

TASK FORCE ON
DROUGHT EMERGENCY RESPONSE
HB 4113(2016)



July 19, 2016

Agenda

- Review Agenda and Introductions
- Logistics
- Overview of House Bill 4113

BREAK

- Drought Framework and 2015 Drought Response

LUNCH

- Examples of Other State's Response Tools

BREAK

- Discussion and Brainstorming
- Public Comment
- Next Steps

Logistics – Elect a Chair

Chairperson's role is to:

- Ensure efforts are consistent with House Bill 4113
- Facilitate meetings to:
 - foster collaboration
 - encourage consensus building
 - ensure all opinions are heard and considered

Staff can act as a facilitator if requested by the Chair and the Task Force.

Logistics – Elect Chair

- **Solicited interest from all members via email**
- **Rep. Helm and Sen. Roblan have volunteered to serve as co-chairs**

Action Item: Vote to elect chair, or co-chairs.

- **Request for Motion**
- **Discussion**
- **Vote**

Logistics – Operations and Rules

Review and discussion of operating principles and proposed rules

Modifications to operating principles or rules?

Action Item: Vote to adopt rules

- **Request for Motion**
- **Discussion**
- **Vote**

Logistics – Travel and Reimbursement

Mileage

- To and from work or home (which ever is nearer to the meeting location)

Parking

- 10 hours (\$15 max) of meter parking per meeting date
- Parking tickets cannot be reimbursed

Lodging

- WRD makes all lodging arrangements.
- Members will not be reimbursed if they make their own arrangements.

Logistics – Website and Listserves

Task Force

www.oregon.gov/owrd/Pages/HB_4113.aspx

- Schedules
- Agendas
- Meeting Materials
- References

Drought Information

www.oregon.gov/owrd/Pages/wr/drought.aspx

Listserves

- Task Force
- Water Conditions Report

Logistics – Scheduling

- **July 19**
- **August 1**
- **August 15**
- **August 30**
- **September 15**
- **September 27**
- **October 12**
- **October 25**

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HB 4113(2016)



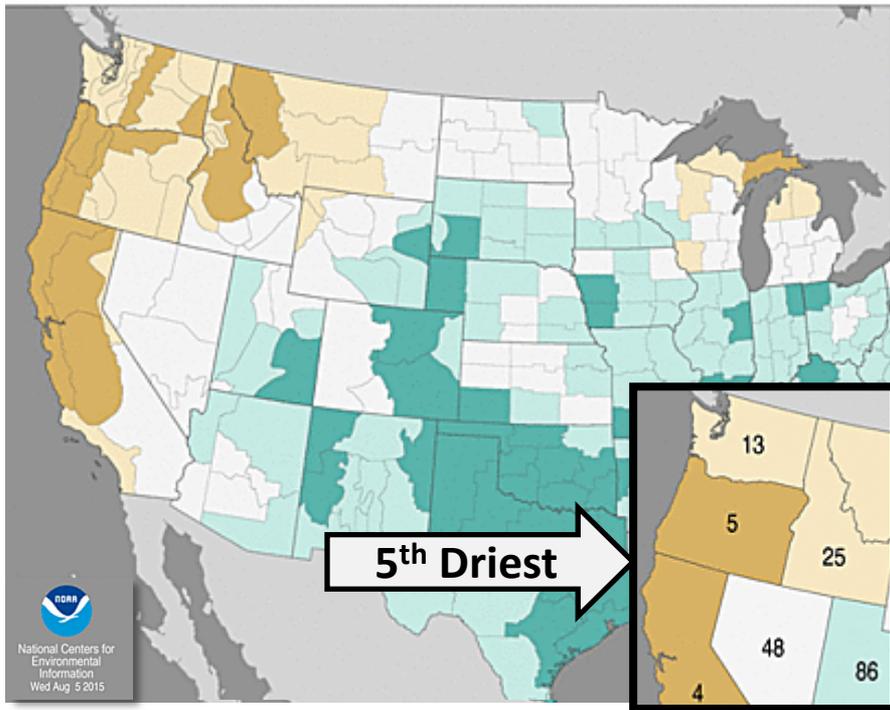
Background on HB 4113

What prompted the legislation?

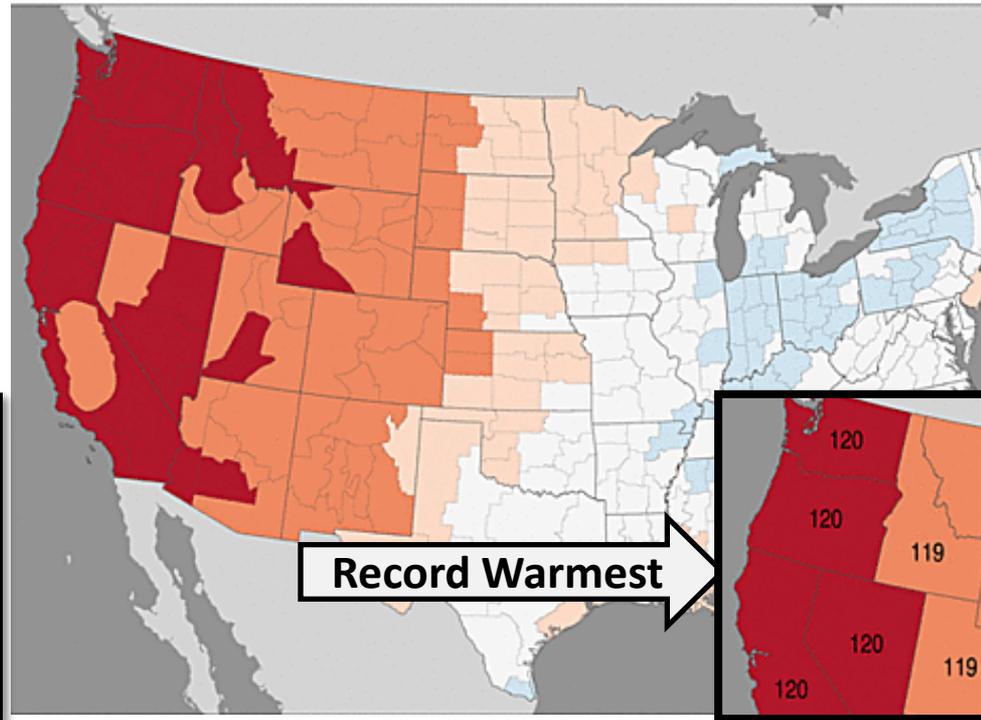
Why are we here?

2015 Recap: Jan. – Sept. Conditions

Divisional Precipitation Ranks
January–September 2015
Period: 1895–2015

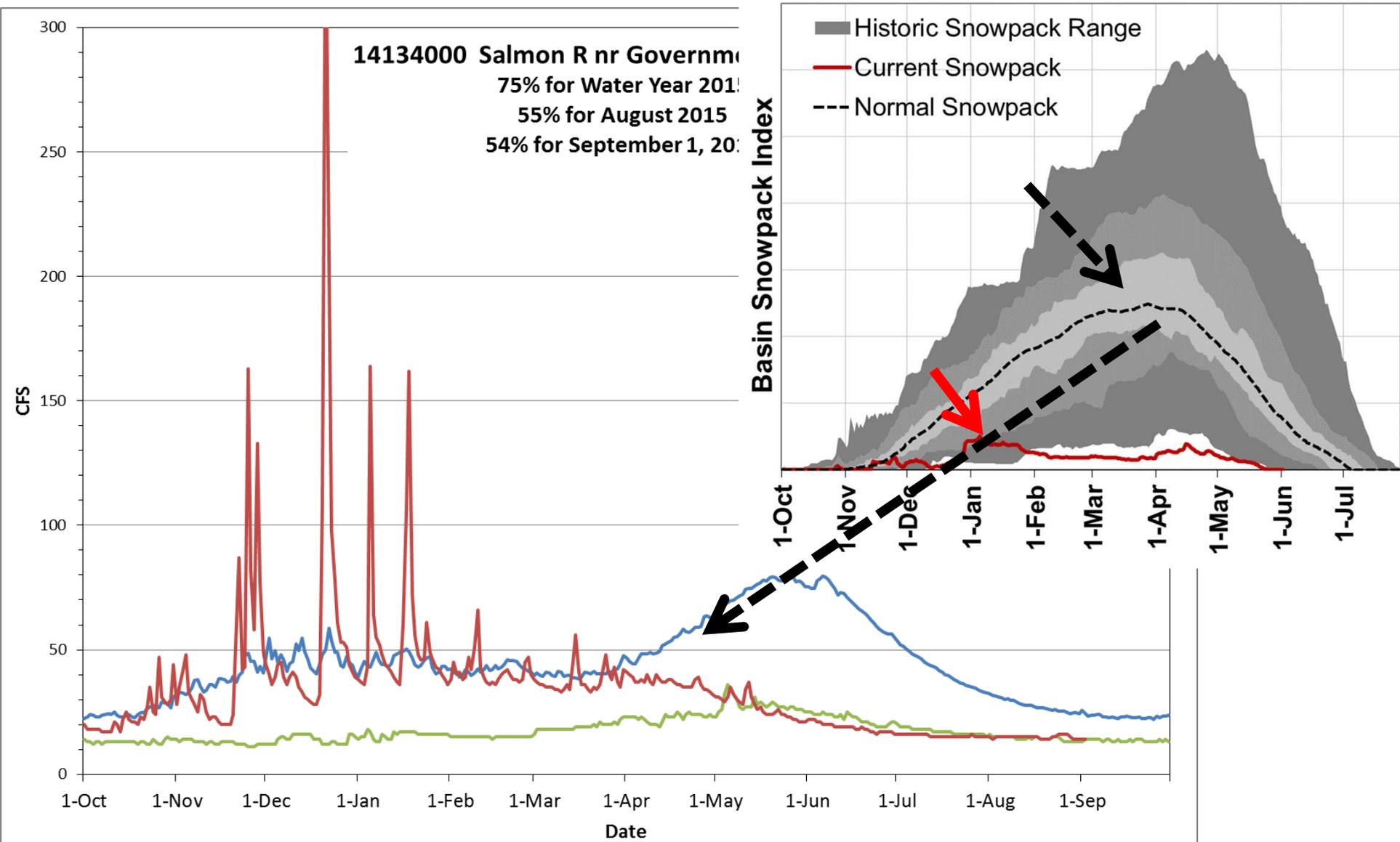


Divisional Average Temperature Ranks
January–September 2015
Period: 1895–2015

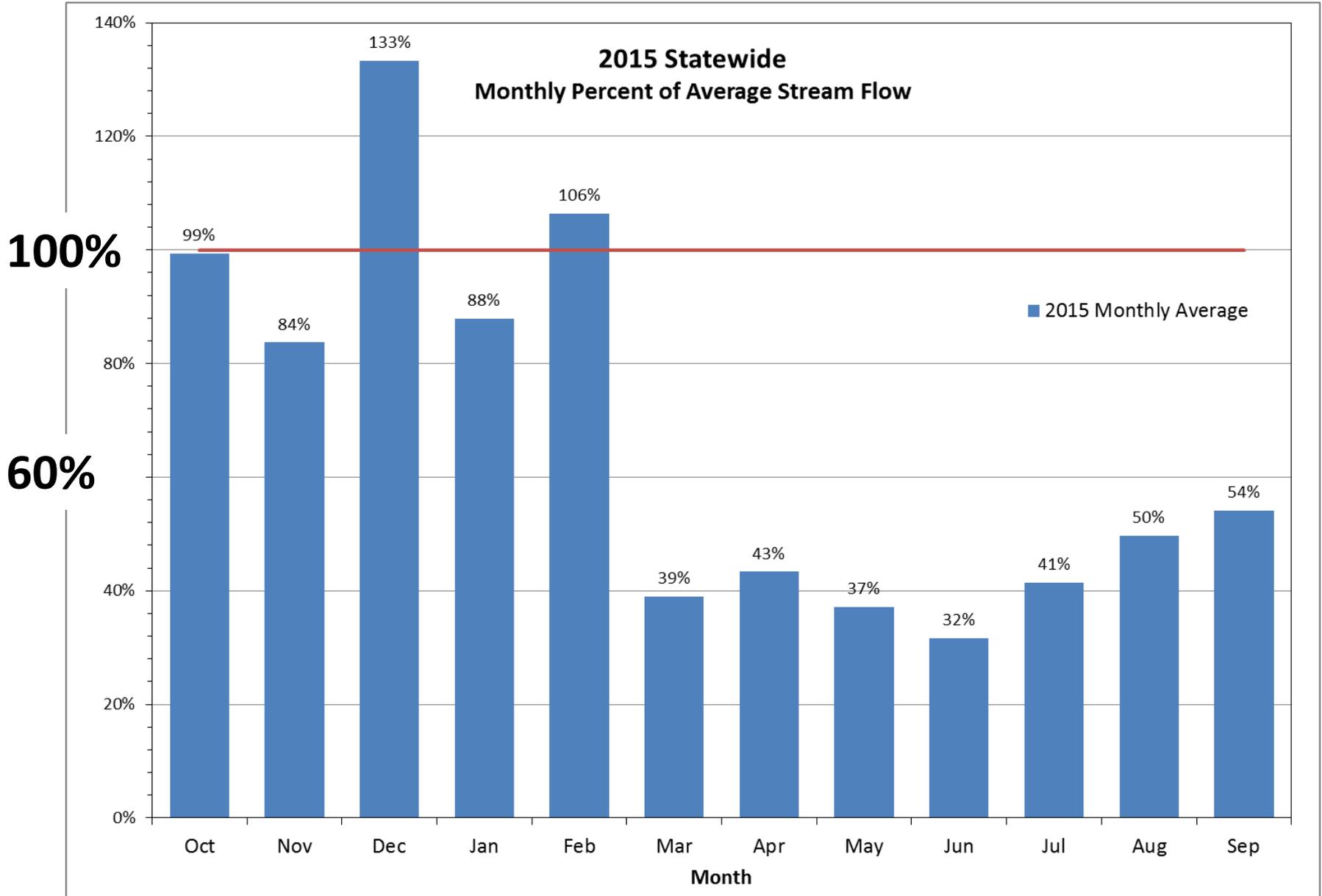


Snowpack as a Storage Reservoir

Mountain Snowpack



2015 Monthly % of Average Streamflow



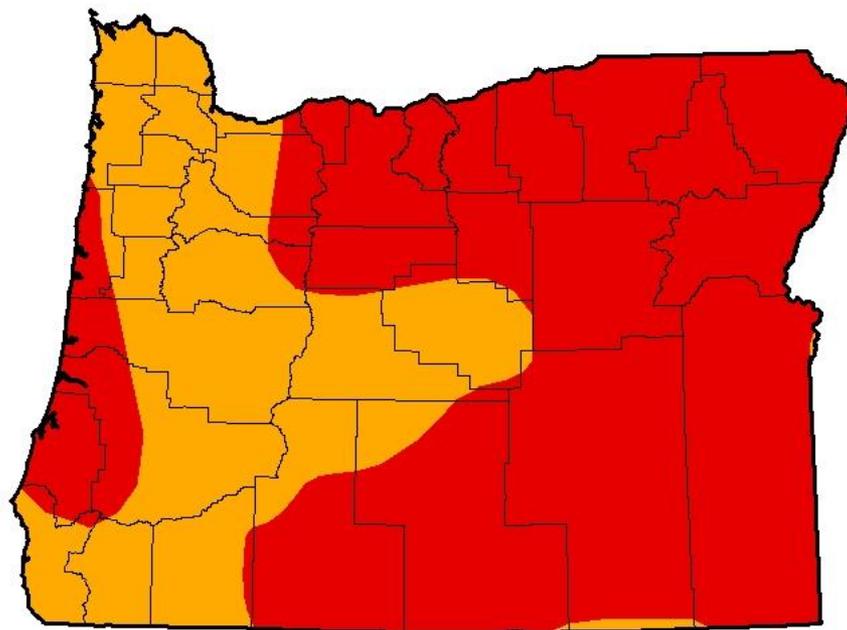
Extent of Drought 2015

- Higher than normal temperatures
- Record-low snowpack
- Below normal precipitation
- Low streamflows
- Similar to projections for future climate

67 percent in extreme drought

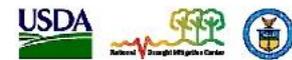
U.S. Drought Monitor
Oregon

August 25, 2015
(Released Thursday, Aug. 27, 2015)
Valid 8 a.m. EDT



Author:
Anthony Artusa
NOAA/NWS/NCEP/PCPC

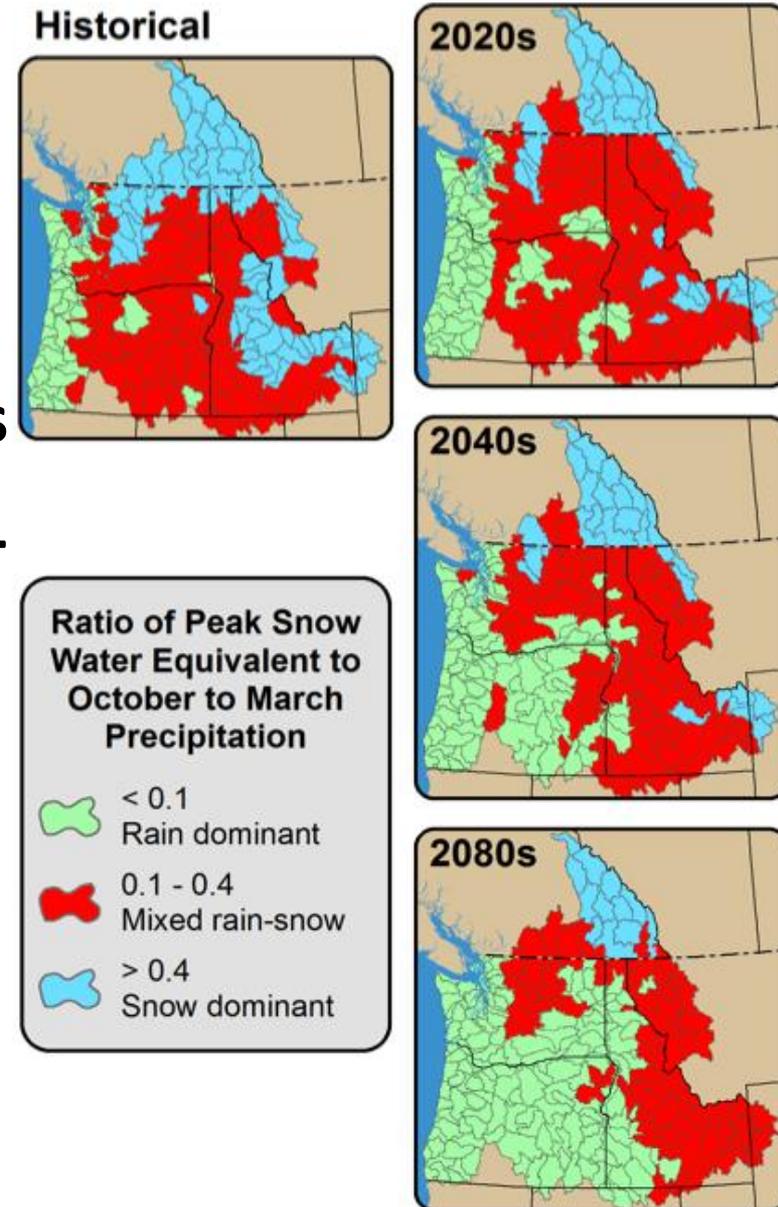
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



<http://droughtmonitor.unl>

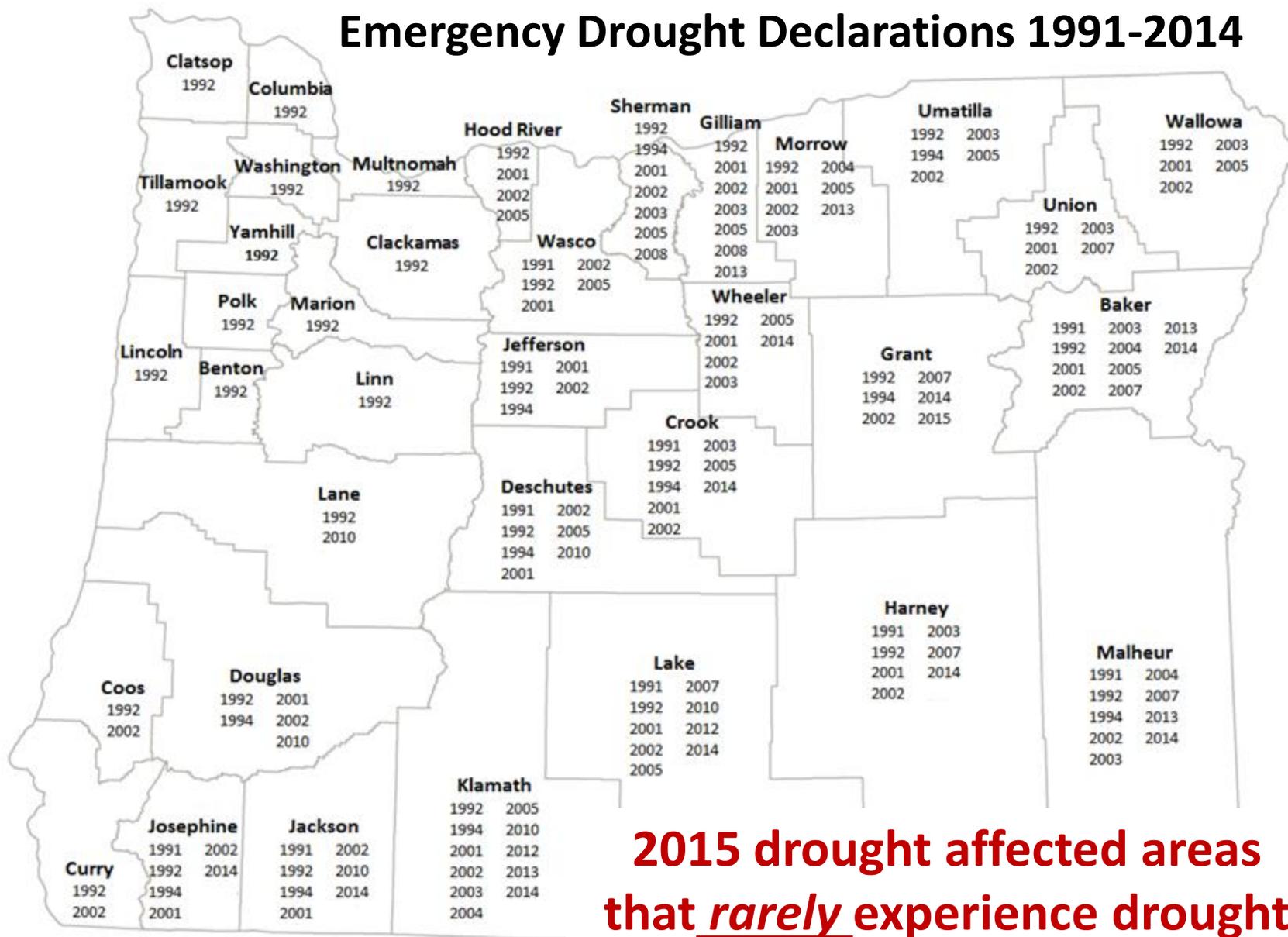
Future Projections for Climate

- **Warmer temperatures**
- **Precipitation arriving as rain instead of snow:**
 - flashier flood-prone systems
 - decreased summertime runoff to surface water
 - reduced recharge to groundwater aquifers
- ***2015 looked similar to these future projections***



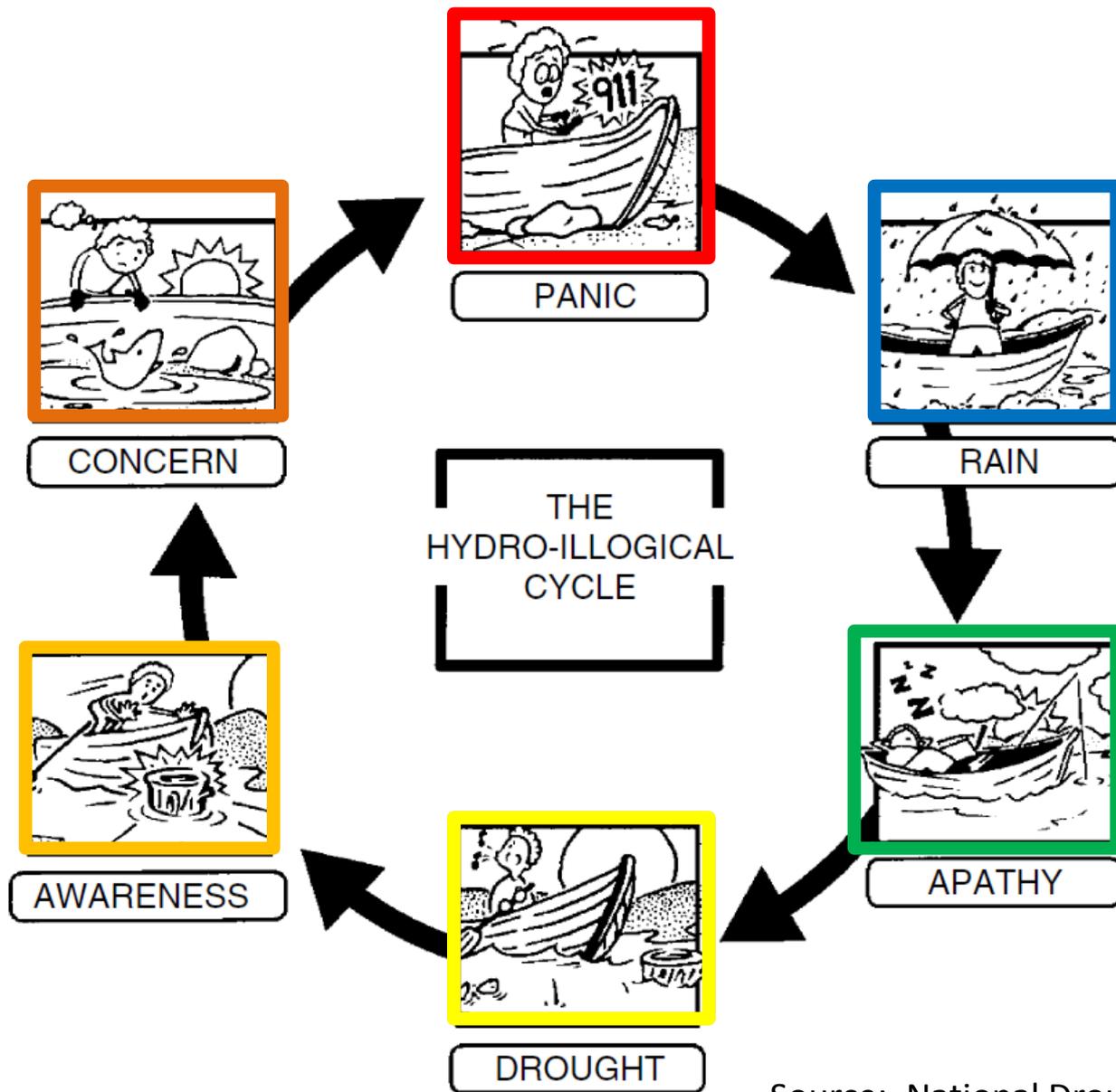
History of Drought

Emergency Drought Declarations 1991-2014



2015 drought affected areas that rarely experience drought

The Hydro-illogical Cycle



2016 Current Drought Monitor

U.S. Drought Monitor Oregon

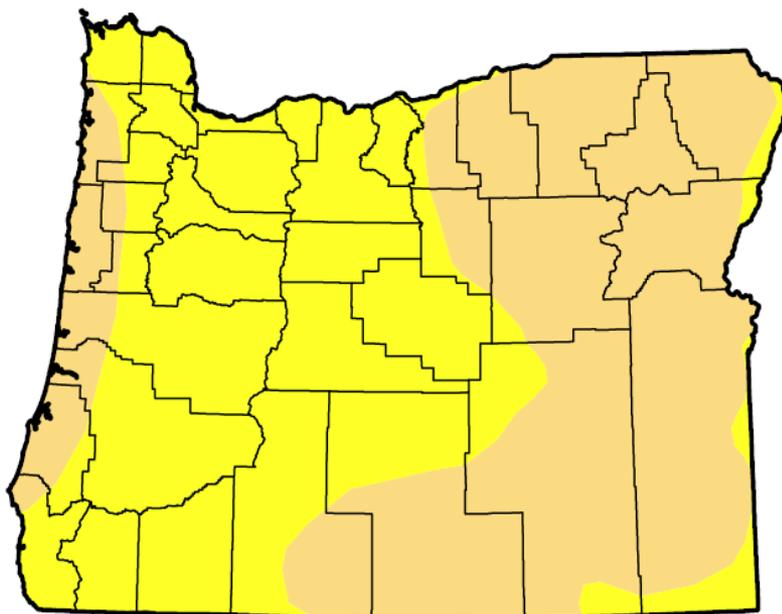
July 12, 2016

(Released Thursday, Jul. 14, 2016)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	49.75	0.00	0.00	0.00
Last Week <i>7/5/2016</i>	0.00	100.00	49.75	0.00	0.00	0.00
3 Months Ago <i>4/12/2016</i>	45.95	54.05	29.87	1.00	0.00	0.00
Start of Calendar Year <i>12/29/2015</i>	14.52	85.48	80.45	65.33	39.55	0.00
Start of Water Year <i>9/29/2015</i>	0.00	100.00	100.00	100.00	67.29	0.00
One Year Ago <i>7/14/2015</i>	0.00	100.00	100.00	83.71	34.09	0.00



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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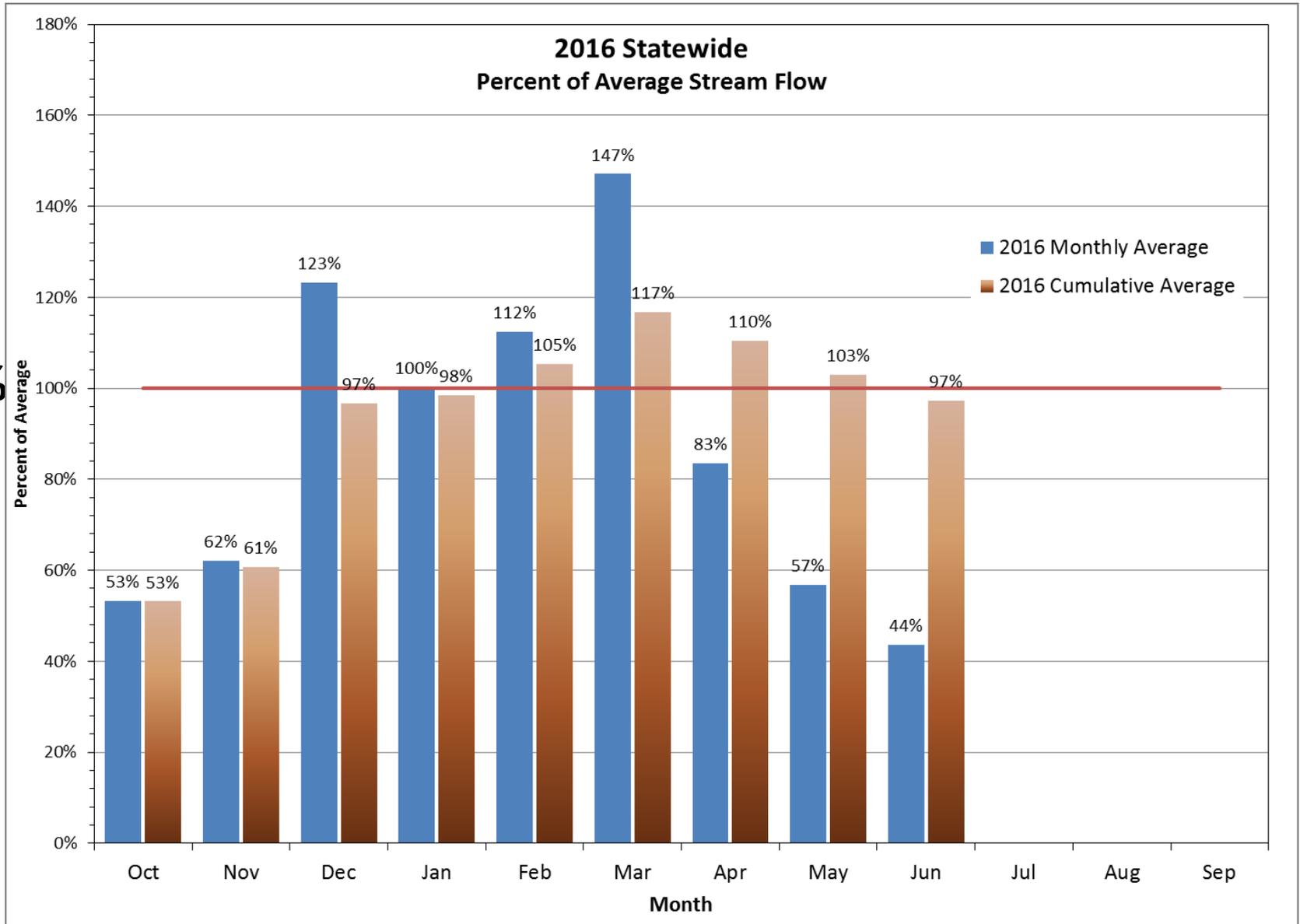
Author:
David Miskus
NOAA/NWS/NCEP/CPC



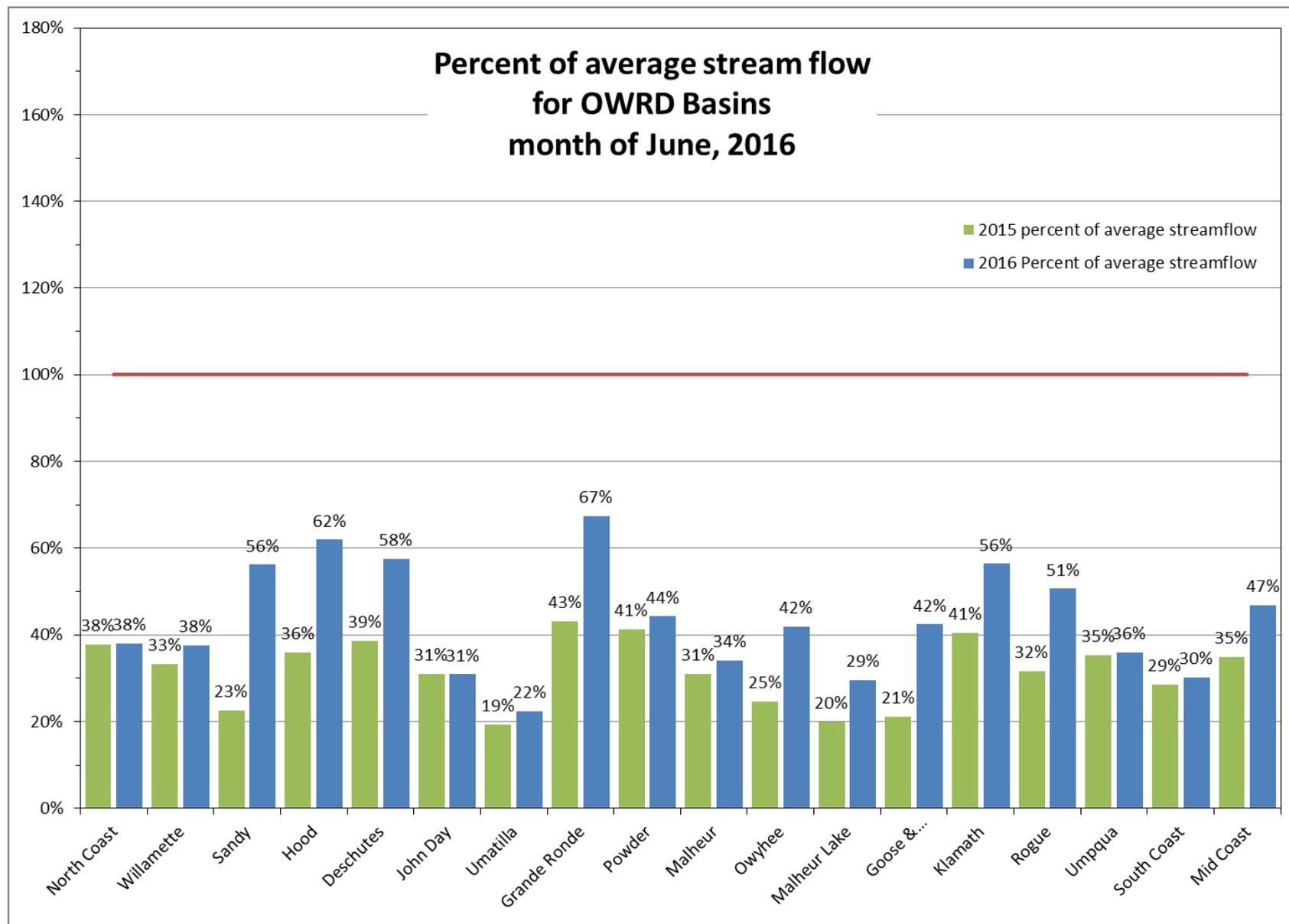
<http://droughtmonitor.unl.edu/>

2016 Monthly % of Average Streamflow

100%
60%



2015/2016 Comparison of Conditions



Drought Response and Resiliency

Immediate

- WRD Drought Tools - Drought permits, transfers, etc.
- Conservation/curtailment

Intermediate

- Develop plans and agreements to activate during drought

Long-Term

- Plan for long-term water needs
- Implement water resources projects



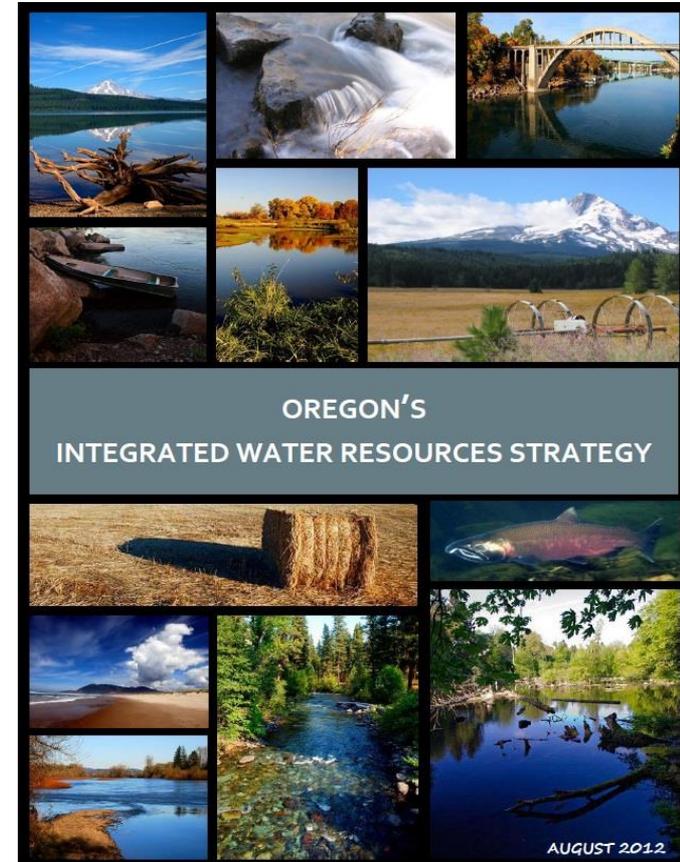
Executive Order 15-09

- Update the state's emergency plan for drought
- **Incorporate drought into the 2017 Integrated Water Resources Strategy**
- Water conservation messaging
- Agencies reduce water use by 15 percent by 2020

Integrated Water Resources Strategy

Recommended actions to:

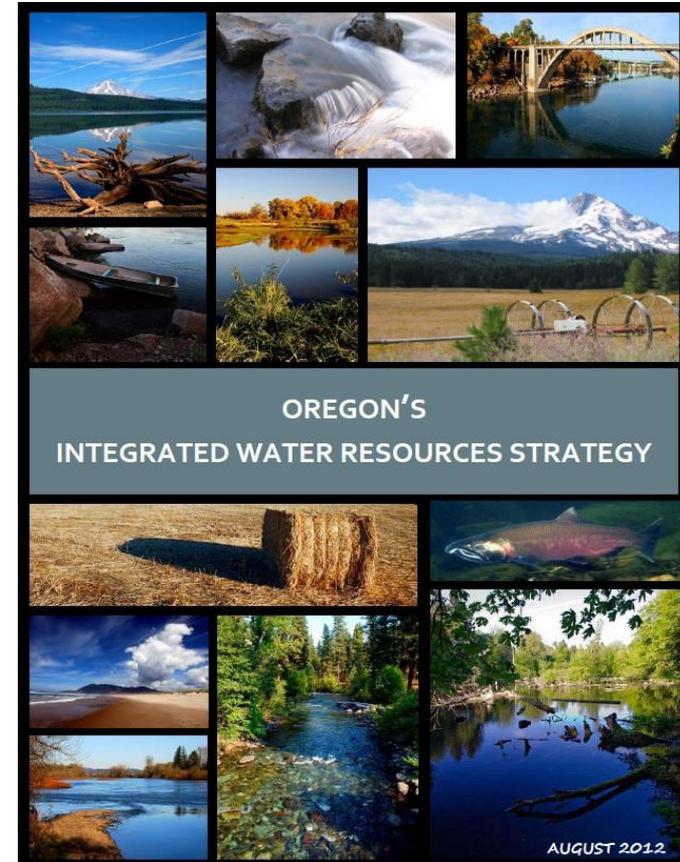
- Understand water resources today
- Understand instream and out-of-stream needs
- Understand the coming pressures that affect our needs and supplies
- Meet Oregon's instream and out-of-stream needs



Integrated Water Resources Strategy

2017 Update

- **Policy Advisory Group (PAG)**
- **Started earlier this year**
- **Meetings in Sept. and Nov.**
- **Some recommendations of task force may be incorporated**



Drought Response and Resiliency

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- WRD Drought Tools - Drought permits, transfers, etc.
- Conservation/curtailment

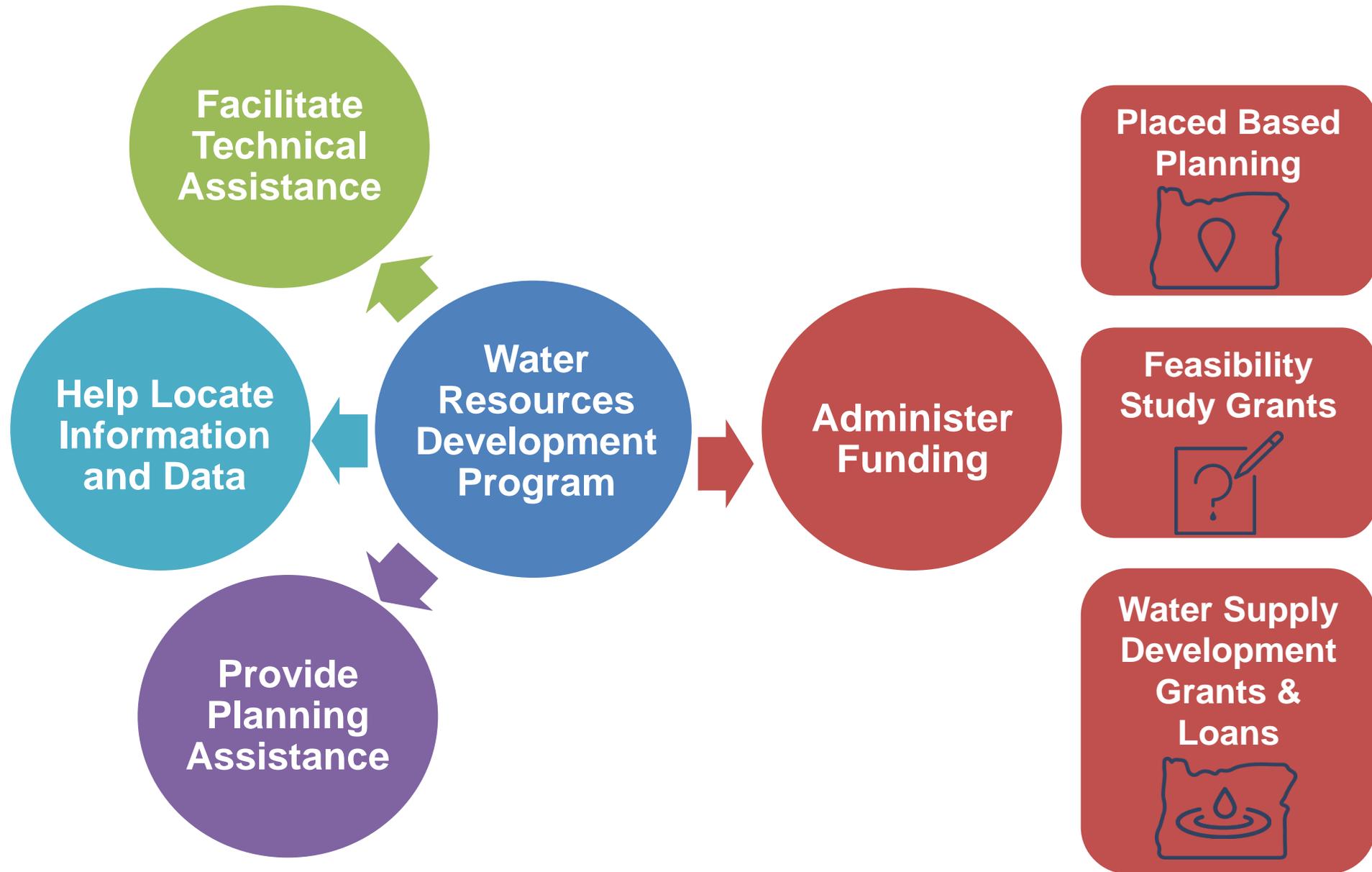
Intermediate

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Long-Term

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Water Resources Development Program



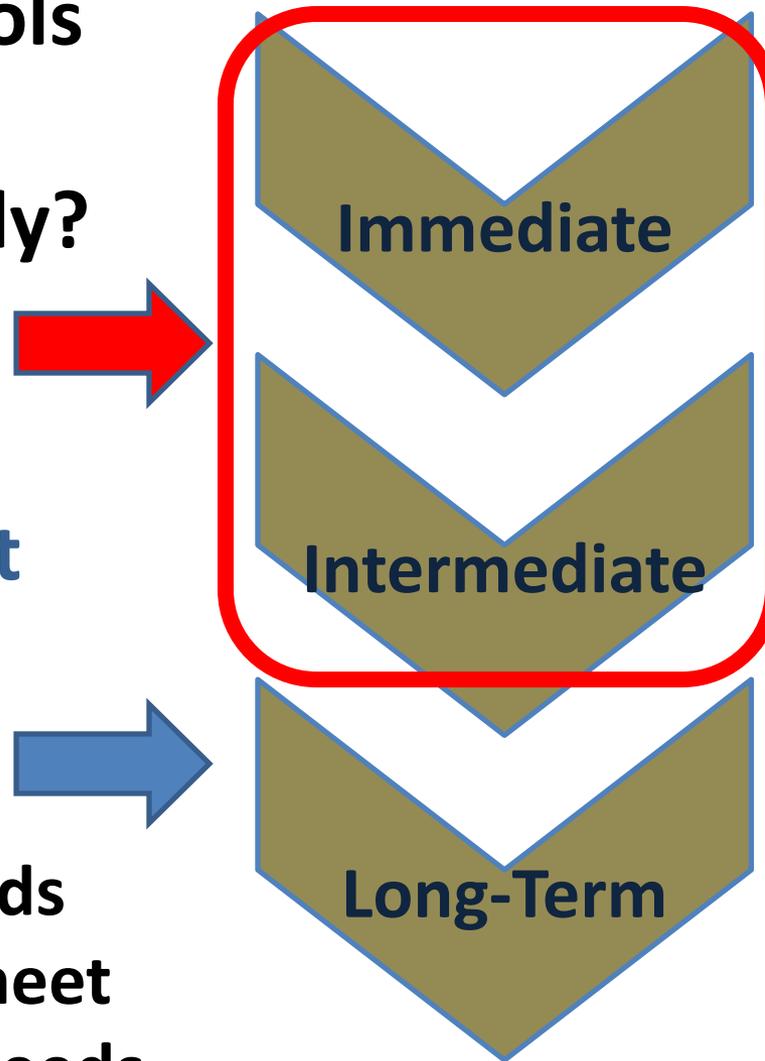
HB 4113- Task Force on Drought

Task Force: Do we have the tools necessary while a drought is occurring to respond effectively?

- Immediate to intermediate drought response tools

Water Resources Development Program and Update to IWRS

- Longer-term solutions
- Understanding our water needs and identifying solutions to meet instream and out-of-stream needs.



Observations

Do we have the right tools?

- Most of the drought response tools are not used.
- No funding to assist with emergency needs.
- Not much ability to address low streamflows in key reaches.
- Small water systems most vulnerable.

Do we have the right data and information for the public and decision makers?

- Most of response is outreach – limited budget/staff.
- Anecdotal information on impacts and vulnerabilities.

HB 4113 (2016)

Theme #1 – Drought Response Tools

- Evaluate the sufficiency of existing tools to address short-term drought response needs and recommend additional tools to address short-term drought response needs;
- Identify options to minimize the impact of drought on agricultural, municipal, fish and wildlife, and other interests;
- Identify tools to assist small water providers in developing water management, conservation or efficiency plans and in anticipating drought risks and responses.

Section 1, (4)(a-f)

HB 4113 (2016)

Theme #2 – Information and Data

- Identify the data and resources necessary for anticipating drought and drought impacts on the economy, communities and the environment;
- Recommend improvements in information sharing necessary for enabling the public, water users and recreational in-stream users to understand drought conditions and to assist in efforts to mitigate or adapt to drought.

Section 1, (4)(a-f)

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LUNCH

- Examples of Other State's Response Tools

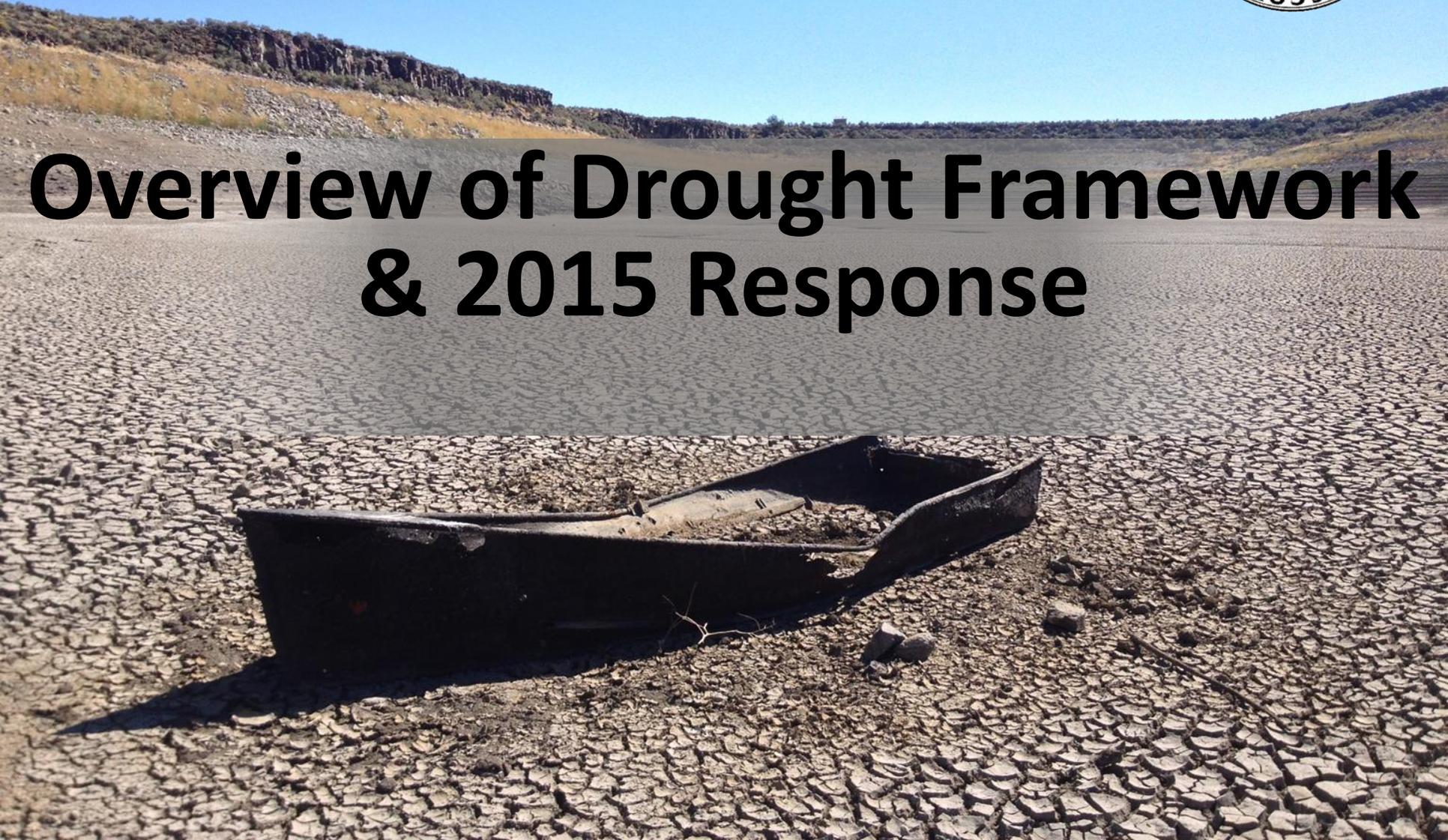
BREAK

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Overview of Drought Framework & 2015 Response



Drought Impacts

Drought is considered by many to be the most complex but least understood of all natural hazards, affecting more people than any other hazard¹.

- Drought impacts the economy, environment, and society
 - Agriculture
 - Fisheries
 - Forestry
 - Recreation
 - Small domestic water providers
 - Wildlife

Literature - Framework for Drought

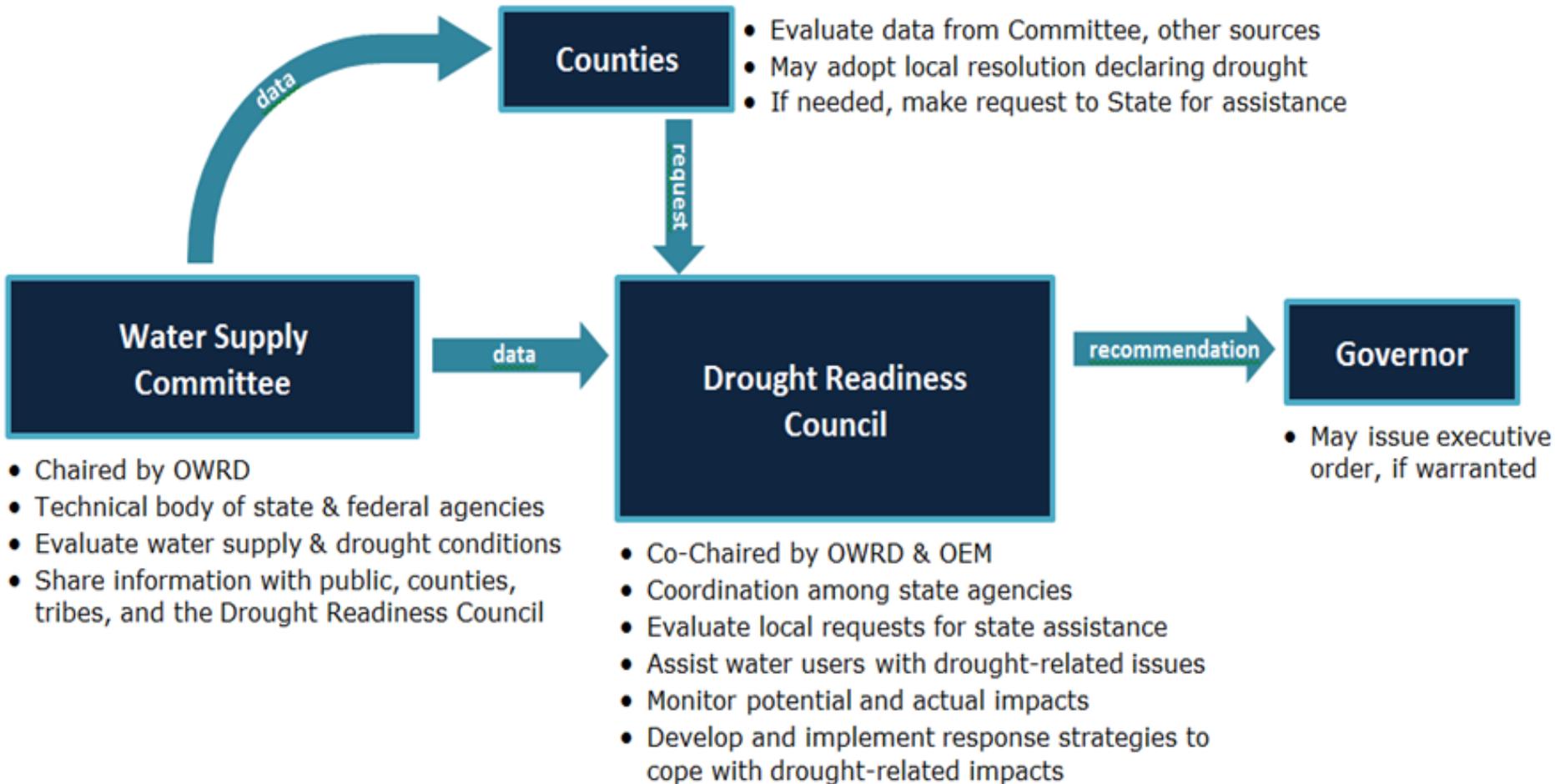
- **Response = Actions taken during a drought**
 - Oregon Drought Annex
- **Mitigation = Actions taken in advance to reduce potential impacts**
 - Oregon All Hazards Mitigation Plan; Integrated Water Resources Strategy
- **Local plans to address specific risks**
 - Water Management and Conservation Plans; Drought Contingency Plans; Local Hazards Plans

Drought Response Process

- **Reference the Oregon Drought Annex**
 - Multitude of agencies potentially involved in response
- **Executive Order 15-09 Required Update**
- **Update Completed at the End of 2015**

Oregon's Drought Declaration Process

**REVAMPED AT END OF 2015
DUE TO LESSONS LEARNED**



Water Supply Availability Committee

- **National Oceanic and Atmospheric Administration**
- **Natural Resources Conservation Service**
- **Oregon Climate Change Research Institute**
- **Oregon Department of Agriculture**
- **Oregon Department of Forestry**
- **Oregon Office of Emergency Management**
- **Oregon Water Resources Department (Chair)**
- **U.S. Army Corps of Engineers**
- **U.S. Bureau of Reclamation**
- **U.S. Geological Survey**

Indicators of Drought

- Precipitation
- Temperature anomalies
- Storage in key reservoirs
- Long-range temperature outlook
- Long-range precipitation outlook
- Snowpack
- Current streamflows and behavior
- Spring and summer streamflow forecasts
- Ocean surface temperature anomalies (El Nino, La Nina)
- Soil and fuel moisture conditions
- NRCS Surface Water Supply Index



Malheur Reservoir in 2014

Drought Readiness Council

- **Oregon Climate Change Research Institute**
- **Oregon Department of Agriculture**
- **Oregon Department of Energy**
- **Oregon Department of Environmental Quality**
- **Oregon Department of Fish and Wildlife**
- **Oregon Department of Forestry**
- **Oregon Health Authority's Drinking Water Program**
- **Oregon Office of Emergency Management (co-chair)**
- **Oregon Water Resources Department (co-chair)**

Roles and Interest in Drought

⇒ Local government assistance:	OWRD, OEM, DRC
⇒ Drought conditions:	OWRD, WSAC
⇒ Snowpack:	NRCS
⇒ Streamflows and groundwater levels:	OWRD, USGS
⇒ Reservoir storage:	USBOR, USACE, NRCS, local operators
⇒ Weather observations or forecasts:	ODF, NWS, OCCRI
⇒ Soil moisture levels:	NRCS, ODF
⇒ Forest fire risk:	ODF, USFS, USBLM
⇒ Drinking water supplies:	PUC, USACE, OHA, local water utilities
⇒ Agricultural drought impacts:	ODA, USDA, local irrigation districts
⇒ Fish and wildlife habitat impacts:	ODFW, USFWS
⇒ Water quality:	ODEQ, USGS, OHA
⇒ Recreation impacts:	OPRD, Travel Oregon, OSMB, USACE
⇒ Socio-economic impacts:	OHA, ODHS, Business Oregon
⇒ Power production impacts:	NWPCC, PUC, ODOE

State Drought Response Powers

Declaration that a severe, continuing drought exists (WRD ORS 536)

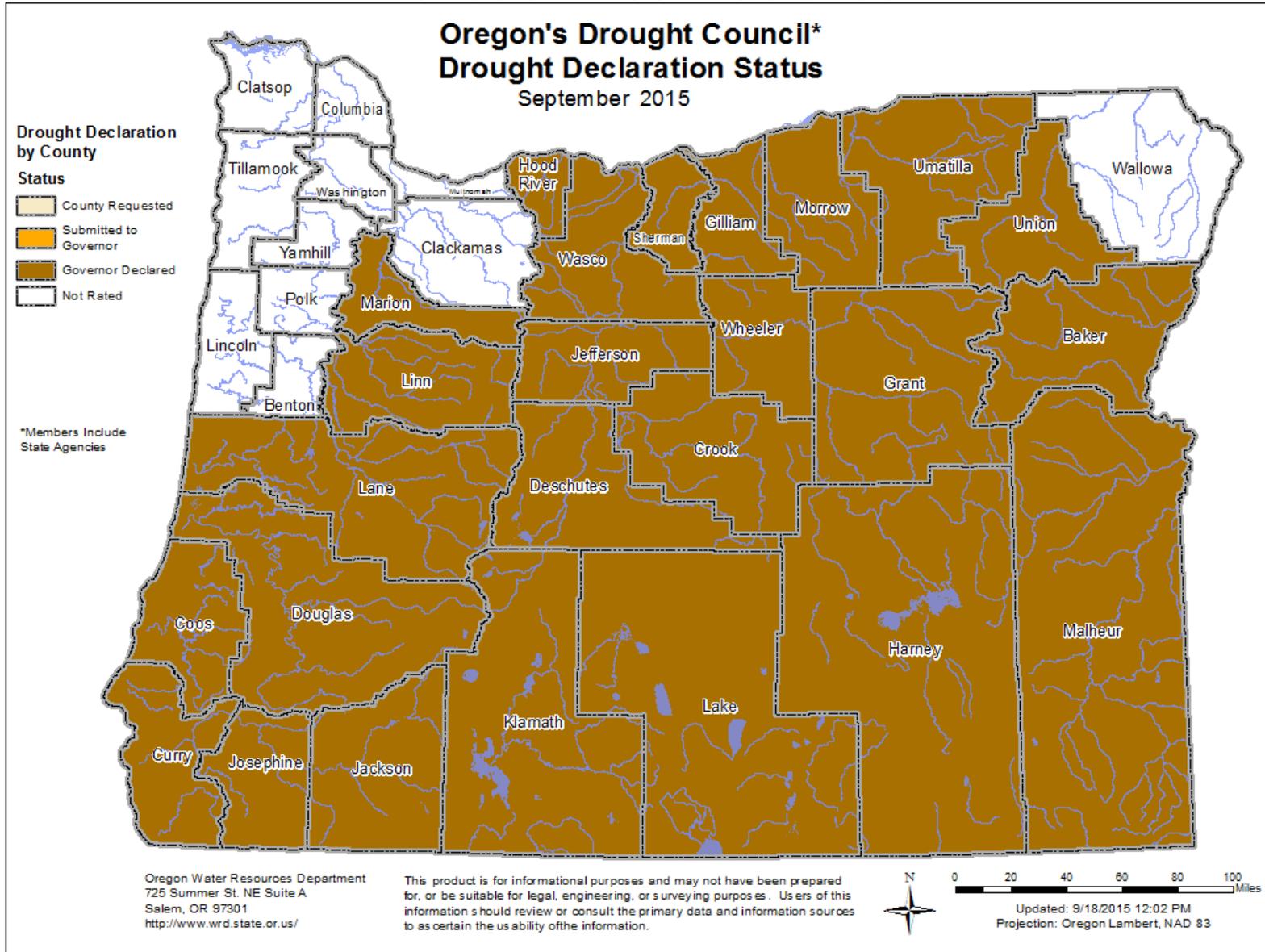
- ✓ Can direct state agencies and political subdivisions to implement a water conservation or curtailment plan
- ✓ Provide existing water right holders with access to temporary water management tools

Declaration of State of Emergency (OEM ORS 401)

- Severe water emergency
(ex. drinking water shortage, threat to life)
- Much broader action; deployment of people and equipment

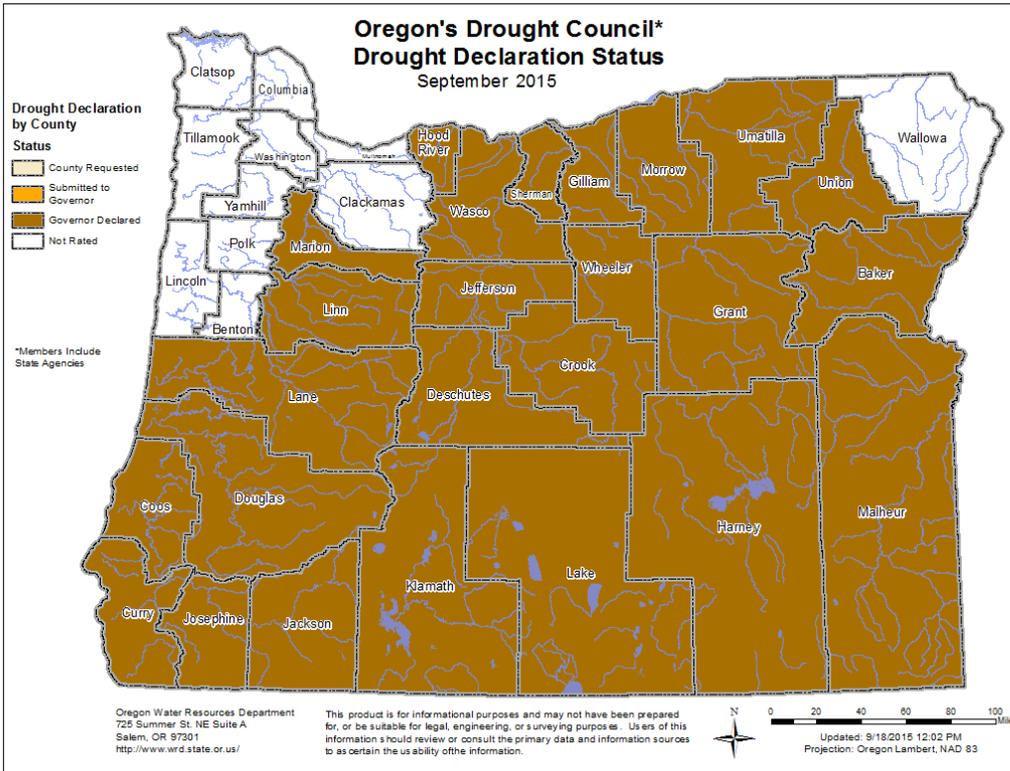
Emergency State Declarations

25 Counties Declared



Emergency Declarations vs Conditions

25 Counties Declared

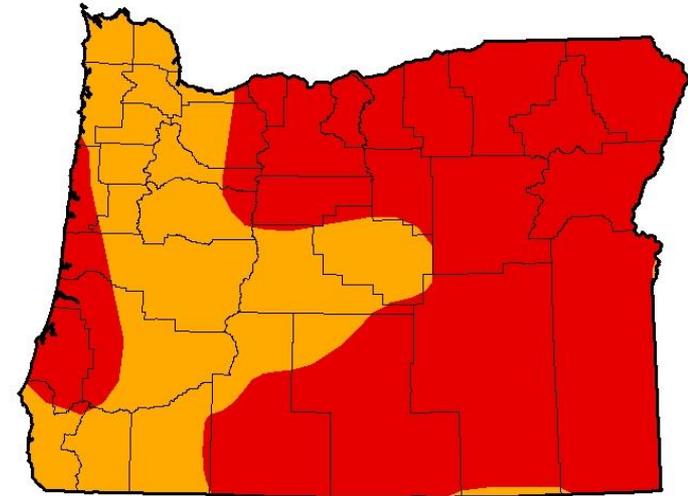


Conditions+Response

100% of State in Drought

U.S. Drought Monitor Oregon

August 25, 2015
(Released Thursday, Aug. 27, 2015)
Valid 8 a.m. EDT



Author:
Anthony Artusa
NOAA/NWS/NCEP/CPC

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

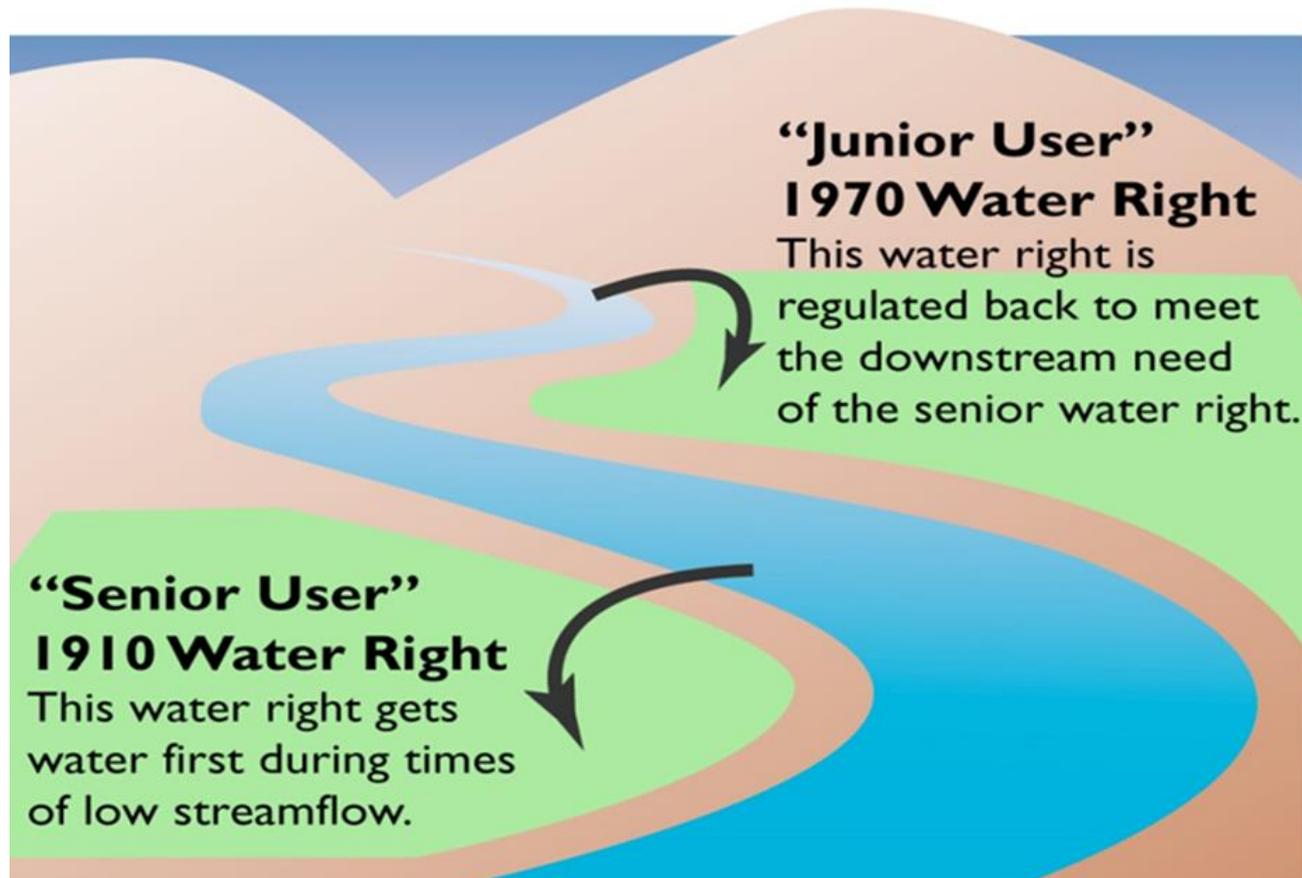
USDA
National Drought Mitigation Center
<http://droughtmonitor.unl.edu>

Conditions

Water Rights 101

First in time, first in right.

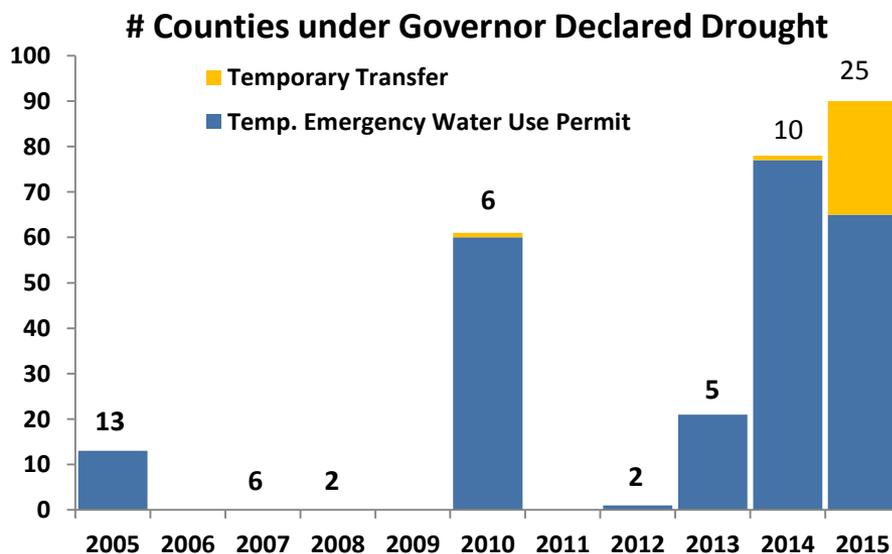
Regulation to some extent occurs every year.



- **Apply water earlier last year**
- **Regulation began earlier**
- **Rights regulated farther back on the priority list**

State Drought Declaration - Tools

1. Temporary Emergency Water Use Permit
2. Temporary Transfer
3. Preference for Human Consumption or Stock Water Use (requires temporary rules)
 - Temporary Instream Lease
 - Special Option Agreements
 - Temporary Substitution
 - Exchange of Water



Response Effort Beyond Transactions

- **Drought Tools Limited Applicability**
- **Increased Press and Public Interest**
- **Impacts to Other State Agency Programs**
- **Increased Regulation for Senior Water Rights**
- **Primary Response:**
 - Information and Outreach
 - Interagency Coordination



Department Outreach Efforts

- **Weekly WRD Drought Meetings**
- **Weekly Drought Reports**
- **Interagency PIO Team and Coordination**
- **Fact Sheets**
 - Water Conservation
 - Temporary Water Management Tools
 - Financial Assistance
 - Well Emergencies and Burned Wells



Weekly Drought Reports



Drought Report for the Week of June 29, 2015



Current Water Conditions: The NRCS reports that State-wide, Oregon's snowpack this winter peaked at the lowest levels measured in the last 35 years. Many snow monitoring sites set records for the lowest peak snowpack and earliest melt-out date since measurements began. Consequently, streamflow is expected to be well below normal through the end of summer, especially in the more arid regions of the state. The current statewide average precipitation is 87%.

County-wide drought declarations go through a three-part process before securing a drought declaration from the Governor's Office.

First, County Commissions meet to determine whether they want to seek a Governor's declaration.

Second, these recommendations go to the Water Availability Committee (chaired by the Oregon Water Resources Department) and then the Oregon Drought Council (chaired by Oregon Emergency Management) for technical review. The next meeting of the Oregon's Drought Council is July 9, 2015. The Water Availability Committee will convene if requested by the Drought Council.

Finally, if approved for drought declaration, the Governor's Office issues an Executive Order, declaring drought in specific counties. In recent years, these Executive Order have been set to expire at the end of a calendar year. A Governor's declared drought is in place for 2015 in the following counties: Baker, Coos, Crook, Deschutes, Douglas, Gilliam, Grant, Harney, Jackson, Jefferson, Josephine, Klamath, Lake, Lane, Malheur, Morrow, Sherman, Umatilla, Wasco and Wheeler. A Governor's Drought Declaration allows the Water Resources Department to issue emergency drought permits to applicants, using an expedited process.

To go to a specific section click on title below:

- Oregon Basin Report (Click picture for full report)
- Water Supply Assessment by Basin
- Oregon Declaration Status
- Oregon SNOTEL Current Snow Water Equivalent % of Normal
- Oregon SNOTEL Water Year to Date Precipitation % of Normal
- Oregon Drought Monitor
- Water Right Drought Permit Application: Summary Report

Additional Resources:

- Reservoir Storage Diagrams
 - [Deschutes Basin](#)
 - [Willamette Basin](#)
 - [Tualatin River Basin](#)
 - [Rogue Basin](#)
 - [Umatilla River Basin](#)
 - [Southeastern Oregon](#)
- [Three Month Outlook – Temperature Probability](#)
- [Three Month Outlook – Precipitation Probability](#)
- [Oregon Surface Water Supply Index](#)



Current Basin Water Status

Basin #	Basin Name	Basin Status	Reason
Edit 1	North Coast	Drought Unavoidable	
Edit 2	Willamette	Drought Unavoidable	Below normal streamflow; Dry Forecast
Edit 3	Sandy	Drought Unavoidable	Below normal streamflow; Dry Forecast
Edit 4	Hood	Drought Unavoidable	Below normal streamflow; Dry Forecast
Edit 5	Deschutes	Drought Unavoidable	Reservoirs are near full
Edit 6	John Day	Drought Unavoidable	No Storage or Snowpack; Dry Forecast
Edit 7	Umatilla	Drought Unavoidable	Reservoirs are roughly 50%; Dry Forecast
Edit 8	Grande Ronde	Drought Likely	Snowpack >5000'
Edit 9	Powder	Drought Unavoidable	Reservoir Storage is mixed; no snowpack
Edit 10	Malheur	Drought Unavoidable	Reservoir storage is near empty



Fact Sheets

Saving Water within municipal systems

We can all do our part to lessen the effects of limited water supplies this summer. We can start by conserving the water we use today. Here are many helpful and common tips for municipal water providers.

☑ Maintain a fully metered system and perform annual water audits

Doing so allows a water provider to compare the amount of water produced against the amount of water sold/consumed, the difference of which can alert a water provider to system leaks and unauthorized uses of water.

☑ Locate and repair leaks

Water utilities with a systematic program in place to detect and repair leaks in their distribution system can help reduce unnecessary losses of water in a timely manner. This, in turn, reduces the amount of money spent by a utility to divert and treat water that is ultimately lost due to leakage.

☑ Manage water pressure in your system

Pressure management is an important tool that can be implemented by a water utility in its efforts to reduce system leakage. Since leakage is driven by pressure, any efforts to reduce water pressure will help reduce leakage to some extent. Typically this is an economical approach with immediate results. The American Water Works Association's Manual M36 on water audit and loss control programs provides further detail: <http://www.awwa.org/store/productdetail.aspx?productid=99928904>

☑ Adopt rate structures that encourage water conservation

In Oregon, water rate structures must be based, at least in part, on the amount of water metered at the customer's service connection. Beyond this minimum requirement, there are several types of rate structures that are used throughout the United States to encourage conservation:

An *inclinng block rate structure* has a base fee and commodity charge using block rates under which the price per unit of water increases as metered consumption passes one or more usage threshold. This encourages conservation by sending a price signal to customers that their consumption costs more, as more water is consumed.

Saving Water inside the home

We can all do our part to lessen the effects of limited water supplies this summer. We can start by conserving the water we use today. Here you will find helpful and common tips for saving water inside your home.

☑ Monitor your water bill

Checking your water bill for unusually high water use can alert you to leaks in your home. Knowing how much water your household typically uses make this easier to determine. If your water use seems high, first determine if the increase is due to changes in your daily routine. If not, you may have a leak.

☑ Periodically test and check for water leaks

If it's easy to find, check your water meter before and after a two-hour period when no water is being used. If the meter does not read exactly the same, you probably have a leak. Common household leaks include: running toilets, dripping faucets, and other leaking valves. If leaks are found, repairing them in a timely manner will not only conserve water, but will save you money by reducing your water bill.

Toilet leaks are often easy to detect. One way to check is to remove the tank lid, then drop 1 dye tablet or 10 drops of food coloring into the tank. (Dye tablets may be available from your local water provider.) Put the lid back on the toilet tank and come back in 10 to 15 minutes. If the water in the bowl has changed color, you have a leak. If the water hasn't turned a color, everything is okay.

Grabbing a wrench to repair a leaky faucet is simple, inexpensive, and can save up to 140 gallons of water per week. These types of leaks are often caused by faulty washers that don't allow your faucet to shut off properly. Faulty washers can be replaced fairly easily and inexpensively (typically for less than \$1), which can help you save water and reduce your water bill.

☑ Wash only full loads

The average American household uses about 23 percent of its water running the clothes washer and dishwasher. Just one partially full load can waste 5 – 10 gallons of water.

Saving Water on the farm or ranch

We can all do our part to lessen the effects of limited water supplies this summer. We can start by conserving the water we use today. Here you will find helpful and common tips for saving water on your farm or ranch.

☑ Fix any leaks in the irrigation system

Some studies have shown as much as 16 percent is lost due to leaks.

☑ Make your irrigation system more efficient and easier to maintain

Consider a reduction in nozzle size or installation of drip irrigation. Research has shown that drip tape uses 30 percent to 50 percent less water than overhead irrigation.

Saving Water outside the home

We can all do our part to lessen the effects of limited water supplies this summer. We can start by conserving the water we use today. Here you will find helpful and common tips for saving water outside your home.

☑ Adjust sprinklers & water when it's cool

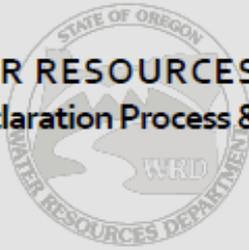
Sprinklers should water your lawn and garden, not the street or sidewalk. Most automatic irrigation timers are set to go off in the early morning (5:00 am – 7:00 am); therefore, utilities must often super-size their facilities to meet early morning demands. Setting irrigation timers at other times of the morning or night (11:00 pm – 5:00 am), when temperatures are cooler, helps minimize evaporation and shave peak water usage.

☑ Inspect your irrigation system

Look for leaks, broken lines, or blockage in the lines. A well maintained system will save you money, time, and water. Even little things like a shut-off nozzle for your garden hose can save you about 5 – 7 gallons each minute.

Fact Sheets

OREGON WATER RESOURCES DEPARTMENT State Drought Declaration Process & Emergency Tools



State Drought Declaration Process

Drought declarations for an area typically go through a three-part process before securing a state drought declaration from the Governor. First, a county commission submits a request for a state drought declaration to the Office of Emergency Management. Second, the Water Availability Committee, chaired by the Water Resources Department, meets to discuss information on weather and water supply conditions and subsequently make recommendations to Oregon's Drought Council. Chaired by the Office of Emergency Management, the Drought Council assesses the impact of drought conditions and makes recommendations to the Governor's Office on whether to declare drought in an area.

The Governor may then choose to issue an Executive Order declaring a drought emergency. State drought declarations are typically issued at a county scale. The primary benefits of a state drought declaration from the Governor are that it creates greater awareness of drought conditions; facilitates coordination between state agencies; and allows the Water Resources Department to provide existing water right holders with access to emergency water management tools. These tools are outlined below.

The Governor or the Oregon Water Resources Commission can also direct state agencies and political subdivisions to implement a water conservation plan or water curtailment plan.

Emergency Drought Tools for Water Right Holders

A state drought declaration allows the Water Resources Department to offer certain tools to water right holders in a drought-declared county. These tools have an expedited review process, reduced fee schedule, and are intended to be short-term emergency authorizations, not permanent solutions to deal with water supply challenges. Water right holders seeking long-term solutions should first contact their watermaster to help identify what options may exist.

• Temporary Emergency Water Use Permit

An approved emergency water use drought permit allows a water user to temporarily replace water not available under an existing water right. The most common drought permit allows the use of groundwater as an alternative to an existing surface water right. A well-prepared application generally takes approximately ten business days to process. Emergency water use permits are issued through an expedited process and are valid for one year or the term of the drought declaration, whichever is shorter.

• Temporary Transfer

A water user can apply to change the type of use, place of use, or the location of the diversion under an existing water right. A temporary drought transfer takes place under an expedited process, and is in effect for the duration of the drought declaration or up to one year, whichever is shorter.

Federal Financial Assistance Programs

Federal Financial Assistance Programs for Drought Emergencies

Oregon Water Resources Department | June 2015

Several federal agencies offer loans or grants to assist with drought-related emergencies. Programs for farming and ranching operations are administered by the U.S. Department of Agriculture through the Farm Service Agency, Rural Development, and the Natural Resources Conservation Service. The U.S. Small Business Administration provides loans to businesses, including non-profit organizations. The U.S. Bureau of Reclamation also offers grants for drought resiliency planning and project implementation. The following is a short summary of various federal financial programs. More information is available at: <http://www.disasterassistance.gov/get-assistance/assistance-by-federal-agency>

USDA Farm Service Agency



The Farm Service Agency provides assistance for natural disaster losses resulting from drought, flood, fire, freeze, tornadoes, pest infestation, and other calamities. The following programs are summarized on FSA's [Drought Assistance website](#).

➤ Emergency Farm Loans

The Farm Service Agency provides emergency loans up to \$500,000 to help producers located in a county declared by the President or designated by the Secretary of Agriculture as a primary disaster area or quarantine area. All counties contiguous to the designated area are also eligible for emergency loans. Applications must be received within eight months of the county's drought disaster declaration. Emergency loan funds may be used to:

- Restore or replace essential property
- Pay all or part of production costs associated with the disaster year
- Pay essential family living expenses
- Reorganize the farming operation
- Refinance certain debts, excluding real estate

Factsheet: http://www.fsa.usda.gov/Internet/FSA_File/emloanpr_mar2015.pdf

➤ Emergency Conservation Program (ECP)

The Emergency Conservation Program (ECP) provides funding and assistance to farmers and ranchers to repair farmlands damaged by natural disasters and helps put in place methods for water conservation during severe drought. The FSA County Committee inspects the damage to determine eligibility. Farmers and ranchers should check with their local FSA office regarding sign-up periods, which are set by the FSA County Committee.

Website: www.fsa.usda.gov/programs-and-services/conservation-programs/emergency-conservation/index

Fact Sheets - Wells

Domestic Well Tips during a Drought

Domestic Well Tips during a Drought

Oregon Water Resources Department | August 2015

Having supply issues with your well?

Groundwater is a source of water for many homes in rural Oregon and the quality and quantity of groundwater can vary based on geology, climate, and land use. Supply problems may occur when the pump is turned on and the water level drops sharply to meet demand. Well production will be severely reduced and damage to the pump may occur if the water level drops to the pump intake level. This can happen with aging wells due to the buildup of mineral deposits, silt, or bacteria and it can also happen during a drought.

If you're experiencing problems with your well during a drought, you may want to start by contacting a watermaster with Oregon Water Resources Department.

Contact your local watermaster. The Oregon Water Resources Department is responsible for managing water supplies, both groundwater and surface water, across the state. To accomplish this, the Department employs experts who work hard to determine how much water is available and the best way to protect it in order to assure that sufficient and sustainable water supplies are available to meet current and future needs.

If you are experiencing well issues, the Department's watermaster may be able to look at the well and well log, take measurements and check to see if well interference may be a factor. In many cases, you might just need to deepen your well, pump, or address maintenance related issues. Locations of region offices and contact information for watermasters can be found here: <http://www.oregon.gov/owrd/pages/offices.aspx>.

Examine pump or construction issues. Many water wells in Oregon have been drilled to deep depths, but some pumps are installed at shallow depths. This does not allow the pump access to all of the available groundwater and as groundwater levels decline due to the drought, wells with shallow pumps may experience reduced yields. To keep wells functioning properly, consider lowering your pump now and conducting any other well or pump maintenance. Well owners with a flowing artesian well may want to consider installing a pump to ensure access to groundwater in the event the artesian pressure diminishes. Licensed water well constructors can be found at: http://apps.wrd.state.or.us/apps/gw/well_license/

Monitor water levels and water use. During drought or other dry periods when your well is used a lot, it is helpful to measure the static (resting) water level in your well. The groundwater level in your well is an indication of how much groundwater is available for your use. It is common for groundwater levels to change seasonally, where the groundwater level often increases during the winter and spring as the aquifer recharges from rain and snowmelt. Groundwater levels typically decline through the summer and fall in response to natural discharge of the aquifer (to streams and springs) and in response to groundwater use from pumping wells. It is important to know where the groundwater level is relative to your well pump

Symptoms of a Dry Well

- Lots of air in the water.
- Running out of water after heavy usage (like watering the lawn).
- Pump doesn't produce as much water as it used to.
- Pump runs for a long time before shutting off.
- Water pressure is very low.
- Takes a long time to build up pressure.
- Neighbors have problems with their wells.

It is important to remember that experiencing these symptoms doesn't necessarily mean your well is going dry.

Well Tips during a Fire Emergency

Well Tips during a Fire Emergency

Oregon Water Resources Department | August 2015

Nearly one-quarter of Oregon's residents use wells as their main source of drinking water. Wildland fires affect areas where people rely on well water for their homes, ranches, and farms. There are a number of things to keep in mind if you have had any fire damage to your well. You can visually check for:

- Damaged and melted or exposed electrical wiring
- Damaged and melted PVC casing, liner or pipes
- Damaged well houses and pressure tanks
- Debris, such as ash and sediment entering uncovered wells
- Old dug wells with wood covers, which can become a safety threat

Exposed electrical wiring to the well poses a significant electrical safety hazard with the potential for an electrical short to the metal casing. If the electrical wiring has been damaged by fire, do not handle the wiring or touch the casing. Flag the area around the well casing as a warning.

Dug wells where the well cover has been damaged by fire presents a significant hazard to public safety. The well cover may be damaged to such an extent that the cover may drop into the well or be so unstable that walking on it may cause a collapse. If you discover what appears to be a sinkhole or an open hole, flag or barricade the area around it.

If your well has been damaged by fire, or you think an old dug well has been exposed, contact a local licensed and bonded well constructor or pump installer to determine the extent of the damages and what must be done to either repair or decommission the well. If you think a fire may have damaged your water supply, bring water back with you when you return to your home. The general rule is that each person will need at least one gallon per day of water for drinking, cooking and hygiene.

Wells must be maintained to prevent health hazards. Take steps to ensure your water is safe to drink after an emergency:

- Bring water to a rolling boil for one minute, let it cool and store in clean containers with covers; or
- Add 8 drops of unscented liquid household bleach per gallon of water, stir and let sit for 30 minutes; and
- Have a professional service test the water to make sure it's safe to consume.

If you have your well inspected, make sure you choose a water well constructor who is licensed and bonded in Oregon. Names of licensed constructors are available on the following website: http://apps.wrd.state.or.us/apps/gw/well_license/default.aspx.

There are a number of publications that provide additional information, including the Department's Well Owner's Handbook, available at: http://www.oregon.gov/owrd/PUBS/docs/Well_Water_Handbook.pdf

Contact Information

If you have additional questions, please contact the Oregon Water Resources Department at 503-986-0900 or visit our website at: <http://www.oregon.gov/owrd/Pages/index.aspx>.

Governor's Involvement

Learn more about drought in Oregon

#ordrought



At Home



At Play



At Work

[Save Water Inside the Home](#) 📄

[Save Water Outside the Home](#) 📄

[Boating](#)

[Current Campfire Rules](#)

[Fishing and Hunting](#)

[Travel Oregon](#)

[Drought Assistance Programs](#)

[Drought Status and Current Conditions](#)

[Resources for Municipal Systems](#)

[Save Water on the Farm or Ranch](#) 📄

Watch Governor Brown's PSA on Drought



Governor Brown on Oregon's drought.

NOW,
THEREFORE: I, Kate Brown, Governor of the State of Oregon, hereby proclaim July 2015 to be

WATER AWARENESS MONTH



hand and cause the
Great Seal of the State of Oregon to be affixed. Done at the Capitol
in the City of Salem in the State of Oregon on this day, July 7,
2015.

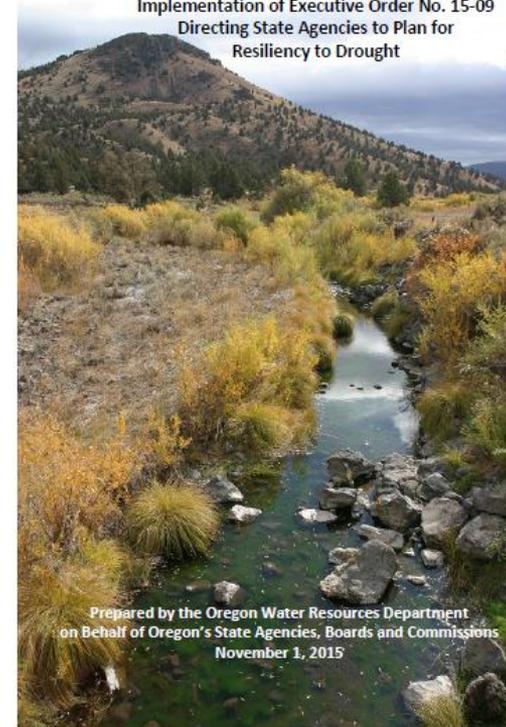
Kate Brown
Kate Brown, Governor

Jeanne P. Atkins
Jeanne P. Atkins, Secretary of State



- **Emergency Drought Declarations**
- **2015 Drought Team**
- **Executive Order 15-09**
 - Agencies reduce water use by 15 percent by 2020
 - Water conservation messaging
 - Update the state's emergency plan for drought
 - Incorporate drought into the 2017 Integrated Water Resources Strategy

REPORT TO GOVERNOR KATE BROWN
Implementation of Executive Order No. 15-09
Directing State Agencies to Plan for
Resiliency to Drought



Prepared by the Oregon Water Resources Department
on Behalf of Oregon's State Agencies, Boards and Commissions
November 1, 2015

Water Conservation Posters

Oregon's been in a drought, help us out.

Conserve Water – Even when it rains.

www.drought.oregon.gov

STATE OF OREGON 1859

Drought in Oregon

This poster features a close-up of water dripping from a dark surface, possibly a roof or gutter, against a dark, blurred background. The text is white and blue, and the bottom contains a logo for the State of Oregon and a small icon of a water drop.

Oregon's been in a drought, help us out.

Conserve Water – Even when it rains.

www.drought.oregon.gov

STATE OF OREGON 1859

Drought in Oregon

This poster shows a small yellow bird perched on a rock, with water spraying around it, suggesting a shower or a sprinkler. The background is dark and rainy. The text is white and blue, and the bottom contains a logo for the State of Oregon and a small icon of a water drop.

Conserve Water

Water is the foundation for our economies, communities, ecosystems, and quality of life.

Save for the future.

www.drought.oregon.gov

STATE OF OREGON 1859

Drought in Oregon

This poster depicts a dry, rocky stream bed with sparse green vegetation on the banks. The text is white and gold, and the bottom contains a logo for the State of Oregon and a small icon of a water drop.

Saving water is a priority.

Please report any leaks or significant water losses to your building manager.

www.drought.oregon.gov

STATE OF OREGON 1859

Drought in Oregon

This poster shows three images of water fixtures: a showerhead, a showerhead with a diverter, and a leaking faucet with water spraying. The background is green and textured. The text is white, and the bottom contains a logo for the State of Oregon and a small icon of a water drop.

Saving water is a priority.

Please report any leaks or significant water losses to your building manager.

www.drought.oregon.gov

STATE OF OREGON 1859

Drought in Oregon

This poster features a close-up of a sprinkler head in a field of green grass, with water spraying out. The background is green and textured. The text is white, and the bottom contains a logo for the State of Oregon and a small icon of a water drop.

Saving water is a priority.

Please report any leaks or significant water losses to your building manager.

www.drought.oregon.gov

STATE OF OREGON 1859

Drought in Oregon

This poster shows a close-up of a blue faucet with a single drop of water falling. The background is dark blue and textured. The text is white, and the bottom contains a logo for the State of Oregon and a small icon of a water drop.

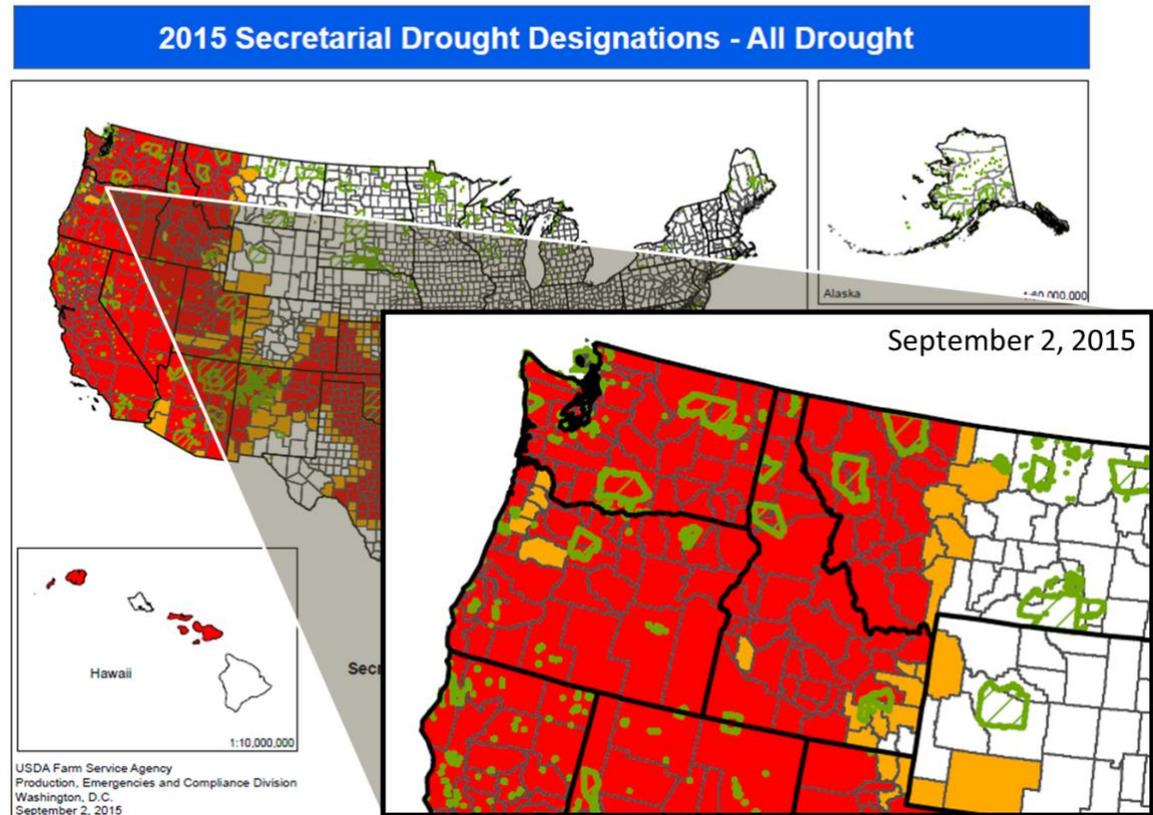
Examples of Other State Agency Actions

- **OPRD – Campfire bans**
- **OSMB/Travel Oregon/OPRD/others – Recreation Coordination**
- **ODFW – Fishing closures**



Federal Agency Actions

- See Federal Drought Assistance Fact sheet on the Drought Watch webpage for more information.



Observations

Coordination and outreach were the biggest challenges

- **No social media despite #ORdrought campaign**
- **Governor's Drought Page for the public**
- **Other states have more comprehensive web communication tools, which helps small water providers**
- **Drought response affects so many different entities; coordination and information sharing takes a lot of time!**

Observations

- **Some small communities experienced challenges; drought often exacerbated existing issues.**
- **Need more comprehensive information and validation of communities that may be vulnerable; rough cut by staff based on past experience.**
- **Limited capacity to help small water providers with water conservation messaging and tools; developing drought contingency plans; ensuring they understand their water rights and vulnerabilities.**

Observations

- **Drought tools for instream (leasing and special option agreements) have not been used.**
- **No funding or staff to incentivize voluntary leases in drought situations; timing also a challenge; lack of third party institutional capacity in some areas. Consider role of special options.**

Observations

- **Information on impacts is anecdotal**
- **Staff pulled off of other duties in catch-up mode after drought**
- **Need to have consistent meetings, communication, coordination of the Drought Council and Water Supply Availability Committee – even when not in drought; necessary for institutional capacity**

Observations

- **Use of drought tools limited**
 - may be a good sign that don't require emergency tools and are resilient to drought, OR
 - they don't know about the tools, OR
 - they are not helpful.
- **Funding to address supply needs for small water systems; best solution is to anticipate and address vulnerabilities**

Oregon Natural Hazards Mitigation Plan (ONHMP)

- **Mission of the plan is to create a disaster resilient Oregon**
 - **Page 21 highlights goals**
- **Characterizes hazards, assesses vulnerabilities, and analyzes risks**
 - **See pages 92-100 for general drought chapter; individual regions for more information.**

Oregon Natural Hazards Mitigation Plan

- **Despite impressive achievements in the science of climatology, estimating drought probability and frequency continues to be difficult.**
- **A comprehensive risk analysis is needed to fully assess the probability and impact of drought to Oregon communities. Such an analysis should be completed statewide in order to analyze and compare the risk of drought across the state. pg. 344**

Other Actions - ONHMP

- **82 - Continue to develop and implement resilience initiatives statewide.**
- **85 - Provide support for development and update of local and state hazard mitigation plans.**
- **86 - Improve and sustain public information and education programs aimed at mitigating the damage caused by natural hazards**

Other Actions - ONHMP

- **87 - Provide technical assistance and funding to local governments to evaluate the need and opportunities for inter-tie projects in Local Natural Hazards Mitigation Plans.**
- **97 - Expand the state's stream gaging network. Seek stable funding for the operation, and maintenance of stream gages.**

Other Actions - ONHMP

- **98 - Better coordinate, fund, and publicize programs to reduce the abundance of juniper trees in arid landscapes across Oregon.**
- **105 - Implement the improved methodology for gathering data and identifying the communities most vulnerable to drought and related impacts.**

Local Water Plans

Curtailment Element:

- Description of water supply deficiencies in past 10 years
- Assessment of current capacity limits and the ability to maintain water delivery during long-term supply shortages
- At least three stages of alert
- Situations which trigger each stage of alert
- List of actions to be enacted under each stage of alert.

WATER MANAGEMENT AND CONSERVATION PLANS

OAR DIVISION 690, CHAPTER 86

A Guidebook for Oregon Municipal Water Suppliers
March 2015 (2nd Edition)



Agenda

- ✓ Review Agenda and Introductions
- ✓ Logistics
- ✓ Overview of House Bill 4113

BREAK

- ✓ Drought Framework and 2015 Drought Response

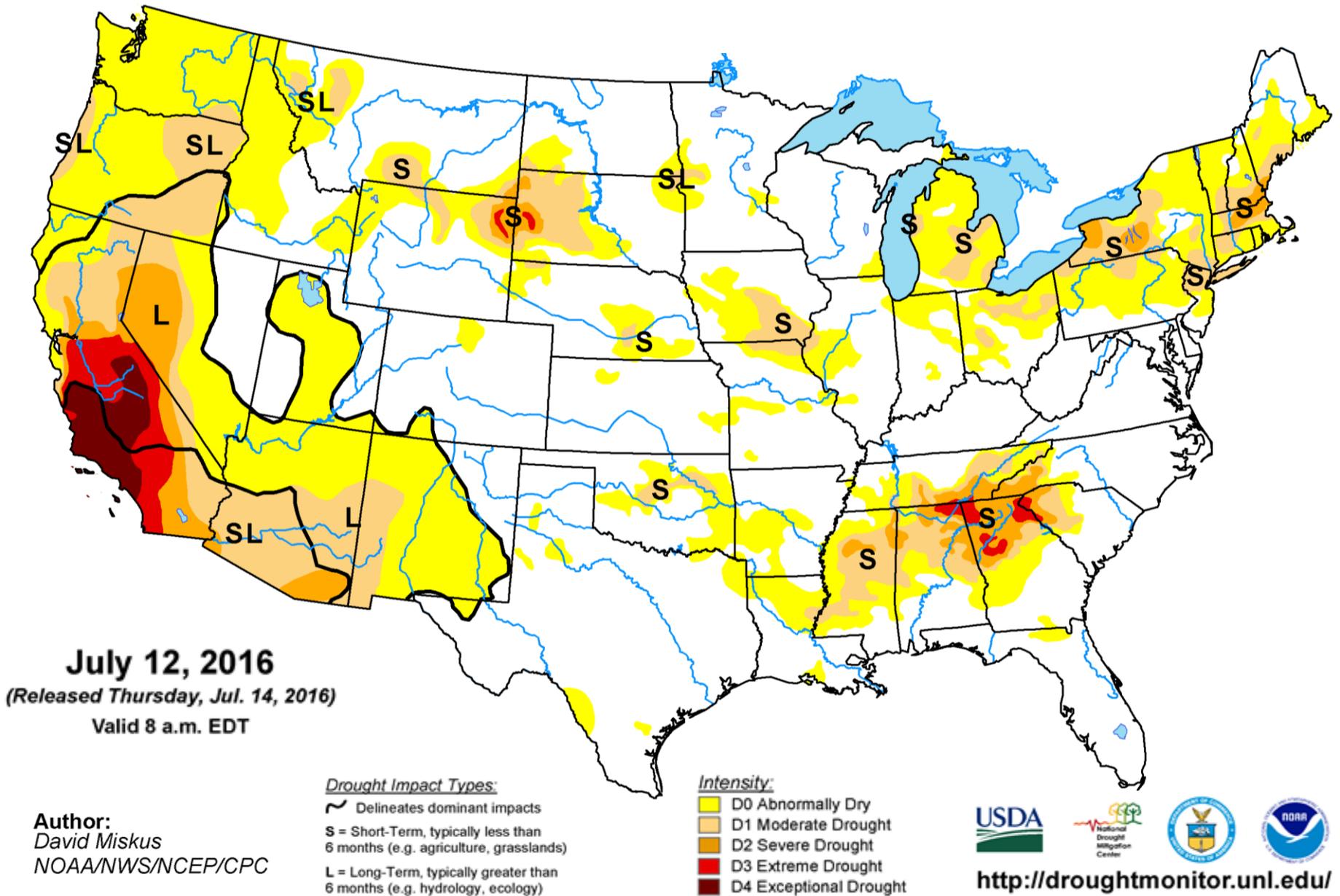
LUNCH

- Examples of Other State's Response Tools

BREAK

- Discussion and Brainstorming
- Public Comment
- Next Steps

Literature and Practices from Other States



Literature – Key Themes

- **Monitoring, early warning, and prediction**
 - See Data References
- **Risk, vulnerability and impact assessment**
- **Response**
- **Mitigation**

Risk, Vulnerability, and Impacts

- **Knowing vulnerabilities and impacts can help target response and mitigation¹.**
- **“Impacts data...are not currently a robust part of planning and response at regional, state, and local levels.”**
- **“...drought impacts can be at odds with what commonly used drought indicators show, suggesting that indicators based solely on hydrometeorological data do not sufficiently capture the complexity of actual drought conditions.”²**

Approaches by Other States to Assess

- **Established local groups that provide information on drought conditions and impacts**
- **Field agents to report on local impacts.**
- **Individual state agencies that report on drought impacts for their sector¹.**
- **National Drought Mitigation Center manages the Drought Impact Reporter**
- **Arizona DroughtWatch - network of impact reporters that regularly report on specific sectors².**

Reports on Risk, Vulnerability, & Impacts

- **University of Washington for WA and Texas A&M for Texas produced impacts and vulnerability report.**
- **Kansas and Colorado studied and identified most vulnerable municipal and industrial water supply systems for state assistance¹.**
- **WA Commissioned an Impacts Report on Agriculture of the 2015 Drought – Estimated cost \$45,000².**

¹REF AB, pgs. 12-13; ²REF AA

Risk, Vulnerability, and Impacts

- **“South Dakota completed a vulnerability assessment...
– See South Dakota’s Plan¹**
- **“Colorado completed the nation’s first qualitative and quantitative drought vulnerability assessment... has helped the state better direct available resources.”²
– See Colorado’s Plan³**

Risk, Vulnerability, and Impacts

See “How to Reduce Drought Risk”, REF U

- **Appendix C for a list of potential economic, environmental, and social impacts**
- **Appendix D for other vulnerability considerations**

Response Strategies - Literature

“Response strategies vary among the states, and commonly include the following:

- **increasing communication,**
- **issuing water restrictions,**
- **facilitating water transfers, expediting the processes for water transfers and permitting of temporary water rights,”**

Response Strategies - Literature

(cont.)

- **purchasing water rights or permits to keep water in streams,**
- **issuing grants and loans to public water supply systems,**
- **recommending federal drought concessions (e.g., opening up roadsides to haying),**
- **and activating state assistance and technical support to applicable sectors...”**

Response Strategies - Literature

- **“Colorado, Oklahoma, and Washington have specific drought response funds...” pg. 9**
- **“State drought response actions typically include increased communication with stakeholders and the public, such as through drought advisories, drought web sites, and meetings among stakeholders and local drought officials.... The types of communication include press releases, public service announcements, issuance of drought advisories, and outreach to officials in jurisdictions.” pg. 10**

Response Strategies - Literature

See “How to Reduce Drought Risk” REF U,

- **Appendix E for a list of Potential Risk Reduction Actions**

Other Suggestions – Literature

- **“Have a full time drought coordinator, and in a strong leadership position.**
- **Have a diverse executive drought planning group.**
- **Have a dedicated source of drought funding.**
- **Have a thorough understanding of local water supply systems and demands.”**

Mitigation Examples - Literature

- “Officials reported the following mitigation strategies:**
- increasing water conservation, particularly for development and growth;**
 - developing new and more robust water supplies;**
 - increasing delivery infrastructure and inter-system connections to allow water sharing;**
 - increasing the availability of monitoring data;**
 - developing a rangeland fire insurance program;**
 - and requiring public water systems to consider drought in their water management planning documents.”**

Examples: Colorado

- **2014 legislation requiring the phase-out of all non-WaterSense® labeled plumbing products from retail stores¹.**
- **Loan/Interruptible Supply Agreements - May loan water right for 10 years for use instream or out-of-stream, but shall not be exercised for more than 3 in that 10 years^{2, 3}.**
- **Rotational fallowing**
- **Water banks³**

¹REF AC, pgs. 7-8; ²REF AE; ³REF AF

Legislature allocated \$16M for 2015-2017 biennium; \$6.7M spent in 2015

- **Public entities to improve or supplement existing water supplies depleted by drought**
- **Acquisition of mitigation water to offset the water use of emergency drought wells**
- **Leasing water from farmers who agreed to fallow fields in the Dungeness basin to support stream flows for the benefit of fish and wildlife**

(Cont.)

- **Cost-share funding to lease water between irrigation districts**
- **Dept. of Fish & Wildlife - deepening of channels and other projects to alleviate fish passage problems caused by low stream flows**
- **Dept. of Agriculture - economic impact analysis of crop losses from the 2015 drought**
- **Okanogan Forage Project, a drought-related feed program**

Washington - Drought Emergency Fund



Grants to public entities to:

- **Modify an existing water source or deepen an existing well.**
- **Develop an emergency or alternate water source.**
- **Purchase or lease water or water rights to be used during the drought.**
- **Construct an emergency intertie or connection**
- **Implement emergency water conservation and education programs.**

Washington - Drought Emergency Fund



(Cont.)

- **Build transmission pipelines, diversion structures or storage devices, and acquire pumps and accessories for moving water.**
- **Detect and repair leaks, and line water canals.**
- **50 percent matching funds; except drinking water with pop. less than 25,000 and households 80 percent or less of the statewide mean income.**

Example - California

Water Supply

SWRCB	Clean up contaminated groundwater
DWR	Fund regional water management projects
SWRCB	Improve drinking water infrastructure
SWRCB	Improve/increase water recycling
SWRCB	Improve/increase wastewater treatment
SWRCB	Improve/increase stormwater management
DWR	Support sustainable groundwater management
DWR	Improve/increase water desalination

Emergency Response

CalFire	Expand/enhance fire protection
DSS	Provide food to drought-affected communities
SWRCB	Improve drinking water systems
DWR	Conduct drought assistance and response
OES	Provide emergency drinking water
HCD	Assist/relocate drought-affected households
DWR	Remove Delta emergency rock barriers
SWRCB	Monitor/enforce water rights and conservation
OES	Coordinate statewide drought response
CSD	Assist drought-impacted farmworkers
SWRCB	Provide emergency drinking water
SWRCB	Monitor use/quality of groundwater
DWR	Assist with drinking water shortages
CalFire	Address water shortages at fire stations
EDD	Provide job training in drought-affected areas
DWR	Monitor use of groundwater

Water Conservation

DWR	Increase water efficiency, reduce energy use
CDFA	Increase agricultural water efficiency
DWR	Increase urban water conservation
DWR	Increase agricultural water conservation
DGS	Increase water efficiency at state facilities
CCC	Conduct conservation outreach
DWR	Save Our Water campaign
DFW	Improve efficiency at wildlife refuges
CDFA	Study economic impact of drought

Environmental Protection

DFW	Emergency fish and stream activities
Parks	Eradicate water hyacinth
SWRCB	Study instream flows
DWR	Model Delta flows

California

See REF AG, Drought Response (LAO)

- **\$3 BILLION in drought response 2013-2016**
- **Numerous policy changes as highlighted in the Appendix,**
- **Tables 1, 2, 3 for actions to prepare, respond, and recover from drought pgs. 29-39**

California

- **\$5 million in funds to help residents on private wells and small water systems who are facing water emergencies - such as new wells, well rehabilitation, and consolidation into new or existing public water systems. [Cleanup and Abatement Account]**
- **New building water efficiency and landscape efficiency standards**

\$8 M – total state funding 2013-2016
\$5 M proposed for 2016-2017 fiscal year



What You Should Know
Drought Facts



What You Can Do
Ways to Save



What's New
In the News



SAVING  TOGETHER
WITH A SELFIE

Find Out How

Turf & Toilet Rebates Still Available
Save water, save money

Californians Almost Meet Conservation Goal
119 Million Acre-Feet Saved

Splash Brothers Urge Conservation
Warriors Stars Featured In PSA

Did you know
Sierra snowpack below average this winter

[Learn More](#)

Did you know
Even recent rain and snow cannot erase four years of severe drought

[Learn More](#)

Tips For Saving Water

See how you can save

[Try It Out](#)



REBATES

State Of California Offers Rebate Programs to Help Replace Toilets & Turf



About Save Our Water

Save Our Water is a statewide program aimed at helping Californians reduce their everyday water use. Created in 2009 as a partnership between the Association of California Water Agencies and the California Department of Water Resources, the program offers ideas and inspiration for permanently reducing water use – regardless of whether California is in a drought.

How to Get Involved

- Post a link to both our [English](#) and [Spanish](#) websites.
- Use the sample [Save Our Water newsletter article](#) for your organization's newsletter or magazine
- Add the Save Our Water logo to your water conservation material
- Follow us on Twitter [@saveourwater](#) and [Facebook](#) and Instagram.
- Participate in a partner webinar
- Help fund the statewide Save Our Water public education program
- Pledge to implement Save Our Water at the local level by placing ads or distributing materials in your local community

For Save Our Water material printed locally, the Save Our Water staff can provide all art and text in a "print ready" format. Your organization simply covers the cost of production and distribution.

Join the Effort

Example - Texas

- **2013, utilities *required* to report to state when supply is less than 180 days**
 - **Disaster relief funds / Safe Drinking Water Fund**
- **Regional Water Plans – identify potential alternative sources for small entities (pop <7,500) with single source; region specific model drought contingency plans; identify existing and potential interconnections**
- **All entities are supposed to develop drought contingency plans; submittal required if over 3,300; can use model**
- **Required to notify state if implement drought contingency plan within 5 days**

Example - Montana

- **Encourage irrigation districts and water user associations to develop and implement drought contingency plans.**
- **Law allows lease or sale of surplus or salvaged water (85-2-435, -415, -419 MCA).**
- **Renewable Resource Grant and Loan Program Emergency Fund - emergency situations (municipal water supply and streamflows to avert collapse of fisheries).**
- **Facilitate augmentation of streamflows through purchase of stored water, leasing of consumptive rights, and other innovative methods to solve dewatering on critical streams**
- **Maintain list of communities with water supply problems; assist with addressing system needs.**

Montana

(Cont.)

- **Technical assistance on water shortage planning**
- **Educational drought workshops.**
- **Have Livestock producers develop alternative supplies**
- **Environmental Contingency Account - Funding “for emergency projects to help solve immediate water-related problems faced by state and local governments... that, if delayed until legislative approval can be obtained, will cause substantial damage or a legal liability to the project sponsor.” May also purchase or lease water to augment low streamflow. See 75-1-1101 MCA.**

Agenda

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BREAK

- ✓ Drought Framework and 2015 Drought Response

LUNCH

- ✓ Examples of Other State's Response Tools

BREAK

- Discussion and Brainstorming
- Public Comment
- Next Steps

Brainstorming

Theme #1 – Drought Response Tools

- **Evaluate the sufficiency of existing tools to address short-term drought response needs and recommend additional tools to address short-term drought response needs;**
- **Identify options to minimize the impact of drought on agricultural, municipal, fish and wildlife, and other interests;**
- **Identify tools to assist small water providers in developing water management, conservation or efficiency plans and in anticipating drought risks and responses.**

Brainstorming

Theme #2 – Information and Data

- **Identify the data and resources necessary for anticipating drought and drought impacts on the economy, communities and the environment;**
- **Recommend improvements in information sharing necessary for enabling the public, water users and recreational in-stream users to understand drought conditions and to assist in efforts to mitigate or adapt to drought.**

Brainstorming

- **What tools are missing?**
- **How can the state be better prepared to respond to drought?**
- **What items would you like more information on at future meetings?**