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Harney Basin Rulemaking Update

Oregon Water Resources Commission

September 13, 2024

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Overview of Discussion

The topics being covered today are:

- Defining the goal for Harney Basin groundwater levels
- Measuring success
- Evaluating options through management scenario development and testing
- Rulemaking schedule update

Goal for Harney Basin Groundwater Levels

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Considerations

- Longer timelines to achieving the goal results in more impacts
  - Dry domestic wells
  - Decreased natural discharge (ET and springflow)
  - Loss of groundwater storage (lower groundwater levels)
  - Possible decrease in water quality and land subsidence
- The groundwater system is complex and thus the response to reductions in use will be complex
- Should all areas of the basin have the same goal?
- Do all areas need the same actions on the same timeline?
- Should the goal be to recover water levels so that a critical designation could be removed?

Goals in other CGWAs

- "Reasonably Stable" has been the goal in other CGWAs
  - Butter Creek and Stage Gulch (Umatilla County) use the same definition
    - *"Reasonably stable water level" means an annual static water level decline of less than one foot over the entire subarea as determined by averaging the annual water level change of the representative wells in the subarea, and the water level change for the subarea averaged over five consecutive years displays no decline.*
  - All other CGWA orders reference reasonably stable but do not define the term
  - This definition ignores the 100+ feet of decline that occurred in Stage Gulch and Butter Creek resulting in the critical area designation

Statutory Policy: Reasonably Stable

- ORS 537.525(7) - *"Reasonably stable ground water levels be determined and maintained."*
- A critical area can be designated in Harney because portions of the groundwater reservoir are overdrawn, declined excessively and are excessively declining
- Can an area be "reasonably stable" when it is both declined excessively and excessively declining
- The Department believes focusing on the decline rate is the best approach

Target Water-Level Trend

The Department believes focus on target water level trend is the best approach.

Reasons why:

1. Portions of the basin are overdrawn, declined excessively, or excessively declining
2. Beyond what is considered reasonably stable
3. Defining “reasonably stable” would ignore the magnitude of groundwater loss

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Stabilizing Water Levels

- OWRD's current position is that all areas need to achieve a target water level trend of no decline, meaning:
  - Water levels do not show long-term declines
  - Water levels should exist in a dynamically stable range
  - Some wells will show declines, some will be stable, some will show recovery
  - No individual well should exceed some defined rate or magnitude of decline (how do we handle extremes?)

RAC Input

The Department continues to seek RAC input as it moves forward in this rulemaking

Ongoing topics for RAC input include helping define:

- How success is measured
- The spatial extent for water use reductions
- The timeline for implementation of water use reductions

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Defining Spatial Extent

- Groundwater declines are not uniform across the basin
- How wells are grouped in the basin geographically will affect the impacts of water use reductions
- Water use reductions should vary based on the severity of the problem in each area

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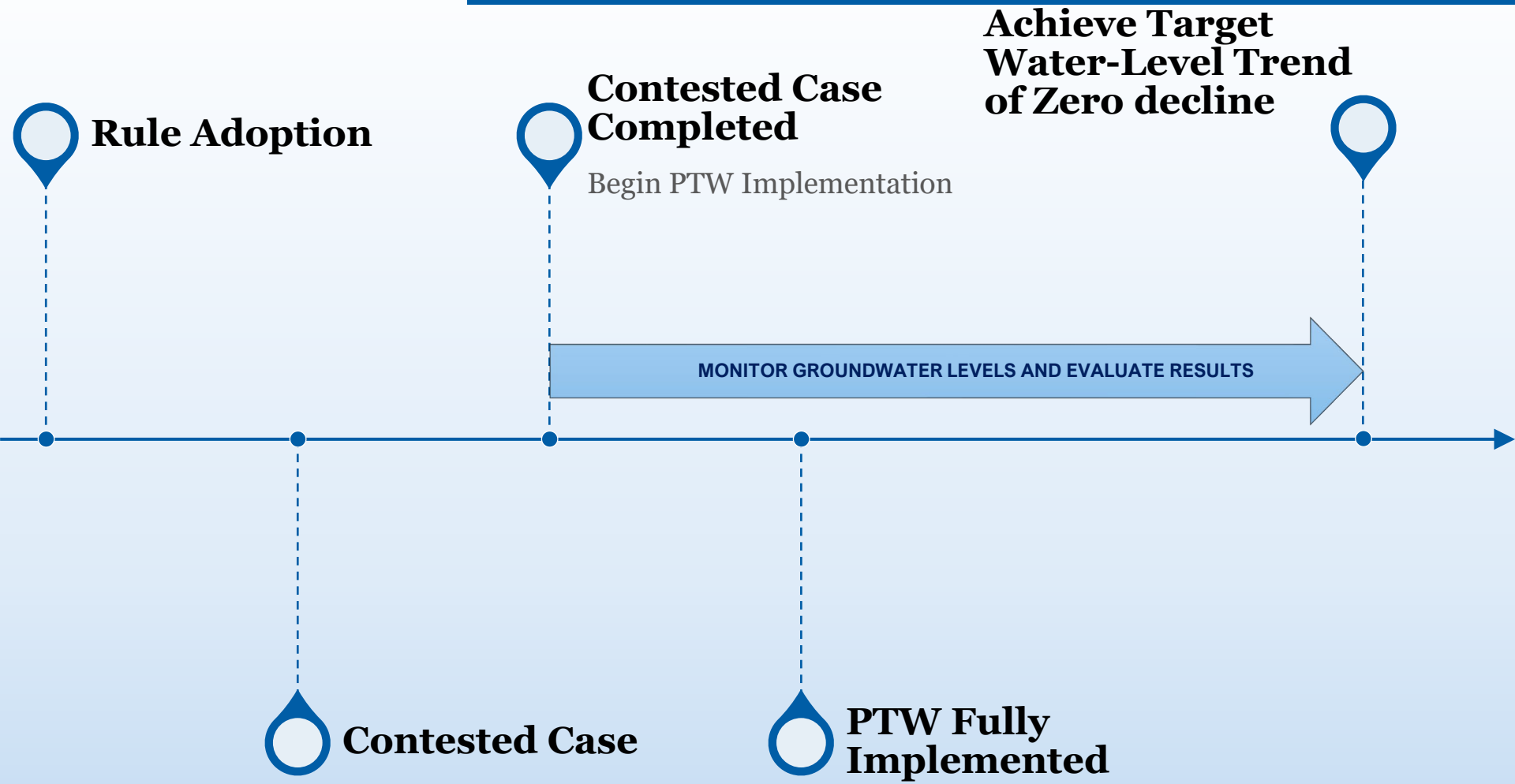
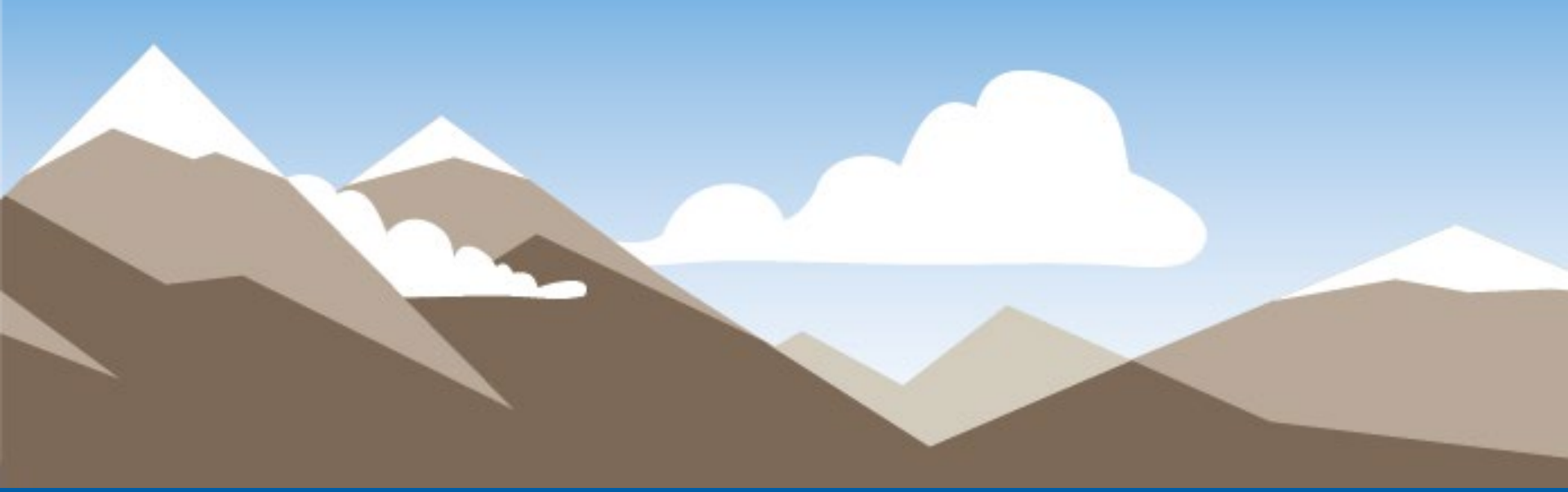
Timing to Achieve Stable Groundwater Levels

- The timeline for implementing regulatory action will directly impact how long it will take to achieve stable groundwater levels
- Impacts of longer timelines will vary based on the rate of decline within each area of the basin
- Choosing a timeline for implementation requires balancing impacts to different interests (irrigators, domestic well owners, groundwater dependent ecosystems, local economic impacts)

Timing to Achieve Stabilized Groundwater Levels





Measuring Success

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Measuring Success

Challenges in measuring success include:

- How wells are grouped spatially for analysis will impact the calculation of trends.
- How to account for short term changes caused by wet or dry years.
- Some wells will show declines, some will be stable, some will show recovery.
- How to handle extremes.
- What is a reasonable timeline for achieving success?

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Measuring Success

Discussions are ongoing with the RAC about how to evaluate success.

Conversations will include ideas like:

1. The mean of all static water-level trends in an area demonstrates no decline
2. All wells show no decline

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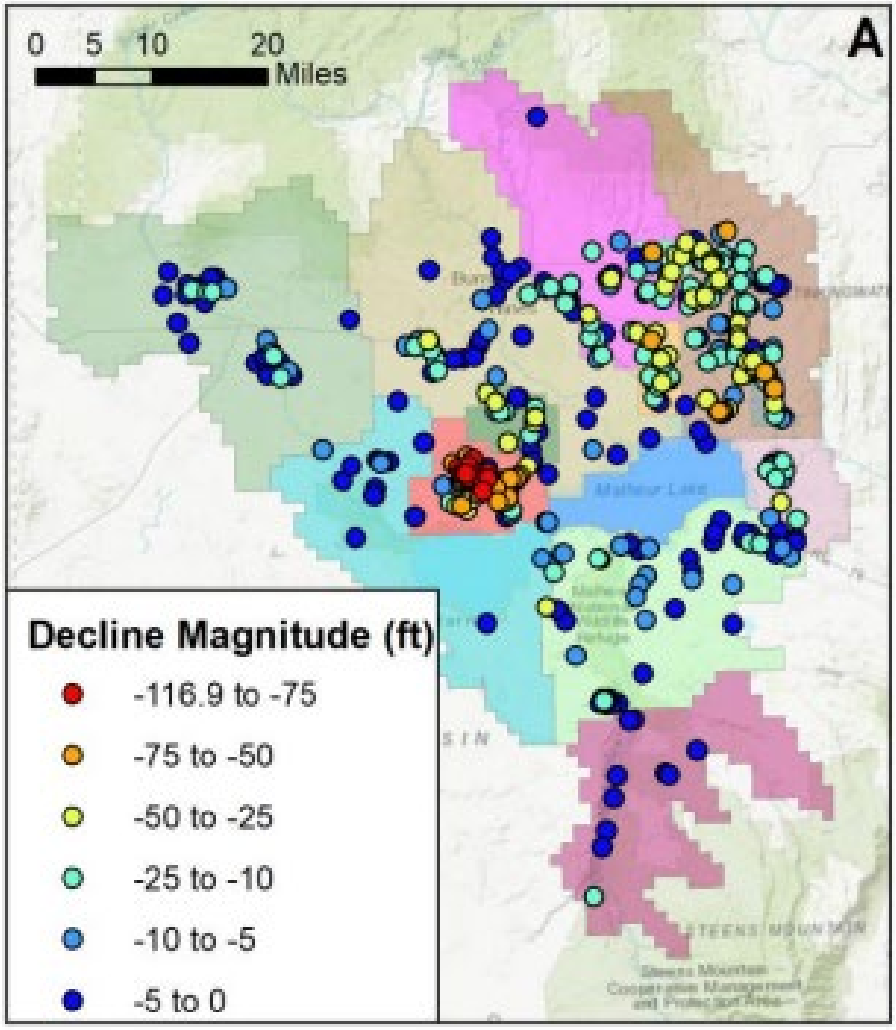
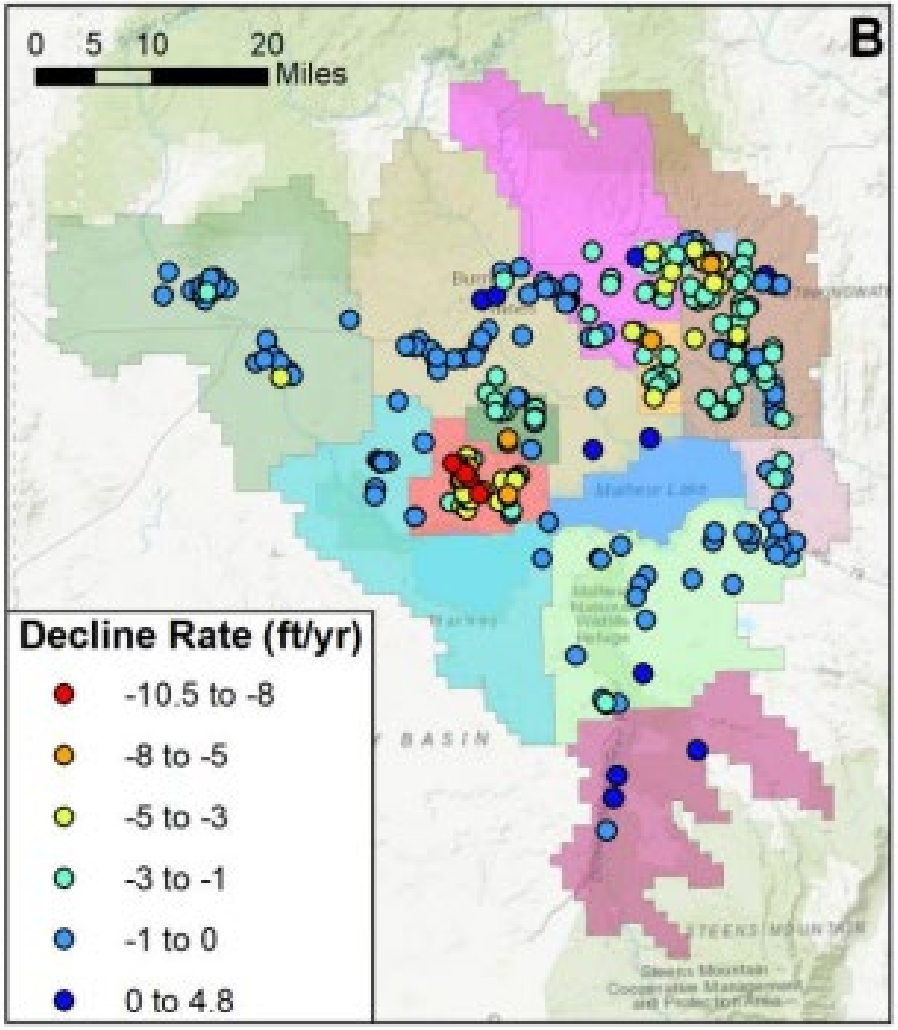
Current Water Level Trends





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North Harney

Water Level Magnitude Statistics	
Max decline	66.8 ft
Min decline	9.1 ft
Average decline	35.9 ft
Median decline	31.3 ft

Water Level Rate Statistics	
Max decline	4 ft/year
Min decline	0.9 ft/year
Average decline	2.3 ft/year
Median decline	2.2 ft/year

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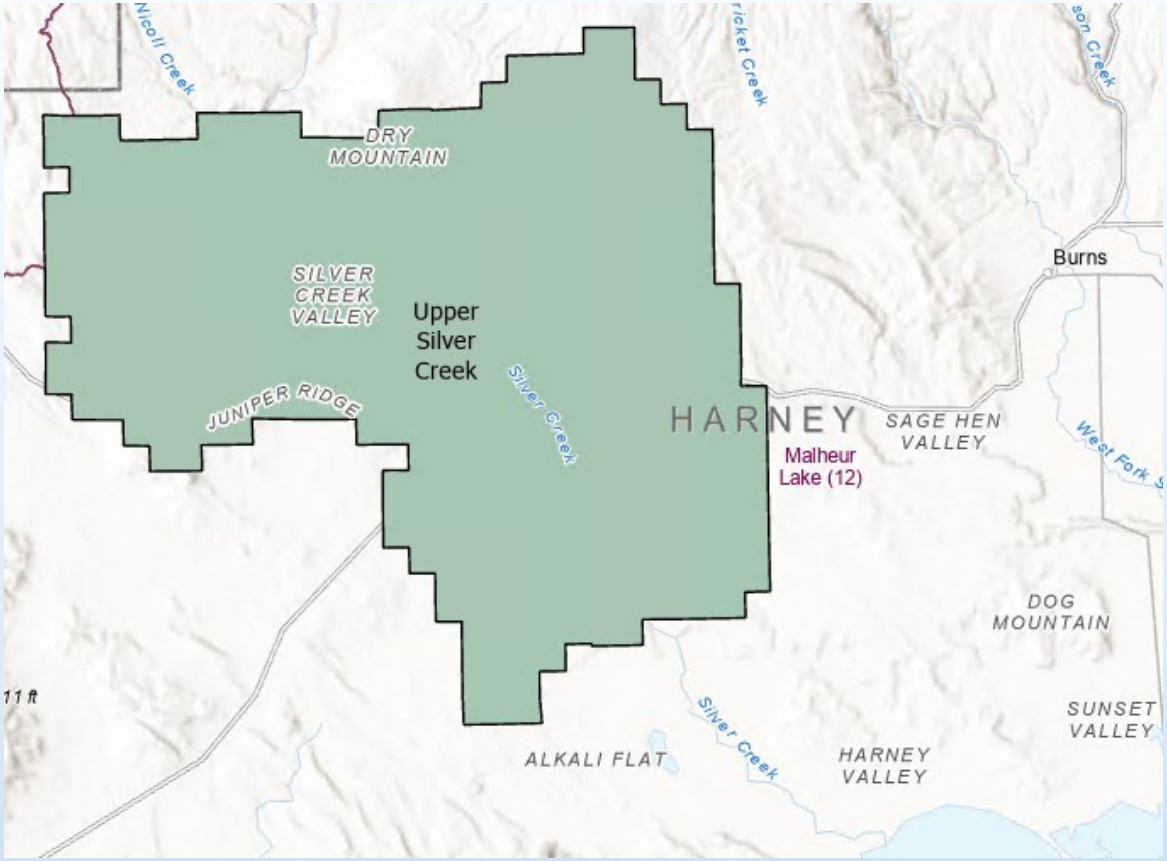
Upper Silver Creek



Water Level Magnitude Statistics	
Max decline	23.1 ft
Min decline	0 ft
Average decline	5.4 ft
Median decline	3.5 ft

Water Level Rate Statistics	
Max decline	4.4 ft/year
Min decline	0.1 ft/year
Average decline	0.5 ft/year
Median decline	0.4 ft/year

Development of Management Scenarios

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Harney Basin Groundwater Model

- USGS published the Harney Basin Groundwater Model (HBGM)
- This model is useful for testing different management scenarios and evaluating their outcomes
- Will inform the rulemaking process

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Management Scenario Process

Set the goal

- Target water level trend of no decline

Design the scenario

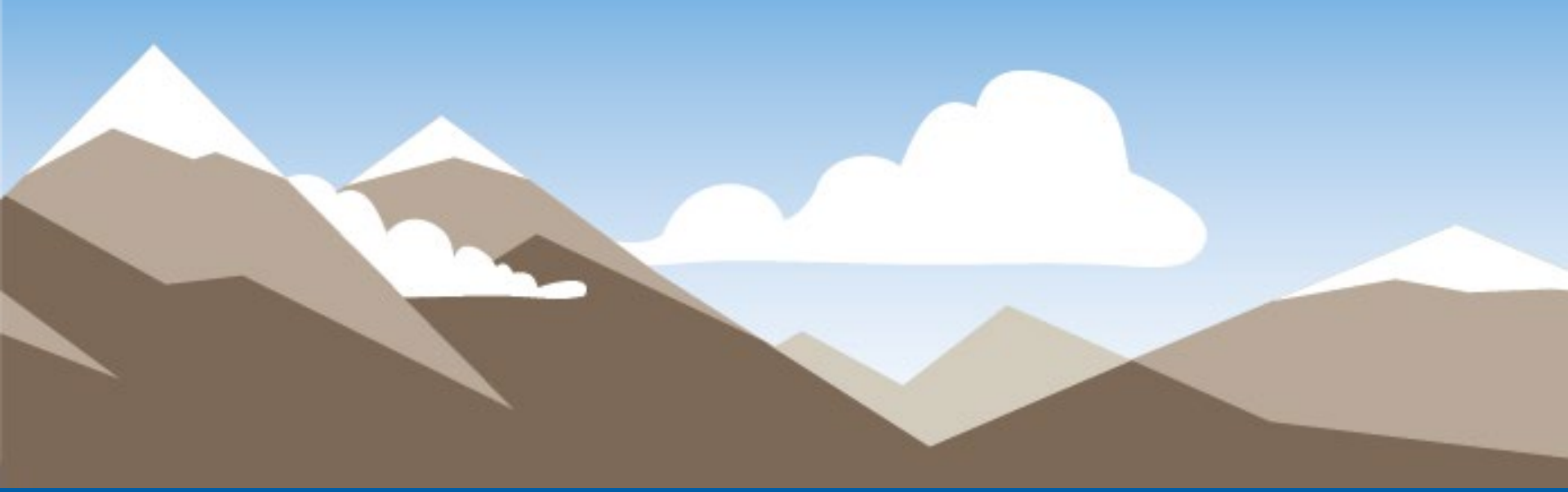
- Geographic area for reduction
- Determine quantity of pumpage allowed
- Determine how to allocate the allowed pumpage
- Timeline for implementation

Test the scenario

- Input the scenario into the model
- Run the model
- Generate figures, graphs, maps and other information to review

Evaluate for success

- Did the scenario meet the goal?
- Use the scenario to inform modifications to the management scenario



Rulemaking Update

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Discussion Group Operations

- Discussion groups are about generating options and considerations for different topics
- They are designed for more open conversation, but do not make decisions
- Discussion groups will be facilitated by Oregon Consensus with support from High Desert Partnership
- They will generally meet on Mondays from 10-11:30AM, with some full-day workshops where needed

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Proposed Sequence of Topics

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Rulemaking Update

RAC Topics	RAC Number 10	RAC Number 11	RAC Number 12	RAC Number 13
	10/02/24	11/13/24	12/18/24	01/22/25
Measuring and Reporting (SWMPA)/ Allowed Uses (Classification) Boundaries?				
*Goal for Groundwater Levels in the Harney Basin				
*Timing of Implementation of the Permissible Total Withdrawal (PTW)				
*Allocation of the Permissible Total Withdrawal				
*Critical Groundwater Area Boundary/ Subarea Delineation				
*Prioritization of Subareas				
Modeled Management Scenarios/ Selection				
Allowed Uses (Classification)/ Measuring and Reporting (SWMPA)				
Voluntary Agreements Guidelines for Harney Basin				
Fiscal Impact Statement				
Draft Rule Language (SWMPA, Classification, CGWA Implementation, Voluntary)				

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Appendix

Target Water-Level Trends

Reasonably Stable Defined In

- Butter Creek and Stage Gulch (Umatilla County) use the same definition
- This definition ignores the 100+ feet of decline that occurred in Stage Gulch and Butter Creek, resulting in the critical area designation

Reasonably Stable is Not Defined in

- All other Critical Ground Water Areas reasonably stable is referenced

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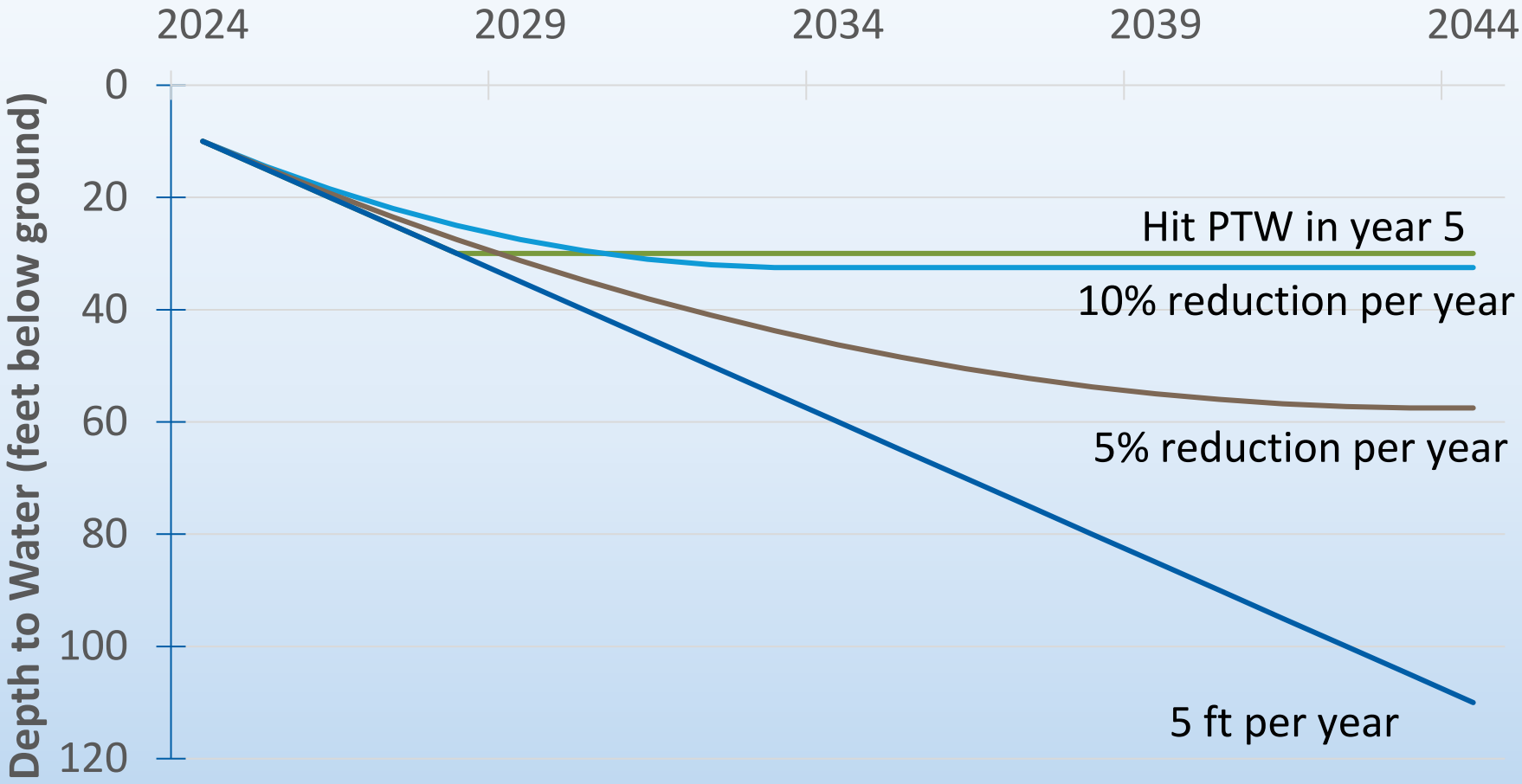
Timing to Achieve Stabilized Groundwater Levels

Different Use Reduction Timelines



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Development of Management Scenarios