

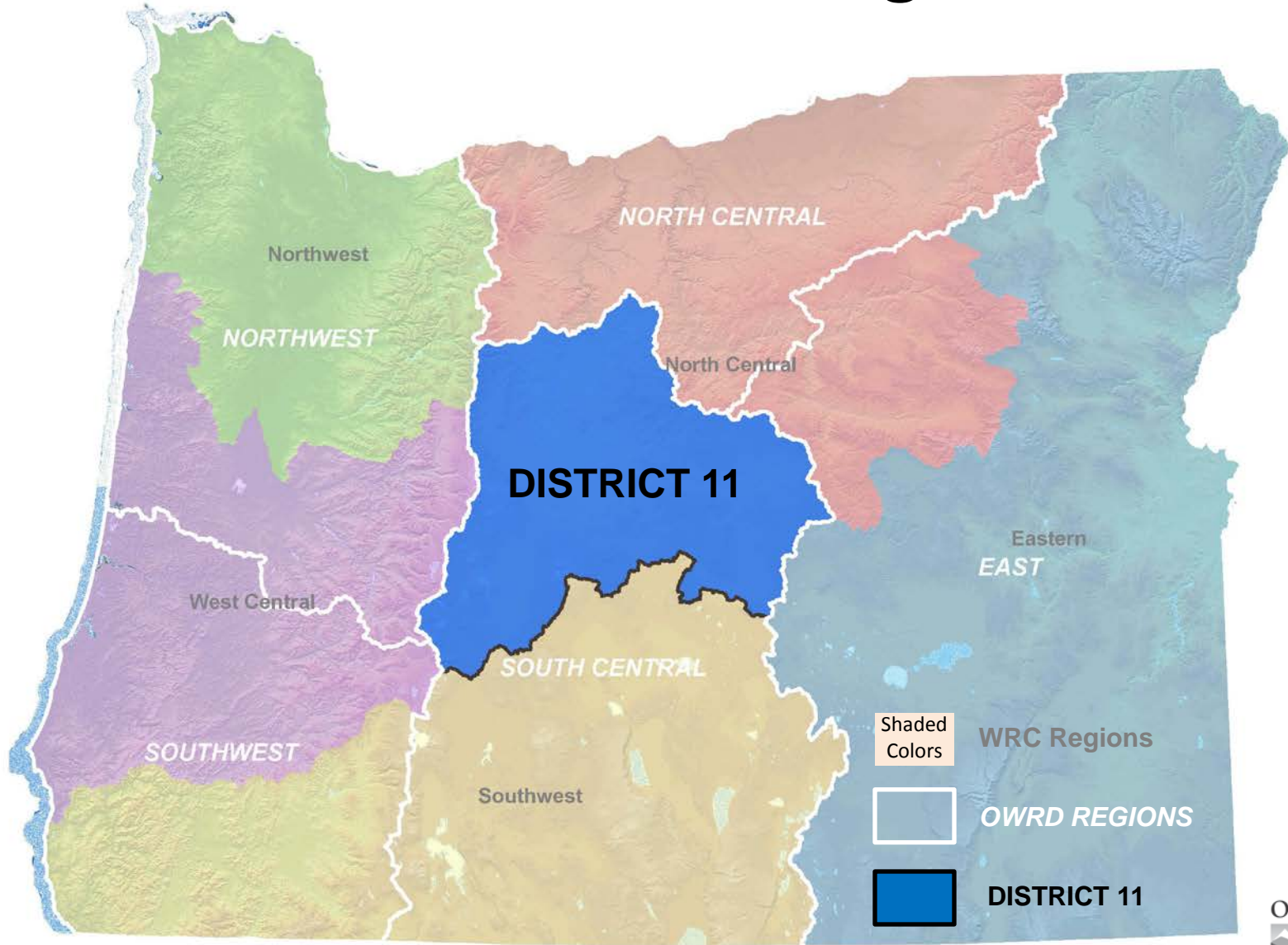
Overview of the Upper Deschutes River Basin and OWRD District 11

Jeremy Giffin, District 11 Watermaster
Oregon Water Resources Department
June 14, 2018

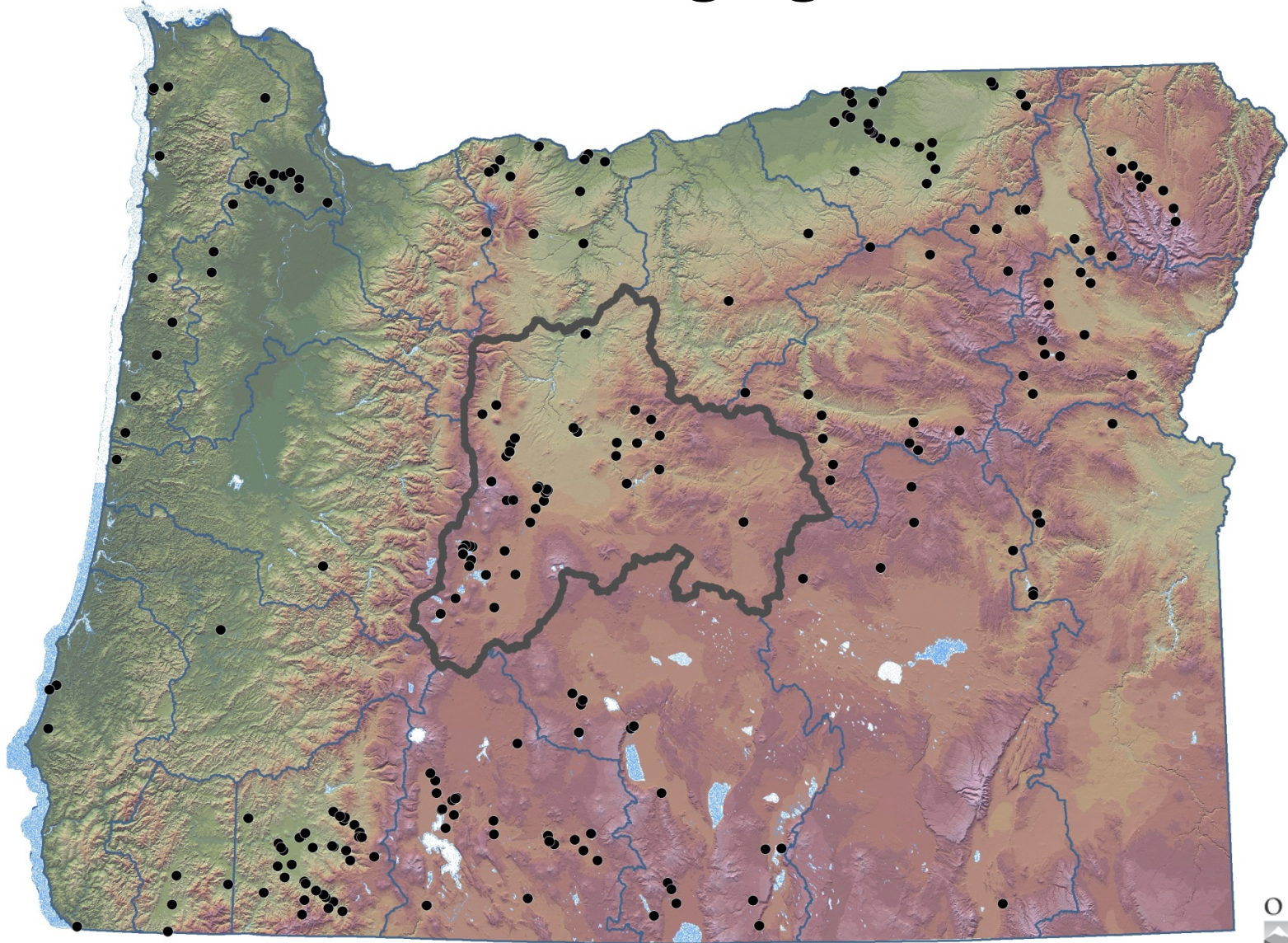


*Photo: Mike Putnam, www.mikeputnamphoto.com
Headwaters of the Upper Deschutes River*

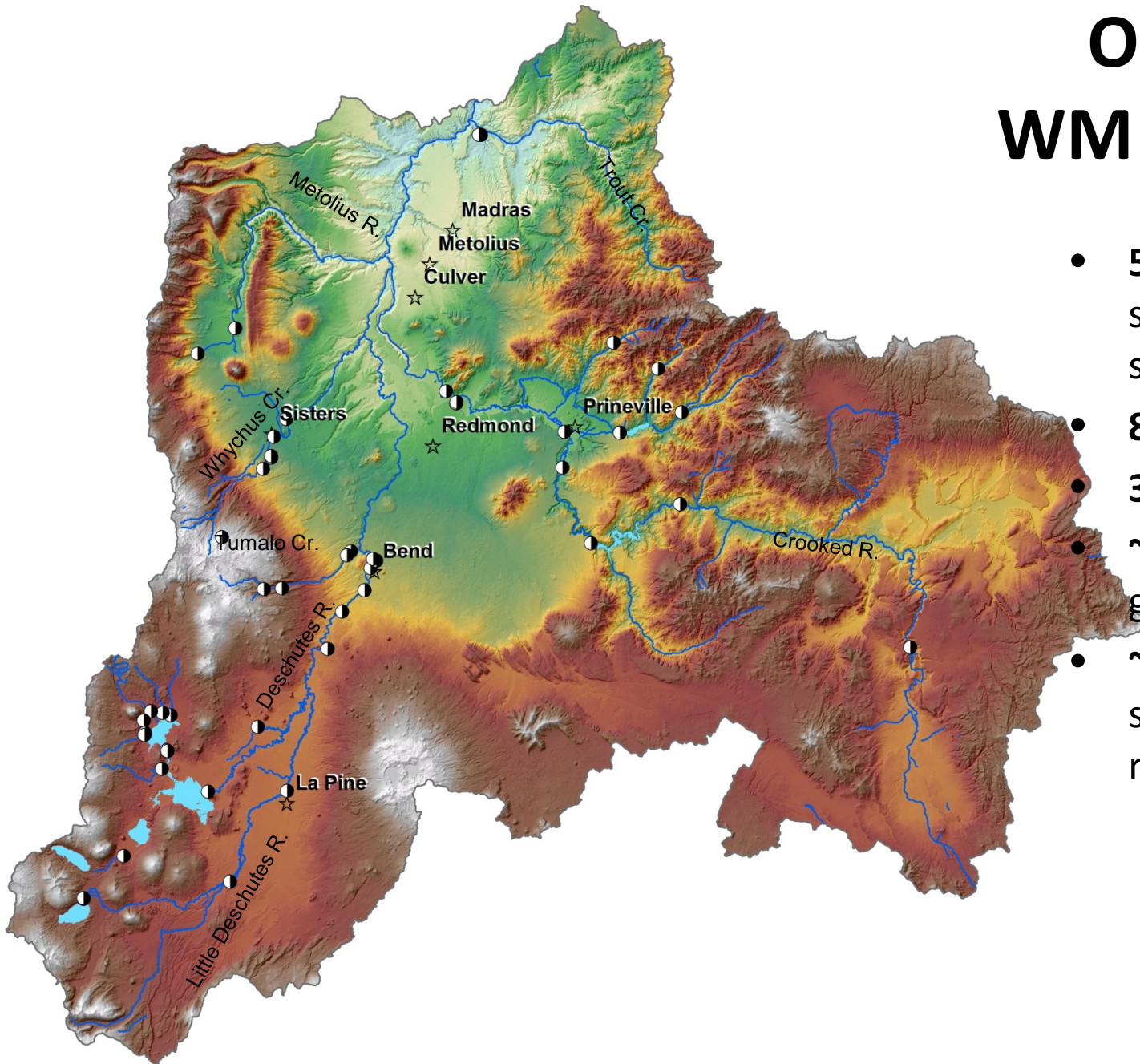
WRC and OWRD Regions



~260 OWRD Gaging Stations



Overview of WM District 11

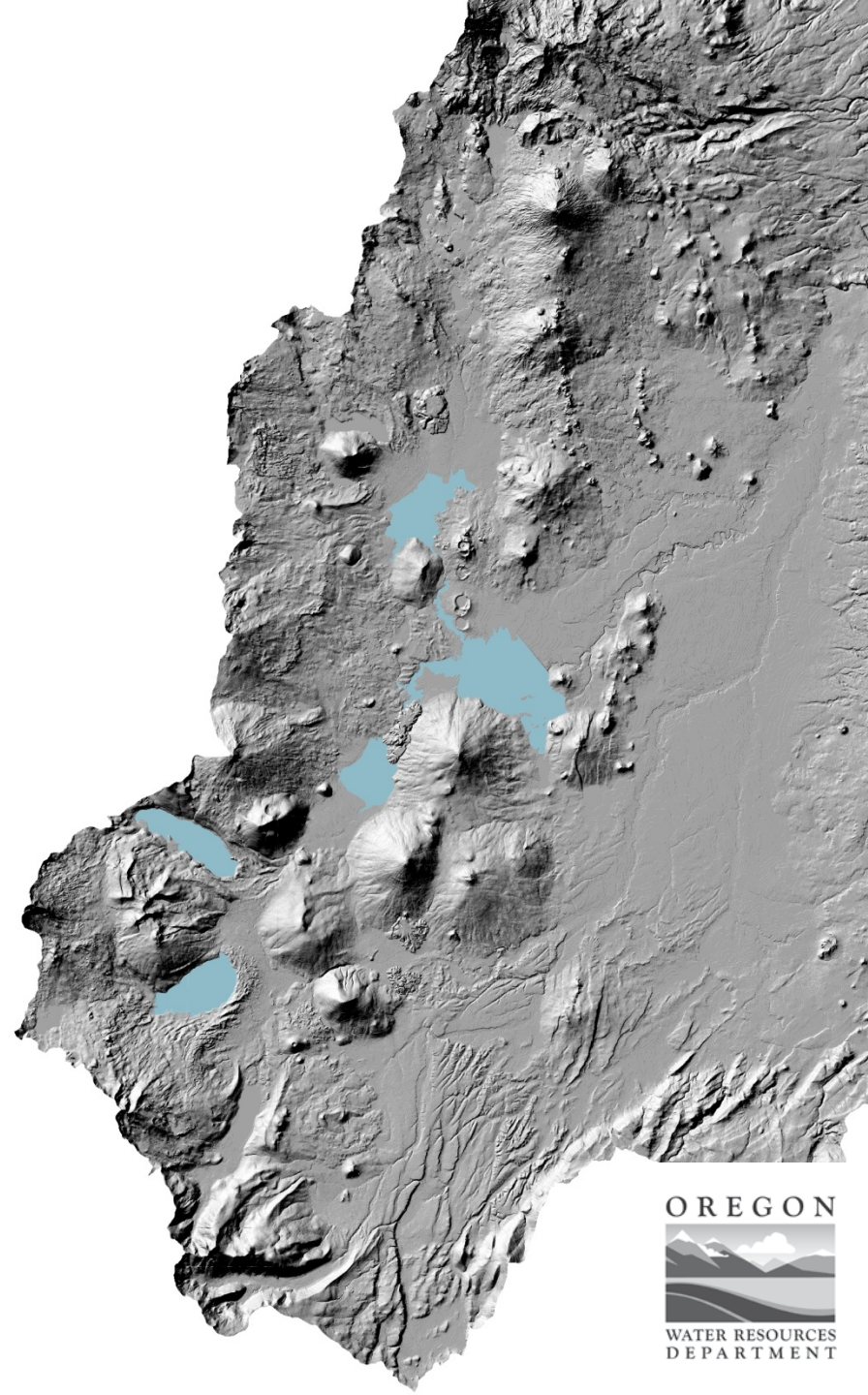


- **54** Stream Gaging stations (most in state)
- **8,576** Square Miles.
- **3,041** Water rights.
- **~58,000** acres of groundwater rights.
- **~250,000** acres of surface water rights.

Upper Deschutes

Geology and Geography

- High Cascade mountains drive the weather and water for us.
- 150-200 inches per year of precipitation at the Crest of the Cascades
- Young, porous lavas, tuffs, sands, gravels
- Large “sponge” collects and holds vast underground reservoir.
- ***Can you see typical river landscape features in the Upper Deschutes?***



OREGON

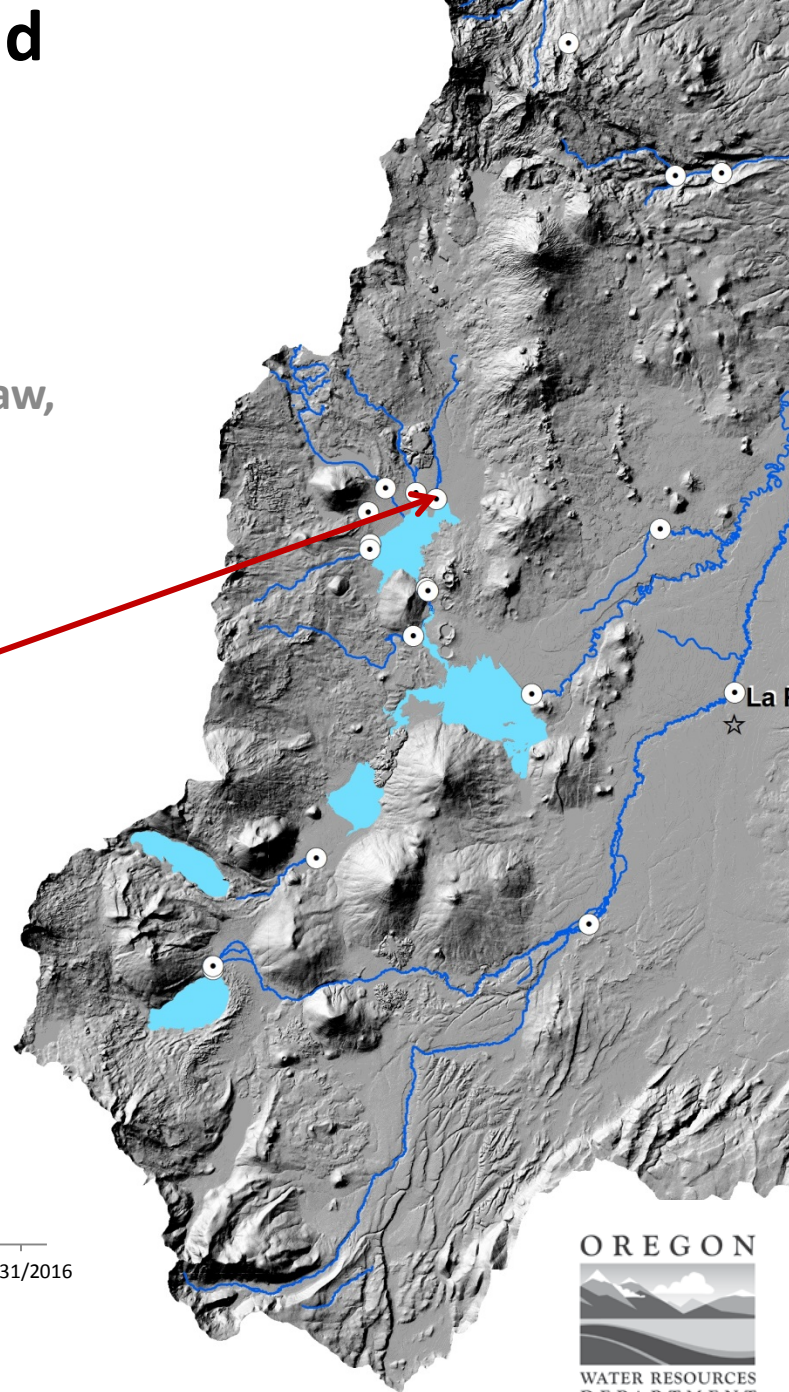
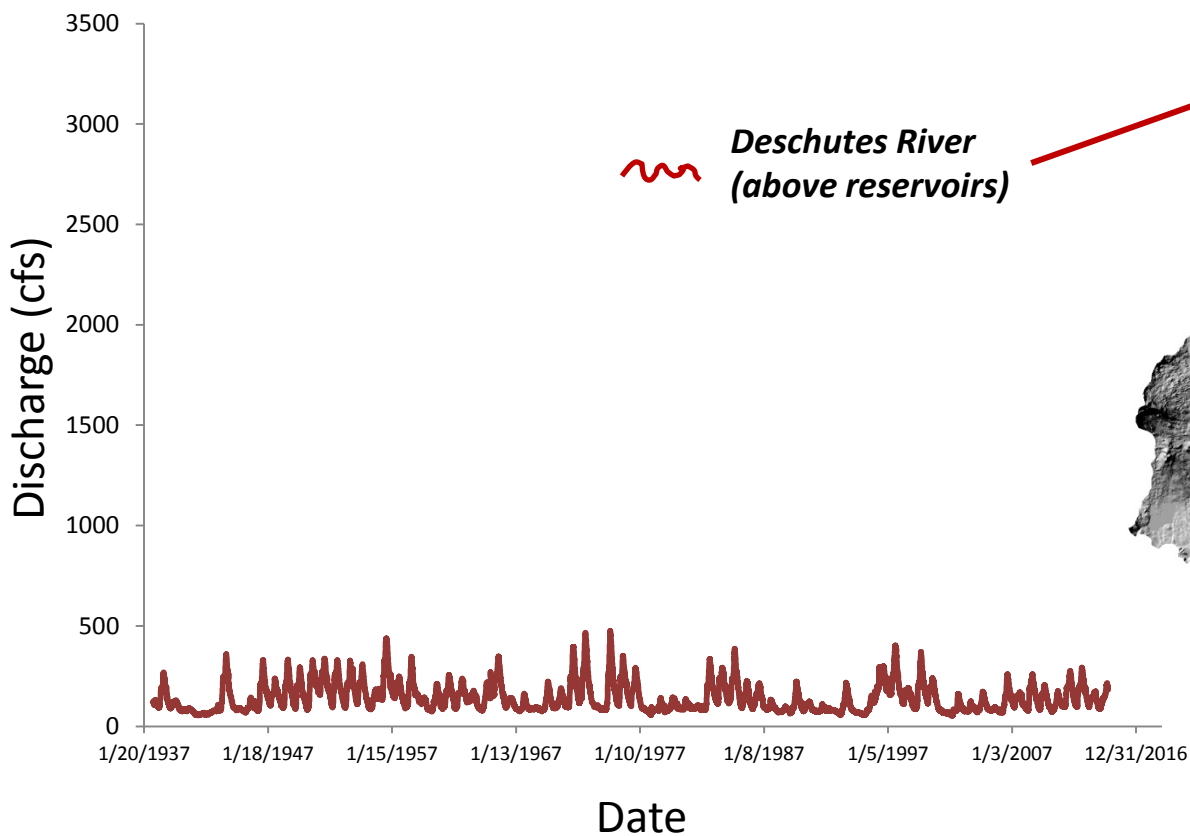


WATER RESOURCES
DEPARTMENT

Extremely uniform flow year-round and year to year

“The flow of the River is more remarkably uniform than that of any other river in the United States comparable with it in size,…”

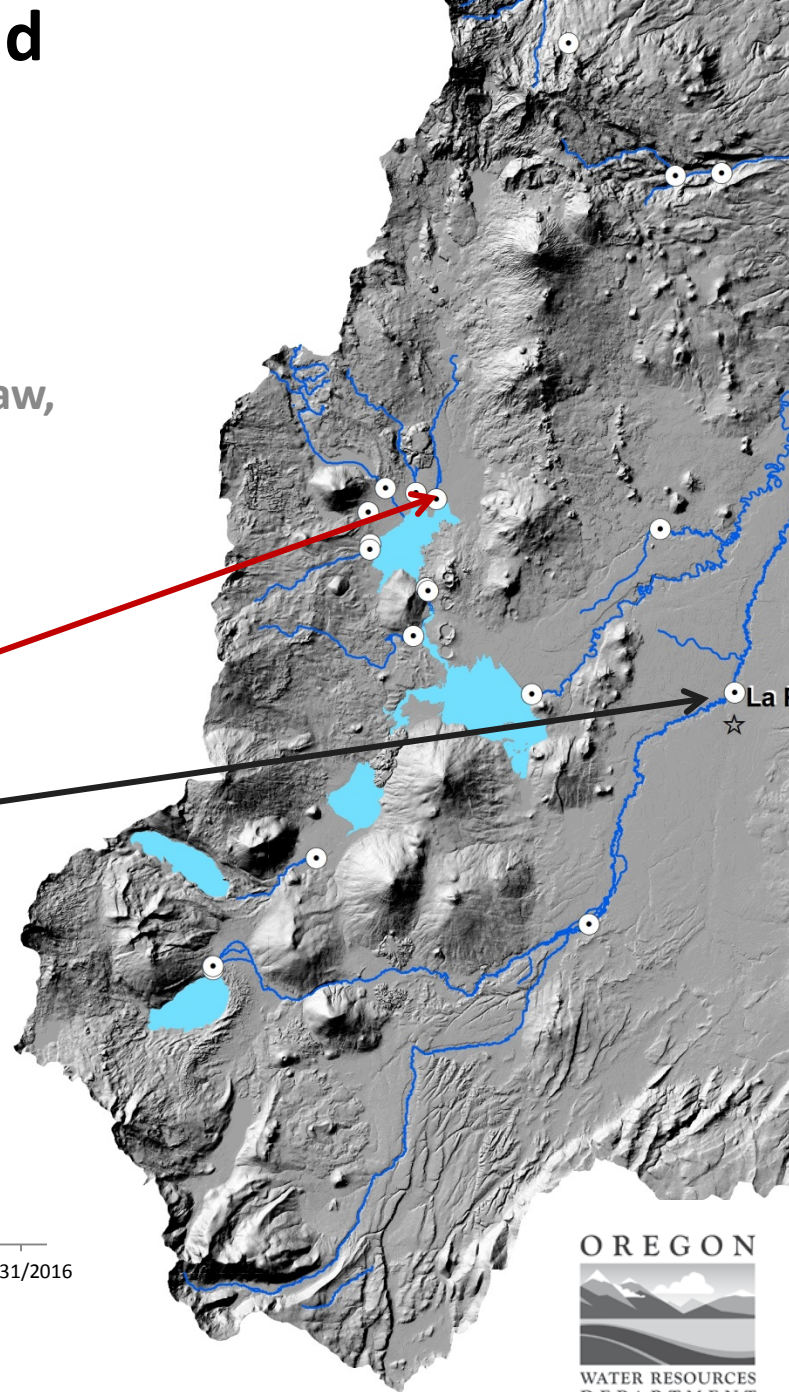
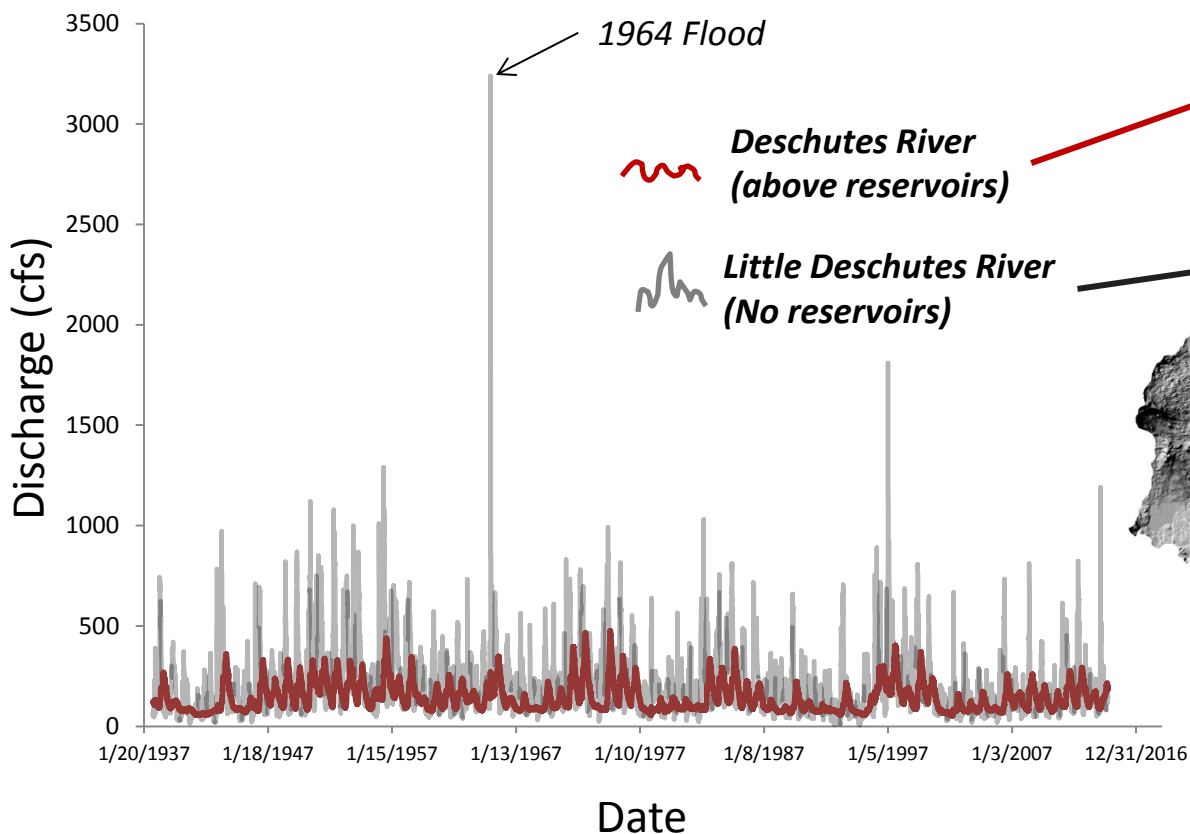
Deschutes River, Oregon and Its Utilization, Henshaw, Lewis and McCaustland, 1914



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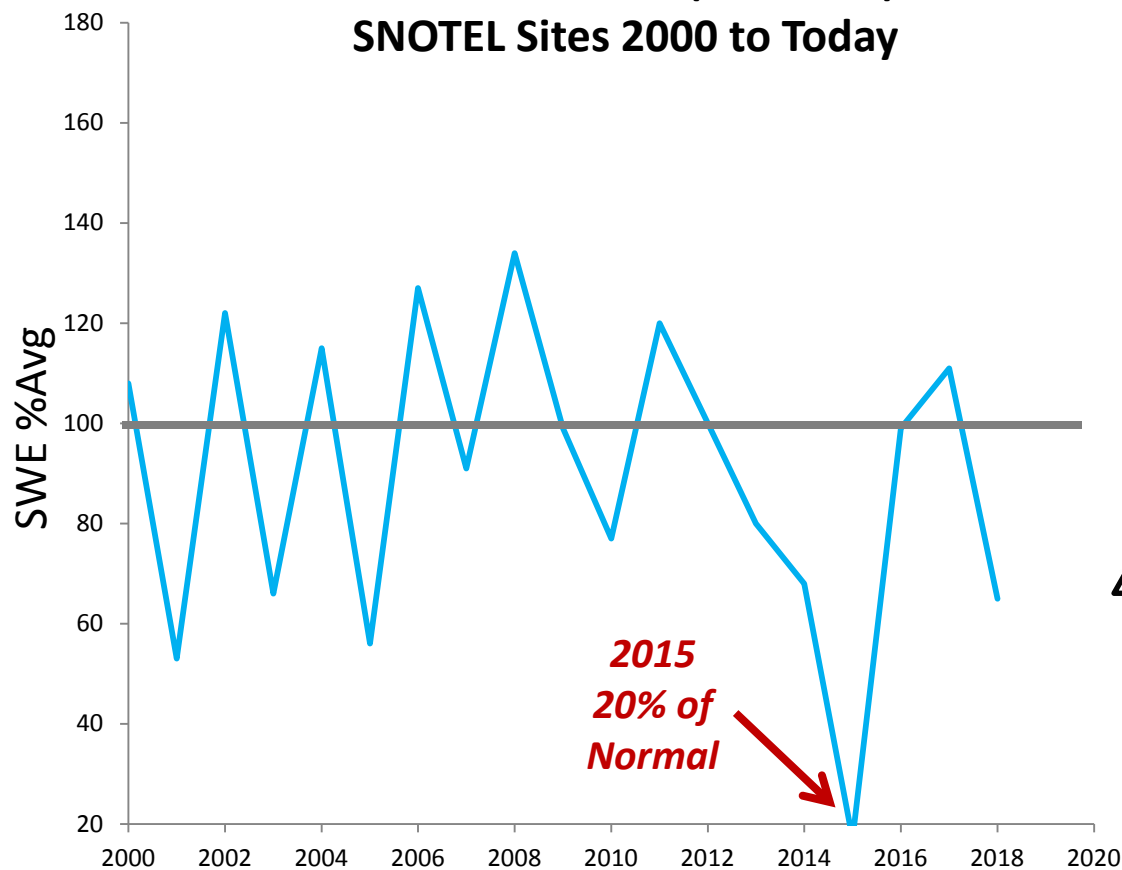
Deschutes River, Oregon and Its Utilization, Henshaw, Lewis and McCaustland, 1914



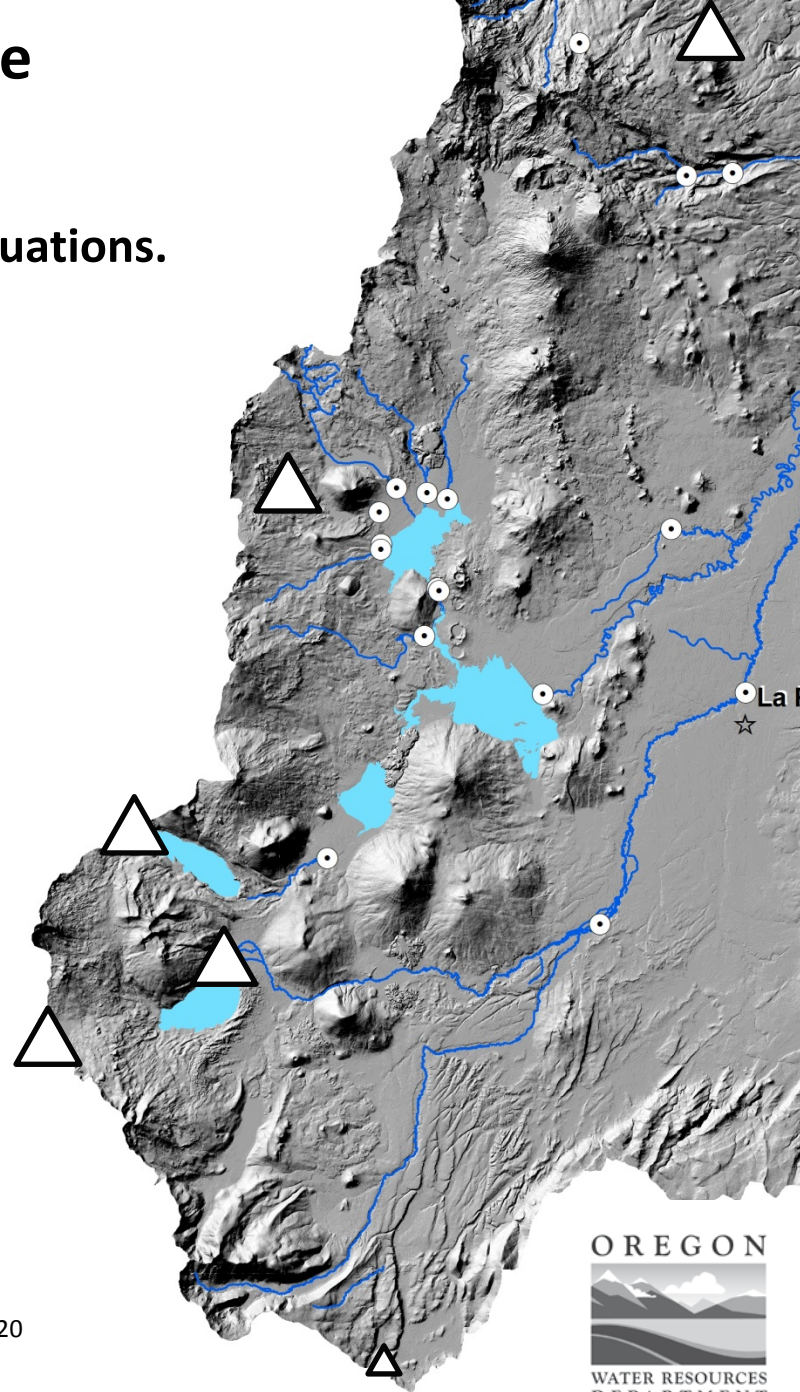
Annual variability , Snowpack, Storage

- 9 SNOTEL Sites in Deschutes basin (5 in High Cascades) show strong annual snowpack fluctuations.

Average Snow Water Equivalent for Deschutes Basin (Cascades) SNOTEL Sites 2000 to Today

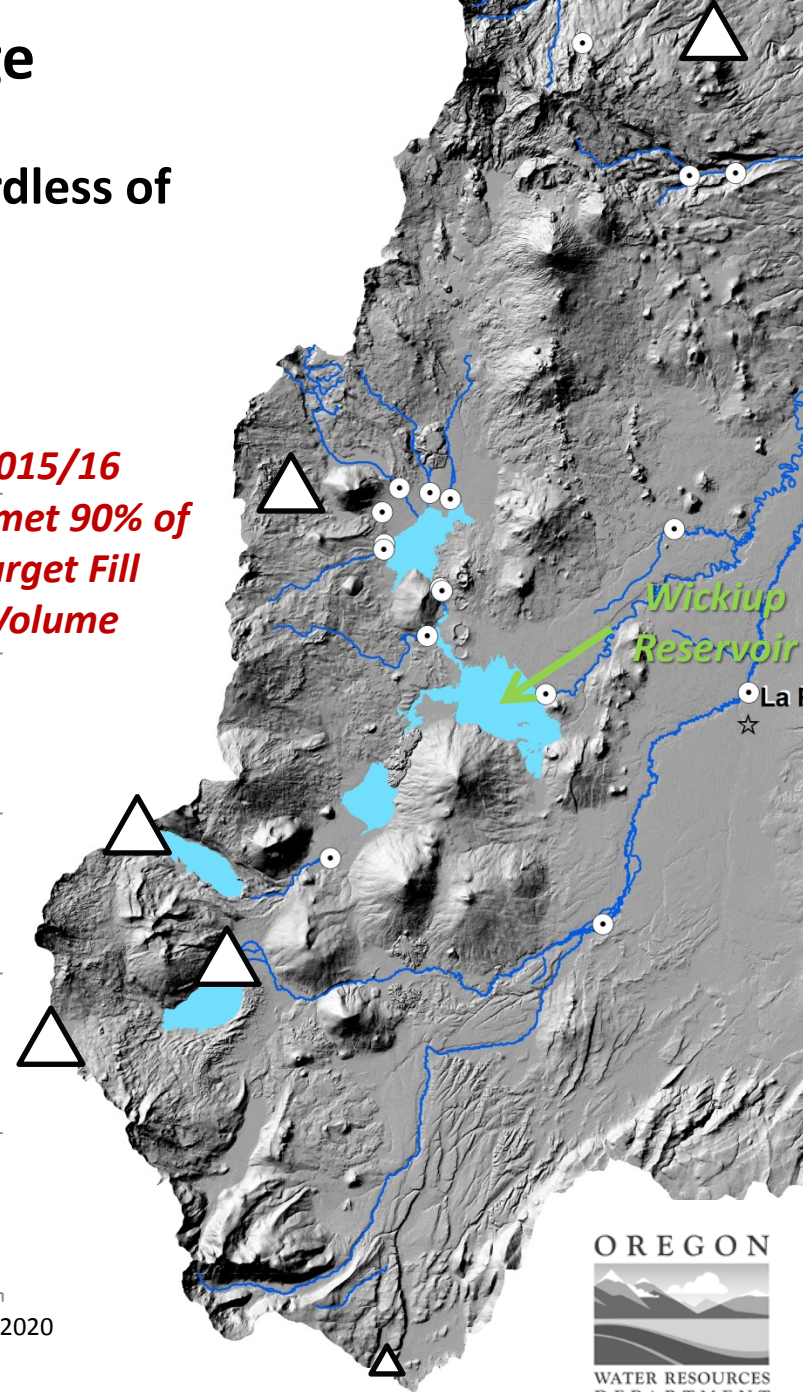
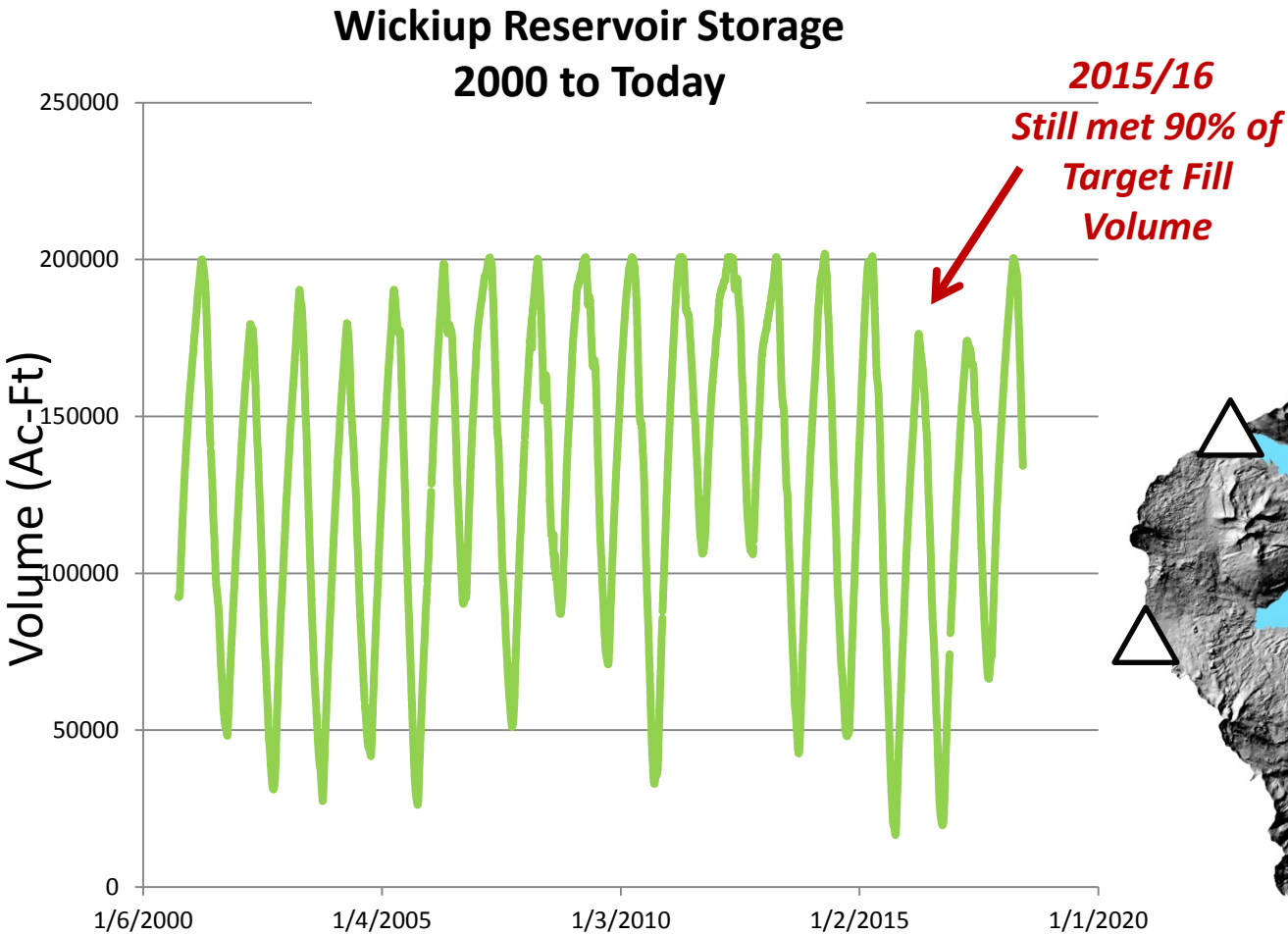


2015
20% of
Normal



Annual variability , Snowpack, Storage

- Wickiup Reservoir Fills or Almost Fills Regardless of Snowpack Variation



Deschutes River Then and Now

- 1913 All surface water appropriated.
- 1922-1949 Storage facilities in place.
- Next 50+ years the river system operates “normally” under this regulating system.
- Increased need for recreation and conservation.
- Increased flows below Bend from 30 CFS to 130 CFS through leasing and conserved water.
- Flows in the Upper Deschutes increase from 20 CFS to 100 CFS.



Upper Deschutes Groundwater Study and Mitigation

Upper Deschutes Zone of Impact

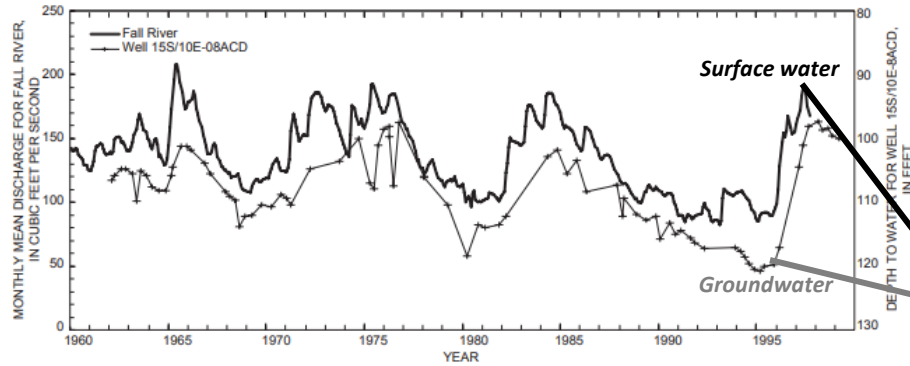
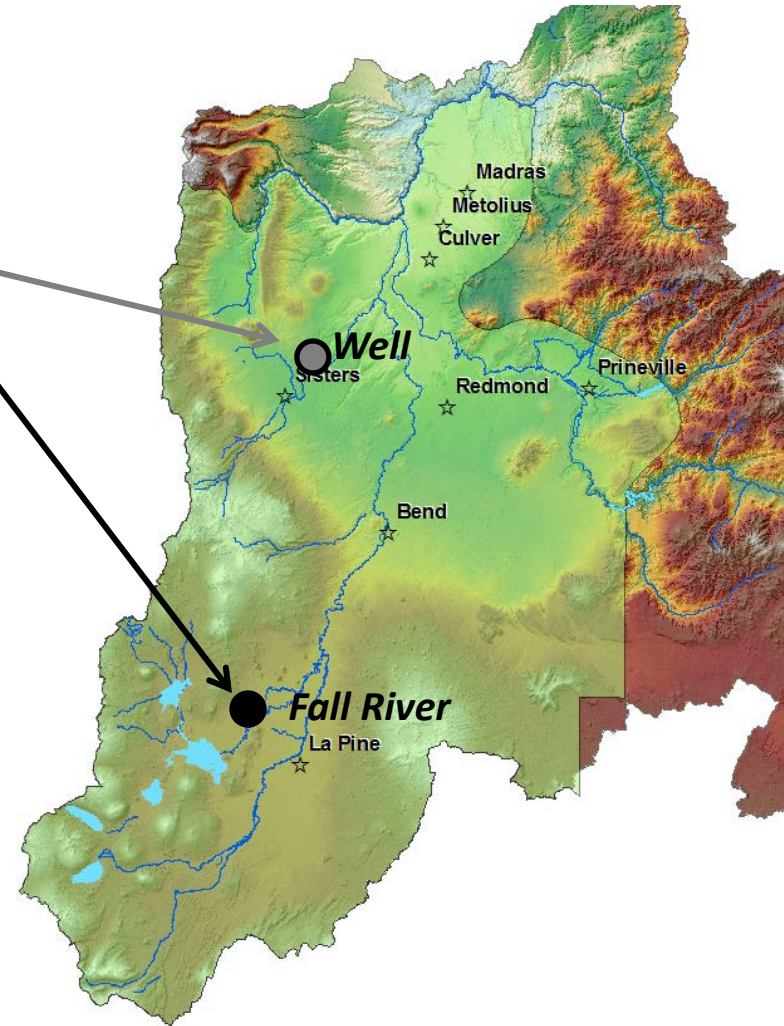


Figure 38. Relation between monthly mean discharge of Fall River and static water-level variation in a well near Sisters, Oregon, 1962–97.



- USGS/OWRD Ground Water Study 1998 found *direct connection between surface water and groundwater, thus Scenic Waterway would be affected by any new ground water rights.*
- Mitigation required for new ground water rights in the Deschutes Basin study area.
 - September 13, 2002 rules adopted for mitigation and mitigation banks (Division 505 and 521).
 - HB 3494 passed in 2005 confirming mitigation rules.
- 149 cfs final order/permitted out of cap.

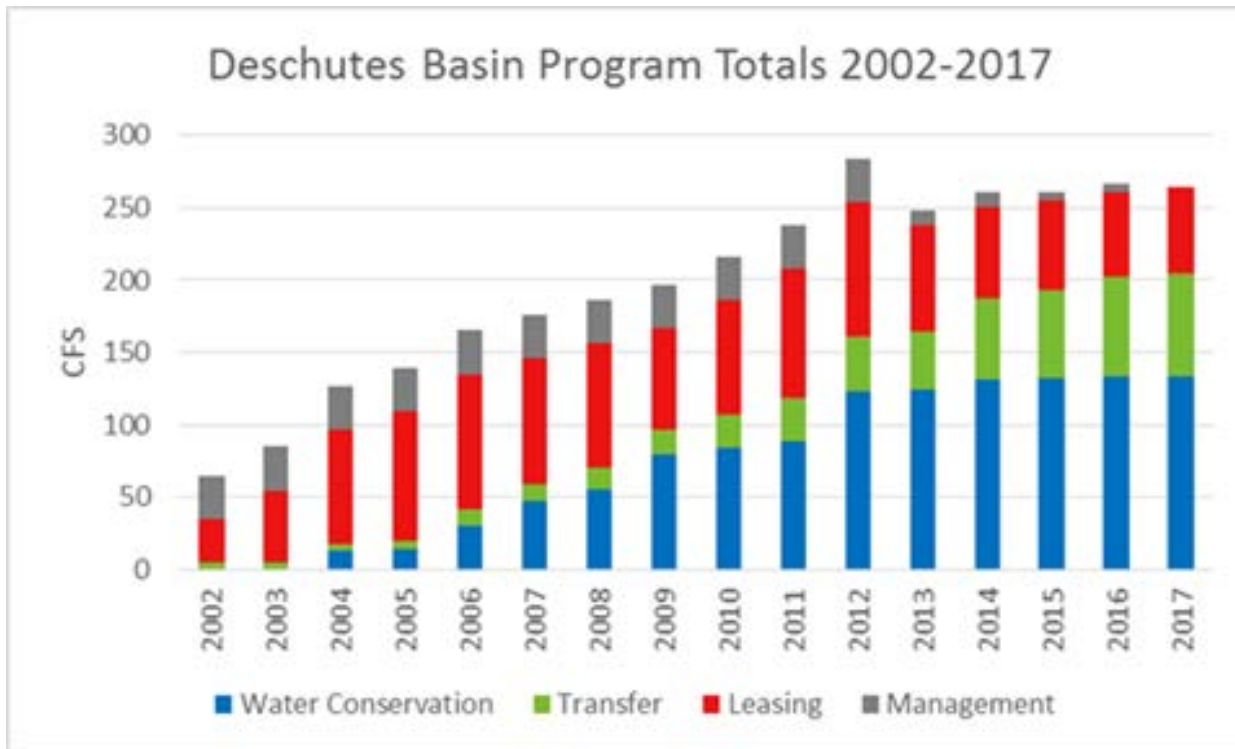
Upper Deschutes River Mitigation Basics

- Any new water right use in the “zone of impact” must be offset (i.e., mitigated)
- Mitigate for the consumptive use only (“bucket taken out, bucket put back in”)
- Domestic (exempt) wells are not included



Instream Accomplishments

- ~200 cfs permanent instream water rights.
- ~60 cfs annual instream leasing.



An illustration of a spotted frog in a pond. The frog is light brown with dark spots and is positioned in the water, with its head above the surface. The background features green reeds and a blue sky. The text 'FROG WATER' is written in large, light blue, bold letters across the frog's body. Below it, 'FRESH HOP IPA' is written in smaller, light blue, bold letters.

FROG WATER

FRESH HOP IPA

PROCEEDS  BENEFIT
DISCOVER
YOUR FOREST

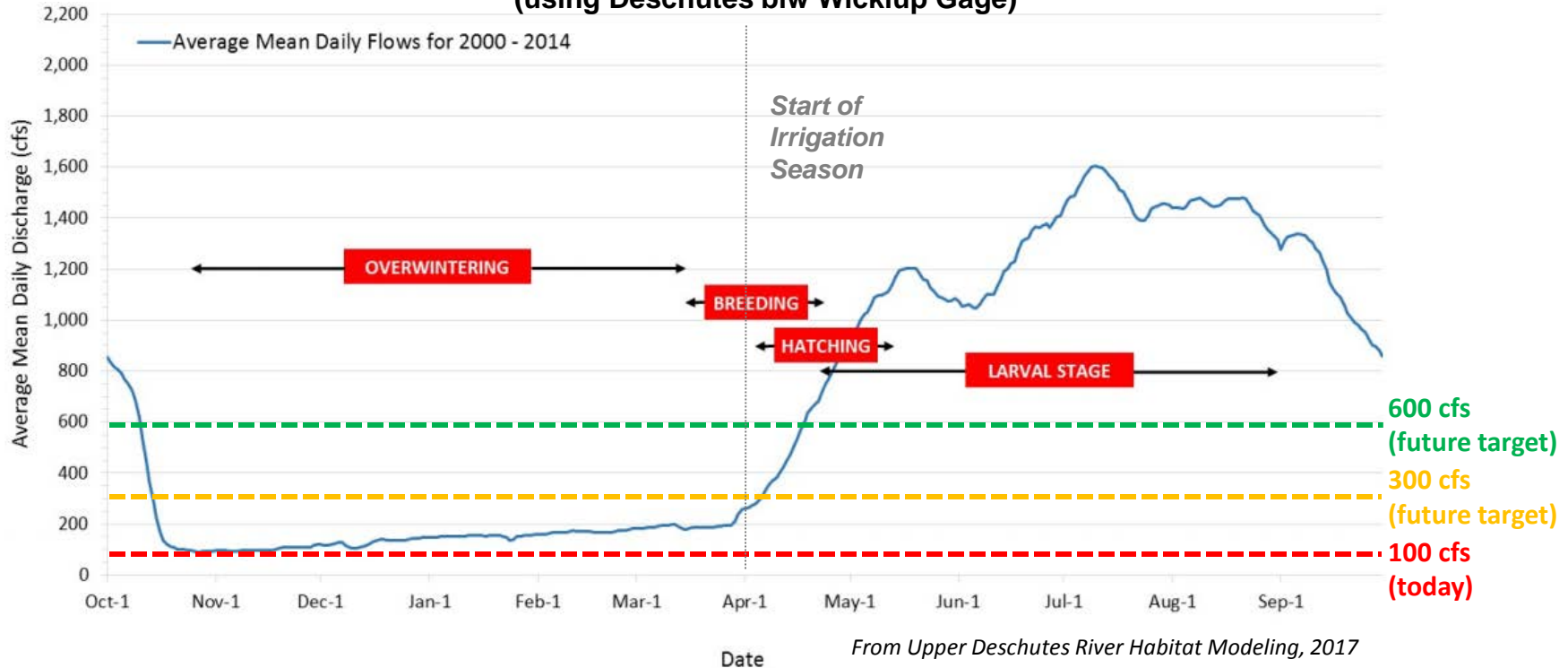
INDIA PALE ALE | 1 PINT & 6 FL OZ (650 ML)

ALC BY VOL 6.5% IBUs 70 OG 1.065 FG 1.015

The Spotted Frog hops in....

Current and Future Flows For Frog in Upper Deschutes

Typical River Discharge in the Upper Deschutes
(using Deschutes blw Wickiup Gage)



- **November 2016 stipulated agreement....**
 - 100 CFS minimum flow out of Wickiup.
 - April 1st 600 cfs minimum for remainder of irrigation season.
 - 30 CFS minimum out of Crescent lake.
 - Crane Prairie to be operated for Frogs.

Future challenges

- Water use and marijuana (~70 current and pending apps in Deschutes County).
- Continue increased instream flows.
- Balancing the current flows with Agriculture, Ecosystem and Population Growth.



Questions?

www.oregon.gov/owrd (our website)

www.or.nrcs.usda.gov/snow/data/current.html (SNOTEL)

www.usbr.gov/pn/hydromet/destea.html (*Deschutes Basin Interactive Gages*)

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**Aubrey Perry
(Watermaster 1933-1960)
and Jack Frost (NRCS)
measuring snowpack in
Dutchman Flat area Circa
1940-1945.**

