

GSP Sustainable Management Actions Modeling Scenarios Model Results - Scenarios #3, 4, and 5

IWVGA TAC: June 6, 2019

Item 3a



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TAC 2019-06-06 Slide 1

Summary of Draft Model Results

1. White Paper
2. Water Buyout
3. Immediate Halt to Pumping (IHTP)

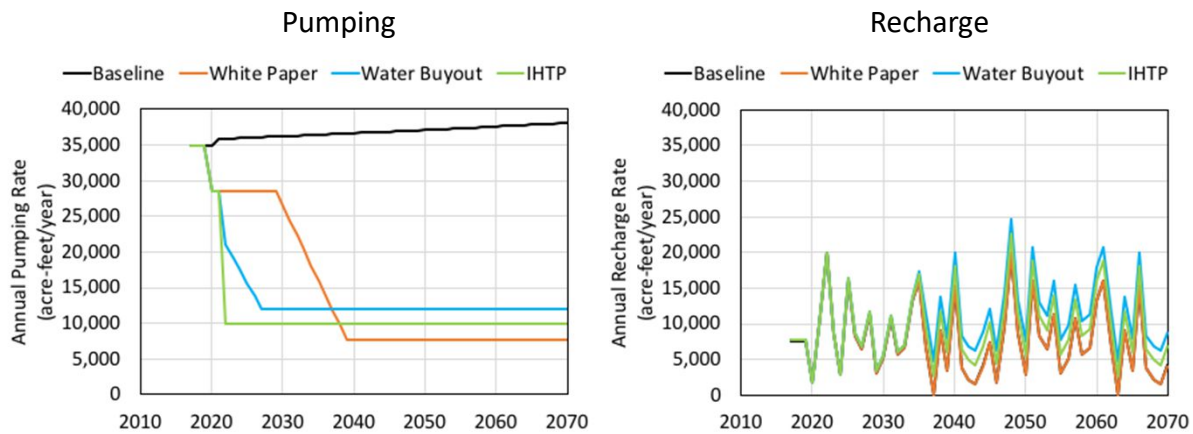
- Basin-wide pumping and recharge scenarios
- Water level changes (basin-wide and individual wells)
- Basin-wide groundwater budgets
- Basin-wide changes in groundwater storage
- Changes in groundwater quality



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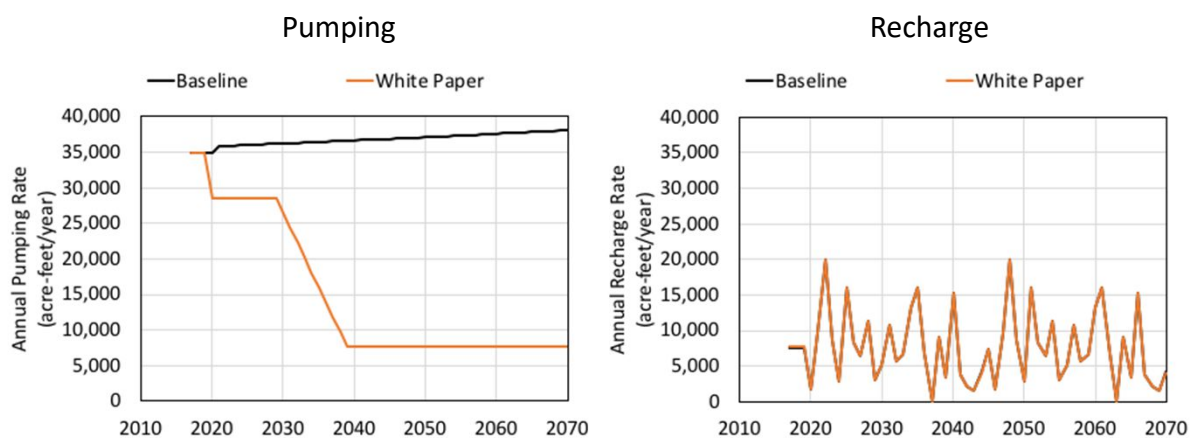
Pumping and Recharge Scenarios



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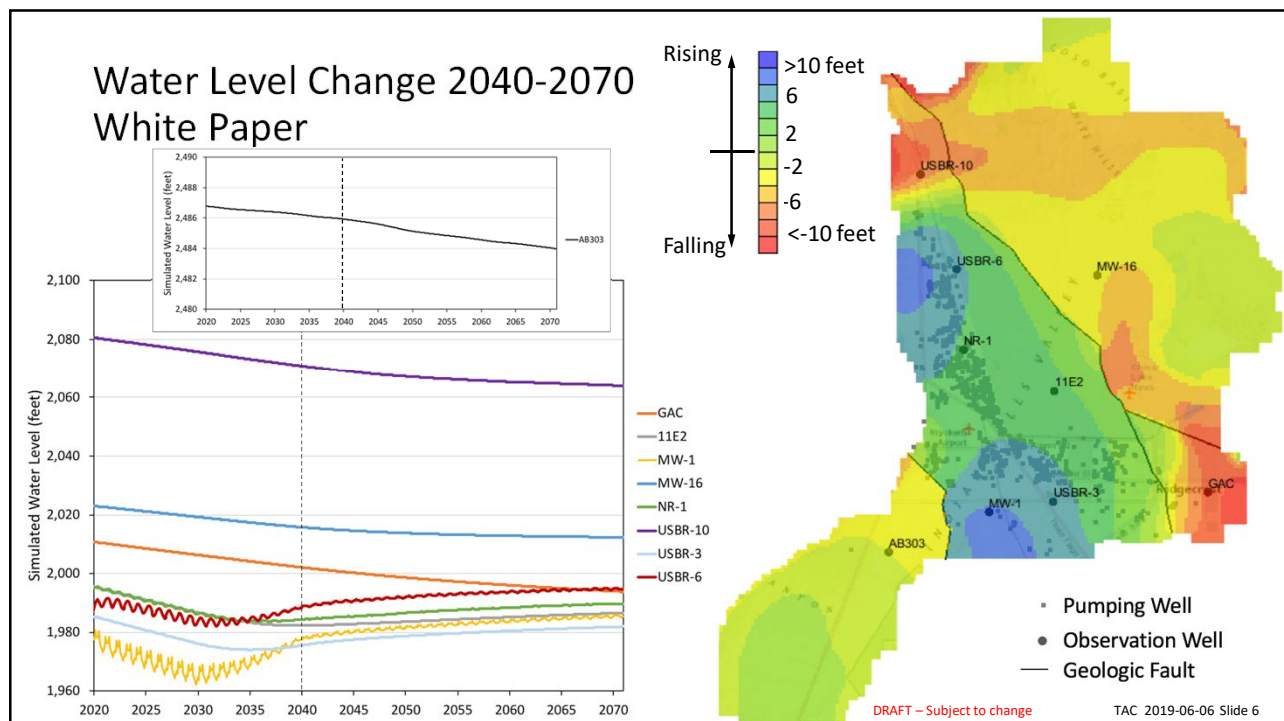
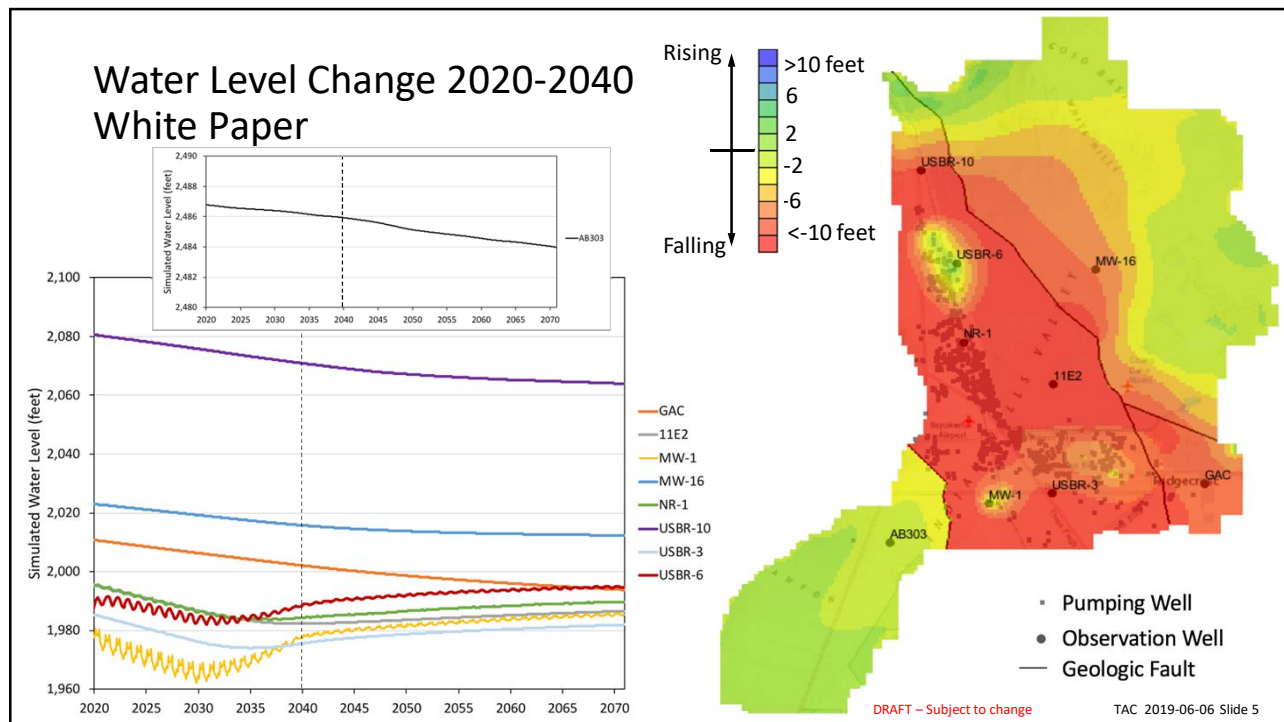
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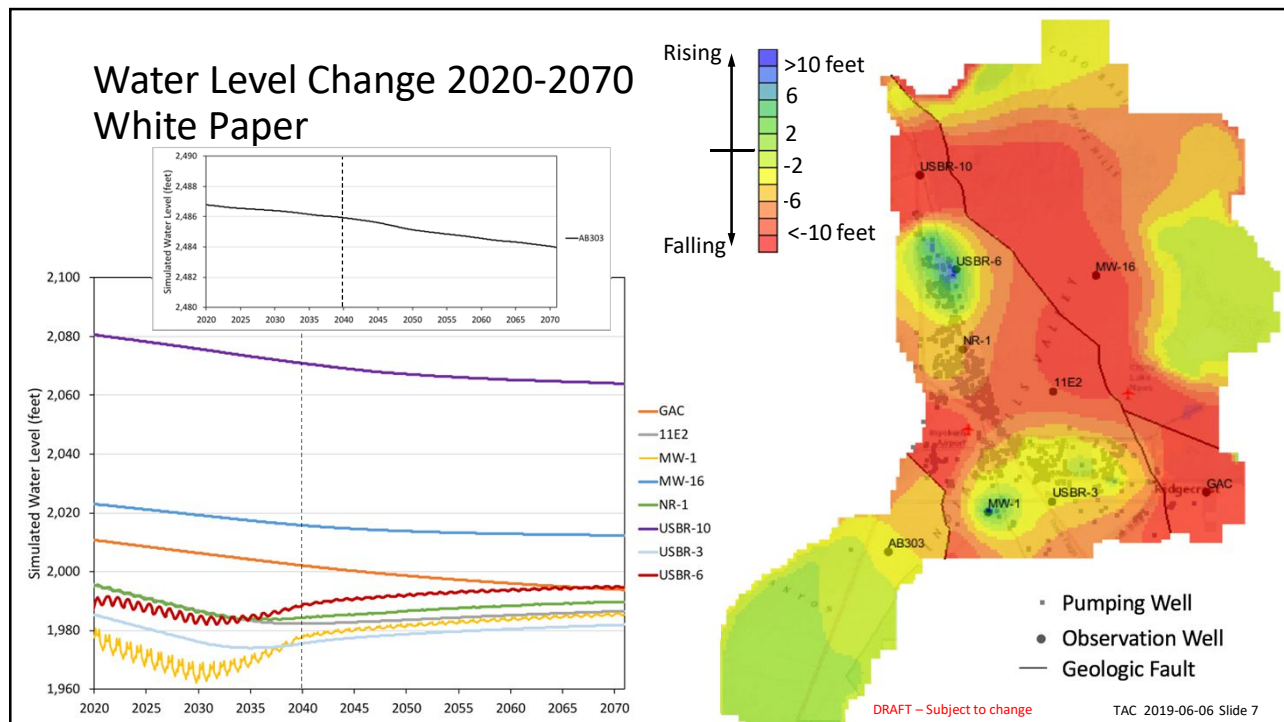
1. White Paper Model Results



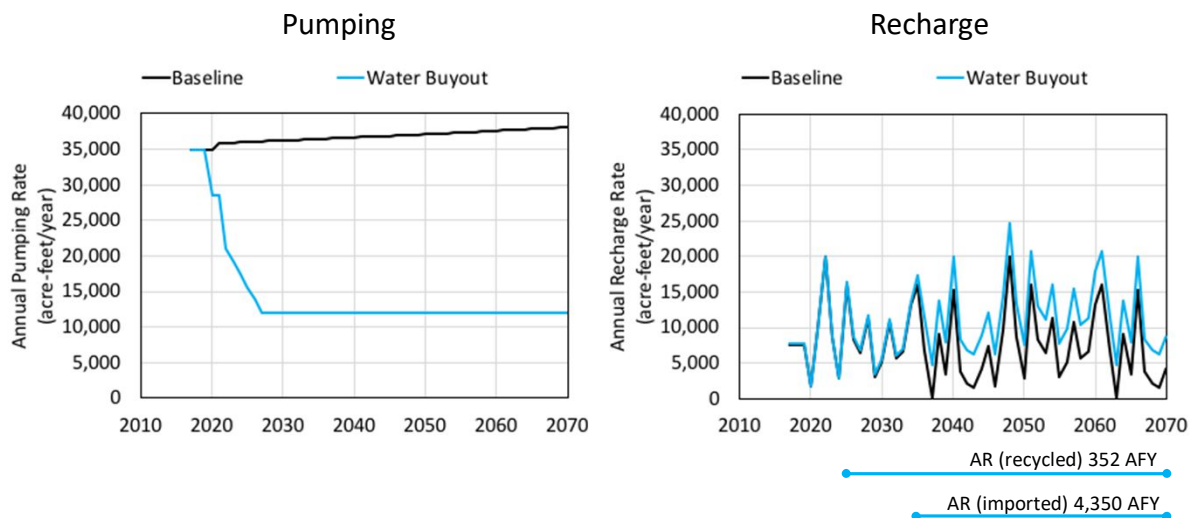
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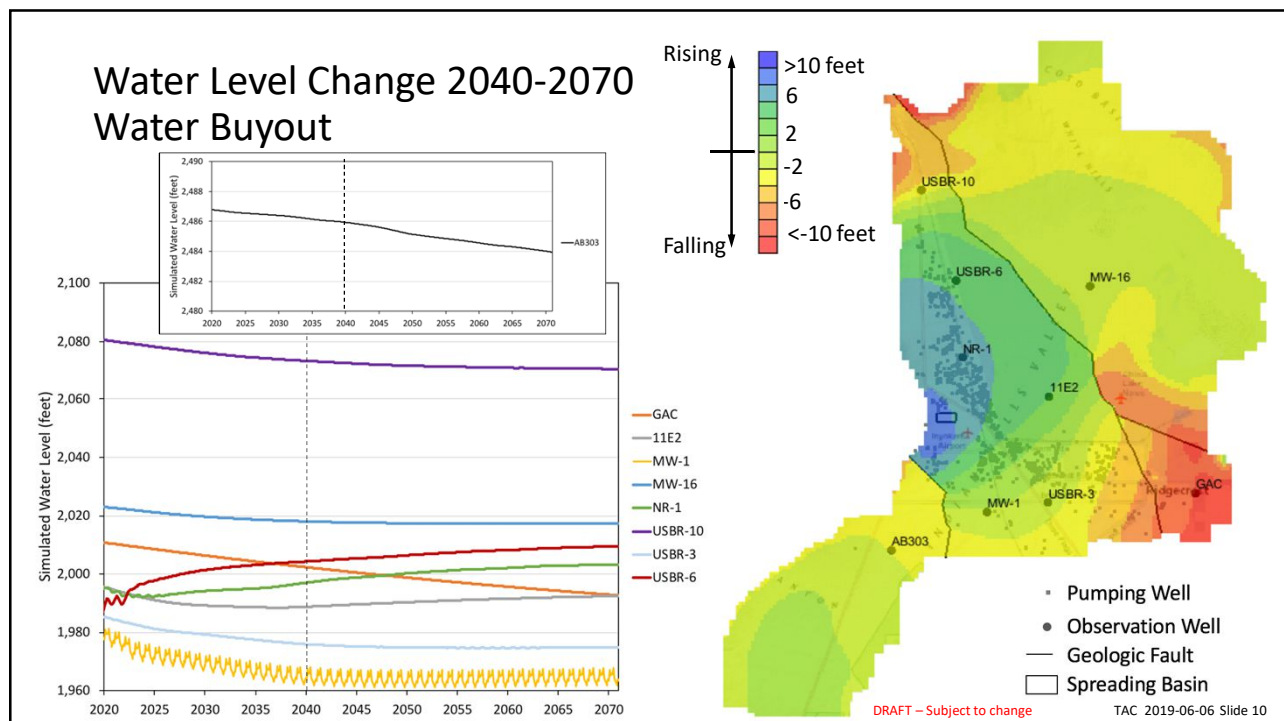
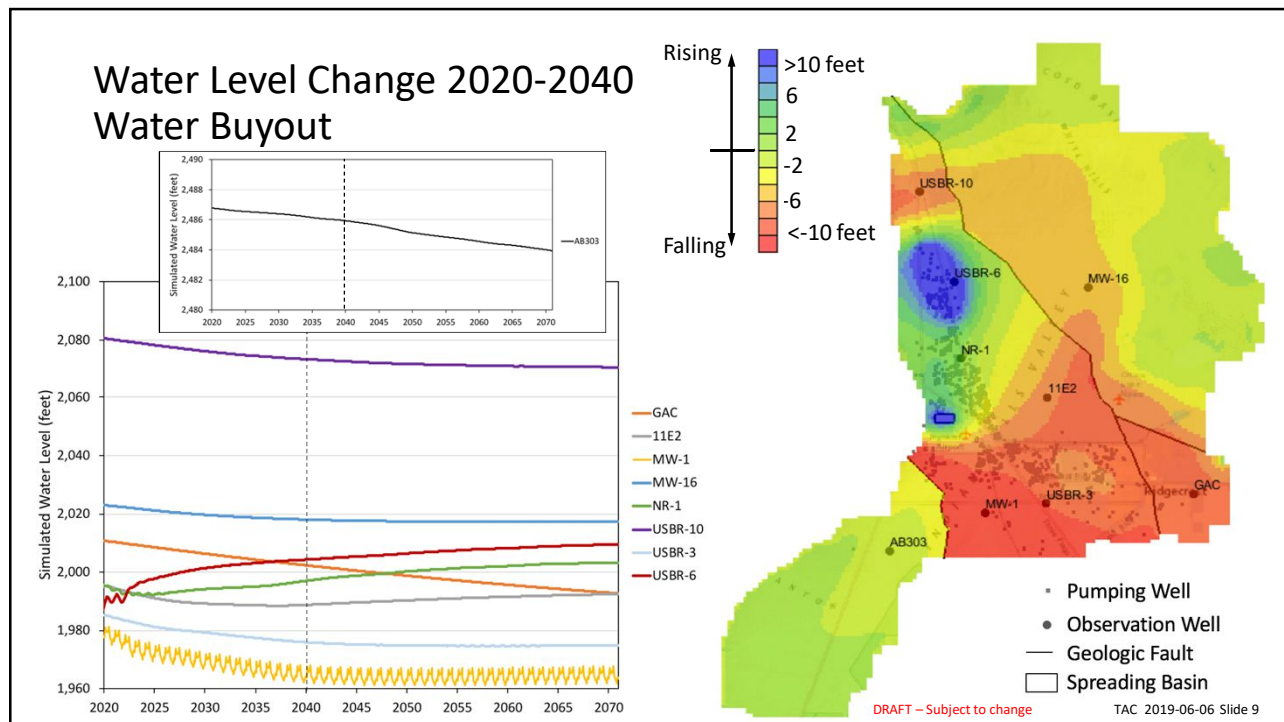
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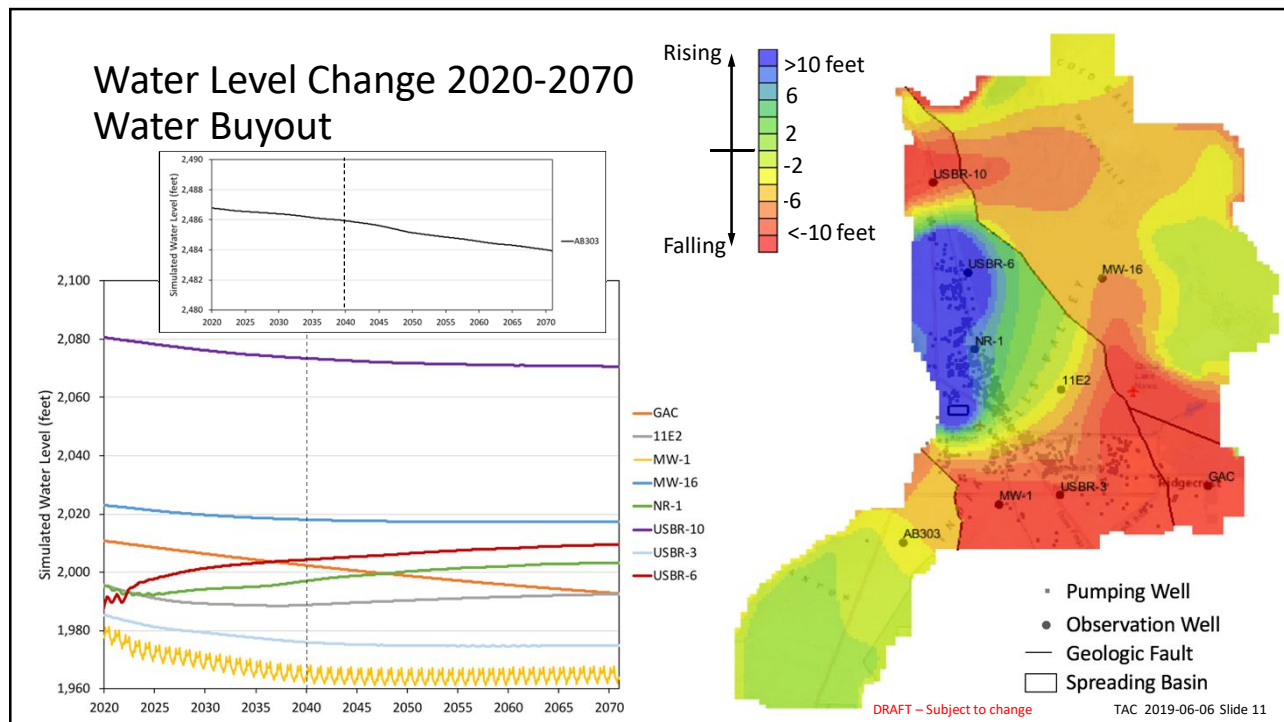




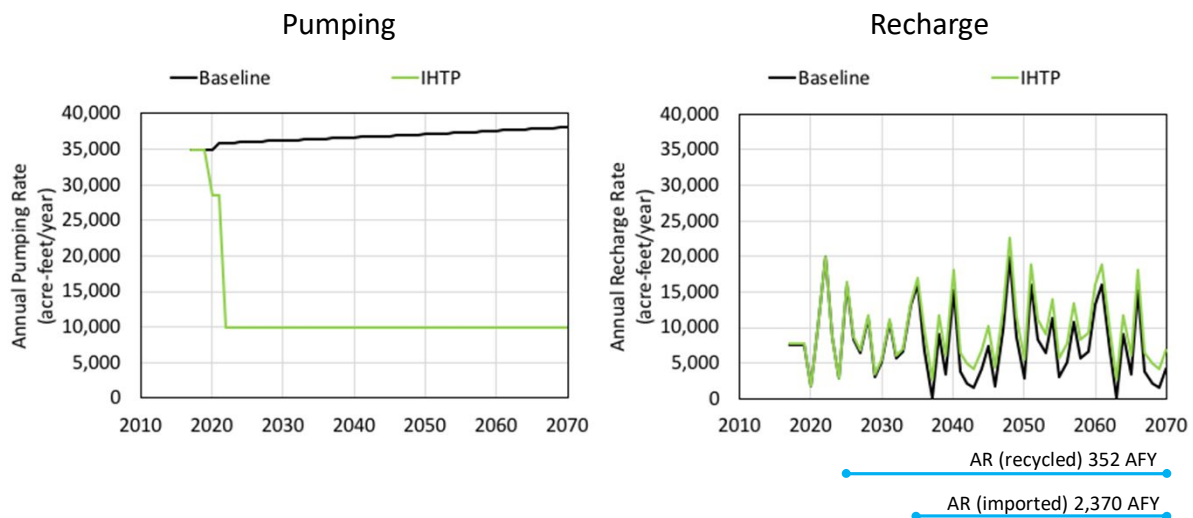
2. Water Buyout Model Results

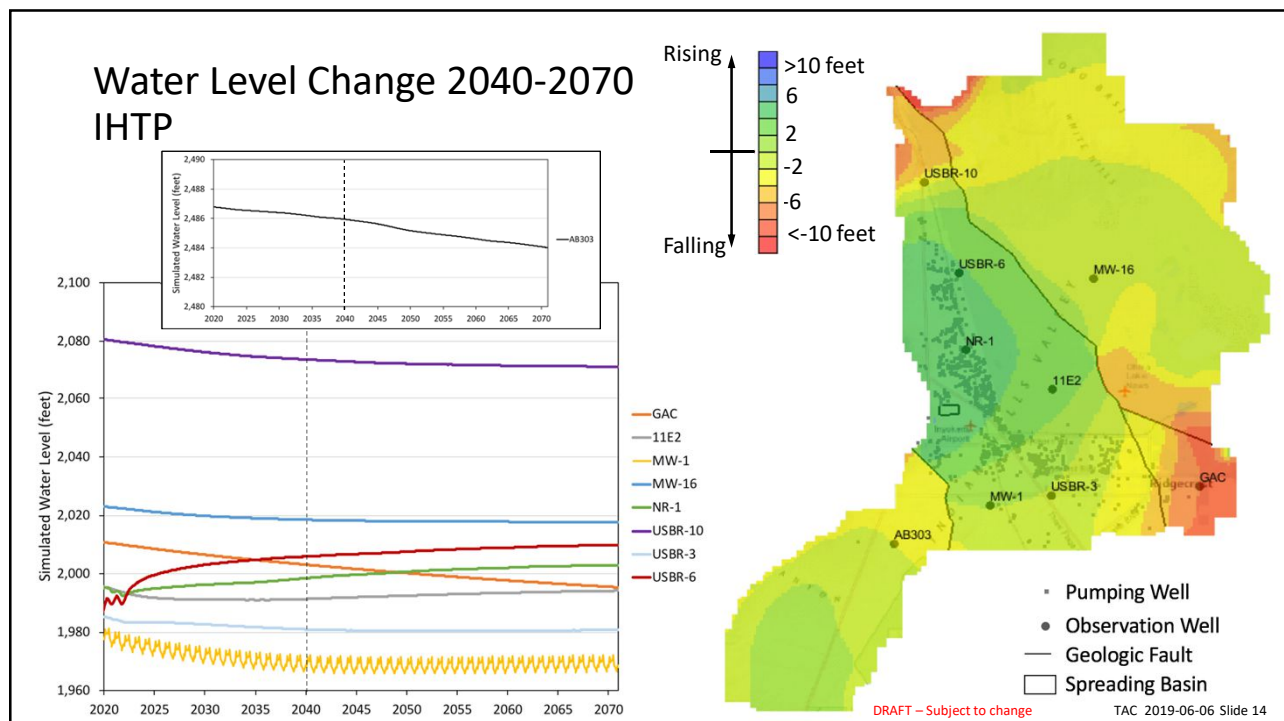
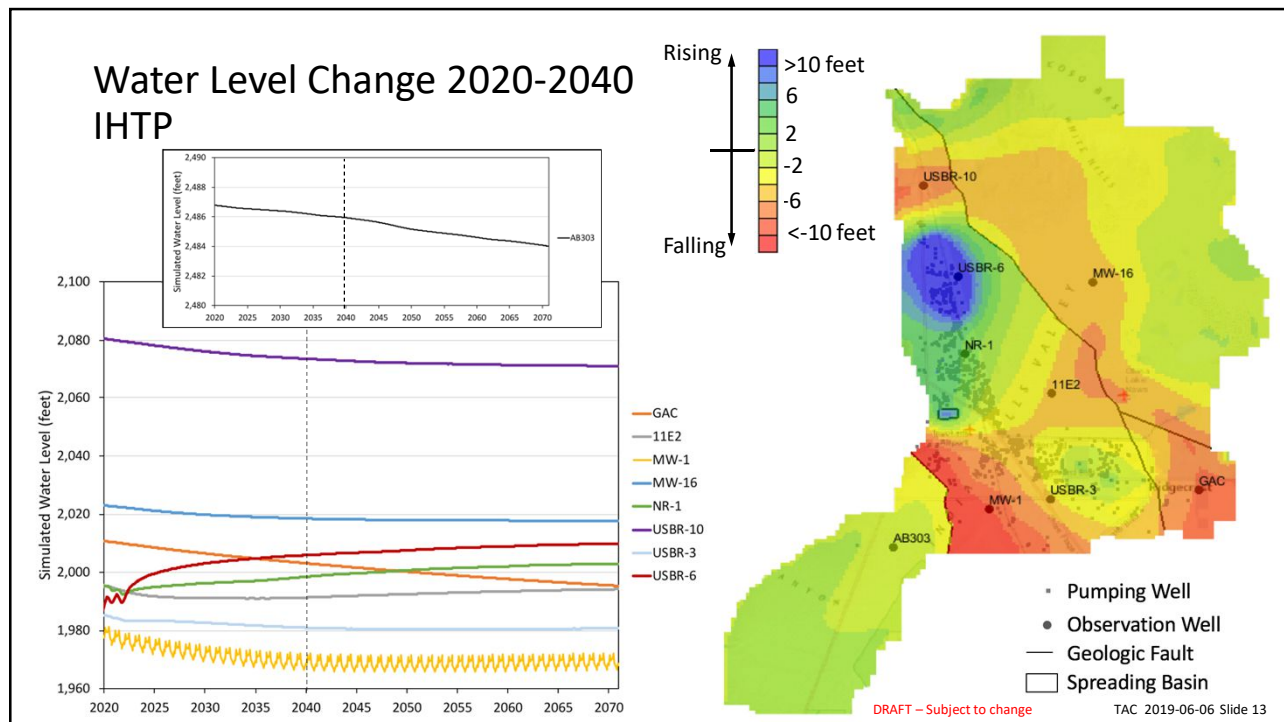


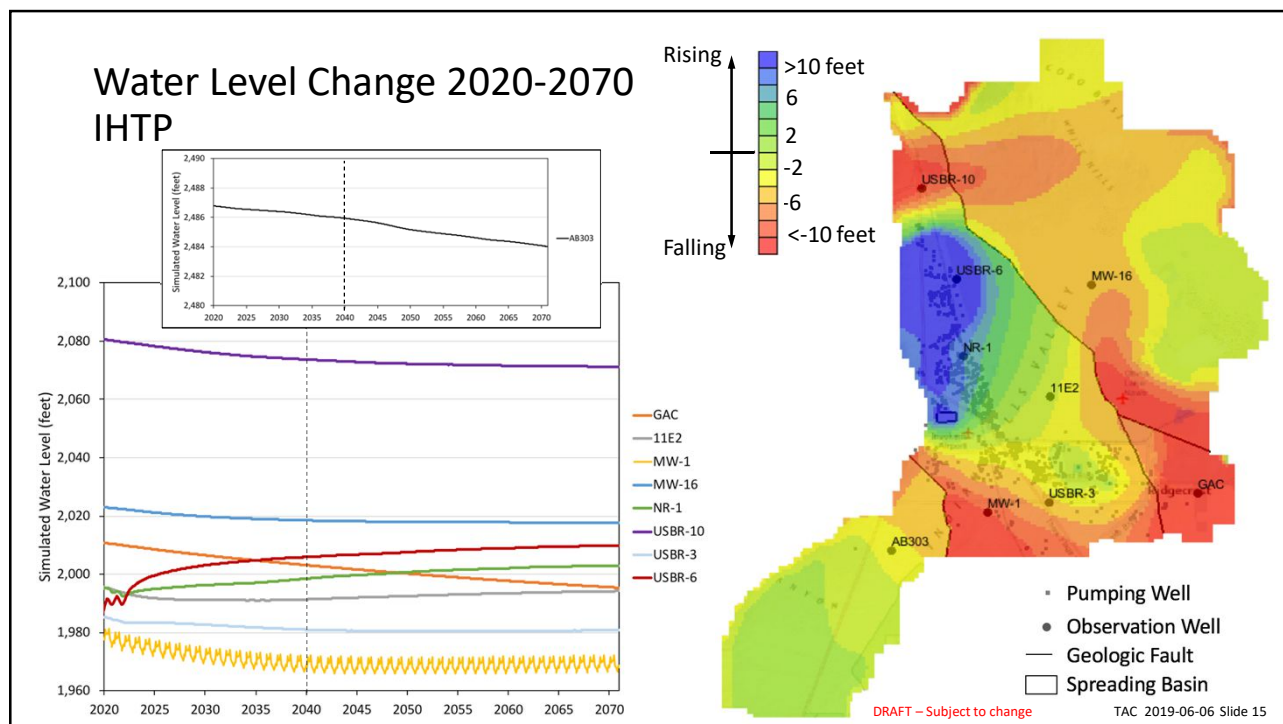




3. IHTP Model Results







Basin Groundwater Budgets for 2020 through 2070

Annual Average (acre-feet/year)

	Baseline	White Paper	Water Buyout	IHTP
INFLOW				
Recharge	7,650	7,650	10,959	9,600
TOTAL	7,650	7,650	10,959	9,600
OUTFLOW				
Pumping	36,880	13,591	13,176	10,743
Evapotranspiration	1,610	1,771	1,944	1,979
Flow to Salt Wells Valley	40	38	38	39
TOTAL	38,530	15,400	15,158	12,760
CHANGE IN GW STORAGE	-30,880	-7,750	-4,199	-3,160

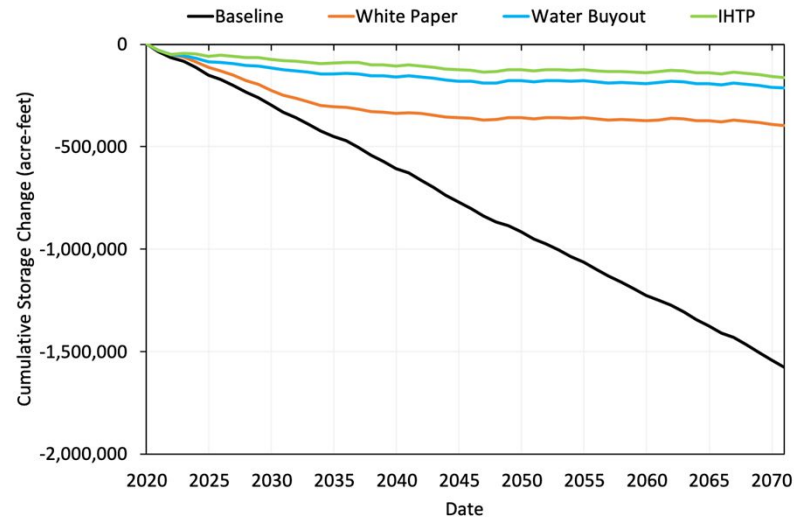
Cumulative (acre-feet)

	Baseline	White Paper	Water Buyout	IHTP
INFLOW				
Recharge	390,405	390,405	558,906	489,579
TOTAL	390,405	390,405	558,906	489,579
OUTFLOW				
Pumping	1,880,898	693,158	671,973	547,872
Evapotranspiration	82,347	90,337	99,128	100,910
Flow to Salt Wells Valley	1,893	1,927	1,931	1,970
TOTAL	1,965,139	785,423	773,033	650,752
CHANGE IN GW STORAGE	-1,574,734	-395,018	-214,127	-161,173

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Change in Basin Groundwater Storage



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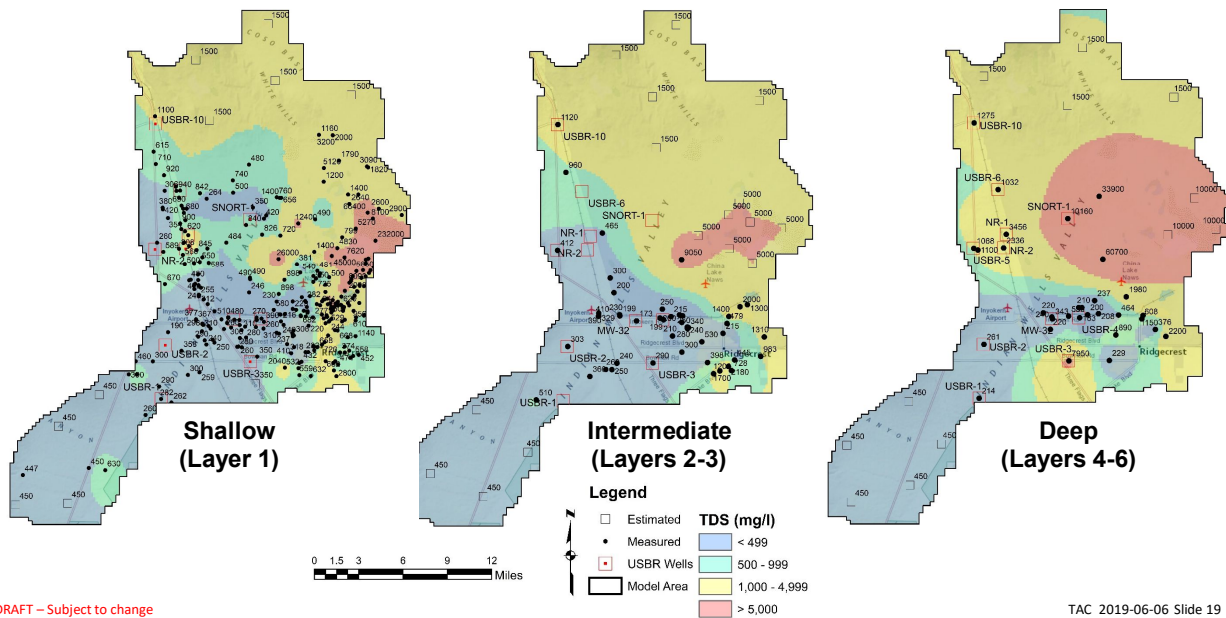
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TDS Concentration Results White Paper

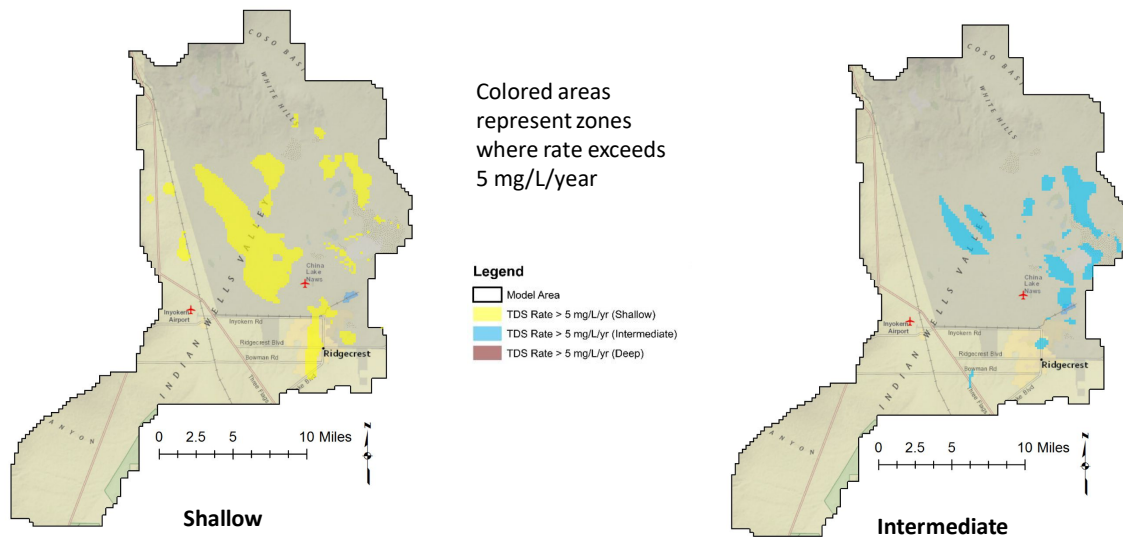
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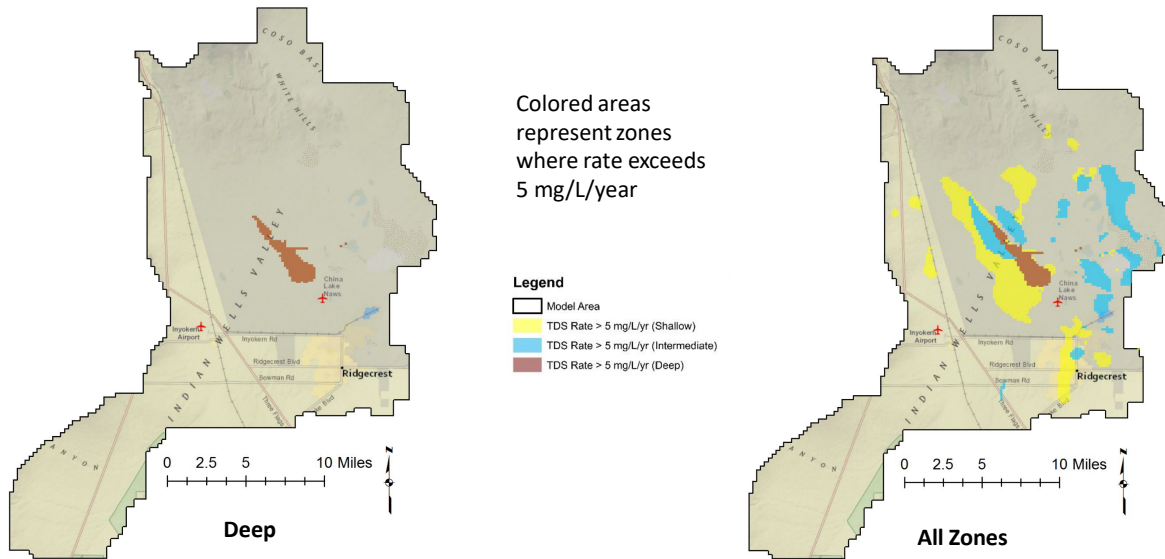
Initial Conditions for TDS Concentration



TDS Concentration Trends 2020 through 2070



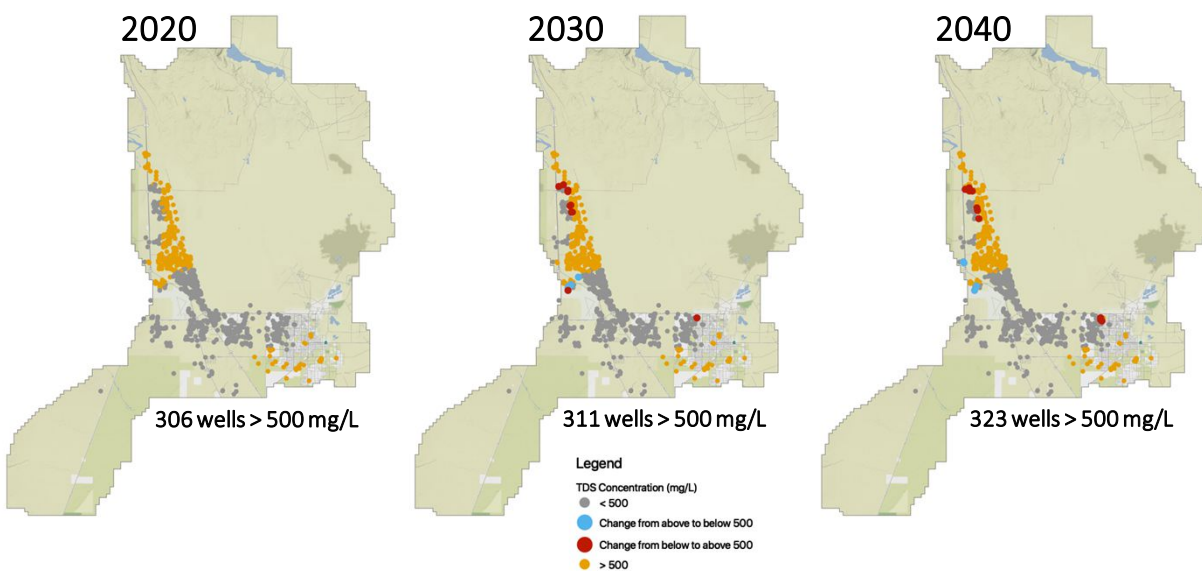
TDS Concentration Trends 2020 through 2070



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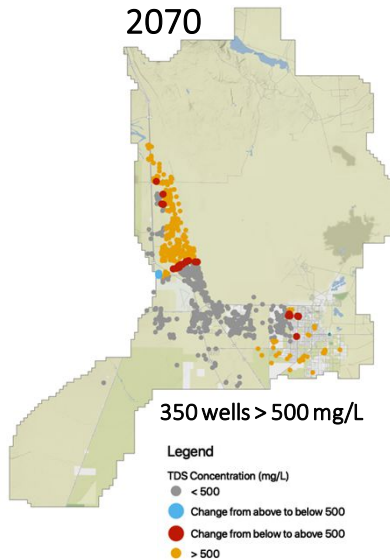
Changes in TDS Concentration in Pumping Wells



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Changes in TDS Concentration in Pumping Wells



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Summary of Draft Model Forecasts

- Large water level recovery in northern pumping area in all three scenarios
- Artificial recharge boosts recovery
- Water Buyout and IHTP scenarios have similar reductions in basin groundwater storage and both stabilize by year 2050
- White Paper scenario has about twice the reduction in basin groundwater storage
- TDS concentrations change very little over time
- Additional wells in northern pumping center and near Ridgecrest increase above TDS concentration of 500 mg/L while wells near major municipal pumping areas remain below 500 mg/L

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