H2Ops

Washington's newsletter for waterworks operators.

FEATURED STORIES

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Drought

On April 17, Gov. Jay Inslee expanded the state drought emergency to include 13 more river basins. This brought the total to 24, including 16 in Western Washington and 8 in Eastern Washington. At press time, nearly half the state was expected to experience hardships from this year's drought. The declaration authorizes state funds to address hardships from water shortages in the areas experiencing record low snowpack.

The 2015 "snow drought" is unlike previous droughts. The two things that make it different are temperature and precipitation. An unusually warm winter caused much of the precipitation to fall as rain.

Snowpack is like a frozen reservoir. Most years, a healthy snowpack slowly melts—feeding rivers and streams and recharging aquifers through spring and summer. This year the snowpack is setting record lows at 22 percent of normal statewide, and forecasters expect warmer-than-normal temperatures to continue through the summer. Therefore, as summer approaches, other areas of the state may meet the criteria for a drought declaration.

This year's snow drought is a challenge for many sectors of the state's economy. It's not just a bad ski season; it creates challenges for families, farms, fish, and industry. An act of nature may create a drought, but planning, adaptability, and creativity help us avoid actual drought emergencies. That is why we started this conversation with water system operators now. It is time to assess risks, options, and alternatives so that you and your customers can avoid a drought emergency or at least minimize its impact.

What is a drought?

Unlike most states, Washington has a legal definition of "drought condition." It occurs when "the water supply for a geographical area or a significant part of a geographical area is below 75 percent of normal and the water shortage is likely to create undue hardships for various water uses and users."

The law gives the Department of Ecology authority to respond to a drought. Ecology closely monitors winter weather patterns and snowpack. After consulting with state and federal agencies, and with the governor's written approval, Ecology orders a drought emergency.

Drought relief grants and loans

A drought declaration makes nine types of drinking water supply projects and activities eligible for drought relief grants and loans intended to mitigate drought impacts.

- Modify or deepen an existing well.
- Develop an emergency water source.
- Purchase or lease water or water rights for use during the drought period.
- Construct an emergency intertie to another approved public water supply.
- Transmission pipelines.
- Diversion structures.
- Pumps and accessories.
- Source meters.
- Leak detection and repair.

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Most years, in late February to early April, there are 6-8 feet of snow at Hurricane Ridge. This year, the snowpack was 2 percent of normal.
~ Photo by Bill Baccus

Will your water level survive?

By Ginny Stern, Hydrogeologist

You don't have to be a science fiction buff to appreciate the humor and truth in author Sir Terry Pratchett's observations. Knowing where you come from is critical to figuring out where you are going. It is true for the big things in life and for water systems. It is definitely true for drought!

> *"If you do not know where you come from, then you don't know where you are, and if you don't know where you are, then you don't know where you're going. And if you don't know where you're going, you're probably going wrong."*
>
> *- Sir Terry Pratchett, "I Shall Wear Midnight"*

Operators have to monitor many details to keep their water systems safe. However, many of them tend to overlook the water level in wells. Pumping and static water levels, taken over time, will tell you "where you have been," "where you are," and more importantly "where you might be heading." Armed with that information, you can plan, prepare, and respond to changes in your supply before there is an emergency and your pumps are sucking sand!

The state drinking water rule requires Group A water systems with groundwater sources to regularly collect water level measurements (WAC 246-290-415 (9)). Sadly, most systems don't collect and maintain this information. The excuses vary but they include:

- Don't know how.
- Don't know what to do with the information.
- Haven't seen the need.
- Afraid it will cost too much.
- No one made me do it.

Measuring the groundwater level.

~ Photo by Brian Walsh

Collecting water level information is good, sound water system management. It saves money and time. When water system production changes abruptly, pumps fail, capacity drops, or reliability falters, water level measurements can be the key to determining whether the problem is the pump, the well or the aquifer. Knowing the difference is the first step in getting the right fix for the problem.

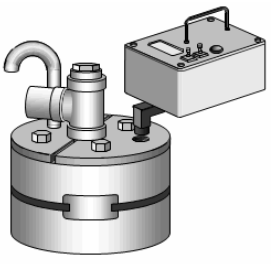
New system operators often are surprised when they learn that the water level in their well changes over time. Capacity and water levels noted the day the well was drilled are rarely the same even a few years later. Taking regular water levels is one of the simplest ways to monitor the health and vitality of your wells.

How do you know whether the 2015 "snow drought" will affect your water system, if you don't know the conditions in your wells today? It is not too late to start measuring. It is never too late to take stock of where you are and figure out where you want to go!

For more information, see our fact sheet, *Measuring water levels in wells* (331-428) online at http://www.doh.wa.gov/portals/1/Documents/pubs/331-428.pdf

Types of measurement devices

Electric Water Level



Sonic Well Sounder

Air Line Device

Drought

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DWSRF Emergency Loan Program

In addition to Ecology's drought relief fund, we proposed a rule amending the Drinking Water State Revolving Fund (DWSRF) Program that will allow water systems to get low- or no-interest loans for emergency recovery activities.

The program will assist water systems that lose critical drinking water services or facilities during an emergency and demonstrate substantial financial need. This program is not limited to drought emergencies. We are prepared to adopt an emergency rule, if water systems need additional emergency funds before we complete the permanent rule.

For more information, please contact Karen Klocke at karen.klocke@doh.wa.gov or 360-236-3116.

Scott Pattee , water supply specialist for the Natural Resources Conservation Service, measuring snow at Harts Pass, Washington.

~Photo by USDA

Do you have a Water Shortage Response Plan?

By Corina Hayes, Source Water Protection Manager

You can foresee some water shortage events, such as drought or power loss. Others, such as earthquakes, swoop in unexpected and quickly wreak havoc. Either way, your water supply could become inadequate to meet demand.

You can minimize or avoid the effects of any water shortage by developing a Water Shortage Response Plan.

Key points to include in your plan

- **Identify events that could cause shortages:** Using your system's location and experience, develop a list of events that could cause a water shortage. Develop an action plan for each, and assign specific duties to each employee. At minimum, we recommend that you evaluate the potential for drought, earthquake, high wind, ice storm, flood, equipment failure, construction accident, unusual high customer usage, and variable source production.
- **Know supply and demand:** Source and service meters are the best way to get past and present water supply and demand information. Meters can show seasonal changes. Historical meter data may identify problems, such as declining source production or increasing summer demand due to changing use patterns, and help you understand the magnitude of different water shortage events.
- **Define water shortage stages and criteria:** Curtailment requirements vary by event type and severity. You need to consider the number of response stages appropriate for the size and complexity of your water system.
- **Identify emergency water supplies:** First, identify alternate water supply options. Second, decide what it will take to use each option. Will you connect and sample an emergency well, construct a short intertie with a neighboring system, connect to a system one mile away, truck water in, or provide bottled water? Third, determine the requirements for supplying each type of emergency source to your customers.
- **Develop a communications plan:** What do customers need to know and how will you tell them? Be sure to explain the response stages, what they mean, and why you developed them. If the customers' actions help to make the event less severe than expected, tell them!
- **Plan for demand reductions:** If your response plan includes the expectation that customers will reduce demand, make sure the governing body formally adopts curtailment measures and ways to enforce them before a water shortage occurs.

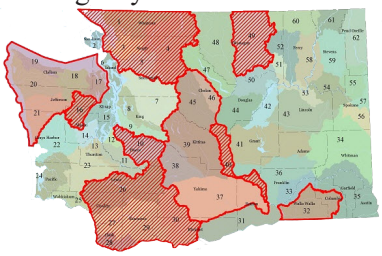
The Elwha River is included in the governor's March 13 drought declaration.

~ Photo by City of Port Angeles Water Division staff

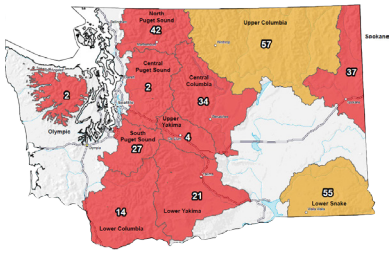
What is your drought risk?

Answer each question, Yes, No, or I don't know

1. Does your system rely on a single source (groundwater or surface water)?
2. Does your system use only surface water?
3. Is your primary source a shallow well (less than 50 feet deep), a spring, or infiltration system?
4. Do you have a spring or infiltration system with a flow rate (capacity) less than 10 gallons per minute or unknown?
5. Do you have a well with a flow rate (capacity) less than 10 gallons per minute or unknown?
6. Have you experienced water shortages in the past or has your well failed?
7. Is your water supply located in the current declared drought emergency watersheds below?



8. If you answered no to question 7: Is your water supply located in a high-risk watershed marked in orange or red on this map? These have less than 75 percent of their normal water supply.



Bonus questions

9. Do you have a Water Shortage Response Plan? (If yes, subtract 3 points)
10. Are you currently measuring the water levels in your wells? (If yes, subtract 3 points)

Answers

Add up your points

Yes = 3

No = 0

I don't know = 1

Total: _____

If you scored

- **Less than 4**: Looking good! Dust off your water use efficiency goals and fill in the blanks in your data. Consider monitoring water levels as part of a smart system operational plan. Sit back and enjoy the nice weather.
- **5-10**: Don't get too comfortable. Recheck what you don't know. Build a Water Shortage Response Plan and start monitoring water levels to help mitigate the risks you have.
- **10 or above**: It is time to update your Water Shortage Response Plan. If you don't have one, start one! Monitor your water levels. Talk to your customers and build a conservation strategy to help manage demand if needed. Call our regional office and talk about what you might do to further reduce your risks.

Remember, just because you have risks doesn't mean you have to end up in an emergency. Smart operators manage risks every day!

Professional growth deadline approaching fast

All waterworks operators certified before January 1, 2013, must meet the professional growth requirement by December 31, 2015, to be eligible for 2016 certification renewal. If you were certified after January 1, 2013, you have until December 31, 2018, to meet the professional growth requirement the first time.

Most waterworks operators meet the requirement by earning at least three continuing education units (CEU) or college credits for completing relevant training. Operators may also meet the requirement by passing an exam to advance within the WDM and WTPO classifications at a level 2, 3, or 4, or by achieving certification in a different approved classification.

You can check your professional growth transcript and status online at www.wacertservices.org Click the *View Professional Growth Report* link, and follow the instructions to create a username and password.

If you don't complete the training or pass an exam that satisfies the professional growth requirement by December 31, 2015, you can't renew your certification. It will be invalid and you will not be eligible to appeal your inactivation.

Visit Washington Certification Services online at www.wacertservices.org for the most current information about the professional growth requirement.

High 5

A big "High 5" to Cascade Water Alliance for making green and lean savings for customers. Cascade is a municipal corporation made up of five cities and two water and sewer districts in King County. Together, they provide safe, clean, reliable water to 350,000 residences and 20,000 businesses.

In 2014, Cascade's water efficiency program saved:

- 65 million gallons of water.
- 1.8 million kilowatt hours of energy.
- 1 million pounds of avoided greenhouse emissions.

Cascade recognizes the importance of partnerships to meet the growing water and energy needs of its customers. Recently, the organization launched the WaterSense New Homes incentive program in partnership with Built Green, a holistic sustainable building certification program. While WaterSense conserves water, Built Green saves energy with extra insulation; more efficient water heaters, lighting and appliances; and features that maximize the use of natural daylight.

"The families who live in these homes will enjoy excellent performance from their water fixtures and appliances and save money on their utility bills every month," says John Marchione, mayor of Redmond and chair of Cascade's Board of Directors. "By partnering with Built Green, we leverage our limited resources and create a synergy that makes both programs stronger and more appealing to builders."

"I like to think we're doing things right the first time," says Michael Brent, water resources manager at Cascade. "Instead of waiting years to chase water savings through rebates or other programs, these homes will be extremely water efficient from the first day of occupancy."

Cascade partners with Puget Sound Energy to encourage customers to use WaterSense showerheads and Energy Star clothes washers. It's working with King County Housing Authority to audit and retrofit their residential units with high efficiency fixtures.

Way to go, Cascade Water Alliance!

High 5 for water efficiency! Michael Brent, water resources manager at Cascade ,shares a moment with Leah Missik, Built Green program manager.

Water use efficiency and conservation

By Cynthia Nelson, Water Resources Policy Lead

The forecast calls for a drier, warmer summer. When we expect a summer like that, it pays to conserve water. Residential water use can soar right along with the temperatures, so it's important to educate your customers about drought and engage your community in efforts to conserve water.

Wise water use is what you do every day. It's about using the water you need, but not a drop more. Conservation is a tool you and your customers can use when drought threatens and you need to be more than water wise.

The voluntary approach

- Insert educational fliers in utility bills.
- Send a letter to customers, post information on your website, use social media, or conduct interviews on local radio stations. You can even drive through neighborhoods with an old fashioned loudspeaker on top of your car to inform and educate consumers about the need to conserve. Many will cooperate with such a request.
- Educate owners about sprinkler systems, their maintenance needs, and ways to adjust operations as landscaping matures.
- Ask pool owners to refill pools infrequently.
- Ask people using water for outdoor play to minimize time with hoses left running.
- Offer gardeners and plant nurseries education on ways to reduce water loss, such as mulching and soil improvements.

Need to go a bit further?

Consider these ideas to conserve water supplies and reduce demand:

- Match increased water use with higher prices. Institute inverted rates, setting a base charge for necessary domestic uses and stepping up the price for outdoor water use. This can discourage water waste and nonessential irrigation, and make people aware that higher water use has a cost.
- Institute an even/odd schedule for lawn and garden watering. This can include a day of no watering, which benefits the water system.
- Require residents to limit lawn irrigation to early or late hours.

Ask neighboring water systems what they're doing and share your ideas.

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Drought resources

For information about the 2015 drought, visit Ecology online at
http://www.ecy.wa.gov/drought/index.html

Drinking Water State Revolving Fund Emergency Loan Program (331-533) online at
http://www.doh.wa.gov/Portals/1/Documents/Pubs/331-533.pdf

Preparing Water Shortage Response Plans (331-301) online at
http://www.doh.wa.gov/Portals/1/Documents/pubs/331-301.pdf

National Drinking Water Week 2015

Look for the 2015 Drinking Water Week award winners in July's *Water Tap*! This year, we awarded eight outstanding water systems and operators.

Have you met your professional growth requirement? See page 4 for more information.

The Department of Health Office of Drinking Water publishes H₂Ops four times a year. If you have questions, contact Editor, Linda Waring, or Graphic Designer, Ally McPherson, at 360-236-3100 or email H2Ops@doh.wa.gov