Sustainable Groundwater Management Act Update

April 8, 2021

SGA

Current Status

- Held two of three NASb-wide public meetings
  - Sustainable Management Criteria (SMCs) on February 10
  - Model and Water Budget on March 10
  - Projects and Management Actions planned on April 28
- Met with South American Subbasin on April 6
  - Closer coordination on SMCs
  - Coordinated evaluation of projects and management actions
- Continuing development of GSA Implementation Agreement

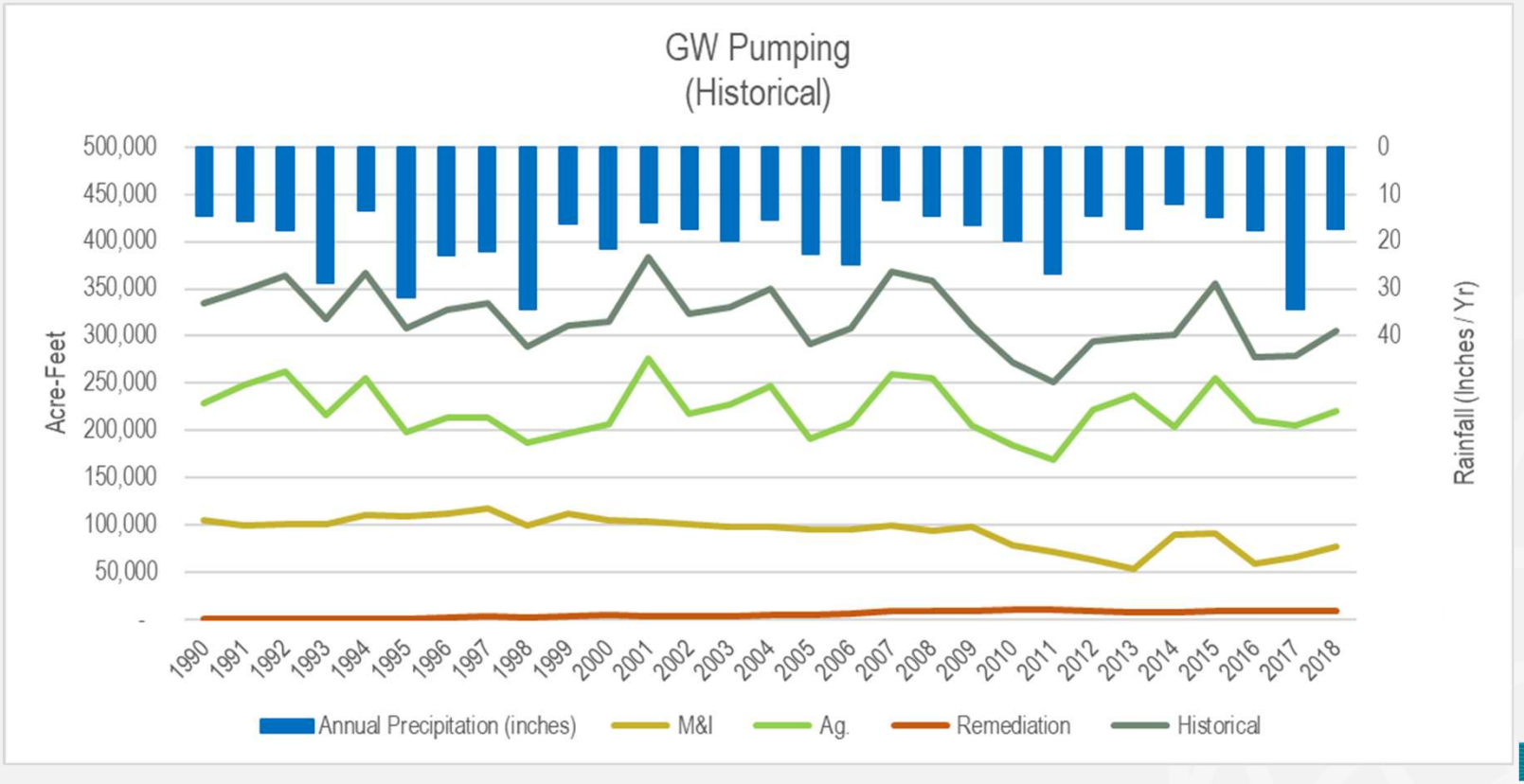
Model-Estimated Budget and Groundwater Storage Results



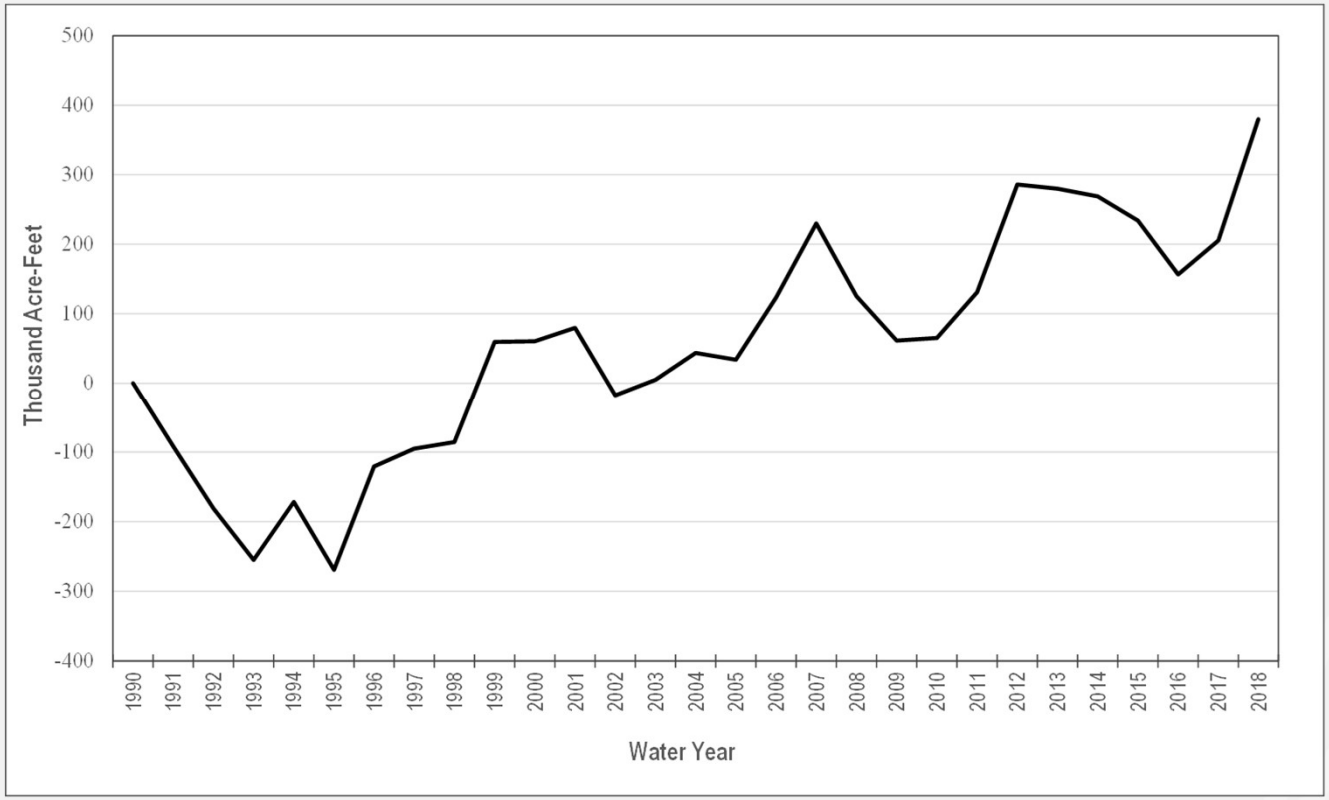
Groundwater Budgets Under SGMA

- Historical – Recent conditions (1990 through 2018)
- Current – Current operations (over 50-year hydrology)
- Projected – Incorporating future growth and land use changes (over 50-year hydrology)
- Projected with Climate Change – Adds climate change hydrology (over 50-year hydrology)

Historical Conditions GW Pumping

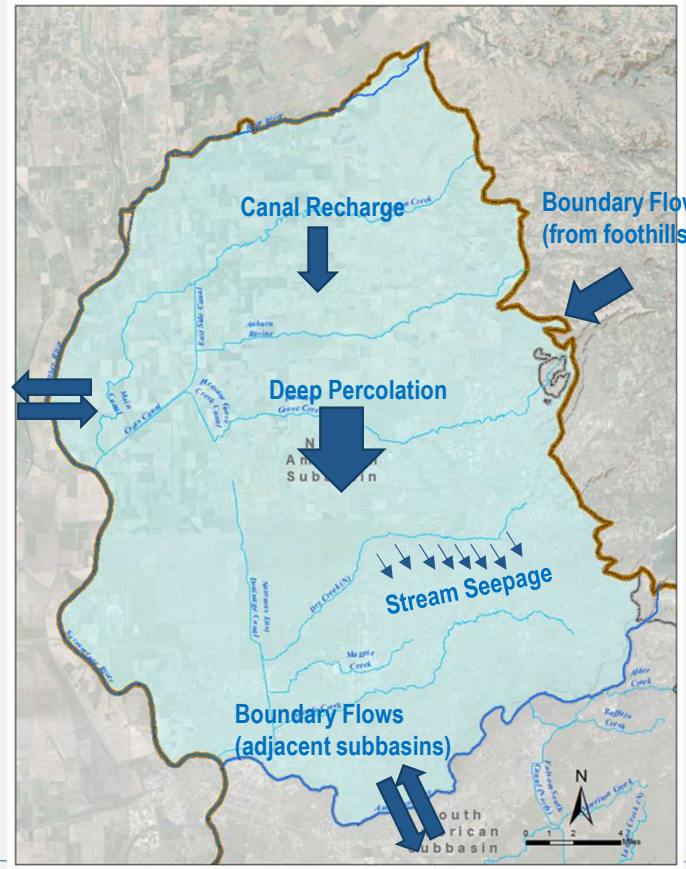


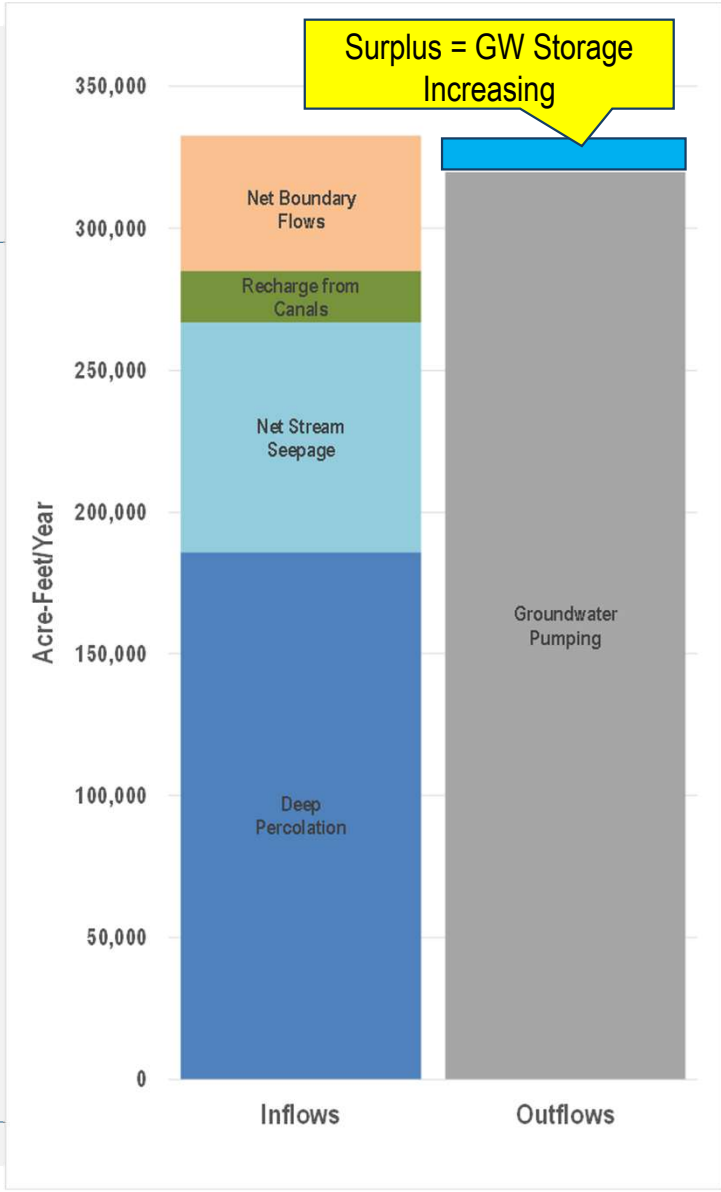
Historical Conditions – Change in Storage



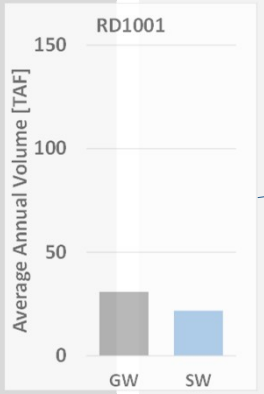
Average Annual Change in Storage
13,140 acre-feet per year

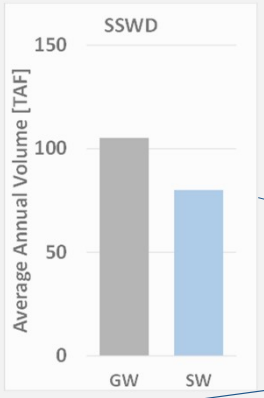
Historical Conditions – Groundwater Budget

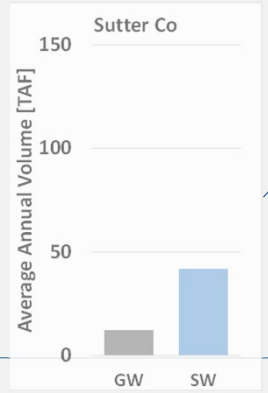


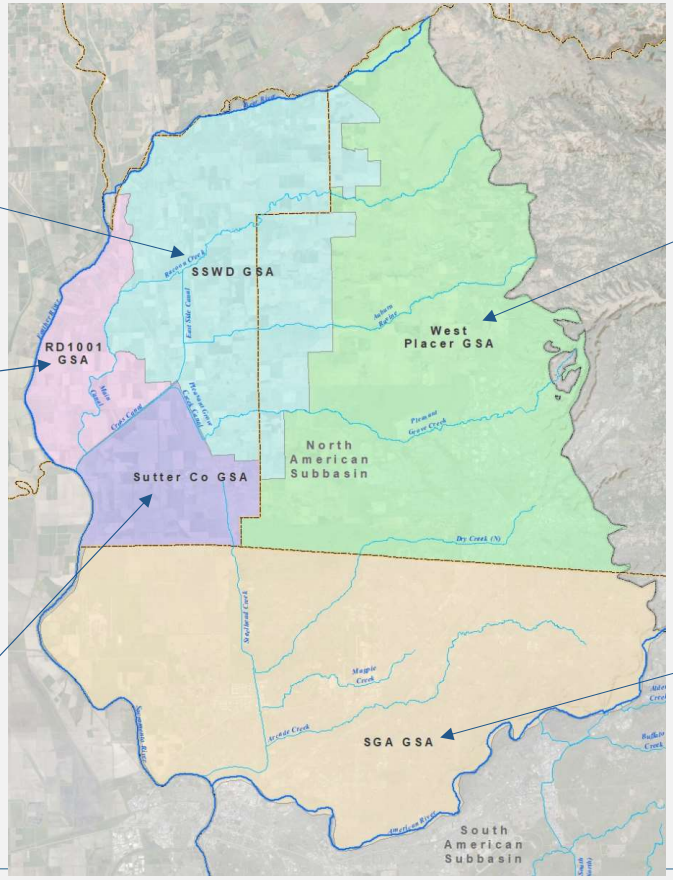


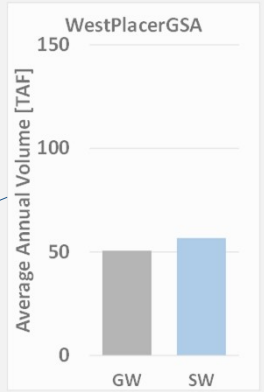
NASb Current Conditions Water Supplies, by GSA

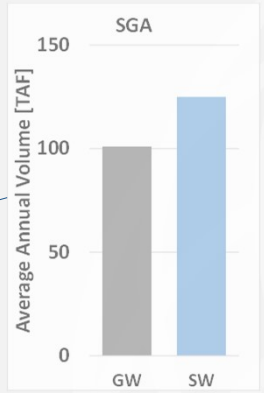




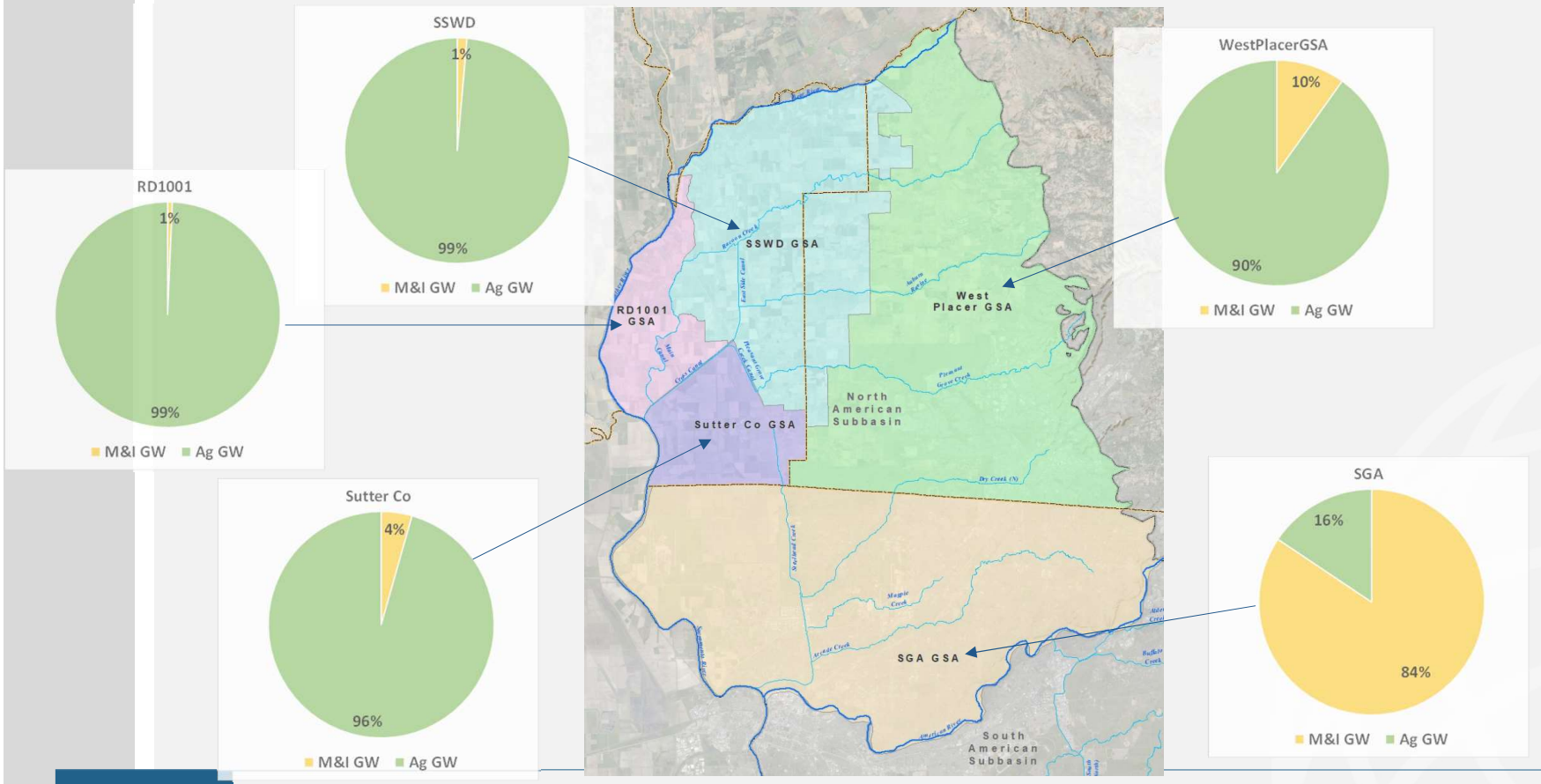




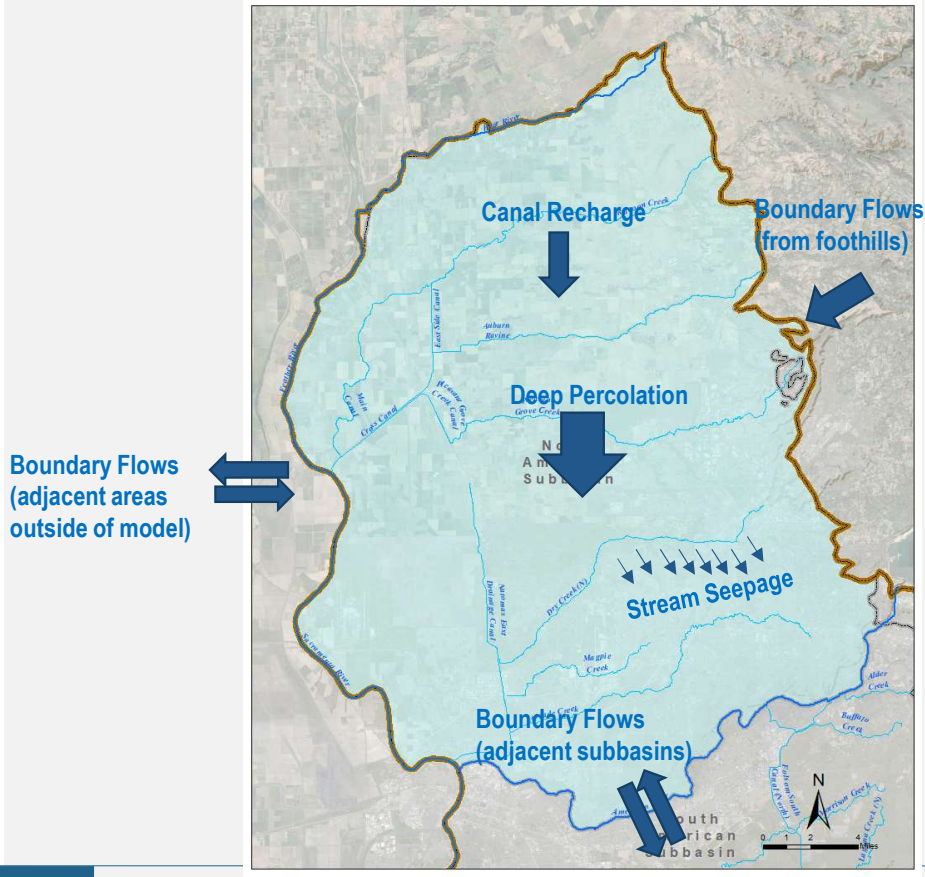


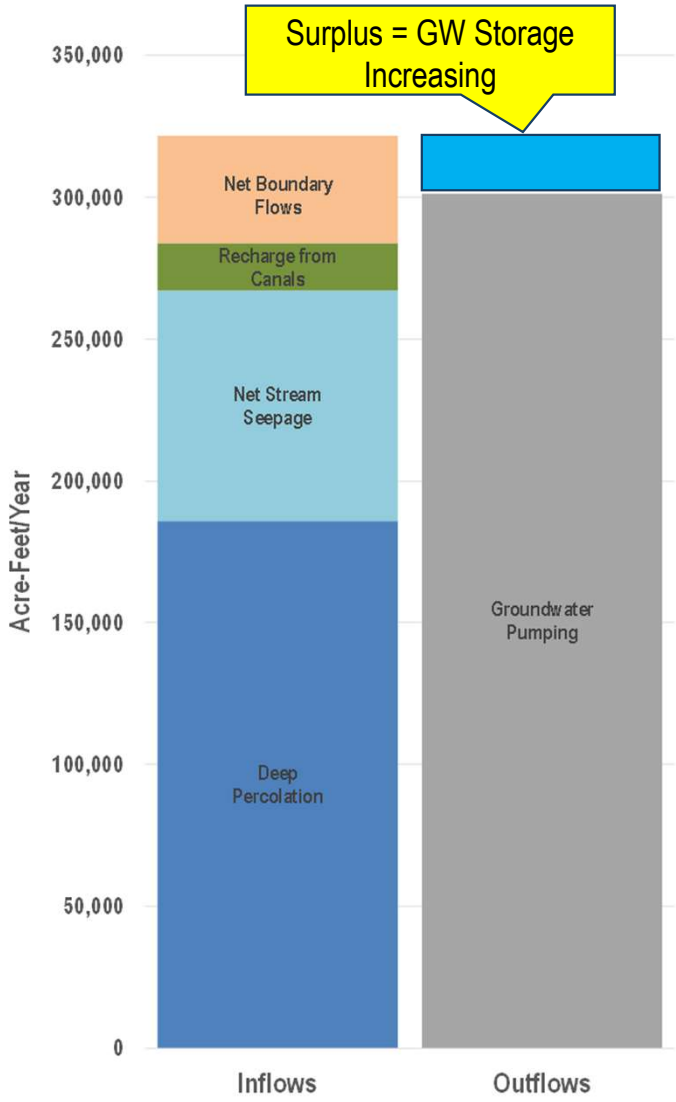


NASb Current Conditions Groundwater Uses, by GSA



Current Conditions – Groundwater Budget

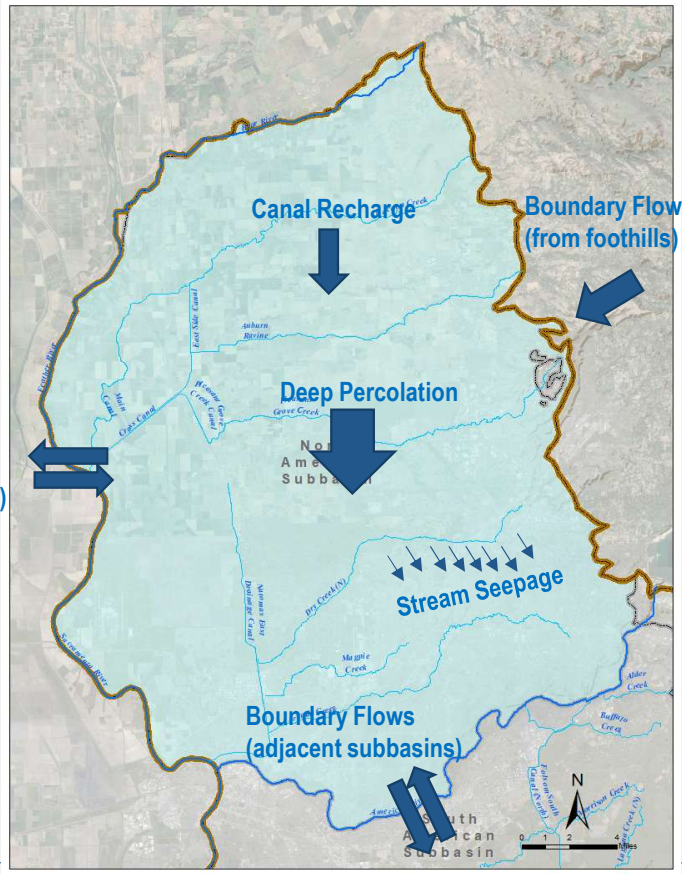


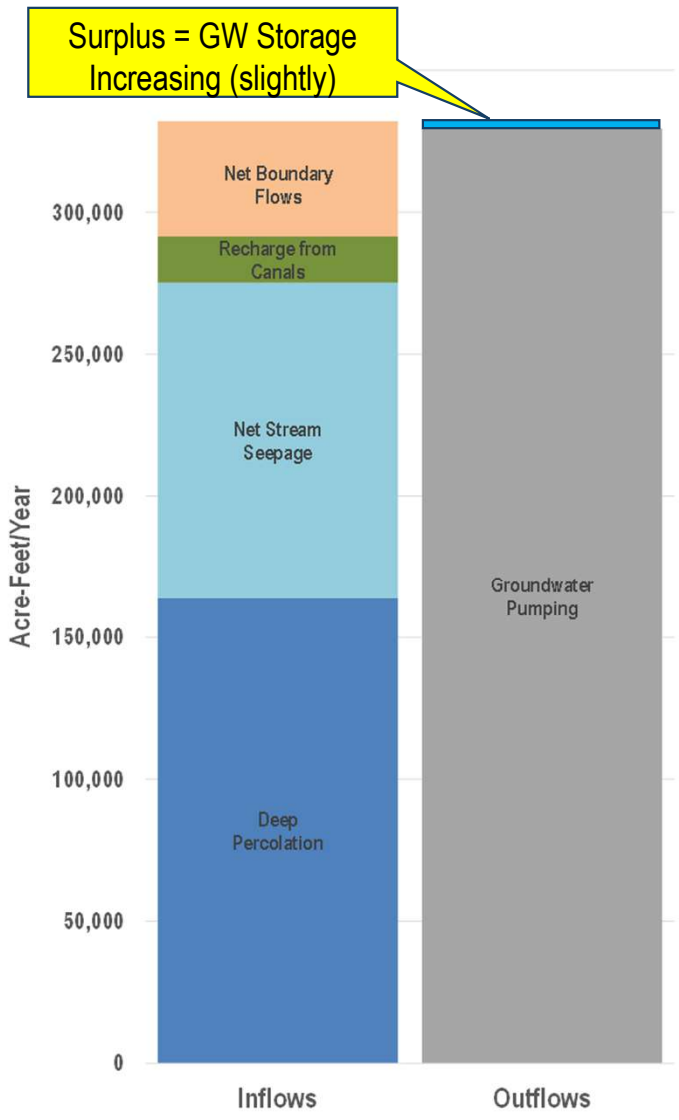


Projected Conditions – Assumptions

- Used most recent 50 years of hydrology for simulation of wet/dry periods
  - WY 1970-2019
- Land Use and Cropping Pattern
  - Urban footprint for 2035-2040 projected conditions
- Urban Demand
  - Urban water demand reflective of 2035-2040 projected conditions (purveyors, UWMPs)
  - Demand met by groundwater except where surface water is planned or required
- Ag Demand
  - Ag demand reflective of modified land use based on 2035-2040 projected urban conditions
  - Incorporates cropping changes noted by Placer County and Sutter County agricultural entities

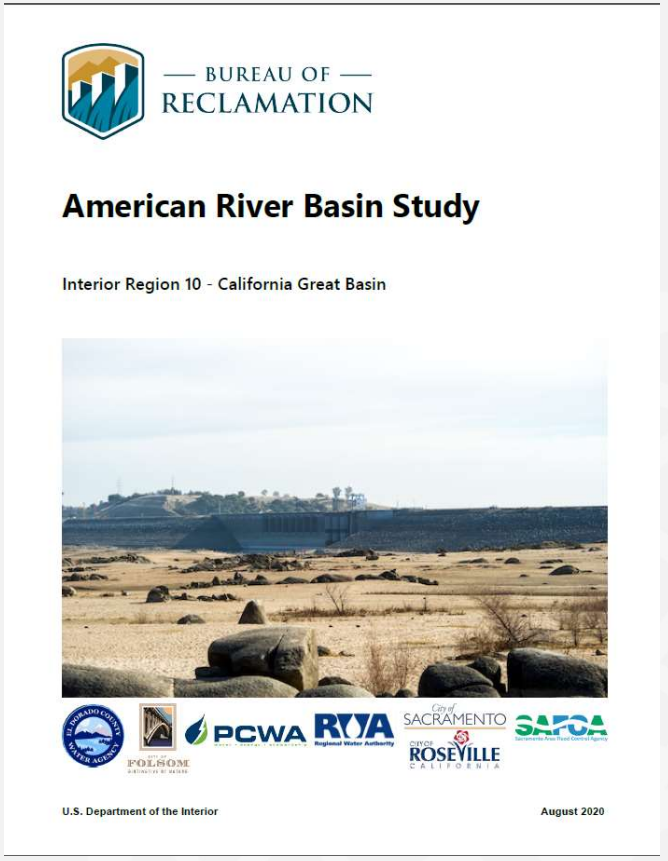
Projected Conditions – Groundwater Budget



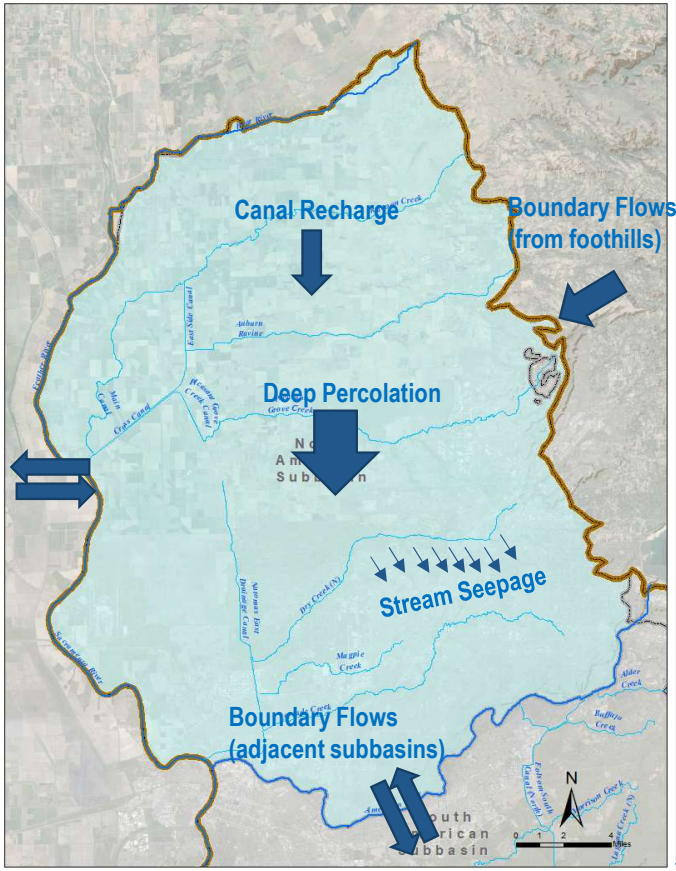


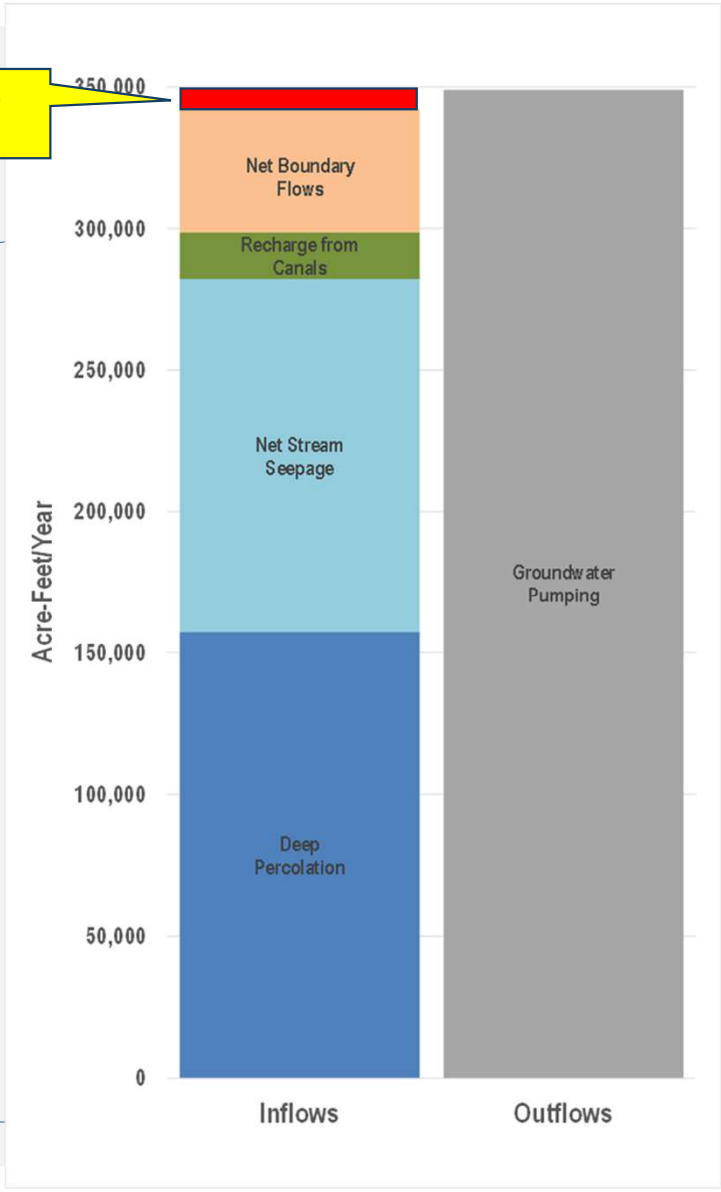
Projected Conditions with Climate Change – Assumptions

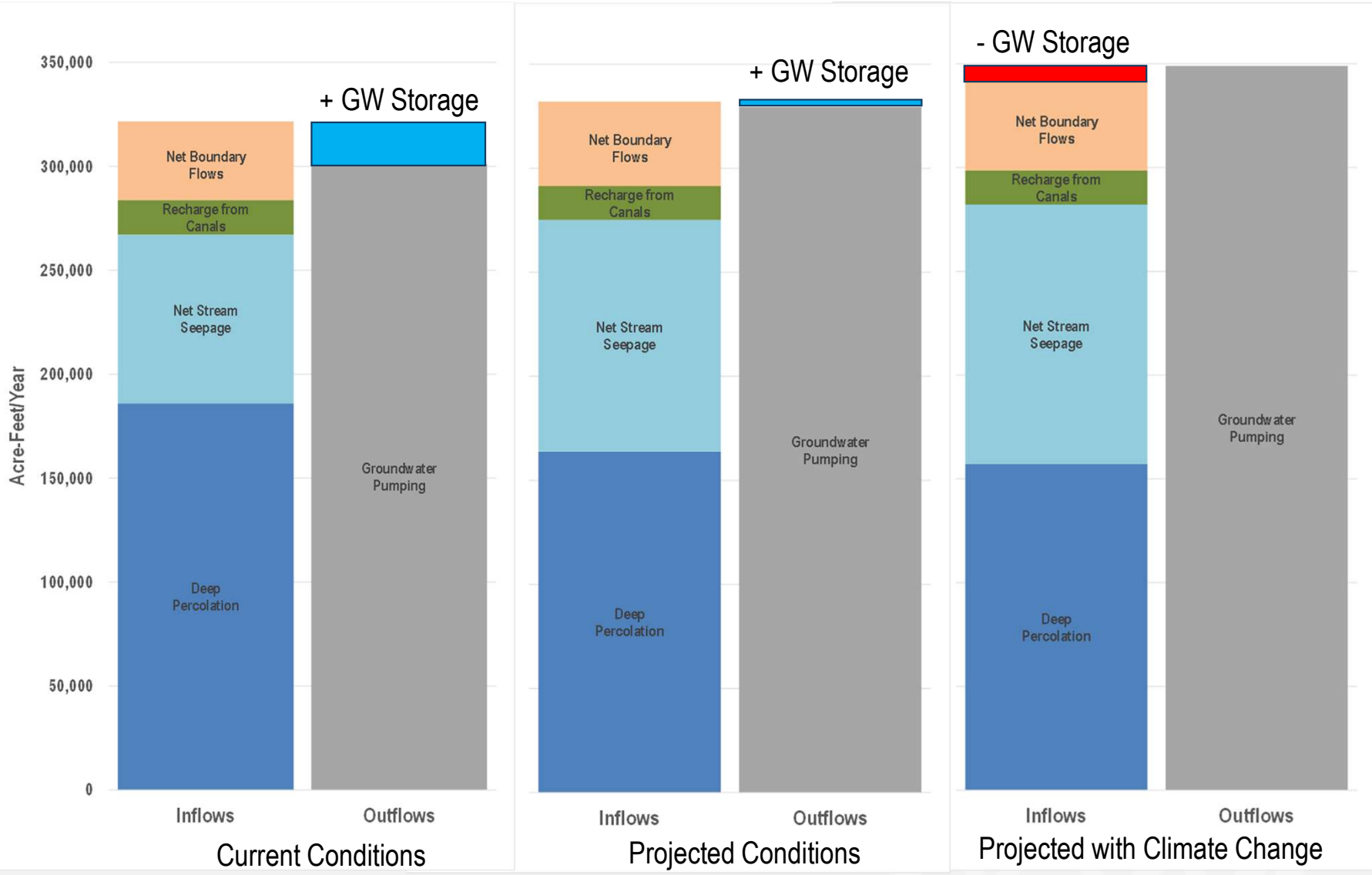
- Data from Global Climate Models (GCMs) are downscaled to a regional planning scale
- American River Basin Study used the downscaled data for the entire American River Basin area
- Analysis adapted to analyze the North American Subbasin
- Results represent 2070 Central Tendency



Projected Conditions with Climate Change – Groundwater Budget






350,000
300,000
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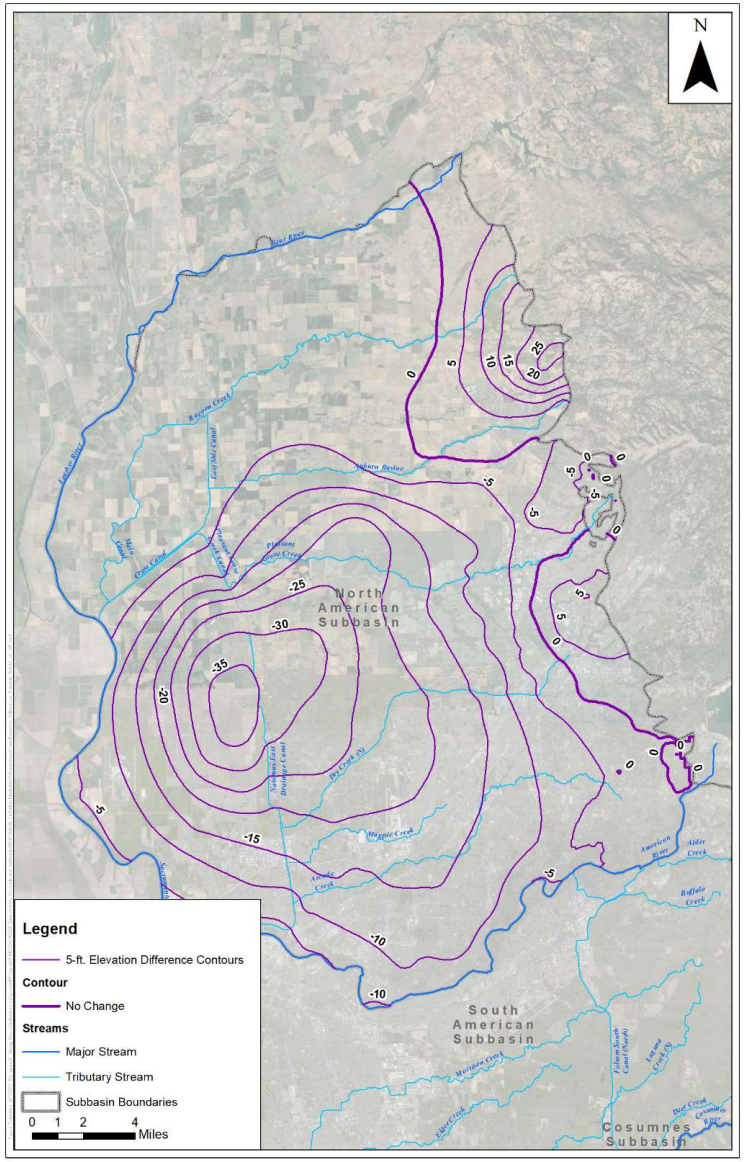
Acre-Feet/Year
Net Boundary Flows
Recharge from Canals
Net Stream Seepage
Deep Percolation
Groundwater Pumping
+ GW Storage
Inflows
Outflows
Current Conditions
Net Boundary Flows
Recharge from Canals
Net Stream Seepage
Deep Percolation
Groundwater Pumping
+ GW Storage
Inflows
Outflows
Projected Conditions
Net Boundary Flows
Recharge from Canals
Net Stream Seepage
Deep Percolation
Groundwater Pumping
- GW Storage
Inflows
Outflows
Projected with Climate Change

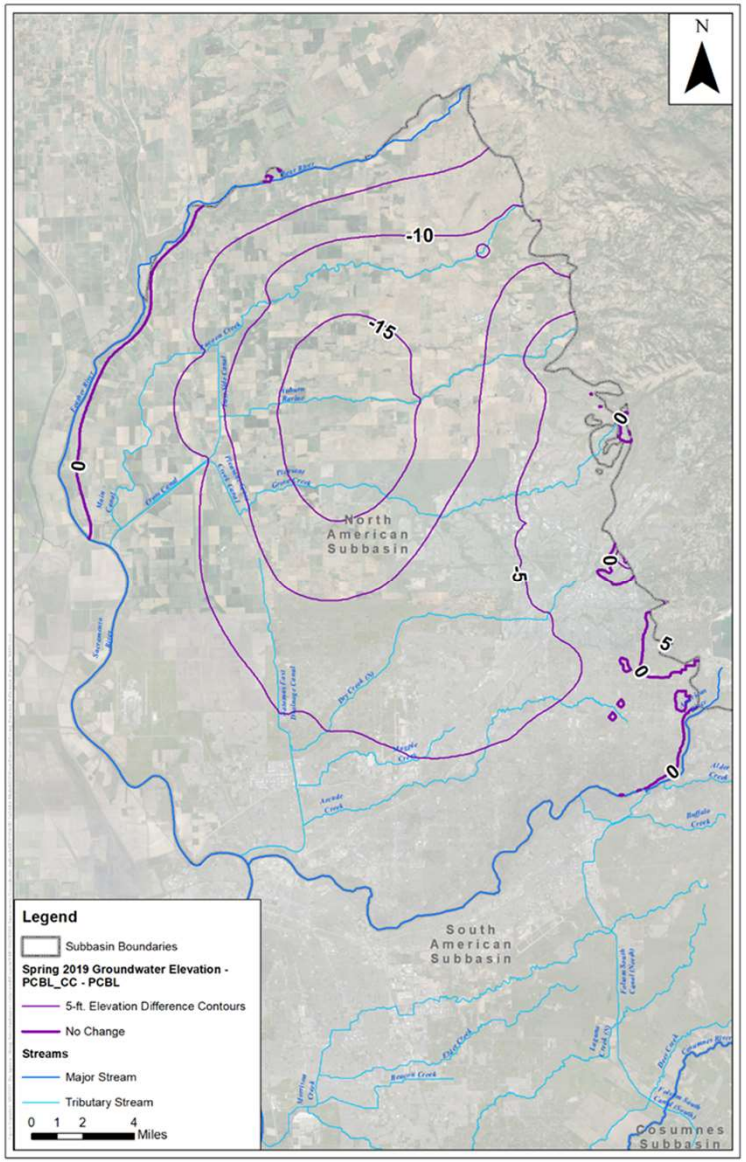
GWL Scenario Comparison

- Projected Conditions minus Current Conditions
  - Groundwater Storage under Projected Conditions is fairly stable in model, but some areas will experience groundwater level declines
  - Scenario may be close to the Sustainable Yield of the Subbasin
  - Subject to analysis of other Sustainability Indicators (e.g., water levels)



GWL Scenario Comparison

- Projected Conditions with Climate Change minus Projected Conditions
  - Isolating impacts of climate change on projected conditions
  - More effects seen in agriculturally intensive areas



Modeling Conclusions

- Current regional groundwater conditions are very healthy overall (more inflows than outflows)
- Able to absorb future projected growth and land use changes from a change in storage perspective
  - Still need to further assess sub-regional conditions to ensure meeting sustainable management criteria
- Climate change modeling suggests possible future negative change in storage
  - Still need to evaluate future projects and management actions

SGMA – Still Need to Complete

- Update SMCs based on model results
- Define Undesirable Results
- Identify Projects and Management Actions and analyze some of them with model – to be coordinated with South American Subbasin
- Finish Draft GSP for public comment

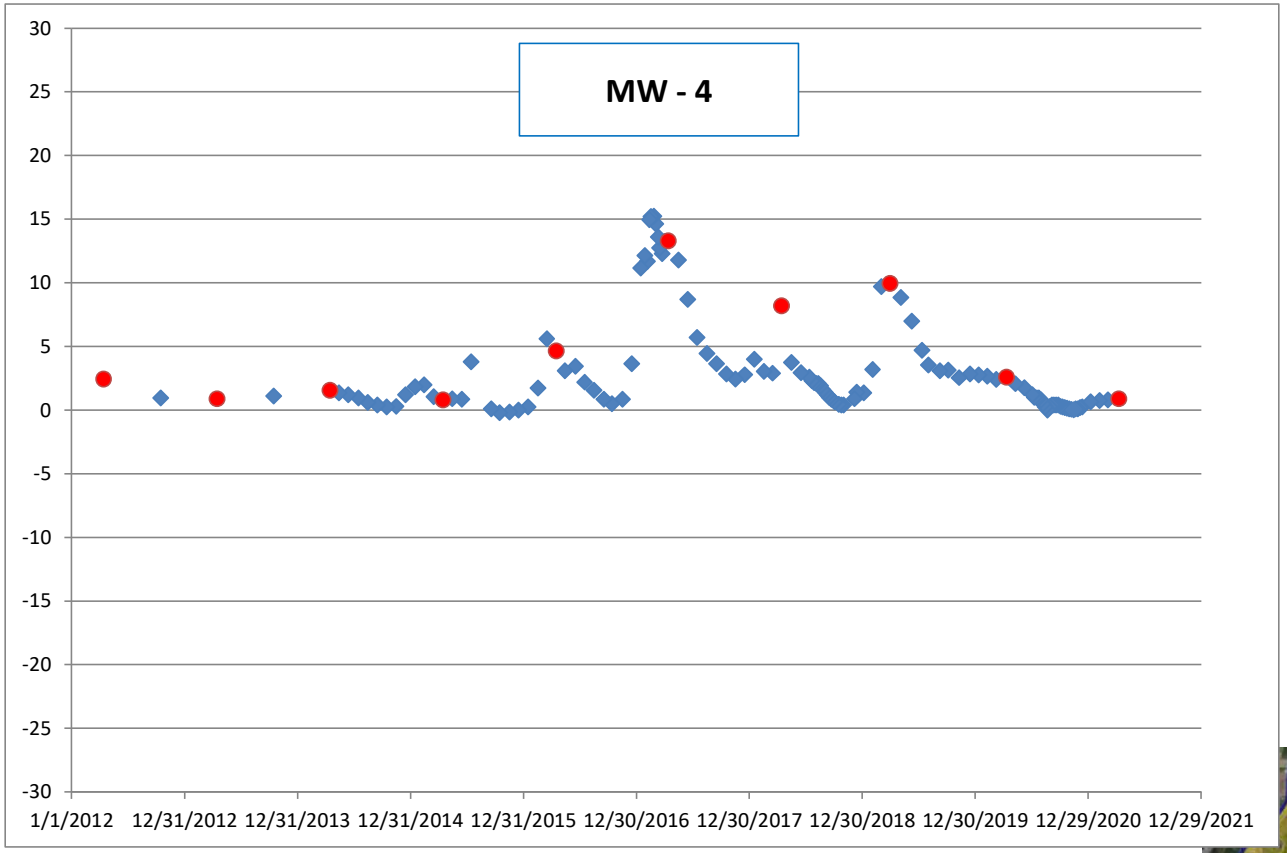
Groundwater Management Program Update

April 8, 2021

SGA

Water Accounting Framework Update

Central Area Total	Total Demand	Target Pumping	Actual GW Pumped	Basin Sustainability Balance		Surface Water Use	Water Transfer (out of basin)	Net Banked Water	Exchangeable Water Balance
		90,000							266,875
2012	110,965		66,945	23,055		44,020	0	20,224	287,099
2013	113,255		77,141	35,914		36,114	3,068	10,815	297,914
2014	93,012		70,148	55,766		23,064	0	10,060	307,974
2015	80,140		60,266	85,500		19,874	0	11,880	319,854
2016	84,509		54,756	120,744		29,753	0	20,332	340,186
2017	90,385		64,626	146,118		25,759	0	17,528	357,714
2018	90,158		65,859	170,259		24,299	8,302	7,303	365,017
2019	87,385		53,331	206,928		34,195	0	24,298	389,315
2020	95,222		78,082	218,846		17,140	13,412	-3,463	385,852


MW - 4
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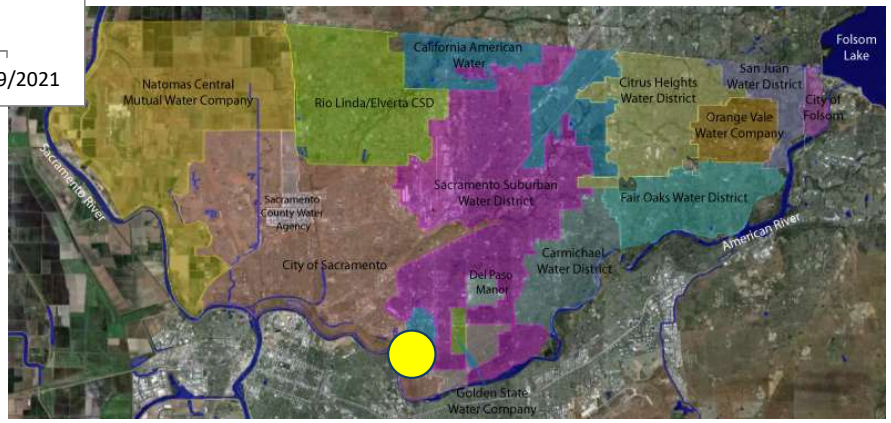
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Del Paso Manor
Carmichael Water District
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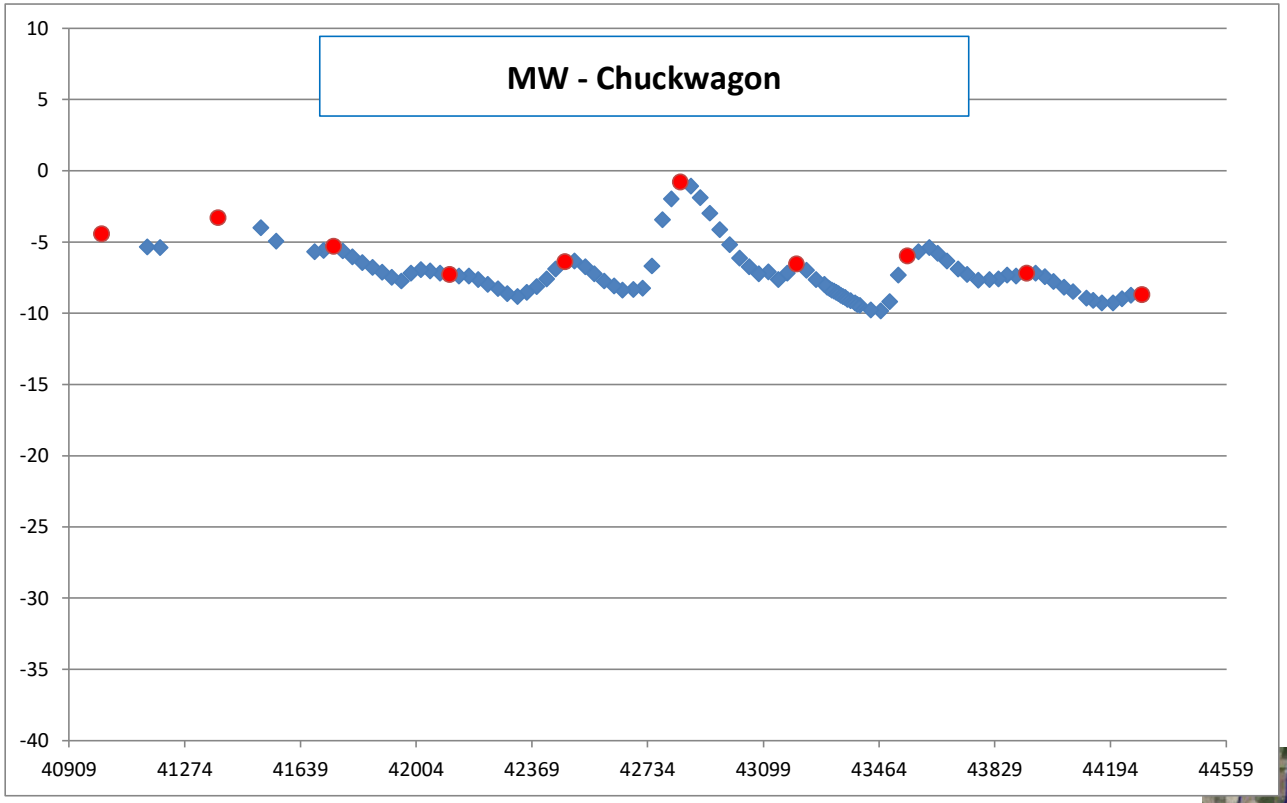
MW - Chuckwagon
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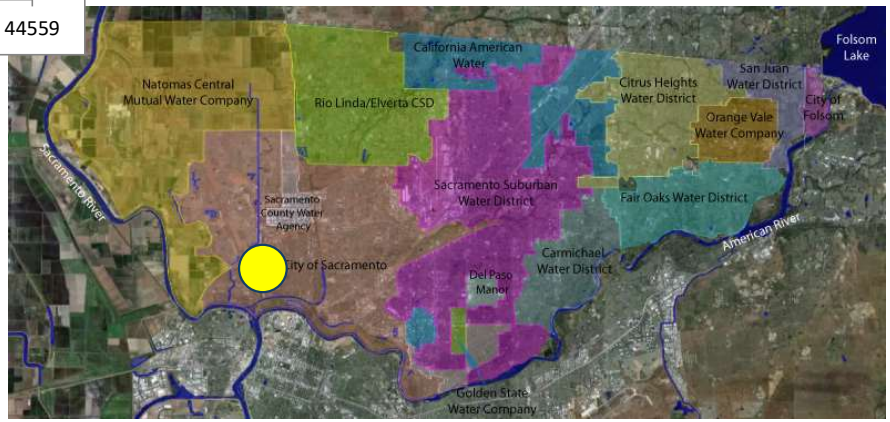
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Del Paso Manor
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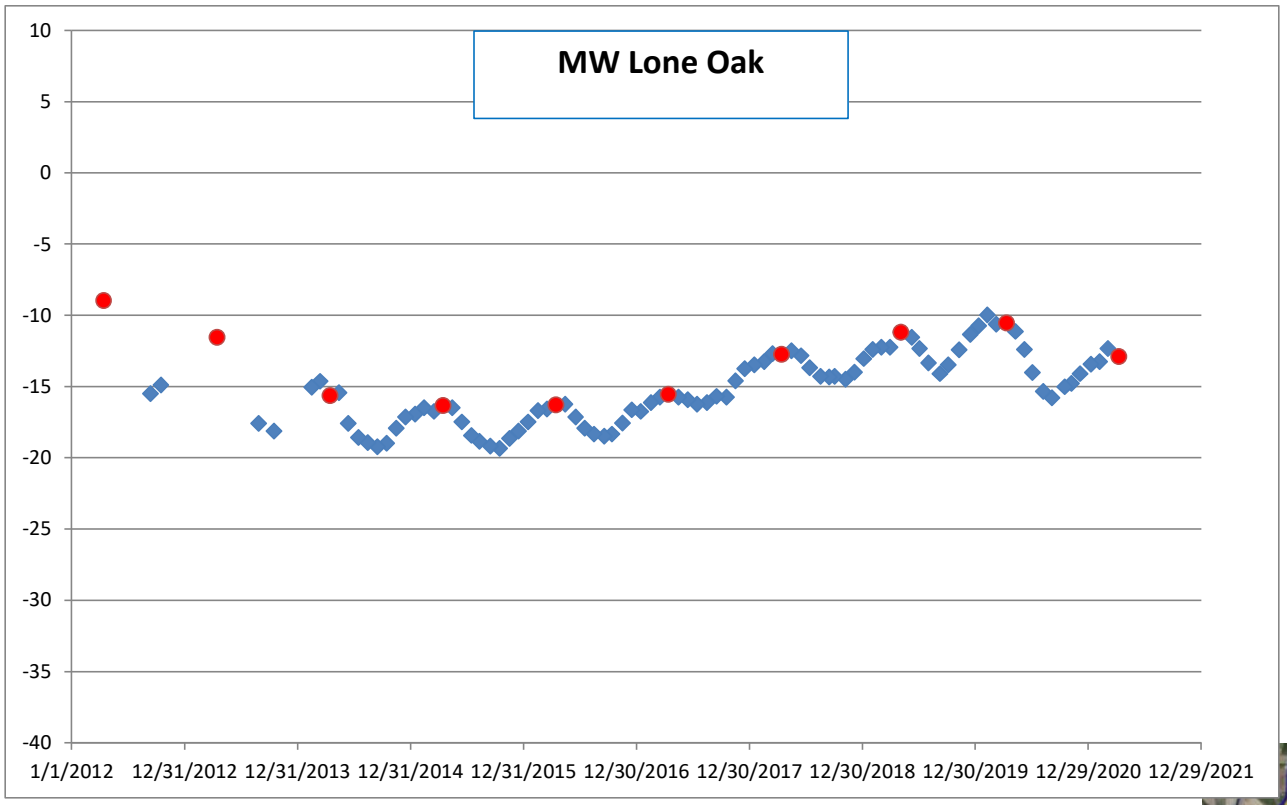
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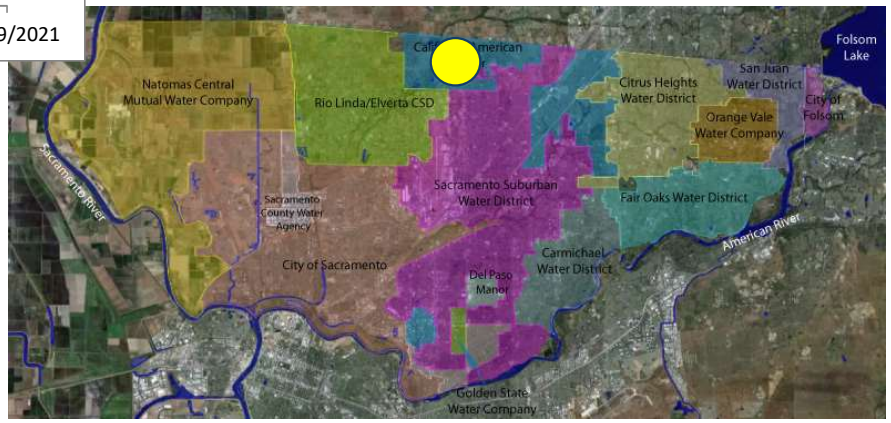
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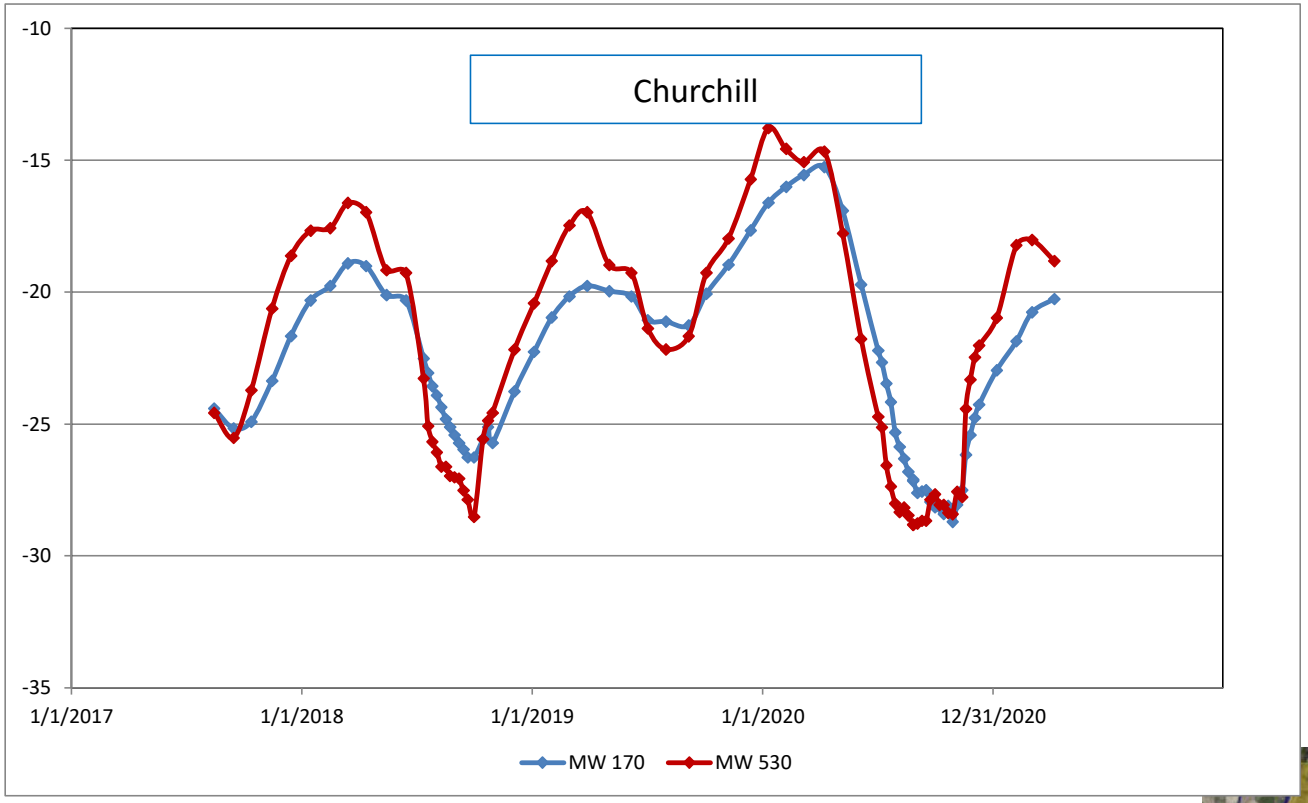
Churchill
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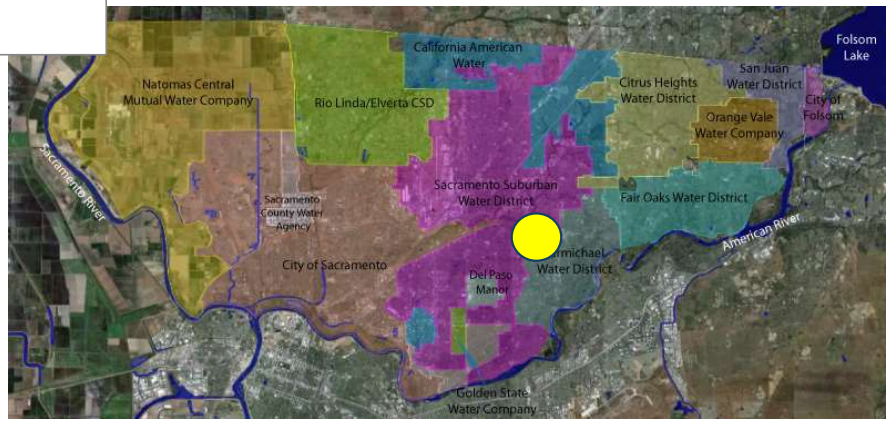
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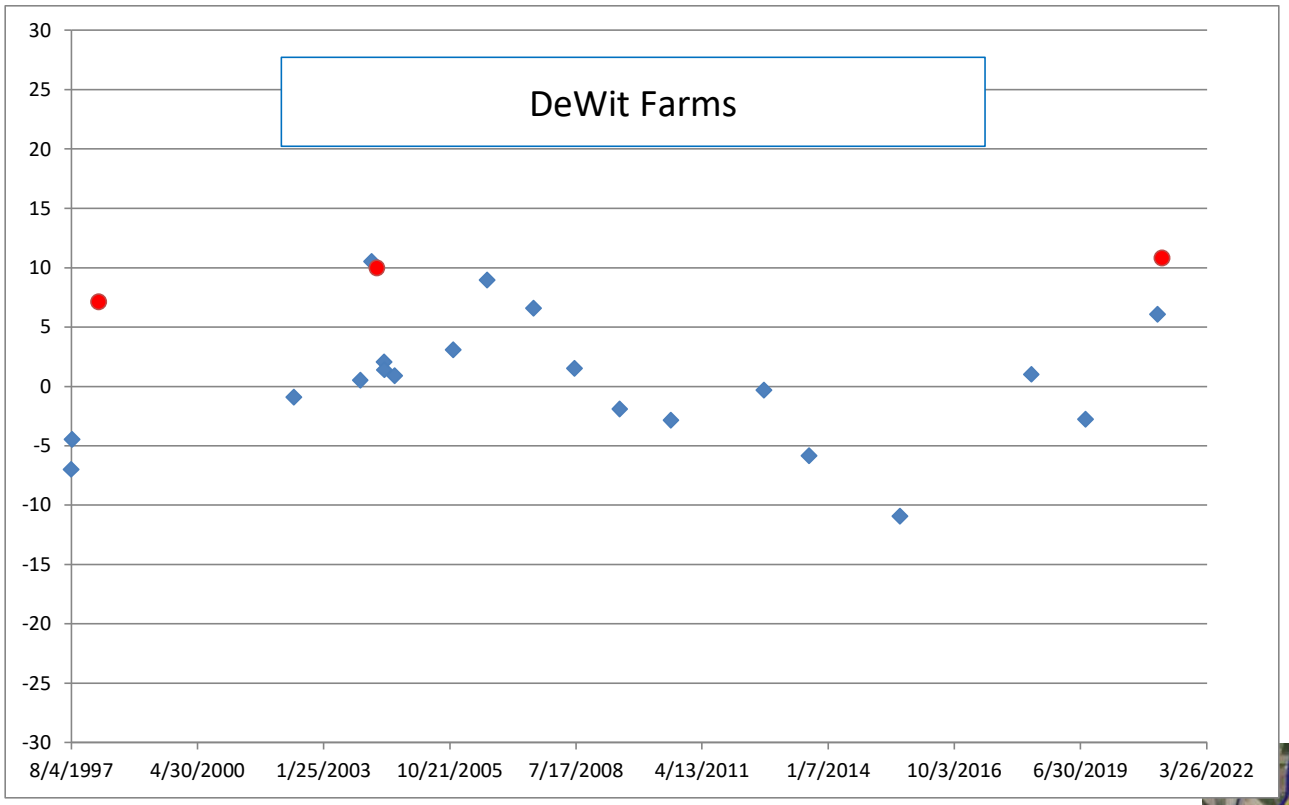
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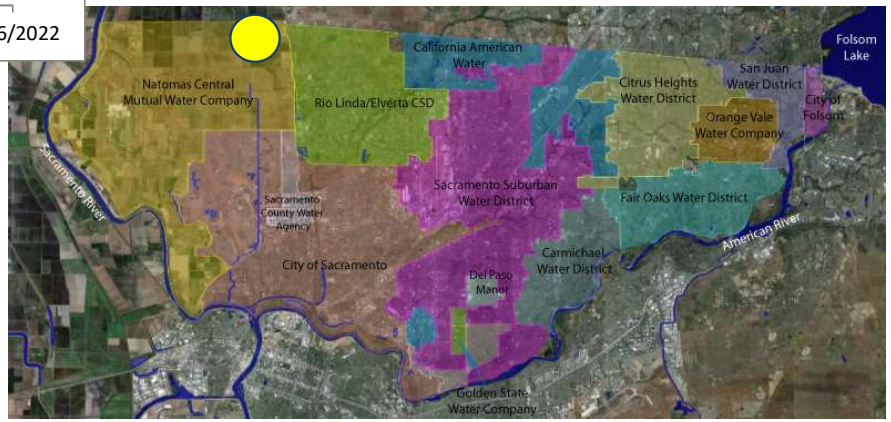
6/30/2019
3/26/2022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