# Oregon's Integrated Water Resources Strategy
# Executive Summary

## Introduction

Water is one of world's most precious natural resources. With more than 100,000 miles of rivers and streams, 360 miles of coastline, and more than 1,400 named lakes, Oregon is renowned for its water. Our rivers, streams, lakes, the wetlands, springs, and groundwater resources have provided a wide range of benefits to all Oregonians. This clean and reliable source of water is essential for meeting our basic human consumption needs, along with supporting Oregon's economy -- the thousands of businesses and industries that rely upon water in some form, to irrigate a crop, to manufacture a product, or to provide a service.

Oregon's economy is also dependent upon a healthy environment where water resources play an essential part. Fish and wildlife need a sufficient quantity and quality of water – from the rivers, lakes, wetlands, and estuaries - to live, reproduce, and thrive. A healthy environment, with fully functioning ecosystems, is needed to support our commercial and recreational needs and a quality of life unique to Oregon and the Pacific Northwest.

Fifty years from now, our vision for the future is to see, all across Oregon, healthy waters that are able to sustain a healthy economy, environment, cultures, and communities.

## Building a Water Strategy for Oregon

In order to achieve Oregon's vision for water, a strategy must be developed that brings various sectors and interests together to work toward the common purpose of maintaining healthy water resources to meet the needs of Oregonians and Oregon's environment for generations to come.

With the leadership, support, and direction from the State Legislature and the Water Resources Commission, Oregon's natural resources agencies set out to develop a statewide, integrated water resources strategy to meet current and future water needs. Unlike traditional water supply plans, this Strategy considers instream needs (where water remains in the environment) along with out-of-stream needs (where water is diverted for use), including water quality, water quantity, and ecosystem needs. Our ability to meet water needs today, and into the future, hinges upon a thorough understanding of the status of Oregon's water resources. Improving our knowledge base is a key objective in Oregon's first Integrated Water Resources Strategy.

The Oregon Water Resources Department, the state agency responsible for water quantity, took the lead to develop this Strategy. The Department worked closely with the Oregon Department of Environmental Quality and the Oregon Department of Fish and Wildlife to ensure that water quality needs and ecological needs were directly addressed. The Oregon Department of Agriculture, which oversees the safety and promotes the economic development of Oregon's agricultural industries, also played an important role in the development of the Integrated Water Resources Strategy.

### A "Bottom-Up" Approach

Developing the state's first water strategy, although led by state agencies, was built from the ground up. Early on, the four state agencies actively sought out input from the public, hosting discussions

in eleven Oregon communities all across the state. Stakeholders and a variety of water-related organizations also participated in individual workshop discussions.

The public input gathered from these discussions resulted in an extensive list of water-related challenges that Oregonians care passionately about and wanted to see addressed in the state's first water strategy. From the very beginning, Oregonians offered up a variety of solutions and ways the state could move forward to improve water resources management in Oregon.

Conversations continued with formally convened groups that offered advice on the most critical issues to address and the most promising solutions. With more than fifteen natural resource and economic development state agencies, along with several federal agencies that have diverse responsibilities in the areas of water supply, water quality, land management, and fish and wildlife management in Oregon, it was important to seek their assistance and feedback in developing the Strategy. These agencies were instrumental in helping to identify the successful tools, plans, and programs already in place today that can be built upon, further integrated, and improved under the umbrella of the Integrated Water Resources Strategy.

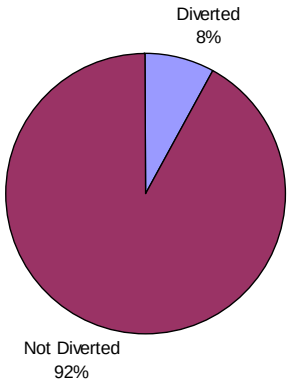
In any public outreach effort, it is impossible to reach every citizen of the State. An advisory group of citizens and stakeholders was formed to help us achieve a diverse range of perspectives and interests, and to help speak on behalf of all Oregonians. Like the state and federal agencies, their feedback and recommendations were invaluable to developing the structure and content of the Strategy.

The comments, feedback and input received throughout the development of the Strategy were shared regularly with the Water Resources Commission, the Oregon State Legislature, and the Governor's Office.

After more than three years of engagement with Oregon's citizens, the Water Resources Commission formally adopted Oregon's first Integrated Water Resources Strategy on <<August 2, 2012>>.

## Our Understanding Today: The Status of Water in Oregon

Oregon sees about 106 million acre-feet of water in an average water year—a combination of both surface water and groundwater




**106 million acre feet of water yielded per year in Oregon**

Water users in Oregon divert about nine million acre-feet of water each year for out-of-stream uses. This represents approximately eight percent of the estimated annual yield described above. These diversions serve four primary types of user groups: agriculture, municipal water supplies, self-supplied industry, and self-supplied domestic users.

### Out-of-Stream Needs

Agricultural water use accounts for 87 percent of all water diverted in Oregon. Irrigated farms produce more than 80 percent of the total value of Oregon's harvested crops. Water can increase yields 200 to 600 percent, providing growers with the ability to produce a wider variety of crops. Irrigation makes land more valuable and can create economic hubs—linking farms, processing facilities, transportation systems (rail, river, and road), distribution networks, and on through the food and fiber chain to consumers.

Water is the lifeblood of Oregon's cities as well, with municipal drinking water systems delivering water to about 88 percent of the state's population. Municipal water systems, representing about six percent of out-of-stream demands, also support economic development, producing clean and reliable water supplies for industries, businesses, schools, parks, hospitals, residences, and other public and private facilities. The U.S. Census Bureau projects the arrival of another one million people in Oregon by 2030. With a population close to 4 million today, a 25 percent increase in Oregon's population could have a significant impact on both water supply and demand.

Self-supplied industrial water use in Oregon represents about six percent of all the water diverted in Oregon. Such water use takes place in industrial and commercial facilities and typically involves water as a key production input. Water is often used in manufacturing products, including constructing, operating, cooling, and maintaining facilities.

Domestic water users represent the 707,000 Oregon residents whose water needs are supplied by privately-owned groundwater wells. This use accounts for about one percent of all out-of-stream water demands in Oregon. Water is often used to meet basic drinking water needs, other household activities, and outdoor lawn and garden watering.

**Instream Needs**

It is probably not surprising to many Oregonians, especially on the west side, to hear our water described in millions of acre feet. As Oregonians, many of us are accustomed to rainy winter and spring seasons, and often viewed by others as inhabiting a "wet" state. Just as water is needed to support out-of-stream needs, water is needed within the environment to ensure overall ecosystem health.

*"...if Oregon is viewed as a wet state, why are we facing water resource challenges?"*

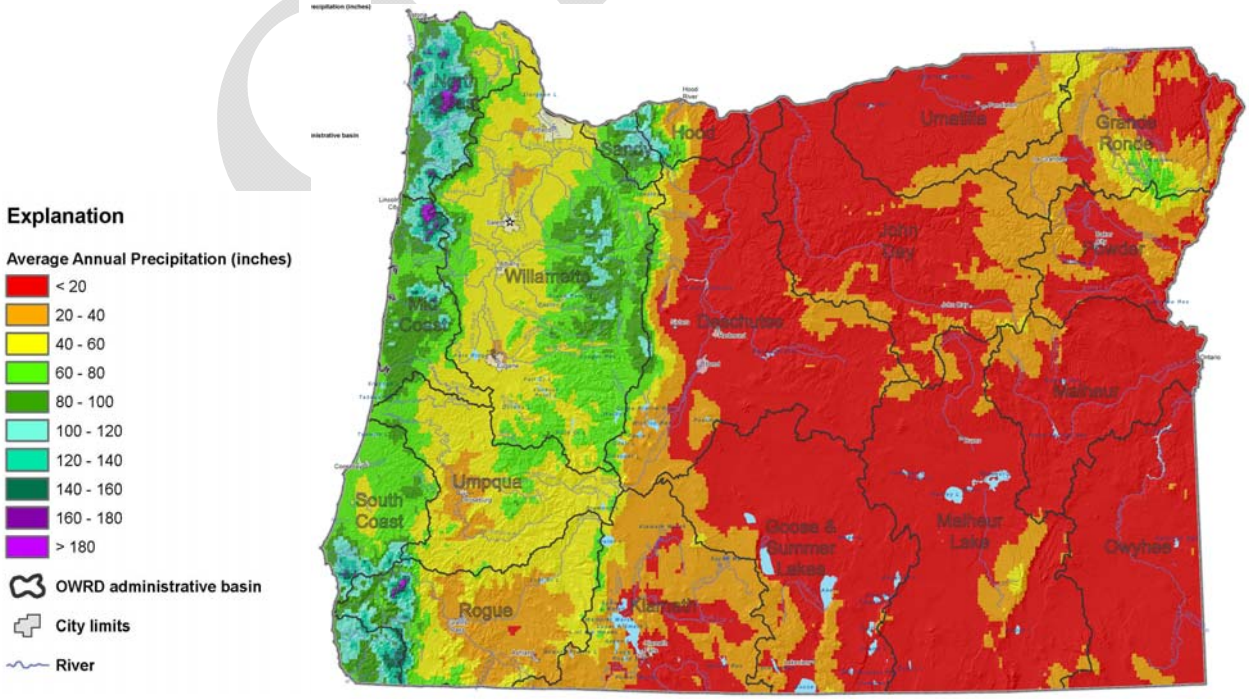
A percentage of the water that is not diverted in the state is protected by more than 1,400 instream water rights. Other portions are protected by federal biological opinions and flow requirements. Such protections are difficult to quantify on a pie chart, as they are often expressed in terms of streamflow or flow rate, rather than volume of water. The water that stays instream or in the ground sustains aquatic species and ecosystems, and serves a beneficial purpose. Instream flows also support the needs of Oregon's industries, such as recreational and commercial fishing businesses, water-related tourism and destination spots, energy production, and navigational transportation.

The remainder of the 92 percent presents a question for the 21st century in Oregon. If Oregon is viewed as a wet state with plenty of water to go around, why is it that meeting our instream and out-of-stream water needs is a challenge today? Much of our water resource challenges have to do with location, timing, form of precipitation, water quality, and access to water.

## *First, location.*

Precipitation is not evenly distributed across the state. In fact, it varies widely across Oregon, from as much as 200 inches at points along the Coast, to less than 8.0 inches in the drier Plateau Regions. Although Oregon's annual precipitation in western Oregon is high, 70-80 percent occurs during the winter. Also consider that Oregon's average annual precipitation is only about 30 inches per year, making it comparable to the average the state of Texas receives.

Mean Annual Precipitation in Oregon



The differences in where rain falls (and when it falls) often means that Oregon's coastal communities are dealing with flooding events while Southern and Eastern Oregon communities are experiencing drought-like conditions.

Groundwater, one of the Nation's most valuable resources, occurs almost everywhere beneath the land surface. It is a major contributing source of water for springs, lakes, and wetlands, feeding streams and rivers gradually throughout the year and augmenting streamflow in late summer months.

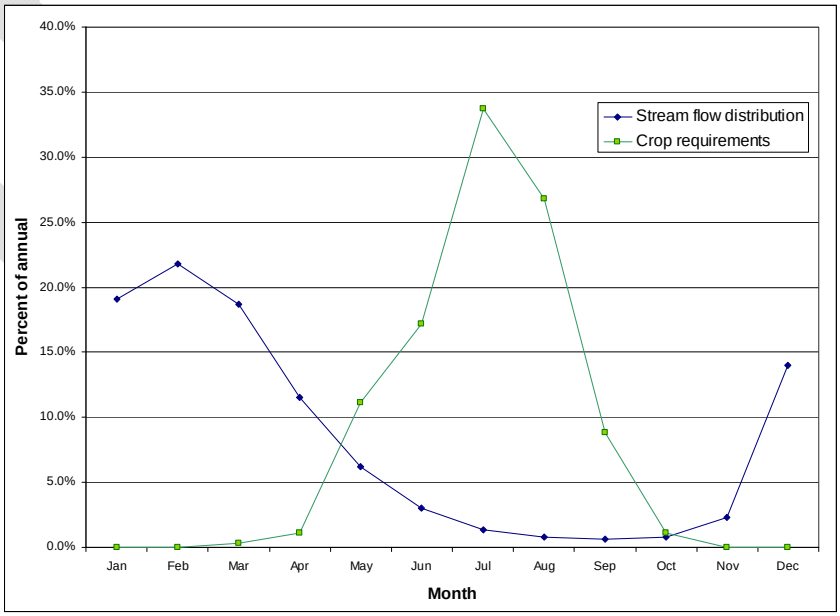
Although groundwater occurs almost everywhere, the availability of groundwater for large-scale use and development is dependent on geologic conditions and climate, how it interacts with surface water, and the extent of previous development pressures on the resource. Geologic conditions vary extensively throughout the state. During the past 60 years, groundwater development has occurred primarily in areas where the geologic conditions are favorable and surface water has not been easily attainable.

In several areas throughout the state, we already know that certain groundwater aquifers are not capable of sustaining additional development. In the Willamette Valley, twelve areas have been completely withdrawn from future uses or limited to smaller uses, allowing only minimal irrigation or essential public safety needs, such as fire protection.

The limits of groundwater extend beyond quantity; some aquifers contain saline water, others contain area-wide nitrate contamination. Groundwater contamination is a serious issue in some locations throughout Oregon, affecting portions of Linn, Lane, Benton Counties, the Lower Umatilla Basin, and portions of Northern Malheur County.

## *Second, timing.*

The arrival of precipitation in Oregon, whether by rain or snow, typically occurs between the months of October through April. This stands in stark contrast to the months in which water demands are at their highest, or peak, or most uses. The accompanying graph demonstrates this mismatch in timing. The highest water demand for crops (green line) occurs during the months of June, July, and August.




Typical Timing of
Precipitation vs. Demand in Oregon

The blue line, representing typical stream flow distribution in Western Oregon, hits a seasonal low during those same summer months. Historically, agricultural water users and

municipal water providers have tried to meet summertime demands through storage—using a combination of above or below-ground options and relying upon natural storage (i.e., snowpack) to replenish supplies.

Instream needs are more difficult to place on a graph, as different species require streamflow at different times of year for different biological purposes. Generally, in terms of timing, low streamflows during the summer months represent the greatest concern for the survival of aquatic species.

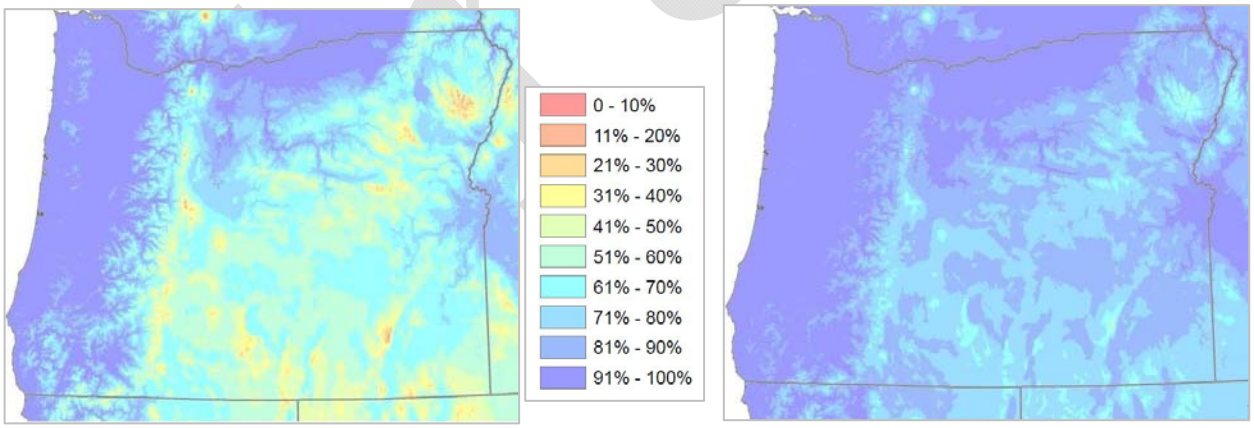
Although the volume of water seems enormous, it does not always arrive when we need it most.

## *Third, form of precipitation.*

Water users in Oregon and throughout the Pacific Northwest states are highly dependent on temperature-sensitive springtime snowpack to meet growing and often competing water demands. Approximately fifty percent of Oregon water users are located in areas of the state that are "snowpack dependent." This means that water users, both instream and out-of-stream, significantly depend on snowmelt to gradually feed our rivers, streams, and aquifers throughout the late spring and early summer months.

Climate Change researchers are projecting an increase of mean annual temperature in Oregon between 0.2 and 1.0 degree Fahrenheit each decade, for the next several decades. The maps below show the effect warmer temperatures could have on mid-level snowpack in Oregon. With an increase of just three degrees Fahrenheit, precipitation that typically arrives in the form of snow (depicted in red, orange, and yellow hues on the left map) could instead arrive more often in the form of rain (depicted in blue areas in the right map).

Percent of Annual Precipitation Falling as Rain




Yellow and orange hues represent areas where a large percentage of precipitation falls as snow today.

Snow areas largely disappear with a slight rise in temperature.

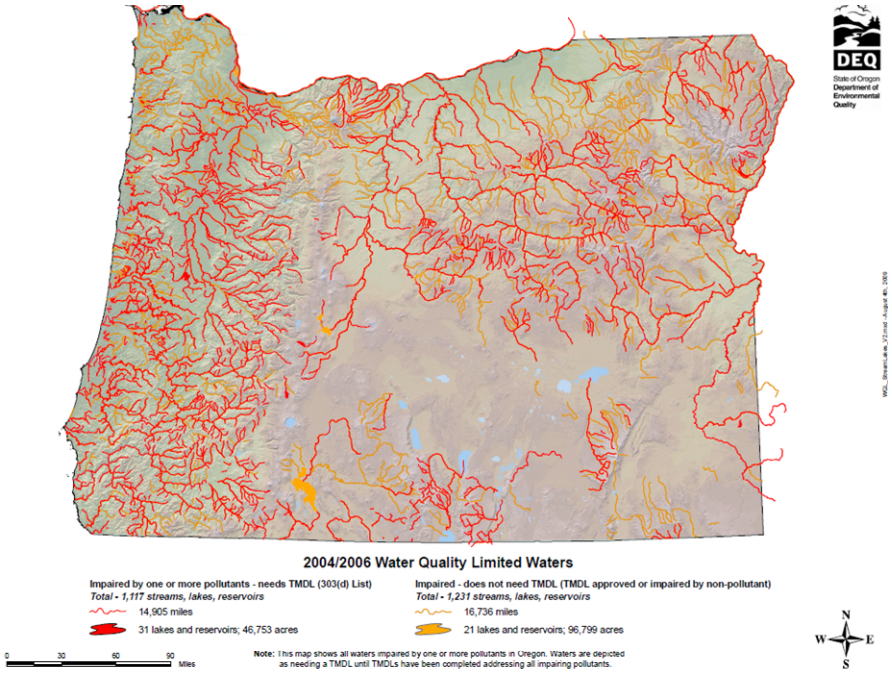
Precipitation arriving as rain instead of snow presents a number of water-related challenges, from flashier flood-prone systems, to decreased summertime run-off to surface water, resulting in more water shortages. It has an effect on groundwater resources too, decreasing the opportunity for groundwater recharge. Those users who are dependent on snowpack to meet either instream or

out-of-stream needs during the summer could see significant decreases in water when they need it most.

## *Fourth, water quality.*

Water quality is impaired in many of Oregon's surface water bodies. Poor water quality often equates to higher costs for water treatment to meet municipal and industrial needs, and it also limits the accessibility to clean water for fish, wildlife, domestic users, agricultural and recreational users.

Oregon's Impaired Waters




More than 1,861 waterbodies are impaired and not meeting water quality standards, including almost 15,000 stream miles pictured here, and more than 30 lakes and reservoirs.

Temperature, sedimentation, and nutrients are the leading pollutants that impair Oregon's rivers and streams. Water temperature, which can increase as a result of low streamflow or warm discharge, is a critical water quality parameter because it directly effects the survival of sensitive species such as salmon and trout. For lakes, ponds, and reservoirs, dissolved oxygen and habitat alteration are the two most common water quality issues.

What's the effect? Impaired water quality poses human health risks, as well as higher costs to monitor and treat. In addition, impaired water quality can be lethal to fish and wildlife, or can result in reduced fish egg production, nest and brood abandonment, lower disease resistance, reduced adult survival and lower population abundance.

Since 1991, the National Oceanic and Atmospheric Administration's (NOAA) Fisheries' Office of Protected Resources has listed 27 Pacific salmonid species under the Endangered Species Act (ESA), and has delisted zero species, due in part to water quality problems.

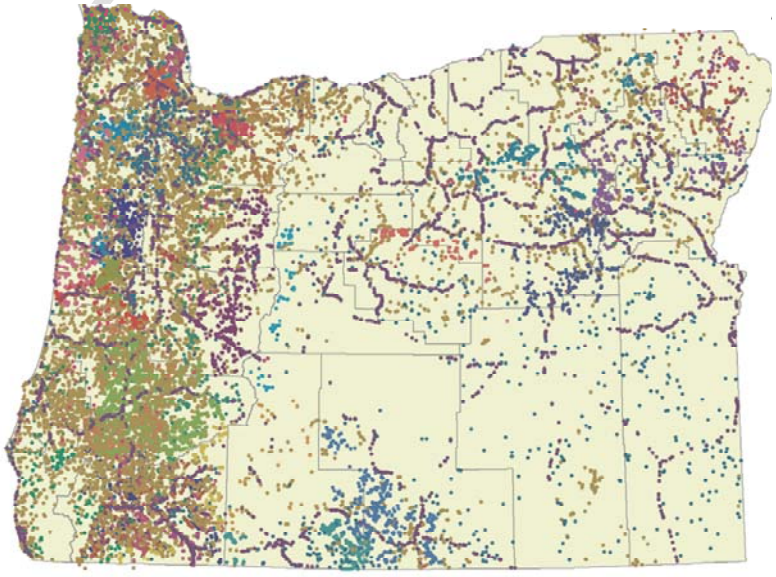
## *Fifth, lack of access.*

Lack of access to water can manifest itself in many different ways. Three examples mentioned repeatedly throughout this project are cost, environmental justice/process difficulties, and barriers to fish habitat and passage.

Cost. The cost to access to water is enormous. For municipal drinking water systems in Oregon, the U.S. Environmental Protection Agency estimates total need of approximately $3 billion. For municipal and agricultural users costs can include capital construction and maintenance costs, from securing a water source, to transmission, storage, treatment, and distribution. These costs involve routine construction and maintenance, and do NOT include the billions of dollars worth of seismic retrofits and emergency preparedness efforts that Oregon needs to undertake over the next 20 years. The cost of ongoing compliance with local, state, and federal water resource protection laws is significant as well.

Environmental Justice and Environmental Health. Difficulty in gaining access to decision-making processes in the natural resources arena can pose a problem for those without access to digital news media, or without time or resources to participate. In 2007, the Oregon Legislature called for environmental justice in Oregon, ensuring that all persons participate in decisions that affect their environment. Members of minority and low-income communities, tribal communities, and other communities have been traditionally under-represented in public processes and disproportionately affected by cumulative environmental impacts.

Fish Passage Barriers.
Our water resource challenges are not just limited to a lack of access to water for humans. Oregon's fish and wildlife species lack access to miles of waterways due to diversions that lack proper fish screening or by-pass devices, which can increase fish mortality and injury as fish enter diversion ditches, machinery, or irrigated fields. In December 2011, the Oregon Department of Fish and Wildlife published a Fish Passage Barriers dataset, showing barriers to native migratory fish. The resulting map shows the location of these barriers (e.g., culverts owned by the Dept. of Transportation and dams owned by public or private entities).



## Oregon's History of Leadership in Natural Resources

Oregon has a solid legal and scientific history in place, providing a strong foundation for economic development, public health, and environmental protections in the water arena. This Integrated Water Resources Strategy recognizes the importance of Oregon's legal and scientific foundation and commits to continuing and strengthening it.

Oregon has often set the standard among states in water resource policy and implementation. Since 1909, Oregon's Water Code has created a rational system of water allocation and distribution through the state. Other examples include Oregon's Ground Water Act in the 1950s, the Beach Bill in the 1960s, the Scenic Waterways Act, Forest Practices Act, and land-use planning system in the 1970s, Instream Water Rights Act, Groundwater Quality Protection Act, and Wetlands Policy in the 1980s, and the Agricultural Water Quality Management Act and Oregon Plan for Salmon and Watersheds in the 1990s. During the past decade, Oregon has adopted a number of strategies and policies in order to better position the state in the areas of fish and wildlife conservation, ecosystem services, energy development, economic development, and water.

The following timeline summarizes some of the more prominent policies, programs, and tools available to us in Oregon.

### Major Milestones in Natural Resources Management

- 1889 -- Oregon enacts a state law prohibiting pollution of waters used for domestic or livestock purposes.
- 1898 -- Oregon's first fish screening law passed, to protect fish from injury or mortality in diversion ditches, machinery, or irrigated fields.
- 1909 -- Oregon Water Code creates a rational system of water allocation and distribution throughout the state.
- 1955 -- Oregon Ground Water Act authorizes the state's management of groundwater resources.
- 1964 -- Columbia River Treaty between the United States and Canada brings significant flood control and power generation benefits to both countries.
- 1967 -- Oregon's Beach Bill gives the public free and uninterrupted use of the beaches along the Oregon Coast.
- 1970 -- Oregon Scenic Waterways Act maintains the free-flowing character of designated rivers and lakes in quantities necessary to support recreation, fish, and wildlife uses.
- 1971 -- Oregon Forest Practices Act regulates commercial forest operations on non-federal forestlands, including management of soil, air, water, fish, and wildlife resources.
- 1972 -- Federal Clean Water Act regulates the water quality of streams, lakes, rivers, and estuaries.
- 1972 -- Federal Safe Drinking Water Act (amended in 1996) regulates the quality of drinking water delivered through community water systems.
- 1973 -- Federal Endangered Species Act makes all species of plants and animals, except pest insects, eligible for listing as endangered or extinct.

- 1973 -- Oregon Statewide Land-Use Planning Program requires all cities and counties to develop comprehensive plans to address land-use problems and concerns.
- 1987 -- Oregon Instream Water Rights Act authorizes instream water rights and launches the allocation of conserved water program.
- 1989 -- Oregon Groundwater Quality Protection Act is designed to prevent contamination, conserve and restore, and to maintain the high quality of Oregon's groundwater.
- 1989 -- Oregon's "No Net Loss" Wetlands Policy is designed to maintain the acreage, functions, and values of the state's wetlands.
- 1989 -- The Water Resources Commission establishes a Water Allocation Policy, making a water availability model the basis for future water allocations.
- 1993 -- Oregon Agricultural Water Quality Management Act provides a mechansim for agricultural operations to address water quality problems in watersheds.
- 1997 -- The Oregon Plan for Salmon and Watersheds helps restore healthy watersheds that support the economy and quality of life of Oregon.
- 2000 -- Water Resources Commission adopts a Water Measurement Strategy, focusing on diversions with the greatest impact on streamflows in areas with greatest fish needs.
- 2006 -- The Oregon Conservation Strategy provides a blueprint and action plan for the long-term conservation of Oregon's native fish and wildlife and their habitats.
- 2007 -- Oregon Legislature establishes an Environmental Justice Task Force, calling for a greater voice and protection for underrepresented groups in natural resource decisions.
- 2009 -- Oregon Legislature requires an Integrated Water Resources Strategy to understand and meet Oregon's water needs, both instream and out-of-stream. (HB 3369)
- 2009 -- Oregon Legislature establishes an Ecosystem Services Policy, focusing on the protection of land, water, air, soil, and native flora and fauna. (SB 513)
- 2010 -- Oregon Fish Consumption Rate revises the human health toxics criteria based on a higher per capita fish consumption rate of 175 grams/day.
- 2011 -- Oregon launches a 10-year Energy Strategy, designed to lower greenhouse gases, while increasing energy security and Oregon jobs.
- 2012 -- Oregon Legislature passes 10-Year Economic Development Strategy (HB 4040), designed to encourage investment in and availability of capital to Oregon businesses.

Despite these successes, all of the issues mentioned above—location, timing, form, quality, and lack of access—are part of an equation that must be solved in order for the water supplies to be increased for all beneficial uses.

## Oregon's Water Strategy for the Future

Oregon's *Integrated Water Resources Strategy* is a blueprint to help the state understand and meet its water quantity, water quality, and ecosystem needs. The Strategy has four primary objectives:

| | |
|---|---|
| Objective 1. Understand Oregon's Water Resources | Oregon needs to fill the knowledge gap—gathering, processing and sharing water resource information, so that the state can better characterize its water resources for economic development and a healthy environment. |
| Objective 2. Understand Out-of-Stream and Instream Needs | Oregon needs a better grasp of current and future needs, both out-of-stream and instream. Without a better characterization of current water use and future water need, the state cannot adequately plan to meet these needs in the future. |
| Objective 3. Understand the Coming Pressures that Affect Our Needs and Supplies | Oregon must anticipate and model some of the most powerful changes that may affect both water resources and water needs into the future. Such changes include climate change, population growth and shifts, economic development, land-use change, need for infrastructure upgrades, and the water-energy nexus. |
| Objective 4. Meet Oregon's Out-of-Stream and Instream Needs | Oregon needs to integrate and coordinate both the long-term planning and day-to-day management of Oregon's water resources among state agencies, as well as with local, tribal, federal, and other state partners. Key factors here include stable funding, state-level and basin-level planning, water resource development, and protection of public health and environmental health. |

This *Integrated Water Resources Strategy* identifies a number of tasks designed to meet these four Objectives. Summarized here in this Executive Summary are tasks with an immediate need for implementation, beginning in the 2013-15 biennium. A more detailed workplan can be found in the concluding chapter of the Integrated Water Resources Strategy.

<u>Tasks to Meet Objective 1: Understand Oregon's Water Resources</u>

- Conduct Additional Groundwater Investigations, characterizing the relationship between surface water and groundwater, determining characteristics of groundwater (location, volume, quality, etc.), studying the location and use of exempt use wells, and identifying the location of underground injection control systems (UICs). Evaluate and update Oregon's groundwater administrative areas, for both water quantity and quality. Use high resolution remote sensing where appropriate.

- Natural Resources Data Management. Upgrade data collection, monitoring, and processing to capture and share water resource data across local, state, federal, and tribal agencies. This requires completing a comprehensive, inter-agency assessment of data needs. The assessment would be used to develop a long-term data strategy for both surface water and groundwater.

Tasks to Meet Objective 2: Understand Out-of-Stream and Instream Needs

- Modify Names on Water Right Certificates. Today, there are no statutory provisions that allow the name on a water right certificate to be changed, even if the holder of the certificate has passed away or sold off interests. There are approximately 85,000 water rights in Oregon today. The state needs the ability to respond to holders of water rights who are requesting to modify the names on these certificates, especially in light of the 200 Supreme Court ruling on Fort Vannoy, which favored the name written on a water right certificate over other factors. Such a change would facilitate other process efficiencies, such as communicating with water right holders, mapping water rights, updating the water right database, and improving compliance with measurement and reporting conditions.

- Update Oregon's Inter-Agency Permitting Guide. In Oregon, protecting natural resources means a variety of local, state, and federal permits are required for residential, industrial, commercial, and public works projects in or near water and wetlands. The primary goals of these requirements are to avoid, reduce, or compensate for impacts to the state's natural resources. The state has developed a permitting resource for developers, planners, and economic development officers. The guide needs to be updated with new contact information, web links, and requirements.

- Water-Use Measurement and Reporting. A significant input in the understanding of groundwater and source water resources is measuring the amount of surface water and groundwater diverted for beneficial use. Oregon Administrative Rule requires governmental entities to measure and report water use. Other water users are also required to measure and report their use, in accordance with their water right permits. Measurement and reporting facilitates the state's ability to manage the water resource, and helps to monitor basins with water shortage concerns or groundwater level declines. Cost share dollars for measurement devices are critical to this program's success. This represents a re-instatement of the Water Resource Department's water-use reporting position, necessary to fulfill statutory responsibilities.

- Calculate and Protect Instream Flows. The Oregon Department of Fish and Wildlife, Department of Environmental Quality, and Parks and Recreation Department are authorized to apply for instream water rights for specific purposes, such as protection of fish habitat, water quality, and scenic waterways. Such applications require scientific analysis and modeling to determine the instream needs for base and elevated flows. Much work remains to determine such needs. Apply for instream water rights as appropriate.

Tasks to Meet Objective 3: Understand the Coming Pressures

- Down-scale Climate Change Models to the Basin Level, characterizing potential local changes in surface water and groundwater resources, as well as the effects of climate change on instream and out-of-stream demands and their associated water rights. Use peer-reviewed results to inform Oregon's water resource management decisions.

- Update State Agency Coordination Plans. These Plans ensure that state rules and programs affecting land use are compatible with acknowledged city and county comprehensive plans. Changes to state rules and programs, and to comprehensive plans, may lead to incompatibilities that are detrimental to state, local, and private interests. Keeping coordination programs up-to-date will help ensure state and local permit actions can be completed efficiently.

Tasks to Meet Objective 4: Meet Oregon's Instream and Out-of-Stream Needs

- Secure stable funding for water resource management at the state level. The state's core scientific, field-based, and planning responsibilities related to water are underfunded and have been for years. Core responsibilities include water allocation, distribution, monitoring and protection, data collection/processing, permitting, enforcement, and technical assistance for Oregon communities. Shore up General Fund base where possible, and develop additional sources of funding to mitigate the loss of General Fund to the state's key water agencies.

- Secure authority and funding for the state to serve as a water contractor. This would allow the Water Resources Department to contract with instream and out-of-stream interests, providing water secured through agreements with other states or the federal government. Establish a Water Procurement and Development Fund for the state to purchase water.

- Develop and test a template for place-based planning. Incent the local water resource planning process in Oregon, to help assess and meet water needs and to plan the state's water future. Voluntary, local efforts will "roll up" into and inform the State's Integrated Water Resources Strategy. Using a template provided by the state to guide the process, communities will address the unique hydrology and water needs (instream and out-of-stream) locally, optimizing outcomes. The state, through the four key IWRS agencies, will develop a template under the IWRS for place-based planning and will seek further grant funding and other incentives to assist with local planning efforts. This approach is meant to empower communities to conduct place-based planning in consultation with the state.

- Water Conservation and Efficiency. Revise informational materials supporting the agricultural and municipal Water Management and Conservation Plans programs and Allocation of Conserved Water program, to help make the business case to water users and to provide clearer guidance about how to participate in and use these programs. Improve partnerships with energy efficiency programs; cross reference to Oregon's 10-year Energy Plan.

- Water Storage. Three high-value water storage efforts that are currently underway require renewed attention from the state:

    - Allocate / Re-Allocate Federal Storage. Partner with the US Army Corps of Engineers, US Bureau of Reclamation, and interested stakeholders to re-allocate the water stored

in reservoirs in the Willamette, Crooked, and Rogue River Systems for instream and out-of-stream uses and to develop a means by which to contract for such water.

- Partner with the Federal Government, tribes, neighboring states and other partners to develop water supply for the Columbia River Basin. This could include pursuing opportunities to release water from existing water storage facilities and analyzing potential long-term investment partnerships to construct new above-and below-ground storage facilities. Proposed appropriation of new water sources shall be limited to times when water is available under existing state and federal requirements.
- Further implement the Umatilla Basin Aquifer Recovery Project, using aquifer recharge and aquifer storage and recovery techniques. At full build-out, this project could have capacity for 100,000 acre feet of water in the Umatilla Basin.

- Collaborate cross-agency to implement existing ecological plans and recovery efforts (e.g., coordinate water quality-related restoration with Fish Recovery Plan habitat restoration). Convene key agencies, watershed councils, and stakeholders to pool resources and achieve multiple goals simultaneously.

The Legislature has directed the Water Resources Commission to update the Integrated Water Resources Strategy every five years after adoption. The Commission welcomes the opportunity to continue working with partners, adjusting to additional information, adapting to changing circumstances, and adopting new techniques and technologies in order to meet Oregon's water needs.