Agenda Item E – Informational Report

OREGON
WATER RESOURCES
DEPARTMENT

Discussion on Groundwater Allocation

Douglas Woodcock, Deputy Director
Ivan Gall, FSD Administrator
Justin Iverson, Groundwater Manager
March 17, 2022

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Recap of Dec 3, 2021 meeting

"From the standpoint of groundwater conservation and statutory or other regulation, the following point should be emphasized: <u>All water discharged by wells is balanced by a loss of water somewhere.</u>"

- C.V. Theis, 1940: The Source of Water Derived From Wells

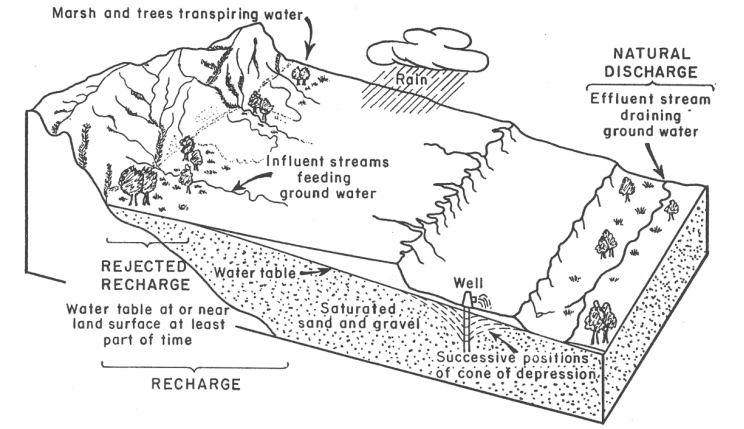

Figure 1—Factors controlling response of an aquifer to discharge by wells

Source: Theis, C.V., The Source of Water Derived From Wells; Essential Factors Controlling the Response of an Aquifer to Development. First published by the American Society of Civil Engineers in its Civil Engineering magazine (p. 277-280), Available online at *https://water.usgs.gov/ogw/pubs/Theis-1940.pdf*

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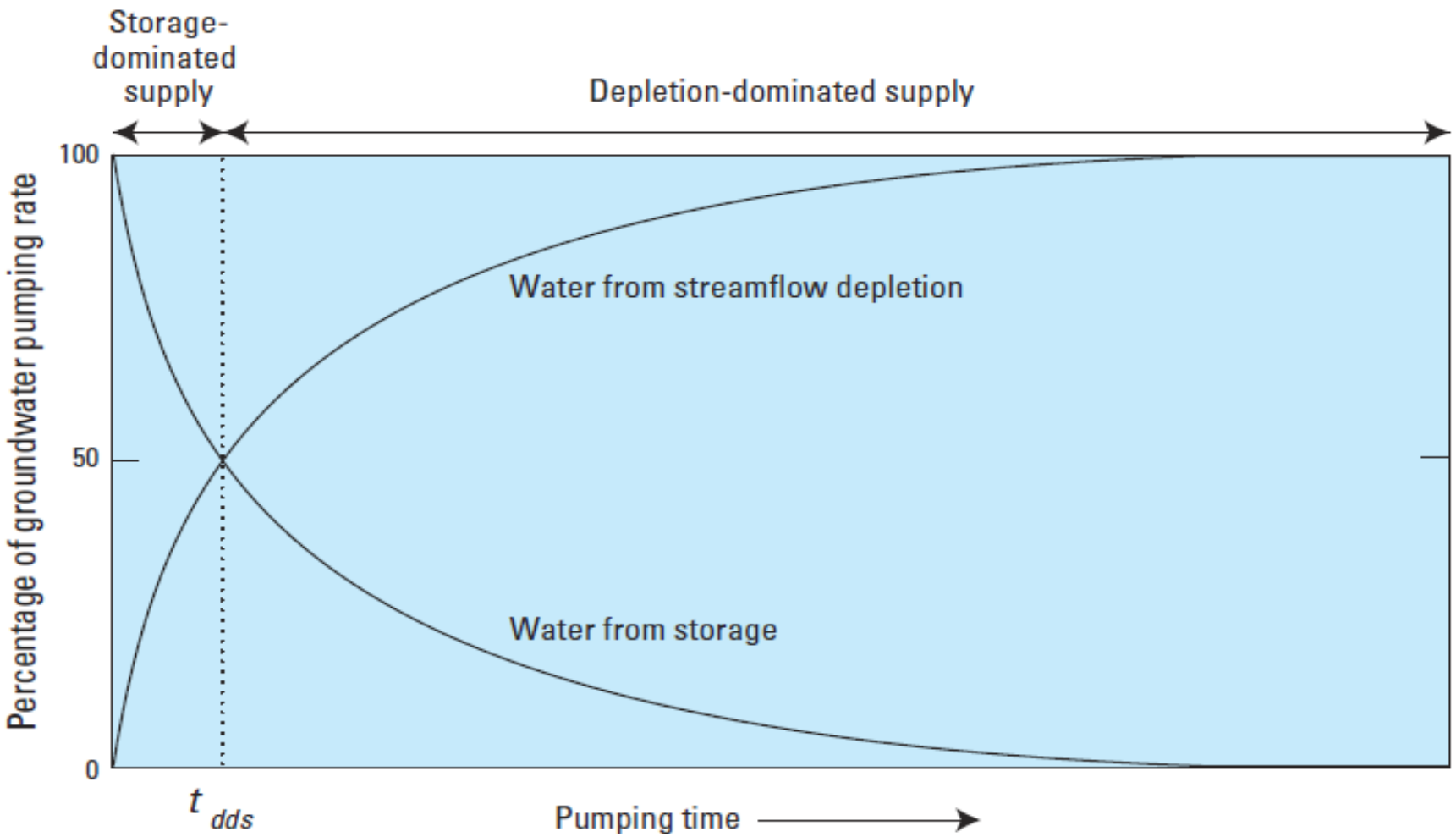
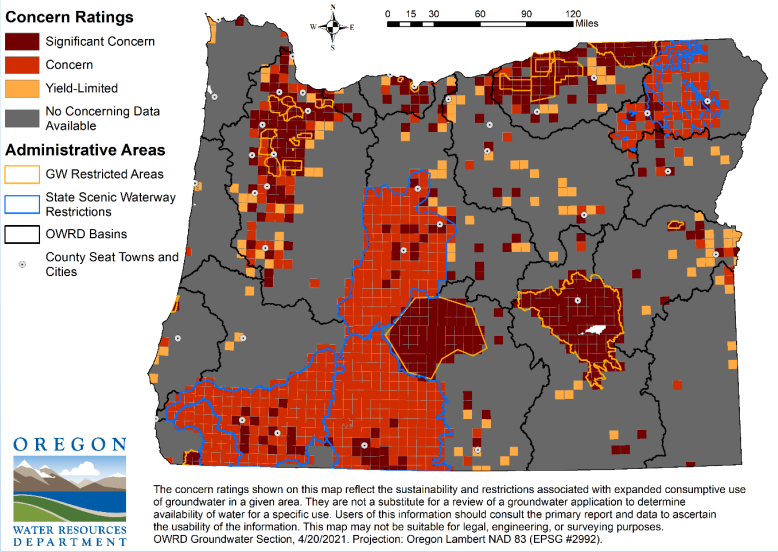
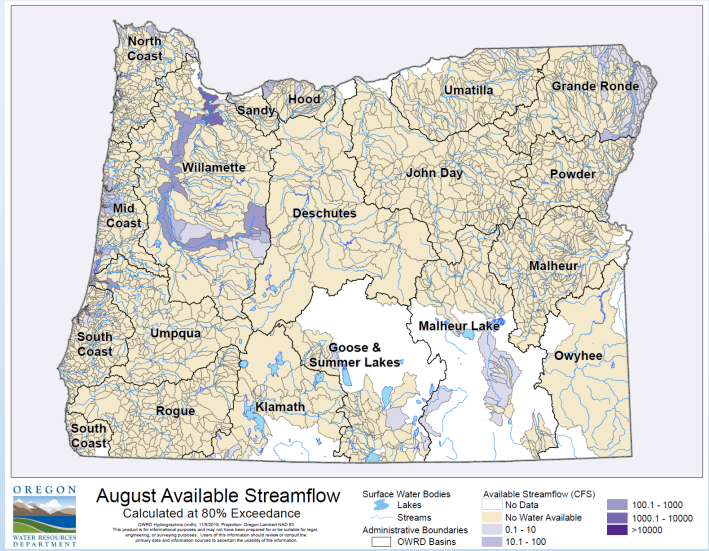


Figure Source: Barlow, P.M., and Leake, S.A., 2012, Streamflow depletion by wells—Understanding and managing the effects of groundwater pumping on streamflow: U.S. Geological Survey Circular 1376, 84 p. (Also available at *http://pubs.usgs.gov/circ/1376/*.)

Recap of Dec 3, 2021 meeting

- Long term impacts and cumulative impacts are not assessed during the GW review process.
- The result of this over the past 50+ years is areas of GW level declines and reduced SW flows, both at the expense of senior users of GW and SW.





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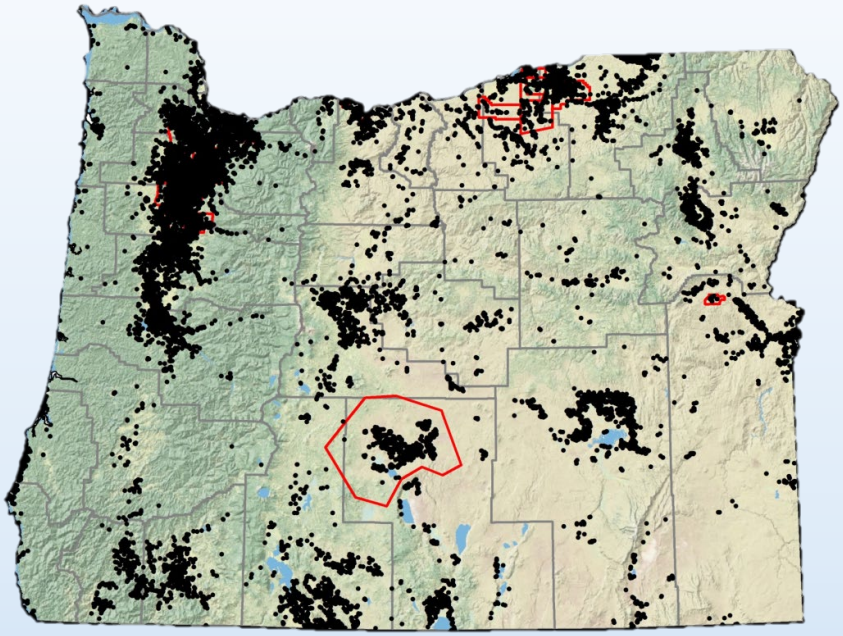

WRC direction:

- Develop recommendations to update the groundwater allocation review process
- This is a high priority that should be acted on in 2022

Figure Source: OWRD, Location of approximately 25,000 water right wells as of 2016

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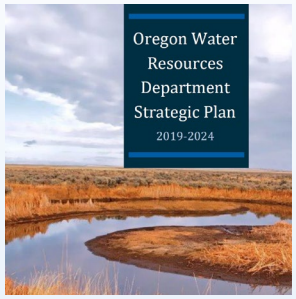
Recommendations

Basis in Rule, Policy, and Planning

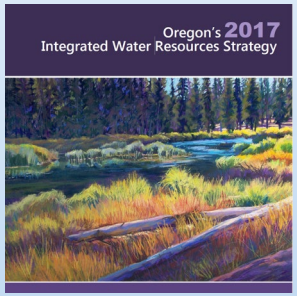
Division 400 and 410 Policies and Principles

Groundwater and surface water shall be managed conjunctively where to do so will protect water resources, existing water rights, and the public interest



2019 Strategic Plan

Modernize our management of Oregon's surface water and groundwater resources to meet instream and out-of-stream uses



2017 IWRS RA-11.E

Develop additional groundwater protections

Basis in Rule, Policy, and Planning

Division 400 Definitions

(11)(a) “Over-Appropriated” means a condition of water allocation in which:…

(B) The appropriation of groundwater resources by all water rights exceeds the average annual recharge to a groundwater source over the period of record or results in the further depletion of already over-appropriated surface waters.

Primary Goals

- Address allocation with a long-term, basin-wide perspective: Is water available for additional consumptive use?

- Establish criteria to support definitive findings
  - Eliminate “cannot be determined”

Photo Source: OWRD

Concepts

Three main concepts for updating the technical groundwater review process based on augmenting the Division 400 definition of "over-appropriated":

1. Define reasonably stable groundwater levels
2. Define impacts to already over-appropriated surface waters using WARS
3. Further define impacts to already over-appropriated surface waters using regulation history

Photo Source: OWRD

Concept 1 – GW assessment

Over-appropriation defined in Div 400(11)(a)"(B) The appropriation of groundwater resources by all water rights ["OUT"] exceeds the average annual recharge to a groundwater source ["IN"] over the period of record"

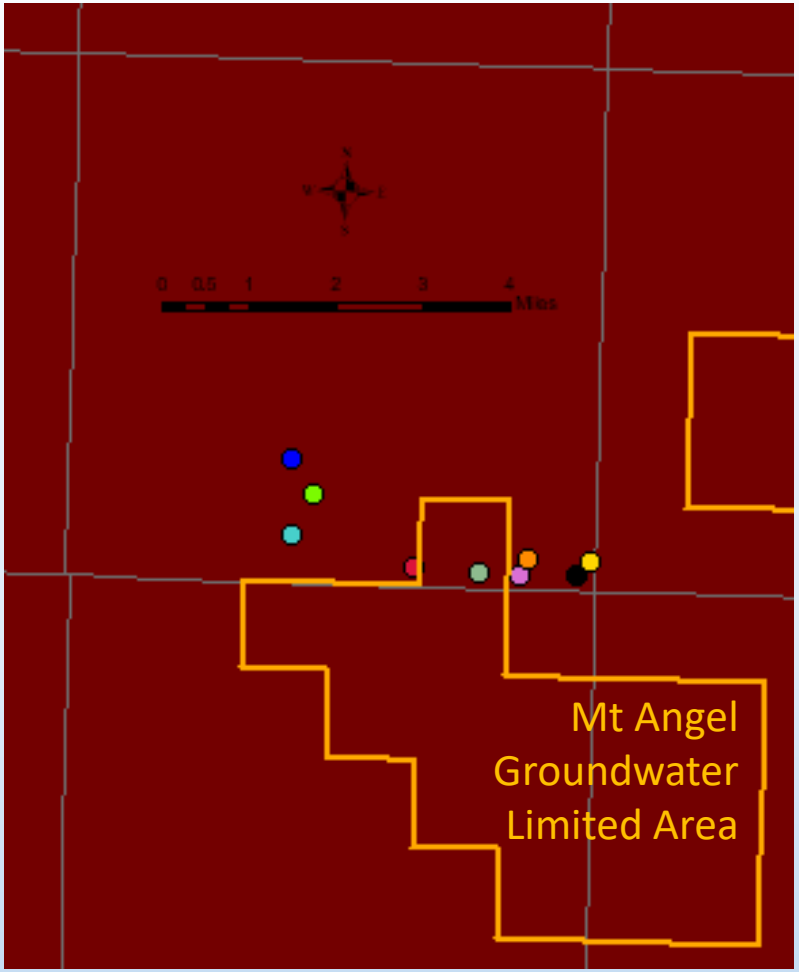
Don't have actual appropriation values, "OUT"

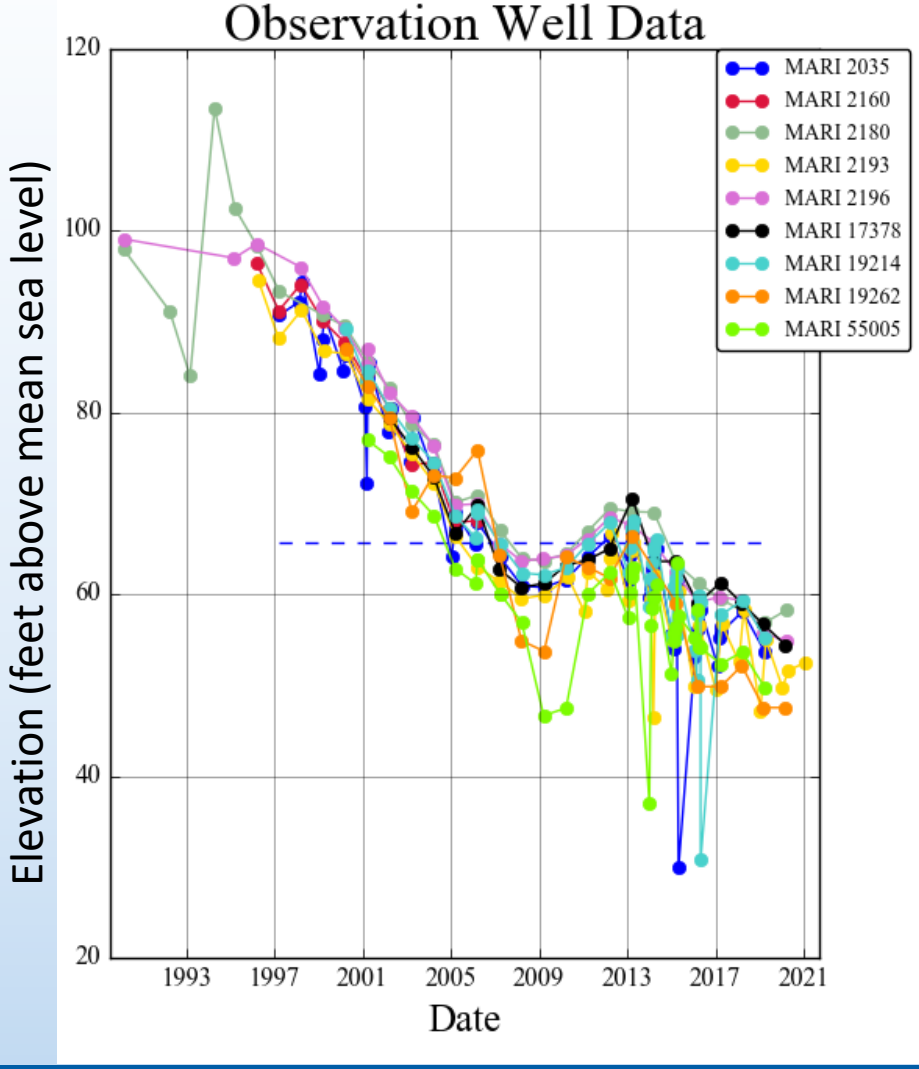
Don't have average annual recharge on a scale that matches geologic (aquifer) complexity, "IN"

But…IN – OUT = Change in storage

Photo Source: OWRD

Concept 1 – GW assessment





Source: WRC June 3, 2021 presentation, Item H – Groundwater Resource Concerns

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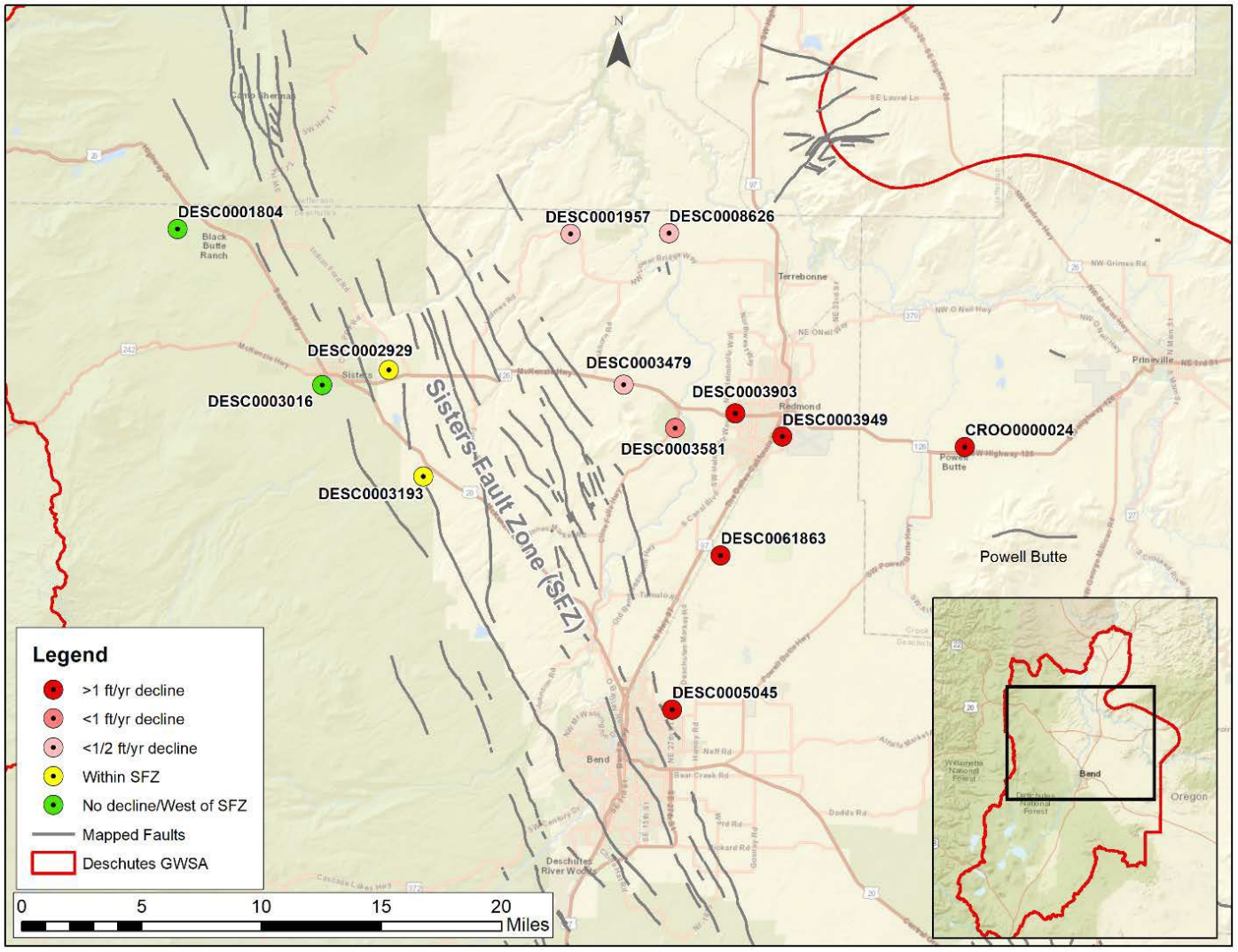
Concept 1 – GW assessment



Source: OWRD Memo in response to a Technical Assistance Request from the Deschutes Basin Water Collaborative Groundwater Mitigation Technical Committee : Groundwater mitigation program purpose and groundwater level trends, dated 8/30/2021

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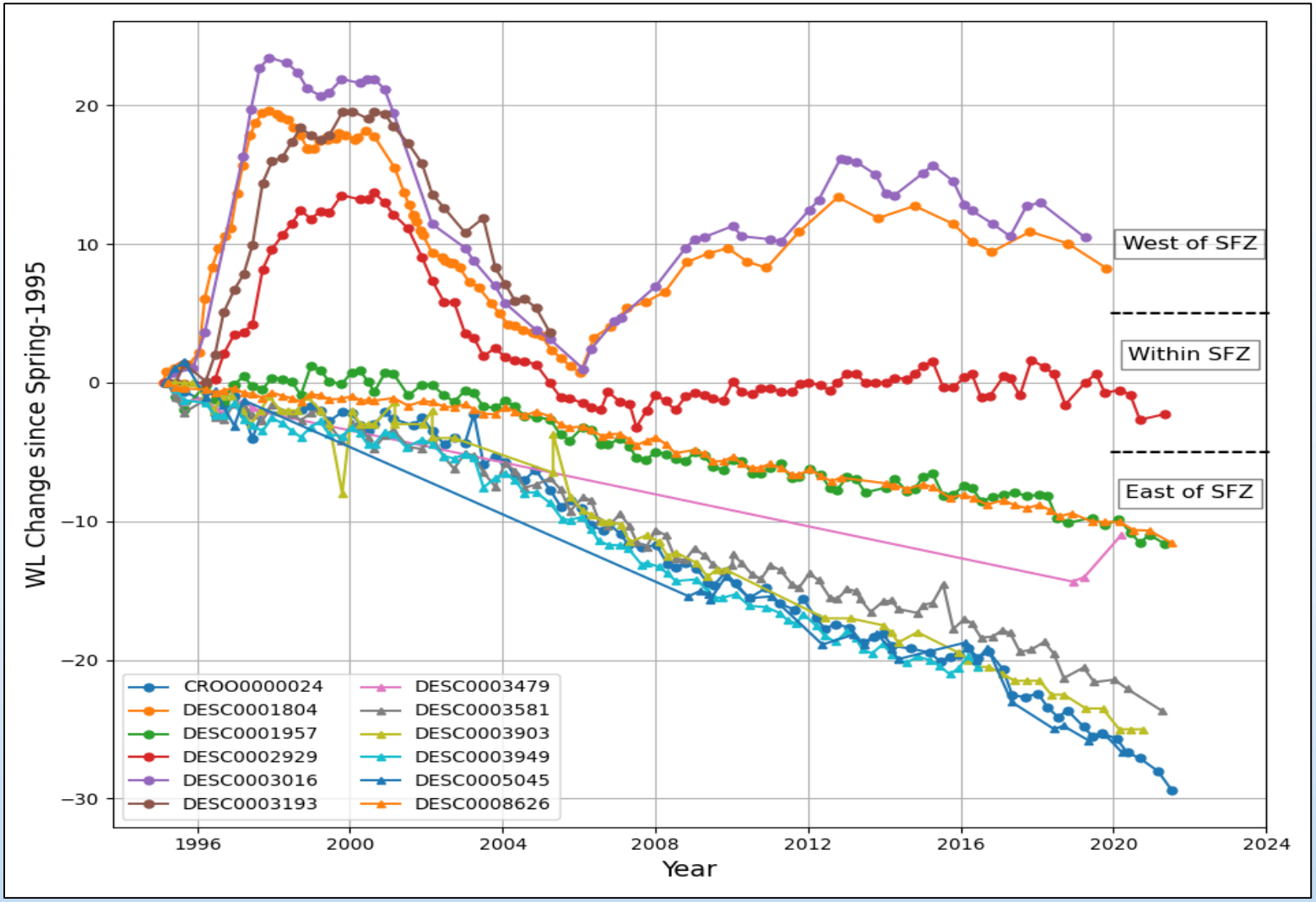
Concept 1 – GW assessment



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Concepts 2 & 3 – SW availability

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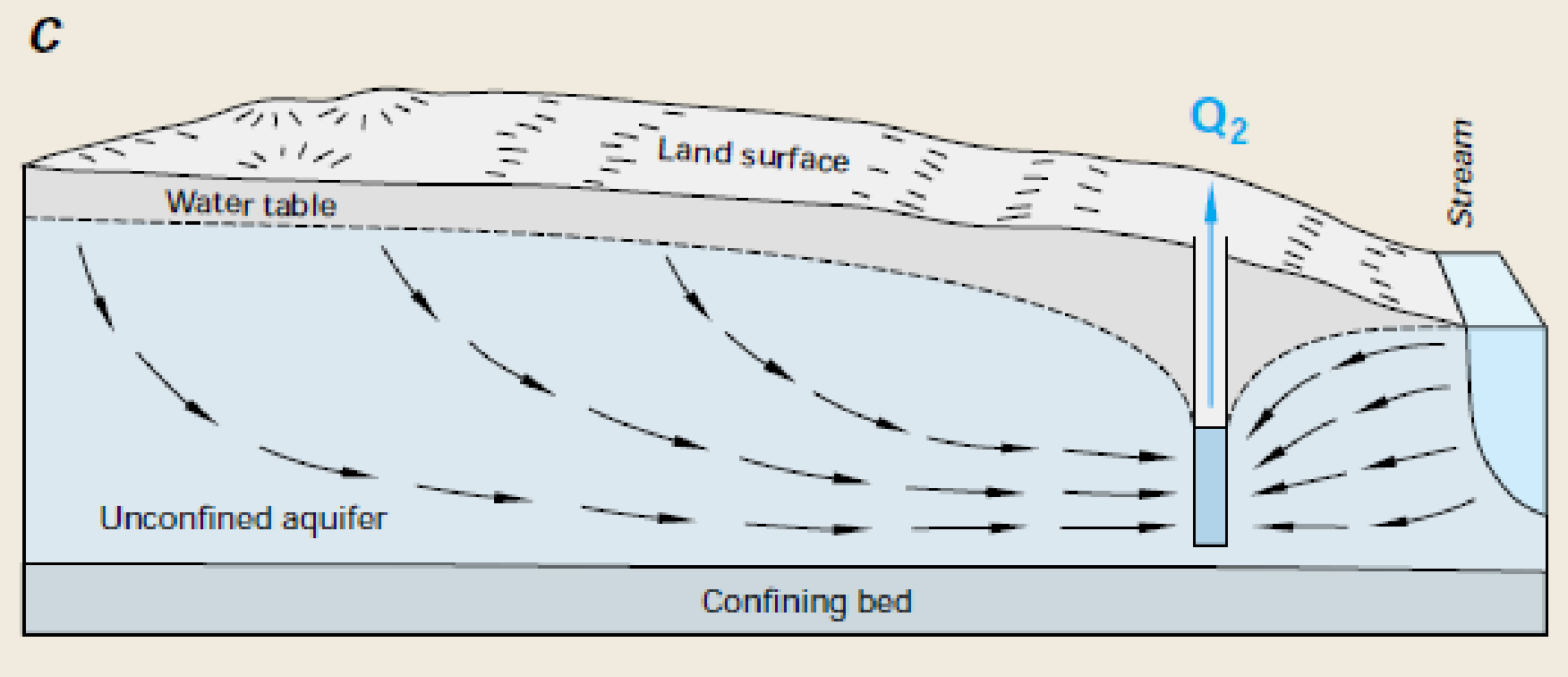
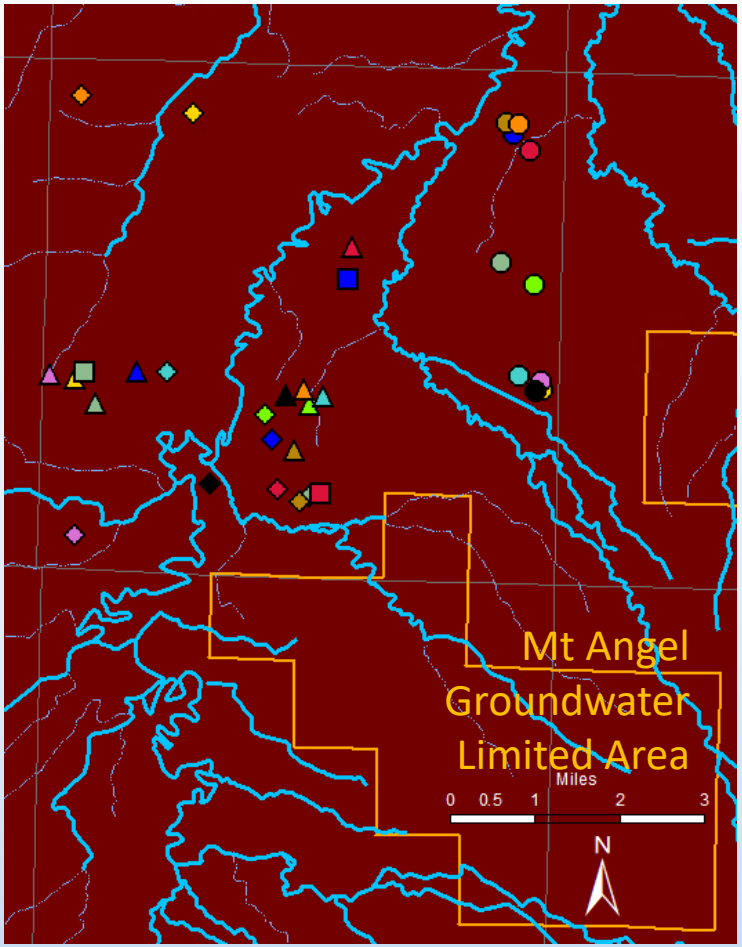
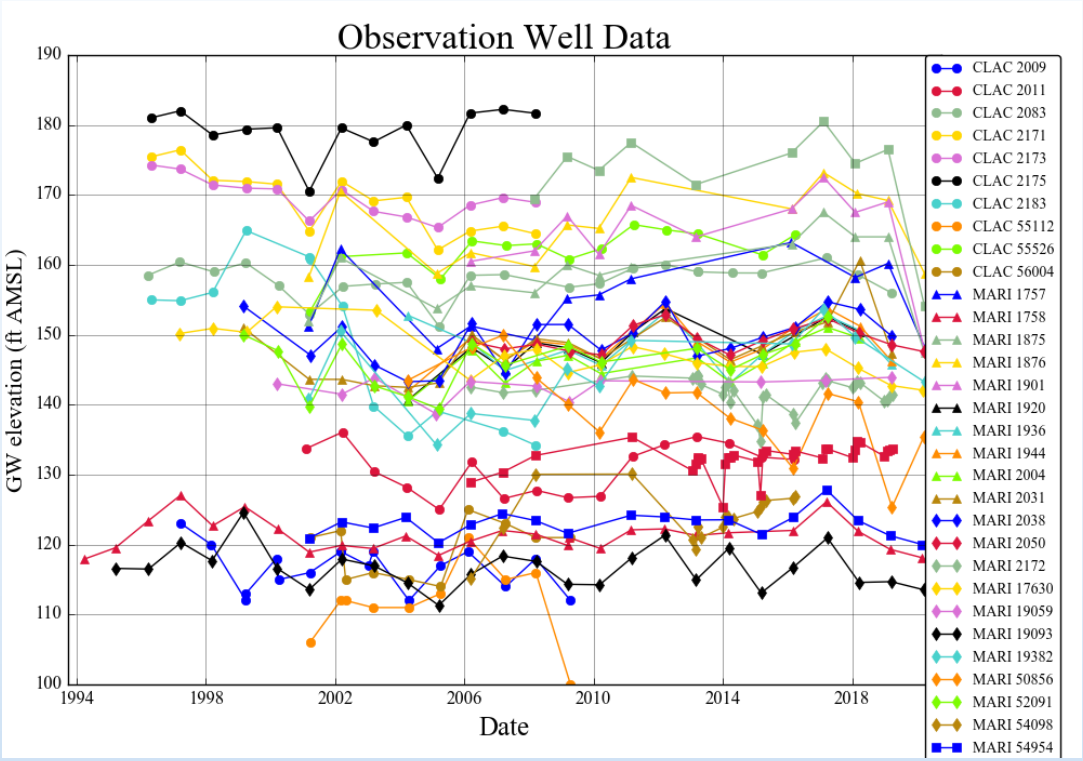


Souce: USGS Circular 1139, Groundwater and Surface Water: A Single Resource

Concepts 2 & 3 – SW availability





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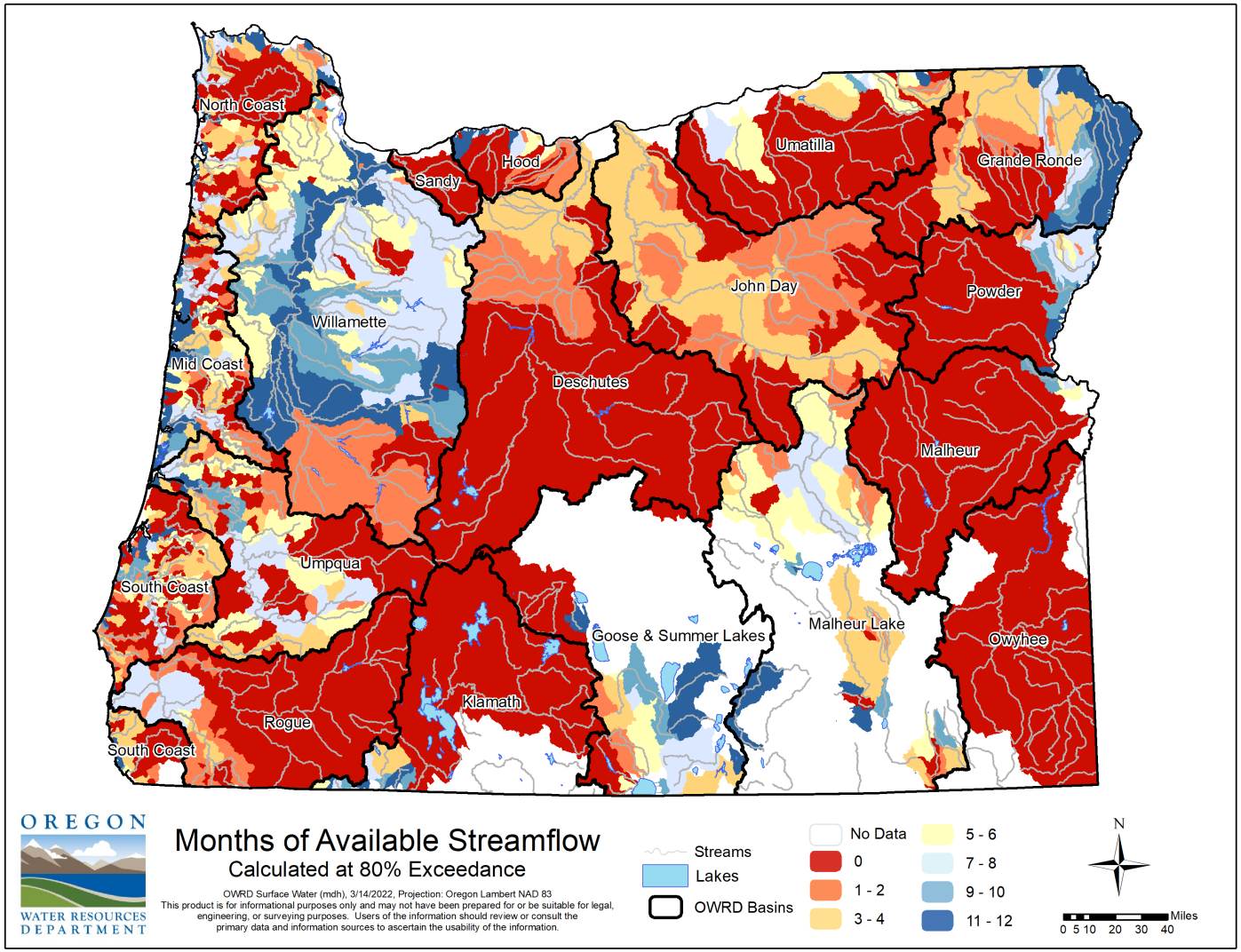
Concept 2 – SW availability



Source: OWRD

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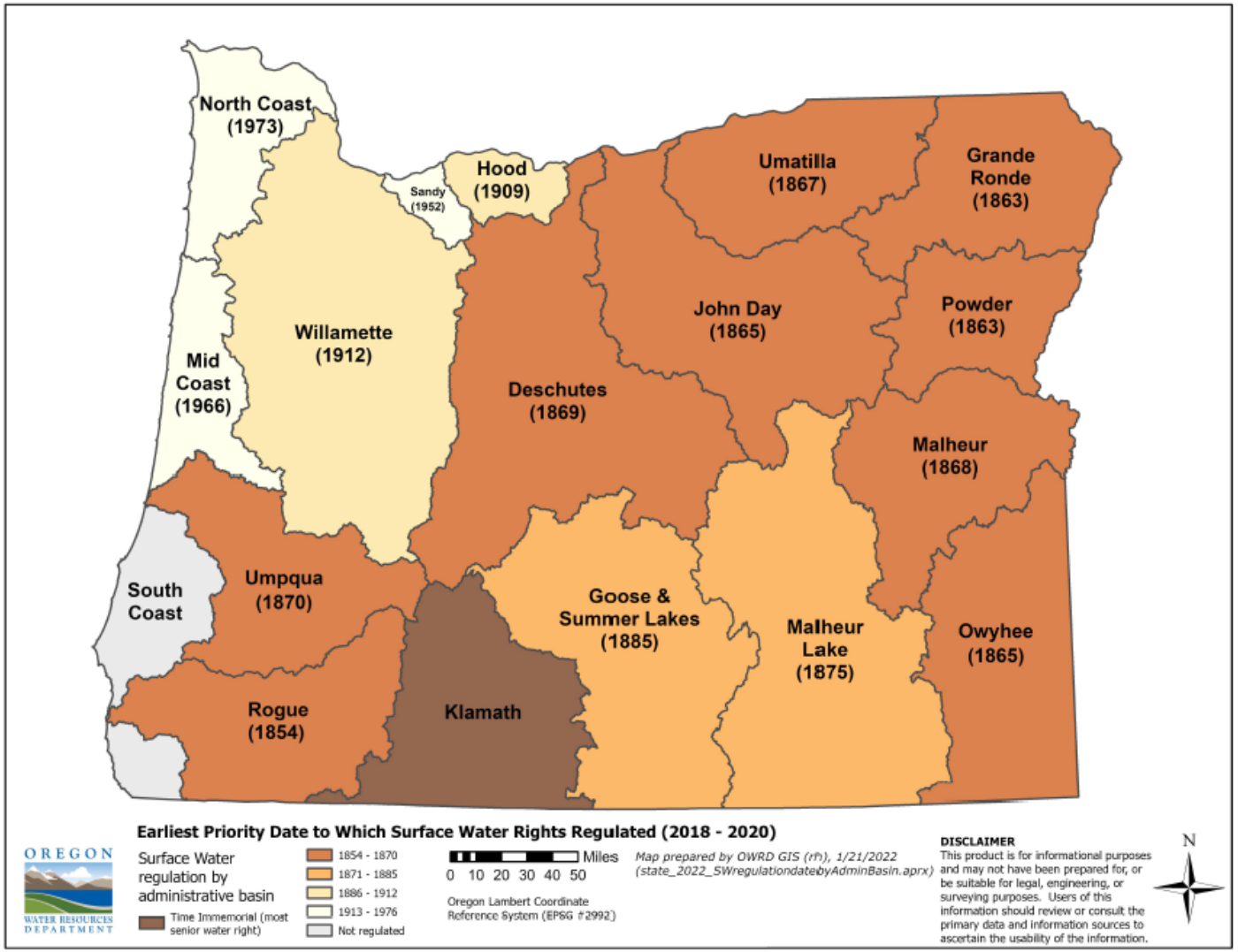
Concept 3 – SW regulation history



Source: OWRD

Next Steps

Convene internal team to draft rule updates

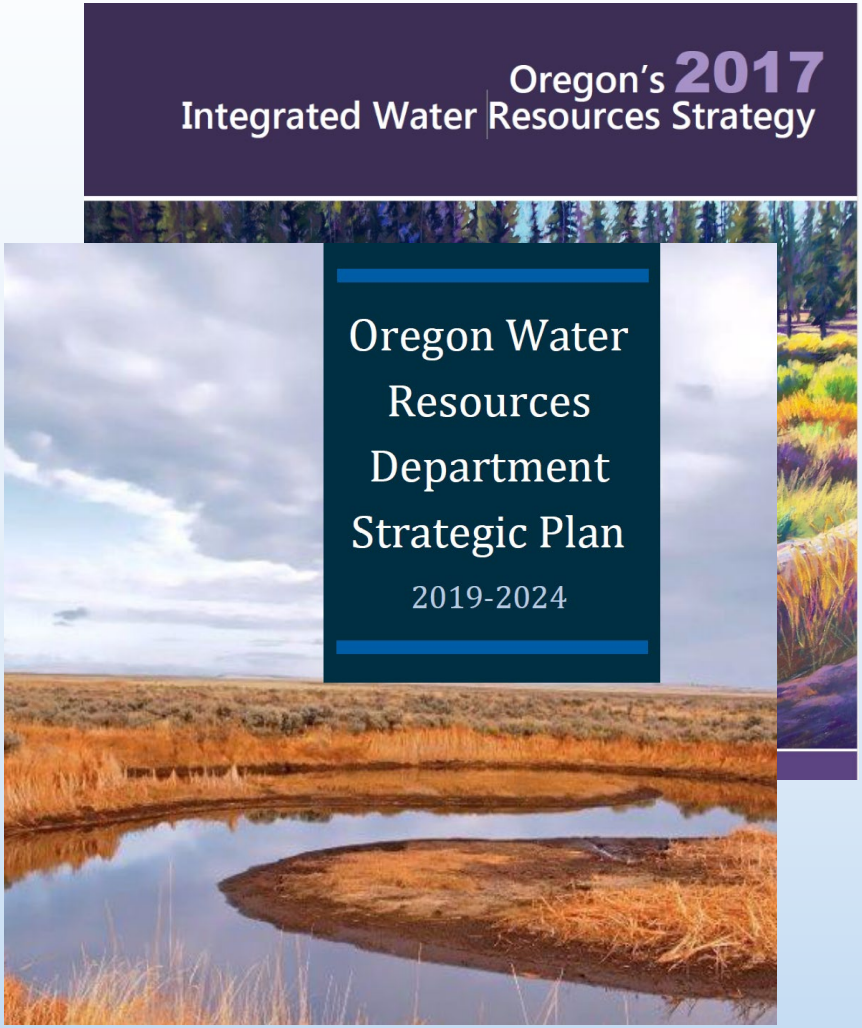
- Spring / early summer 2022

Convene rules advisory committee

- Summer 2022

Proposed rule adoption

- Fall/winter 2022



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Commission Discussion

Photo Credit: OWRD – Unnamed Spring, tributary to the Metolius River


Thank you.

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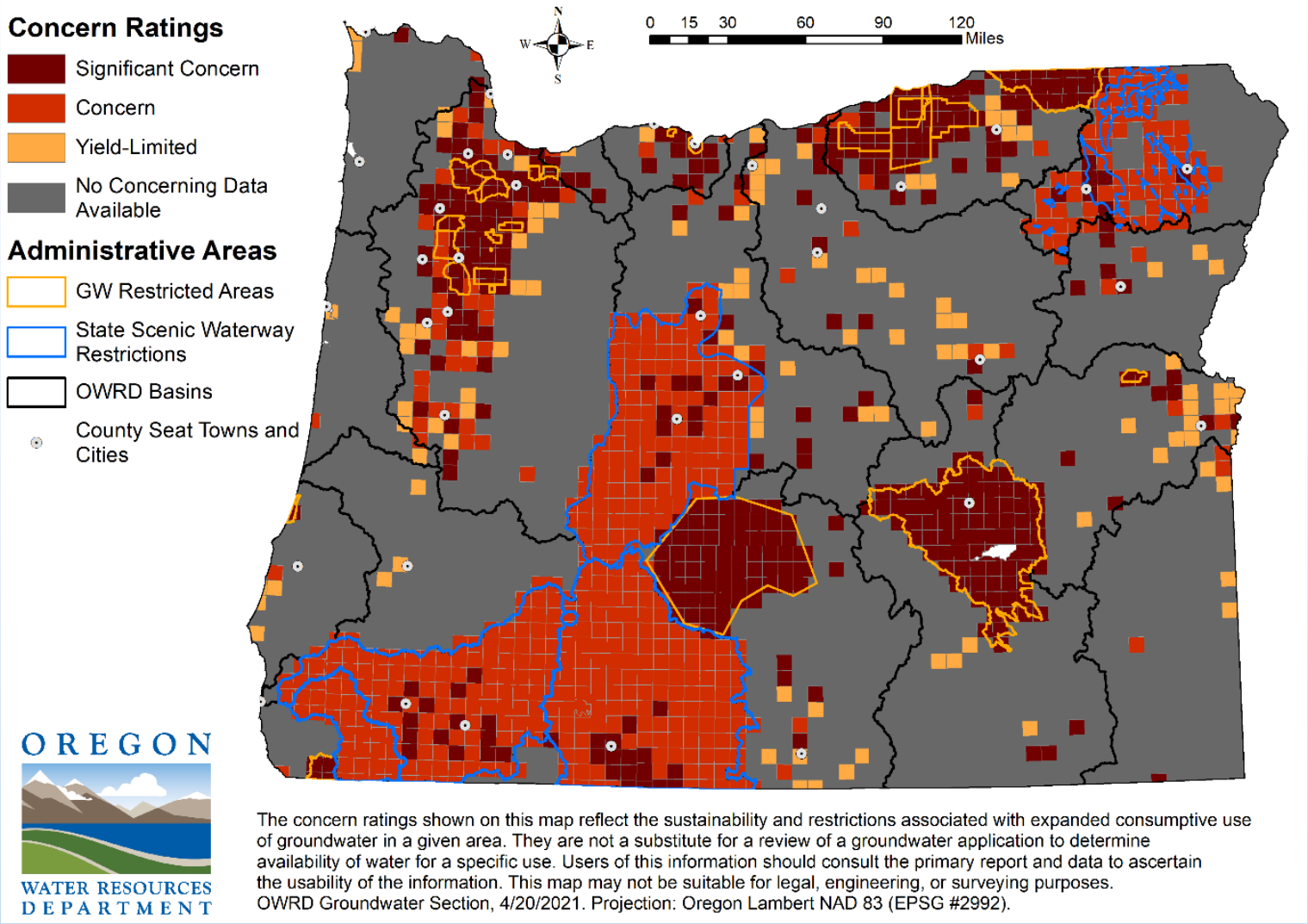
Groundwater Concerns



The concern ratings shown on this map reflect the sustainability and restrictions associated with expanded consumptive use of groundwater in a given area. They are not a substitute for a review of a groundwater application to determine availability of water for a specific use. Users of this information should consult the primary report and data to ascertain the usability of the information. This map may not be suitable for legal, engineering, or surveying purposes.
OWRD Groundwater Section, 4/20/2021. Projection: Oregon Lambert NAD 83 (EPSG #2992).

Figure Source: OWRD, June 2021 Commission staff report presents details.

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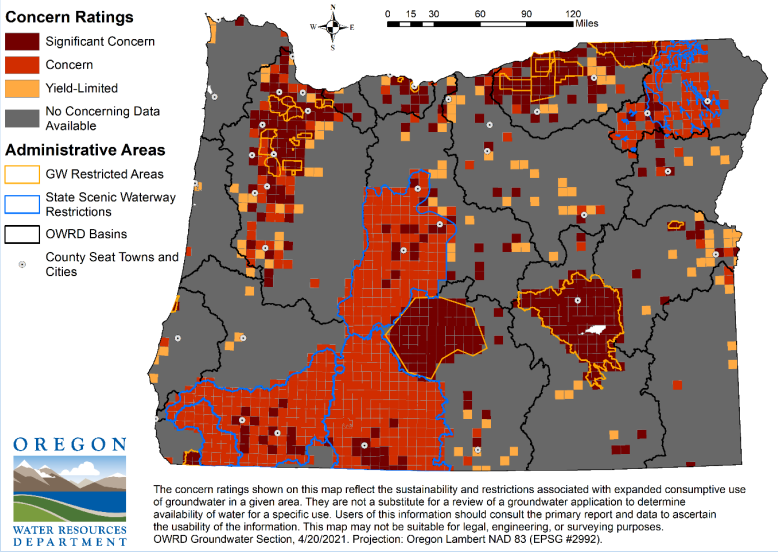

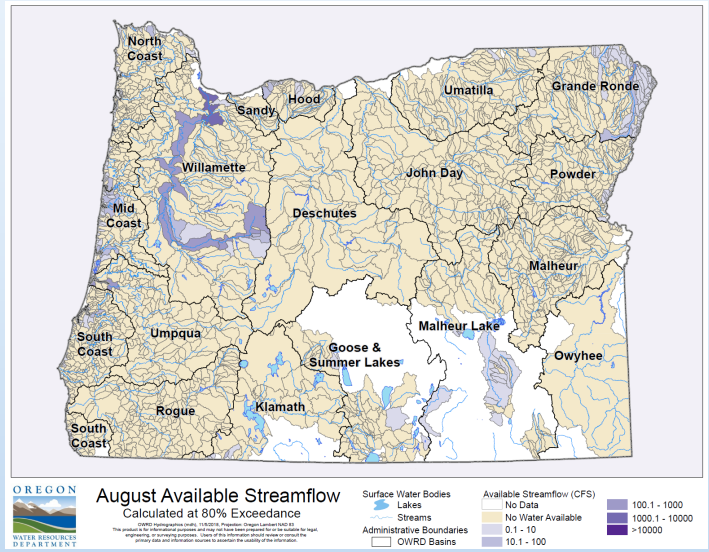

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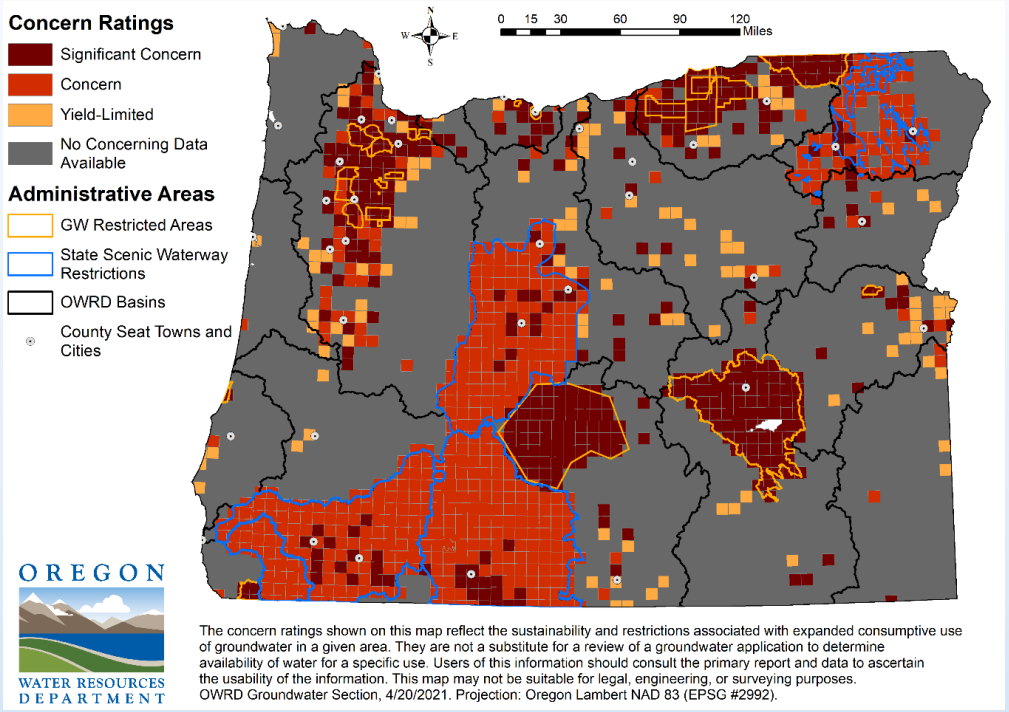

Previous WRC discussions:

- More than 70% of GW applications result in a permit
- Approx. 80% of applications in “Areas of Concern” receive permits
- The GW review cannot always determine whether the aquifer is over appropriated given current definitions

Figure Source: OWRD, June 2021 Commission staff report presents details.