

Division 512 Rulemaking Update

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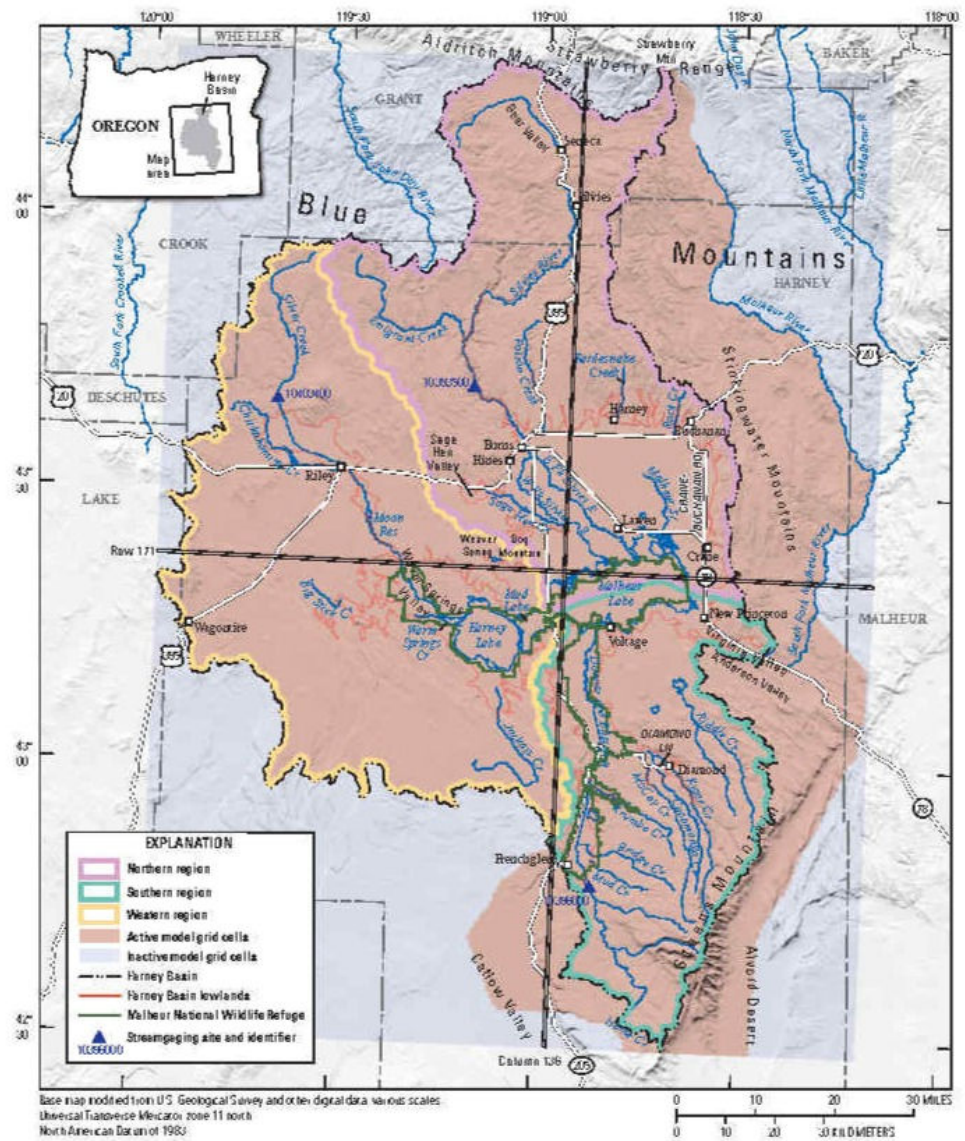
Outline

- What we've learned related to the management elements (dials) through sensitivity runs
- Impacts and putting the modeling in perspective
- Proposed management scenario and RAC feedback
- Implementation and adaptive management
- Fiscal impact
- Next steps including timeline for RACs and public comment

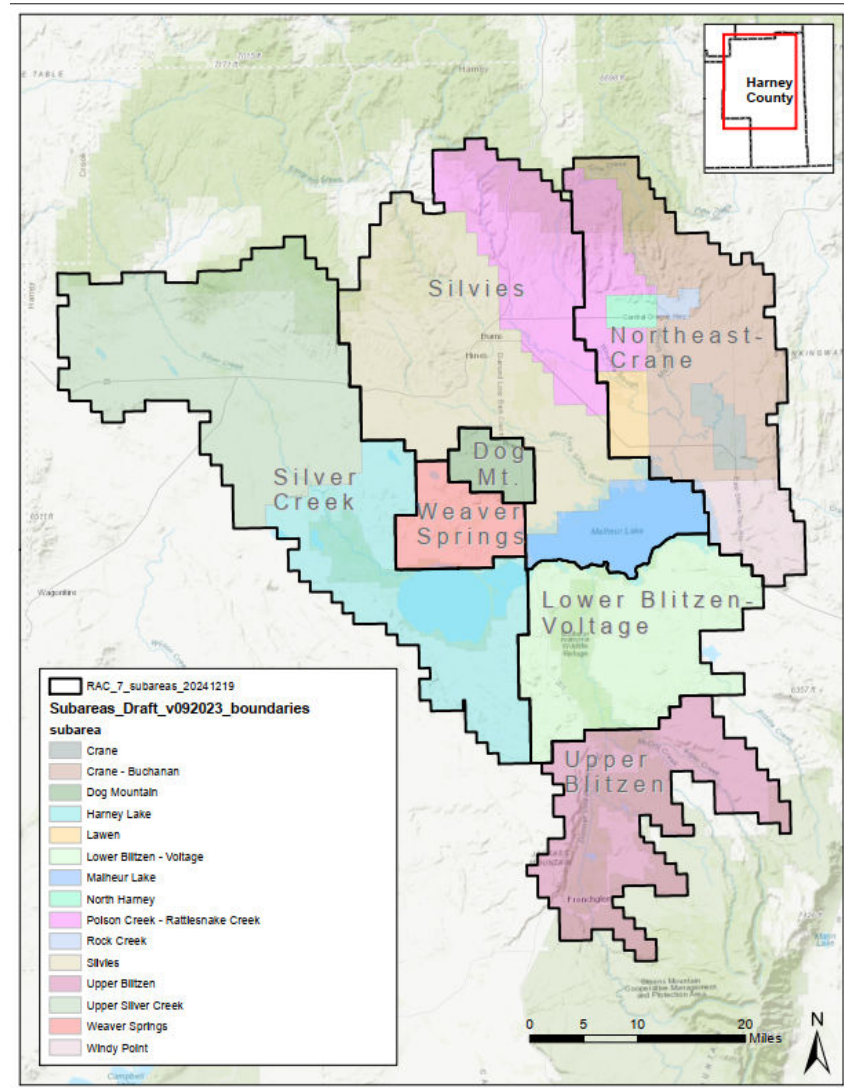
Learning through modeling

- The Harney Basin Groundwater Model (HBGM) released in early 2024
- Hundreds of staff hours spent building tools and modeling
- First approach: design scenarios to test with the model
- Second approach: built software to identify the maximum pumpage and achieve the goal of stable water levels
- Performed sensitivity analyses to isolate and understand variables

Model grid map



Subarea map



What we learned: spatial extent

- More subareas means generally larger permissible total withdrawal (PTW) – less curtailment
- Sensitivity runs:
 - Splitting Dog Mountain and Weaver Springs has little impact on overall curtailment
 - Spatial variability of water level rate of change similar between 15 and 6 subareas (about -0.5 - +0.3 ft/yr)

What we learned: success metric

- More stringent success metric (e.g. 80th percentile) means:
 - Higher final water levels
 - Smaller PTW (more curtailment)

What we learned: timeline to achieve goal

- Shorter timelines to achieve the goal means:
 - Higher final water levels
 - Less impact to springs & streams, natural evapotranspiration (ET), domestic wells
 - Smaller PTW (more curtailment)
 - Less time for adaptive management

What we learned: phased reductions

- Shorter timelines for phasing reductions means:
 - Higher final water levels
 - Less impact to springs & streams, natural ET, domestic wells
 - Less opportunity for adaptive management
- Sensitivity runs:
 - Frequency of checkpoints for phased curtailment (3, 6, or 9 years) have no impact on final PTW
 - More aggressive timelines in Weaver Springs and Silver Creek provides additional benefit to critical springs
 - Frontloading curtailment reduces basin-wide impacts

What we learned: impacts

- Sensitivity runs:
 - Silver Creek is a critical contributor to spring flow
 - Silver Creek, Silvies, and Dog Mountain subareas supply groundwater to the Weaver Springs subarea.
 - Targeting only Weaver Springs for quick and substantial reductions provides limited protection for spring flow

Modeling uncertainty

- A model is only as good as the inputs. We have:
 - Limited historic spring discharge measurements
 - Substantial historic water level measurements
- Very confident in calibration to groundwater levels
- Less confident in calibration to spring discharge and ET
- A focus on achieving higher stable water levels =>:
 - Fewer dry wells
 - Less spring impacts
 - Less impact to groundwater dependent ecosystems

WRD proposed management scenario (RAC 12)

Parameter	Proposed Management Scenario
Spatial extent	7 subareas
Stability success metric	Median (50 th percentile) of well-cells
Timeline to achieve goal	30 years
Phasing timeline	24 years
Frequency of adaption	Every 6 years
Discharge to streams and springs	At least 50-70% of 2022 rates
Natural evapotranspiration	At least 60% of 2018 rates
Dry domestic wells	No more than 170% of 2018 counts

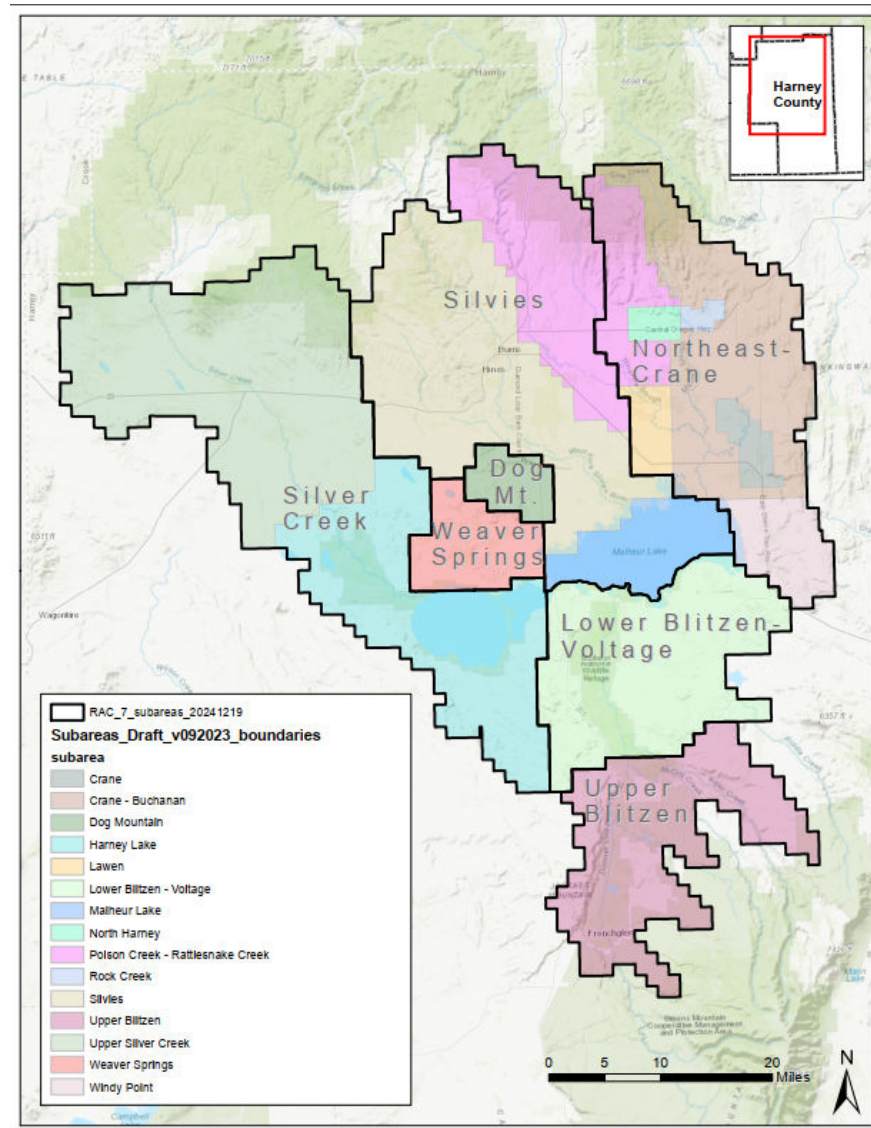
Slide 12

SWO We can shorten this up here if needed. I'm not sure there is significant value in presenting this scenario to the commission when it is no longer our proposed scenario.

SPRIET Jason D * WRD, 2025-03-06T20:12:27.248

7 subarea map

- WRD proposed 7 subareas overlaid on the original proposed 15 subareas

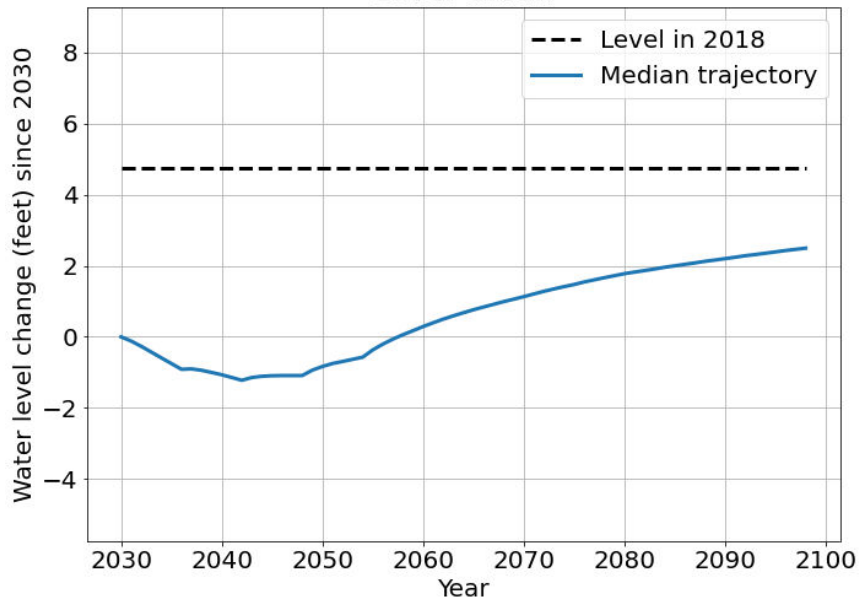


WRD proposed scenario results

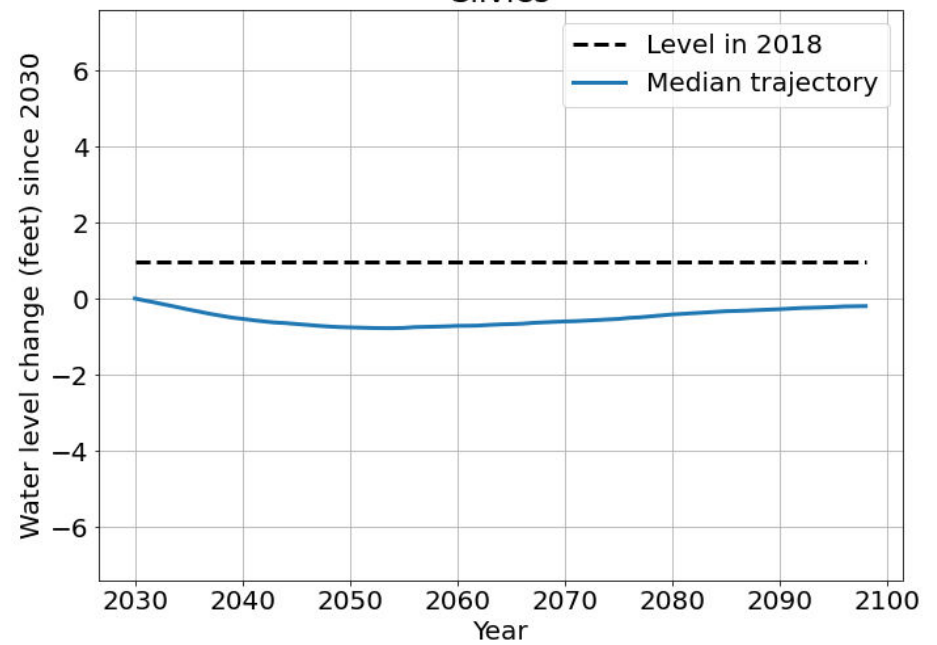
Attribute	WRD RAC 12 Proposal
Final PTW (af/yr)	82,800 AF
Change in pumpage from 2018 (% from 2018 to 2060)	-53,700 AF
Percent change in pumpage from 2018	-38%
Change in lowland spring & streamflow (% from 1980 to 2042)	-41%
Change in lowland natural ET (% from 2018 to 2042)	-28%
Change in dry well count (# additional from 2018 to 2042)	+47

Sample modeled water level trajectories

Silver Creek



Silvies



RAC Feedback

Spatial extent

- 15 subareas may restrict the creation of voluntary agreements and successful market solutions
- One subarea would honor prior appropriation
- Many RAC members support the 7-subarea concept
- 15 subareas allows for targeted curtailment
- There should be a process to adjust subarea boundaries

RAC Feedback

Success metric

- Use a well-by-well approach or the mean
- Use the median of measured wells within a subarea
- Use the median of measured wells and include a limit on individual well declines
- Use the 80th percentile and include a limit on individual well declines

RAC Feedback

Timeline to achieve the goal

- It took a generation to create the problem, we should take a generation to fix it
- 30 years is too long since groundwater levels have been declining for a long time

RAC Feedback

Phasing timeline

- 24 years is too long, 6 years would be better
- Weaver Springs should be curtailed immediately; one suggestion is a 75% reduction in the first 3 years
- Weaver Springs should be on a different timeline; 24 years is too long
- 24 years provides an economic adjustment period and 6-year adaption periods increases certainty for water users

RAC Feedback

Impacts to springs/streams and ET

- Protecting springs and streams is an element of preserving public welfare, safety, and health
- The highest percentage of springs and streams should be protected by immediate implementation
- The model has some uncertainty (specifically Double O)
- Setting thresholds for protecting springs and streams is not what WRD has proposed as the goal of this process

RAC Feedback

Impacts to domestic wells

- The Department should not allow any more domestic wells to go dry
- ORS 537.525(5) does not allow the Department to elevate economic impacts and delayed curtailment over protecting domestic wells. They must assure “adequate and safe supplies of ground water for human consumption”
- Domestic wells can also go dry because of poor well construction and depth
- Domestic well issues can be mitigated with funding

Updating the proposal

Parameter	Proposed Management Scenario
Spatial extent	7 subareas
Stability success metric	Median (50 th percentile) of well-cells
Timeline to achieve goal	30 years
Phasing timeline	24 years
Frequency of adaption (checkpoints)	Every 6 years
Discharge to streams and springs	Not used to constrain model results
Natural evapotranspiration	Not used to constrain model results
Dry domestic wells	Not used to constrain model results

Implementing curtailment

1. Set PTW and process for adaptive management in rule
2. Initially allocate water to each right TSO
3. Schedule the reductions
4. Prepare orders and initiate the contested case
5. Regulate
6. Adaptively manage

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TSO [@SPRIET Jason D * WRD] I updated this bullet to match our new thoughts.
SEYMOUR Timothy R * WRD, 2025-03-11T20:14:50.798

Proposed adaptive management plan

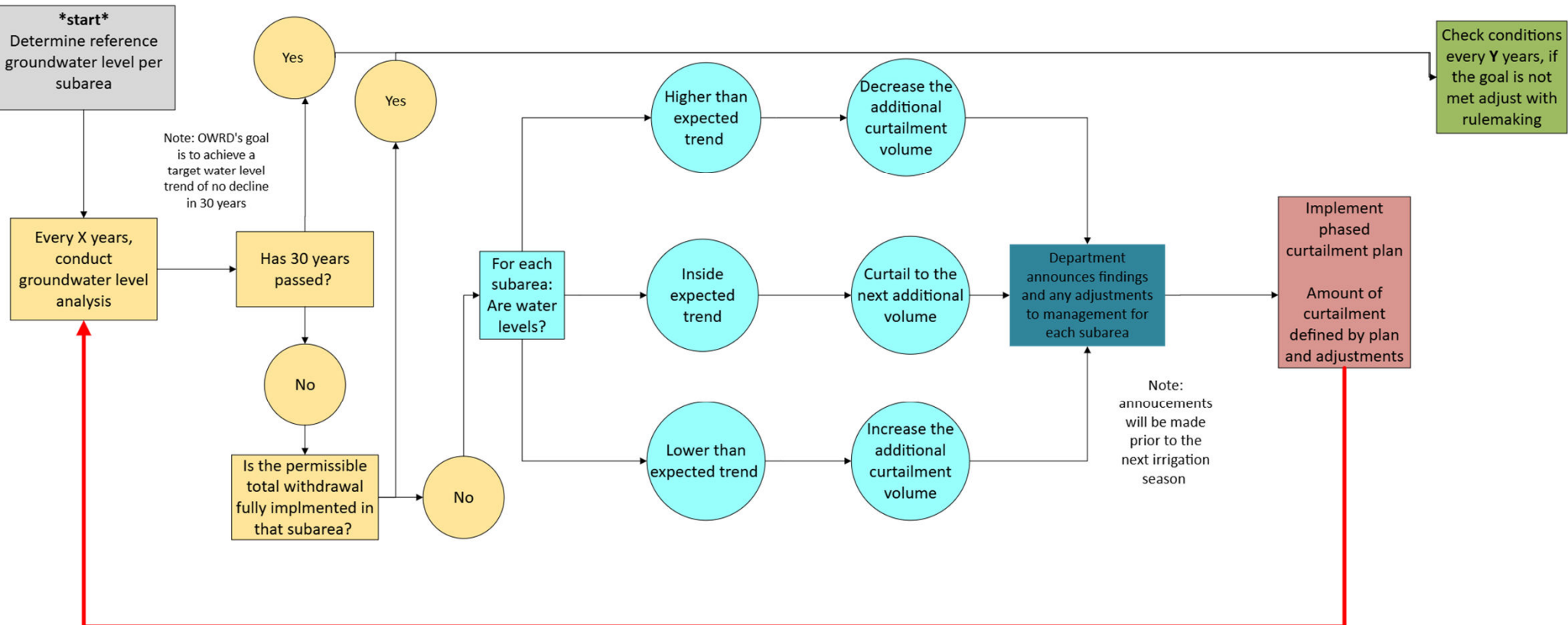
Evaluate

Adjust

Announce

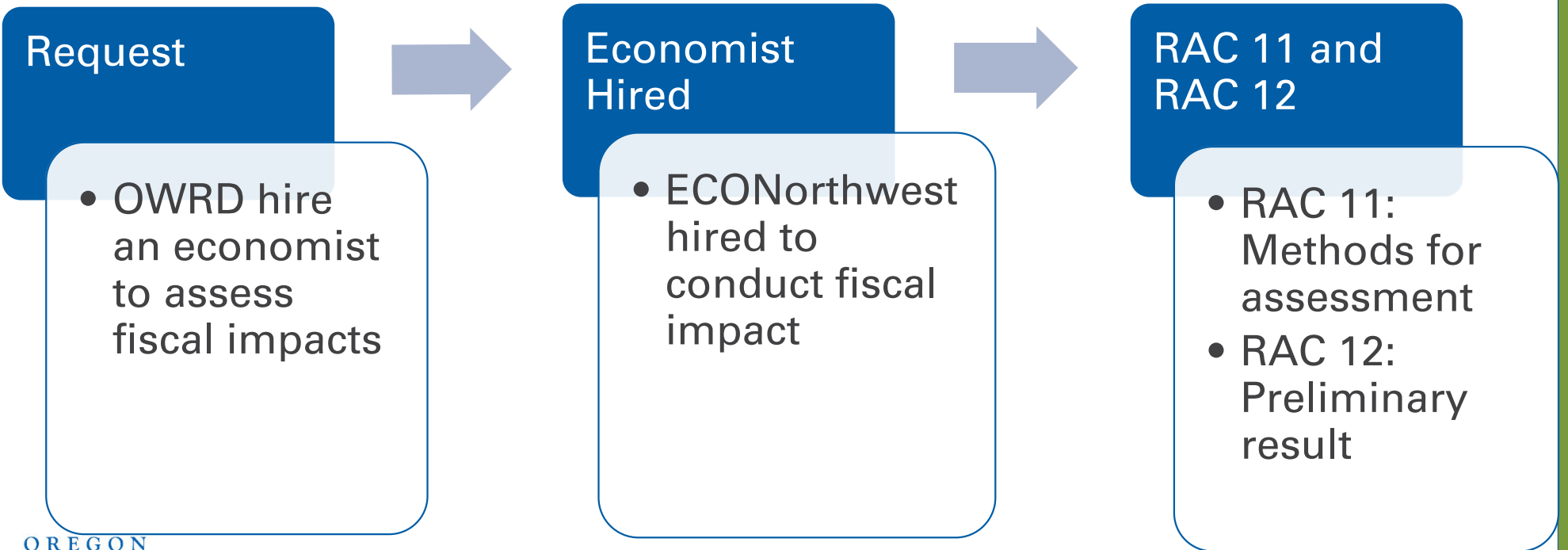
Regulate

Pause



Fiscal impact

Fiscal impact



IMPLAN model

What is IMPLAN?

- Regional input-output model. Models how money moves through the economy.

Impact types

- Direct
- Indirect
- Induced

Impact measurement

- Output
- Jobs
- Personal Income

Preliminary AG impacts findings

Established a baseline

- ECO calculated an economic baseline for the agriculture sector, economy, local government to measure change

AG impacts reported in RAC 12

- Changes in irrigated acres and farm revenues are linear with groundwater reductions

Preliminary government revenue findings

Government revenue impacts reported in RAC 12

- Reductions to tax revenue are not one to one
- This is due to land still being taxed

Preliminary Findings for Ecosystem Services Analysis

- Springs support baseflow to the most productive parts of the Refuge
- Direct impacts on recreation from changes in groundwater management are likely minimal
- Hard to separate impacts to the Pacific Flyway
- Livestock, groundwater dependent ecosystems potentially affected

Preliminary estimate for domestic well impacts

Total Cost (based on local grants approved)

- Average total cost: \$24,987
- Maximum total cost: \$39,980
- Minimum total cost: \$8,700

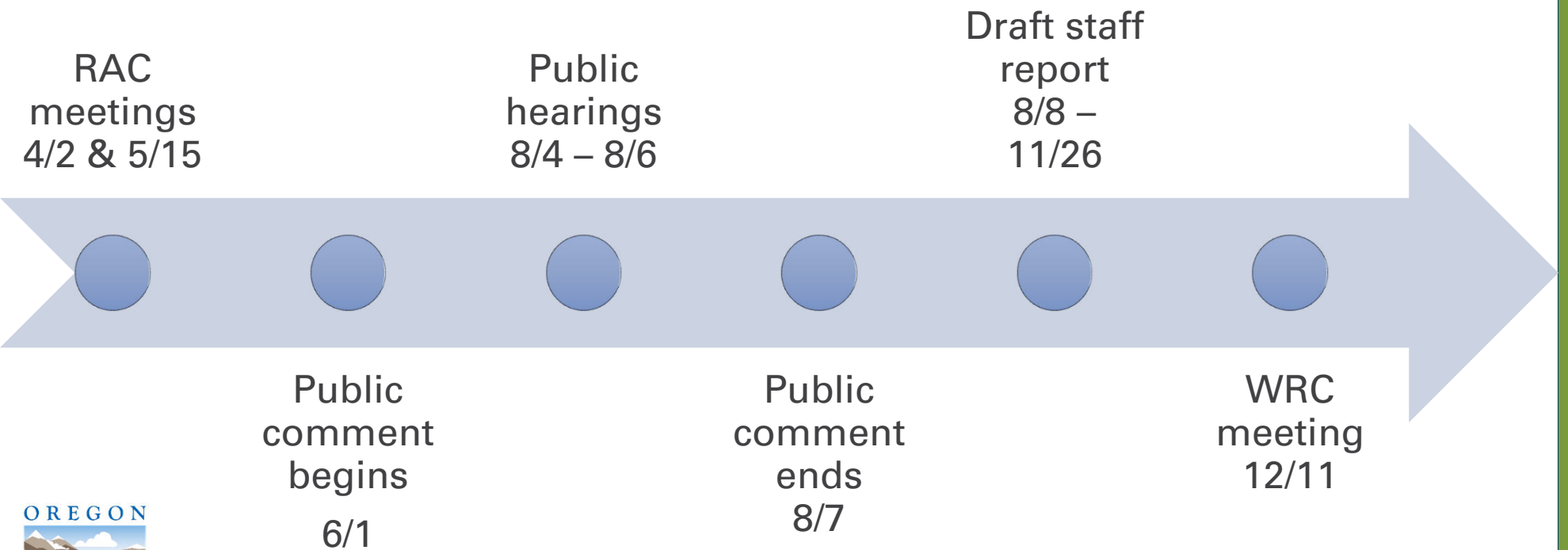
- Estimate: # of wells estimated to go dry x average, min and max

Next steps

- ECONorthwest will run the analysis for the OWRD's management scenario
- OWRD will assess impacts to domestic wells, SWMPA implementation, and classification implementation

Rulemaking timeline

2025 rulemaking schedule



Expected topics

April Meeting

- Management Scenario
 - Implementation
 - Adaptive Management
- CGWA Rule Language
- Fiscal Impact

May Meeting

- Proposed Rule Language for SWMPA, Classification, CGWA
- Fiscal Impact