

Willamette Future Project

Clean Drinking Water for All

Findings, Three Strategies & Next Steps

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I. The Willamette Future Project

The Willamette River and its thirteen major tributaries encompass 11,460 square miles in western Oregon. Over two-thirds of the state's population lives in this region which also includes three-quarters of the state's economic activity. The Willamette Basin provides drinking water for more than a million Oregonians. Although drinking water protection for surface water sources is not regulated by the Oregon Department of Environmental Quality (DEQ) or the Oregon Health Authority (OHA), it is increasingly being viewed and accepted as a critical component of water utilities across the country. Overall, Oregon relies on surface water for 68 percent of its freshwater withdrawals and groundwater for the remaining 32 percent.

The Willamette River Initiative's (WRI) Willamette River Report Card, along with other recent studies, point to accelerating problems driven by a rapidly warming climate, including water quality and temperature problems, increased fish consumption advisories, loss of floodplain forests, inability to meet environmental flow targets for species protection, long-term concerns regarding adequate water supply for both agricultural and urban use; and, an increasing number of wildfires upstream.

The Willamette Future Project (WFP) has developed three strategies to catalyze and accelerate source water protection work and guide new investments from drinking water utilities and related agencies. This report identifies opportunities to align and leverage existing work, and to bring that work to scale.

The project is a collaboration among the Willamette River Initiative (Meyer Memorial Trust), Willamette water utilities, federal, state and local land use and emergency response agencies, and agriculture leaders in the Willamette Basin.

II. Surveying the Field: University of Oregon's Findings

On behalf of the Willamette Future Project, the University of Oregon's Institute for Policy Research & Engagement (IPRE) conducted a Survey of Willamette Basin Drinking Water Providers for their perspectives on source water protection, collaboration and funding. Twenty-four drinking water utilities participated in the survey. Through the interview and survey research, IPRE identified a number of themes.

Gaps in Existing Activities

The interviews and survey results identified several gaps related to funding, resources, and collaboration:

A. Lack of funding. The most commonly cited gap in restoration and mitigation efforts was a lack of funding necessary to take on additional projects. One interview participant captured this by saying that “robust money is needed in order to have a robust impact.” Getting more out of existing funding was a related comment heard throughout the interview process.

B. Limited staff capacity. The next gap highlighted limited staff capacity which hinders the efforts of drinking water agencies to develop and implement actions to protect drinking water at its source. Since there are no explicit mandates which regulate drinking water at its source, water quality efforts typically don't make it very far upstream. Water providers work on whatever needs immediate attention. Only larger and more affluent cities have staff capacity to implement ongoing source water protection efforts.

C. Lack of alignment between regulatory agencies. The third gap cited points to an overly complicated regulatory environment and lack of alignment between government agencies. Specific issues include agency overlap, inconsistency in how rules and regulations are interpreted and disagreement over who is in charge of what. Interviewees indicated that the regulatory framework makes it difficult for drinking water, wastewater and stormwater agencies to complete projects in a reasonable timeframe.

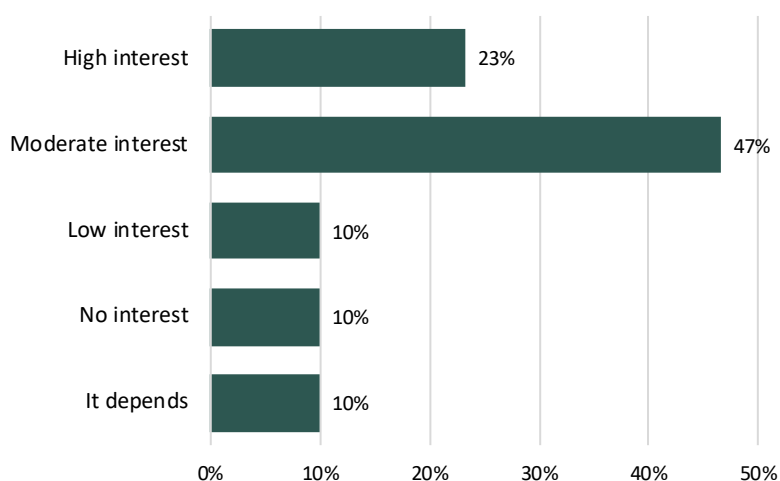
D. Low level of public awareness. This gap area included issues of communication and information awareness. Interviewees indicated that the importance of source water protection is not well understood among the general public. This also extends to low level of awareness of organizations that play an important role in source water protection efforts.

“The disparity between communities based on size and staff capacity represents a gap. Since there are no explicit mandates which regulate drinking water at its source, water quality efforts typically don't make it that far upstream. Water providers work on whatever needs immediate attention.”

Interest exists in collaborating on a Basin-wide planning effort

A key purpose of this research was to determine if utilities were interested in participating in Basin-wide source water protection efforts. Figure 1 shows that 70% of the responding utilities indicated either high or moderate interest in participating in a Basin-wide collaborative process. Two primary reasons surfaced under the “it depends” comments: (1) lack of resources, and (2) participation in other partnership efforts. With respect to engaging in a Basin-wide planning effort, 30% of respondents indicated they were interested in active engagement and 30% indicated interest in moderate engagement. Four percent (4%) of respondents indicated interest in leading a source water protection effort. Nineteen percent (19%) of respondents said they had little interest in engagement, 4% said no interest, and 15% said it depends.

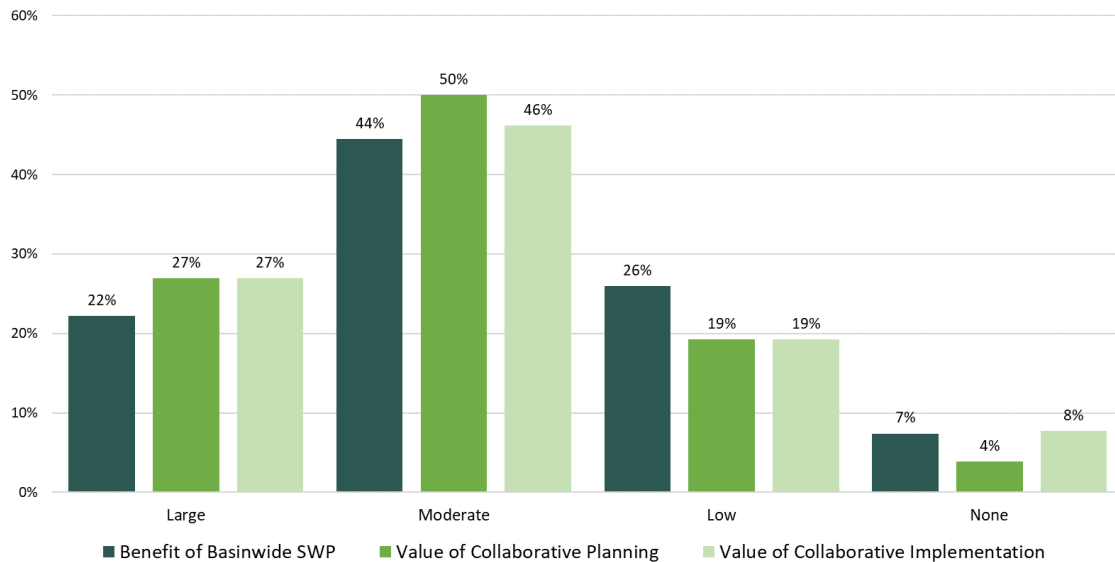
Figure 1: Interest in Partnering in Basin-wide Collaborative Source Water Protection Efforts



Collaboration Must Have Value

The majority of survey respondents view Basin-wide source water protection efforts favorably, especially collaborative source water planning and implementation. Figure 2 shows that 77% of respondents see large or moderate value in collaborative source water planning (27% indicated large value; 50% indicated moderate value); 73% of respondents see large or moderate value in collaborative source water implementation; and 66% of respondents see large or moderate benefit to a Basin-wide source water protection plan. Twenty-six percent of respondents see a low amount of benefit to a source water protection plan, while 19% of respondents see low value in collaborative planning or implementation.

Figure 2: Potential Level of Engagement in a Collaborative Process



Likelihood of Committing Resources

Figure 3 shows that resource commitments to a collaborative source water protection effort are most likely to come in the form of **data and information** (68% responded likely or very likely); **staff time** (48% responded likely or very likely); or **expertise/ technical skills** (44% responded likely or very likely).

Figure 3: Likelihood of Committing Resources

Resource	Very unlikely		Somewhat likely		Very likely
	Very unlikely	Unlikely	likely	Likely	
Financial	16%	12%	40%	16%	16%
Staff time	8%	12%	32%	28%	20%
Expertise/technical skills	8%	12%	36%	24%	20%
Equipment	12%	32%	24%	24%	8%
Data/information	4%	4%	24%	36%	32%
Other resources	0%	50%	0%	50%	0%

Magic Wand: What is the Biggest Priority?

Interview participants were asked the question “if you had a magic wand what issue in the Willamette Basin would you address and what action would you take to make this possible?” Participants provided a range of responses including deepening staff capacity and funding for small rural drinking water agencies, working with large land owners to prevent offsite movement of pesticides, and restoring fish passage and a healthier water temperature to the Willamette and its tributaries.

Other responses focused on moving more people from complacency to awareness and action on protecting drinking water at its source and educating the public about human impacts on water quality. One interviewee put it simply – to have a river where the general public is not worried about coming into contact with water. Another interviewee stated that care for the river is not going to look like it did in the past and their hope is that a collaborative watershed effort will help move key partners ahead on a shared path forward. A final response to this question, from one participant, focused on a desire to incorporate robust community involvement into this effort, as well as other environmental stewardship efforts.

Overall Survey Conclusions

Developing and implementing an effective source water protection plan is a broad challenge touching on a variety of authorities and agencies. One of the key findings from this process is the need for alignment in investments being made in the Willamette River Basin. Aligning investments would likely have positive outcomes on overall river health and improve return on investment.

“Relationships mean everything. Detailed planning efforts should come later, after building trust.”

Siloing and parochialism will be an ongoing challenge. Governmental agencies tend to focus narrowly on their mission and often lack the resources to engage in creative problem solving. Leadership is key to maintaining momentum and helping focus the collaborative on efforts that can make a difference and achieve initial results.

None of this is particularly surprising to us – the interviews serve to confirm much of what we and the project partners already know. The fact that representatives of key organizations recognize both the challenges and opportunities is encouraging. Moreover, it appears that stakeholders are willing to engage in a dialog about this project.

Interest, however, is not the same as sustained commitment. Sustained commitment requires identifying the specific areas where individual organizational missions overlap and focusing on how to leverage those missions. For some agencies, that may not be enough—a strong value proposition will be required. As such, next steps in this process should focus on defining the value proposition which will bring key partners together once the plan has been completed.

III. Three Opportunities ... Three Strategies

The goal of the Willamette Future Project is to advance successful work that has been tested on a smaller scale and is ready to be transferred and scaled up, and to pursue projects which have clear benefits to a number of water utilities across the Basin dealing with similar issues.

Fifty-six water providers in the Willamette River Basin derive all or a portion of their drinking water from surface water sources. These utilities treat and deliver drinking water to Basin residents and another 25 water utilities purchase and deliver water to Basin residents.

Drinking water utilities have long been engaged in strategies to preserve water quality in their source water areas. Many larger utilities have source water protection plans. Research suggests that, to date, no efforts have been made to think about source water protection on the Basin level.

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Over the past 18-months the Willamette Future Project has framed up top strategic focus areas for a Willamette Basin wide drinking water protection plan. Based on early conversations with a subset of water utilities in the Basin, we decided to look at three strategic areas where work is already underway and could be scaled up as a way to test a Basin-wide planning effort. These strategies include: agricultural focus on hazelnut growers to reduce pesticide use, minimize erosion, and increase riparian buffers; successfully dealing with harmful algal blooms and cyanotoxins; and, developing a more coordinated response to hazardous material spills.

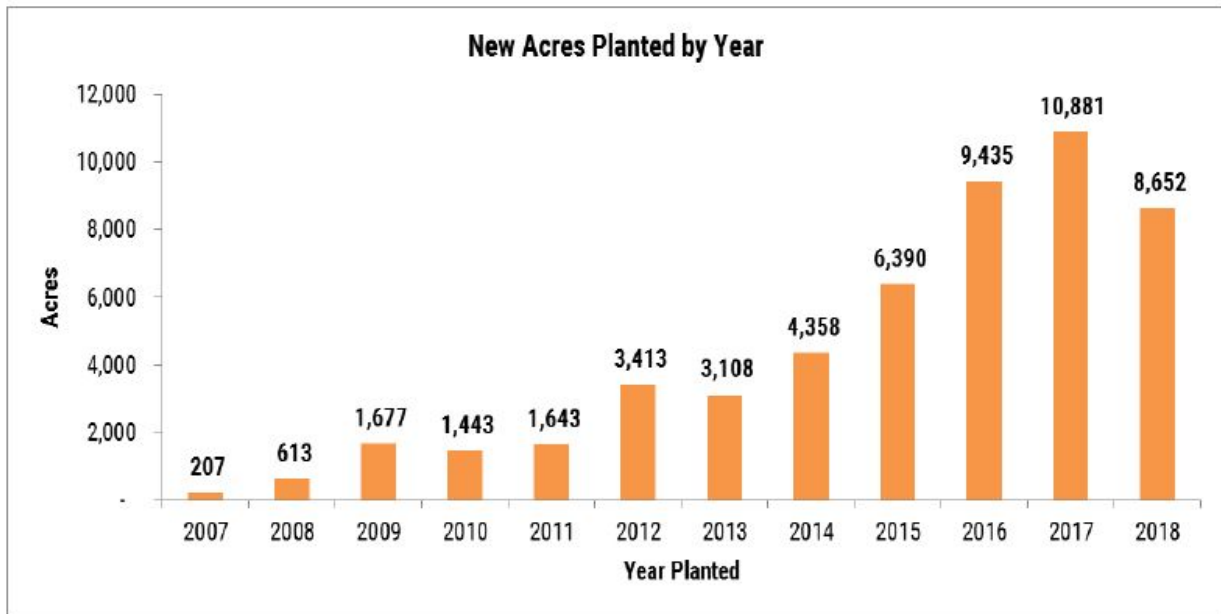
These strategies were explored in more depth at three workshops held with Basin leadership and incorporated the findings from the survey and interviews conducted by the University of Oregon.

Strategy #1: Smart, sustainable agricultural practices to limit the amount of pesticides and toxins in the Willamette and tributaries.

In the cool moist climate of the Willamette Valley, over 170 different crops are grown, including grass and legume seeds, tree fruits and nuts, wine grapes, berries, vegetables, nursery stock, Christmas trees, and field crops such as wheat, oats, mint, hops, hay, and other crops. Over the last three years hazelnut orchards have increased by almost 30,000 acres in response to increasing domestic and world demand (see Figure 4).

The Oregon hazelnut industry has been proactive in trying to reduce impacts to water quality from these orchards that use toxic pesticides to battle filbert worm and other pests. The lead partners on this work are the Oregon Hazelnut Commission (OHC) and Oregon State University (OSU), which are working toward developing stewardship and sustainability guidelines for hazelnut growers.

Figure 4: New Acres of Hazelnut Production in the Willamette Basin



Most non-organic hazelnut growers use a significant amount of pesticides to produce this crop, including a particularly toxic pesticide called Asana XL. Based on Oregon State University (OSU) data on typical pesticide application rates for Willamette Valley crops, hazelnuts use approximately 3.8 lbs/acre (OSU, 2008). Oregon State University partners with the Oregon Hazelnut Commission and Eugene Water & Electric Board to implement a mating disruption project in the McKenzie Watershed. This project had some good successes, leading to a nearly 75% reduction in pesticide use during the first several years of the study. More recently, growers have had to go back to using pesticides on a more regular basis at reduced application rates (i.e., perimeter only or every other row spray) to keep moth populations at bay. In addition to reducing application rates, increased monitoring techniques from this work have helped to reduce the amount of pesticide applied overall, as it is targeted to periods of time when moths are most active.

In the northwest portion of the Basin, Yamhill Soil & Water Conservation District (SWCD) is working with NRCS, hazelnut growers, and other SWCDs to implement cover cropping between rows to reduce erosion of soil that may contain nutrients, pesticides or other contaminants. Practices also include buffering along orchard edges to reduce sediment delivery to streams and rivers.

The proposed collaboration between Willamette Basin water utilities, Oregon Hazelnut Commission, OSU, OSU Extension, NRCS, SWCDs, and the Oregon Department of Agriculture would accomplish the following actions to reduce pesticide use and erosion from orchards while establishing a framework in which utilities can work with other agricultural commodities (e.g., blueberries, nursery stock, Christmas trees, etc.) in the future. Actions include:

- Partner with Oregon Hazelnut Commission, OSU and OSU Extension to develop a hazelnut stewardship and sustainability certification program that includes strong water quality guidelines that reduce pesticide use and increases buffers to filter runoff from orchards. Once certification guidelines are developed, a third-party entity would be responsible for verifying that growers are meeting these requirements.
- Assist the hazelnut industry with establishing Basin-wide monitoring for moth emergence and flight to allow targeted pesticide applications and provide data on moth trends over time. This will inform how climate change and increasing acreage of hazelnut orchards in the Basin impact moth life cycle and abundance.
- Establish a regularly scheduled (e.g., once every three years) well-coordinated and funded Basin-wide chemical collection event that allows growers to get rid of legacy pesticides and other farm chemicals no longer needed for safe and effective disposal or destruction and removes chemicals from the floodplain.
- Develop funding sources. One potential near term funding source is the Farm Bill funding for source water protection efforts with agriculture on the main tributaries in the Willamette Basin. The Oregon NRCS sees the National Water Quality Initiative (NWQI) that focuses on source protection as designed for tributary watersheds like the McKenzie, Santiam, Clackamas, Tualatin, etc. that provide drinking water to downstream populations.
- Pursue development of NRCS Regional Conservation Partnership Program (RCPP) proposal that can be a platform for combined investment from water utilities, Oregon Hazelnut Commission, NRCS, EPA, DEQ and other funding partners for chemical reduction projects, erosion controls, riparian buffers, and grower certification for the hazelnut industry that can be replicated in other agricultural sectors.
- Host initial conversations between water utilities, NRCS, SWCDs, ODA, DEQ, watershed councils, and hazelnut industry (started in Summer 2019) to develop a path forward and proposal to NRCS for establishing a Basin-wide RCPP funding stream.
- Use this collaborative approach between growers and downstream water utilities to tell the story that increases the domestic market for Oregon hazelnuts, increasing the financial health of the industry.

Strategy #2: An on-line resource center to address, and mitigate, harmful algae outbreaks.

Research and modeling of the Pacific Northwest's warming climate point to increasing occurrences of harmful algal outbreaks (HAOs, also known as harmful algal blooms) and production of cyanotoxins as a significant threat to downstream drinking water supplies.

In addition, new research is showing the connection between increasing wildfires and subsequent impacts on future algal production due to nutrient inputs to reservoirs and lakes from burned areas during winter storms. The Eugene Water & Electric Board and Oregon State University are currently conducting a multi-year research project following consecutive years of large fires around Cougar Reservoir in the Upper McKenzie River watershed to assess water quality impacts of these fires and the potential relationship between fire and subsequent harmful algal outbreaks. The theory is that wildfires provide significant nutrient inputs to downstream reservoirs during winter rains that can then fuel algal production later in the year.

Oregon has been facing increasing harmful algae outbreaks in recent years, which have impacted drinking water and recreational opportunities throughout the state. During the summer of 2018, Salem faced a harmful algae outbreak in Detroit Reservoir that produced cyanotoxins that rose to the level of a 'do not drink' advisory for residents under the age of 6 and those people with compromised immune systems. This lasted for weeks and thrust this issue into the spotlight. The Eugene Water & Electric Board detected toxins in the river water at its intake, but these toxins did not make it through the water treatment process.



After the Salem outbreak, The Oregon Health Authority (OHA) worked fast, both in responding to this situation and enacting temporary monitoring rules for utilities for the remainder of the summer. Utilities were required to monitor every two weeks and were able to send their samples to the DEQ state lab for analysis. There are now permanent rules in place that outline ongoing monitoring requirements for utilities.

This proposed on-line resource center for municipalities and communities would serve as a resource for Oregon utilities and the general public, and include:

- Timely warning of water bodies that have been issued HAO advisories, as well as publishing results of cyanotoxin data collected by utilities as part of new cyanotoxin monitoring rules to allow others to see when and where cyanotoxin production is happening in the Basin (based on biweekly OHA data and HAO advisories.)
- GIS maps with locations of harmful algal outbreaks and other data in a form that utilities and land managers can readily use. The web design will allow utilities to easily upload data from source monitoring that is not part of the required cyanotoxin monitoring compliance data that goes to OHA. Some utilities are monitoring reservoirs and rivers that are above and beyond what is required under the new cyanotoxin monitoring rules, which could be captured for a broader view of where issues are

surfacing across the Basin. The GIS web-based application would benefit from adding flow from USGS gauging stations and developing time of travel to downstream intakes from upstream reservoirs.

- Guidance for utilities about how to comply with regulations.
- FAQs and research on HAOs, cyanotoxin production, impacts of climate change, wildfires, conditions and timing for blooms, etc.
- Communications – tools, templates, and stories of lessons learned and what works.
- Treatment options for utilities to respond to toxin outbreaks monitor treatment effectiveness, and be able to communicate with treatment experts and/or utilities that have upgraded treatment for cyanotoxins.
- Basin-wide coordinated monitoring partnerships (e.g. Corps, utilities, USGS, and Forest Service) that promote and demonstrate successful efforts to use early warning/real-time water quality stations for algal blooms, combined with regular coordinated monitoring, to influence reservoir operations during toxin blooms that reduce downstream impacts.
- Providing the ability to share and coordinate analytical laboratory capabilities developed by Clackamas River Water Providers, City of Salem, and Eugene Water & Electric Board with other public water utilities in the Basin:
 - Sharing lab processes, standard operating procedures (SOPs), lessons learned, and other method enhancements so all three labs can gain from each other’s experience.
 - Assisting with lab capacity and ability to use other utility labs for duplicate or confirmation analysis, especially during emergencies.
 - Providing analytical services to other water utilities who do not have in-house lab capabilities to do toxin analysis, especially during emergencies and toxin outbreaks.

“We had the technical information we needed to be able to treat the water, and we were changing what we were doing at the treatment plant, but communicating with the public was very challenging – we didn’t have all the tools in place.” Lacey Goeres-Priest, City of Salem

Strategy #3: A Basin-wide emergency spill response communications system for rapidly sharing information and resources that integrates with DEQ and EPA's work.



Utilities face a wide range of challenges when it comes to responding to spills in the rivers or reservoirs that supply drinking water to their customers. There are a number of potential sources of hazardous material spills, such as highways, railroads, and pipelines that run through drinking watersheds. In addition, there are often facilities that use and store hazardous materials onsite above drinking water intakes and/or reservoirs. Spill reporting is not always done in an efficient manner, and in some cases, utilities are the last to be notified about a spill.

Some Willamette Basin water utilities, like EWEB and Clackamas River Water Providers, have developed watershed emergency response systems to facilitate better coordination and response to spills. These locally-led response systems can be scaled up and integrated with State and Federal response planning efforts. A Basin-wide emergency spill response communications system would go a long way in helping to both identify and respond to potential spill risks within the Basin. DEQ and EPA have begun to address spills with a partial response system in certain areas of Oregon, such as the coast. However, there is not yet a good system in the Willamette Valley, even though the majority of Oregon's population lives there and drinks from these watersheds.



The actions that would lead to a more coordinated and effective Basin-wide spill response system include the following:

- Conduct a Basin-wide threat assessment to identify high priority areas for developing response strategies (e.g. hazmat transport route bridge crossings, vehicle accident hotspots, pipeline corridors/stream crossings, concentrations of hazardous material facilities, urban stormwater outfalls that drain areas with hazardous material facilities, historic spill incident hotspots, etc.).
- Develop pre-determined response strategies around and downstream of high priority threat areas that address the potential hazardous material releases associated with these areas.
- Divide the Basin into tributary and mainstem Willamette River zones (potentially use current State HazMat Team regional boundaries) and develop watershed emergency response systems that leverage local resources and provide alerts to responders and utilities affected by spills in these areas. This can be accomplished by up scaling existing web-application tools associated with EPA, DEQ, and the Oregon Watershed Emergency Response System developed for the McKenzie Watershed.

- Identify and facilitate coordination among responders, hazmat teams, utilities, and other agencies in each tributary/Willamette River planning zone to: 1) identify critical resources to be protected, like drinking water intakes/well fields 2) assess existing response equipment inventories; and 3) collect contact information so the system can efficiently notify interested parties of spills.
 - Develop time of travel models using existing USGS gaging stations that can plug into a web-application system (these can also be used for HAB/cyanotoxin resource center).
- Integrate Federal, State, and local response zones through shared data, resources, and training. Use and enhance State GIS capabilities to provide common data layers to assist in the development of response web-applications for each zone and allow more efficient data maintenance/updating over time.
- Scaling up the Oregon Watershed Emergency Response System (OWERS) to the Willamette Basin would assist DEQ in meeting new EPA requirements under the Emergency Planning and Community Right-To-Know Act (EPCRA) that requires community drinking water systems to receive prompt notifications of spills or releases that are reportable under EPCRA Section 304. The OWERS web application provides immediate notice to all members when a spill is entered into the system via text and/or email and members can self-select if they want to take action or not.

IV. Moving forward

Developing and implementing an effective Source Water Protection Plan is a broad challenge touching on a variety of authorities and agencies. One of the key findings from the Willamette Future Project's work over the 18-months is the need for alignment in investments being made in the Willamette Basin. Aligning investments will likely have positive outcomes on overall river health and improve return on investment.

Getting to Success – Taking the Next Steps

Here are some recommended next steps that Willamette Basin utilities can take to move these initiatives forward.

A. Integration with Willamette River Network

- Drinking water utilities need to collectively engage the new Meyer Memorial Trust (MMT) Willamette River Network (WRN) Board and governing body. It's important that the WRN framework takes on the development and management of funding to develop and implement this work, as well as coordinating the pieces as they are built. This role can be worked out as the new Willamette River Network is launched and staff resources assigned.
- This coordination is also important because of the Willamette River Network's commitment and programs to address water justice issues in the Basin. WRN can make sure this work has positive impacts on smaller water systems that serve low-income people of color and lack funding or staff resources to address water quality concerns.
- Seek MMT funding support to develop the various scopes and proposals needed to secure necessary funding to accomplish this initial body of work. Funding could flow through the WRN and provide support for staffing who can manage and coordinate the collaborative and various projects to accomplish the initial elements of this Basin-wide source protection plan.

B. Sustainable Oregon Hazelnuts

- Continue to follow the Oregon Hazelnut Commission's development of stewardship and sustainability certification for hazelnuts growers that includes adequate water quality protection. Look at folding in practices like mating disruption, monitoring, reduced and focused pesticide spray application, erosion control/vegetated strips, cover crops, riparian buffers and other practices that reduce pesticide use and filter runoff from orchards. Connect water utilities with hazelnut growers in their watershed and support the above-mentioned practices.
- Develop a collaborative path to gain access to Farm Bill funding for Basin-wide conservation and water quality protection projects. EWEB and Yamhill SWCD facilitated an initial meeting in July 2019 between NRCS District Conservationists, SWCDs, ODA, OSU Extension, water utilities, DEQ, watershed councils, and the hazelnut industry that has opened an opportunity to develop a Regional Conservation Partnership Program

(RCPP) proposal. This proposal would span the whole Willamette Basin and provide funds for specific practices that benefit water quality and align with sustainability certification for growers. Another opportunity is the National Water Quality Initiative (NWQI) program, which focuses on source water protection planning in smaller geographic areas, such as the Willamette tributary watersheds and uses NRCS Environmental Quality Incentive Program (EQIP) funds to implement projects. These efforts could be expanded to include other agricultural sectors, but given the work that is already happening with hazelnut growers, this is likely a good place to start.

- Develop a Basin-wide monitoring program to track moth emergence, flight patterns, timing, and abundance of moth infestations. This information should feed a web-application that can provide Basin-wide view of moth activities for growers and others. This will need support from the OSU Extension Service.
- Look for additional opportunities to conduct pilot projects with water utilities, Oregon Hazelnut Commission, growers, OSU Extension, and OSU researchers to apply water quality protection practices in other watersheds.
- Investigate whether these or similar efforts (stewardship and sustainability certification, mating disruption, reduced/focused spray applications, and/or monitoring) could be successful with other crops in the Willamette Basin.
- Publicize successful efforts so that utility customers will have a better understanding of source water protection efforts and how they relate to agriculture.

C. Harmful toxic outbreaks - precautionary principle

- Develop scope and identify a hosting agency for a HAO website that meets the objectives of water utilities. Use scope to develop funding proposals to OHA, DEQ, EPA, and others to secure funding for development with match from water utilities.
- Coordinate and develop analytical capabilities, capacity, and sharing among the three utility labs (Clackamas, Salem, EWEB) who have or are in the process of developing internal capability to perform cyanotoxin testing. These utilities can support other utilities as needed via Memorandum of Agreements or ORWARN mutual aid.
- Work with OHA and DEQ to efficiently get cyanotoxin data and HAB advisory information into online GIS maps. Develop a data portal for utilities to easily upload cyanotoxin monitoring data from source areas to this website to allow for sharing of information, and the ability to see the geographical extent of blooms across the state. This will enable utilities and state agencies to track trends over time as climate change impacts bloom timing, cycles and species.
- Develop scope and proposal for development of flow information and time of travel models for and the Willamette River and its tributaries to be used by utilities to estimate impact time downstream of reservoirs. Use scope/proposals to secure funding from EPA, USGS, ACOE, OHA, DEQ, and others, as well as matching funds from utilities, to accomplish this work and integrate it into the HAO on-line resource center mentioned earlier.
- Establish mechanism and funding for long-term maintenance and updating of HAO resource center and online GIS mapping.

- Develop a collaboration between water utilities, Army COE, USGS, and USFS to establish real-time water quality monitoring and coordinate reservoir operations during cyanotoxin blooms in order to reduce downstream impacts to drinking water sources.
- Get the word out to both utilities and the general public about collaborative and Basin-wide approach – tell the stories of what’s working.

D. Coordinating emergency spill response

- Develop scope and proposal to conduct Willamette Basin threat assessment that maps out high priority response planning areas and secure funding from EPA, DEQ, FEMA, OHA, Homeland Security, and others to complete assessment with water utility matching funds.
- Develop geographic response strategies in and downstream of priority planning areas to address threats in tributary and Willamette River planning zones. Work with DEQ and EPA to integrate these strategies within their larger system.
- Develop scope and proposal to up-scale OWERS over time to identify and leverage local resources and provide more efficient and effective spill notification system for tributary and Willamette River zones. Secure funding from EPA, DEQ, OHA, FEMA, Homeland Security, and other sources to implement up-scaling of OWERS across the Basin with water utility matching funds.

V. Who We Are

About Carpe Diem West (Kimery Wiltshire)

We lead a diverse group of western water and climate leaders. Together, we catalyze innovative, equitable and sustainable responses to water crises as the climate rapidly warms in the American West.

The Willamette Future Project is the first time we've focused on building a network, and key strategies, on a regional scale. The lessons and recommendations from the Willamette Future Project will help to inform and guide work in other western river basins.

About Eugene Water & Electric Board (Karl Morgenstern & Nancy Toth)

Founded in 1911, we are Oregon's largest customer-owned utility. We provide water and electricity to the Eugene community, as well as parts of the McKenzie River valley area. We are owned by the people of Eugene and it's our job to provide reliable, affordable water and electricity for our customers. The McKenzie River is EWEB's sole source of drinking water.

The key utility in the Willamette Future Project, EWEB brought the relationships, lessons and strategies they've developed for the McKenzie Pure Water Partners Program and other collaborative groups.

About the Willamette Basin Drinking Water Utilities Group

Starting in 2013, a number of water utilities in the Willamette Basin have been meeting 2-3 times a year to collaborate on source protection efforts, share ideas and lessons learned, provide assistance to each other, assess emerging water quality issues to gain a better collective understanding, share templates, documents, publications, brochures, public messaging and other materials so any one utility does not have to reinvent the wheel. These utilities are: Eugene Water & Electric Board, City of Salem Public Works, Springfield Utility Board, City of Corvallis, Tualatin Valley Water District, Joint Water Commission (4 utilities), Clackamas River Water Providers (5 utilities), and Medford Water (not a Willamette Basin utility).

VI. Acknowledgments & Thanks

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Garry Rodakowski, Hazelnut Grower, President Oregon Hazelnut Commission

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Kerry Halligan, Mason Bruce & Girard
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