

Groundwater Management Model Scenario Revisions

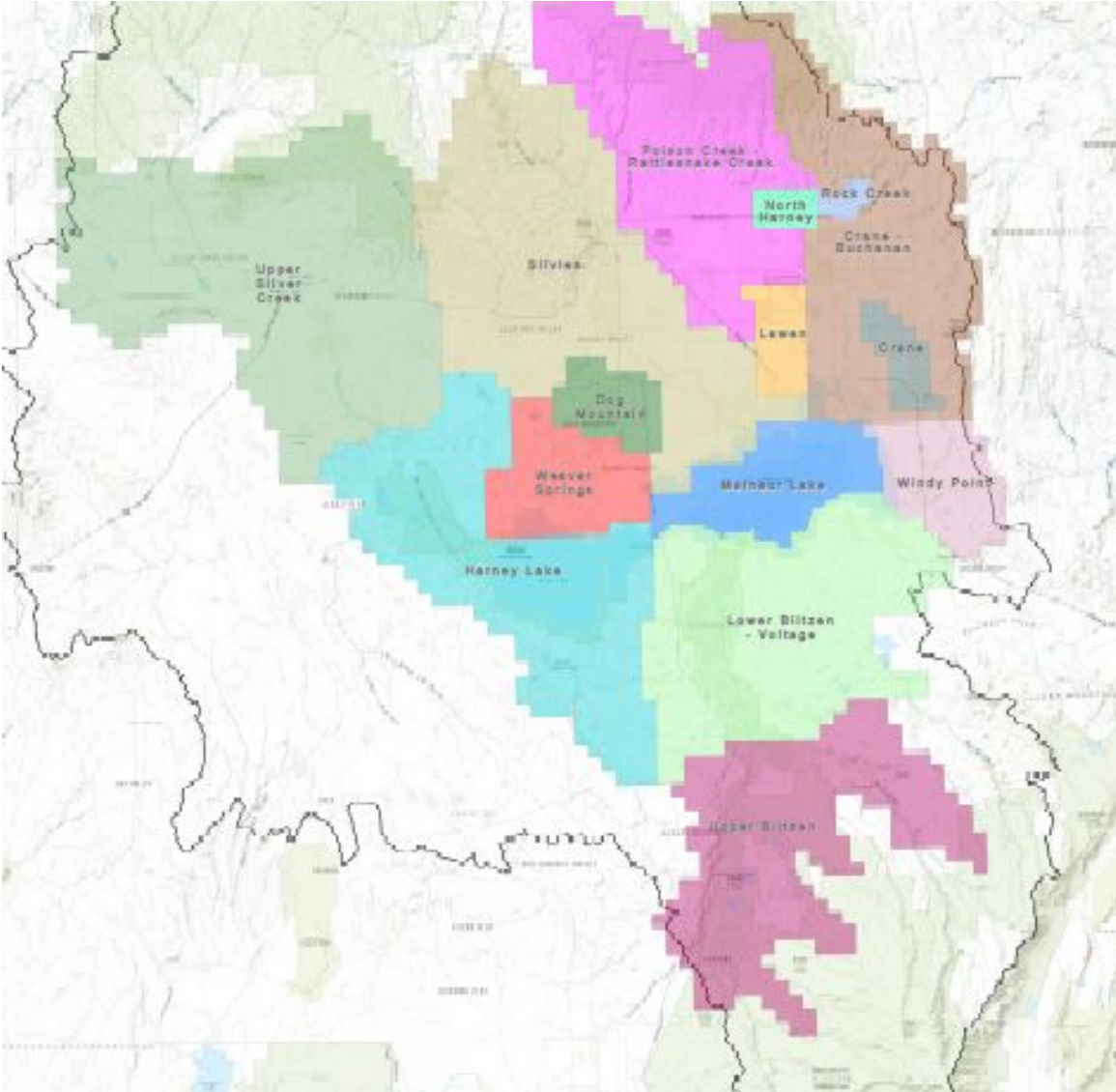


Harney GW RAC Discussion Groups – 09.23.24

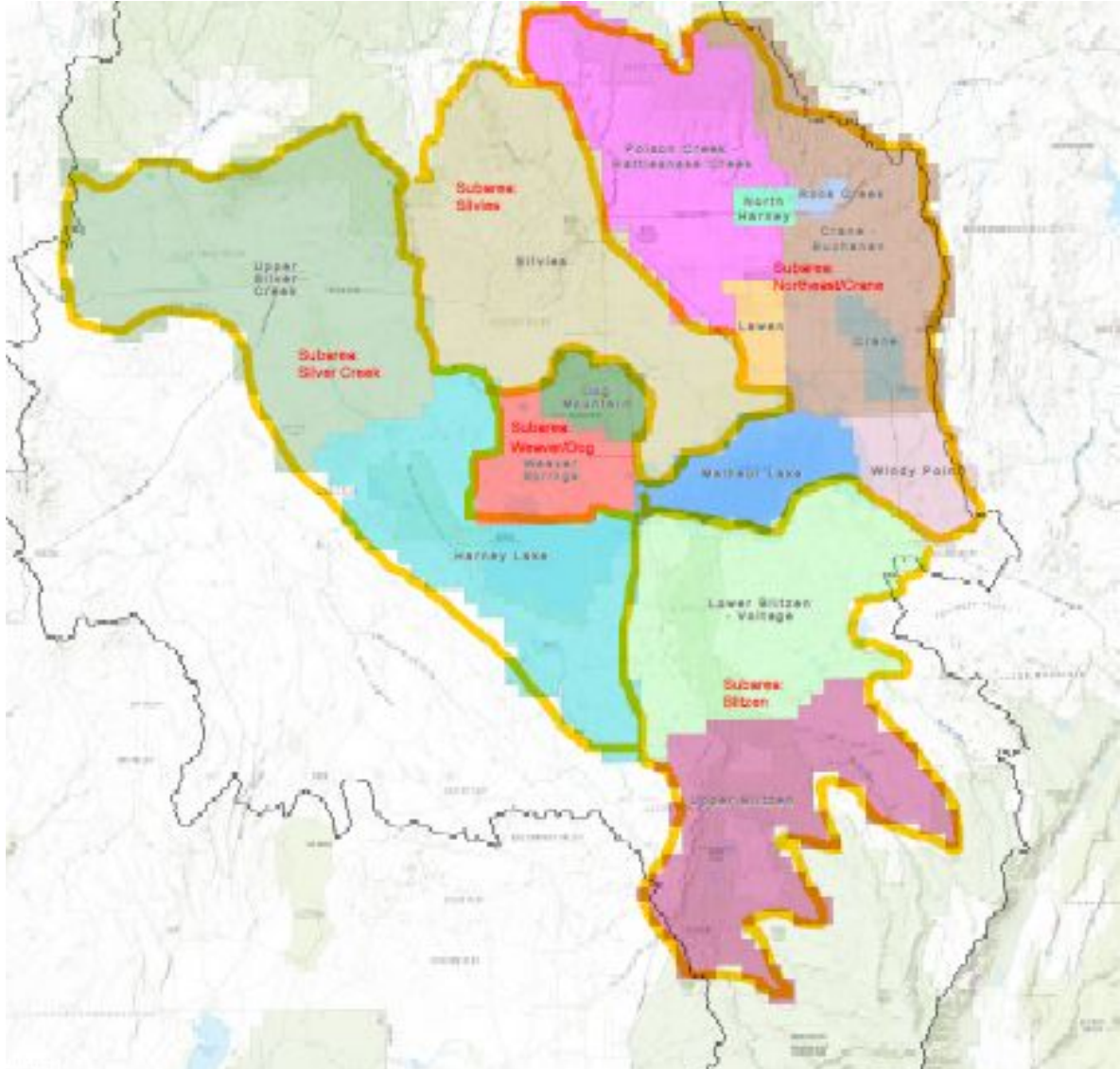
What did we hear from Sept 16 Discussion?

- Define an option for larger subareas based on differences in: Groundwater flow; Geology/subsurface materials; Recharge; Groundwater levels/groundwater level trends; Topography and geography; Pattern of water uses; How groundwater management might reflect current conditions or future arrangements
- Define scenario options that phase in pumping reductions, consider some recovery not just stabilization, and other variables

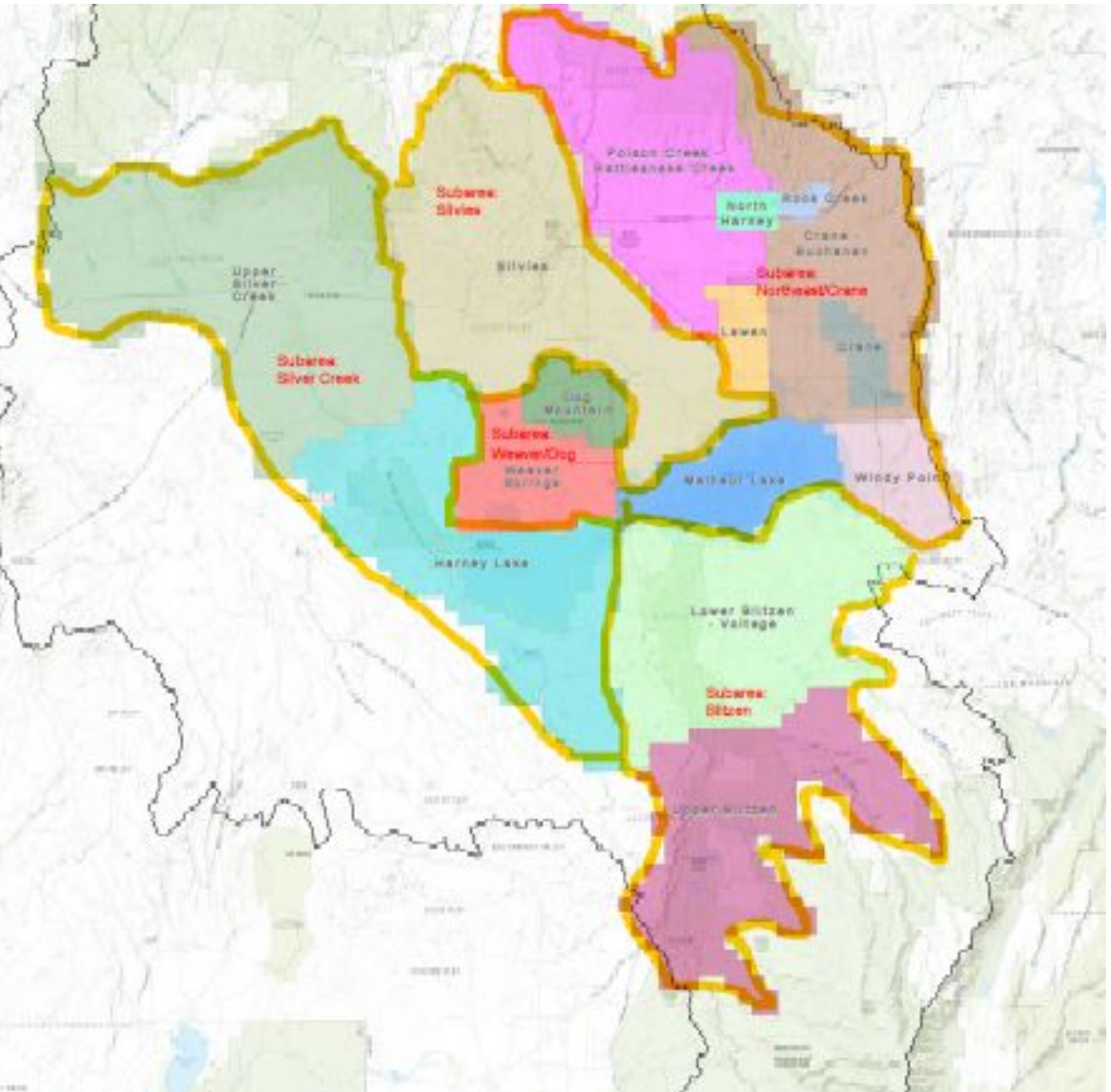
**Subarea option C:
15 subareas (OWRD)**



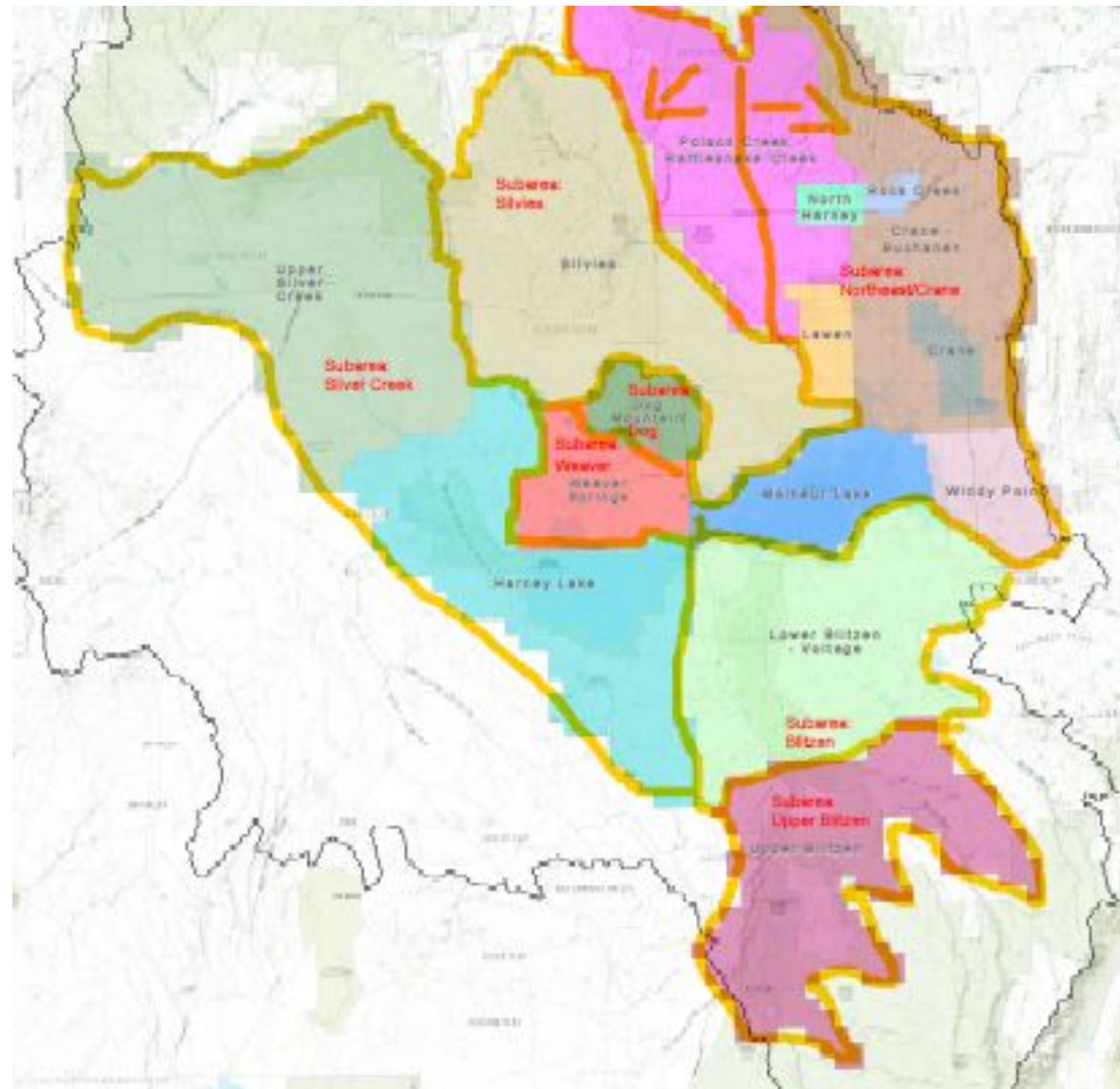
**Subarea option A:
5 subareas**



**Subarea option A:
5 subareas**



**Subarea option B:
7 subareas**



Subarea Options and Considerations

- Mark - Poison Creek/Rattlesnake Slough - Silvies brings floodwater - ditches that come off of Silvies to Poison Creek - west part is part of the wet meadow ecosystem and east part should be part of East side of basin
- Mark - Option where Poison Creek/Rattlesnake slough is separated and Dog Mountain and Weaver Springs are lumped
- Zach - Model scenarios are tools we can learn from - types of comparisons between subarea boundaries - proposing a scenario to learn from vs. proposing management areas - important distinction
- Zach - Like 5 subarea scenario for the model in contrast to OWRD 15 subarea scenario - opportunity for learning

Subarea Options and Considerations

- Karen - contrasting 5 areas with 15 will tell us quite a bit
- Jess - don't have much to add - seeing/hearing consistency
- Lisa - would want to look at wells and how gw levels are reacting to pumping in those areas - are there reasons based on pumping that would support keeping the areas separate or lumping - question for OWRD - designation of subarea is related to how gw levels are responding to pumping?
- Darrick - gw pumpage values wasn't a criteria - within gw gradient and gw level trends is a reflection of aquifer response - smaller subareas - cones of depression that drove that delineation
- Lisa - don't want to split a cone of depression and fail to address a decline - if you split Rattlesnake/Poison, would you fail to address a hotspot effectively?

- Ken - what's the purpose of management? to address areas of acute decline or achieve sustainability across the basin? - "hot spot" approach vs. "mass balance" approach - is there a preference for one or the other? This might affect boundaries and actions - interplay between management objectives, boundaries, and consequences - need to wrestle with this
- Debbie - comparison of different subareas will give us lots of information to work with
- Barbra - 5 subareas - makes sense with the geography and how its recharged
- Lorissa - nothing new to add

- Kristen - give us a basis for comparison as we run the model - will continue to be questions around things that we want to know more about - water flow variance from year to year in Poison Creek/Rattlesnake - will behave differently in high vs low flow water years - is there more information we need to make the best decision? Eager to see model run results and go from there - can we identify gaps and how to fill them?
- Jacob - our water comes from the upper, but we get our water down lower to the lake - don't know if we should split them or keep them together - when will we shut down new development in the Donner Und Blitzen - 10 new circles/pivots - afraid we're gonna end up like other "hot spots" - why was a company able to transfer water from Weaver Springs to Donner Und Blitzen (older priority date)

- Jerry - “Where are you going to get the most bang for your buck” - most timely and effective response when curtailing gw - any discussion about pumping that developed after 2018 since the model is based on pumping up to 2018? any discussion about how model scenarios are considering discharge - particularly springs over time?
- Jacob - Can you use satellite imagery - go back to 2018 to see who was irrigating properly - if it was after 2018 and they didn't prove up on it before then consider not allowing it - consider fairness

There are very few (damn near none) wells in western Poison Creek.
Figure 2 from Groundwater Level Trends by OWRD

We have asked for pumping estimates to be updated from 2018

And it's worth remembering that Steve Gingerich from USGS already ran two scenarios: 0% curtailment (pumping continues at 2018 levels through the year 2100) and 100% curtailment (all pumping stops in 2019).

So we kind of know how different parts of the basin respond to 0% curtailment already

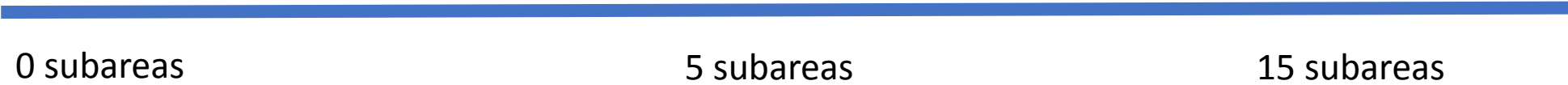
The “dials” for Scenarios

Variable

Definition of success



Management areas



Vol. of pumping reductions



Start date of reductions



Phasing of reductions



Possible Management Scenarios

- A. Focus on hot spots, minimize impact to small business (OWRD scenarios)
- B. Balanced reductions, economic adjustment period
- C. Balanced reductions, minimize impacts to ecosystem and domestic supply, economic adjustment period
- D. Balanced reductions, recover supply for ecosystem and exempt uses
- E. Reductions by priority date across the basin
- F. ?

Variable/ Scenario	A. Focus on hot spots, minimize impact to small business (OWRD)	B. Balanced reductions, economic adjustment period	C. Balanced reductions, minimize impacts to ecosystem and domestic supply, economic adjustment period	D. Balanced reductions, recover supply for ecosystem and exempt uses	E. Reductions by priority date
Definition of Success	Stable (zero rate of decline) achieved ASAP in hot spots	Stable (zero rate of decline) achieved by 2060 with graduated rates of decline achieved in decadal intervals	Gradual recovery (to support springs, surface flows, and domestic wells) achieved by 2060	Rapid recovery (to support springs, surface flows, and domestic wells) achieved ASAP	Stable (zero rate of decline)
Management Areas	15 subareas	5 subareas	5 subareas	5 subareas	One basin, no subareas
Volume of pumping reductions	Pumpage reductions for 6 subareas; 9 subareas with no reduction from 2018 estimated pumpage	Pumping reductions different by subarea (less aggressive - phased in) See Table 5 below	Pumping reductions different by subarea (more aggressive - phased in) See Table 5 below	Pumping reductions different by subarea (more aggressive) See Table 5 below	Reduce pumpage by priority year (1990)
Start time and intervals of reduction	2026 start; No phasing (all reductions in 2026)	2026 with reductions in pumping phased in over a 30-yr period in 10 year intervals	2026 start for reductions phased over a 30-yr period in 10 year intervals	2030 start; No phasing (all reductions in 2030)	2030 start; No phasing (all reductions in 2030)

5 Subareas	B. Balanced reductions, economic adjustment period	C. Balanced reductions, minimize impacts to ecosystem and domestic supply, economic adjustment period	D. Balanced reductions, minimize impacts to ecosystem and domestic supply
Weaver Springs/Dog Mountain	54% over 30 years (18% each decade)	75% over 30 years (25% each decade)	65% in 2030
Northeast/Crane Area	30% over 30 years (10% each decade)	45% over 30 years (15% each decade)	40% in 2030
Silver Creek	9% over 30 years (3% each decade)	24% over 30 years (6% each decade)	18% in 2030
Silvies	0%	9% over 30 years (3% each decade)	5% in 2030
Donner Und Blitzen	0%	9% over 30 years (3% each decade)	5% in 2030

Scenario Options and Considerations

- Mark - where are we starting from? what does 2018 usage mean? what does 0% reduction mean? series of questions about implementation/feasibility of any scenario and what they mean? Column of what would be the starting levels for the Department to be starting from? Add a row that describes the baseline - where will reductions start from?
- Zach - do like the start of starting to put numbers or pumping reductions into different scenarios - along with subarea delineations and timeframes they do give us something to start from - figuring out specific numbers will be an iterative process. Think really broadly about reductions - may need to have a bigger spread of numbers to get information that would be helpful - don't get too hung up on specific percentage numbers and really focus on learning from different scenarios - good starting point to spend time on

- Lisa - what are the tools to limit pumping to 2018 levels on any given well? how would we do that if that's the goal in some areas? Agree with Zach - we should think about having a bigger spread in model scenarios to tease out impacts and have broad goal posts to inform scenarios. What is the % reduction by acre feet/acres by subarea - what are we thinking that impact would be on groundwater levels? what went in to coming up with these proposed reductions to address those goals? What data could we look at to make a more informed proposal regarding scenario development - big spread to tease out differences. Look at existing model runs to help inform scenario development.

- Barbra - feels like a guess, we don't know...worried about what the end result might be
- Brenda - appreciate the format
- Jacob - we need to know what we're starting from - will reductions be from 2018 levels or water rights - this is critical
- Jerry - 2018 levels - what we observed from satellite pumpage - when PTWs were being assigned for different subareas - 2018 amount represented max amount for subarea - flexibility for how reductions get distributed - by priority or proportional reduction
- Tim - model was developed and calibrated with water use data and changing it to paper water would show a really different picture of the basin that doesn't necessarily reflect reality
- Zach - start from wet water reductions - while the model could be used for paper water reductions, don't advise using this as the starting point

- Ken - possible to update usage to 2023 levels? possible to include latest data? start from current levels rather than 6 yo water levels
- Tim - waiting on a dataset from Desert Research Institute - hope that dataset will be ready soon - we want to make sure its accurate before its published and used - will provide it to the RAC when its ready
- Kristen - table is representative of discussion - could voluntary agreements be implemented by 2026 and give us a jumpstart on achieving reductions - how do we account for timing realities if reductions need to go through contested case process vs voluntary approaches? B represents what I heard and the need to consider economic transitions related to reductions in groundwater pumping levels - time dimension to achieve success is an important consideration

Lisa - standards in water code - adequate and safe supplies for human consumption - reasonably stable groundwater levels - beneficial use within the capacity of the resource - we do need to meet those standards and we need to keep those in mind as we develop and evaluate the scenarios.

What to focus on next?

RAC Topics & Timeline



Discussion Group Topics & Timeline

Next Steps

What are the questions you want to send back for the RAC to consider?

Who do you want to share the Discussion Group considerations with the RAC (bonus points for 2 presenters with different opinions)?

What would you like to discuss next for October Discussion Groups?

What else?

Things you really really want to discuss

- Certificated water rights - what are the protections? Would they go away? Would paper water rights be taken away and replaced with something different?
- When are we gonna shut down the Donner Und Blitzen from new development? What are we gonna do about people buying water rights from other regions and transferring them into Donner Und Blitzen? What are we doing to protect senior users in each subarea? When are we going to monitor Donner Und Blitzen to catch problems before they happen (like in Weaver Springs) - when is enough enough?
- Differences between 2018 and 2023 groundwater usage - flag for future discussion.
- What about the wells that haven't been used in the last 10-20 years that haven't been developed until the last 2 years?