Indian Wells Valley
Scenario #2
DRAFT Groundwater Model Results

February 27, 2019

DRAFT – Subject to change

- Model assumptions
- Model results
  - Drawdown
  - Hydrographs by model analysis zone
  - Water budget

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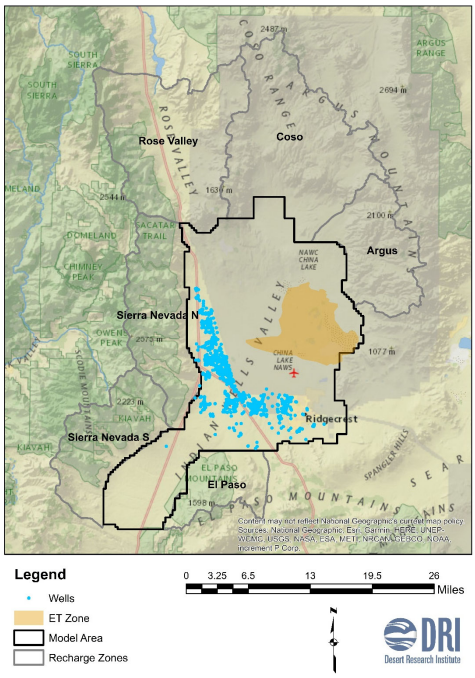
Model Assumptions

- Simulation period: 2017 – 2070
- Monthly time steps
- Initial condition from historical model
- Variable recharge
- Scenario #2 conditions
  - Reduced pumping
  - Imported and recycled water



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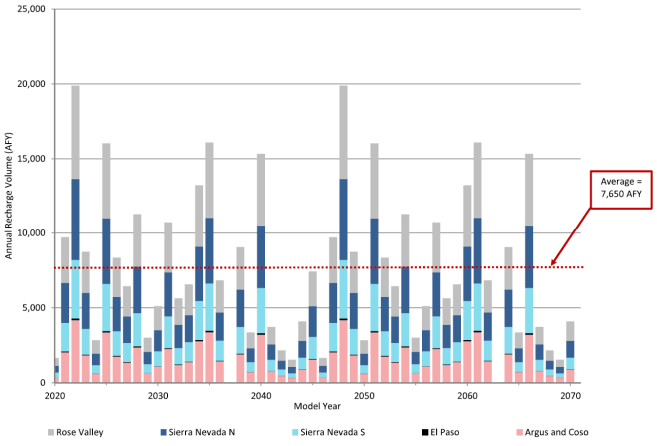
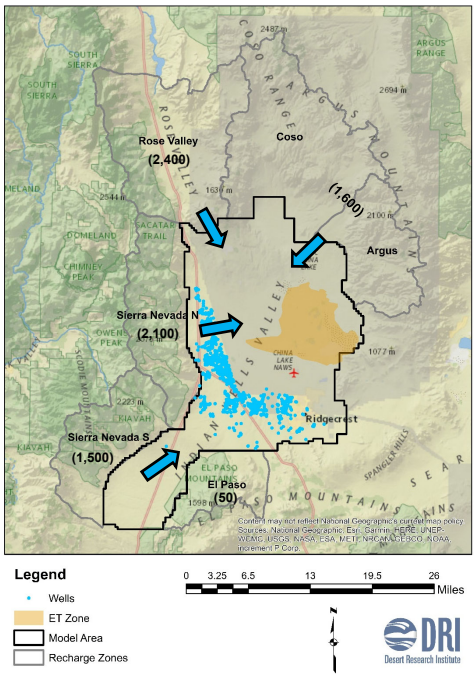
Recharge





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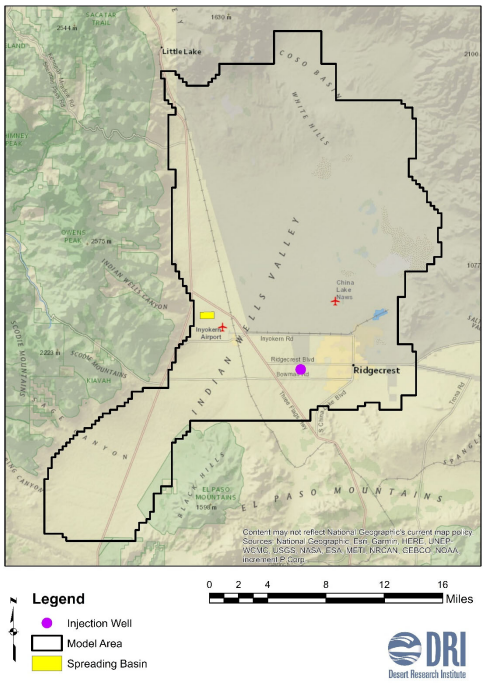
Imported and Recycled Water

- Imported Water
  - Begins 2030
  - Spreading basin: Dec – Apr (5,640 AFY)
  - Direct Use (8,030 AFY)
- Recycled Water
  - Begins 2025
  - Injected (350 AFY)



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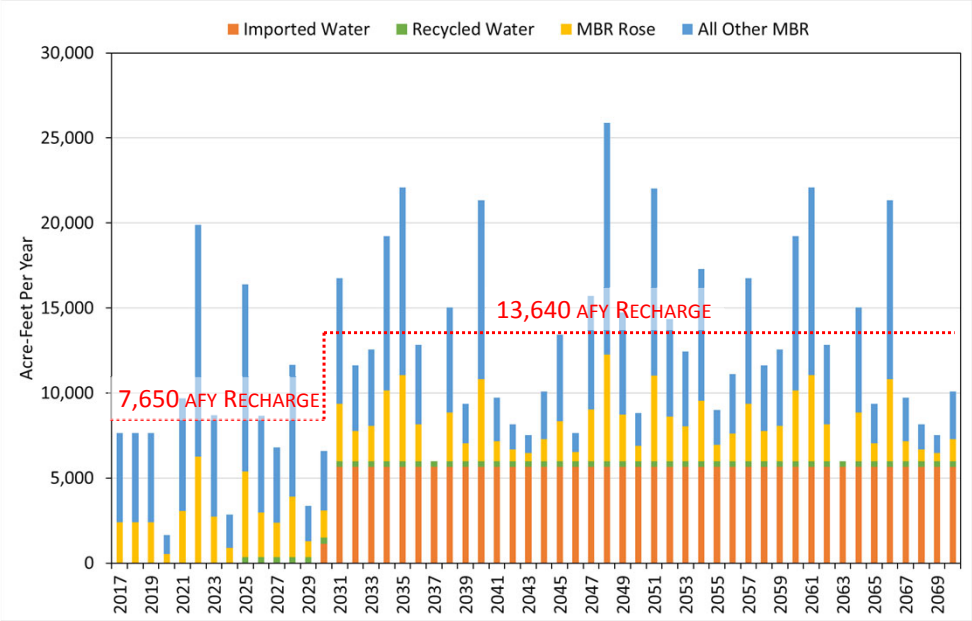
Recharge



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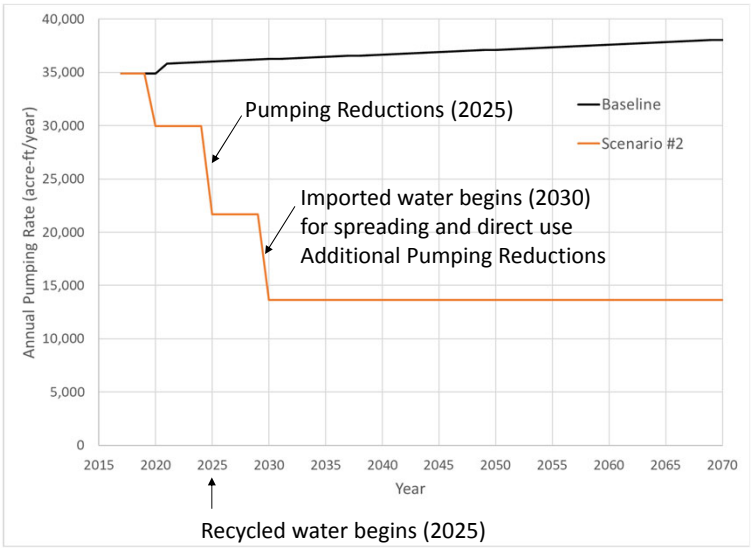
Simulated Pumping



2020 Pumping = 29,940 AF

2025 Pumping = 21,680 AF

No Reduction	Navy
No Reduction	Domestic
No Reduction	SVM
10% Reduction	IWVWD
10% Reduction	Mutuals, CSD
40% Reduction	Agriculture
No Pumping	City (Recycled Water)

2030 Pumping = 13,650 AF

No Reduction	Navy
No Reduction	Domestic
No Addtnl Reduction	Mutuals, CSD
No Addtnl Reduction	Kern County
No Addtnl Reduction	Agriculture
No Pumping	City (Recycled Water)
No Pumping	IWVWD (Direct Use)
No Pumping	SVM (Direct Use)

2030 through 2070 Pumping = 13,650 AFY

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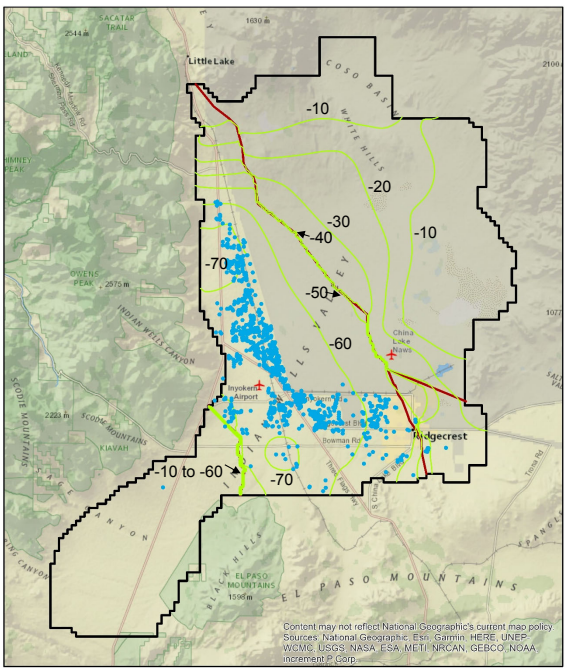
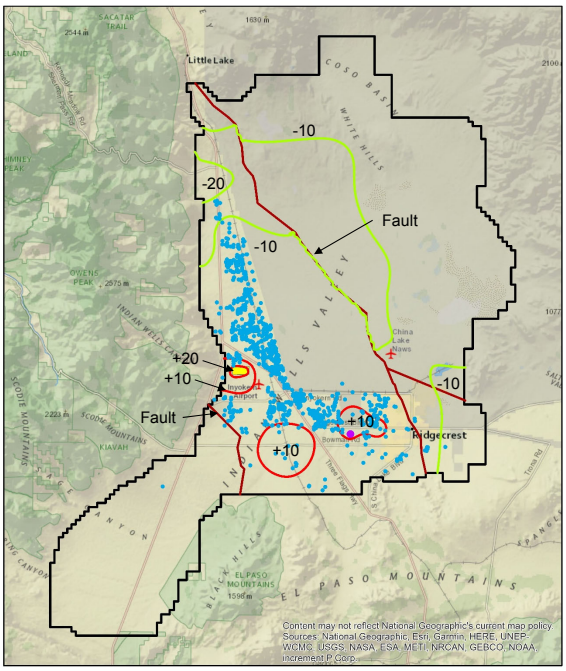


Baseline

Water Level Change (2020-2070)

Rising

Falling



Scenario #2

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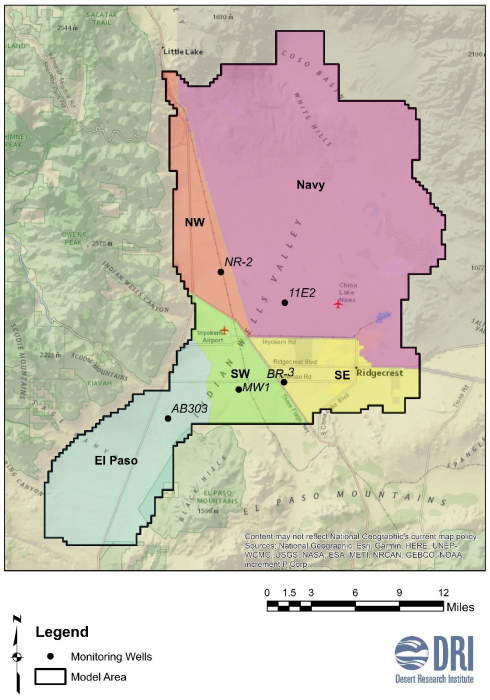
Units: feet

Simulated Hydrographs Selected Locations



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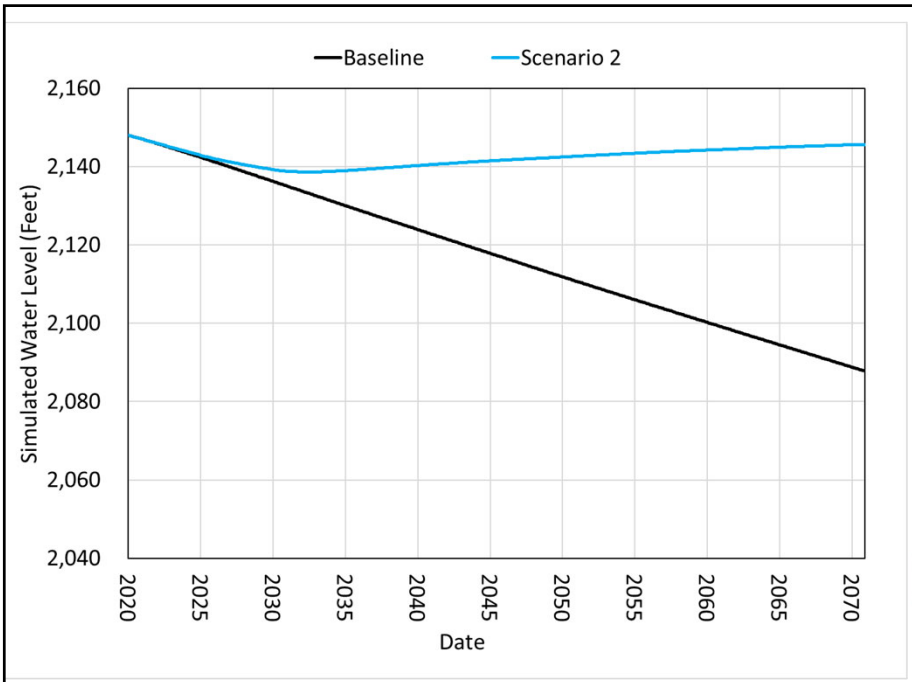

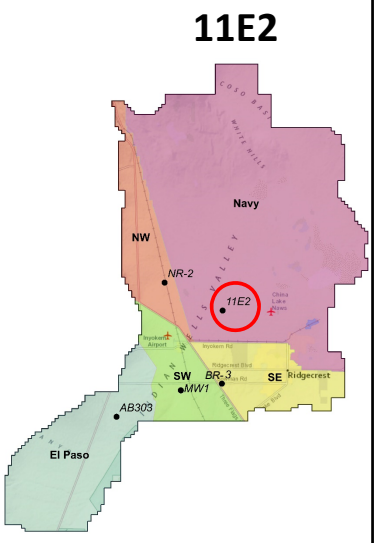

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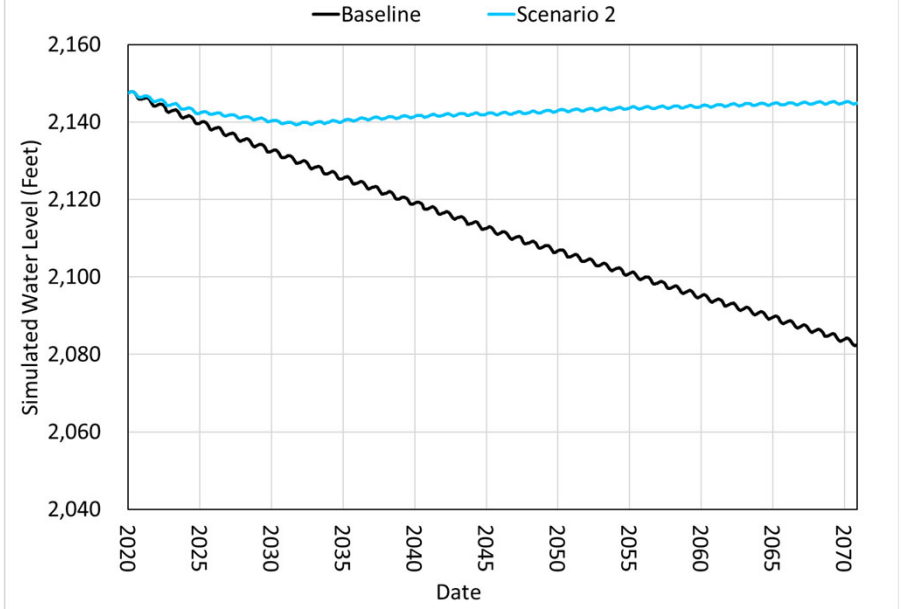

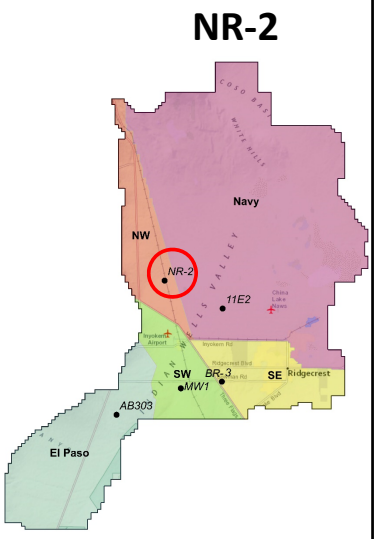

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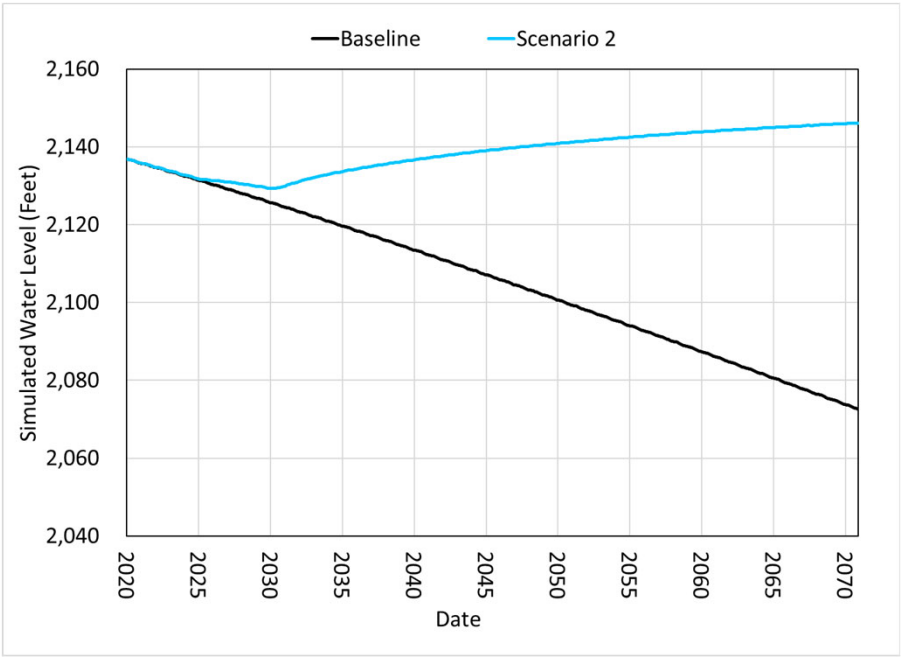

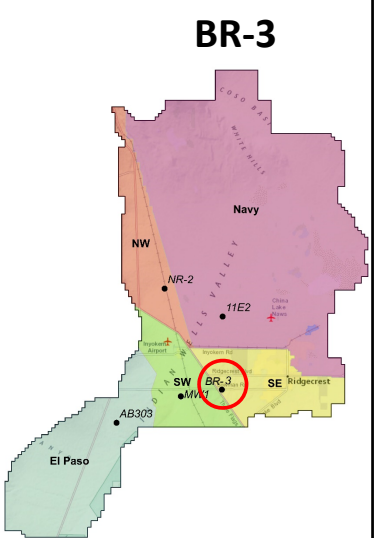

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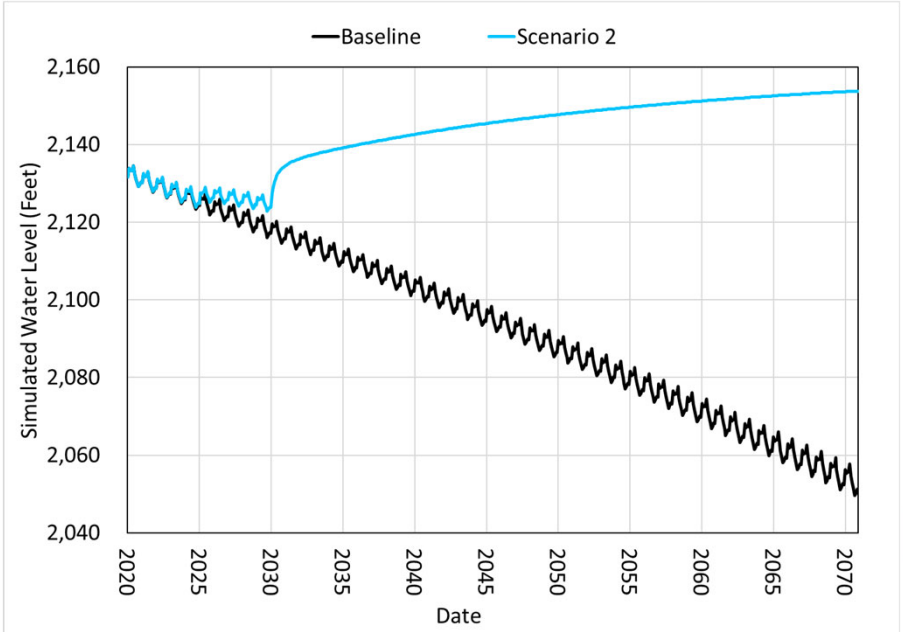

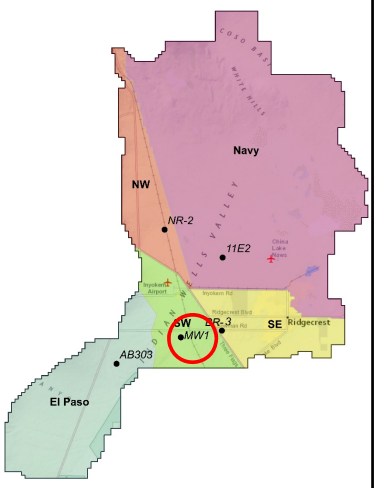

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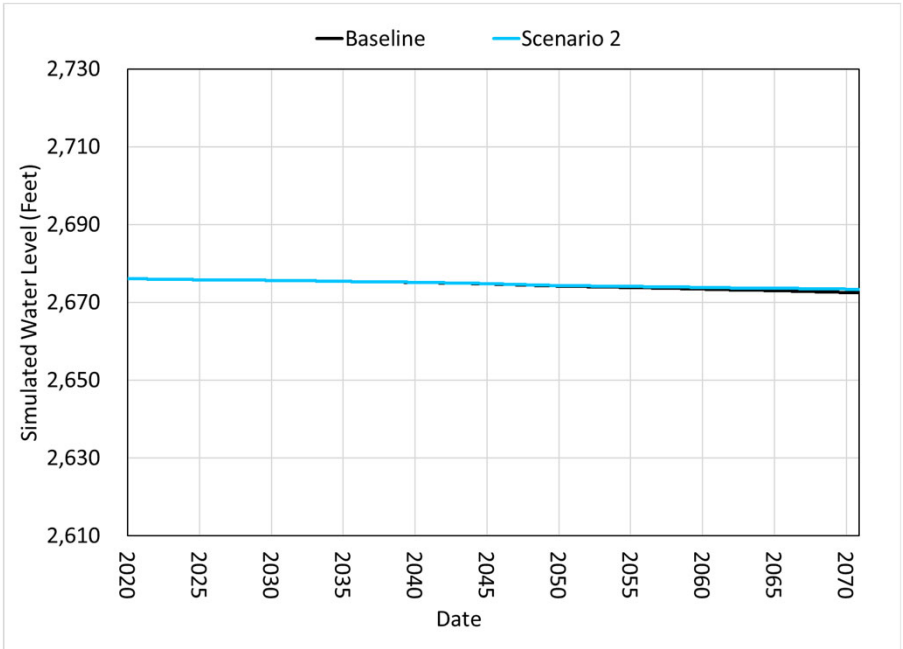

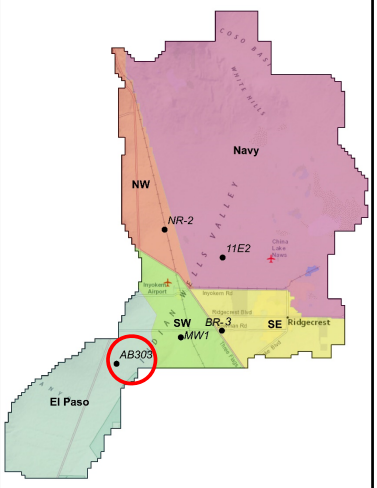

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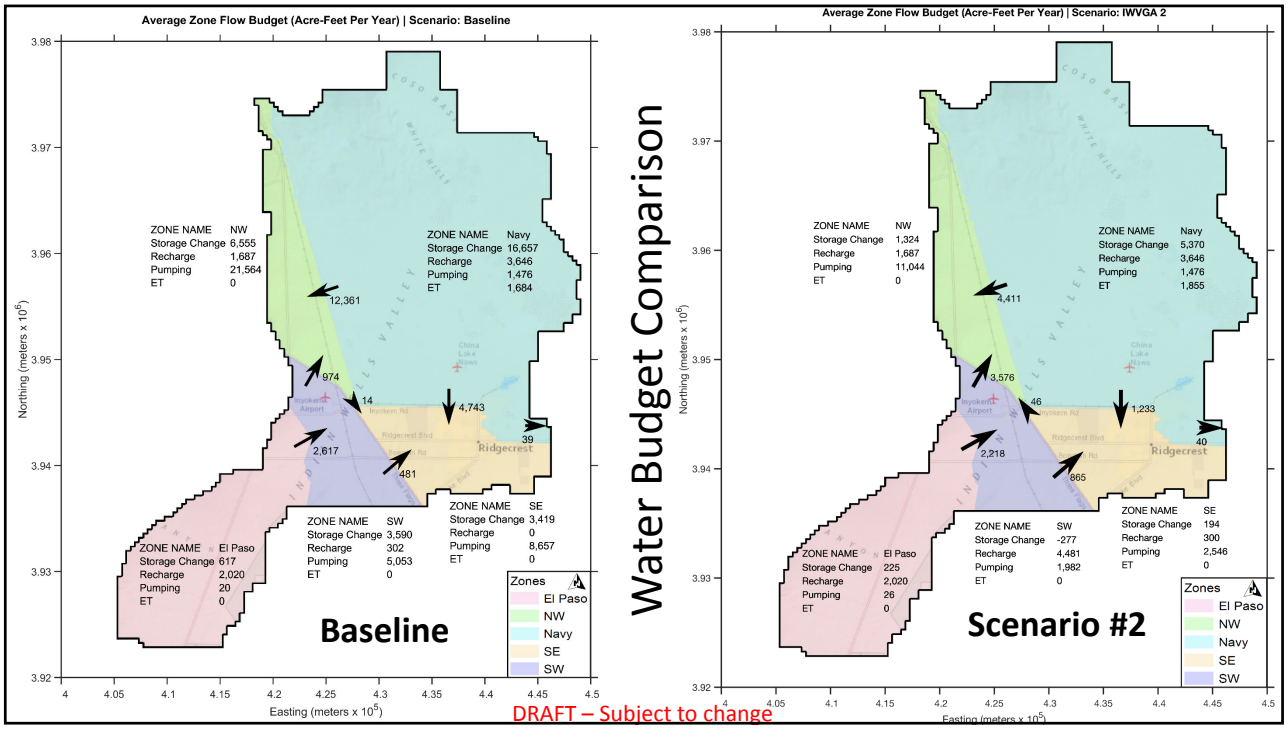

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Groundwater Basin Budget

	BASELINE (2020 - 2070)	SCENARIO #2 (2020 - 2025)	(2035 - 2040)	(2065 - 2070)
INFLOW				
Natural Recharge	7,650	7,650*	7,650*	7,650*
Imported Water Recharge	-	-	5,640	5,640
Recyled Water Recharge	-	-	350	350
TOTAL	7,650	-	13,640	13,640
OUTFLOW				
Pumping	36,880	29,940	13,650	13,650
Evapotranspiration	1,610	2,634	1,950	1,230
Flow to Salt Wells Valley	40	65	46	16
TOTAL	38,530	32,639	15,645	14,896
CHANGE IN GW STORAGE	-30,880	-21,383	-1,221	-3,890

*Averaged over 2020 - 2070

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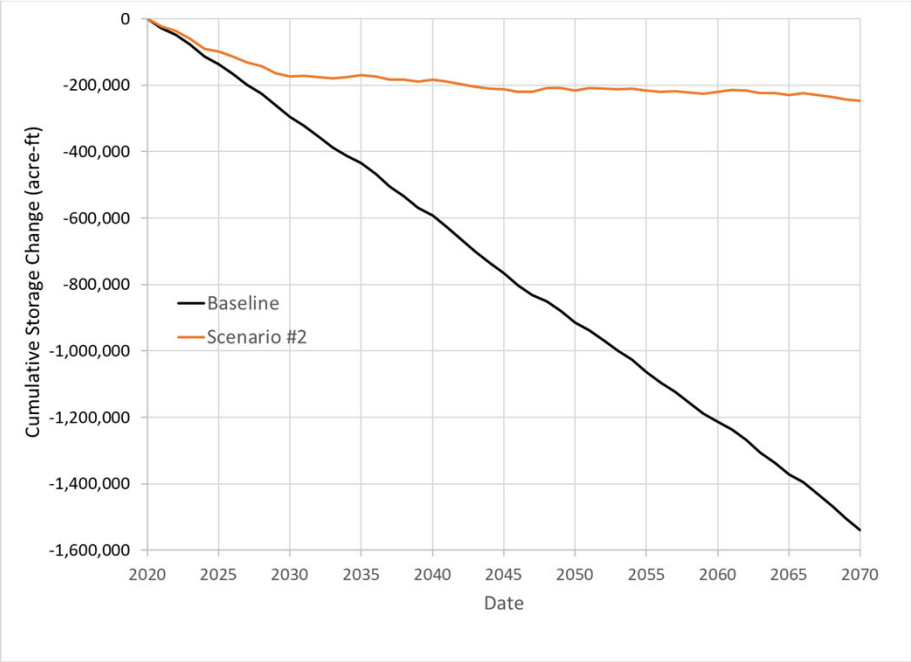
Change in Basin Groundwater Storage



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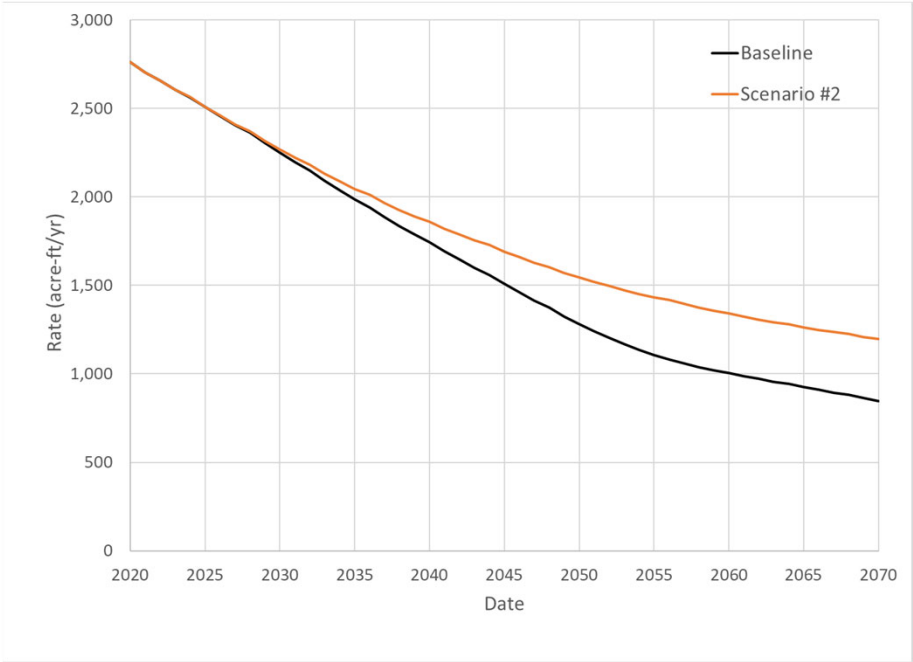
Simulated ET



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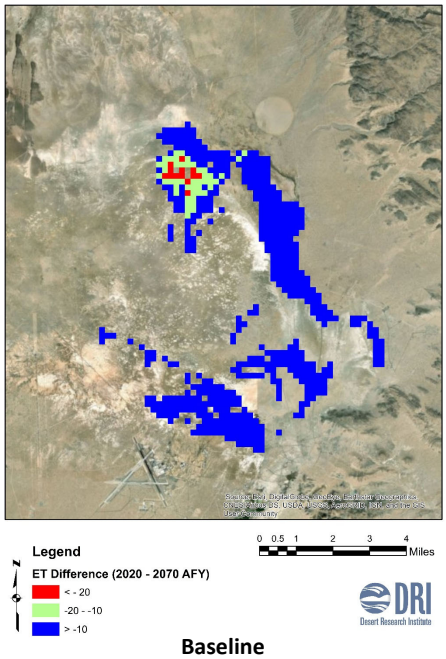
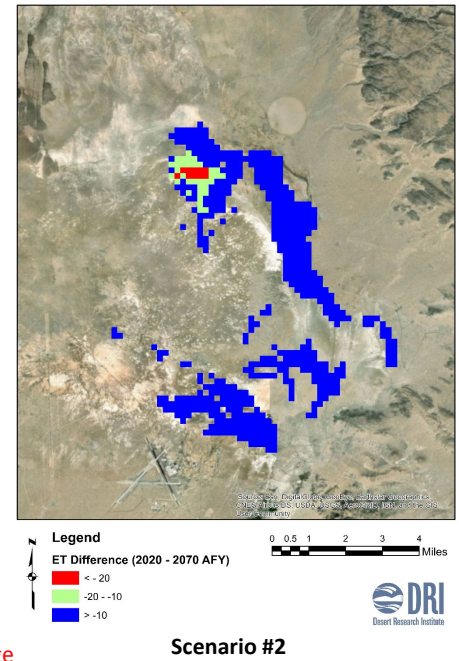
ET Change (2020-2070)



Baseline



Scenario #2

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Summary

- Scenario #2 water levels fall (10 – 20 ft) in the northwest and increase (10 – 20 ft) in the southwest as compared falling water levels (10 – 70 ft) in the Baseline
- Groundwater storage change stabilizes quickly after pumping reductions (2030) as compared to continued declines in Baseline
- ET rates are similar between the Baseline and Scenario #2 due to long lag times to the phreatophyte zone


Questions
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