



Oregon
Environmental
Council
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Making Water Work:

Strategies for Advancing Water
Conservation in Oregon Agriculture

Executive Summary

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Agriculture and Oregon are inextricably linked, shaping the state's identity and sustaining its people.

As Oregon's second largest economic industry, agriculture produces roughly 250 different commodities that employ 234,000 workers in peak season and add \$22 billion in annual new state product.^{1,2} While nursery plants, cattle, hay, wheat, dairy and other commodities have remained valuable locally and as exports despite the turbulent economy, their prosperity in Oregon could be threatened by the availability of one of our most basic natural resources: water.








Oregon's water supply is facing increased pressure due to population growth and climate change, stresses experts predict will compound in the coming decades. Our state's climate is often thought of abundantly

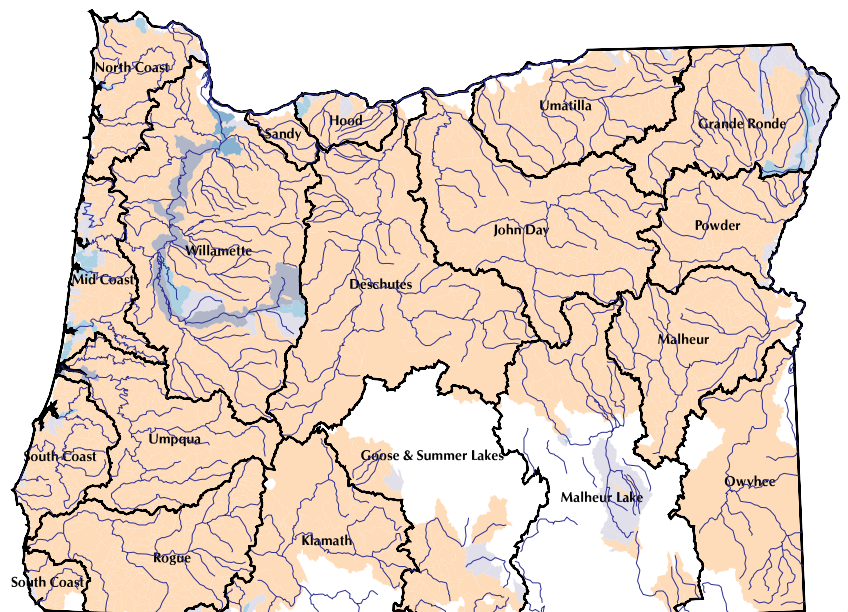
wet. However, Oregon's summers are dry, even west of the Cascades, making irrigation critical to a productive growing season. In many places across the state, more water has been promised than our rivers can deliver while still sustaining fish habitat. In addition, groundwater levels have declined in several basins.

Using our water resources more wisely will be essential as the state adapts to an uncertain future. Most of the public attention to water conservation focuses on investing in more efficient toilets, appliances, buildings and municipal water delivery systems. However, less than 10% of Oregon's total water withdrawals are used in cities, while

August available streamflow

New water rights available, in cubic feet per second (cfs)

-  No data
-  No water available
-  1 - 10 cfs
-  11 - 100 cfs
-  101 - 1000 cfs
-  1001 - 10000 cfs
-  10001 cfs or greater



agriculture uses 79%.³ In order to ensure its vitality and help meet the needs of a growing Northwest population as well as wildlife habitat and other water users, the agricultural community must make the most out of the water supplies that are available to it. Advancing water conservation shores up water supplies for irrigators and other users, and can restore flows to dry streams.

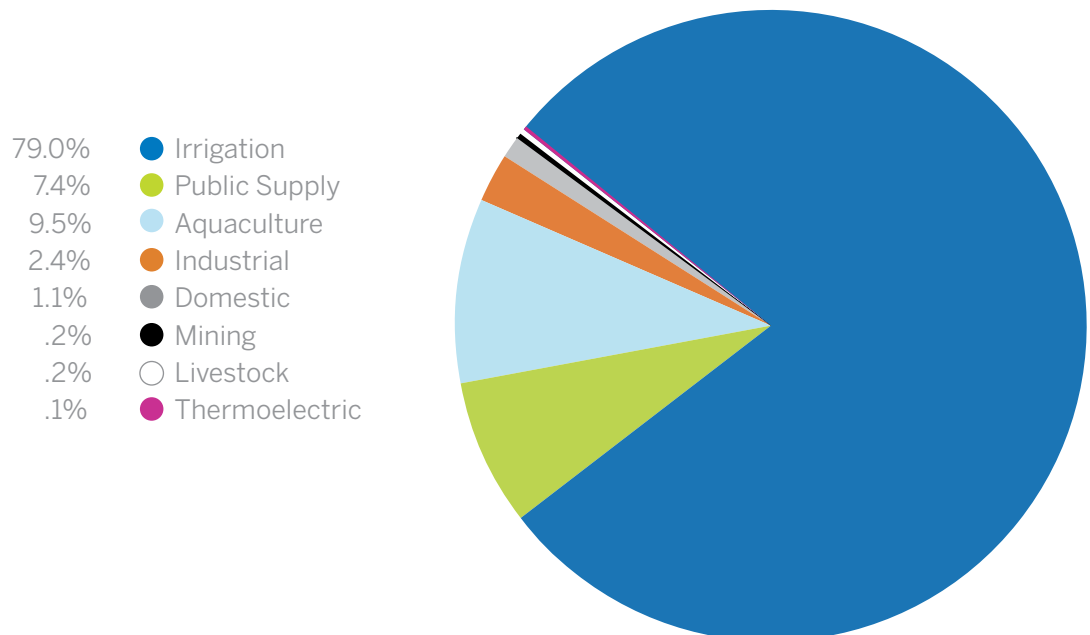
Water conservation efforts are currently underway on some farms, ranches and in water delivery systems throughout the state, and public and private resources are helping make projects happen. However, the fact remains that there is ample room for improvement and scaling up of cost-effective programs to protect this critical resource; we have only achieved a small percentage of what's possible, and the state lacks goals or coordinated programs to adequately advance water conservation and efficiency.

Oregon is a national leader in promoting energy efficiency as the best, least-cost approach to energy generation. That same approach can be extended to water: Oregon should prioritize water conservation and efficiency first when planning for the long-term management of our water resources.

Making Water Work aims to help leaders in the agricultural community, as well as elected officials, agency staff, environmentalists and others capitalize on the vast opportunities to maximize Oregon's increasingly limited water supply through water conservation and efficiency measures. Oregon Environmental Council interviewed dozens of stakeholders in Oregon's farming and ranching communities to identify existing obstacles to water efficiency projects and develop solutions.

How Water is Used in Oregon

Including surface and groundwater



Our top recommendations include:

Make existing incentive programs more effective. This includes coordinating disparate energy and water conservation programs, identifying stream reaches that can benefit the most from water saved through conservation, and strategically increasing outreach in those areas.

Make conservation a central priority in water resources planning at the state, basin and local scales. Currently the state places greater emphasis on water conservation planning in municipal delivery systems than agricultural water systems. This imbalance needs to be corrected, and conservation should be a central component of any plans for meeting future demand.

Increase funding for water conservation and water resources management through new and existing revenue sources. Funding is needed for conservation cost share programs, water rights field staff and implementation of the state's water measurement strategy.

Build local capacity and knowledge.

More conservation projects happen when local organizations provide the education, outreach, technical assistance and support to navigate the incentive programs that irrigators need.

For a more thorough discussion of these recommendations, as well as an overview of the opportunities for agricultural water conservation in Oregon, including case studies, please review the full Making Water Work report.

OEC hopes that the conversations we initiated with the agricultural community during this process are just the beginning. We look forward to working with irrigators, water suppliers, elected officials, conservation groups and others to ensure that our water resources will be ample to support the fish, wildlife, crops, businesses and Oregonians that rely on them for generations to come.

1. Sorte, B., Lewin, P. and Opfer, P. (2011). Oregon Agriculture and the Economy: An Update.
2. Oregon Department of Agriculture. (2011). State of Oregon Agriculture: Industry Report from the State Board of Agriculture.
3. United States Geological Survey. (2009). 2005 Oregon Water Use Compilation Results. Retrieved from http://or.water.usgs.gov/projs_dir/or007/or007.html.

Making Water Work strives to help leaders in the agricultural community, as well as legislators, agency officials, environmentalists and others capitalize on the vast opportunities to maximize Oregon's increasingly limited water supply through water conservation and efficiency measures.

Appendix

Recommendations

We have identified several recommendations that will remove barriers and advance agricultural water conservation and efficiency in Oregon.

Incentives

Coordinate energy and water conservation programs.

The energy used in pumping water can be significant, and energy savings is often a major motivator for irrigation efficiency. Energy Trust and similar Bonneville Power-funded incentive programs help irrigators save energy by saving water. OEC was surprised to find that many irrigation consultants who are experienced at helping growers apply for these energy-related incentive programs have never heard of the state's Allocation of Conserved Water program. They are unaware that irrigators who conserve water can spread a portion of that water to previously dry lands if they formally protect some of the conserved water in-stream. In some cases this benefit can be much more valuable than the financial incentives provided by the Energy Trust or by BPA-affiliated programs such as the "Save Water, Save Energy" program provided by Resource Conservation & Development Councils. In addition, the energy-driven programs do not ensure that any conserved water actually ends up in-stream. Irrigation consultants and equipment providers, including the trade ally contractors who work with Energy Trust on irrigation efficiency programs, should receive training in the Allocation of Conserved Water program so they can help growers apply to the program, just as they help growers complete applications for energy efficiency incentive programs.

Expand outreach about the Allocation of Conserved Water program.

In concert with the need to coordinate water and energy conservation programs, there is a need to increase awareness of the state's Allocation of Conserved Water program. The OWRD currently lacks capacity to conduct outreach about the program. It is no wonder that many irrigators and technical assistance providers are not aware of its existence. Applications to the program should be provided to irrigation equipment and technical assistance providers, so they can make them available to potential applicants. Information could be spread through the people and places farmers go to when they are updating their irrigation systems.



Photo: Teresa Huntsinger

Appendix: Recommendations

Create a Conservation Clearinghouse.

Create a one-stop resource where irrigators and water providers can find information about water and energy conservation best practices and incentive programs offered by various agencies.

Expand the types of irrigation management changes that are eligible for the Allocation of Conserved Water program.

The Allocation of Conserved Water program currently is targeted toward physical improvements to irrigation systems, such as piping canals or converting to high efficiency sprinklers; it has not been used for changes in water management such as scientific irrigation scheduling or deficit irrigation. These types of management changes offer substantial opportunity for water savings, and they should be included in the Allocation of Conserved Water program. The program's existing measurement

some internal changes or administrative rule changes. Our review of the administrative rules governing the program (OAR 690-018) did not find any language that would preclude eligibility of irrigation scheduling projects. It defines conservation as "the reduction of the amount of water diverted to satisfy an existing beneficial use achieved either by improving the technology or method for diverting, transporting, applying or recovering the water or by implementing other approved conservation measures." As we interpret the definition, it allows OWRD staff to determine which conservation measures are approved. The needed change could likely take place within the agency.

Extend split-season leasing program and create a split-season transfer program.

We recommend continuation of the split-season water rights leasing program, which is scheduled to sunset in 2014, and creation of a permanent split-season transfer program. Split-season leasing has proven to be a useful tool (see the Klamath Basin Rangeland Trust case study, for example). It allows growers to receive financial compensation for leaving water in-stream for part of the year. The split-season leasing program should be continued, and a permanent split-season transfer option should be created so water rights holders who want to can seasonally protect water instream on an ongoing basis without having to re-apply every five years.

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and reporting requirements would ensure that the water is permanently conserved. The staff who implement the program told us they would like to use the program for irrigation scheduling, but they thought that would require either

Appendix: Recommendations

Clearer Implementation of Existing Laws and Policies

Inform water rights holders that they aren't actually required to use their full water right.

The Water Resources Department needs to develop a clear definition of what it means to be "ready, willing and able" to use your full water right, and educate property owners about what the law does and does not say regarding forfeiture and the "use it or lose it" principle.

Restore water resources management field staff

The irrigators and technical assistance providers OEC spoke with across the state consistently stated that people often use more water than they need to, and in some cases more water than their water rights allow. Over the last 30 years, the number assistant watermasters working in the field has declined. In 1981 there were 19 state-funded watermasters and 37 county-funded assistant watermasters. Today, there are 20 watermasters and 15 assistants, a 38% staffing reduction.⁴⁰ During that time the number of water rights in the state has grown, and the creation of in-stream water rights has made the job more complex. As a result, many watermasters only have the time to respond to complaints and aren't able to proactively check to ensure that water rights users are staying within their right.

Restoring the Department's field presence to protect and enforce water rights could potentially save substantial quantities of water. The actual amount is unknown since many diversions are still not measured. Better enforcement would create a more level playing field for growers that are staying within their water right, and increased technical assistance from watermasters would help irrigators use water more efficiently.

Implement and fund the Oregon Water Resources Commission's Measurement Strategy.

It is difficult to establish conservation targets and measure success without knowing how much water is currently being used. In 2000 the Oregon Water Resources Commission adopted a strategy that prioritizes the measurement of significant diversions in Priority Water Availability Basins. So far, less than half of those significant diversions have measurement devices installed. The OWRD needs to speed up implementation of this program, and it needs funding to assist water users with the costs of installing measurement devices.

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Appendix: Recommendations

Research

Conduct a hydrologic assessment of which streams can benefit most from the Allocation of Conserved Water program. OWRD and the Oregon Department of Fish & Wildlife have already identified stream reaches most in need of improved stream flows. What is needed now is an identification of which of those stream reaches are places where conservation practices are likely to directly benefit stream flows. In places where excess applied water already returns quickly to the stream, applications to the Allocation of Conserved Water program have been denied because the water conservation practices did not result in an increase in water left instream. Also, in some places water conservation can negatively impact groundwater recharge. This assessment could enable OWRD and partners to focus outreach and education in areas where water conservation is most likely to benefit stream flows, and where irrigators can successfully use the Allocation of Conserved Water program.

Conduct a Statewide Water Conservation Potential Assessment. One of the recommendations from the OWSCI Statewide Water Needs Assessment was to conduct a statewide water conservation potential assessment (CPA). The work completed under the conservation inventory project was only a starting point for understanding the water conservation potential in Oregon. A statewide CPA would provide an estimate of how much water savings could be achieved under a range of conservation best practices adopted at a range of rates. The state could then choose a target to aim for.

Update Oregon crop water use tables, using newer estimating methods and accounting for climate change's impacts on growing seasons and evapotranspiration rates. Extension agents in Washington state are currently updating their crop water use tables using a more accurate model, and finding that in most cases less water is needed than the older tables called for.



Photo: David Cosand ©

Appendix: Recommendations

Planning

Establish basin-scale conservation targets.

A rejuvenated basin-level planning process should be a key component of the IWRS, with sideboards and guidelines from the state. Basin planning should include local water conservation targets linked to instream flow needs, and implementation plans that identify best management practices for agricultural water efficiency. The basin planning process would include multiple water uses, not only agriculture, and would be driven by local stakeholders with participation and oversight from the state. Periodic monitoring and reporting should inform assessment of progress and adaptive management of the plan over time.

Require Agricultural Water Management & Conservation plans.

Because this planning program has been effective for those agricultural water suppliers who have participated thus far, and to create greater equity with municipal water users, we recommend that the state explore requiring agricultural WMCPs. Such a requirement would need to be phased in over time, and just as the department recognizes that municipal water providers serving populations of 1,000 and under have limited resources and different needs than larger communities, exceptions to the requirement should be included for small agricultural water providers. Additional investigation is needed to determine where the cutoff should be drawn, since there is wide variability in the sophistication, financial resources, and current efficiencies of irrigation districts. One approach might be to focus on high priority basins, similarly to the approach OWRD is taking to implement measurement of significant diversions. State Water, Conservation and Reuse planning grant funds could help pay for plan development.

Education

Build local capacity.

Training and targeted investment could increase the capacity of local organizations such as Soil & Water Conservation Districts and watershed councils to play a more active role in advancing water conservation and protecting water instream. While statewide organizations like the Freshwater Trust (formerly Oregon Water Trust) and the efforts of the OWRD are making progress, you see the largest number of applications to the state's Conserved Water and in-stream leasing and transfer programs in basins where local nonprofit organizations like Deschutes River Conservancy and Klamath Basin Rangeland Trust have made water conservation and instream flow restoration a priority. Similar capacity needs to be established outside the Deshutes and Klamath basins.

Farmer to Farmer Education.

Growers tend to learn from their neighbors, so conservation practices spread from farmer to farmer within basins, but it is difficult for growers to learn about what people are doing in other parts of the state. OEC would like to explore the concept of partnering with trusted agricultural assistance providers to organize farm visits focused on water conservation, and to develop and disseminate case studies. While farm tour programs certainly exist, we are not aware of any focusing on water conservation practices.

Appendix: Recommendations

Funding

Increase funding for water management and conservation. Budget cuts have reduced the number of assistant watermasters around the state, handicapping their ability to protect and enforce water rights. Lack of funding is also a barrier to implementing the state's measurement strategy. The primary federal funding sources for on-farm conservation projects (EQIP and AWEF) are targeted for budget reductions this year. Oregon's Business Energy Tax Credit, which irrigation districts use to finance the micro hydro projects that help make irrigation canal piping projects pencil out, is also experiencing significant reductions. Oregon's Water Reuse, Conservation and Storage Grant program is primarily funded by lottery-backed bonds. This funding comes and goes, depending on legislative approval in the biennial budget process. If Oregon is going to seriously address water conservation, we need a funding source to do it. Investing in conservation today can save the state money in the future by reducing water conflicts and shortages. Potential sources of funding include:

- **Water rights management fee.** OEC supports proposals to create an annual water rights management fee to fund the water management services the state provides. Many water users recognize the need to fund these critical services and agree that a fee of \$100 to \$150 per year per user would not be an undue burden, but many surveyed distrust government and fear that the fee could quickly grow larger. To win support of the agricultural community, a water management fee proposal would need to be relatively small in amount per water user, its growth would need to be limited in statute, and there would need to be assurances that the funds would be used only for managing water resources (e.g., not swept away by the legislature for other purposes).
- **Public purpose charge.** This program would be similar to the source of funds for the Energy Trust of Oregon, but for water conservation. The public purpose charge would likely be levied on water utility rates, and it would fund municipal and industrial water conservation projects as well as agricultural projects. This idea would require much more exploration before implementation. Associating the program with the Energy Trust could enable greater coordination of water and energy saving programs. However, because the Energy Trust lacks expertise protecting water instream, funding should be provided via partner organizations that already have experience implementing instream water leases and Allocation of Conserved Water projects.
- **Water Efficiency Tax Credit.** Legislators have floated the idea of a state tax credit for water efficiency programs in the past, similar to the existing energy tax credit. This is an idea that OEC also believes has merit and deserves further exploration.



Photo: Ian Sane ©

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The opinions expressed in this report are those of the author and Oregon Environmental Council, and do not necessarily represent the views of everyone who reviewed the report or participated in an interview or focus group.



Oregon Environmental Council

Oregon Environmental Council (OEC) is one of Oregon's oldest statewide environmental nonprofit organizations, working for more than 40 years to promote clean air and water, an unpolluted landscape, and healthy food produced by local farms. As a membership-based organization, OEC works on environmental issues that directly affect people's health and quality of life in Oregon. To learn more about how OEC is empowering individuals, organizations and businesses to make changes that improve Oregon's communities and build a stronger, more sustainable economy, visit www.oconline.org.

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