trigger level” that would require weekly raw and finished water sampling (Buell-Red Prairie Water District, Josephine County Parks – Lake Selmac 1, and Josephine County Parks – Lake Selmac 2) and no toxins were detected in finished water at any of these locations. Cylindrospermopsin was not detected in the 2022 sampling season.

For the 2022 monitoring season, DEQ is also using remote sensing capability for cyanobacteria with a focus on methods developed by EPA for CyAN. Throughout the 2022 season, DEQ provided regular updates to charts and maps of HAB trends for several lakes resolvable by the CyAN HAB datasets from the EPA. This includes lakes both within drinking water source areas and recreational lakes.

In addition, drinking water protection staff have provided input for DEQ's updated Freshwater Cyanobacteria Harmful Algal Bloom (CyanoHAB) Strategy which will be published in 2023. This document represents a significant update to the original DEQ Harmful Algal Bloom (HAB) Strategy published in 2011 by explaining in detail workflows

and responsibilities of programs within DEQ and partner agencies including information on drinking water sources. The updated strategy provides an operational manual for DEQ staff, managers, and partner agencies to reference when investigating and reporting potential CyanoHABs for waterbodies in Oregon and will also include recommendations on how Oregon's approach to detecting, monitoring, and managing CyanoHABs can be improved upon in the future.

Coordination with Soil and Water Conservation Districts and Watershed Councils

DEQ is continuing to grow our relationship with SWCDs and watershed councils and is helping public water suppliers make connections with these partners. DEQ connects often with these partners and supports them with grant applications and technical assistance.

Forest Wildfires – Drinking Water Risk Tracking

DEQ and OHA drinking water protection staff continued to track forest wildfires where they occur within drinking water source areas.

The September 2020 wildfires impacted many public and private water systems. DEQ is continuing to evaluate these source water areas for potential long-term changes that threaten water quality as a result of fire-related landscape damage. Tasks completed by DEQ in FY2021-2022 included the following:

- Provided subject matter experts to state Office of Emergency Management actions and lead the Potable Water Resources Task Force under the state's emergency response and State Recovery Functions.
- Enhanced ETART data to help prioritize riparian restoration funding upstream of drinking water intakes. New DEQ mapping data of priority streams is hosted by OSU in the After the Fire map. This helps Oregon Watershed Enhancement Board (OWEB) prioritize ~\$15.75M in legislatively funded grants for wildfire restoration in impacted watersheds. OWEB RFP was issued in Nov 2021 and first round of applications due in Jan 2022. DEQ has been a member of OWEB Technical Review Committee for these grants which helps focus the funding on high priority drinking water source areas.
- Ongoing coordination among Oregon state agencies about geotechnical assessment follow-up work to better understand landslides and debris torrent hazards. This assessment by DOGAMI of landslide potential within 2020 fire areas will primarily be used for evaluating risk to public safety and infrastructure but can also be used to evaluate risk to drinking water intakes and structures. <https://www.oregongeology.org/landslide/postfiredebrisflow.htm>
- Assisted EPA in evaluating water and wastewater components of five projects that will receive technical assistance for wildfire recovery under the EPA/FEMA Blanket Purchase Order.
- Requested assistance from OEM, Governors Regional Solutions representatives, and FEMA's philanthropy advisor for five small private PWSs where funding is beyond the purview of our typical OHA/USDA/BizOr funding sources.

- Steering committee work for US Forest Service/Northbridge Environmental QUIVER project expansion to Oregon—method for quantifying benefits to drinking water systems and others for forest protection and restoration activities.
- Discussion and informational work with Molalla River Watch and Ecotrust Forest Management on post-fire management goals and practices for drinking water and ecosystem protection/restoration.
- Assisted Public Health Division staff with ETART risk assessment questions regarding property clean-up projects done in the wake of the 2020 Labor Day fires.
- Attended final Interagency Strategic Recovery Team Meeting with Office of Emergency Management and other state partners. Prepared and reported on final Potable Water Resource Task Force tasks.

In addition, OHA has been assisting water systems with post-wildfire VOC distribution system sampling for burned systems.

Coordination with the Oregon Toxics Reduction Strategy

DEQ drinking water staff continues working toward implementation of the agency-wide comprehensive, integrated approach to address toxic pollutants in the environment. DEQ has developed a cross-media toxics reduction strategy with the assistance of 11 separate DEQ programs that already address some aspect of toxics management, including drinking water protection. The objectives of this strategy include optimizing agency resources by focusing on the highest priority pollutants in a coordinated way, implementing actions that reduce toxic pollutants at the source, and establishing partnerships with other agencies and organizations to increase the effective use of public and private resources. The Drinking Water Protection program input has included assistance in identifying sources of toxics, selecting toxic reduction priorities, implementation of pesticide collection events, and prioritizing the statewide human health risks.

In FY2021-2022, DEQ's drinking water protection team focused on pesticide collection events, information sharing on emerging contaminants, and the Green Chemistry initiative. DEQ's Water Quality Monitoring program at the Laboratory Division has continued statewide monitoring of surface and groundwater for toxic chemicals throughout the state. The Pesticide Stewardship Partnerships continue to work directly with commercial pesticide users to track pesticide use, identify contamination pathways, and reduce off-target movement of pesticides. This work helps the Drinking Water Protection program better understand the risk of contaminants reaching drinking water sources. DEQ's existing toxics reduction strategy is available at:

<https://www.oregon.gov/deq/Hazards-and-Cleanup/ToxicReduction/Pages/Reducing-Toxics.aspx>

Certification of Updated Groundwater Drinking Water Source Area Delineations

Periodically updating drinking water source areas for groundwater systems can be critical for those community water systems actively involved in drinking water source protection. Drinking water source areas for groundwater sources may require modification due to the addition/abandonment of water system wells, changing pumping patterns between wells, population growth, and/or a need to more accurately identify the drinking water source area around the groundwater intake. Since 2005, OHA has received 8 delineation projects (covering ten community water systems) to review for OHA certification. Three of these projects, involving five community water systems, were funded through the OHA Drinking Water Source Protection Grant Fund. OHA did not receive any requests for certification of newly delineated groundwater source areas during FY2021-2022.

Coordination with State and Federal Agencies

Forest and Agriculture

DEQ continues to work with other state and federal agencies to raise the profile of the need for drinking water protection in Oregon, including the Department of Agriculture, Department of Forestry, US Forest Service, USDA-NRCS, and the Bureau of Land Management. DEQ's partnerships with federal agencies on funding sources is discussed above. Details on much of our work with our state Departments of Forestry (ODF) and Agriculture (ODA) are provided in the section on Non-Point Source Coordination. In the last year, DEQ has frequently worked with these agencies on incorporation of drinking water needs into planning efforts. In addition, DEQ is involved in informing state legislators on source water protection needs within the state.

Source Water Assessment data is also provided as needed to other agencies to facilitate incorporation of protection strategies into their respective programs. This coordination has identified new opportunities for DEQ and OHA to enhance the depth and quality of technical assistance provided to public water systems.

Groundwater Management Areas

Oregon has three designated Groundwater Management Areas (GWMAs) due to elevated nitrate concentrations. GWMAs are designated by DEQ and once declared, a local groundwater management committee, comprised of affected and interested parties, is formed to work with and advise state agencies on the development of an action plan to reduce groundwater contamination within the area. All three designated GWMAs have public water systems located within their boundaries. Therefore, DEQ and OHA drinking water protection staff have been actively involved with providing support and information to the local groundwater management committees. Most often this involves attending GWMA committee meetings and providing comments. Occasionally it involves providing more detailed information regarding public water systems. Following the announcements of the Morrow Co. Emergency Declaration regarding nitrate in groundwater/drinking water in the Lower Umatilla GWMA, DEQ and

OHA have been providing information, as needed, for discussions on private well water and nitrates and providing support as needed on PWS concerns.

Oregon Water Resources Department

OHA continues to work with the Oregon Water Resources Department (OWRD) to integrate drinking water source protection with water quantity programs and projects. During FY2021-2022 OHA staff collaborated with OWRD staff on several projects and worked with OWRD and various consultants to encourage the development of source water protection in conjunction with Aquifer Storage and Recovery (ASR) projects.

Under the OHA - OWRD Memorandum of Agreement (MOA) regarding public water supply groundwater systems (finalized and implemented during FY2014–2015), OHA and WRD continue to coordinate reviews and activities when necessary and provide mutual assistance with respect to regulated public water system activities. These efforts help ensure that management decisions related to applicable drinking water systems are fully and efficiently coordinated to protect Oregon’s water resources and Oregon’s aquifers, while fulfilling the requirements of the Safe Drinking Water Act.

In Oregon, OWRD issues limited licenses and permits for Aquifer Storage and Recovery (ASR) projects. When reviewing applications, OWRD coordinates with OHA and DEQ to review and address water quality issues. Most ASR projects in Oregon are operated by community water systems, regulated by OHA, with the intent of storing water for future drinking water use. However, a few ASR projects are designed exclusively for irrigation purposes which are mostly related to agricultural use. Regardless of intended use, OHA staff involvement includes: reviewing proposed ASR projects during the Limited License and Permit application processes; reviewing License/Permit modifications/extensions; and reviewing annual ASR reports. OHA evaluates the ASR well and the receiving aquifer susceptibility to contamination using sensitivity analysis tools and potential contaminant source inventory data developed during Source Water Assessment activities. Water systems with ASR projects are encouraged to protect both their ASR project source water and native groundwater near the ASR project. The OHA review also ensures that for each ASR project, injected and recovered water monitoring requirements meet SDWA standards. During FY2021-2022, in addition to reviewing the annual ASR reports, OHA commented on and/or provided technical assistance on seven drinking water related ASR projects involving community water systems. There were no irrigation-related ASR projects in FY2021-2022 that required OHA review and comment.

Other OHA Programs

The Source Water Assessment Project (SWAP) database and GIS resources continue to be utilized to assist other OHA projects and routine work, especially in the emergency spill response notification network, Harmful Algae Bloom notification network, Plan Review process, groundwater under the direct influence of surface water monitoring program, wellfield analysis determinations, SOC use monitoring waivers, water system Consumer Confidence Reporting, and continued implementation of the Groundwater Rule.

Emergency spill response maps and [harmful algae bloom](#) maps have been developed for staff use from our GIS resources and are updated as needed. These maps provide critical information regarding downstream water systems and distances between hazards and drinking water intakes. When a spill is reported, or a harmful algae bloom is identified, using the maps, staff can identify at risk water systems that need to be alerted and, if needed, provide recommendations regarding protective measures.

OHA Drinking Water Source Protection staff continue to use Source Water Assessment tools to provide critical guidance regarding groundwater drinking water sources. Guidance and recommendations include evaluation of both proposed and final construction of new groundwater sources; susceptibility from sanitary setback deficiencies; and investigations of confirmed e.coli detections in raw source water. During FY2021-2022, OHA Drinking Water Source Protection staff provided guidance and recommendations in 107 separate instances. The assessment of well/spring construction and aquifer characteristics during Plan Review helps ensure that each new public water supply well/spring meets current construction standards and, if determined to be susceptible to fecal contamination, ensures that the well/spring is appropriately flagged for 12 months of source water assessment monitoring under the Groundwater Rule. In situations where e.coli has been confirmed in the raw water source, the evaluation helps identify if the well/spring is susceptible to being under the direct influence of surface water and/or should be reconstructed to minimize the potential for on-going e.coli contamination. Data regarding evaluation results are maintained by OHA in the water system's Source Water Assessment file to be used later when OHA Drinking Water Source Protection staff have an opportunity to re-evaluate the water system for a Source Water Assessment update/modification.

GIS resources generated and maintained by the Oregon DEQ during the Source Water Assessments are also used to review monitoring reduction requests submitted to OHA by community water systems. Community water systems may request a "Wellfield Determination" to identify the Entry Point most susceptible to contamination for representative sampling of VOCs and SOCs provided their sources are; on separate Entry Points, located close together, and draw water from the same aquifer. A community water system may also request a SOC Use Waiver which involves documenting SOCs used within the identified Drinking Water Source Area as per current land use practices, potential contaminant sources identified during the Source Water Assessment, water quality sampling results, and reported chemical use within the local County. During the current reporting period, OHA staff reviewed three requests for Wellfield Determinations and no requests for an SOC Use Waiver.

OHA continues to make use of their SWAP database to implement the Groundwater Rule in Oregon. In December 2009, OHA opted to utilize the hydrogeologic sensitivity assessments (generated as a result of the SWAs) to identify wells and springs that should conduct 12 months of source assessment monitoring due to their susceptibility to viral contamination. In 2012, OHA developed an automated sample tracking system and began issuing violations to public water systems that did not collect required

monthly assessment monitoring samples. OHA continues to use the automated sample tracking system. As a result, compliance with monthly sampling results has increased, monthly sampling results are quickly evaluated, and monthly monitoring schedules are quickly closed out once monitoring requirements have been met.

To date, monthly source assessment monitoring has been completed on 565 groundwater sources identified as susceptible to viral contamination. Of those, 45 have been confirmed as virally contaminated. OHA staff have reviewed and updated SWA data for each of the contaminated sources and made recommendations for either permanent installation of 4-log inactivation/disinfection or reconstruction of the source. If the aquifer was the primary pathway for contamination, 4-log inactivation/disinfection was recommended. Source reconstruction was recommended if inadequate source construction appeared to be the primary pathway for contamination. OHA and DEQ staff work collaboratively to identify source water protection tools for those water systems where 4-log inactivation/disinfection is installed as a permanent solution.

Other DEQ Programs

The DEQ SWA database and GIS resources continue to be utilized to assist other DEQ programs, especially in the Land Quality Division to identify priority areas for cleanup work, underground storage tanks, heating oil tanks, household hazardous waste areas, dry cleaners, brownfield sites, and site assessments. In FY2021-2022, DEQ has been assisting the cleanup program and EPA with groundwater vulnerability model data collection and evaluation that will help prioritize areas for assessment.

DEQ Drinking Water Protection staff continue to work with other DEQ programs to improve the geospatial representations of locations and prevent impacts to public water systems within the source areas. Coordination with the Water Quality Permits and Assessment group assures that other parameters related to water quality are included in their ongoing analysis. Drinking water source areas are included in Oregon Incident Response Information System to facilitate notification of downstream risks from spills/releases to streams. DEQ drinking water staff provide input to help develop priorities for the annual CWA 319 RFP for public water systems with nonpoint source contamination issues to enable the systems to be ranked within the priority list for analysis by basin. DEQ DWP also frequently coordinates with the Nonpoint Source program staff on overlapping priorities and input on statewide policy issues such as agricultural and forestry projects. DEQ is also coordinating with our Clean Water State Revolving Loan Fund staff about funding requests for water systems to complete non-point source pollution reduction projects or to acquire community forestlands for source water protection.

Coordination with Rural Nonprofit Organizations

National Rural Water Association (NRWA)

OHA and DEQ coordinate work with the state NRWA affiliate (Oregon Association of Water Utilities) through monthly coordination meetings, providing comments on

workplans, providing technical assistance, speaking at conferences/workshops, and receiving annual updates of their progress in the area of Source Water Protection. Much of their Source Water Protection work since 2006 is reflected in our reported numbers to date. Our database indicates that they have provided Source Water Protection assistance to 14 community water systems classified as substantially implemented and 43 community water systems classified as initially implemented. Our database also indicates that they have provided Source Water Protection assistance to 7 non-transient non-community water systems classified as substantially implemented and 10 non-transient non-community water systems classified as initially implemented.

Rural Community Assistance Corporation (RCAC)

The Rural Community Assistance Corporation (RCAC) has very limited program funding dedicated solely to source water protection in EPA Region 10. Still, RCAC continues to coordinate with OHA and DEQ with outreach and education, training, technical assistance, and access to resources related to source water protection in Oregon. When possible, RCAC participates on monthly conference calls with the Oregon Source Water Protection Workgroup including OHA, DEQ, and Oregon Association of Water Utilities (OAWU).

RCAC will continue coordinating with the Oregon Drinking Water Protection Program, including opportunities to promote source water protection in Oregon under programs as possible next year.

Information Sharing

Trainings and Workshops

DEQ and OHA remained involved in a number of workshops and conferences supporting drinking water protection outreach during the reporting period. These included events sponsored by Rural Communities Assistance Corporation, Oregon Association of Water Utilities conferences, and American Water Works Association Short Schools, as well as OHA Drinking Water Advisory Committee meetings, County Partner meeting/trainings and watershed council and County Soil and Water Conservation District meetings. In addition, staff presented at several Source Water Collaborative Webinars highlighting Oregon's success with accessing various funding sources including the NRCS NWQI program.

Implementation Results as of June 2022

Percentage of Community Water Systems Protected

Table 1 shows implementation status in Oregon as of June 30th, 2022 and is broken out into Substantial Implementation achieved in FY2021-2022 and cumulative numbers through the end of FY2021-2022, including Initial Implementation. Table 1 indicates fourteen additional community water systems achieved substantial implementation during FY2021-2022. This was double the number that achieved substantial

implementation in the previous year. In addition, two non-transient non-community water systems achieved substantial implementation.

Currently there are 919 community water systems in the state, a net increase of nine water systems since the last reporting period (Table 2). Increases in the total number of community water systems within the state occur when the addition of new community water systems is greater than the number of community water systems lost through system consolidation and/or declines in service population to the point where the water system is no longer regulated under the Safe Drinking Water Act.

During FY2021-2022, the total number of community water systems with substantial implementation in Oregon increased by ten from 332 to 342 (Table 2). The difference between the number of community water systems that achieved substantial implementation and the reported increase in the cumulative total is likely the result of four community water systems, historically counted as substantially protected, ceasing operations as a result of consolidation or reclassification. As a result, the percentage of substantially protected community water systems improved to 37% for the year (Table 2), even as the net total of community water systems within the state increased. Since 2018, the number of substantially protected community water systems has grown from 314 to 342 while the percentage of substantially protected community water systems has increased from 35% to 37% (Table 2).

The EPA national target for the percent of community water systems where risk to public health is minimized through substantial source water protection is 49% (National Water Program Guidance FY 2018-2019, Publication No. 800D17001, USEPA). As shown in Table 2 (and graphically in Attachment B), the rate at which Oregon makes year over year advances toward mirroring the national target was relatively flat from 2018 to 2020. However, with increased outreach efforts through the Small System Outreach Project (previously discussed) and development of a priority water system list focusing on mid-size water systems, there has been a noticeable increase in the year over year advance toward mirroring the national target. In addition, the development of web-based drinking water source protection tools by DEQ and the ongoing release of Source Water Assessment updates by both agencies should help increase the number of community water systems that achieve substantial implementation in Oregon through increased awareness and communication between water system personnel and OHA/DEQ staff.

Community water systems that achieve initial implementation of source water protection strategies are water systems that have shown some interest in drinking water source protection and may be interested in implementing protection strategies. Compared to last year's totals, Table 2 indicates that 27 additional community water systems achieved initial implementation during FY2021-2022. As a result, the percentage of all community water systems in Oregon that have achieved initial implementation is now at 54%. The number of community water systems that have achieved initial implementation includes both those that have achieved initial implementation and those that have implemented substantial protection strategies. The percentage of community

water systems that have achieved initial implementation is roughly equivalent to the national target for substantially protected community water systems, suggesting that there is enough interest amongst community water systems for Oregon to continue to narrow the gap between the EPA national target and Oregon's current percent of substantially protected community water systems.

Non-transient non-community water systems include places of work and schools. Therefore, OHA and DEQ continue to work with these water systems, to achieve substantial implementation status. As of June 2022, a total of 44 non-transient non-community water systems have "substantially implemented" a strategy to protect their drinking water, two more than reported last year. OHA also believes schools comprise a sensitive population and thus it is an important investment in public health to include them as priority water systems for implementation assistance. So, we include in our outreach efforts eleven small schools that fall below the formal definition of a public water system.

Table 1.

	Implementation Number of PWSs (includes "Buyers") ⁽¹⁾	Implementation Population (Population + Buyer Pop) ⁽¹⁾	Total Number (Active CWSs – includes SWP/GWP/GUP)	Total Population (Pop of Active CWSs including SWP/GWP/GUP)	% by number of PWSs	% Population
Summary						
Oregon Systems with Substantial Implementation achieved in FY2021-2022						
Substantial Imp – GW CWS	13	2,070				
Substantial Imp – SW CWS	1	33,896				
Substantial Imp – All CWS	14	35,966				
Substantial Imp – NTNC	2	229				
Oregon Systems with Substantial Implementation through end of FY2021-2022 (Cumulative)						
Substantial Imp – GW CWS	173	369,785				
Substantial Imp – SW CWS	169	2,699,688				
Substantial Imp – All CWS	342	3,069,473	919	3,583,427	37%	86%
Substantial Imp – NTNC	44	15,257	339	77,836		
Oregon Systems with Initial Implementation through end of FY2021-2022 (Cumulative)						
Initial Imp – GW CWS	295	531,493				
Initial Imp – SW CWS	199	2,828,214				
Initial Imp – All CWS (includes Subs)	494	3,359,707	919	3,583,427	54%	94%
Initial Imp – NTNC (includes Subs)	91	30,319	339	77,836		

Percentage of Population Protected

Table 1 shows that the population of the community water systems that achieved substantial implementation of source water protection strategies during FY2021-2022 is 35,966. Currently, there are an estimated 3,069,473 Oregonians served water by community water systems that are substantially protected. When compared to last year's results, this is an increase of 73,543 substantially protected Oregonians (Table 2). The increase in overall population protected is due to the additional water systems that achieved substantial implementation and population changes among other substantially protected water systems. Most substantially protected water systems that made population adjustments reported slight population increases. For comparison, the overall population estimate of Oregonians served by community water systems increased by 40,884 compared to last year.

Table 2, Community Water System Five Year Trends

Totals:	FY2018 ⁽¹⁾	FY2019 ⁽¹⁾	FY2020 ⁽¹⁾	FY2021 ⁽¹⁾	FY2022 ⁽¹⁾
Total number of CWSs	897	905	898	910	919
Estimated total population served ⁽²⁾	3,482,131	3,499,098	3,501,992	3,542,543	3,583,427
Substantial Implementation:					
Number of CWSs	314	317	319	332	342
Percent of CWSs	35%	35%	36%	36%	37%
Estimated Population served	2,966,794	2,962,016	2,970,691	2,995,930	3,069,473
Percent of Population	85%	85%	85%	85%	86%
Average Population Per Protected CWS System ⁽²⁾	9,448	9,344	9,312	9,024	8,975
Initial Implementation:					
Number of CWSs	451	451	454	467	494
Percent of CWSs	50%	50%	51%	51%	54%
Estimated Population Served	3,219,645 ³	3,207,838	3,275,627	3,300,866	3,359,707
Percent of Population	92%	92%	93%	93%	94%

1. Population numbers reflect retail population only.
2. 2022 average population per Oregon CWS is approximately 3,899.
3. Reported 2018 number adjusted by 13,600 to account for population double-counting error.

The EPA national target for the percent of the population served by community water systems where risk to public health is minimized through substantial source water protection is 59% (National Water Program Guidance FY 2018-2019, Publication No. 800D17001, USEPA). As Table 1 shows, the number of Oregonians served by community water systems is estimated to be 3,583,427 and the number served by community water systems that have minimized public health risks through substantial source water protection is 3,069,473. Based on our estimates, this is 86% of the community water system service population in Oregon. As shown in Table 2 (and

graphically in Attachment B), Oregon continues to exceed the EPA national target for the percent of population protected.

Table 1 shows that the population of the community water systems that have achieved initial implementation is 3,359,707. Last year's total was 3,300,866 (Table 2). This suggests that the population associated with community water systems that have achieved Initial Implementation has increased by 58,841 Oregonians. As stated earlier, these increases in population are due to water systems achieving initial implementation and population growth among water systems that have already achieved initial implementation. Community water systems that have shown an interest in drinking water source protection account for 94% of Oregonians that obtain their water from community water systems. In addition, there are 15,257 Oregonians that are substantially protected through the efforts of 44 non-transient non-community water systems and there are at least 30,319 Oregonians that are regularly served water by 91 non-transient non-community water systems that have shown an initial interest in drinking water source protection.

Year-to-Year Comparison

Table 2 is a year-to-year results comparison for the last 5 years. For each year it includes the total number of community water systems that have achieved substantial implementation and the population served by these systems. The FY2017-18 through FY2021-2022 numbers represent retail numbers for community water systems and their populations only. Retail numbers include populations of those purchasing community water systems where the substantially protected purchased water is the primary water source.

Table 2, like Table 1, shows that substantial implementation totals for community water systems increased in FY2021-2022 and the overall percentage of community water systems substantially protected increased to 37%. Table 2 also shows an increase in the population substantially protected and that the overall percentage of population substantially protected also saw a modest gain to 86%. While the overall percentage of community water systems substantially protected and overall percent of population protected has grown slowly over the last five years, there have been notable gains. The net total number of community water systems protected has increased by 28 while the net total number of population protected has increased by an estimated 102,679 people. This has occurred at a time when the overall number of community water systems in Oregon has grown by 22 and the number of Oregonians served by community water systems has grown by an estimated 101,296 people.

In Oregon, roughly 13% of the community water systems have service populations that exceed 3,300. About 75% of these larger water systems have achieved substantial implementation, many of them years ago. Water systems serving less than 3,300 customers make up about 87% of community water systems in Oregon. Of these smaller water systems, only about 31% have achieved substantial implementation. Current SDWIS Oregon data indicates the average population served by an Oregon community water system is approximately 3,899 while the current average population of

a substantially protected community water system is 8,975. Since Oregon's community water systems are skewed toward smaller systems (the majority of which have not achieved substantial implementation) it's expected that over time, the average population protected per protected community water system will decrease as the more numerous smaller water systems achieve substantial protection. Table 2 shows that since 2018 there has been a decrease in the average population per community water system that is substantially protected, while the number of substantially protected community water systems has steadily increased. This indicates the ongoing adoption of substantial protection strategies by smaller community water systems over time. Continued decreases in the average population for a substantially protected community water systems will be achieved by providing source water protection based technical assistance to smaller community water systems through regional projects and on an individual water system basis.

The data shown in Table 2 and the Figures in Attachment B show that Oregon continues to exceed the EPA national target for the percentage of the population served by community water systems where public health is substantially protected. The data also show that Oregon continues to make progress toward mirroring the EPA national target of the percentage of community water systems that are substantially protected. Since most large Oregon community water systems are already substantially protected, to mirror the EPA national target for percentage of community water systems protected, OHA and DEQ recognize that it will take a continued focus on providing technical assistance and outreach to smaller community water systems. We believe that our ongoing updated source water assessment project and small system outreach project will increase our contact with these smaller community water systems, helping raise the awareness level regarding potential drinking water quality risks. We also believe these efforts will help us capture implementation accomplishments that we have yet to verify and document.

Attachment A:

Oregon DWP Implementation Status as of 30 JUN 2022

Summary:	Implementation Number of PWSs (includes "Buyers") (*)	Implementation Population (Population + Buyer Pop) (*)	Total Number (Active CWSs - includes SWP/GWP/GUP)	Total Population (Population of Active CWSs including SWP/GWP/GUP)	% by number of PWSs	% population
Systems with Substantial Implementation achieved in FY2021-2022						
Substantial Imp - GW CWS	13	2,070				
Substantial Imp - SW CWS	1	33,896				
Substantial Imp All CWS	14	35,966				
Substantial Imp - NTNC	2	229				
Cumulative Counts for Oregon						
Substantial Imp - GW CWS	173	369,785				
Substantial Imp - SW CWS	169	2,699,688				
Substantial Imp All CWS	342	3,069,473	919	3,583,427	37%	86%
Substantial Imp - NTNC	44	15,257	339	77,863		
Initial Imp - GW CWS	295	531,493				
Initial Imp - SW CWS	199	2,828,214				
Initial Imp - All CWS (includes Subs)	494	3,359,707	919	3,583,427	54%	94%
Initial Imp - NTNC (includes Subs)	91	30,319	339	77,836		

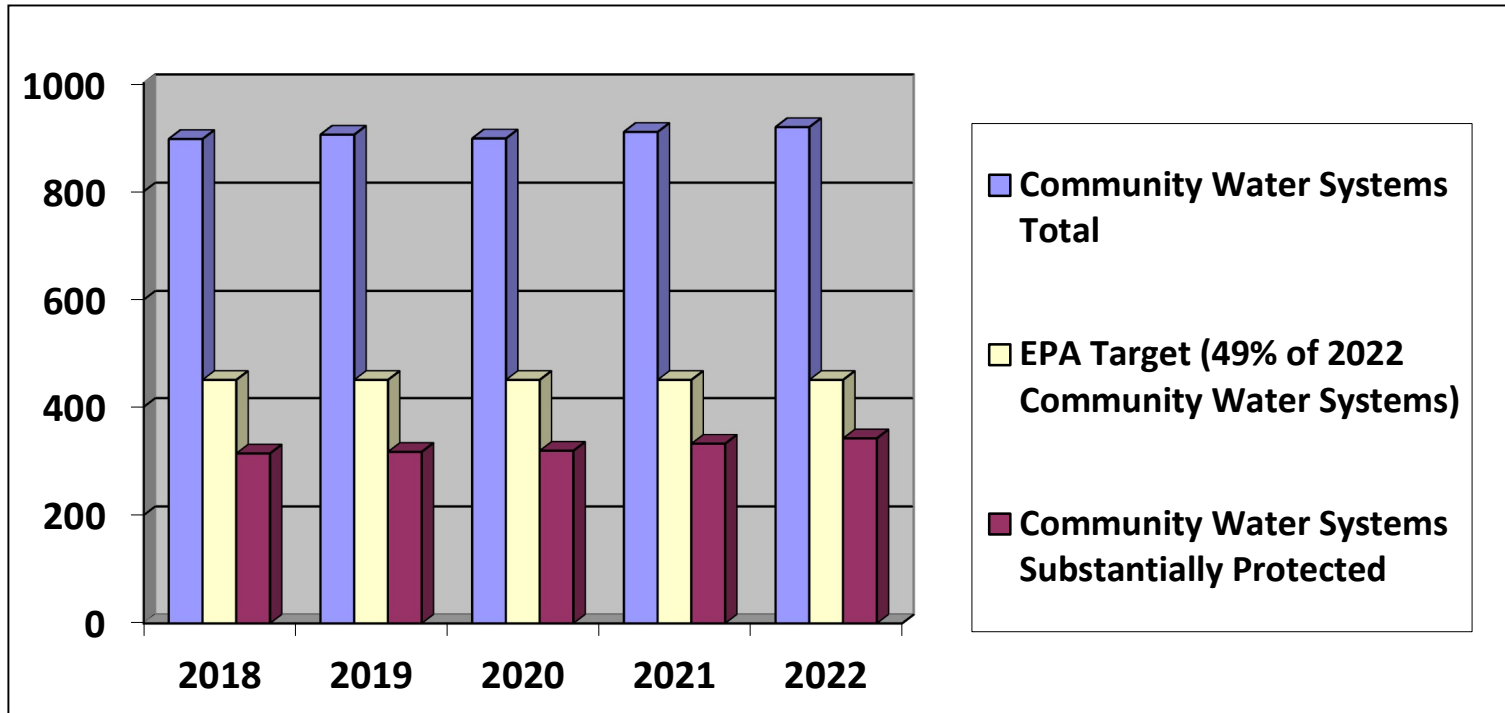
***NOTES:**

- (1) The total number of systems and population includes PWSs with substantial implementation plus wholesale buyers that have the PWS listed as their primary source. It does not include PWSs listed as "inactive" or PWSs where the seller is indicated as an emergency or secondary source. It also does not include transient non-community (NC) water systems or NP (non-public) water systems regulated under Oregon regulations.
- (2) Population and Wholesale (buyer) Population for systems with substantial or initial implementation were updated **20JULY2022**
- (3) Numbers in red (total number of systems and total pop) are estimates from Data Online for Community PWSs as of **20JULY2022**. EPA will insert these numbers for the final reporting based on their SDWIS data pull. Oregon has adjusted SDWIS population numbers to remove double counting for systems that strictly provide wholesale water (JWC, SFWB and NCCWC).

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Attachment B: Figures

Year to Year Number of Community Water Systems vs Number of Community Water Systems Substantially Protected for each Field Year ending on June 30th, 2022



Year to Year percent of Oregonians Served by Community Water Systems that are Substantially Protected for each Field Year ending on June 30th, 2022.

