

Secretary of State Audit Report

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Oregon Water Resources Department: Enhancing Sustainability Efforts and Agency Planning Needed to Better Address Oregon's Water Supply Needs

Executive Summary



Oregon is facing growing pressures and concerns related to its water supply. The Water Resources Department (WRD), charged with managing the state's water resources, could better balance water rights issuance and management with actions to sustain current and future water needs. The agency can also enhance its focus on groundwater protection, data collection and analysis, and workload and staffing. A long-term agency plan would help WRD strategically focus and prioritize the agency's efforts and align them with available resources.

Better balance needed to ensure water sustainability

Parts of the state are experiencing regular and large scale water supply availability issues. There are indications that this trend will continue, intensify, and spread. Many water sources in the state have been fully allocated, and groundwater levels are decreasing in several areas. By 2050, Oregon could be faced with a need for an additional 424 billion gallons of water per year to meet irrigation needs and municipal and industrial demand. Though Oregon is known as a rainy place, there is a limited amount of consumable water available for meeting all existing needs and new uses.

While issuing water rights has always been a key responsibility for WRD, actions to restore and protect streamflows and watersheds for long-term sustainability have received less attention. Related programs are limited in number and in participation. The demands that are putting pressure on Oregon's water supply are likely to continue to grow, which raises the need for action to ensure the ongoing sustainability of our water.

Groundwater protection needs more focus

Groundwater usage is increasing, and a large and growing number of wells go uninspected. Poor well construction may result in higher levels of

groundwater contamination or wasted water. Contaminated groundwater would harm the overall groundwater supply. WRD has few well inspectors to inspect all wells in the state. For those wells that are inspected, WRD staff have noted an increase in well drilling deficiencies at a time when well construction has also increased. This could be due in part to minimal requirements to become licensed as a well driller in Oregon. Also, WRD could better coordinate with other agencies to address well risks, such as water contamination and public safety concerns, for the overall health of groundwater resources.

Data challenges hinder efforts to manage and conserve water

WRD collects a lot of information on surface water and some on groundwater. However, given the size of Oregon and its complex geology and aquifer systems, many areas of the state have not had detailed groundwater and surface water investigations. Not all water users are required to report their use, and as such, the amount of water being used in the state can only be estimated. Also, some of the data collected has not been entered into databases and analyzed, so the agency is not able to use it for water management decisions.

Increasing demands and other limitations impede monitoring and regulating water

Growing and changing demands coupled with a limited number of field staff impact WRD's capacity to effectively monitor and regulate Oregon's water supply. Field staff coverage overall has steadily declined and there have been some extended gaps in time where positions were vacant. Field staff have to cover a vast geographic region and associated workload. This, along with limited external support, impedes the agency's ability to protect water and the rights of users, and to curb illegal water use. WRD should regularly assess field staff workload to ensure it aligns to resources and that staff time is dedicated to critical responsibilities.

Long-term agency plan needed to help focus efforts on future water sustainability

While the Integrated Water Resources Strategy provides a long-term multi-agency plan for managing water resources in Oregon, WRD needs an agency plan to strategically focus and prioritize its efforts, and align them with available resources, to better meet its mission. This would help WRD balance its efforts to ensure both consumptive and environmental water demands can be met now and into the future, and address areas needing increased focus, such as groundwater protection, data collection and analysis, and workload and staffing issues. Priority-based planning can help clarify and direct agency efforts that are vital to protecting Oregon's water supply.

Recommendations

This audit recommends ways WRD can build on its efforts to help address the current and future sustainability of the state's water supply. Our detailed recommendations for agency management are included on Page 26. They include recommendations for further integrating sustainability considerations into water management decisions, helping to ensure water laws and rules meet current and future needs, enhancing well regulation and groundwater protection efforts, strategically collecting and analyzing information, aligning staff workload with mission critical priorities and resources, and developing an agency long-term plan.

Agency Response

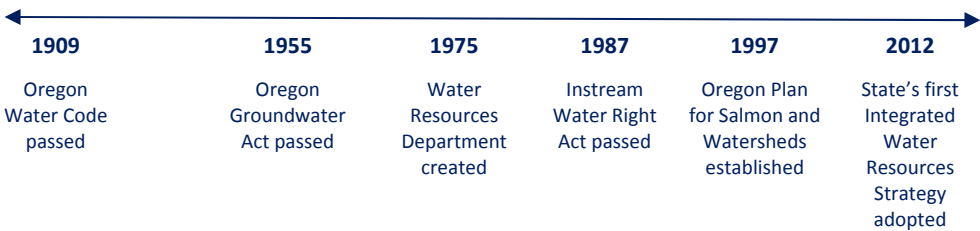
The agency generally agrees with our findings and recommendations. The full agency response can be found at the end of the report.

Background

History of Oregon’s water laws and management

Before 1909, water users in Oregon either defended their right to water on their own or in local courts. In 1909, the state took control over the right to use water with the passage of Oregon’s first unified water code. The Water Code declared all water within Oregon as belonging to the public and required that anyone who wanted to use surface water had to first obtain a water right from the state. This, along with other key events, have shaped the management of Oregon’s waters; see Figure 1.

Figure 1: Key Events in Oregon’s Water History



In 1927, the Legislature approved a groundwater permitting system east of the Cascade Mountains, which expanded to the entire state in 1955. Wells in certain geographic areas of the state showed noticeable water level declines, and two critical groundwater areas were designated by 1959. That designation can close all or part of an area to further water rights, as well as reduce the amounts allocated under existing rights. By the mid-1970s, there were five critical groundwater areas across the state.

While the state created multiple offices, boards, and commissions responsible for water resources during the early and mid-1900s, duties were eventually transferred to either the Office of the State Engineer or the State Water Resources Board. Those two were merged in 1975 to create the Oregon Water Resources Department (WRD). Ten years later in 1985, the Water Resources Commission was created to oversee agency activities.

While there had been some minimum streamflow levels required on major rivers and large streams in the state, the 1987 passage of the Instream Water Rights Act created a formal right for water to remain in lakes and streams. These rights, held in trust by WRD, are for recreation, pollution abatement, navigation, and protection of fish and wildlife species.

The Pacific Northwest saw a drastic decline in native salmon species during the early 1990s, causing some to be listed under the federal Endangered Species Act. Meanwhile, thousands of miles of Oregon’s streams and rivers and several lakes did not meet water quality standards for consumption, recreation, and fisheries. These conditions led to the Oregon Plan for Salmon and Watersheds in 1997 to help restore salmon runs, improve water quality, and achieve healthy watersheds.



Circular irrigation flume for the Goose Lake Valley Irrigation Company in Lake County, Oregon, 1915 (Photo from Salem Public Library Historic Photograph Collections, Salem, Oregon; Oregon State Archives, Secretary of State, OWR0152)



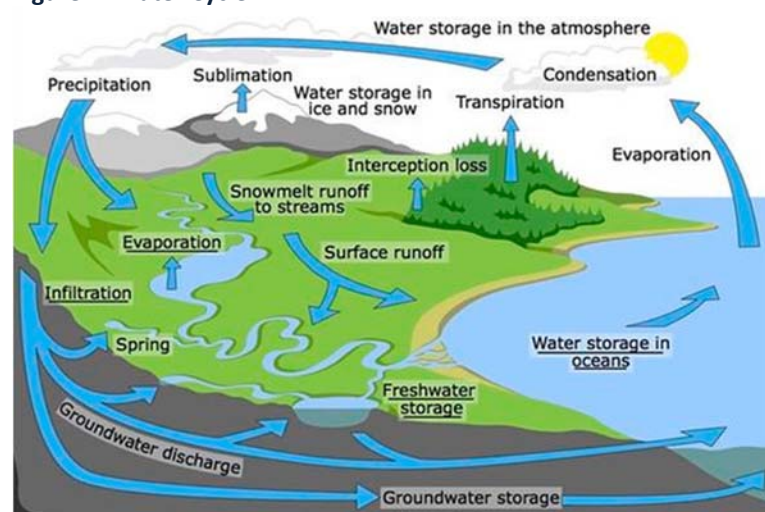
Dillon Dam in Northeast Oregon. The dam is slated for removal to preserve Umatilla salmon in 2017.

With the recognition of increasing water challenges, such as changes in population, climate conditions and land use, the state adopted its first Integrated Water Resources Strategy in 2012. The multi-agency strategy, led by WRD, provides an assessment of water-related matters in Oregon and offers policy and investment approaches. This strategy provides a road map to addressing water-related challenges facing communities throughout Oregon. It outlines current water resources, water needs, and upcoming pressures. The strategy is due for an update in 2017.

Oregon's waters and use

Oregon's surface water is comprised of more than 110,000 miles of rivers and streams, 360 miles of coastline, and more than 1,400 named lakes. While surface water can readily be seen, groundwater runs beneath land at various depths depending on geology. Most of Oregon's surface water bodies (rivers, lakes, streams, and wetlands) interact with groundwater through the water cycle, as shown in Figure 2.

Figure 2: Water Cycle



Source: The University of Waikato, New Zealand. 2015

Water users divert about 8.4 million acre-feet, or more than 6 million football fields covered in a foot of water, each year for out-of-stream uses. Agriculture, Oregon's second largest economic driver, uses over 85% of the water diverted. Agricultural water demand is highest in Klamath, Harney, Malheur, and Lake counties.

Municipal and industrial water demand make up about 14% of diverted water. To meet this demand, water providers plan and manage a complex network of facilities that move water from its source to homes or businesses. The demand is highest in large urban areas, such as Multnomah, Washington, Lane, and Clackamas counties.

Domestic water use through private drinking water wells accounts for about 1% of water demands. Private drinking water wells exist in both rural and urban areas throughout the state.

Water rights in Oregon

By law, all surface and groundwater in Oregon belongs to the public and is to be used for a beneficial purpose without waste. Any user, with some exceptions, must obtain a water right to use water from any source including rivers, streams, lakes, and groundwater. About 80% of water rights are for surface water, with the majority used for agricultural irrigation. The other 20% are for groundwater use.

Along with most of the states west of the Mississippi, Oregon's water laws are based on the principle of prior appropriation, where the first person to obtain a water right is the last to be shut off in times of low water availability. There have been no substantive changes to this 'first in time, first in right' approach to water management since 1909.

A water right is issued in two phases, a permit then certificate. A water right permit, if granted, is the initial approval to construct a water system and begin using up to an allotted amount of water. Permit holders are typically allowed up to five years to do this. A water right certificate is then issued when the user proves the allocated amount of water has been used for its intended purpose and any additional permit conditions have been met. A water right certificate is valid forever, as long as it is used at least once every five years for its intended purpose.

Water rights are restricted to the place of use (tract of land), point of diversion (place where water is withdrawn), and type of use (e.g., irrigation or municipal). For example, if a water right were approved to irrigate a certain tract of land, that water could not be used to irrigate any other land, for another purpose other than irrigation, or be diverted from a different point or source. A water right is a type of property right attached to the land where it was established. Oregon law allows water right holders to sell, lease, or donate water rights.

Processing a water right permit is not designed to be a quick activity; it can take a year or more. This statutorily mandated process includes an initial review, public notice and comment, a proposed final order, an opportunity for public protest and comment, and then a final order. Key factors considered in the initial review are whether water is likely to be available, the impact or injury to other users, and if the proposed use is allowed. After a permit is issued, extensions may be granted if additional time is needed to develop the water right. A permit may also be amended to allow for changes to the place of use and to the point of diversion.

Water right holders can request a transfer of water rights to change the point of diversion, the place of use, the type of use, or any combination of these. Transferring older, existing rights is one way water can be acquired,

Exempt Water Uses (no water right needed)

Groundwater

Single and group domestic
Up to 15,000 gallons/day
Commercial/Industrial
Up to 5,000 gallons/day
Lawn and garden
Up to ½ acre
Livestock watering
School grounds watering
Down-hole heat exchange
use

Surface water

Livestock watering
Certain small ponds
Rainwater collection
Fire control
Some natural springs
Specific salmon projects
Forest management
Certain land management
practices

as new water rights are difficult to obtain because of limited water available in many streams. Transfers can be temporary or permanent.

A limited license may be granted to use water for a short-term, fixed duration for uses such as road construction, fire-fighting training, and rangeland management. Limited licenses may also be issued during times of severe drought to allow continued water use beyond the irrigation season to avoid permanent crop damage.

Generally, the user with the senior water right has the foremost right to the water. However, in certain circumstances such as a Governor-declared drought, the Water Resources Commission can give water use preference to household consumptive purposes and livestock watering.

Management of Oregon's water

Water is a finite, complex resource and it takes multiple groups to help manage both the quantity and quality side of water. Individual states are responsible for managing water. Within Oregon, state agencies including WRD, Department of Environmental Quality (DEQ), Oregon Health Authority (OHA), Department of Agriculture (ODA), Oregon Parks and Recreation (OPRD), and Department of Fish and Wildlife (ODFW) have responsibilities related to water.

At the state level, DEQ and OHA focus on water quality. ODA regulates agricultural practices to help protect water, OPRD oversees the state's scenic waterways, and ODFW is involved with water issues that affect fish and wildlife. WRD focuses on water quantity for existing instream and out-of-stream water uses and future needs.

WRD's Mission

"The Department's mission is to serve the public by practicing and promoting responsible water management through two key goals:

- to directly address Oregon's water supply needs, and*
 - to restore and protect streamflows and watersheds in order to ensure the long-term sustainability of Oregon's ecosystems, economy, and quality of life."*
-

WRD has long been tasked with administering laws governing surface and groundwater resources, and allocating water rights. WRD's responsibilities have expanded over time to also include collaborating more around long-term water supply and resource stewardship. WRD's programs focus on the following:

- distributing water under prior appropriation;
- protecting existing water rights;
- enforcing Oregon's water laws;
- processing water right applications and transactions;
- ensuring the safety of dams;
- protecting groundwater through well construction standards;
- facilitating voluntary streamflow restoration;
- increasing the understanding of demands on the state's water resources;
- providing accurate and accessible ground and surface water resources data;
- licensing hydroelectric facilities; and

- facilitating solutions to water supply challenges.

The Water Resources Commission, a seven-member citizen board, oversees the agency's activities.

WRD is organized into five divisions: Administrative Services, Field Services, Technical Services, Water Rights Services, and the Director's Office. The agency has approximately 160 employees located in its headquarters in Salem, five regional offices, and 21 district offices across the state.

Each region is staffed with a regional water manager and a well inspector. Most regions also have a hydrological technician, a regional assistant watermaster, and a few other field staff. Regions are divided into districts, which have their own watermasters. In addition, almost half of Oregon counties provide some part-time or full-time staff or resources to assist with district water management.

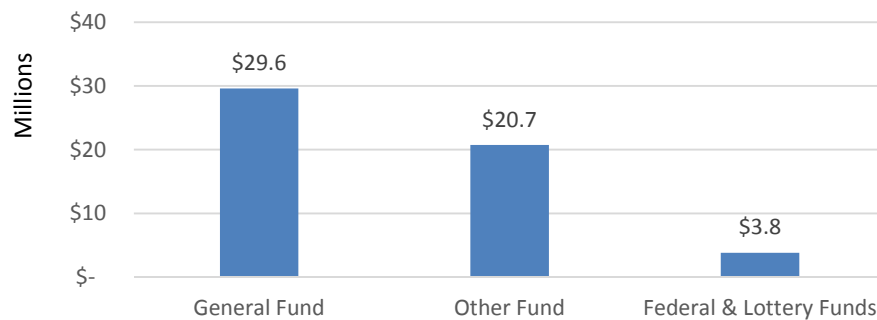
Figure 3: WRD Water Management Regions and Districts, 2015



Source: Oregon Water Resources Department

WRD's operating budget is funded primarily through a combination of state General Fund and fees and charges for services. Minimal federal and lottery funding covers the rest of WRD's operations. For the 2015-17 biennium, WRD was allocated just over \$54 million for operations. Of that, 55% was from the General Fund, 38% from fees and charges for services, and 7% from federal and lottery funds as shown in Figure 4. This is similar to the prior two biennia, when General Fund support provided at least 50% with revenues from fees and charges for services comprising about 40% of operating revenues.

Figure 4: WRD Operating Revenue Sources, 2015-17



This excludes approximately \$51 million related to Senate Bill 5507, which provides WRD funds to grant for water projects such as water development, planning and conservation efforts.

Audit Results

While many stakeholders told us WRD is doing the best it can within its capacity, the agency faces growing challenges in managing and protecting the state's water supply. Parts of the state are experiencing regular, large scale water supply issues. There are indications this will continue and intensify. Many surface water sources in the state have been fully allocated, and groundwater levels are decreasing in several areas.

WRD is responsible for responding to increasing requests for water rights and water information, regulating more water rights that have been issued, and enforcing water law that encourages water right holders to use their water allotment. At the same time, WRD is responsible for assuring sufficient and sustainable water supplies are available to meet current and future needs.

We found WRD could better manage the state's finite water supply for addressing current and future needs. This requires that it balance issuing and managing water rights with water resource protection and sustainability. WRD should also address other areas that need increased focus, such as groundwater protection, data collection and analysis, and workload and staffing issues.

To better meet its mission, WRD also needs a long-term agency plan to strategically focus and prioritize its efforts and align them with available resources. Priority-based planning can give further clarity and direction to agency efforts that are vital to protecting Oregon's water supply, now and into the future.

Concerns over the future availability of water in Oregon

Oregon, like other states, is facing growing challenges with its water resources. Water availability is limited by water right allocations, water system infrastructure, human impacts to water quantity and quality, and natural processes.

By 2050, Oregon could be faced with the need for an additional 424 billion gallons of water per year to meet irrigation needs and municipal and industrial demand. Despite Oregon's reputation as a rainy place, there is a limited amount of consumable water available for meeting all existing needs and new uses.

Currently, most surface water is fully allocated during non-winter months and, in some areas, has been over allocated. Supply falls short of demand nearly every year in many places throughout the state. Groundwater is not available everywhere in the state, and in some areas it is being used faster than nature can replenish it. In fact, there are 22 specific geographic areas

Beaver, Oregon is a town with a population of about 800. Its water district cannot provide any new waters due to infrastructure challenges and low creek levels.

where groundwater availability has declined and some water use is restricted.



Dry creek bed in Central Oregon

Dry periods can intensify water needs and issues. While some parts of the state have had multiple years of drought, the severe drought in 2015 affected most of the state. It is anticipated that Oregon may experience more severe and frequent drought conditions in the years ahead. A Governor's priority for 2015 and 2016 has been drought resiliency. A task force has made recommendations on the tools and information the state needs to be prepared to respond to future drought conditions.

In recent years, Oregon has experienced record wildfire seasons, a trend that is expected to continue. Not only can wildfires take a lot of water to fight, but they can also decrease the amount of rainwater the soil can absorb to recharge aquifers (places water can be found underground) causing increased runoff and possible flooding and landslides.

Considerable attention has been given to increasing water efficiency, especially toward Oregon's agriculture sector. Though improving water use efficiency is important, it alone does not necessarily equate to significant gains in water availability for other uses or users and can have unintended consequences to aquifers and stream flows. In some areas, less efficient methods like flood irrigating could help restore water to underground aquifers or help return excess water to streams.

Problems with water quality can have a direct impact on the amount of water available to use. Saltwater intrusion and contamination diminish existing water for drinking, and can compromise multiple water sources that interact with each other. There have been recent reports in Oregon and other states on issues with water quality, such as lead contamination in the water.

Conflicts over in-stream versus out-of-stream water needs and among users have become increasingly complex, expensive to resolve and, at times, highly controversial.

All of these issues can exacerbate water challenges, and place pressures on the resources of state agencies responsible for water management.

WRD needs to better balance its efforts to ensure water sustainability

To help ensure the future stability of Oregon's water resources, it is essential that WRD better balance issuing and managing water rights with water resource protection and sustainability.

Most agency resources and efforts are focused on water supply needs through managing water rights. In recent years, there have been additional efforts, like the Integrated Water Resources Strategy (IWRS), to be more oriented toward long-term water supply. However, the small number of

programs for flow restoration and conservation WRD administers have minimal participation and do not appear to be keeping pace with changing and growing water demand.

WRD's activities focus on issuing and managing water rights

WRD agency resources are mostly devoted to allocating groundwater and surface water rights, regulating water rights, and providing water resource data. While there has been a statewide focus on conservation of natural resources, WRD has encountered barriers to integrating future sustainability into its management of water resources.

WRD had a division that focused on conservation, basin planning, and interagency coordination, but that division was eliminated when the department reorganized in 1999. Currently, WRD does not have a division that focuses on maintaining sufficient and sustainable water supplies for future needs, and some staff believe water supply planning efforts, such as the IWRS, have not been integrated into their job duties.



Three Rivers Dam and fish ladder

Flow restoration and conservation programs are limited

With most surface waters already allocated and groundwater demand increasing, WRD has programs to help address human and environmental water needs. While there has been some success with these programs, they are mostly voluntary or have a small portion of users who are required to participate. WRD has been trying to do more to directly expand these programs, but has encountered challenges with user interest and stakeholder support.

Some WRD programs focus on streamflow restoration. One of these, the instream lease program, allows users to lease their water rights for up to five years to help instream flow levels. This program has stagnant participation, the majority of which comes from one basin.

Similarly, the Conserved Water Allocation Program has received an average of five applications per year in the last decade. Participants in this program permanently donate water for instream use and in return may use some water for uses not specified in the right, such as irrigation of additional land.

WRD has only a few staff dedicated to these programs who track applications and overall compliance. As a result, outreach for these programs has fallen to field staff. A number of staff expressed concern regarding the effectiveness of these programs and a lack of interest from water users. This could be a reason these programs have limited participation. Another reason could be that some WRD programs offer only temporary environmental benefits, while stakeholders have a stronger interest in supporting permanent efforts.

Figure 5: Flow Restoration Program Trends

	Start Date	Peak Participation	2015 Participation	Peak Amount of Water Instream	2015 Amount of Water Instream
Allocation of Conserved Water	1988	12 applications (2003)	2 applications	35.04 cfs (2007)	5.5 cfs
Instream Leases	1994	173 leases (2003)	116 leases	1084.06 cfs (2013)	490.76 cfs
Instream Transfers	1995	34 transfers (2006)	3 transfers	140.1 cfs (2015)	140.1 cfs

Cubic feet per second (cfs) is the rate of water flow; 1 cfs is equivalent to almost 450 gallons per minute



*Dam on Butter Creek
Several irrigators that divert water from Butter Creek in Umatilla County have agreed to follow a rotation plan that sustains water supply longer into the irrigation season*

Water Management and Conservation Plans (WMCP), another tool that WRD considers a sustainability effort, could be strengthened. A WMCP describes the municipality's strategy for managing water supplies to meet current and future demands, and can be mandatory as a permit condition or long-term permit extension requirement. WMCPs provide periodic information that is intended, in part, to help WRD understand users' needs for water permitting decisions. However, there is no standard level of detail provided within the required sections; information ranges from vague to very detailed for descriptions of the water systems, conservation goals, curtailment plans, and water supply and demand. This could make it difficult to assess whether the allotted water in a water permit is justified. Also, it appears there is little consequence for not meeting plan goals or submission deadlines.

Agricultural users, Oregon's largest water users, are not required to participate in WMCPs. However, irrigation districts may do so voluntarily. Participation allows them to transfer water rights within the district before they obtain WRD's approval for the transfers. This allows them to avoid wait times for transfer approvals and be able to address immediate needs of irrigators. Even though this would help them address their immediate water needs, only a small number of irrigation districts have active WMCPs.

Also, WRD could benefit from having a standard approach for mitigating the decreasing water levels that new water rights can have on water availability and the environment. A mitigation process balances current water rights, streamflow levels, and new water needs by putting water in one source, such as a stream, when a different source, such as groundwater, is accessed.

Groundwater protection requires more focus on wells

According to WRD, Oregon currently has 256,800 known wells, with several thousands of new wells built each year. Wells have various uses that range from providing drinking water, water for irrigation and industry, and information about groundwater levels throughout the state.

As wells extend deep underground, it is vital to ensure they are constructed properly so that separate aquifers do not interact and no contaminants seep into the groundwater.

With a narrow well inspection focus and inspection capacity greatly surpassed by the number of wells, WRD is unable to ensure that new and existing well construction does not threaten groundwater sustainability.

Limited well inspections and drilling requirements jeopardize groundwater

Well inspections play an important role in protecting groundwater. Poorly constructed wells can lead to decreased water availability and groundwater contamination. Due to some high inspector workloads and minimal drilling notification requirements, WRD struggles to manage inspection of well construction.

WRD lacks the staff capacity to inspect every new well. The agency's well inspectors physically inspect about 40% of new wells statewide. It is only for these wells that inspectors review reports provided by well drillers on construction, water level, and geology. This leaves a large and increasing number of wells that are not inspected.

WRD allows most drillers to notify the agency of a new well the same day they begin drilling. One regional well inspector reported receiving an average of 20 to 30 new well notifications each day, during some parts of the year. This gives well inspectors little ability to monitor well construction as it happens. And, once a well is complete, it is difficult to ensure it is constructed properly.

There are limited requirements to become a licensed well driller in Oregon compared to some other states. WRD well inspection staff have seen an increase in well drilling deficiencies with increased well drilling in the state. Well inspectors have regular contact with drillers and know current drilling issues, but WRD has not sought their assistance to develop improved driller education or licensing requirements.

In the 1990s, much of the funding for well construction shifted from General Fund to fee support. According to WRD management, fee increases to help fund its well inspection program have not been supported by the well drilling industry. And, inspections may be further reduced. In recent agency recommended budgets, well inspector positions are some of the first full-time positions to be cut for possible budget reductions.

Well Driller Licensing Requirement Comparison

Oregon

- 18 years old
- Pass written exam
- 1 year of experience

Wisconsin

- 20 years old
 - Pass written exam
 - 2 years of experience
 - Constructed 10 wells under direct supervision of licensed driller
 - Completed all drilling activities for construction of 30 wells
 - Provided licensing agency 24 hour notice before drilling for 3 months
 - Held a well drilling rig operator registration during the 2 year experience period
 - Have no unresolved violations, judgments, court or administrative orders or settlements from previous water well drilling or similar activities
 - Have no unlicensed well drilling violations in the last 5 years or any unresolved drilling violations
 - Met with licensing staff to sign a list of compliance expectations
-

WRD should coordinate with other agencies to address well risks

WRD focuses on newly constructed wells and has limited capacity to inspect older or abandoned wells. As a result, public safety and groundwater availability could be negatively impacted. Large holes left by older or abandoned wells can put people and animals at risk for injury. These wells may also allow household and industrial chemicals, animal carcasses and garbage to contaminate groundwater. While contamination is usually a local matter, contaminations can compromise multiple water sources that interact with each other, which could impact the overall water supply.

Though some public safety and water quality problems related to wells are outside WRD's authority, WRD could improve communication with other agencies like DEQ or OHA. With limited interagency communication and inspection focus, the state may miss opportunities that could better protect groundwater.

Well inspectors could benefit from additional direction and clearer expectations on how to respond when they recognize water contamination or public safety concerns. There are also opportunities for improving information sharing between WRD and agencies responsible for public safety or water quality. Likewise, information from agencies like DEQ could help WRD target inspection efforts. WRD could prioritize well inspections in higher risk areas, such as sites with increased levels of environmental contamination near factories or Superfund sites. Poor well construction at these locations may result in higher levels of groundwater contamination, which would harm groundwater resources.



Hand dug well abandoned in Lafayette, Oregon

Data challenges hinder WRD's efforts to manage and protect Oregon's water resources

WRD needs sufficient information to make sustainable water management decisions, but faces challenges in collecting and analyzing water supply and use data. WRD collects a vast amount of information in some areas and limited amounts in others, and has not been able to analyze all they have collected. A more strategic approach to gathering and analyzing needed information would help WRD make more informed and timely decisions.

WRD collects a substantial amount of water supply data

WRD collects surface and groundwater supply data from several sources to inform and support permitting and water management decisions.

To collect surface water information, WRD manages a network of over 250 stream and reservoir gages throughout the state. These gages monitor streamflow used for agricultural, municipal, domestic, instream, and other purposes. Streamflow data can be used to regulate water use, forecast flooding or drought conditions, track long-term trends, and even inform infrastructure design decisions.

To monitor groundwater, WRD has a network of approximately 1,100 observation wells, the majority of which are privately owned. (WRD generally depends on landowners to grant access to individual wells.) These wells provide information on current groundwater availability and long-term trends. But they only provide reliable data for very specific areas. While the hydrologic connection between groundwater and surface water is understood, more information is needed in many basins to better understand how groundwater use impacts streams, aquifers and other water sources.

Figure 6: Watermasters Monitoring Streamflow



WRD coordinates with the United States Geological Survey to collect information for extensive water basin studies. These studies typically take 5 to 6 years to complete, as all of the data in the basin being studied needs to be compiled, reviewed, and analyzed, to monitor surface water and/or groundwater trends.

WRD struggles to analyze and use collected data

WRD focuses a great deal of time and effort on collecting water supply data across the state. Some of this data have not been analyzed or made available across the agency to help make informed permitting and water rights decisions.

One of the biggest challenges is the amount of staff time required to perform meaningful and in-depth analyses. Basin studies provide some of the most reliable insights into surface water and groundwater trends, and interactions. To date, only about one-third of the state has been covered by basin studies.

Another challenge is the lack of centralized databases, making sharing between agency staff and divisions time consuming and less accurate. Some field and central office staff reported collecting data that was not organized into a centralized database. As a result, important data may not be accessible to other employees to use when making decisions. For example,

case workers processing some water right transfers may not be able to tell if there are any pre-existing rights on a parcel of land.

Besides sharing data within the agency, there are opportunities to increase coordination and accuracy of data by working with other agencies. DEQ inspects and collects information on private drinking water wells. While they are tracking the information on wells for different reasons, this leads to some duplicative efforts and discrepancies in understanding how many wells are in the state and what effect they may have on groundwater quantity and quality.

There are also issues with data continuity. With limited staff to analyze data, there are gaps in what has been analyzed. WRD maintains the Water Availability Reporting System (WARS), a database of streamflow and other surface water measurements that helps to evaluate permit applications. WARS information is currently based on streamflow measurements taken from 1958 to 1987. WRD has collected 17 years-worth of streamflow measurements subsequent to 1987. However, due to limited resources WRD has not analyzed this data. The current water availability models are based on data that are at least 30 years old.

The more comprehensive the data WRD uses to understand water levels, groundwater and surface water interactions, and the relationship between water supply and demand, the more informed decisions it can make for current and future water supply.

WRD efforts to collect further water supply data are focused more on surface water

WRD has taken actions to further expand the network of water supply data in the state. Based on needs identified in the IWRS, the Legislature provided some funding to expand surface and groundwater monitoring. But attempts to increase groundwater monitoring have not moved as quickly as surface water monitoring even though demand for groundwater is rapidly growing.

In 2000, WRD developed a statewide inventory of approximately 2,300 significant points of diversion of surface waters across the state. WRD field staff have since worked with water users to install over 600 measurement devices to more accurately monitor how much surface water is diverted.

WRD has also begun to use more real-time monitoring technology on stream gages and observation wells, and has identified some high priority areas that must be closely monitored to prevent overuse and subsequent harm to water users and to wildlife.

WRD identified 70 locations where more stream gages would help with surface water monitoring. The agency has secured funding for a few new stream gages, but there is potential for further expansion of the monitoring network.

There has been a recent effort to expand monitoring of the groundwater supply through construction of dedicated observation wells. In 2015, WRD

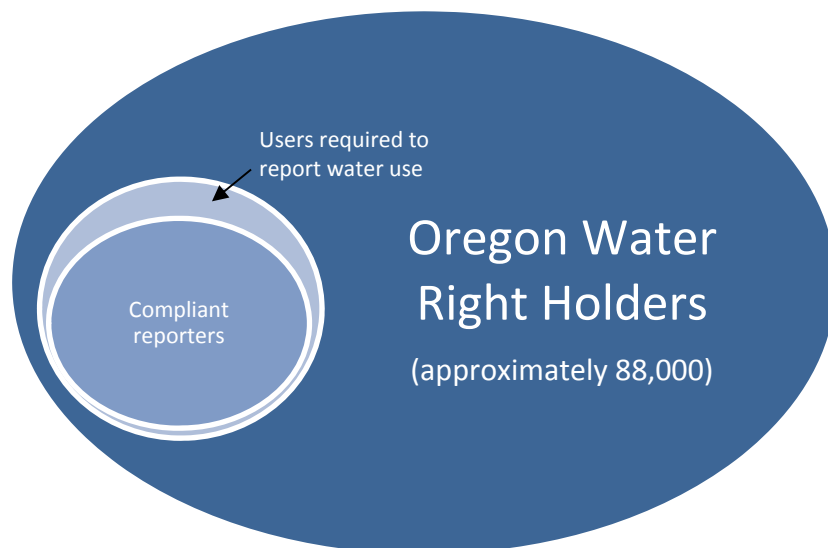
installed 14 observation wells. With the increased demand for groundwater, there is need for further expansion of the observation well network.

Water use reporting and tracking is limited

While agency efforts to collect water supply data are crucial to understanding water resources, there is less specific information available about how much water is actually used.

Only about 20% of water rights holders are required to report how much water they use to WRD as shown in Figure 7. In addition, many of the rights holders that are required to report their water use are municipalities and industries, and together they use only about 15% of available water. Agriculture, which constitutes an estimated 85% of water use in the state, is usually not required to report, so it rarely occurs. As a result, WRD does not have a clear understanding of how much water is actually being used.

Figure 7: Extent Water Right Holders Report Their Water Use



Having more robust water use information helps WRD understand the relationship between use and groundwater levels, which tells scientists how much groundwater is available for current and future uses.

WRD continues to issue water rights with limited information

As noted above, WRD has limited information on water supply and use across the state. Despite this lack of information, WRD generally does not restrict issuing water rights unless there are specified restrictions, such as those included in some basin plans and rules. Therefore, the agency has continued to approve new water rights in some basins unless it has proof that it would injure other users, water availability, or the environment.

Increasing demands and resource limitations impede efforts to monitor and regulate Oregon's water supply

Growing demands on the agency, differing workloads, and diminished field staff capacity and coverage have compromised the agency's ability to effectively monitor and regulate Oregon's water supply. These duties are crucial to ensuring proper and sustainable use of Oregon's water.

Demands on the agency have grown and changed

Demands on WRD have grown, including increasing water rights applications and transfers, spearheading the update to the Integrated Water Resources Strategy, and managing grant and loan funds for water development projects. Additionally, monitoring and regulating duties for some staff has become more confrontational and litigious.

Some of the increase in field staff workload is attributed to high public interest around marijuana grows, an influx of new groundwater permit applications, new development, and increasing population. Existing water rights remain even when there is no water available. Field staff still need to monitor and regulate all rights.

According to WRD, there were approximately 300 new water rights added last biennium. While the number of new surface water rights being granted has slowed down, they have been replaced by a surge in the number of groundwater rights and surface water transfers WRD must process. Groundwater, like surface water, must be monitored and properly regulated to ensure supply and quality, but it presents challenges that are distinct from surface water because it is not visible and cannot be easily mapped.

Basic monitoring duties have increased, and while technology has improved, it has not necessarily reduced the associated workload. For example, real-time stream gages provide an automated process for collecting and reporting current streamflow information, but those gages have to be maintained regularly by field staff. In 2016, field staff are responsible for monitoring over 250 stream gages and 1,100 observation wells, in addition to regulating an estimated 88,000 water rights.

Profile of a Water Right: Fehrenbacher Reservoir 2



Fehrenbacher Reservoir 2, February 1988. Last documented presence of water in reservoir.



Fehrenbacher Reservoir 2, August 2016

The Fehrenbacher Reservoir 2 was established in 1959 with the initial purpose of storing water for irrigating crops. In the following decades, spring runoff and water levels in the reservoir declined so rapidly the owner opted to use the remaining water for cattle instead.

Water supply in the area has continued to decline. Water has not been documented at this location by WRD since 1988. However, the landowner has chosen to retain the storage water right to the reservoir, which requires inspections every four years. Even where water sources have gone dry, WRD field staff must still perform regulatory duties on existing rights.



Watermaster inspects the Fehrenbacher Reservoir 2, August 2016

Field staff are challenged to keep up with workloads

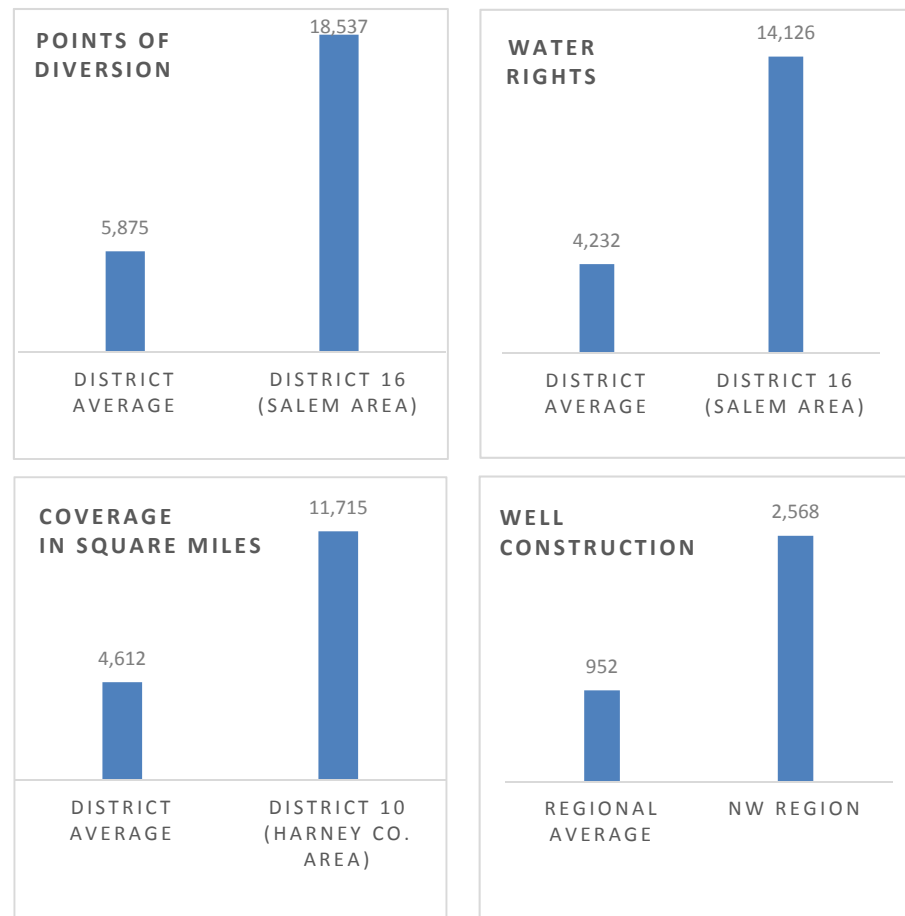
WRD field staff, based in regional and district offices, perform the bulk of monitoring and regulation work to ensure water is distributed and used appropriately. Some managers, watermasters, and well inspectors we spoke with reported increasing workloads in recent years and challenges in conducting monitoring and regulating responsibilities, which can vary greatly by district.

Field staff are crucial for effectively monitoring and regulating Oregon's water supply. They are responsible for monitoring stream water levels and diversion points, taking streamflow and observation well measurements, regulating water per water rights, preventing illegal and wasteful water use, inspecting well construction, and ensuring dam safety. They also comment on water right applications, respond to inquiries from the public regarding water availability and use, conduct water right research, respond to water-related complaints, and frequently act as unofficial mediators between neighbors and groups.

District offices can have large differences in workload responsibilities and geographic distances covered as seen in Figure 8. These differences contribute to workload disparities. In some districts, it can take several

hours to drive between diversion points, monitored streams, and other locations.

Figure 8: Differences in Workload and Geographic Coverage



Broken water meter

While WRD focuses on achieving voluntary compliance among all water right holders, field staff must also manage the water users that intentionally defy or are unaware of Oregon’s water law. In these cases, their ability to protect the water supply and the rights of other users, is constrained by property statutes, in some cases a lack of support by local law enforcement, and even possible physical endangerment. Time spent dealing with litigation or challenging water users takes time away from addressing other monitoring and regulation responsibilities. It can sometimes take a decade to resolve a water conflict and in that time, WRD has limited recourse to stop illegal water use. Using water beyond one’s right can take water from other users, contribute to community tension and discord, and reduce instream water needed for fish and ecological health.

Field staff coverage has declined

Field staff coverage has not kept pace with growing workloads or expectations. Overall, WRD staffing has increased marginally since 2001, but field staff numbers have declined.



Watermaster checks sprinkler head to determine how much water is being used

The number of watermasters has remained relatively steady for the past 15 years, while the number of water rights and monitoring stations they need to manage have been growing. Watermasters have been supplemented by locally-funded or federally-funded assistants to carry out field activities. However, that added assistance has declined from a high of 37 full-time equivalent personnel in the early 1980s to 13 in 2015. This has reduced overall field presence and puts further pressure on the state.

Some specific areas have also experienced gaps in staff coverage. District 19 along the southern coast had no watermaster for the first six months of 2015, which was the first year in recent history that the area experienced abnormal drought conditions. From approximately 2008 to 2013, the Northwest Region had no dedicated well inspector. WRD management stated this was due to not enough fees collected to support one. The well inspector for the Eastern Region reported having to cover over half of the state in years when the agency was short staffed. Staff also mentioned there are difficulties such as the distances between offices and having to cover work for field staff that are on vacation, ill, or otherwise unable to report to work. WRD is attempting to expand some of its capacity in the 2017-2019 biennium with a budget request for five new regional assistant watermasters.

Not having sufficient staff coverage for monitoring and regulating duties could lead to stream and groundwater overuse, and well deficiencies that endanger aquifers, both of which could threaten Oregon's water supply.

Agency needs to reassess and prioritize field staff coverage and distribution

While it appears field staff workload is heavy and not evenly distributed, management has done limited analysis on this to better understand what is needed, including possibly redistributing some of the work. Field staff time is not tracked, which could prevent the agency from having a complete understanding of what work is being done and which areas need more staff support.

WRD needs a long-term agency plan to help ensure water sustainability

Both WRD's mission and vision emphasize protecting water resources for the future. The agency must manage this finite and heavily sought after resource with limited funds and capacity. Some progress has been made recently with the Integrated Water Resources Strategy (IWRS). The IWRS is a multi-agency strategy that covers a broad scope of water-related issues and helps to direct some of WRD's efforts, but it does not encompass all the agency's functions. WRD would benefit from an overarching agency plan. A long-term agency plan would help WRD better address areas such as establishing priorities and goals, aligning resources and workload, improving communication, and identifying needed process improvements.

Challenges with balancing mission

Tasked with managing all of the state's waters, WRD has to address in-stream and out-of-stream needs, both now and in the future. Limitation of the state's water laws and WRD's increasing responsibilities can undermine efforts to protect water and ensure adequate water to meet all needs.

Some parts of the state had water claims that totaled much more than the available water flow even before the state started managing water in the early 1900s. For example, WRD staff noted when the Umatilla Basin was being adjudicated the pre-existing claims were seven times the amount of surface water available. The complexities and limitations of water laws contributed to over allocations of surface waters in previous decades. Once a water right is approved, the water allocations are set in perpetuity. Water laws also provide little incentive to use less water than allowed within water rights.

Responsibilities have been added to WRD over time, which has caused stakeholder concern about WRD's ability to concentrate on core duties. WRD tries to balance its responsibilities, but is challenged by responding to competing interests within the agency's mission.

WRD needs a long-term plan that addresses agency functions

The IWRS, involving various state agencies, partners and public input, has been used to guide water policy and investments by the state. It has helped to highlight water issues and in response the Legislature has provided some needed funding for grant programs, groundwater studies, and related staffing.

While WRD leads the IWRS planning efforts and uses that strategy as a guide for agency priorities each biennium, the IWRS does not cover all aspects of WRD's responsibilities. When we talked to WRD staff across multiple divisions and in various field office locations, they told us they did not think the IWRS had much bearing on their jobs and many knew little or nothing about its implementation.

Within WRD, there is no agencywide plan that prioritizes all of its responsibilities and sets clear, measurable goals for its programs. WRD's program planning seems to be siloed. For example, the Monitoring Strategy for operating WRD's stream gage and observation well network identifies the first step as evaluating existing gages and observation wells. But there seems to be little coordination between divisions on the priority to accomplish this.

WRD also invests a great deal of resources in areas where minimal planning has occurred, such as basin adjudications and litigation. These activities can overwhelm WRD's capacity, making it challenging to complete other duties.

A long-term agency plan, which could be used to complement the IWRS, would help WRD clarify how it will achieve its mission and expectations,



*Runoff from the Bear Creek Reservoir
in Central Oregon*

prepare the agency to better adapt to the changing water environment, and help manage water into the future.

Unclear priorities and goals impede planning efforts

Long-term planning is a challenge without clear priorities and goals. WRD has some defined strategic priorities for the agency as a whole and its programs, but management has not clearly communicated how those relate to and should be integrated within staff responsibilities. Clearly defined priorities clarify where the agency is headed in the long term and align singular program and division efforts. Once priorities are established, setting goals and aligning resources help to further direct agency efforts to be as effective as possible. This could also help prioritize field staff coverage.

The agency has established state key performance measures and some internal metrics for programs activities. However, those only capture some of what the agency does, and its internal metrics do not necessarily have specific related goals to evaluate program effectiveness. For example, the goal directly related to well construction focuses on new wells installed each year. There is no goal related to the numerous existing and abandoned wells that pose the same risk to groundwater.

Workload demands and other challenges staff face affect WRD's ability to accomplish all of their responsibilities. For example, some staff devote a substantial amount of time responding to litigation, which involves background research and testifying. According to watermasters we spoke with, they also devote a large portion of their day to responding to inquiries from the public and occasionally from the media. The scope of WRD's work is broad, but management has not examined agency mandates and staff workload to ensure existing resources are directed strategically.

Planning could better shape communications

Besides helping ensure efforts are better aligned toward reaching agency goals, having an overarching plan would help WRD communicate priorities and direction to those inside and outside the agency.

Communication and coordination between central and regional offices is particularly challenging given that field offices are geographically isolated. Although we heard there have been recent improvements with communications, WRD has no structured approach to conveying long-term priorities and goals, and ensuring effective coordination and communication between all offices.

A long-term plan could further enhance external communication by relaying agency priorities, goals, and resource needs with stakeholders and the Legislature.

Agency planning should incorporate process improvements

While WRD has done some targeted process improvements in areas such as application processing and the Municipal Water Management and Conservation Plan guidebook, it has limited mechanisms in place to regularly evaluate and modify program efforts.

WRD management stated the mechanisms it has for feedback about agency and program effectiveness includes internal division meetings and meeting directly with managers. While some feedback may flow to management, their decisions, or how they came to those decisions, were not always communicated to staff. This seems to have led some staff to be more disengaged and feel that their input is not heard or appreciated.

Importance of planning for long-term water stewardship

Oregon has seen considerable drought impacts, natural aquifers running low, and waters being over allocated. There is growing pressure on Oregon's water system. The state relies on snowpack and rainwater for its water system, and it is unclear how climate change will affect future precipitation patterns and water availability.

With a limited supply of fresh water available for human consumption, the natural ecosystem, and economic stability, sustainable water management should be a high priority. Having an agency plan that sets priorities for how WRD will manage water now and in the future, will help direct resources as effectively as possible. Without such a plan, WRD risks failing to address water sustainability now, which will likely mean greater struggles in the future.



Columbia River

Recommendations

To better manage and protect Oregon's water supply for future sustainability, WRD should:

- further integrate sustainability considerations into its water management decisions to better meet its full mission, including expanding permit conditions, developing mitigation initiatives and opportunities, and encouraging streamflow restoration efforts;
- work with the Water Resources Commission and Legislature to ensure water laws and rules for managing water meet current and future needs;
- work with the Governor's Office, Legislature, and other state agencies to further promote water conservation among all water users;
- enhance its well regulation efforts, including driller licensing and education, and inspections of new, abandoned, and known wells;
- coordinate with other agencies to consolidate efforts and protect groundwater from potential risks;
- strategically collect and analyze the information needed to help with decision-making related to the state's water supply and availability;
- work with the Commission and the Legislature to expand its review and analysis of water use in the state;
- assess field staff workload and align it with mission critical priorities and available resources;
- develop a long-term plan for the agency that prioritizes its responsibilities and sets clear, measurable goals for water sustainability;
- continue efforts to improve internal communications;
- increase efforts to educate the public on water use and water laws;
- better communicate agency priorities, goals, and resource needs to the Commission and Legislature; and
- establish a process to periodically solicit staff feedback on plans and programs, then review and revise them as needed to ensure they are fulfilling their intent.

Objectives, Scope and Methodology

Our audit objective was to determine what actions WRD can take to better manage and protect Oregon's water supply for future sustainability.

To address our audit objective, we interviewed WRD management and staff. We spoke to WRD staff within the following programs and divisions: Groundwater Hydrology, Surface Water Hydrology, Information Services, Well Construction and Compliance, Water Rights, Adjudications and Extensions, Policy and Legislative Coordination, Water Management and Conservation Planning, Water Use Reporting, Flow Restoration, and Field Services. During the course of the audit we visited three regional offices (Salem, Bend, and Pendleton) and three district offices (Tillamook, Grants Pass, and Eugene), and spoke with staff in The Dalles, Baker City, Coquille, Vale, Lakeview, and Ontario offices.

We also spoke with external stakeholders, and interviewed staff from state agencies that work closely with WRD, including Oregon Department of Agriculture and Oregon Health Authority, and staff at federal agencies including the United States Geological Survey, United States Department of Agriculture, and the Bureau of Reclamation.

We sent a survey on water management practices to the WRD equivalent agencies in 14 states and received 11 responses. We reviewed water management plans and other documentation from these agencies and other similar agencies in additional states. We also reviewed reports and literature related to water management issues and practices.

We obtained information from WRD on watermaster workload, well construction and compliance workload, calculations for current and future municipal and industrial water demands, and Water Management and Conservation Plan participants. We also judgmentally selected and reviewed 23 WRD water right files.

We reviewed applicable laws, state and agency budget documents and analyses, and published reports related to agency activities.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained and reported provides a reasonable basis to achieve our audit objective.

Auditors from our office, who were not involved with the audit, reviewed our report for accuracy, checking facts and conclusions against our supporting evidence.



Oregon
Kate Brown, Governor

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December 13, 2016

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RE: Oregon Water Resources Department's Response to the audit report *Enhancing sustainability efforts and agency planning needed to better address Oregon's water supply needs*

Dear Ms. Wenger:

Thank you for the opportunity to respond to the audit, titled *Oregon Water Resources Department: Enhancing sustainability efforts and agency planning needed to better address Oregon's water supply needs*.

The Department generally agrees with the recommendations included in the report and will continue to find ways to improve performance without additional staff resources. It is important to note that resource constraints will continue to present challenges to progress in many areas highlighted in the report; therefore, the report's recommendations regarding more fully communicating needs to the Legislature will be integral in achieving success in some of these program areas. The Department intends to address the recommendations in the ways described below.

1. *Further integrate sustainability considerations into its water management decisions to better meet its full mission, including expanding permit conditions, developing mitigation initiatives and opportunities, and encouraging streamflow restoration efforts*

The Department agrees that further work needs to be done to integrate sustainability considerations to meet long-term instream and out-of-stream needs. The Department views this work as part of its ongoing efforts to advance its mission and carry out goals and actions identified under the Integrated Water Resources Strategy.

Water right permit conditions are an important tool that can allow new water uses while seeking to protect other instream, out-of-stream or groundwater uses. The Department is continuously adjusting permit condition language to improve their effectiveness. The Department also fine-tunes permit conditions where necessary to address unique individual circumstances. For example, in response to concerns about declining aquifer levels, the

Water Resources Commission adopted new administrative rule revisions to the Malheur Lake Basin Program to require new permit holders to drill observation wells, set maximum decline limits, set minimum set-back distances between new wells and existing wells, and require new well owners to cease pumping if they negatively impact older wells within a half mile of the new well.

While at this time the Department does not have plans to integrate new conditions into permits at a statewide scale, the Department will continue to add new permit conditions where there are water resources challenges specific to a particular area. It should be noted that an adequate Department field presence is needed to ensure permit condition compliance over time.

Because the need for water continues, even in areas where no water is available for new permits, the Department agrees that it will need to develop a mitigation program that applicants can use to offset the impacts of new water uses. Developing and evaluating mitigation options can be time consuming, often requiring more staff time than simply approving or denying a water right permit. A consistent approach to mitigation, while taking into account the geographic area and unique mitigation options, could increase efficiency and mitigation opportunities. In 2015, the Department had proposed in the Agency Request Budget (Package 111) a position to undertake such an initiative, but it was not funded. While this is an opportunity for future work, the Department must first meet its mitigation responsibilities in the Deschutes Basin before expanding into broader programmatic mitigation efforts. The Department will continue to discuss and explore options for establishing mitigation opportunities.

In regards to encouraging streamflow restoration, the Department has made a concerted effort in recent years to incorporate instream flow needs into its program areas. Many of the state's instream flow restoration tools were established in the late 1980s and early 1990s; these programs were successful, in part, because of the efforts and funding provided by third parties. As these programs mature, however, third-party funders have begun to shift their focus from leases to permanent streamflow protection through transfers and the Allocation of Conserved Water Program. Over the past year, the Department has seen an increase in Allocation of Conserved Water applications from grants awarded under the Department's Water Resources Development Program. Several of the projects that were awarded Water Projects Grants and Loans funding have or will be submitting Allocation of Conserved Water applications. Continued funding of Water Projects Grants and Loans is expected to not only provide benefits to consumptive uses, but will also increase the amount of water protected instream. The Governor's Recommended Budget proposes to provide funding for the Department's grant programs.

Longer-term, the Department needs to increase outreach about its existing water right tools, including opportunities to protect water instream. A Field Conservation Outreach Coordinator, as proposed in the Governor's Recommended Budget, if approved, will further enhance the Department's ability to develop outreach materials for all of the Department's programs, including its streamflow restoration programs. The Department is also exploring other recommendations of the Drought Task Force, one of which included a proposal to allow the pre-approval of leases.

2. *Work with the Water Resources Commission and Legislature to ensure water laws and rules for managing water meet current and future needs*

The Department is continually working with stakeholders, the Commission, and the Legislature to identify opportunities to meet Oregon's current and future water needs. Since publishing the Integrated Water Resources Strategy (IWRS) in 2012, the Water Resources Commission and Department have utilized the IWRS to engage the Legislature in policy discussions. This has not only led to investments in the Department's science and data sections, but also the passage of legislation integral to helping Oregonians meet their water needs. In 2013, legislation established a grant and loan program to support the development of water projects that provide environmental, economic, and social benefits. In 2015, the Department proposed and the Legislature passed legislation to authorize and fund local collaborative water resource planning to help communities understand their instream and out-of-stream water resources needs and identify solutions to meet those needs.

Over the past two years, the Department has increased its rulemaking efforts: these have included basin program changes to address groundwater challenges, reservations of water for future economic development, and long-needed updates to the well construction program and dam safety program rules. The Department also worked through rulemaking to implement 2013 legislation (SB 839) for the Water Project Grants and Loans program, which is solely targeted at meeting Oregon's instream and out-of-stream water needs. The Department recognizes that many of its rules will require updates in the future, and will prioritize these rulemakings as appropriate and as staff resources allow.

In 2016, the Department, along with the Governor's Office and legislators, worked to pass the Drought Task Force legislation, which has led to several recommendations that will help the State improve its response and resiliency to drought. The Department looks forward to continuing its work with the Commission and Legislature on legislation that helps address Oregon's instream and out-of-stream water needs.

3. *Work with the Governor's Office, Legislature, and other state agencies to further promote water conservation among all water users*

The Department agrees with this recommendation, is actively engaged on this issue, and recognizes more needs to be done. To address the challenges posed by a growing population, warmer temperatures, and increased demands for water for instream and out-of-stream needs, a suite of tools and solutions is necessary – including water conservation. The Department has continued to make improvements to its Water Management and Conservation Plan Program and Allocation of Conserved Water Program. Processing times for applications of allocations of conserved water have improved significantly, with some applications taking as little as 4 months to process; however, more work is needed to make the public aware of the program and the progress made in processing times. In addition to these programs, the Department has two grant programs (Feasibility Study Grants and Water Project Grants and Loans) that provide funding to evaluate and implement water conservation projects.

In addition, in 2015, Governor Brown, through Executive Order 15-09, set a goal for agencies to try to reduce non-essential water use by 15 percent by 2020. In 2016, the Department held seven meetings with state agencies that own buildings to work toward achieving the Governor's water conservation goals.

The Department agrees that further efforts are needed to promote water conservation and will continue to utilize existing staff to the extent possible. The Report of the Task Force on Drought Emergency Response (Appendix C) includes a list of tasks that could be undertaken if the Department had more staff time dedicated to conducting outreach and education about water conservation. The Governor's Recommended Budget proposes a new position, called a field conservation outreach coordinator, which could help with efforts to promote water conservation and increase education and outreach. In addition, the Governor's Recommended Budget includes funding for both Feasibility Studies and Water Project Grants and Loans, both of which provide grants as incentives to promote water conservation projects. Finally, the proposed budget also includes three regional assistant watermasters; field staff are frequently the front lines of communication with water users and can help inform them about water conservation opportunities.

4. *Enhance its well regulation efforts, including driller licensing and education, and inspections of new, abandoned, and known wells*

The Department agrees that well driller education is important and intends to continue to support training efforts. In 2014, the Department was successful in passing legislation extending the well driller continuing education program requirements to 2022. The Department has recently appointed two licensed and bonded well constructors as the newest members of its Continuing Education Committee, which meets periodically to review requests for continuing education credits for training provided to licensed drillers. In addition, the Department also conducts training and reaches out to the broader drilling community in order to reach as many Oregon licensed drillers as possible, providing continuing education training online, during conferences sponsored by the Oregon, Washington, and Idaho Groundwater Associations, and at other times when invited.

In addition to the training provided to well constructors, the Department also provides training opportunities to its well inspectors. The inspectors normally meet twice a year for formal training. As part of its most recent meeting in November 2016, the Department offered backflow training for its well inspectors, bringing in a specialist on backflow prevention. The meeting also focused on regulation, licensing, and inspection of new, altered, abandoned and unknown wells. By providing routine well inspector training, the Department is able to ensure a consistent interpretation of the well construction standards and is able to discuss issues, policies, and procedures so that inspections are performed in a uniform manner statewide. The Department believes that well inspector training is important, and intends to continue these trainings in the future.

The agency has been actively making improvements to the well construction program, including conducting rulemakings in 2014, 2015, and 2016. The Department's intention is to continue to update and modernize its well construction rules using a measured approach, in order to provide clear and concise guidance to well constructors. In addition, the Department has proposed a legislative concept for the 2017 session, which will help support the well construction program, protecting groundwater resources from contamination and waste through proper well construction.

The Department's ability to inspect new and existing wells is directly tied to staff resources; at this time, well inspectors are funded by start card fees for new wells. If the Department were to increase the number of new wells inspected, or increase the inspection of existing wells, additional resources would need to be identified.

5. *Coordinate with other agencies to consolidate efforts and protect groundwater from potential risks*

The Department agrees with this recommendation and strives to coordinate effectively with other agencies to protect groundwater resources. The proper construction and abandonment of wells on contaminated sites is a high priority for the Department and the well construction program devotes significant time to ensuring the work is done in a suitable manner.

The Department, Oregon Health Authority (OHA), and Department of Environmental Quality (DEQ) have complementary roles relating to the protection and management of groundwater resources in the state. The Department focuses primarily on water quantity matters, DEQ focuses on groundwater quality, and OHA regulates public water supplies (most of which are groundwater). For example, the Department has a memorandum of understanding with DEQ and another with OHA to ensure that any well posing public health, public safety, environmental, or other hazards is promptly reported to and handled by the appropriate agency.

Both DEQ and OHA sit on the Department's well construction rules advisory committee and actively participate in the drafting of new regulations that will help protect Oregon's groundwater from potential, or actual, risks. The Department's well construction program staff have also provided training to both DEQ and OHA staff and work with these agencies on a regular basis so that program staff have the necessary knowledge related to the well construction program.

The Department will continue these and other ongoing coordination activities, as well as try to identify additional opportunities to improve agency coordination and communication in the future.

6. *Strategically collect and analyze the information needed to help with decision-making related to the state's water supply and availability*

The Department agrees with this recommendation. Toward that end, the 2012 Integrated Water Resources Strategy called for the same type of information, and the 2013 Legislature increased resources to the Department necessary to expand its network of groundwater observation wells and surface water gages. In addition to this more robust monitoring network, the Department has identified the need for better data collection and data processing in the area of water availability and supply. Due to limited resources, the Department has needed to strategically prioritize the collection and analysis of data.

The Department has traditionally prioritized data collection over analysis during times of budget shortages, because data can always be processed at a later date, but it can never be recovered if it is not collected. As a result, there are backlogs of data that need to be processed. In the Department's 2017 Agency Request Budget and in the Governor's Recommended Budget, additional resources have been requested to assist with this matter.

As a means to better implement the recommended actions of the Integrated Water Resources Strategy, the Water Resources Commission recently directed the Department to develop a groundwater-related work plan, looking 10 to 20 years in the future. This work plan will include pursuit of more robust water-level data, additional groundwater basin studies, groundwater data availability, and a better characterization of groundwater-surface

water interaction. In addition to data, this work plan will focus on improvements in the groundwater permitting process, increased ability to manage groundwater resources, and improvements in well construction and well construction regulation.

7. *Work with the Commission and the Legislature to expand its review and analysis of water use in the state*

The Department agrees and this need is identified in the Integrated Water Resources Strategy. The Department has been active on this issue, but recognizes there is more to be done. In 2013, to ensure the effectiveness of the Department's formal Water Use Reporting Program, the Oregon Legislature reinstated a staff position dedicated to supporting water users that are required to report. This has resulted in greatly increased reporting compliance, as well as the use of the resulting data. At the same time the Department's information services staff worked to improve the software platform that supports the program. As a result, we have an increased ability to import data into the system, and just as importantly, extract it again in useful format. In collaboration with the U.S. Geological Survey, the Department recently completed a work plan to further improve the utility and structure of its Water Use Reporting Program.

In November 2016, the Department held a three-day training in Salem for all the Watermasters and Assistant Watermasters. One component of the meeting was a review of the current water use measuring device installation program for significant points of diversion. Program modifications were discussed that could improve strategic water use measurement in Oregon. The Department will continue to work on this effort in 2017.

8. *Assess field staff workload and align it with mission critical priorities and available resources*

The Department has long-recognized and highlighted the challenges field staff face in meeting all of the demands placed on them. As a result, assessing workload for field staff is an ongoing effort, as staff deal with statutorily required duties, dynamic water conditions, and new programs. Staffing needs can fluctuate year-to-year within districts. Therefore, it is imperative for the Department to maintain flexibility in staffing assignments by strategically stationing regional assistant watermasters that can respond quickly to the changing needs of a region. Regional assistant watermasters provide additional flexibility and responsiveness in the field. These staff are trained in water law, water right regulation and distribution processes, streamflow and groundwater measurement and customer service.

In recognition of workload challenges, the Governor's Recommended Budget proposes to add three regional assistant watermaster positions. However, the Department recognizes that resources will continue to be limited and that it must also focus on assessing existing staff duties and workloads, as well as identifying and implementing efficiencies. As a result, in 2017, the Department will audit the duties conducted by field staff. This process will identify which duties are statutory mandates, and how each duty aligns with critical priorities. Finally, the evaluation will assess available resources, allocation of those resources, and where efficiencies could be gained.

9. *Develop a long-term plan for the agency that prioritizes its responsibilities and sets clear, measurable goals for water sustainability*

The Integrated Water Resources Strategy provides a long-term blueprint for helping Oregon

to meet its instream and out-of-stream water needs, now and into the future to sustain communities, ecosystems, and the economy. In its update to the Strategy, the Department is interested in identifying gaps in recommended actions that are applicable to some of the agency's more traditional functions. The Department also intends to develop work plans for key program areas that provide more details on IWRS priorities and goals. This approach will first be deployed in the groundwater section.

Governor Brown's Executive Order 15-09 on drought says, "Many Oregon agencies have taken steps to improve the sustainability of their operations, including actions to reduce water, but Oregon state government can and should lead by example..." The Governor directed the Department to work with other agencies to "get ahead of our water resource challenges and improve our resiliency to drought to prevent much more serious problems." The Department's work is ongoing.

In addition to this, the Department has identified a need to evaluate its Key Performance Measures to ensure that they are providing meaningful goals for the agency. The Department will discuss this effort with the Commission at its January 2017 meeting and expects these efforts to continue in time to meet deadlines in 2018 for KPM adjustments in the 2019-2021 biennium.

10. *Continue efforts to improve internal communications*

The Department management team recognizes the importance of this recommendation and has undertaken efforts over the previous two years to improve internal communications with staff and between offices, including launching a monthly employee information sharing email, holding all-staff meetings, and subscribing all agency staff to listserves. The Department continues to explore ways that technology can close the communication gap with remote field offices. The Department understands that there is more work to be done, and will continue to work with staff to find ways to improve internal communications.

11. *Increase efforts to educate the public on water use and water laws*

The Department agrees that increased efforts are needed to educate the public on water issues. The 2015 drought highlighted the need for the State to engage in more concerted efforts to educate the public and water users about Oregon Water Laws. However, the Department's outreach position had been eliminated many years ago, leaving the agency with the capacity to only engage in ad-hoc education efforts. As a result, during the 2015 drought, the Department pulled staff off of other duties to assist with outreach related to drought, water right tools, and water conservation.

Since then, the Department, various stakeholders, and the Governor's office have recognized the importance of outreach. The Department's lack of staff to conduct outreach hampers the State from achieving water management goals, encouraging water conservation, supporting small water systems, informing water users of water management tools, and effectively assisting Oregonians in responding to drought. The Department's limited resources also likely results in a lack of awareness on water issues and underutilization of the Department's water right, instream leasing, conserved water, groundwater recharge, and funding programs.

In developing its 2017-2019 budget request, the Department worked with the Department of State Lands to propose a Web Communications Coordinator position, which was included in Package 106 of the Agency Request Budget. During the 2016 session, the Department proposed an Outreach and Rural Assistance Coordinator a position. The Task Force on Drought Emergency Response also highlighted this need. The Governor's 2017-2019 Recommended Budget proposes to add a field conservation and outreach coordinator, which if approved, would be responsible for conducting outreach activities. In addition, watermasters and assistant watermasters are often on the frontlines of educating the public and water users; the Governor's Recommended Budget proposes increases to the number of regional assistant watermasters.

12. *Better communicate agency priorities, goals, and resource needs to the Commission and Legislature*

The Department recognizes that there are limited resources and that the Department and Commission, as well as the Governor and Legislature must make hard choices about the prioritization and allocation of funding. The Integrated Water Resources Strategy and update, agency work plans that the Department intends to develop in the future, and a revamp of its Key Performance Measures, will help facilitate and communicate agency priorities, goals, and resource needs in the future.

13. *Establish a process to periodically solicit staff feedback on plans and programs, then review and revise them as needed to ensure they are fulfilling their intent*

The agency agrees that it needs to implement additional review procedures to revise plans and programs and will work on identifying better processes for soliciting staff feedback and reviewing programs. In the meantime, the Department has recently engaged field staff to provide input on the Department's measurement program for significant points of diversion, and is intending to seek feedback from staff as it undertakes a review of its Key Performance Measures.

Please accept my sincere personal thanks to the audit team for their detailed and thoughtful study of our agency's complex programs. As always, we are happy to answer any questions or provide further clarification to our comments.

Sincerely,



Thomas M. Byler
Director

About the Secretary of State Audits Division

The Oregon Constitution provides that the Secretary of State shall be, by virtue of her office, Auditor of Public Accounts. The Audits Division exists to carry out this duty. The division reports to the elected Secretary of State and is independent of other agencies within the Executive, Legislative, and Judicial branches of Oregon government. The division is authorized to audit all state officers, agencies, boards, and commissions and oversees audits and financial reporting for local governments.

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The courtesies and cooperation extended by officials and employees of the Oregon Water Resources Department during the course of this audit were commendable and sincerely appreciated.