Division 512 Rulemaking Update

Jason Spriet, East Region Manager
Tim Seymour, Groundwater Section Assistant Manager
Kelly Meinz, Water Policy Analyst

Oregon Water Resources Department

September 12, 2025

Presentation Outline

- Harney portfolio
- Groundwater Report for the Division 512 Rulemaking
- Strategy and tools being implemented
  - Classification
  - Critical Groundwater Area
  - Serious Water Management Problem Area
- Themes of comments
- Next steps

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Harney Basin – STUDIES, PLANNING, & INVESTMENTS

2015 2017 2019 2021 2023 2025

Place-Based Water Planning (2016-present)
$600k grant funding, technical assistance, meeting support
CBWP Plan Development (seeking recognition 2025)

USGS Groundwater Study (2016-2024)

18 Groundwater Study Advisory Committee Meetings

Well install (2015-2018)

AgriMet Stations (2019)

CREP Tech Asst and Funding

DOGAMI geologic mapping (2015-2016)

Well rehab (2017)

Well Elev. Survey (2018)

Obs Wells (2019)

2023 Business Case for Investing in Water

Community Monitoring Network

Division 512 Rulemaking
(see next slide)

Div 512 Update 2016

Harney Basin – STUDIES, PLANNING, & INVESTMENTS

Division 512 Rulemaking

2021 2023 2025

WRC Decision Dec 2025

2 Info Sessions

Pre-RAC Outreach

15 RAC Meetings

14 Discussion Groups

5 Info Sessions

Develop Draft Guidance for Voluntary Agreements

6 Info Sessions

9 Public Hearings

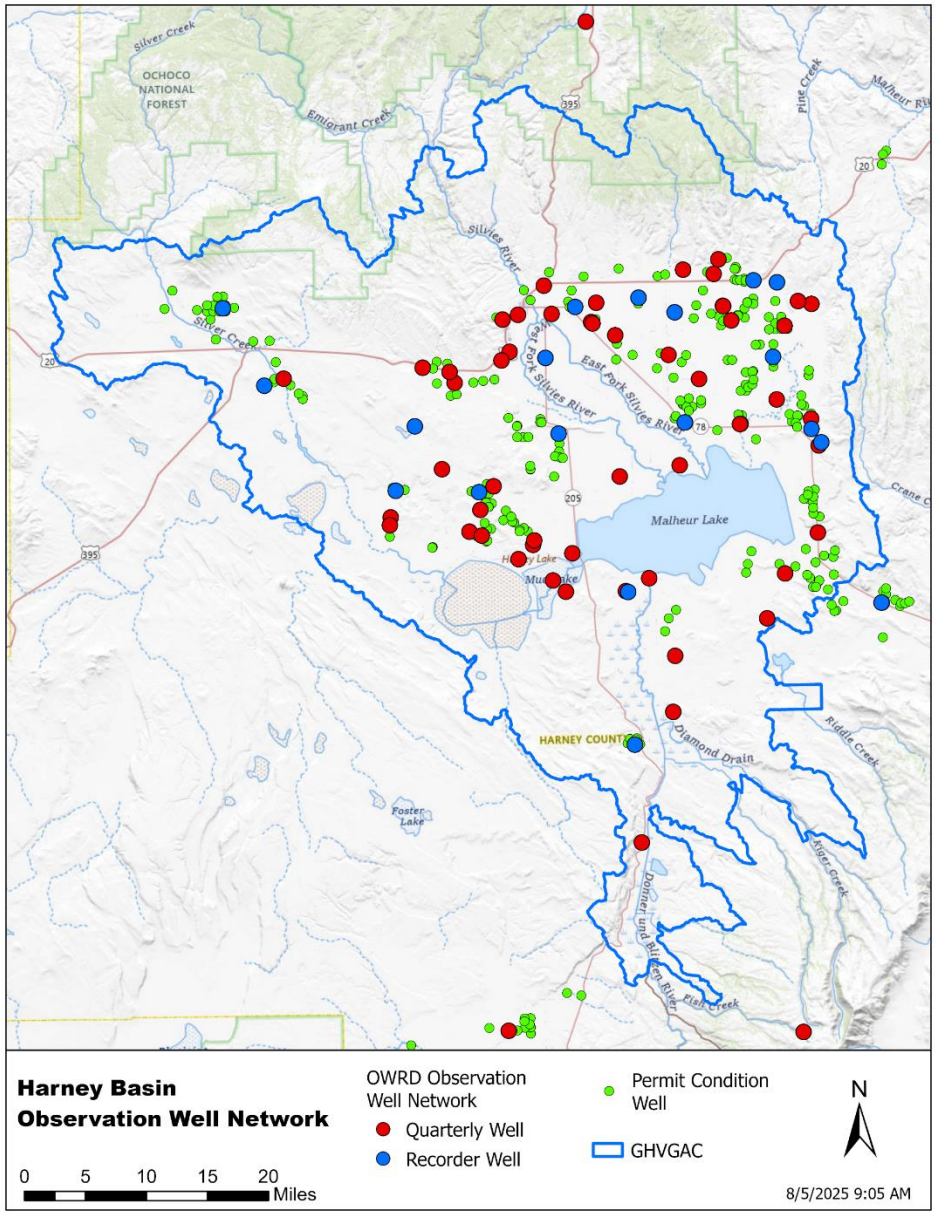
Economic Impacts Study

Quarterly WRC Updates

Observation Well Network

Harney County Obs Wells:

- Quarterly Wells: 89
- Recorder Wells: 26/89
- Permit Condition Wells: 295



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Groundwater Report for the Division 512 Rulemaking

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Groundwater Report Requirements

- Requirement of OAR 690-010
- The report must:
  - Identify the criteria met under ORS 537.730(1)(a) – (g)
  - Identify and characterize the GW reservoir
  - Identify corrective control measures
- Public comment accepted from July 1, 2024 until August 13, 2025

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Link: Groundwater Report for the Harney Basin Critical Groundwater Area (CGWA) Rulemaking

Groundwater Reservoir

- One groundwater reservoir
- Occurs in multiple connected geologic units (aka "rocks")
- Behaves differently through different geologic units
- Rates and magnitudes of recharge and discharge vary based on location

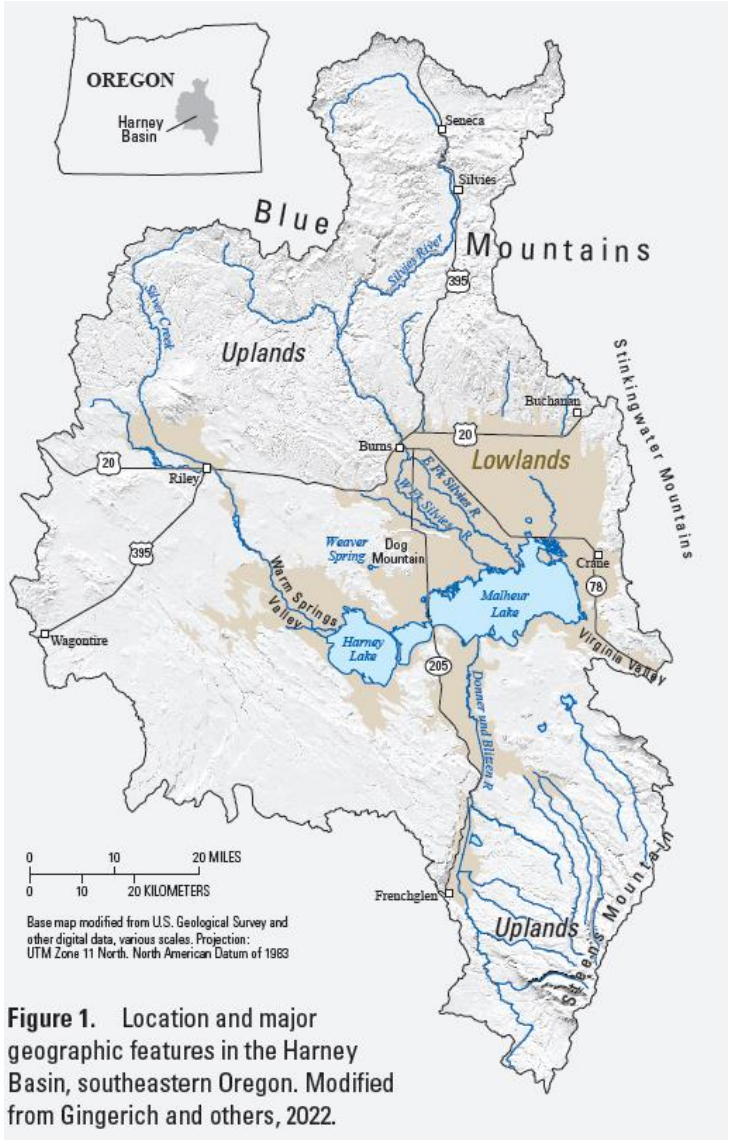

Figure 1. Location and major geographic features in the Harney Basin, southeastern Oregon. Modified from Gingerich and others, 2022.

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Critical Groundwater Area Criteria

- Groundwater levels have

  declined excessively (> 50 ft total decline) and are **excessively declining** (decline > 3ft per year for at least 10 years)

- The available groundwater supply is being or is about to be **overdrawn** (pumping > recharge)

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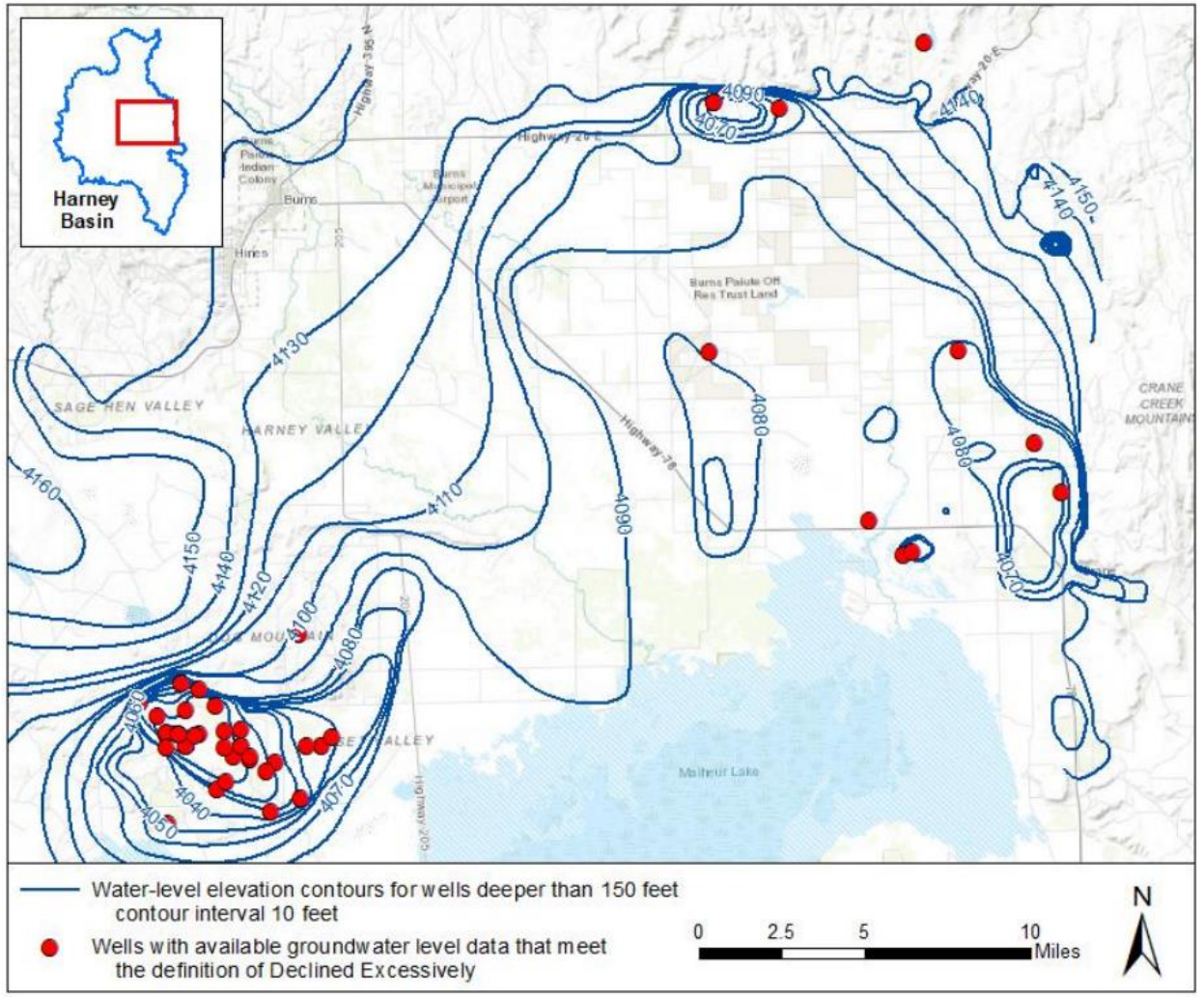
Declined Excessively

- Greater than 50 ft of decline from highest known levels
- Data on wells meeting this threshold is limited by:
  - Lack of **historic** measurements for wells
  - Lack of **current** measurements for wells
- More wells expected to reach this threshold within several years



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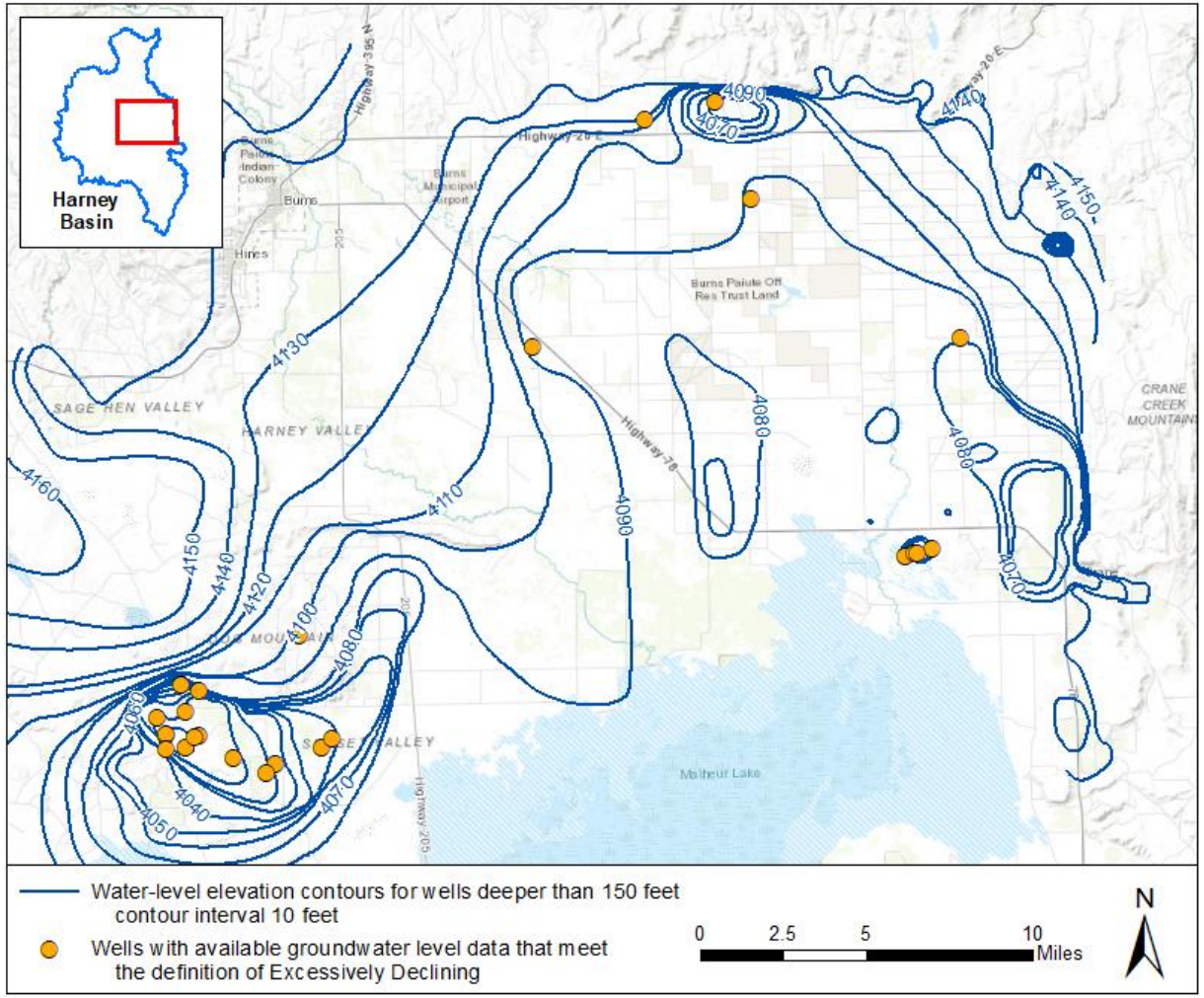
Excessively Declining

- Decline rate at least 3 ft per year for at least 10 years
- Data on wells meeting this threshold is limited by a lack of current measurements for wells
- More wells expected to reach this threshold within several years



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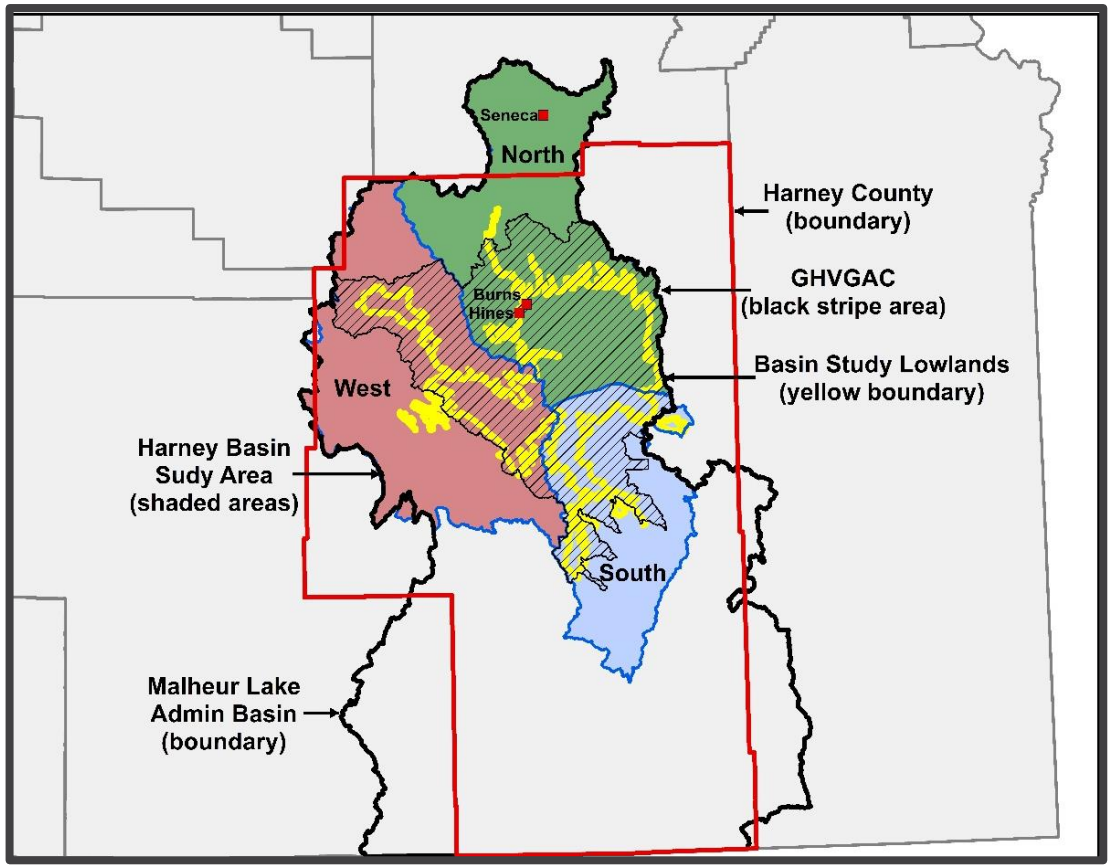
Overdrawn

Water Budget Region	Difference of lowland recharge and pumpage (AF/yr)	Difference of lowland recharge and authorized use (AF/yr)
Northern region	-2,700	-96,454
Southern region	26,400	10,557
Western region	4,500	-18,204
Harney Basin	**28,200**	**-104,101**



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Corrective Controls

- Close the area to further appropriation
- Disposition of any outstanding applications for a permit
- Determine the annual permissible total withdrawal
- Any one or more provisions making such additional requirements as are necessary to protect the public welfare, health and safety in accordance with the intent purposes and requirements of ORS 537.505-537.795 and 537.992.

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Assessment of Comments Received

Comment:

The Harney Basin is not a single groundwater reservoir.

Response:

ORS 537.515(6) “Ground water reservoir” means a designated body of standing or moving ground water having exterior boundaries which may be ascertained or reasonably inferred.

"Groundwater in the Harney Basin occurs within **a single groundwater-flow system**..." - Gingerich and others, 2022

The best available science and information produced by USGS and OWRD supports the definition of the Harney Basin as a single groundwater reservoir

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Assessment of Comments Received

Comment:

The Department does not have statutory authority to impose a Critical Groundwater Area and reduce groundwater use by regulation for parts of the Harney Basin that do not meet the statutory criteria.

Response:

The Groundwater Report provides substantial evidence of the groundwater reservoir, **or a part thereof,** having met the following statutory criteria:

- Declined excessively
- Excessively declining
- Overdrawn

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Assessment of Comments Received

Comment:

The groundwater report provides the substantial evidence required for the WRC to adopt the proposed Division 512 rules.

Comment:

The report fulfills the requirement for an evidentiary standard by identifying the groundwater reservoir, documenting which statutory criteria are met in ORS 537.730(1), connecting groundwater level declines directly to groundwater pumping volumes, documenting the consequences of these declines, and outlining corrective control measures. These recommendations directly connect the evidence of harm to the policy decisions authorized under ORS 537.735 and OAR 690-010.

Comment:

The Groundwater Report provides the WRC with the scientific basis for regulatory action so officials can hold water in trust for the public in the present and the future.

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Strategy and Tools Proposed

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Tools overview

Regulatory Tool	Description	Strategy	What does it control?
Classification	Classify type and quantity of water use allowed	Protect recharge	Future groundwater appropriation
Critical Groundwater Area (CGWA)	Control current groundwater use to prevent further decline	Reduce groundwater use	Current groundwater use
Serious Water Management Problem Area (SWMPA)	Require reporting and measurement of water use	Achieve accountable water use	Current and future groundwater use

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Classification

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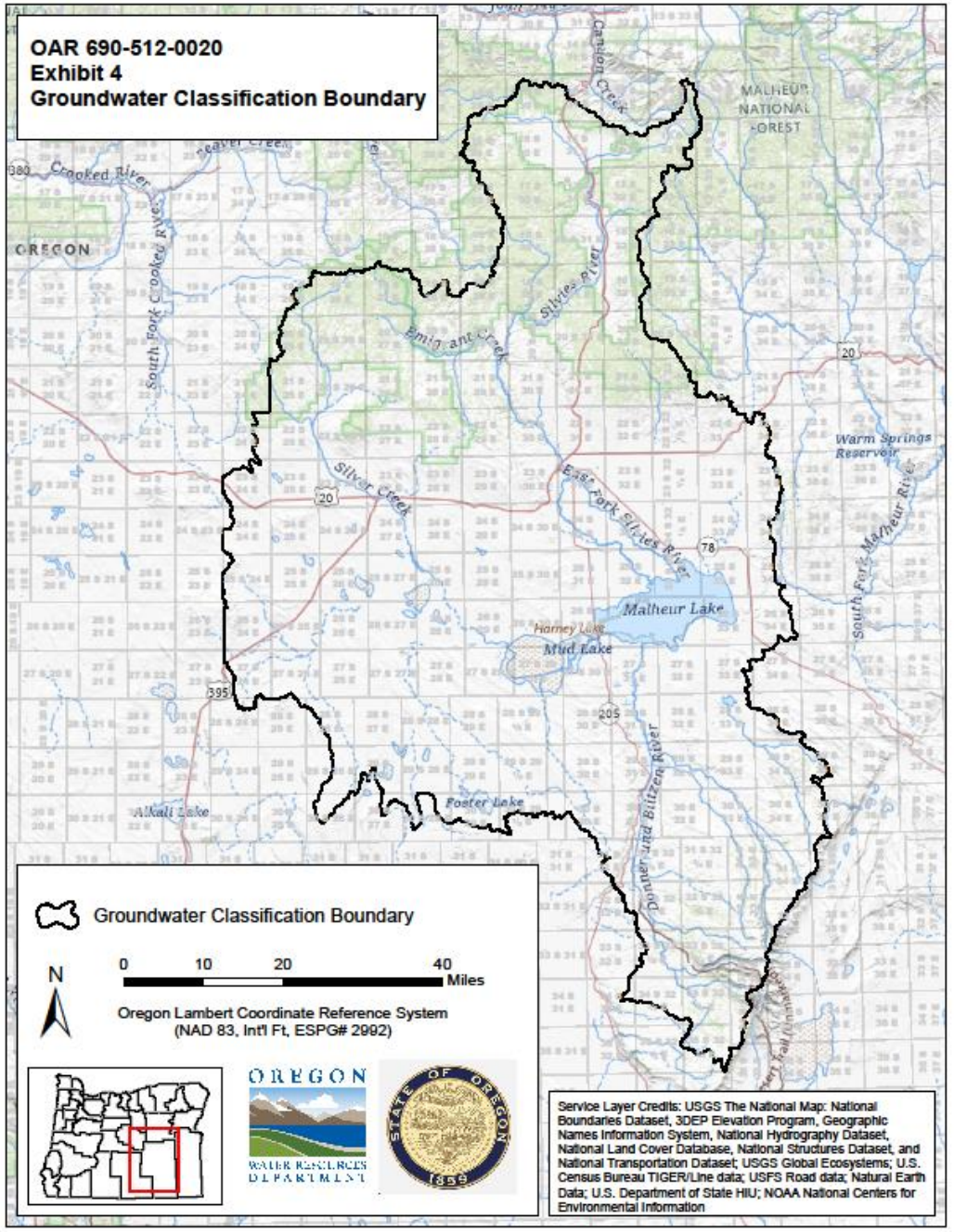
Classification Boundary

Exhibit 4



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Classification (OAR 690-512-030)

New water uses within the boundary will be limited to:

- Exempt uses (ORS 537.545)
- Nonconsumptive geothermal uses

This means no new groundwater rights will be issued for anything except nonconsumptive geothermal

Does not affect transfer of existing rights

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Critical Groundwater Area

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Goal for Each Subarea (OAR 690-512-041)

- Stabilize groundwater levels in 30 years
  - Target Water Level Trend – the rule term for the goal
  - Measured as zero decline over a 5-year period

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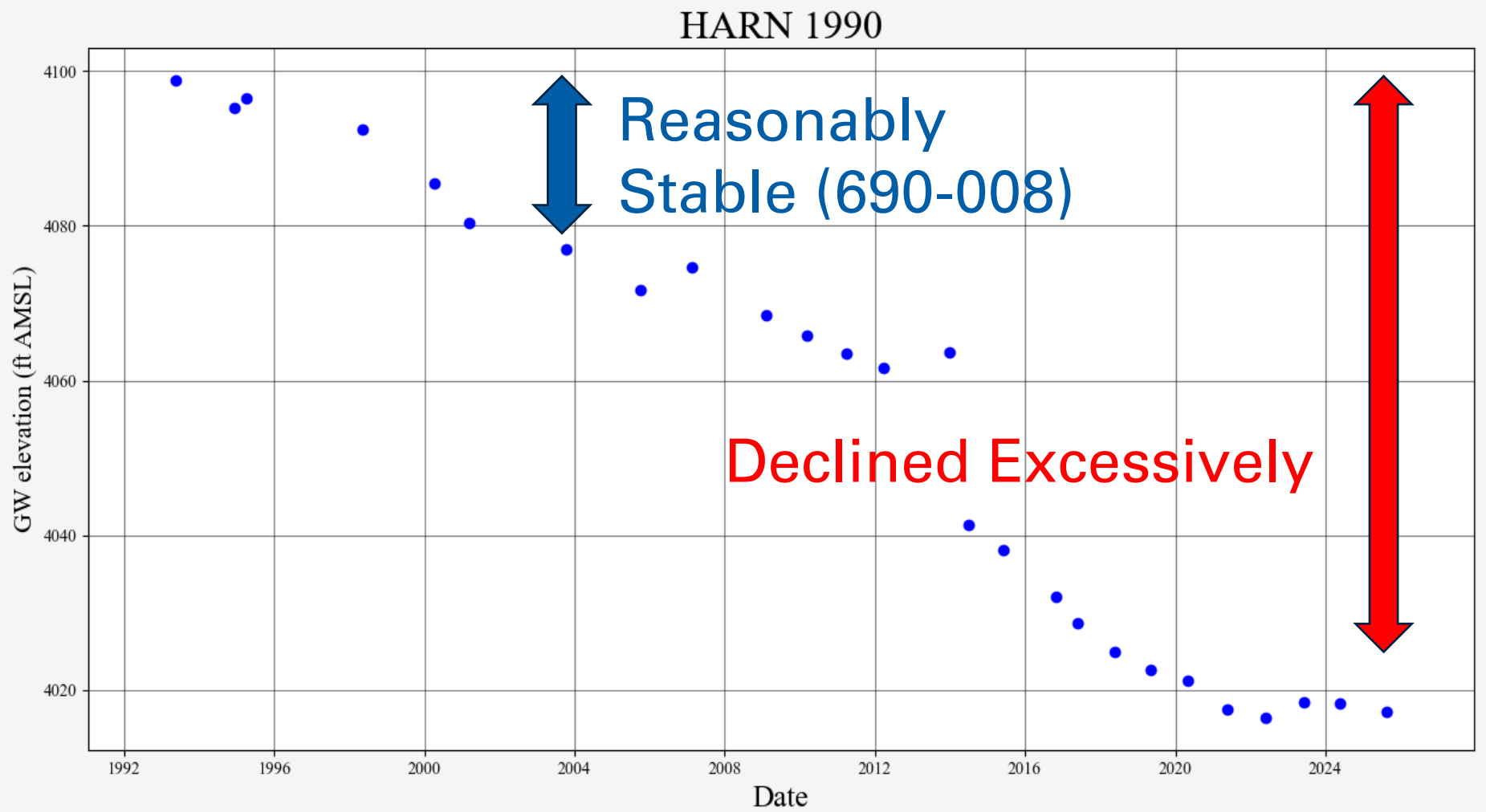
Why Use Target Water Level Trend



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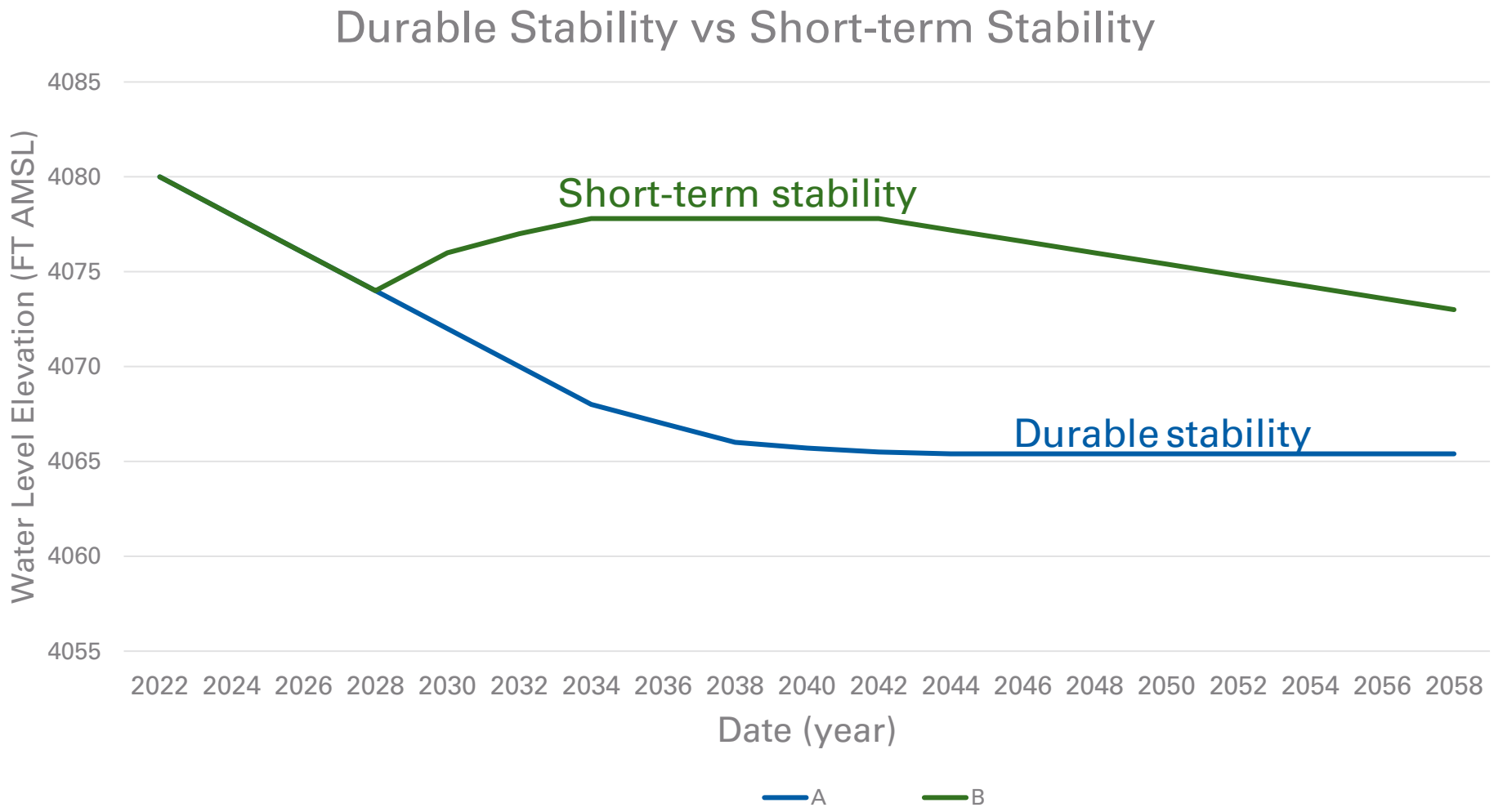
Source: OWRD

Target Water Level Trend in Modeling



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Regular Reviews (OAR 690-512-041)

- Every 3 years - review the rules
- Every 10 years - review conditions

- For each review:
  - Present at a public meeting in the basin and accept comment
  - Summarize comments and present at a Water Resources Commission meeting where public comment is accepted

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Other items (OAR 690-512-041)

- Deny new applications for groundwater rights other than non-consumptive geothermal
- Authority to measure any well on a water right
- Divide the CGWA into subareas

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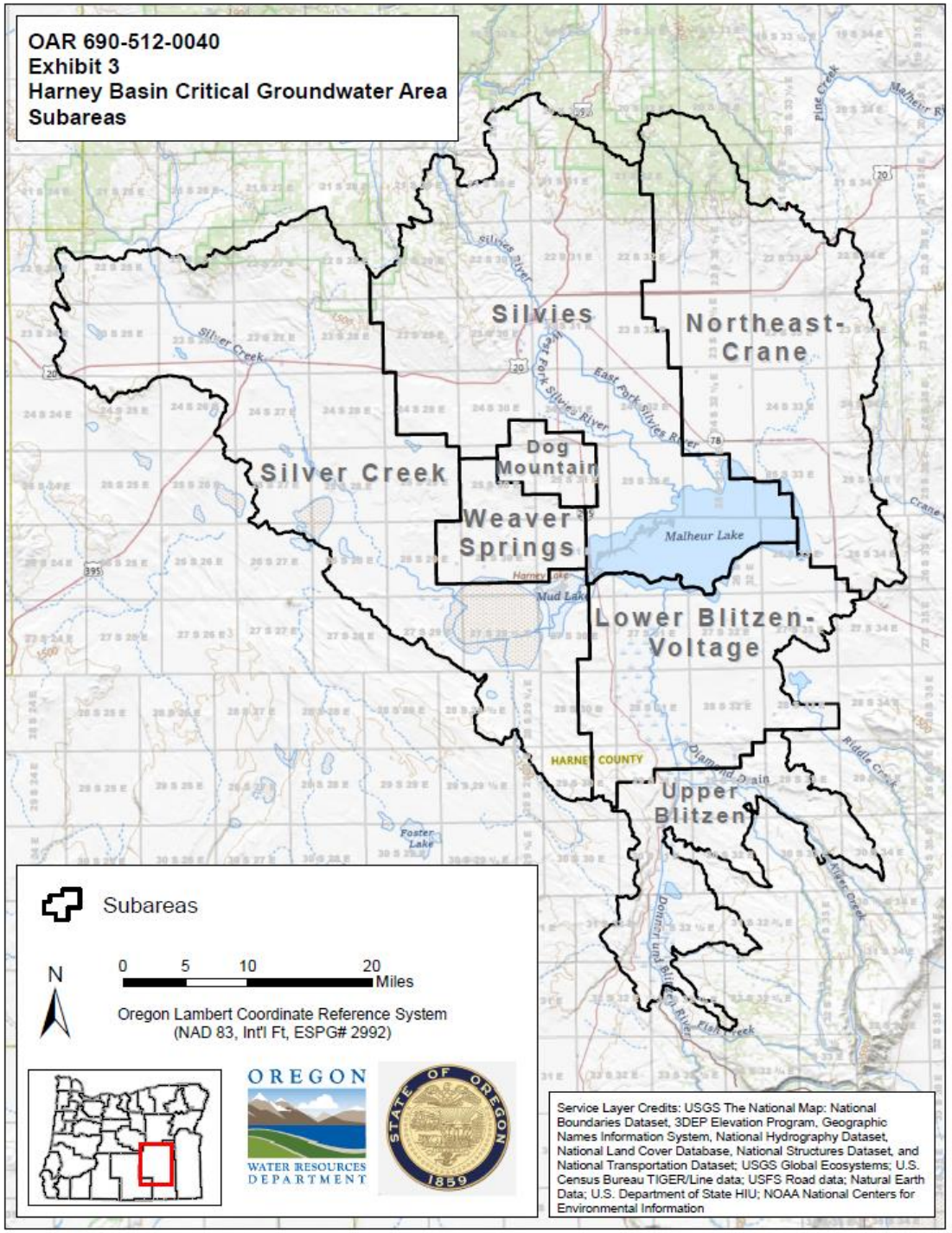
Exhibit 3

Harney Basin Critical Groundwater Area Subareas



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Establish PTW for Each Subarea (OAR 690-512-0050)

- "Permissible Total Withdrawal" is the annual volume of groundwater the Department has determined can achieve the target groundwater level trend by 2058 when following the schedule of reductions defined in OAR 690-512-0070.
- Presented in acre feet (AF) by subarea
- Harney Basin Groundwater Model and optimization software were used to identify PTWs

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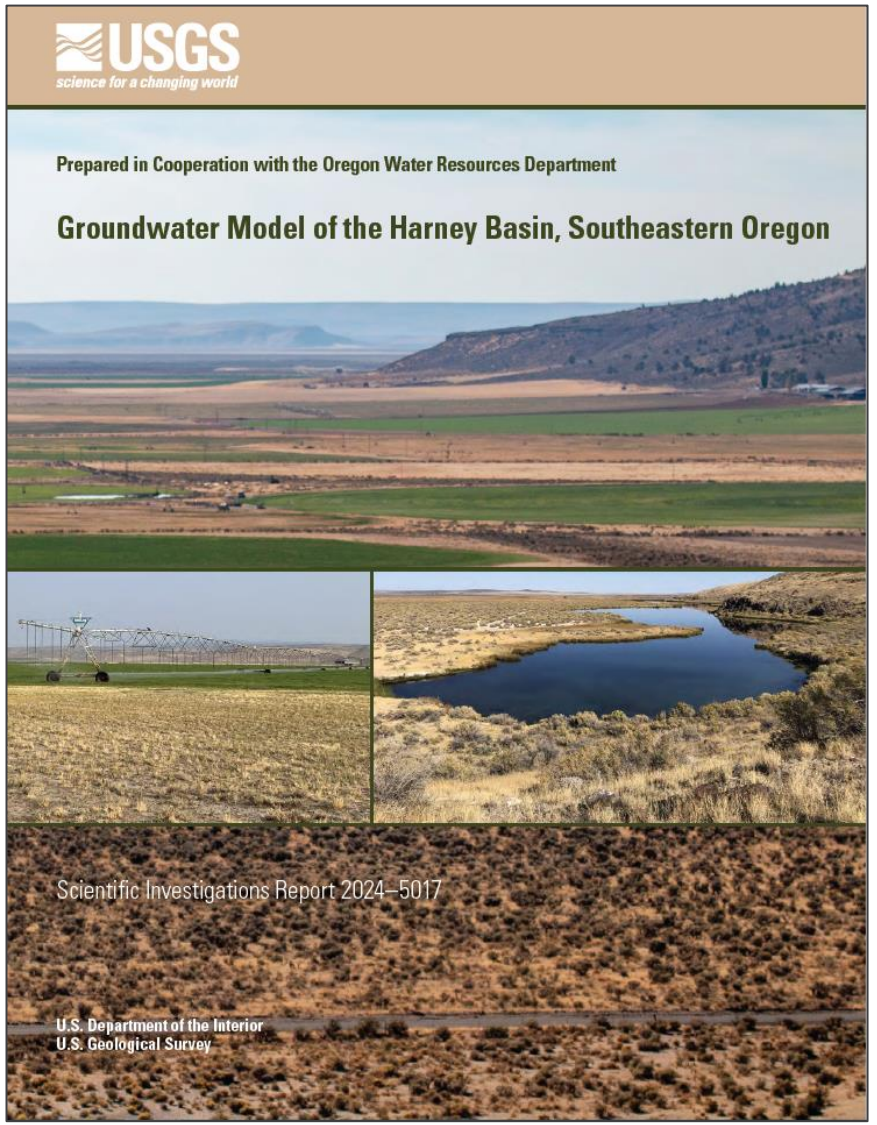
Harney Basin Groundwater Model

- 3-dimensional numerical model
- Simulates movement of water within the groundwater system from recharge to discharge areas
- Characterizes both natural processes (streams, springs, evapotranspiration) and human use (wells)
- Covers an area of about 11,269 square miles
- Calibrated to hydrologic conditions from 1930-2018



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Using the Model to Inform PTW

- First approach: manually test scenarios one at a time with the model
- Second approach: use optimization software to automate finding the maximum pumpage while meeting specific requirements (parameters)

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Optimization Parameters

Parameter	WRD Proposal
Spatial extent	GHVGAC with 7 subareas
Stability success metric	Durable, Median (50th percentile) of well-cells - Fixed PTW in Weaver Springs, 75% reduction
Timeline to achieve goal	30 years
Frequency of adaptation	Every 6 years
Timeline for reductions	24 years with frontloading of reductions - 40%, 30%, 15%, 10%, and 5% of total - In Weaver Springs, 75% and 25%
Discharge to streams and springs	Not used to constrain PTW; limit impact with frontloading of curtailment
Natural evapotranspiration	
Dry domestic wells	

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Proposed Reductions by Subarea (OAR 690-512-0050)

Subarea	Estimated 2018 Pumpage (kaf/yr)	WRD Proposal PTW (kaf/yr)*	Difference (%)
Dog Mountain	4.6	4.2	**-9%**
Lower Blitzen-Voltage	13.7	8.3	**-39%**
Northeast-Crane	53.0	35.0	**-34%**
Silver Creek	21.0	15.2	**-28%**
Silvies	24.9	21.2	**-15%**
Upper Blitzen	0.1	0.1	**0%**
Weaver Springs	19.2	4.8	**-75%**
Overall	136.5	88.8	**-35%**

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*PTW was determined using the Harney Basin Groundwater Model

Initial Allotment – Establish Current Use (OAR 690-512-0060)

- The intent is to provide water to the maximum number of beneficially used rights
- Allotment will result in an order reducing the quantity of water allowed to be pumped under each right
- The process for determining initial allotment is laid out in rule OAR 690-512-0060

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Irrigation Rights (OAR 690-512-0060)

- Use a duty of 2.5 acre-feet per acre for primary and supplemental groundwater rights
- Consider the historic, beneficial use in the five-year period from 2020 to 2024 when identifying the number of acres that will be allotted water

- 160-acre POU
- 125 acres irrigated

125 Acres * 2.5 AF/acre = 312.5 AF

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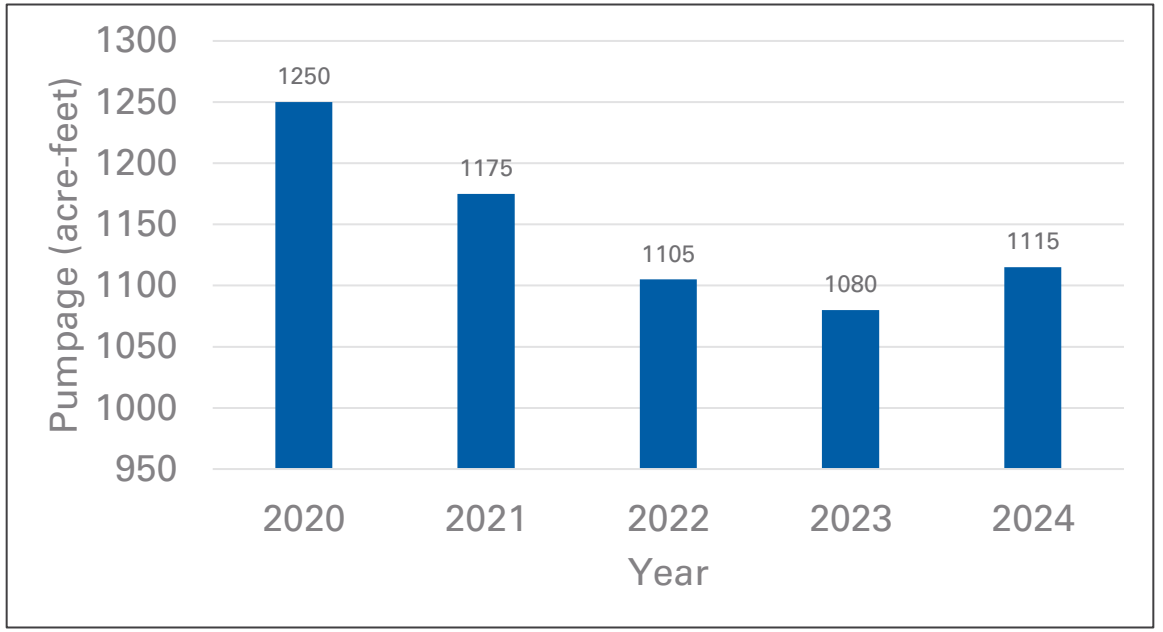
Municipal and Quasi-Municipal (OAR 690-512-0060)

- Allotted 110% of the greatest single-year quantity reported in five-year period from 2020 to 2024.
- Re-evaluate at each adaptive management checkpoint and adjust to 110% of the greatest single year quantity in the preceding 6 years.



- Greatest single year = 1,250 acre-feet
- 1,250 + 10% = 1,375 acre-feet

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All Other Rights (OAR 690-512-0060)

Considerations:

- Limits of the groundwater right
- Historic beneficial use in the five-year period from 2020 to 2024
- Whether or not water is physically capable of pumping and putting to a beneficial use
- Factors deemed appropriate by the Department to determine historic beneficial use

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Schedule for Reductions – Getting to Success (OAR 690-512-0070)

$$Initial\ Allotment\ -\ PTW\ =\ Volume\ to\ reduce$$

- Junior rights curtailed first
- Enforced after the contested case is complete
- If enforcement does not occur as scheduled, then at such time as enforcement occurs, all reductions scheduled including any adjustment will be enforced.
- Reduction schedule is laid out in rule OAR 690-512-0070

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Schedule for Reductions Example (OAR 690-512-0070)

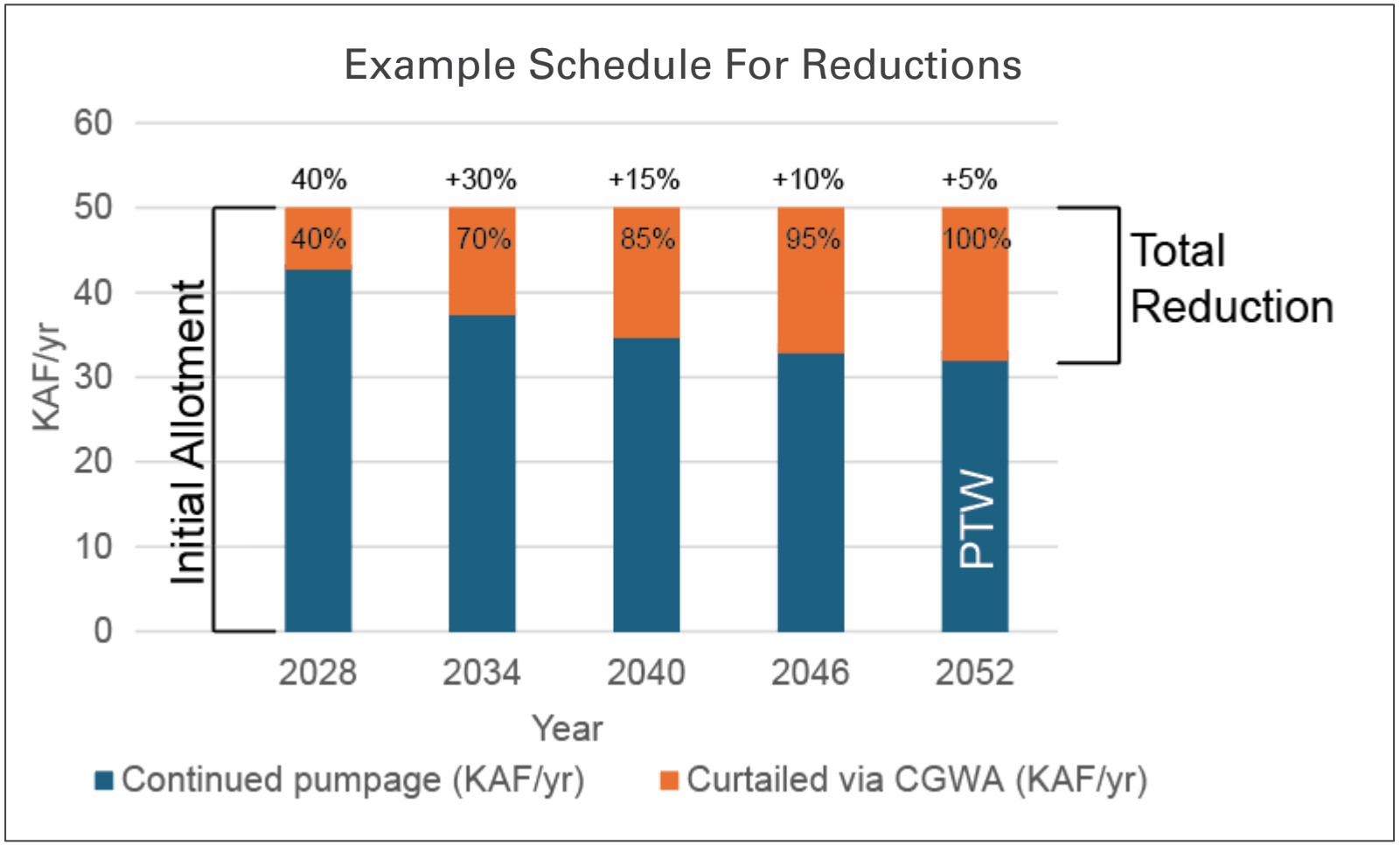

Figure is illustrative only. It does NOT reflect any specific subarea.

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Evaluating Progress – Adaptive Management (OAR 690-512-0080)

- Evaluate groundwater levels in 2027 and delay reductions scheduled for 2028, if:
  - Water levels are at or above 2022 levels, and
  - The target water level trend is achieved

- Otherwise, adhere to the reduction schedule.

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Evaluating Progress (OAR 690-512-0080)

- Checkpoints in 2033, 2039, 2045, and 2051
- Evaluate median water level for each subarea and compare it to the modeled trajectory
- If water levels are:
  - **On track → no adjustments to scheduled reductions**
  - **Higher than expected → implement fewer reductions**
  - **Lower than expected → implement accelerated reductions**
- Meet in the Basin to announce changes and accept public comment

Adaptive management laid out in rule OAR 690-512-0080.

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Evaluating Success (OAR 690-512-0080)

- No sooner than 2058, evaluate the water level trends and test if the target water level trend is achieved
- Depending on the results, additional actions may be taken:
  - If **unsuccessful**, and **pumping > PTW**, implement remaining reductions
  - If **unsuccessful**, and **pumping = PTW**, then do rulemaking to adjust PTW
  - If **successful**, and **pumping > PTW**, then do rulemaking to adjust PTW

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Serious Water Management Problem Area (SWMPA)

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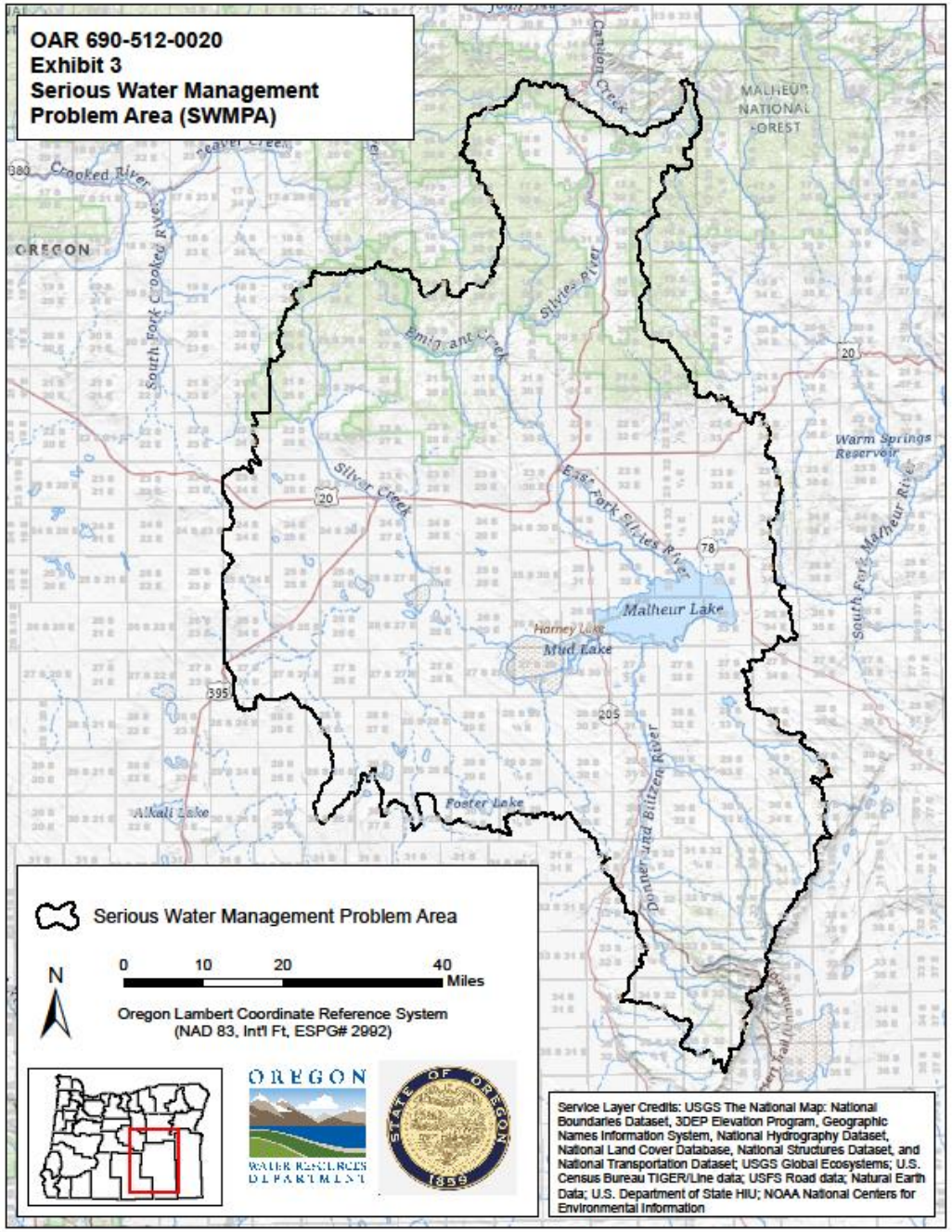
Exhibit 3

Serious Water Management Problem Area



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Measurement Device Requirement (OAR 690-512-0110)

- By March 1, 2028, all groundwater rights holders, well owners, and well operators must install and maintain a totalizing flow meter on each well listed as a Point of Appropriation (POA)
- Flowmeter must be installed according to specifications, maintained in good working order and must be accessible by Department
- Failure to install may result in shut off of well and assessment of civil penalties

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Reporting Requirement (OAR 690-512-0110)

- Data must be:
  - Recorded monthly
  - Reported annually by December 31st

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Non-Functioning Flowmeters (OAR 690-512-0110)

- Non-functioning meters must be reported within 48 hours of discovery
- Water may not be used for more than 60 days following the discovery of a non-functioning meter
- Monthly measurement still required
- Report repair of meter within 48 hours

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Public Comment Period

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Public Comment Participation

Public comment was from June 1 through August 13, 2025

- **6** Informational sessions
- **9** public hearings
- **106** written comments
- **38** oral comments

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Themes of Comments

- Target Water Level Trend
- Subarea boundaries
- PTW
- Municipal Use
- Tribal Rights
- Implement-ation
- Reduction schedule
- SWMPA
- Technical Concerns
- Impacts
- Rulemaking process
- Voluntary Action

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Target Water Level Trend

- Support for stabilizing water levels in 30 years and using target water level trend as the measure
- Require water level recovery
- Allow some of level of decline to continue
- Use the OAR 690-008 definition of reasonably stable

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Boundaries of Subareas

- Varied opinions regarding the number of subareas
- Curtailment should focus on the areas with most severe declines
- Some areas within the CGWA do not meet the criteria and should be excluded from the designation
- Each subarea should be its own CGWA
- Specific adjustment to boundary lines

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Permissible Total Withdrawal

- PTW should be set to current use for areas that do not meet CGWA designation criteria
- Varied opinions on PTW values
- Suggestions to adjust PTW value for each of the seven subareas

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Municipal Use

- Rules impose disproportionally severe restrictions. Municipal use is small compared to agricultural use
- Municipal water rights have a unique legal status and should be excluded
- Rules should allow for emergency uses
- Rules do not leave enough room for growth in use and disincentivize conservation

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Tribal Rights

- Burns Paiute Tribal groundwater rights should be exempted from rules
- Burns Paiute Tribe was not properly consulted with
- OWRD should form co-stewardship with the Burns Paiute Tribe

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Implementation

- Curtailment should focus on those subareas that meet "declined excessively" and "excessively declining"
- Adaptive management plan should include springs and streams, GDEs and domestic wells
- 2028 adaptive management check should be removed
- Varied opinions on duty limitation
- Rules should allow for curtailment to be reversed
- Suggestions on range of years used for initial allotment analysis

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Reduction Schedule

- Varied opinions on the length of the proposed schedule
- Rules should phase-in curtailment in smaller quantities at the start
- Rules should phase-in curtailment in larger quantities at the start

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Water Use Measurement and Reporting

- General support for requiring measurement and reporting of groundwater use
- Wells that are regulated off should still be required to report
- Rules should allow for extension of measurement and reporting requirements

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Technical Concerns

- The Harney Basin is not one groundwater reservoir
- Support for the groundwater study and how the data was collected
- Data used is outdated/incorrect
- Impacts to springs and streams should be explored more by collecting relevant data
- Other factors effecting groundwater levels have not been considered
- More data is needed to make management decisions
- Anecdotal evidence provided in support or opposition of the rules

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Impacts

- OWRD has not minimized economic impacts
- OWRD should compensate for economic loss
- Support for stabilizing groundwater levels to stop more dry wells
- Domestic wells are not adequately protected by the rules
- Support for stabilizing groundwater levels to protect the environment
- The proposed rules do not sufficiently protect the environment
- Impacts of fallowed land not considered

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Rulemaking Process

- Fiscal impact analysis is not sufficient
- Economic impact analysis should consider the beneficial impacts to future generations
- Content of the proposed rules reflects the conversations with the community over a decade
- Rulemaking was grounded in a peer-reviewed science and a transparent multi-year process
- OWRD has not answered all the questions asked during the RAC process
- OWRD did not properly engage with local governments and the Burns Paiute Tribes
- Concerns about outside influence on the RAC

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Voluntary Action

- Prioritize voluntary approaches over regulatory approaches
- Allow the community to achieve sustainability on their terms through voluntary actions
- Department has shown commitment to collaboration through place-based planning and the Groundwater Study Advisory Committee

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Next Steps

- Staff to evaluate/incorporate public input into **rule revisions**, as appropriate, August – October 2025
- Staff to prepare **report for the Water Resources Commission**, October – November 2025
- Staff to present proposed rules to the Commission for consideration for **adoption by December 2025**

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Thank you!

WRD_DL_rule-coordinator@water.oregon.gov

Oregon.gov/owrd

@OregonGovWRD

Linkedin.com/company/owrd

Subarea boundaries

- Staff hydrogeologists used the best available science and information to establish subarea boundaries
- Considerations
  - Water level trends (wells responding similarly)
  - Hydraulic gradient (flow of groundwater)
  - Subsurface material (the rocks)
  - NDVI data (limits of surface water travel)
  - More boundaries may lead to more conflict
  - Administrative (more subareas increases complexity)

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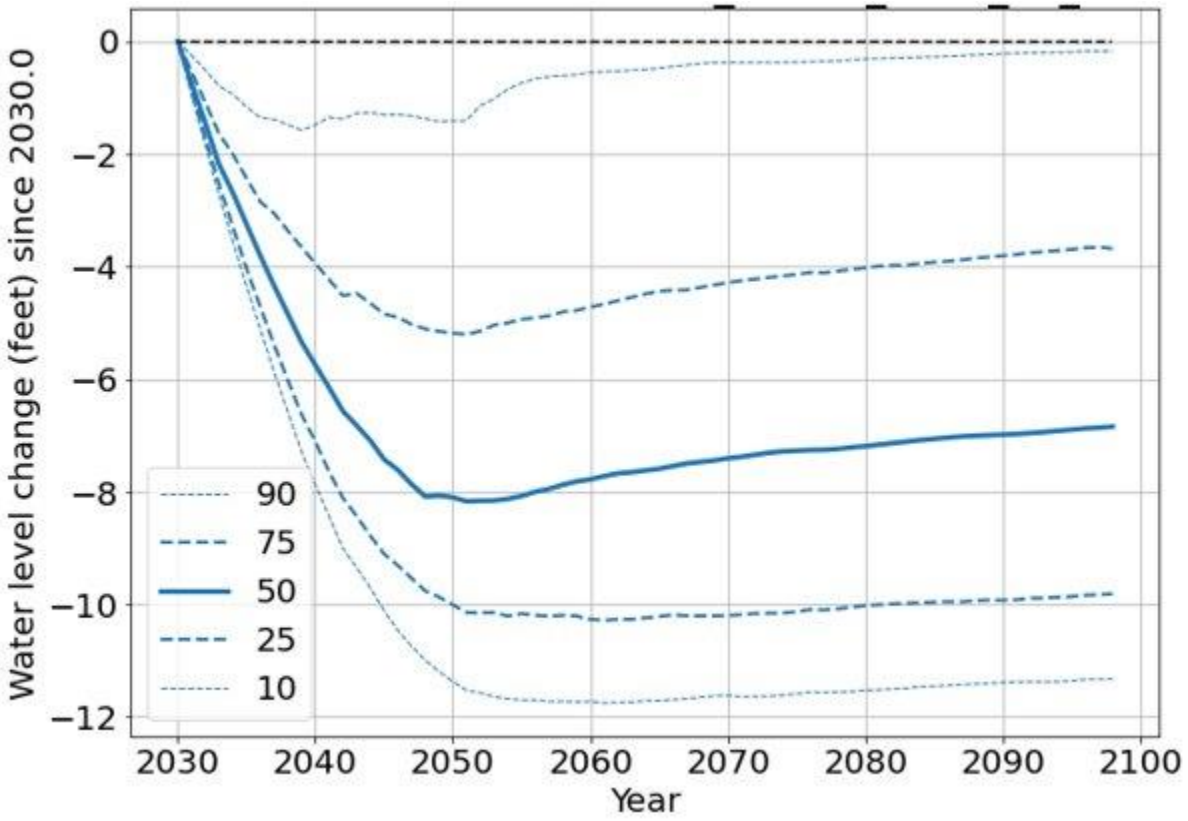
Adaptive Management Envelope



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How Did We Limit Impacts?

<u>Environmental and Domestic</u>

- Frontloading curtailment results in:
  - Higher final water levels
  - Fewer dry domestic wells
  - Less reduction in natural discharge to streams and springs
  - Less reduction in evapotranspiration by groundwater dependent ecosystems
- Requiring durable stability
- Requiring recovery in Weaver Springs reduces impacts on domestic wells substantially

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How Did We Limit Economic Impacts?

- Set goal of stability rather than recovery of groundwater levels
- Optimized the model to identify the smallest reductions in pumping required to achieve durable stability
- Created subareas allowed for targeted water use reductions
- Required stability in half of the wells (median) rather than a higher percentage
- Set timeline to achieve the goal at 30 years rather than ASAP
- Phase reductions over 24 years in 6 yr increments, rather than ASAP
- Implement adaptive management to prevent over-curtailment
- Initial allotment based on historic use, not paper water rights

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Risks of the approach

- Recharge is less than average over the 30 year management period
- PTW is too high (not enough curtailment)
  - Won't achieve the goals

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690-512-0010 Definitions

(2) “Exempt Groundwater Uses” are those defined in ORS 537.545.

(6) “Public Uses” are those uses defined in ORS 537.332.

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690-512-0010 Definitions

- Adaptive Mgmt Checkpoint
- Groundwater Level Change Envelope
- Initial Allotment
- PTW
- Subarea
- Target Groundwater Level Trend

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690-512-0010 Definitions

(1) "Adaptive Management Checkpoint" means the scheduled interval at which the Department evaluates changes in groundwater levels and determines if adjustments to scheduled reductions in groundwater use are required as described in OAR 690-512-0080.

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690-512-0010 Definitions

(3) “Groundwater Level Change Envelope” means the modeled trajectory for groundwater levels to achieve the target water level trend by 2058. A groundwater level change envelope is modeled for each subarea including the median, 10th, 25th, 75th, and 90th percentiles relative to the modeled groundwater levels in 2028. The envelope describes the range of values that will be used to inform the adaptive management process in OAR 690-512-0080. The trajectories are modeled using “Groundwater model of the Harney Basin, southeastern Oregon” by S.B. Gingerich, D.E. Boschmann, G.H. Grondin, and H.J. Schibel, 2024, U.S. Geological Survey Scientific Investigations Report 2024-5017.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0010 Definitions

(5) “Permissible Total Withdrawal” is the annual volume of groundwater the Department has determined can achieve the target groundwater level trend by 2058 when following the schedule of reductions defined in OAR 690-512-0070. The Department may not reduce groundwater pumping through regulatory orders to a value less than the permissible total withdrawal. The unit of measurement for the permissible total withdrawal is acre-feet.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0010 Definitions

(7) “Subarea” means an administratively defined portion of the critical groundwater area to which corrective control provisions under ORS 537.735(3)(a)-(f) may be applied.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0010 Definitions

(8) “Target Groundwater Level Trend” means the goal for the rate of change in groundwater levels within a subarea of the critical groundwater area.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0010 Definitions

(9) “Totalizing flow meter” is an instrument used to measure and display both the instantaneous flow rate, and the total volume of groundwater produced from a well.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0020 Administrative Boundaries

(1) The Greater Harney Valley Groundwater Area of Concern (GHVGAC) Boundary is defined for administrative purposes and is described and shown in Exhibit 1.

(2) The Malheur Lake Basin Boundary is delineated on the agency Map 12.6, dated January 1, 1966, and shown in Exhibit 2.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0020 Administrative Boundaries

(3) The Serious Water Management Problem Area (SWMPA) Boundary is defined as the Harney Basin within the Malheur Lake Basin and within portions of Grant and Harney Counties as shown in Exhibit 3.

(4) The Groundwater Classification Boundary is defined as the Harney Basin within the Malheur Lake Basin and within portions of Grant and Harney Counties as shown in Exhibit 4.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0020 Administrative Boundaries

(3) The Serious Water Management Problem Area (SWMPA) Boundary is defined as the Harney Basin within the Malheur Lake Basin and within portions of Grant and Harney Counties as shown in Exhibit 3.

(4) The Groundwater Classification Boundary is defined as the Harney Basin within the Malheur Lake Basin and within portions of Grant and Harney Counties as shown in Exhibit 4.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0020 Administrative Boundaries

(5) The Harney Basin is defined as the closed surface-water basin that drains into Malheur and Harney Lakes including the four National Watershed Boundary Dataset 8-digit hydrologic units Donner und Blitzen 17120003, Silver 17120004, Harney-Malheur Lakes 17120001, and Silvies 17120002 as shown in Exhibit 5.

(6) The Harney Basin Groundwater Reservoir Boundary is defined as the area coincident with the Harney Basin Boundary, as shown in Exhibit 5.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0020 Administrative Boundaries

(7) The Harney Basin Critical Groundwater Area Boundary is defined as the area coincident with the Greater Harney Valley Groundwater Area of Concern Boundary as shown in Exhibit 1 and contains a portion of the Harney Basin Groundwater Reservoir. The boundary of the Harney Basin Groundwater Reservoir is shown in Exhibit 5.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0030 Classifications

(1) Except as provided in section 2 of this rule, the groundwater and surface water of the Malheur Lake Basin are classified for direct appropriation of, or storage of surface water and use of, water for domestic, livestock, irrigation, municipal, quasi-municipal, industrial, mining, agricultural water use, commercial, power development, forest management, public uses, road watering, dust abatement, and wildlife refuge management.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0030 Classifications

(2) Groundwater in the Groundwater Classification Boundary defined in OAR 690-512-0020(4) is classified for statutorily exempt groundwater uses as specified in ORS 537.545 and nonconsumptive geothermal uses.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0041 Harney Basin Critical Groundwater Area

(1) The target groundwater level trend within the Harney Basin Critical Groundwater Area is a median groundwater level decline rate of no more than 0 feet per year over a five-year period when calculated as described in OAR 690-512-0080(7).

(2) The Department may access any well within the critical groundwater area that is authorized as a point of appropriation on a valid water right for the purpose of implementing these rules. The Department will provide notice to the groundwater right holder, well owner, or well operator prior to accessing the well.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0041 Harney Basin Critical Groundwater Area

(3) A review of the Harney Basin Critical Groundwater Area rules shall be completed once every 3 years. The review shall be presented at a public meeting held within the basin at which written and oral public comment shall be accepted. The review and a summary of public comments received shall then be presented at a Commission meeting which has been publicly noticed and provides opportunity for public comment.

(4) A review of the conditions in the Harney Basin Critical Groundwater area shall be completed no less frequently than once every 10 years. The review shall be presented at a public meeting held within the basin at which written and oral public comment shall be accepted. The review and a summary of public comments received shall then be presented at a Commission meeting which has been publicly noticed and provides opportunity for public comment.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0041 Harney Basin Critical Groundwater Area

(5) Except as defined in OAR 690-512-0030(2) Classifications, the Department will not accept new applications for groundwater permits within the Harney Basin Critical Groundwater Area.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0041 Harney Basin Critical Groundwater Area

(6) The Harney Basin Critical Groundwater area defined in OAR 690-512-0020(7) shall be divided into seven subareas for the purpose of management as shown in Exhibit 6.

a. The Dog Mountain subarea is shown in Exhibit 7.

b. The Lower Blitzen-Voltage subarea is shown in Exhibit 8. c.

c. The Northeast-Crane subarea is shown in Exhibit 9.

d. The Silver Creek subarea is shown in Exhibit 10.

e. The Silvies subarea is shown in Exhibit 11.

f. The Upper Blitzen subarea is shown in Exhibit 12.

g. The Weaver Springs subarea is shown in Exhibit 13.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0050 Permissible Total Withdrawal for Each Subarea Within the Harney Basin Critical Groundwater Area

(1) The permissible total withdrawal for the Dog Mountain subarea shall be 4,200 acre-feet per year.

(2) The permissible total withdrawal for the Lower Blitzen-Voltage subarea shall be 8,300 acre-feet per year.

(3) The permissible total withdrawal for the Northeast-Crane subarea shall be 35,000 acre-feet per year.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0050 Permissible Total Withdrawal for Each Subarea Within the Harney Basin Critical Groundwater Area

(4) The permissible total withdrawal for the Silver Creek subarea shall be 15,200 acre-feet per year.

(5) The permissible total withdrawal for the Silvies subarea shall be 21,200 acre-feet per year.

(6) The permissible total withdrawal for the Upper Blitzen subarea shall be 76 acre-feet per year.

(7) The permissible total withdrawal for the Weaver Springs subarea shall be 4,800 acre-feet per year.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0060 Determination of Initial Allotment for All Groundwater Rights

(1) To establish a schedule for reductions in groundwater use, the Department will determine an initial allotment for each groundwater right within the critical groundwater area which will be implemented through an order after completion of the contested case process as required in OAR 690-010. The initial allotment shall not exceed the total rate or duty authorized on the water right.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0060 Determination of Initial Allotment for All Groundwater Rights

(2) In determining the initial allotment for each groundwater right with an irrigation use, the Department will:

a. Use a duty of 2.5 acre-feet per acre for primary and supplemental groundwater rights; and

b. Consider the historic, beneficial use in the five-year period from 2020 to 2024 when identifying the number of acres that will be allotted water.

OREGON WATER RESOURCES DEPARTMENT

690-512-0060 Determination of Initial Allotment for All Groundwater Rights

(3) The initial allotment for municipal and quasi-municipal rights shall be a quantity of water equal to 110% of the greatest single-year quantity reported to the Department in the five-year period from 2020 to 2024.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0060 Determination of Initial Allotment for All Groundwater Rights

(4) In determining the initial allotment for each groundwater right with use types other than irrigation, municipal, and quasi-municipal, the department will consider:

a. The limits of the groundwater rights;
b. Historic beneficial use in the five-year period from 2020 to 2024;
c. Whether or not a water user is physically capable of pumping and putting the allotted water to a beneficial use; and
d. Any other factors deemed appropriate by the Department to determine historic beneficial use.

OREGON WATER RESOURCES DEPARTMENT

690-512-0070 Scheduling Water Use Reductions to Meet the Permissible Total Withdrawal

Notwithstanding adjustments made by the adaptive management methodology defined in OAR 690-512-0080, upon consideration of all water rights and after determining the initial allotment for each:

(1) Water use within the Weaver Springs subarea will be scheduled to be reduced to the permissible total withdrawal with 75% of the total reduction being scheduled for 2028 and the remaining 25% of the reduction scheduled for 2034;

OREGON
WATER RESOURCES DEPARTMENT

690-512-0070 Scheduling Water Use Reductions to Meet the Permissible Total Withdrawal

(2) Water use within all remaining subareas of the Critical Groundwater Area will be scheduled for reduction to the permissible total withdrawal with 40% of the total reduction scheduled in 2028, 30% of the total reduction scheduled for 2034, 15% of the total reduction scheduled for 2040, 10% of the total reduction scheduled for 2046, and 5% of the total reduction scheduled for 2052;

OREGON
WATER RESOURCES DEPARTMENT

690-512-0070 Scheduling Water Use Reductions to Meet the Permissible Total Withdrawal

(3) The schedule for reductions will be based on the relative priority dates of the water rights within each subarea, with the most junior water rights being curtailed first;

(4) Municipal and quasi-municipal water use will be evaluated at each adaptive management checkpoint, and the schedule of reductions may be adjusted so that the allotment for each municipal or quasi-municipal right is increased or decreased to 110% of the greatest single year quantity reported to the Department in the preceding 6 years. The allotment shall not exceed the total quantity of water authorized on the water right;

OREGON
WATER RESOURCES DEPARTMENT

690-512-0070 Scheduling Water Use Reductions to Meet the Permissible Total Withdrawal

(5) Uses exempt under ORS 537.545 are not subject to reduction;

(6) Corrective control orders reducing use will not be enforced until the completion of the contested case process specified in OAR 690-010-0170 through 230;

(7) If enforcement of corrective control orders reducing use does not occur as scheduled in 2028, then at such time as enforcement occurs, all reductions scheduled under OAR 690-512-0070(1)(a) and (b), including any adjustments that should have occurred at the adaptive management checkpoints defined in OAR 690-512-0080, will be included in the enforcement.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

The purpose of this section is to define how the Department will adaptively manage the Harney Basin Critical Groundwater Area over a 30-year period starting in calendar year 2028 with adaptive management checkpoints in calendar years 2033, 2039, 2045, and 2051 which are the years immediately preceding the scheduled reductions in OAR 690-512-0070 of these rules.

(1) Weaver Springs subarea is exempt from the adaptive management process as defined in section 2 through 5 of this rule.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

(2) For each subarea, if the contested case process is complete and corrective control orders reducing use can be implemented in 2028, the Department will:

a. Determine the 2027 median annual high groundwater level for each subarea and compare it with the median annual high groundwater level measured in 2022 using representative wells with sufficient data as determined by the Department;

b. Calculate the median groundwater level decline rate using the Sen's slope method using annual high measurements for representative wells with sufficient data as determined by the Department for years 2022 through 2027; and

OREGON
WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

c. If the median annual high groundwater level in 2027 is found to be greater than or equal to than the median annual high groundwater level measured in 2022 and the groundwater level decline rate calculated for 2022 through 2027 is found to be zero or above, then the regulatory reductions scheduled for 2028 will be reduced to zero.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

(3) Groundwater level changes will be evaluated using representative wells with sufficient data as determined by the Department.

a. For each representative well the groundwater level change will be evaluated based on a reference groundwater level determined by the Department. The reference groundwater level for a well shall be the annual high static water level measurement in calendar year 2028, if one exists. Otherwise, the Department may establish the reference groundwater level based on an analysis of water level data from that well or other water level data in nearby wells.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

b. For each representative well, the groundwater level change will be calculated as the difference between the annual high static water level measured at the adaptive management checkpoint being evaluated and the reference groundwater level.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

(4) The median groundwater level change for each subarea will be evaluated at each adaptive management checkpoint using representative wells with sufficient data as determined by the Department.

OREGON WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

(5) At each adaptive management checkpoint, the Department will compare the median groundwater level change for each subarea defined in OAR 690-512-0041 with the groundwater level change envelope defined Exhibit 14. If the median groundwater level change for a subarea is:

a. At or below the 10th percentile, the scheduled quantity of reduction will be doubled.

b. Between the 10th and 25th percentiles, the scheduled quantity of reduction will be increased by one and a half times.

OREGON WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

c. From the 25th and through 75th percentiles, no adjustment will be made.

d. Between the 75th and 90th percentiles, the scheduled quantity of reduction will be halved unless 10% or more of the measured wells fall below the 10th percentile.

e. At or above the 90th percentile, the scheduled quantity of reduction will be reduced to zero unless 10% or more of the measured wells fall below the 10th percentile.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

(6) At the end of each adaptive management checkpoint evaluation and after the Department has completed sections 3 through 5 of this rule, the Department will hold at least one public meeting at a location within the critical groundwater area boundary at which the Department will present:

a. The findings of the evaluation of groundwater level changes.

b. The comparison to the groundwater level change envelope.

c. Any adjustments to the scheduled reductions.

OREGON WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

(7) No sooner than 2058, the Department will evaluate the groundwater level decline rate for each subarea to identify if the target groundwater level trend has been achieved. The groundwater level decline rate will be calculated using the Sen's slope method using annual high measurements for representative wells with sufficient data as determined by the Department from the 6 years leading up to the evaluation. After the evaluation in this section, if:

OREGON WATER RESOURCES DEPARTMENT

690-512-0080 Adaptive Management of the Harney Basin Critical Groundwater Area

a. The target water level trend has not been achieved and all scheduled reductions have not been implemented, the Department will evaluate groundwater conditions and implement additional reductions as needed to achieve the target water level trend;

b. The target water level trend has not been achieved and all scheduled reduction have been implemented, the Department will initiate a rulemaking process to adjust the permissible total withdrawal as needed to achieve the target water level trend; or

c. The target water level trend has been achieved and all scheduled reductions have not been implemented, the Department will initiate a rulemaking process to adjust the permissible total withdrawal to match the implemented reductions.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(1) Groundwater conditions within the SWMPA boundary defined in OAR 690-512-0020(3) meet the criteria defined in OAR 690-085-0020(1)(a) and OAR 690-085-0020(1)(f).

OREGON
WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(2) By no later than March 1, 2028, each groundwater right holder, well owner, or well operator shall properly install and thereafter properly maintain a totalizing flow meter on each well listed as a point of appropriation on a valid groundwater right within the Harney SWMPA boundary as defined in OAR 690-512-0020(3). The Department may extend the deadline as needed. If the deadline is extended, the Department will notify each groundwater right holder, well owner, or well operator at least 60 days before March 1, 2028. Groundwater wells that are regulated off and disconnected from all water use infrastructure do not require a totalizing flow meter to be installed unless or until use is permitted to resume.

OREGON WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(3) Totalizing flow meters shall be properly installed according to manufacturer specifications and must meet the specifications in section 6 of this rule.

(4) Totalizing flow meters and the method of flow meter installation may be subject to approval by Department staff. Once installed, totalizing flow meters must be maintained in good working order. Department staff shall have reasonable access to the totalizing flow meters upon request pursuant to ORS 537.780(1)(e).

OREGON
WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(3) Totalizing flow meters shall be properly installed according to manufacturer specifications and must meet the specifications in section 6 of this rule.

(4) Totalizing flow meters and the method of flow meter installation may be subject to approval by Department staff. Once installed, totalizing flow meters must be maintained in good working order. Department staff shall have reasonable access to the totalizing flow meters upon request pursuant to ORS 537.780(1)(e).

OREGON
WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(5) The groundwater right holder, well owner, or well operator shall keep a complete record of the volume of water appropriated each month. The groundwater right holder, well owner, or well operator shall submit annually a report that includes water use measurements to the Department by December 31 of each calendar year for water used between November 1st of the preceding year and October 31st of the current year. Reports shall be submitted using a form developed and maintained by the Department.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

a. Groundwater wells regulated off are not required to report until use is permitted to resume.

b. b. Any governmental entity required to submit water use reports under OAR 690- 085 is exempt from the reporting requirements of this rule.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(6) A totalizing flow meter shall meet the following specifications:

a. A totalizing flow meter shall have a rated accuracy of plus or minus 2 percent of actual flow for all flow rates for which the meter is expected to measure;

b. A totalizing flow meter shall measure the entire discharge from the well;

c. A totalizing flow meter shall have a visual and recording, mechanical or digital totalizer located on or adjacent to the flow meter and shall be equipped with a sweep hand or digital readout so that instantaneous flow rate can be read;

OREGON WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

d. The totalizing part of the flow meter shall have sufficient capacity to record at minimum the quantity of water authorized to be pumped over a period of 2 years. Units of water measurement shall be in acre-feet, cubic-feet, or gallons, and the totalizer shall read directly in one of these units. Flow meters recording in acre-feet shall, at a minimum, read to the nearest 1/10th acre-foot, and the decimal multiplier shall be clearly indicated on the face of the register head;

690-512-0110 Serious Water Management Problem Area (SWMPA)

e. Totalizers on each meter shall not be field reset without notice to and written permission from the local watermaster. Prior to resetting the totalizers, the final reading must be recorded and reported;

f. The totalizing flow meter shall be installed in accordance with all manufacturer specifications. There shall be no turnouts or diversions between the well and the flow meter; and

g. The totalizing flow meter shall be installed no more than 100 feet from the well head unless an exception is approved by the watermaster in writing.

OREGON WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(7) A water user shall report broken flow meters to the local watermaster's office within 48 hours after determining that the flow meter is broken. A water user shall not appropriate water for more than 60 days without an operating flow meter.

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WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(8) While the flow meter is broken, the water user shall use other methods of reporting as defined under OAR 690-085-0015(5) until the flow meter is replaced or repaired. The water user shall keep the monthly data and mail the data to the local watermaster upon request. The data shall include a statement of the initial reading on the newly installed flow meter, the current power meter reading and the time of operation. The water user shall notify the local watermaster within 48 hours of installing the repaired or replacement flow meter.

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WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(9) Failure to have and maintain a properly installed, functioning totalizing flow meter by the deadline will result in the local watermaster regulating and controlling the unmetered well such that no groundwater may be pumped or appropriated until a flow meter is installed consistent with these rules.

OREGON
WATER RESOURCES DEPARTMENT

690-512-0110 Serious Water Management Problem Area (SWMPA)

(10) Consistent with ORS 536.900, ORS 183.745, and OAR 690-260, the Department may assess civil penalties for violation of these rules.

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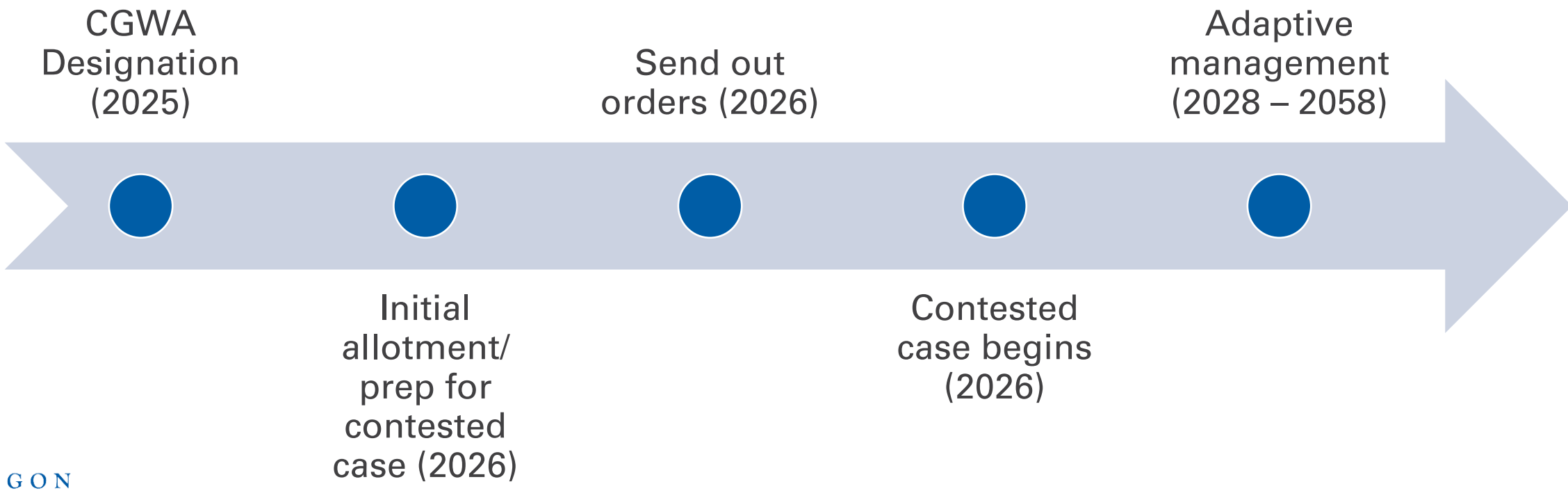
Timeline of the process after rule adoption



OREGON WATER RESOURCES DEPARTMENT

Harney Basin: Groundwater Studies

2015 — 2025

DOGAMI geologic mapping (2015 -16)

USGS Groundwater Study (2016 – 24)
18 groundwater advisory committee meetings
Flow model development, public meetings

Observation Well Pair Installations (2015 – 18)

Well Rehab & Community Monitoring Network (2017)

Well Elev. Survey (2018)

Obs Wells and AgriMet Stations (2019)

Harney Basin – STUDIES, PLANNING, & INVESTMENTS

Division 512 Rulemaking

2021

2 Info Sessions (2022)

Pre-RAC Outreach (2023)

15 RAC Meetings (2023 – 2025)

14 Discussion Groups (2024- 2025)

5 Info Sessions (2023)

Develop Draft Guidance for Voluntary Agreements (2024)

6 Info Sessions (2025)

9 Public Hearings (2025)

Economic Impacts Study (2025)

WRC Decision Dec 2025

Quarterly WRC Updates

Harney Basin: Place-Based Water Planning

2015 → 2025

Place-Based Water Planning (2016-present)

$600k grant funding, technical assistance, meeting support

CBWP Plan Development (seeking recognition 2025)

Harney Basin: Economic Studies/ Misc. Grant Program Funding

2021 → 2025

Feasibility Study Grants: 2 projects awarded (2022)

Well Abandonment, Repair, and Replacement Fund (WARRF) (2022 – Present)

2023 Business Case for Investing in Water

Harney Domestic Well Fund (2024 – present)

CREP Tech Asst and Funding (2025)

Themes of comments: Boundaries Example

Comment:

The Windy Point area should be part of the Lower Blitzen-Voltage subarea, not the Northeast-Crane subarea.

Response:

- The groundwater level trends in the Windy Point area are declining at faster rates and greater magnitudes than the Lower Blitzen-Voltage subarea and fall within the range of water level trends in the other areas grouped together into the Northeast-Crane subarea.
- The subsurface materials in the Windy Point area are more similar to those in the Northeast-Crane subarea than they are to the Lower Blitzen-Voltage subarea.
- The Windy Point area includes two distinct cones of depression, similar to those in the Northeast-Crane subarea. Cones of depression are not present in the Lower Blitzen-Voltage subarea.

Subarea	Average Magnitude (feet)	Median Magnitude (feet)
North Harney (n=9)	-35.9	-31.3
Crane (n=26)	-22.5	-20.1
Rock Creek (n=16)	-21.5	-19.1
Lawen (n=23)	-18.5	-18.3
Windy Point (n=15)	-13.4	-14.2
Poison Ck-Rattlesnake Ck (n=35)	-10.9	-10.6
Crane-Buchanan (n=58)	-14.7	-10.3
Lower Blitzen-Voltage (n=54)	-4.9	-2.9

Subarea	Average Rate (ft/year)	Median Rate (ft/year)
Rock Creek (n=12)	-3.1	-3.3
Lawen (n=16)	-2.1	-2.2
North Harney (n=7)	-2.3	-2.2
Crane-Buchanan (n=40)	-1.3	-1.4
Crane (n=20)	-1.2	-0.9
Windy Point (n=6)	-1.1	-0.9
Poison Ck-Rattlesnake Ck (n=20)	-0.9	-0.8
Lower Blitzen-Voltage (n=27)	-0.3	-0.3

OREGON WATER RESOURCES DEPARTMENT

How Did We Limit Impacts?

<u>Environmental and Domestic</u>

- Frontloading curtailment results in:
  - Higher final water levels
  - Fewer dry domestic wells
  - Less reduction in natural discharge to streams and springs
  - Less reduction in evapotranspiration by groundwater dependent ecosystems
- Requiring durable stability
- Requiring recovery in Weaver Springs reduces impacts on domestic wells substantially

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WATER RESOURCES DEPARTMENT

How Did We Limit Economic Impacts?

- Set goal of stability rather than recovery of groundwater levels
- Optimized the model to identify the smallest reductions in pumping required to achieve durable stability
- Created subareas allowed for targeted water use reductions
- Required stability in half of the wells (median) rather than a higher percentage
- Set timeline to achieve the goal at 30 years rather than ASAP
- Phase reductions over 24 years in 6 yr increments, rather than ASAP
- Implement adaptive management to prevent over-curtailment
- Initial allotment based on historic use, not paper water rights

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- Perception of the PTW being more strict
- How the Lower Blitzen and Crane subarea boundaries were drawn
- Municipal sticking points – curtail equitably, no limit potentially, no reductions in their total use
- Voluntary agreements – form a committee, voluntary agreements
- Reasonably stable versus target water level trends

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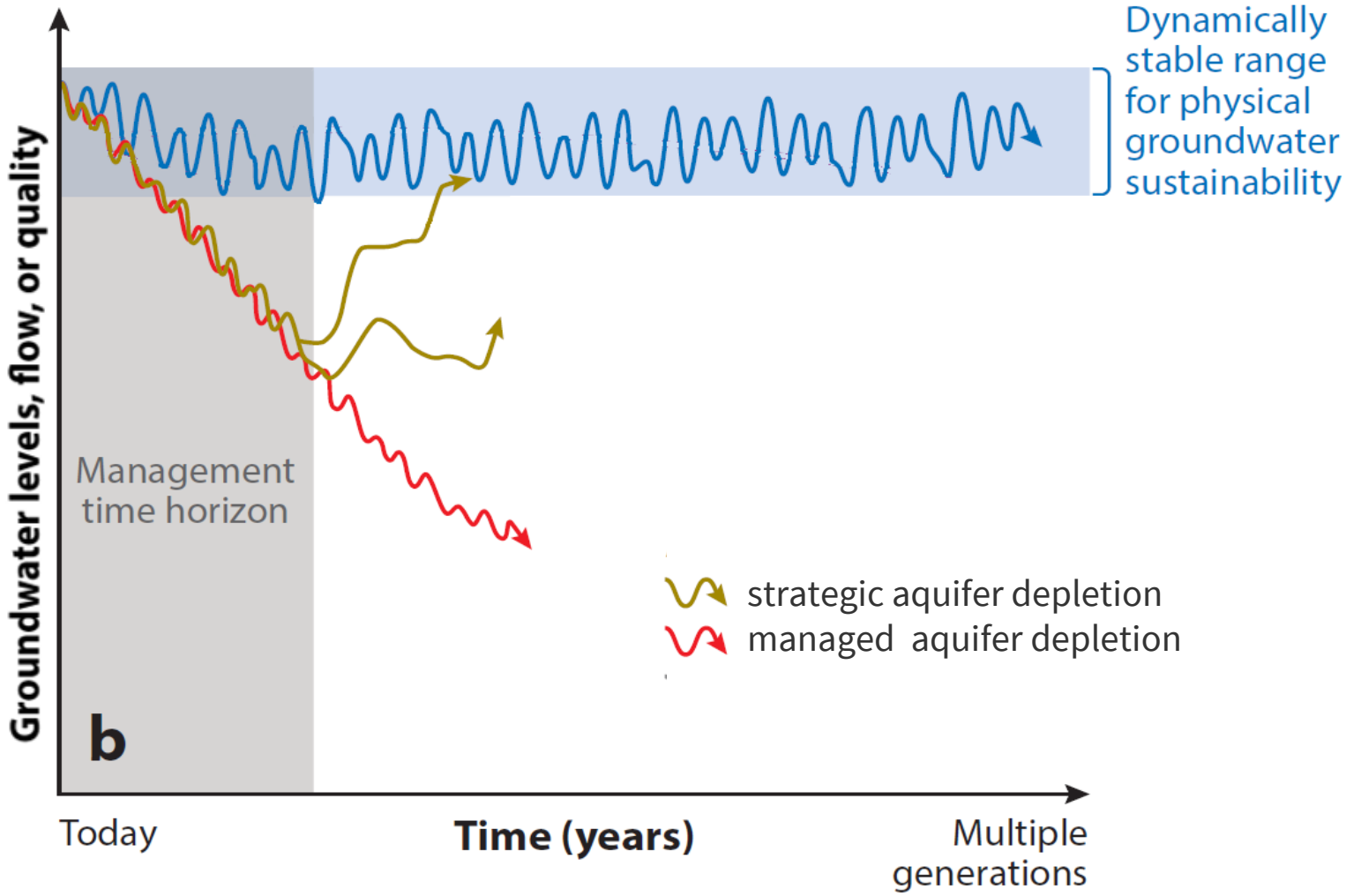
Reasonably Stable Water Levels Science-Based Framework



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Excerpted and modified from: Gleeson and others, 2020, Annual Review of Earth and Planetary Science, 48, 431-63 (Figure 2b). Available at: https://www.annualreviews.org/doi/10.1146/annurev-earth-071719-055251

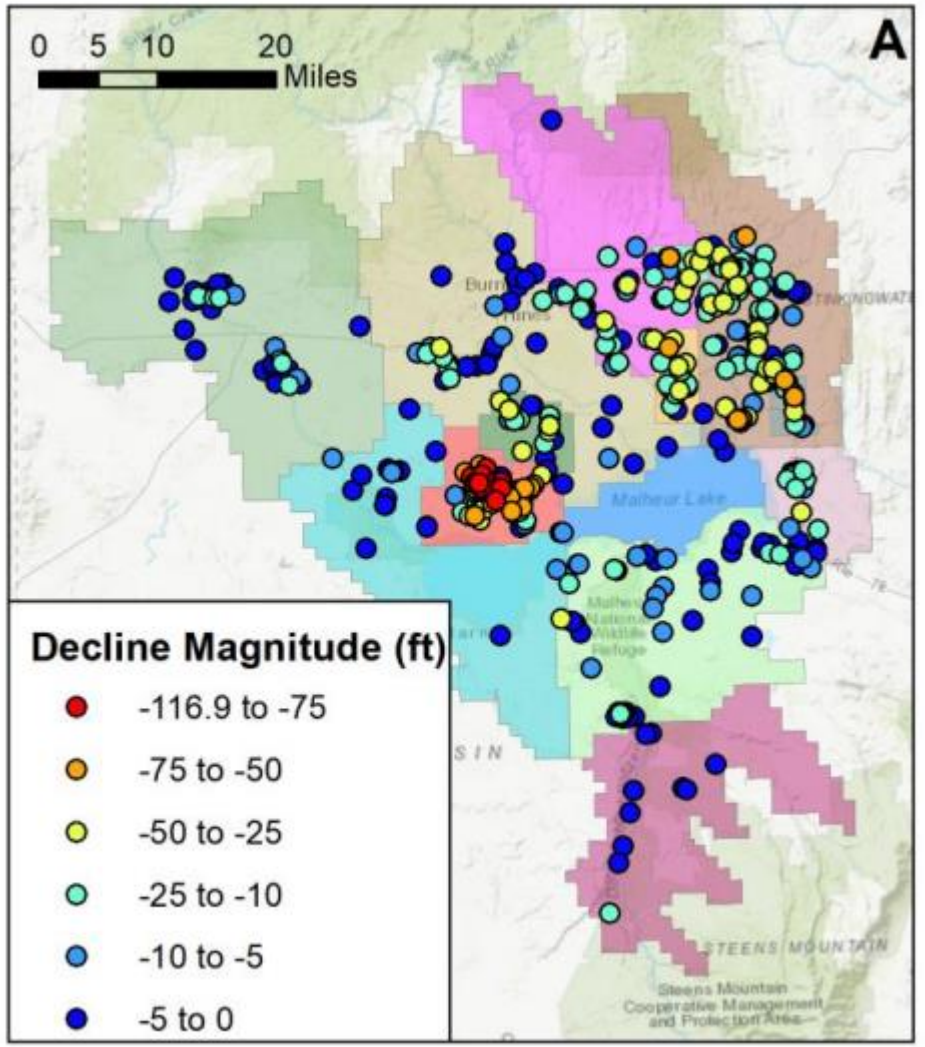
Notes

1. Annette suggest shorting the rule making portion
2. Hammer on the theme of all of the work that has been done through out the project
3. Figure out where the science portion of comments will go – Annette

OREGON
WATER RESOURCES DEPARTMENT

Groundwater Level Trends Analysis

- Provides summary statistics of groundwater level trends across the GHVGAC
- Both rate and magnitude
- Uses data through 2024
- Uses both OWRD measurements and reported permit condition data



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Link: Groundwater Level Trends in the Proposed Harney Basin Critical Groundwater Area

Impacts of rules: Economic

Impacts of rules: Economic

General Themes of Comments:

1. OWRD has not minimized economic impacts
2. Impacts of rules (Harney power, property value, hay prices, small businesses, Harney county)
3. OWRD should compensate for economic losses
4. Rules should provide economic pathway
5. Economic impact analysis should consider the beneficial impacts to the future generation
6. Curtailment can incentivize other development opportunities

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Impacts of rules: Domestic Wells

Impacts of rules: Domestic Wells

<u>General Themes of Comments:</u>

1. Support for stabilizing groundwater levels to stop more dry wells
2. The rules should not allow for more domestic wells to go dry
3. Domestic wells are not adequately protected by the rules

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Impacts of rules: Environmental

Impacts of rules: Environmental

General Themes of Comments:

1. Support for stabilizing groundwater levels to protect the environment
2. Restoring springs and streams should be priority
3. Proposed rules will result in severe impacts to the environment going against what is required in the water code
4. Impacts of soil degradation, loss of soil quality and nutrition, erosion, run off, loss of ecosystems, wildlife habitat, and the major loss of carbon sequestering not considered

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Implementation

General Themes of Comments:

1. Curtailment should focus on those subareas that meet "Decline excessively" and "excessively declining"
2. OWRD should partner with GW users to provide local knowledge for groundwater management and adaptive management
3. Support for adaptive management plan
4. 2028 adaptive management check should be removed – ignores 30 years of decline
5. Adaptative management plan should be more flexible

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Initial Allotment

Initial Allotment

General Themes of Comments

1. Number of years that should be considered in the determination
2. Hardship should be considered in the determination
3. Support for 2.5 AF duty
4. Concerns with 2.5 AF duty
5. Concerns with restricting the water right to actual use
6. Support of using actual use

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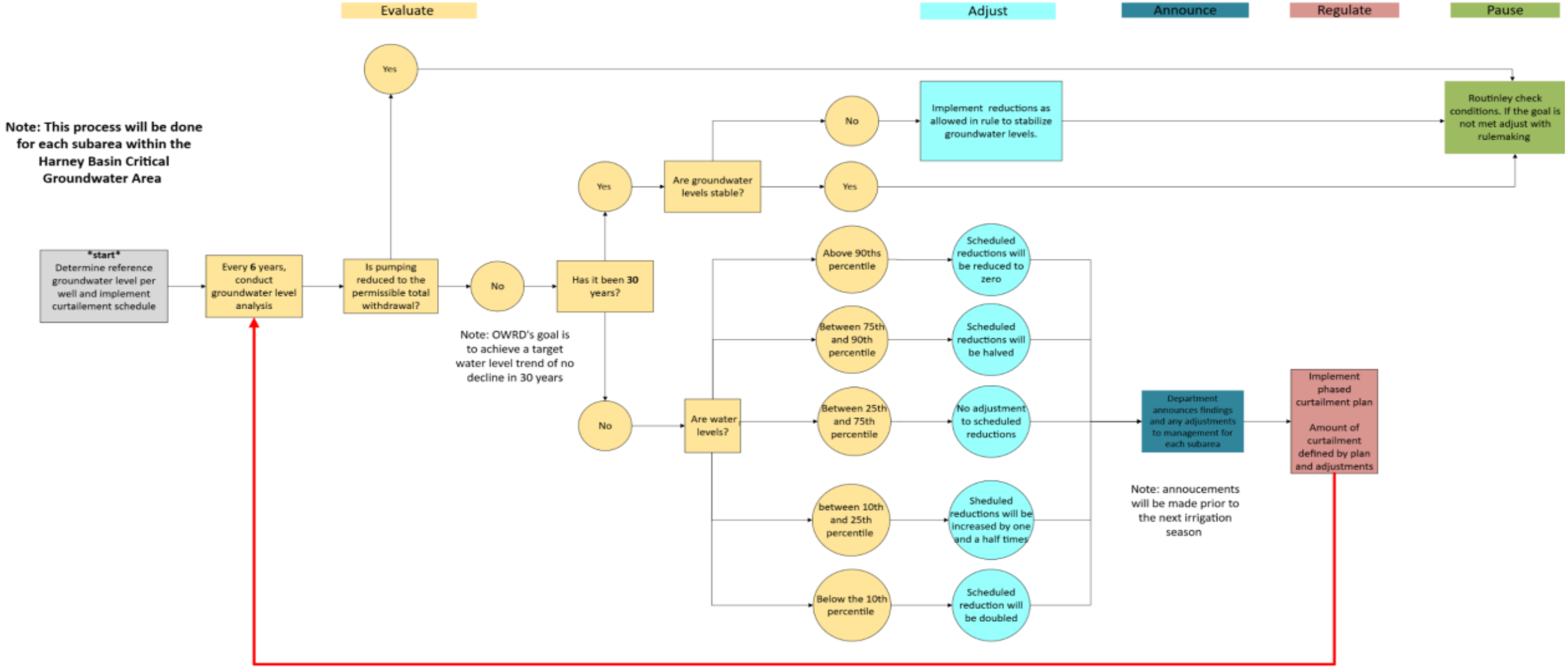
Proposed Adaptive Management Plan in the Harney Basin



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Themes of comments

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