Initial Results of 15 Subarea Management Scenario

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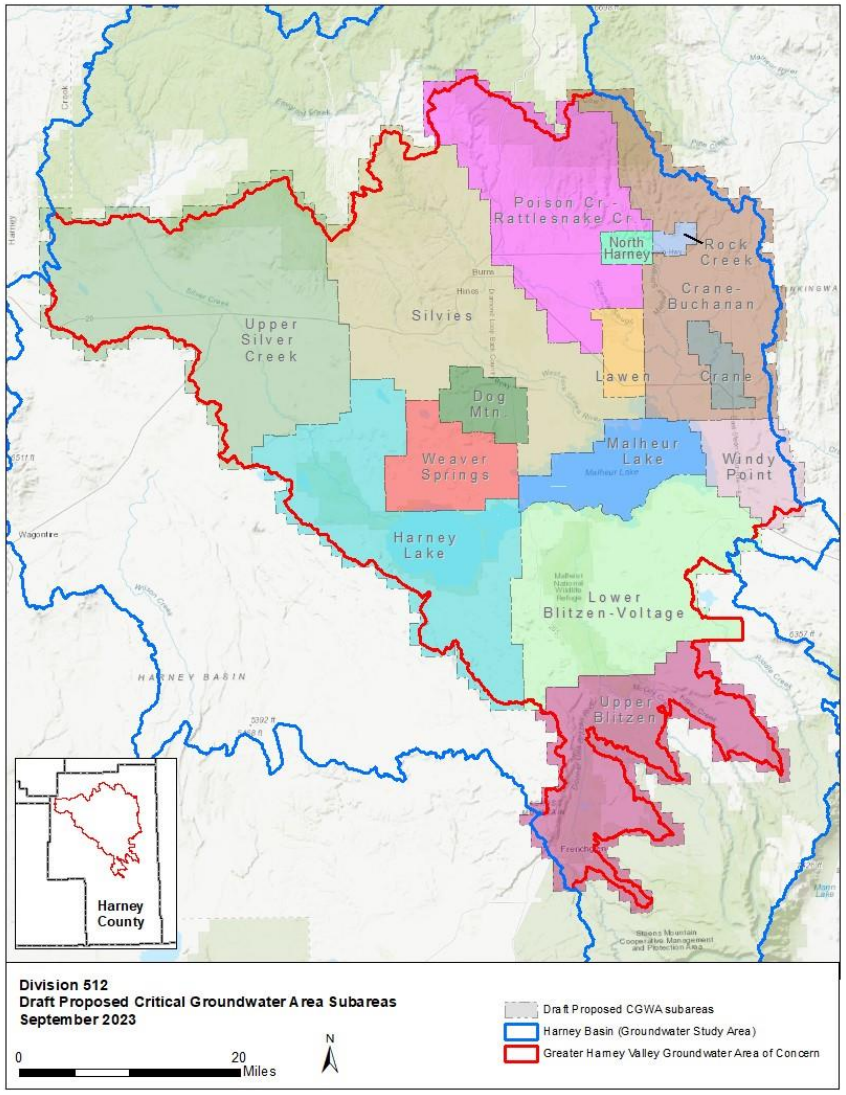
Model Layers

- 10 layers in the model representing different depths
  - Layers 1-5 are each 100 feet thick
  - Layers 6-10 vary in thickness from 135 – 1,397 feet thick
  - Bottom of model grid is at 2,085 ft elevation
- For simplicity we are going to review results only for layer 2
  - More layers will be evaluated when OWRD is reviewing results
  - Different types of information will require reviewing different layers

OWRD 15 Subarea Scenario



15 Subareas with reductions focused in 6 high priority areas starting immediately in 2026.

High Priority

- Crane
- Dog Mountain
- Lawen
- North Harney
- Rock Creek
- Weaver Springs

Lower Priority

- Crane-Buchanan
- Harney lake
- Lower Blitzen – Voltage
- Malheur Lake
- Poison Creek – Rattlesnake Creek
- Silvies
- Upper Blitzen
- Upper Silver Creek
- Windy Point

OWRD 15 Subarea Scenario Use Reductions

Subarea	15 Subarea PTW	2018 Modeled Pumpage	% Reduction
Dog Mountain	3,400	4,521	25%
Rock Creek	1,400	2,464	43%
Lawen	1,400	3,534	60%
Crane	3,800	9,662	61%
North Harney	1,900	5,273	64%
Weaver Springs	5,000	18,991	74%
Total	**108,905**	**135,268**	**21%**

Types of Information to Compare

- Hydrographs
- Maps showing:
  - Water level rate of change
  - Length of time to achieve “near stable” (<0.1 ft/year)
  - Change in water levels
  - Locations of dry wells
- Water budget figure comparing
  - Pumpage
  - Spring flow
  - ET
  - Groundwater storage

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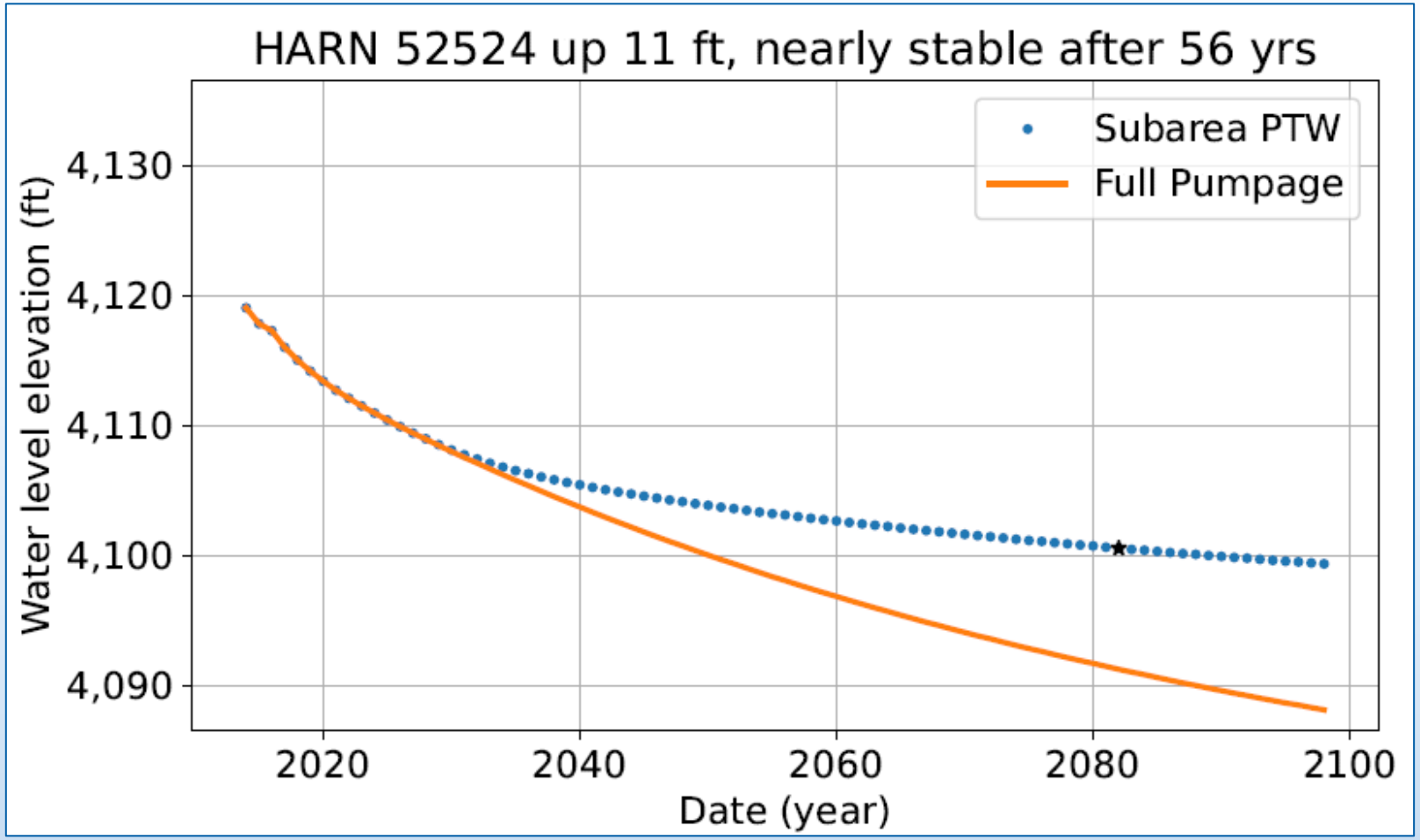
Hydrographs



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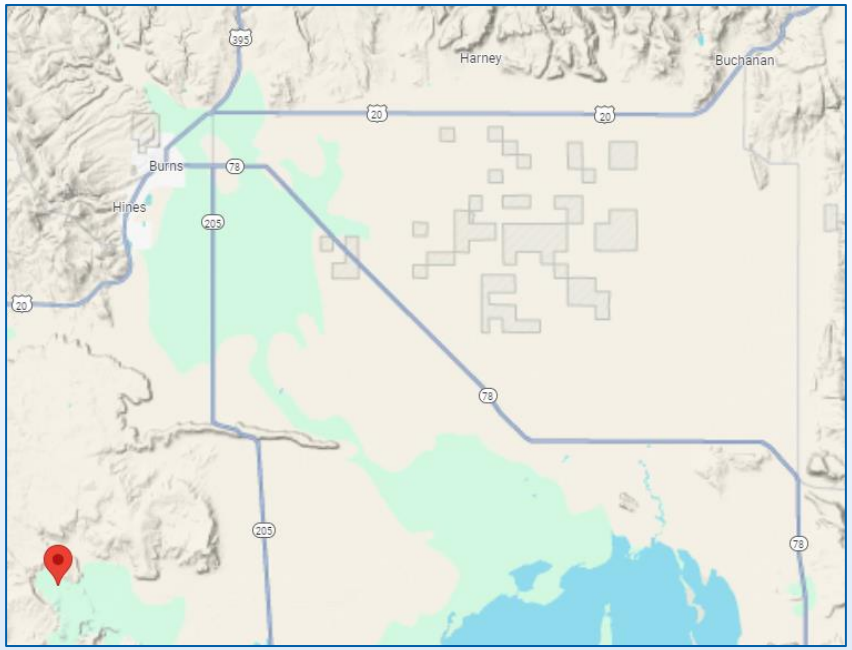
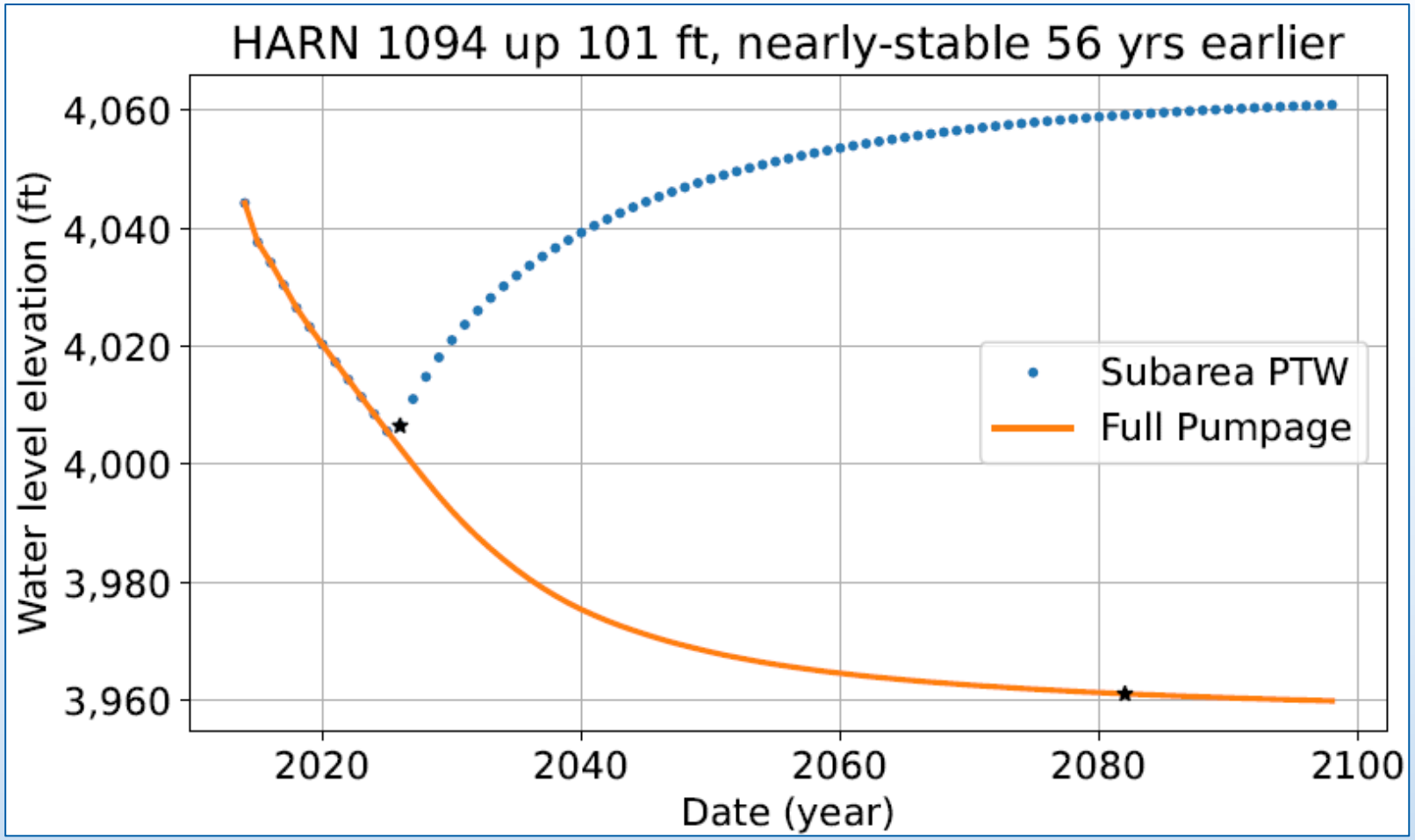
Hydrographs





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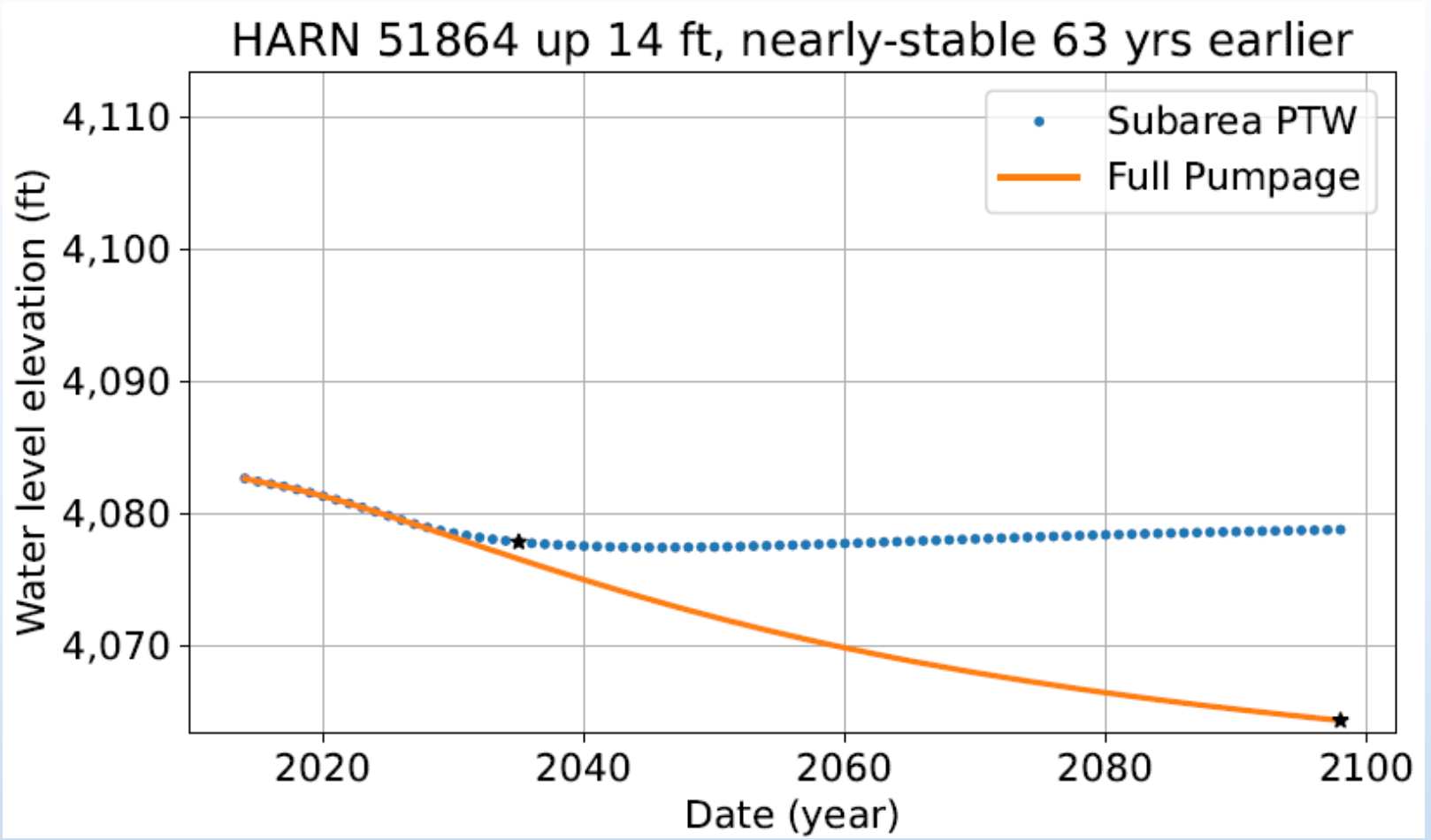
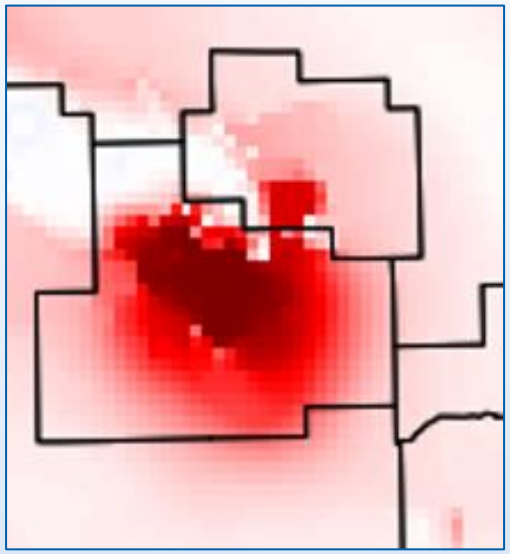
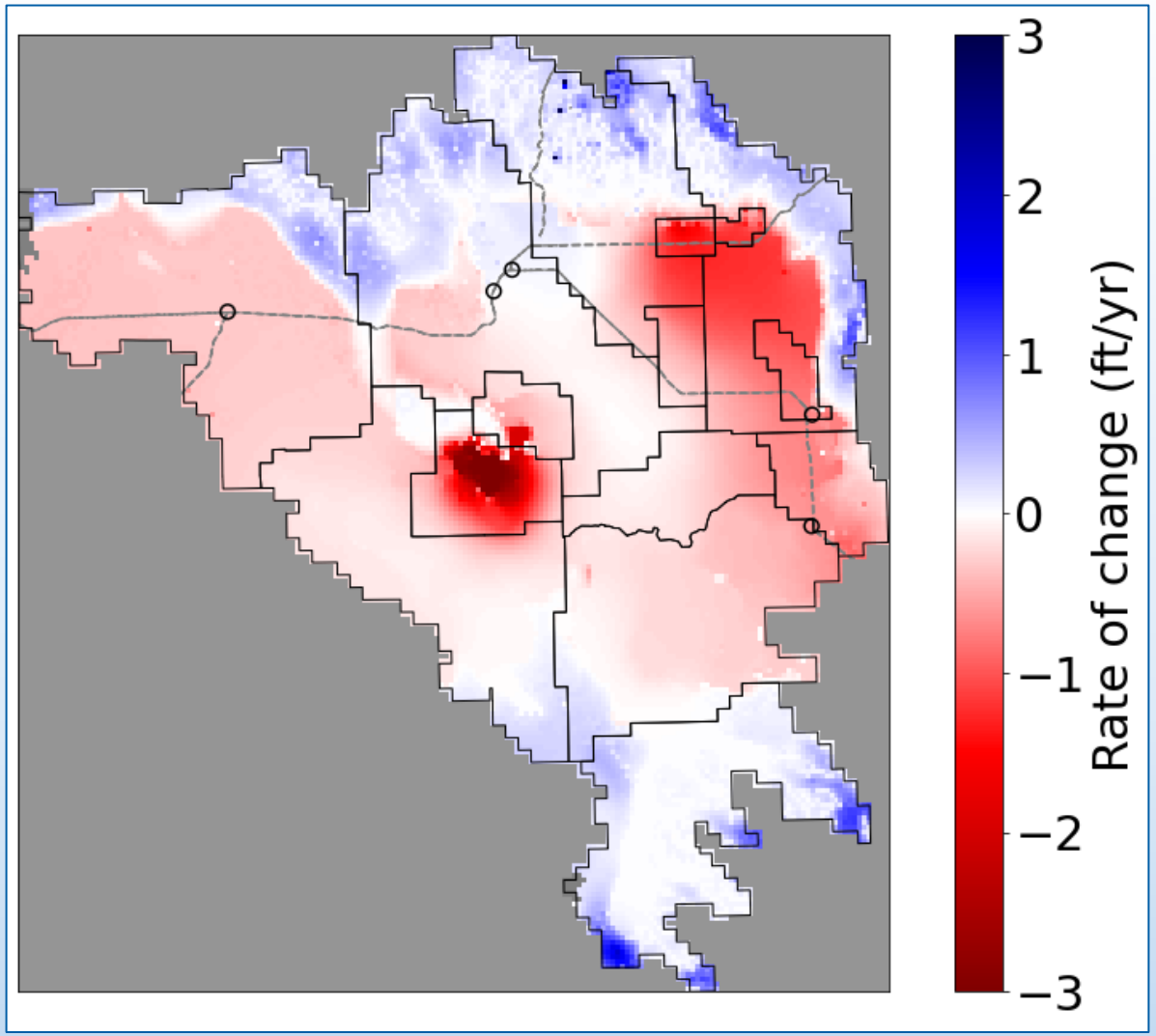
Hydrographs



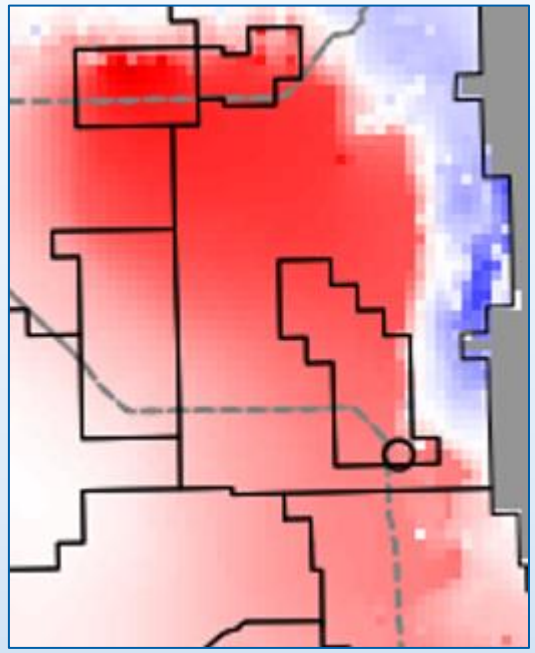
Water Level Annual Rate of Change Before Pumpage Reductions Begin

Weaver Springs/Dog Mtn.



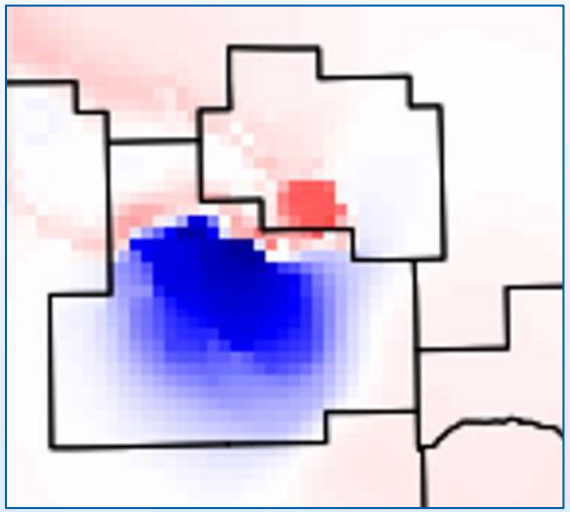


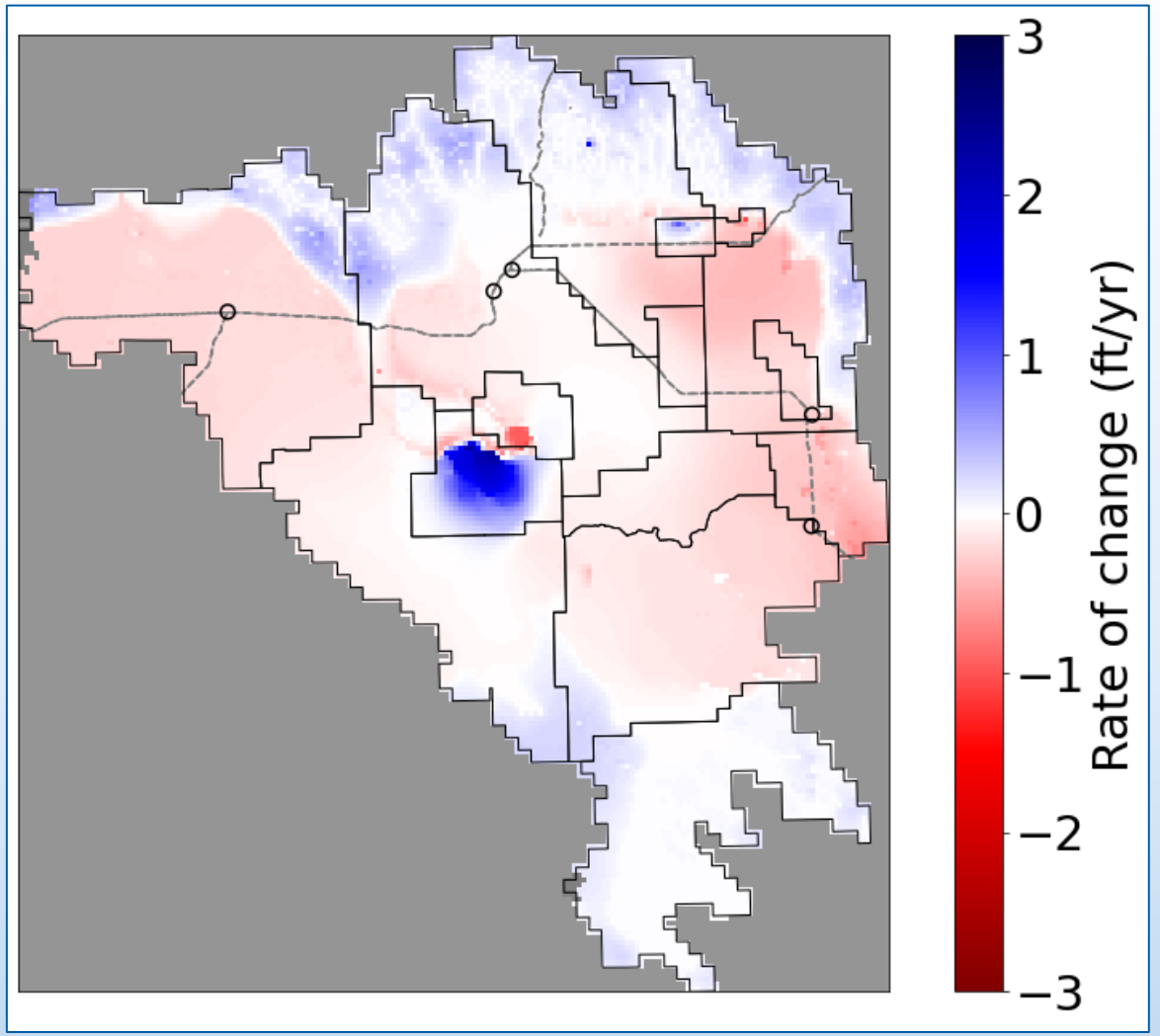
Northeastern subareas (North Harney, Rock Creek, Lawen, Crane-Buchanan, Crane, etc)



Water Level Annual Rate of Change
10 Years After Pumpage Reductions Begin

Weaver Springs/Dog Mtn.





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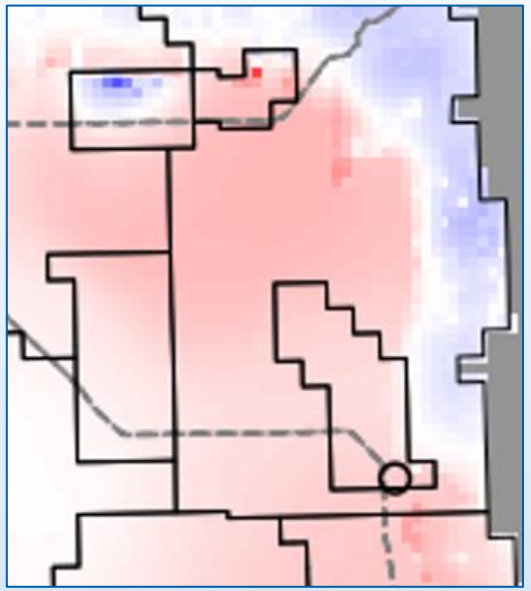
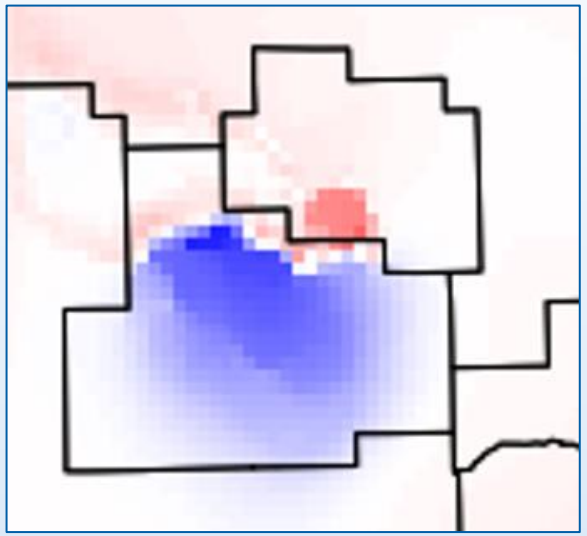
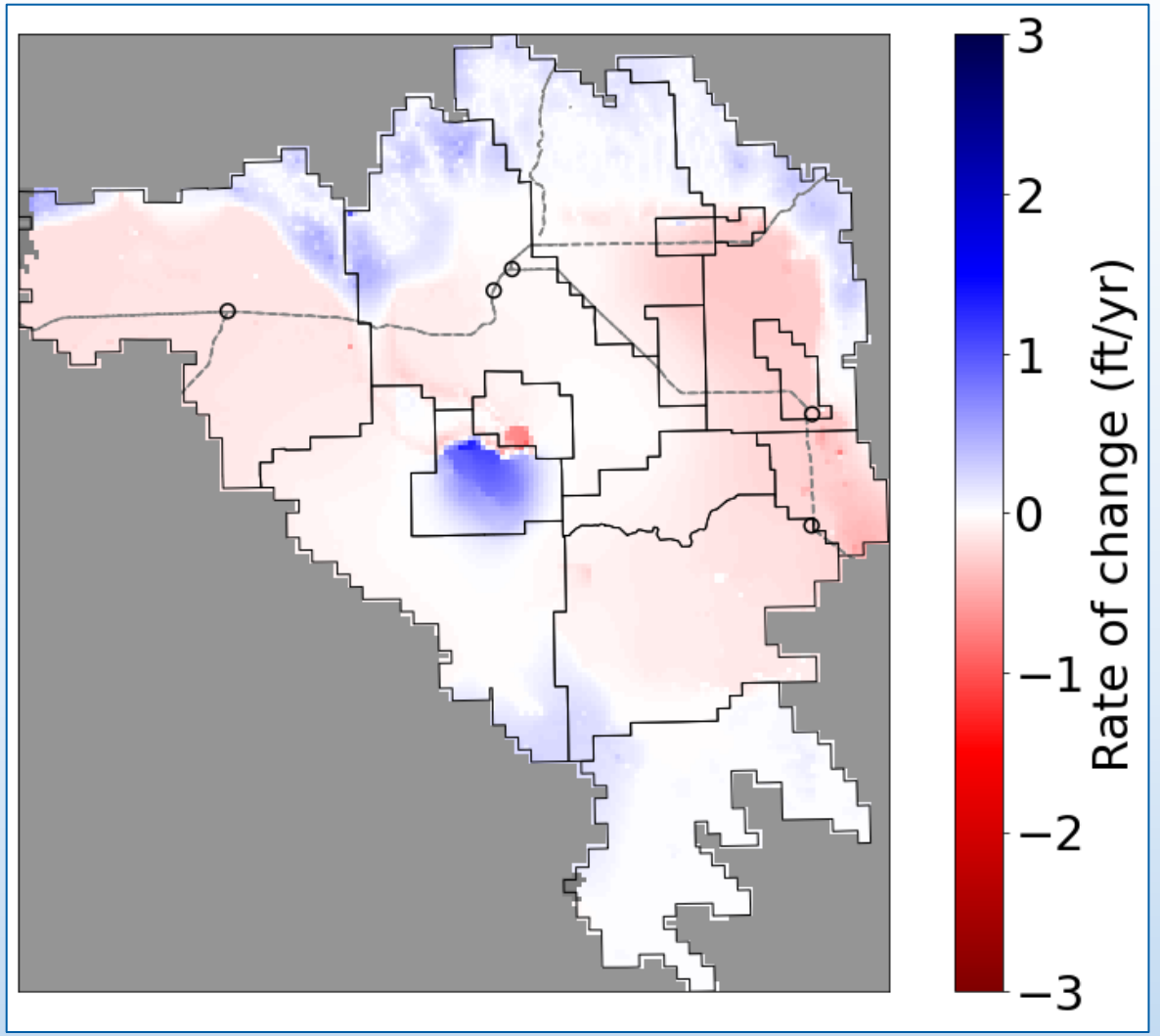


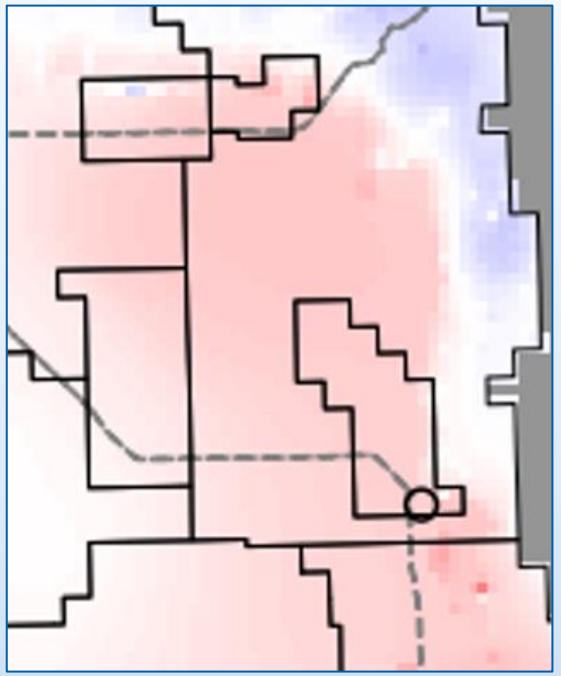
Water Level Annual Rate of Change 20 Years After Pumpage Reductions Begin

Weaver Springs/Dog Mtn.



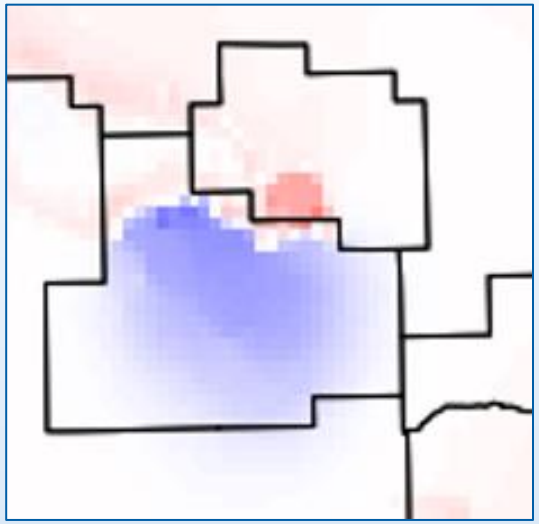


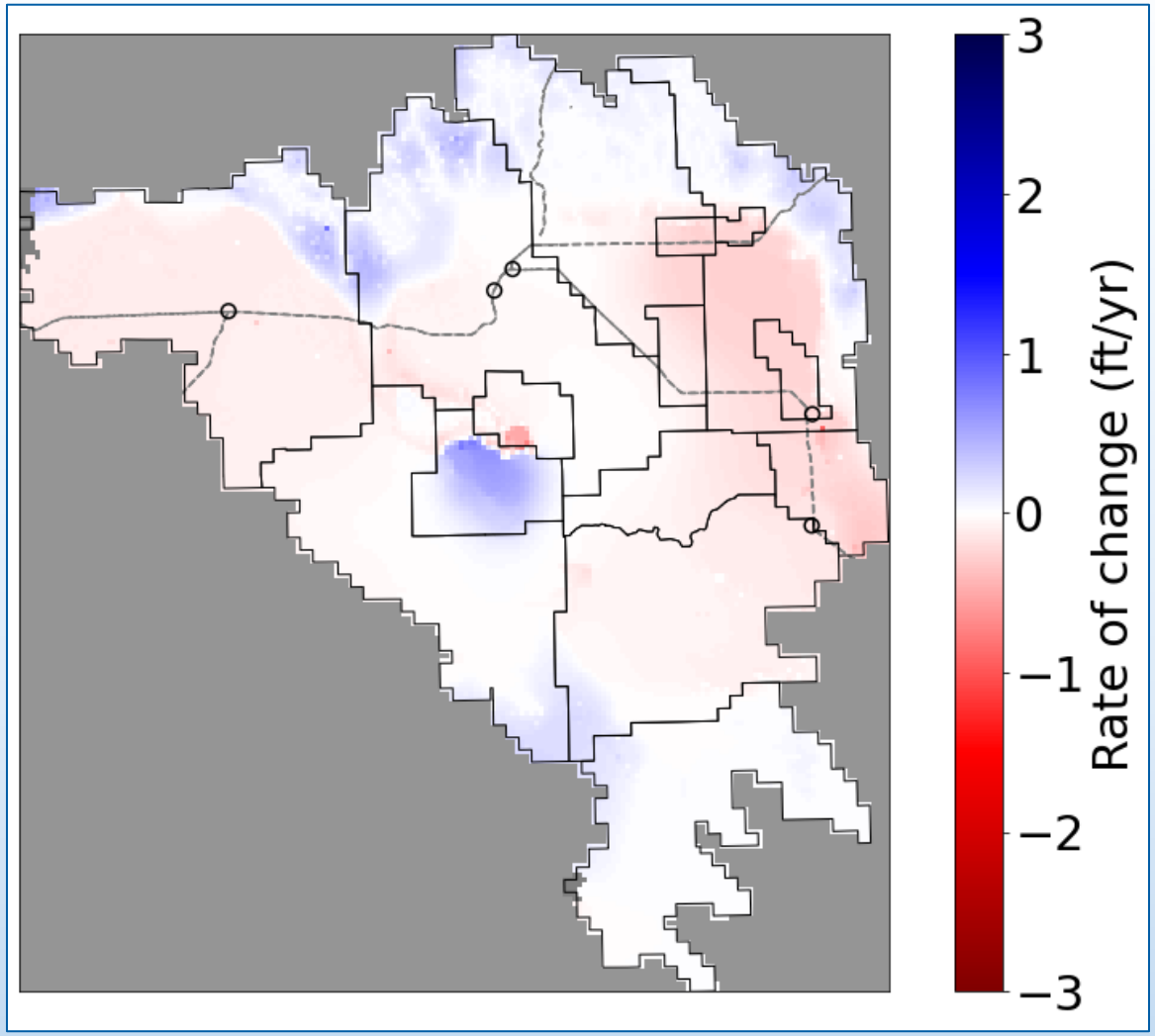
Northeastern subareas (North Harney, Rock Creek, Lawen, Crane-Buchanan, Crane, etc)



Water Level Annual Rate of Change
30 Years After Pumpage Reductions Begin

Weaver Springs/Dog Mtn.





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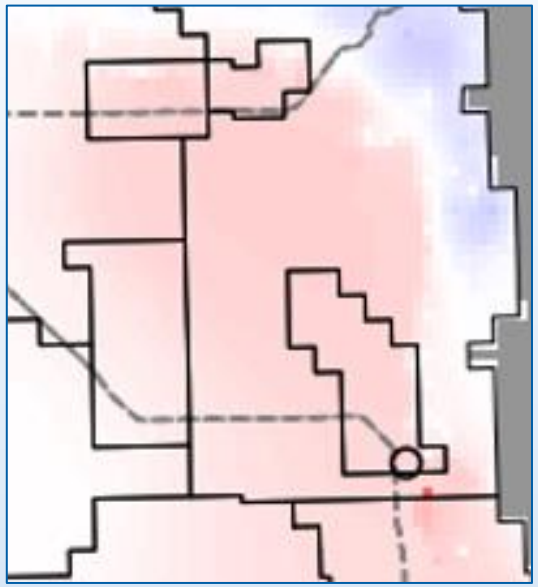
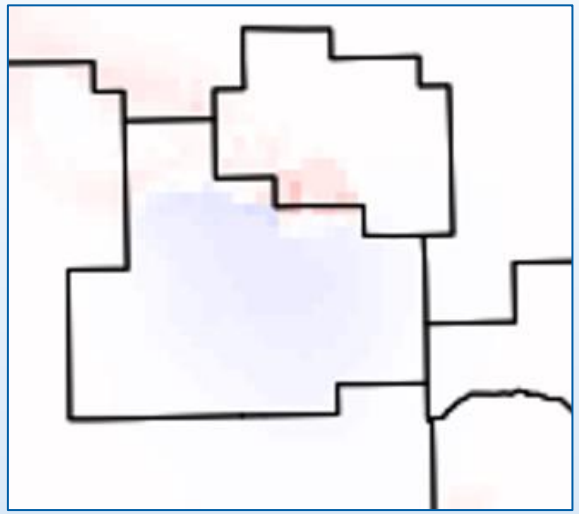
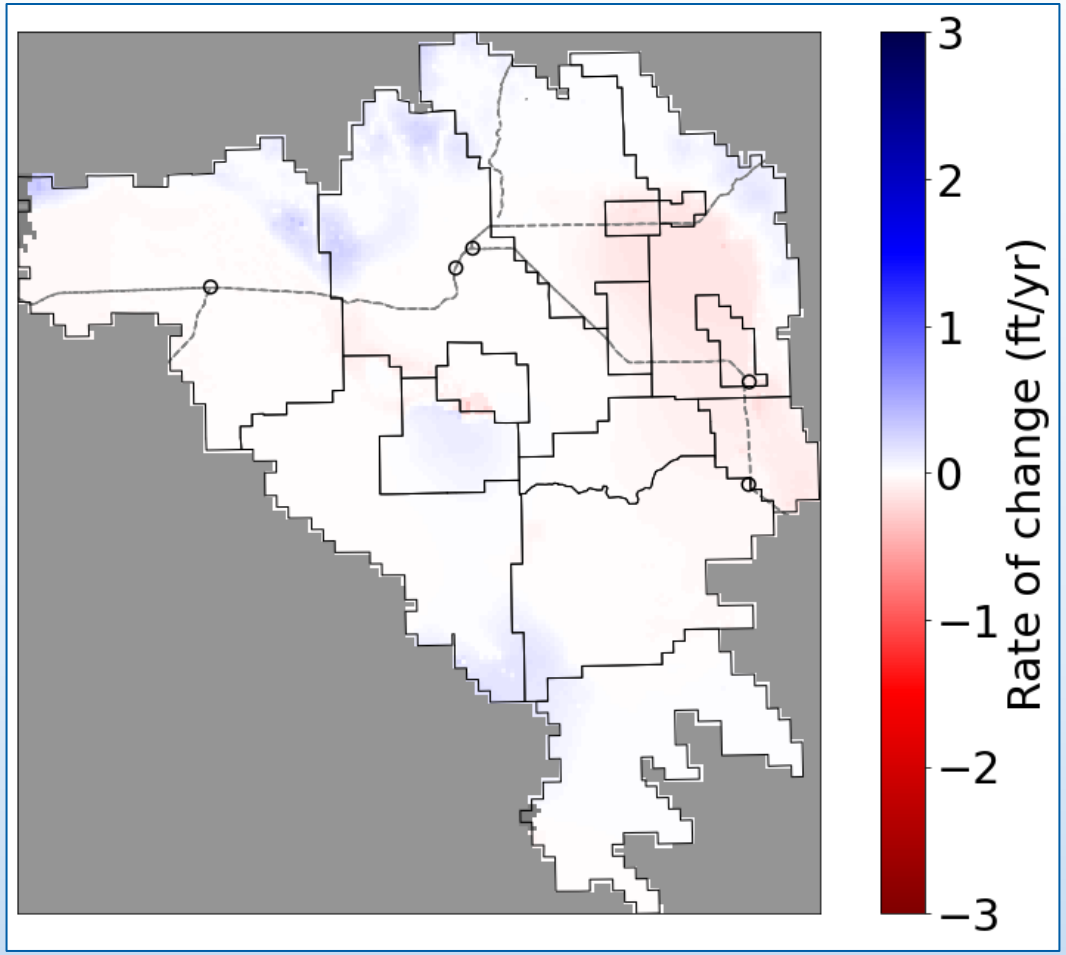


Water Level Annual Rate of Change 70 Years After Pumpage Reductions Begin

Weaver Springs/Dog Mtn.





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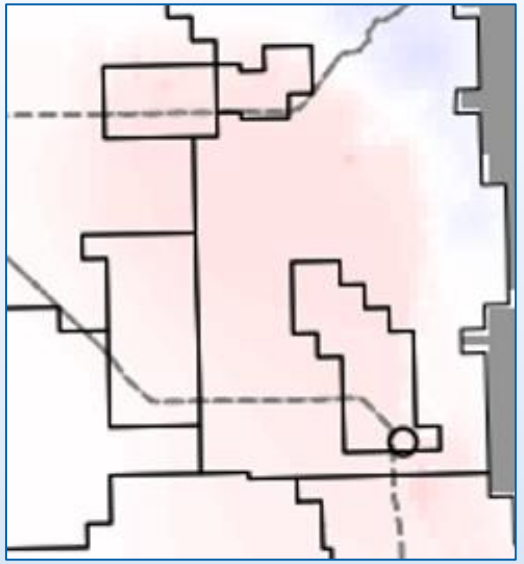
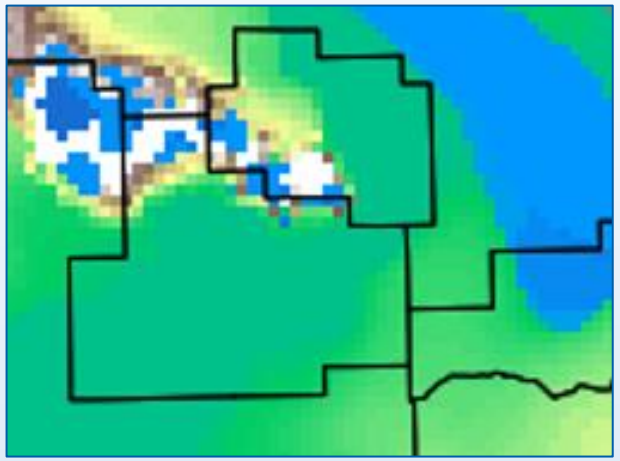
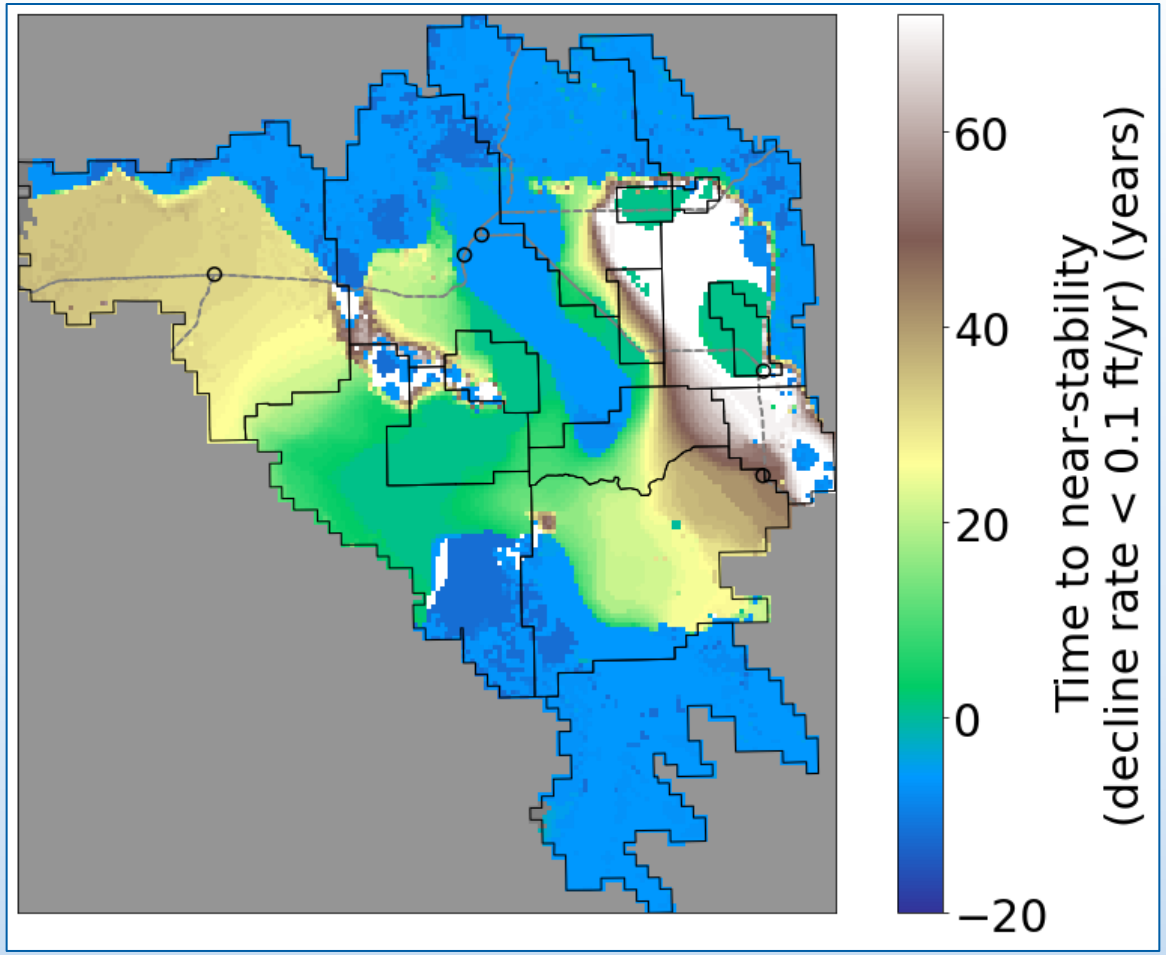


Length of Time to Achieve Near-Stability, a Rate of Decline <0.1 ft/year

Weaver Springs/Dog Mtn.





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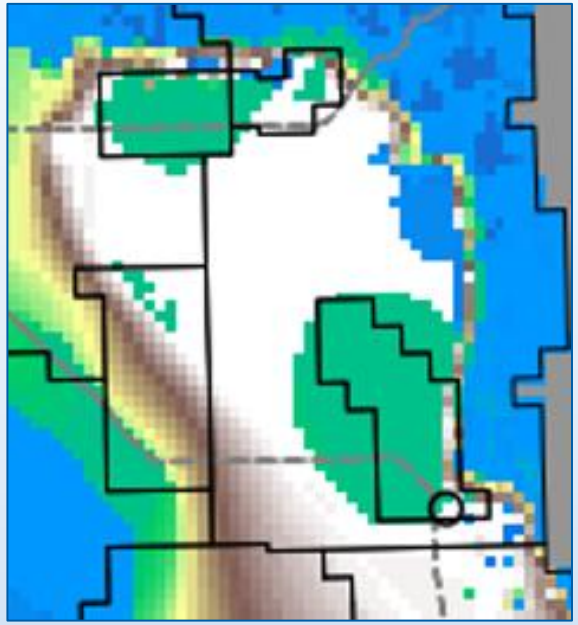
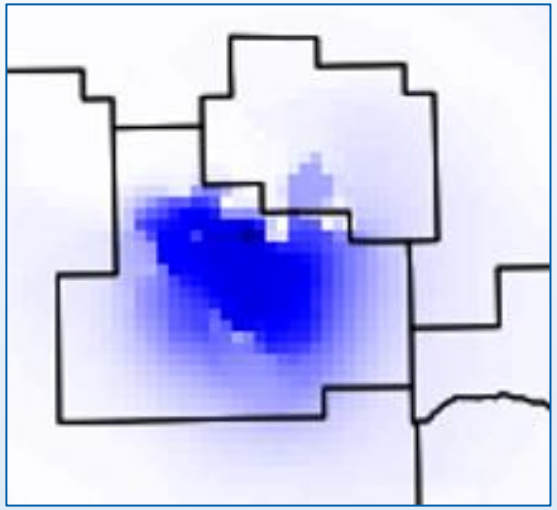
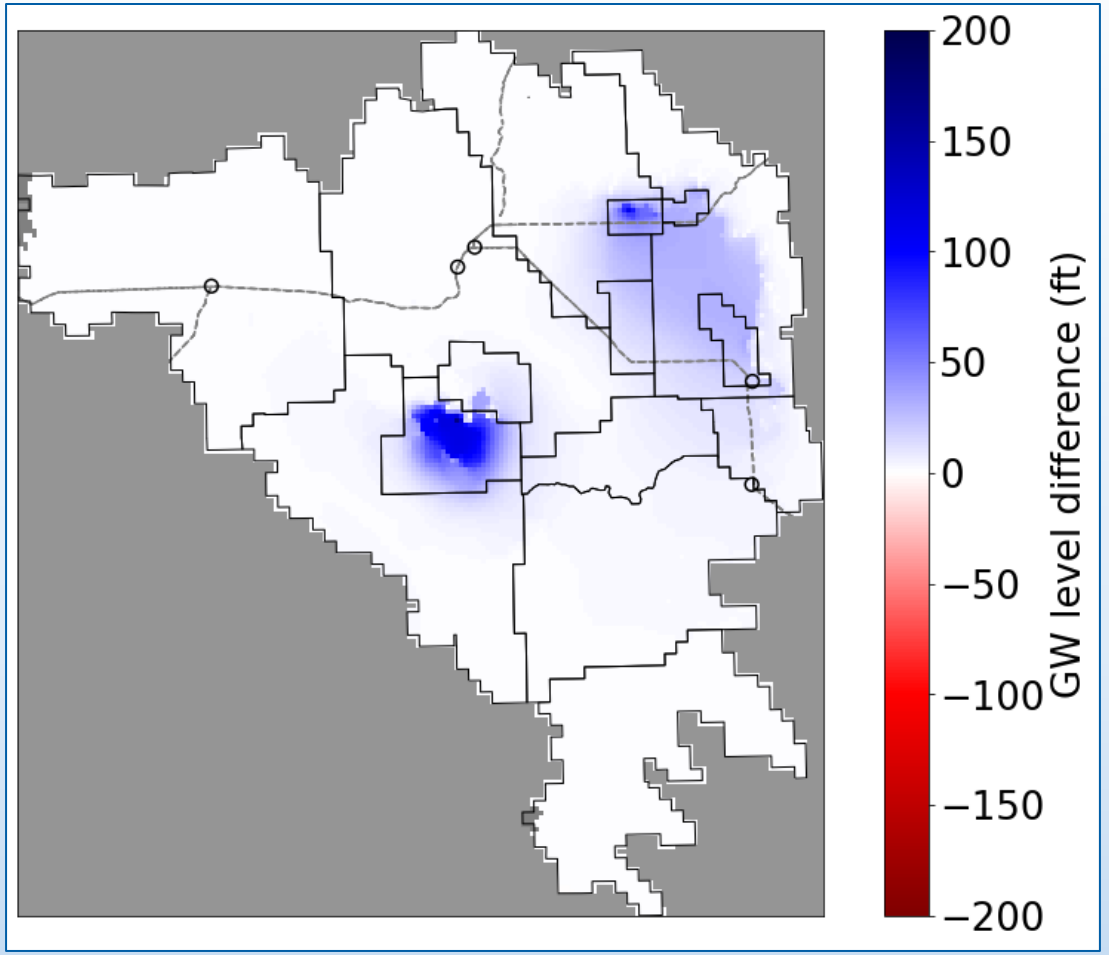


Difference in Water Levels at End of Century Compared with Full-Pumpage Scenario

Weaver Springs/Dog Mtn.





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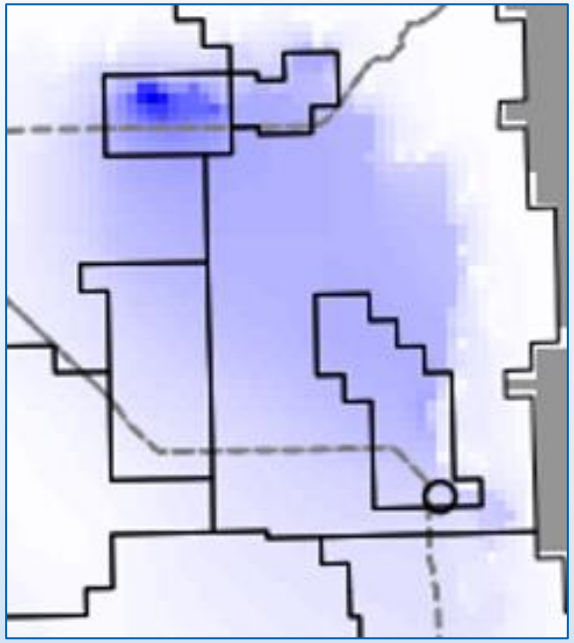

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Takeaways

- The OWRD 15 subarea scenario results indicate:
  - Positive effect on water levels but didn't achieve the target water level trend of 0 decline.
  - Reductions in high priority subareas affect decline rates in lower priority subareas.
  - Weaver Springs (74% reduction) and North Harney (64% reduction) show recovery in a short time, indicating reductions may be more severe than necessary.
  - Portions of the basin never achieve "near stable" indicating broader geographic reductions are necessary, including in lower priority subareas