



INSIDER



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OREGON WATER SUPPLY

ASSESSING FUTURE WATER SUPPLY NEEDS

by April Snell and Debbie Colbert, Oregon Water Resources Department

Introduction

Across Oregon, the flow and cycle of water has shaped the lifestyles, livelihoods, and life histories of all its inhabitants. From vibrant agriculture to world-class recreational activities, quality drinking water, and prize fish and game—water makes it all possible. However, water is not always there when we need it to be, and can cause great damage when there is more of it than we are prepared for—as the recent floods in Hood River remind us. The challenge is to maintain the cycle of water so that it can continue to provide its many instream and out-of-stream benefits that we rely on.

In 2000, the Oregon Progress Board's State of the Environment Report noted that one of the State's major environmental challenges is inadequate water supply. Surface waters in most of Oregon during non-winter months are fully appropriated by existing out-of-stream and instream uses. Groundwater resources are showing signs of overuse and are becoming unstable in many areas. "With a lack of surface water resources available for new uses, there is more strain on groundwater. We have to be careful that by allocating new groundwater uses we don't further deplete surface water," observed Barry Norris, Technical Services Administrator of the Oregon Water Resources Department (WRD). Conflicts between instream and out-of-stream needs, exacerbated by listings of aquatic species under the federal Endangered Species Act, have also become increasingly divisive and expensive to resolve. All of these challenges, in addition to the 34 percent population increase expected over the next 25 years, necessitate a look at how Oregon is going to meet its current and future water needs.

Oregon Water Supply and Conservation Initiative

A continued source of water supply is essential to the State's population and economic growth and to meeting the watershed restoration goals of the State. Out of the eighteen Western States, Oregon is one of only two without a plan to address current and future water needs. To meet this challenge given the recent constraints on Oregon's General Fund, WRD has unsuccessfully sought federal funds over the last two years to collect key data to support this type of effort. More recently, WRD has proposed, and the Governor has included in his 2007-09 Governor's Recommended Budget, funding for the "Oregon Water Supply and Conservation Initiative" (Initiative).

THE INITIATIVE INCLUDES FIVE KEY COMPONENTS:

- a water needs assessment
- an inventory of potential above- and below-ground storage sites
- an analysis of conservation opportunities
- estimates of basin-yields
- incentive funding to help with community-based water supply planning

"As a whole, we think this information will be critical to the State of Oregon to ensure sufficient water supplies to meet existing and future beneficial uses of water," states Phil Ward, WRD Director. Combined, this information may allow the State to rank future storage/conservation projects and pursue those opportunities in order of prioritized water needs.

Water Supply

Existing & Future Needs

January RFI

Assessing Storage Options

Flow Timing Changes

“AR” & “ASR”

Future Needs

The first element of the Oregon Water Supply and Conservation Initiative is an assessment of existing and future water needs. This assessment would include an evaluation of existing instream and out-of-stream water needs and a projection of what the demands for water will be ten and twenty years from now. WRD has included \$230,000 for this portion of the project and is proposing to have the work conducted through contract with an outside organization. In the hopes that the Initiative will be included in the 2007-09 Legislatively Adopted Budget, WRD is preparing a Request for Information (RFI) that it will be posted early in January 2007. This RFI will be designed to collect the research and information needed to develop a possible solicitation request for this and other contracted portions of the Initiative, contingent on funding. [Note: The RFI and other pertinent information will be available via an “Oregon Water Supply and Conservation Initiative” link soon to appear on WRD’s home page website: www.wrd.state.or.us]

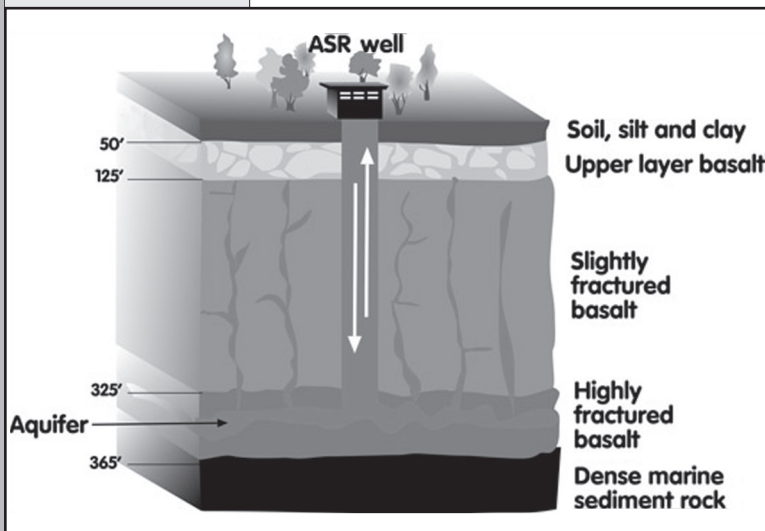
Opportunities

Other components of the Initiative provide key information related to water supply opportunities. In particular, the Initiative would include an inventory of possible storage sites around the State. This inventory would identify where water could be diverted and stored in the winter when flows may be available, and then used in the low flow periods of the year. These low flow periods are generally during summer months when the need for water is greatest for irrigation, meeting peak municipal demands, and providing flows for fish. Dr. Michael Campana, Director of the OSU Institute for Water and Watersheds, reiterates the need for this information as, “The effects of global warming will cause many of the streams fed by Cascades snowpack to have higher flows earlier in the year because of earlier snowmelt, with the runoff likely coming too early for some users, such as irrigators. It’s not necessarily about more or less water—it’s about timing and the need for storage options to capture this runoff and use it during the growing seasons as this warming trend continues.”

This inventory would include both above ground reservoirs of varying sizes and below ground sites, such as artificial recharge (AR) and aquifer storage and recovery (ASR) projects. AR refers to when water is intentionally added to an aquifer, generally by allowing it to seep into the ground. While similar in purpose, ASR projects generally involve directly injecting surface water into a well. These projects often require treatment to meet drinking water standards. Both of these below-ground storage alternatives can provide benefits such as: reduced storage development costs; reduced environmental impacts; and improved emergency management.

ASR has already been of particular interest to municipalities in Oregon. These types of projects provide cities with an opportunity to capture excess winter surface water and store it “below-ground” in an injection well for use during times of water shortage.

Nine cities across Oregon are in various testing phases of an ASR program. A diagram of a typical ASR project is shown below. Jeff Barry, Principle Hydrologist with Groundwater Solutions, Inc, has worked with a number of cities in Oregon and observes “these types of projects hold a lot of promise for meeting water supply needs in many parts of the State.” One example of a successful pilot ASR project is the City of Pendleton, which injects and stores treated Umatilla River water in basalt wells during the winter and spring months when water is available in the river. When the City can no longer use water from the Umatilla River during the summer and fall months for injection purposes, the stored treated water is pumped back out of the wells and served to the community. With the use of ASR, the Pendleton has been able to reduce reliance on critical groundwater supplies by using surface water collected during wet months.



Simplified Example of an Aquifer Storage and Recovery System
(adapted from City of Salem website graphic)

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Water Supply

ASR Site Inventory

Conservation

Basin Yields

Planning

Rural Policies

Awaiting Funding

ASR and similar types of projects are one of many potential storage solutions to meet supply demands. However, not all areas in Oregon may prove suitable locations for these projects. The information gained from the storage sites inventory can be used to identify ideal locations for ASR and other types of storage projects to better meet water needs and to help communities and others that are seeking innovative water supply solutions. WRD is proposing \$248,500 to support two additional technical staff at the agency. “By using staff to develop the inventories we will be in the best position to retain the long-term expertise that will eventually be needed to assist in project development,” explained Barry Norris, WRD.

As noted above, with this Initiative WRD is also proposing to complete a statewide analysis of conservation opportunities. This analysis will provide valuable information about the quantity of water that can be yielded through increased use of water efficiency techniques, water reuse and reclamation, and other conservation measures. These opportunities could then be promoted and publicized to the appropriate entities to encourage greater water conservation. Increased conservation is an integral part of meeting the water supply needs of the future and to the project as a whole. WRD is proposing \$100,000 to support this portion of Initiative analysis. Similar to the water-needs assessment, WRD will be requesting conservation-opportunities information as part of the January 2007 RFI on how this work might be completed if funded.

As part of its analysis, WRD is also proposing \$113,000 to complete an estimate of the yields of water runoff from basins around the State. This runoff—or “basin yield”—would be estimated by the year or season for each drainage basin. This is baseline data needed to assess the viability of any storage site. This assessment would be completed by an WRD hydrologist.

Helping Regions Meet Their Needs

The final component of the Initiative is to provide matching funds for community-based and regional water supply planning. Incentives to planning for future supply needs are essential to heading off future conflicts over water supply. When paired with the data provided by other elements of the Initiative, this incentive funding could be used by various local and regional government entities to develop strategies to meet their long term water supply needs. Smaller communities, especially those in rural parts of Oregon, are struggling to identify ways to meet their existing and long term water supply needs. This was made clear in May 2006 when WRD participated in the Oregon Rural Policy Forum sponsored the Oregon Rural Development Council, the Governor’s Office of Rural Policy, and others. As Jim Azumano, the Rural Policy Advisor for the Governor’s Office, stated, “Even small increments of funding can go a long way to support water planning efforts in rural communities throughout the State.” This sentiment is echoed elsewhere, as Carla McLane, the Planning Director of Morrow County notes, “Any assistance with water planning is an important step forward—not a leap—but a step towards ensuring the future viability of our communities.”

“We really appreciated the input of the Rural Policy Advisory Committee. The Committee’s input and the input we got at the Oregon Rural Policy Forum really helped shape our Initiative. This is the kind of effort that will help ensure Oregon can meet its future water needs,” said WRD Director Phil Ward.

Conclusion

PIECING THE PUZZLE TOGETHER

WRD considers the Oregon Water Supply and Conservation Initiative an important first step for Oregon. Every Oregonian has an interest in ensuring sufficient water supply for both current and future generations. Municipalities and other local governments, agricultural interests, water dependent industries, environmental organizations, Native American tribes, and recreational enthusiasts all are stakeholders in the proposed Oregon Water Supply and Conservation Initiative. WRD is hopeful that the Initiative will be included in the Legislatively Adopted Budget. If the project is funded, WRD is anticipating one or more stakeholder groups to help guide the project and ensure the State gets the best products possible. 2009 will mark the 100-year anniversary of the State’s water code. If funded, information provided by this Initiative when completed in 2009 will provide a better foundation for the next century of water management in Oregon.

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WRD HOMEPAGE WEBSITE: www.wrd.state.or.us —the soon-to-appear “Oregon Water Supply and Conservation Initiative” link will keep you apprized of Initiative developments and opportunities