San Joaquin Valley
Cosumnes
(5-022.16)

Sacramento Valley
South American
(5-021.65)

San Joaquin Valley
Eastern San Joaquin
(5-022.01)

Wilton
Herald
Galt
Lodi
Acampo
Woodbridge
Victor
Thornton
Clements
Wallace
Burson
Jackson Valley
Lone Valley
Camanche Reservoir
Rancho Seco Park
Castle Oaks Golf Club
Deer Creek
Dry Creek
Badger Creek
North Fork Badger Creek
Browns Creek
Hadselville Creek
Twin Cities Rd
Griffith Creek
Skunk Creek
Goose Creek
Coyote Creek
Bear Creek
Crevis Creek
Willow Creek
Sacramento
Amador
Calaveras
Carlton E Forbes Fwy
E Highway 12
Lockeford Springs
Paddy Creek
Middle Paddy Creek
Duck Creek

Legend

Groundwater Subbasin

- Cosumnes Subbasin (5-022.16)
- South American Subbasin (5-021.65)
- Eastern San Joaquin Subbasin (5-022.01)

Abbreviations

DWR = California Department of Water Resources

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 8 March 2023.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - Final Prioritization, dated February 2019.

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(Scale in Miles)

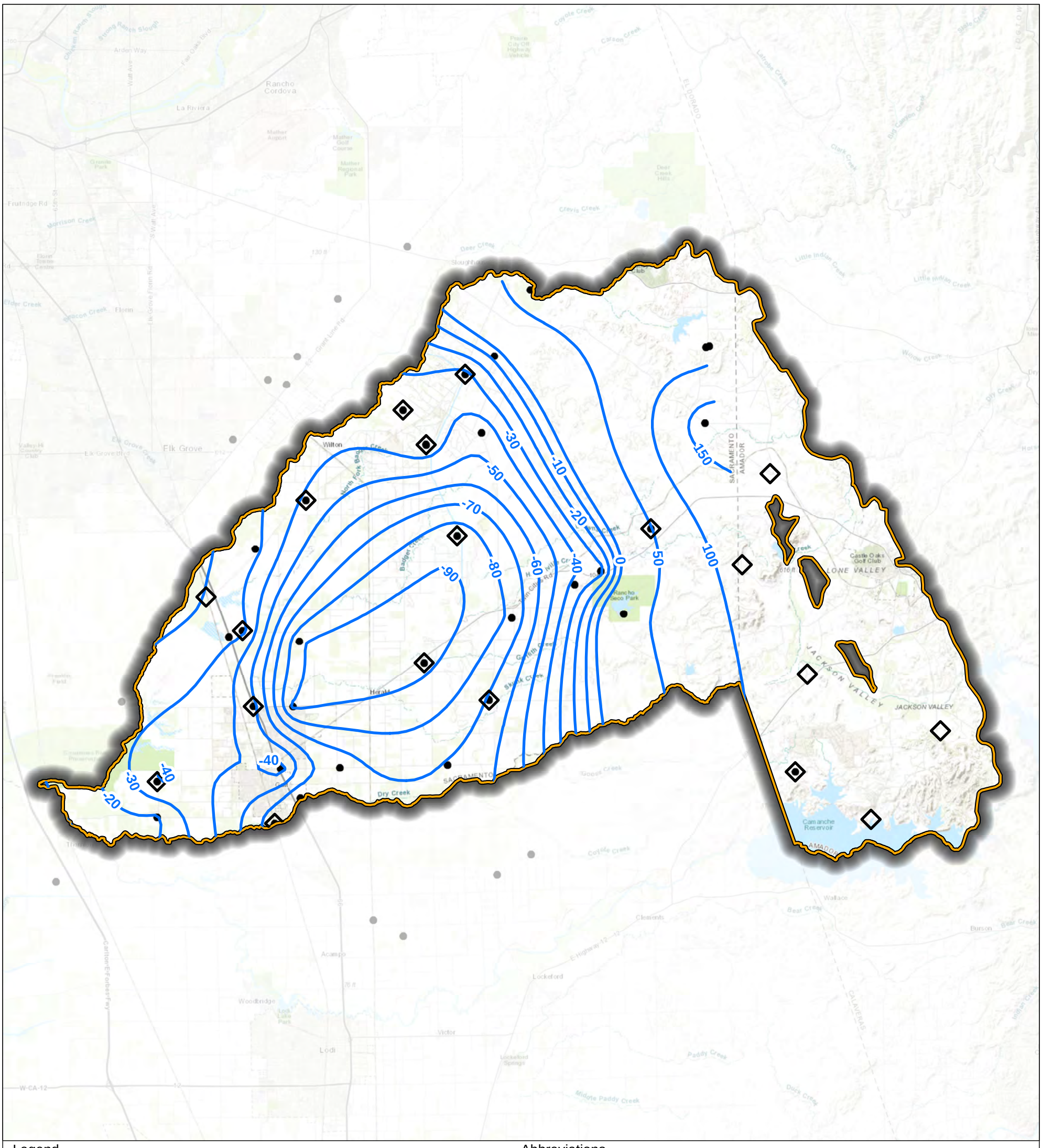
Cosumnes Groundwater Subbasin

Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-1

eki environment & water

Path: X:\C20149.01\Map\01\Figure AR-1. Cosumnes Groundwater Basin.mxd



Legend

- Well with Fall 2021 GWE
- RMW-WL
- Fall 2021 GWE (ft NAVD 88)

Groundwater Subbasin

- Cosumnes Subbasin (5-022.16)

Abbreviations

DWR = California Department of Water Resources
ft NAVD 88 = feet above the North American Vertical Datum of 1988
GWE = Groundwater Elevation
RMW-WL = Representative Monitoring Well for Chronic Lowering of Groundwater Levels

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 9 March 2023.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - Final Prioritization, dated February 2019.

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(Scale in Miles)

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Groundwater Elevation - Fall 2021

Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-2

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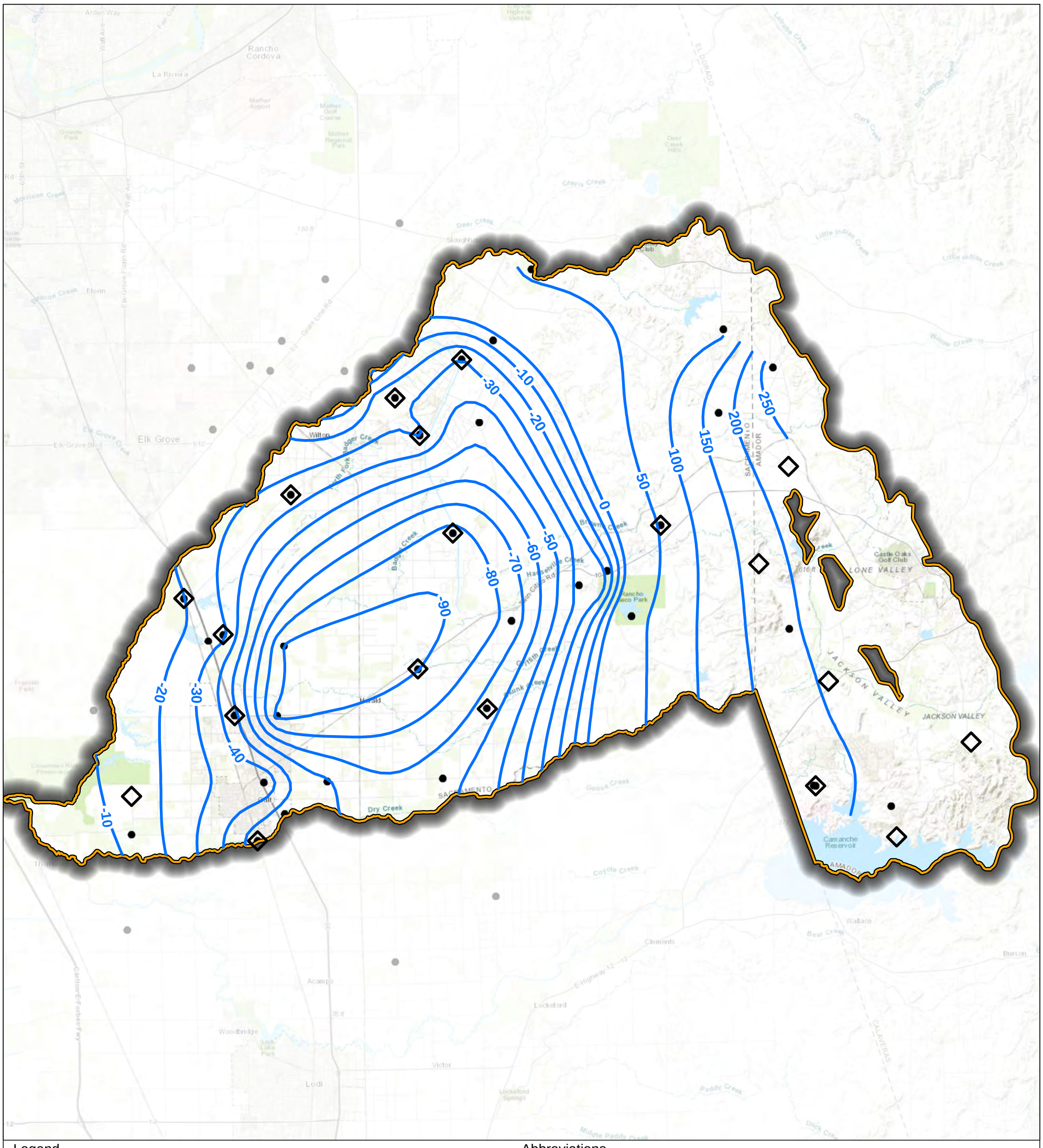
Path: X:\C20149.01\Map\03\Figure AR-2. Groundwater Elevations - Fall 2021.mxd



Legend

- Well with Spring 2022 GWE
- RMW-WL
- Spring 2022 GWE Contour (ft NAVD88)

Groundwater Subbasin

- Cosumnes Subbasin (5-022.16)

Abbreviations

DWR = California Department of Water Resources
ft msl = ft above the North American Vertical Datum of 1988
GWE = Groundwater Elevation
RMW-WL = Representative Monitoring Well for Chronic Lowering of Groundwater Levels

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 9 March 2023.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - Final Prioritization, dated February 2019.

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(Scale in Miles)

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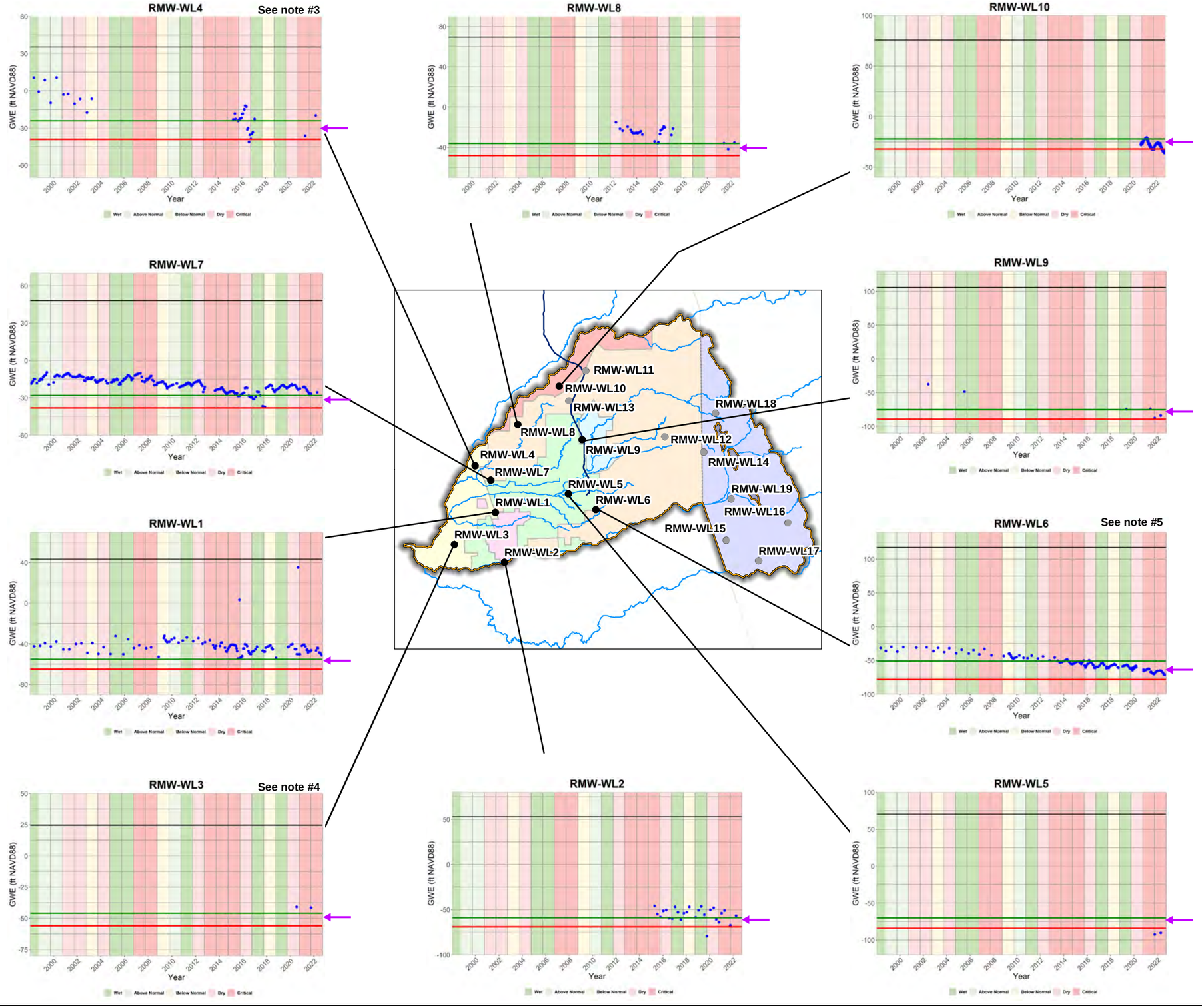
Groundwater Elevation - Spring 2022

Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-3

eki environment & water

Path: X:\C20149.01\Map\03\Figure AR-3. Groundwater Elevations - Spring 2022.mxd



Legend

- Cosumnes Subbasin (5-022.16)

Groundwater Sustainability Agency

- Amador County Groundwater Management Authority
- City of Galt
- Clay Water District
- Galt Irrigation District
- Omochumne-Hartnell Water District
- Sacramento County
- Sloughhouse Resource Conservation District
- County Line
- Major Stream
- Folsom South Canal
- RMW-WL
- Groundwater Elevation
- Ground Surface Elevation
- MT
- MO
- 2027 Interim Milestone

Water Year Type

- Wet
- Above Normal
- Below Normal
- Dry
- Critical

Abbreviations

ft NAVD88	= feet above the Vertical Datum of 1988l
GWE	= groundwater elevation
MO	= Measurable Objective
MT	= Minimum Threshold
RMW-WL	= Represenatitve Monitoring Well for Chronic Lowering of Water Levels

Notes

1. All locations are approximate.
2. See Figure AR-4b for RMW-WL11 through RMW-WL19.
3. Fall 2021 water levels were not measured in RMW-WL4.
4. Spring 2022 water levels were not measured in RMW-WL3.
5. Since about 2015, the trend seems to have increased relative to the longer-term historical trend.

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(Scale in Miles)

Representative Monitoring Well - Hydrographs

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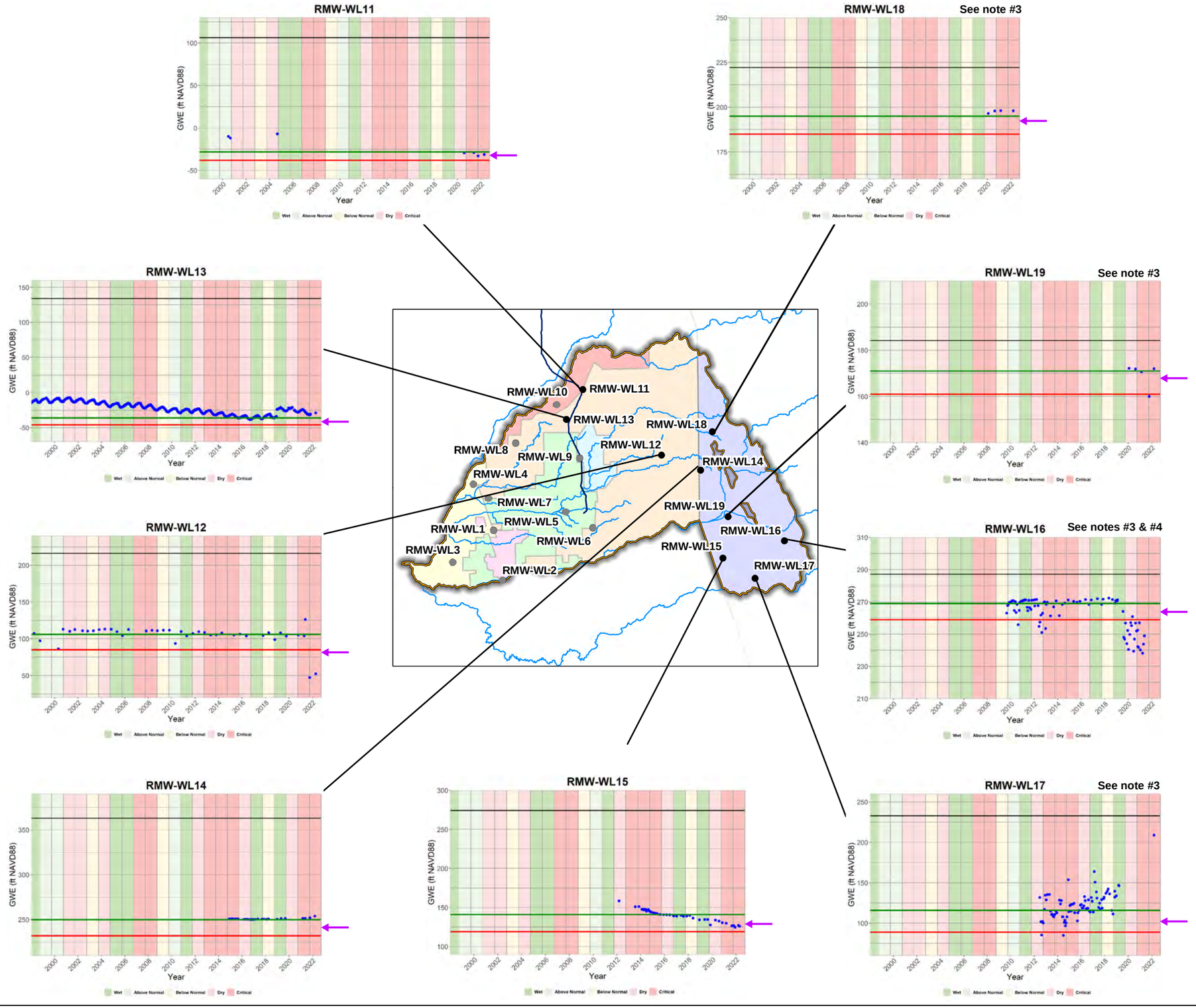
Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-4a

Path: X:\C20149.01\Map\03\Figure AR-4. Hydrographs (a).mxd



Legend

- Cosumnes Subbasin (5-022.16)

Groundwater Sustainability Agency

- Amador County Groundwater Management Authority
- City of Galt
- Clay Water District
- Galt Irrigation District
- Omochumne-Hartnell Water District
- Sacramento County
- Sloughhouse Resource Conservation District
- County Line
- Major Stream
- Folsom South Canal
- RMW-WL
- Groundwater Elevation
- Ground Surface Elevation
- MT
- MO
- 2027 Interim Milestone

Water Year Type

- Wet
- Above Normal
- Below Normal
- Dry
- Critical

Abbreviations

ft NAVD 88 = feet above the North American Vertical Datum of 1988
GWE = groundwater elevation
MO = Measurable Objective
MT = Minimum Threshold
RMW-WL = Represenatitve Monitoring Well for Chronic Lowering of Water Levels

Notes

1. All locations are approximate.
2. See Figure AR-4a for RMW-WL1 through RMW-WL10.
3. Water levels were not measured in RMW-WL14, RMW-WL16, RMW-WL17, RMW-WL18, and RMW-WL19 during Water Year 2022.
4. Change in water level trends starting in WY 2020.

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(Scale in Miles)

Representative Monitoring Well - Hydrographs

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Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
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Figure AR-4b

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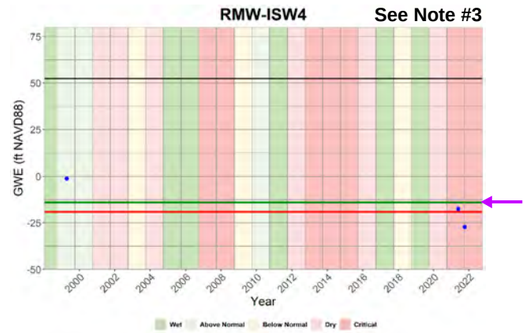

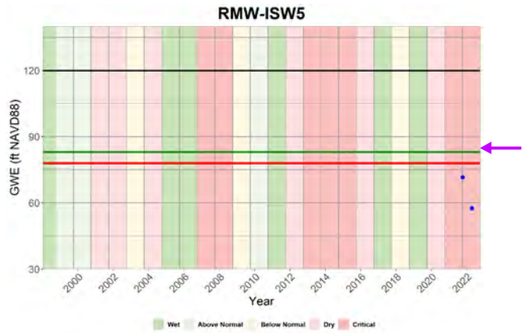

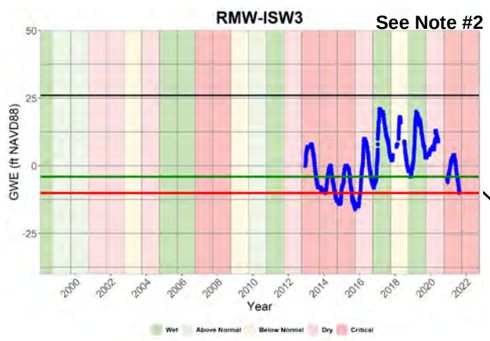

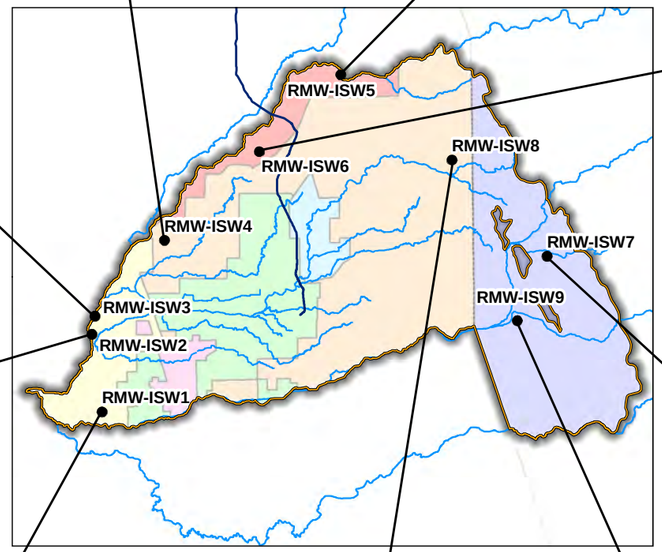

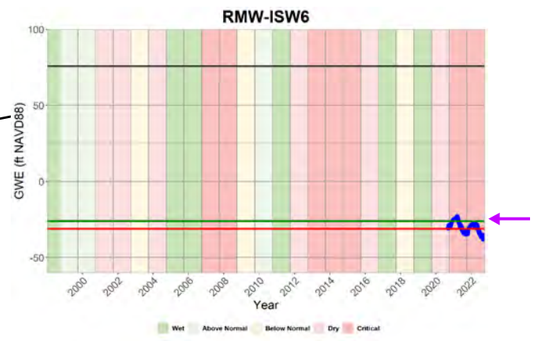

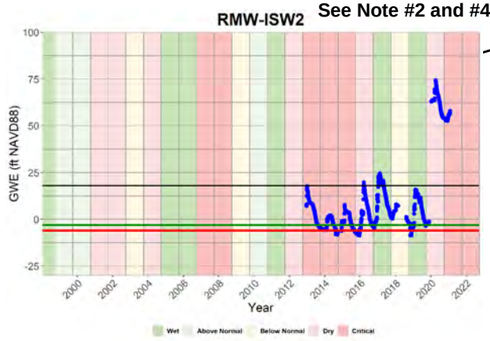

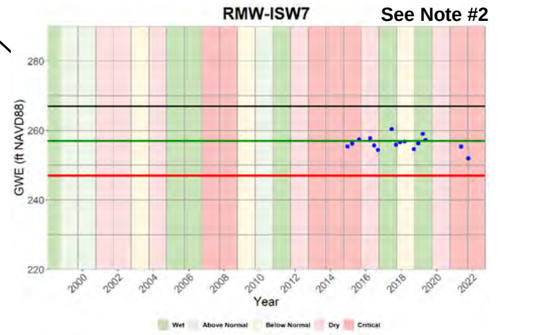

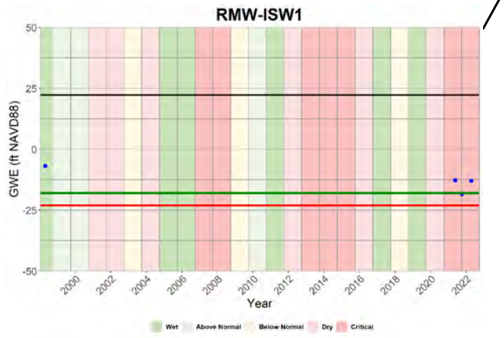

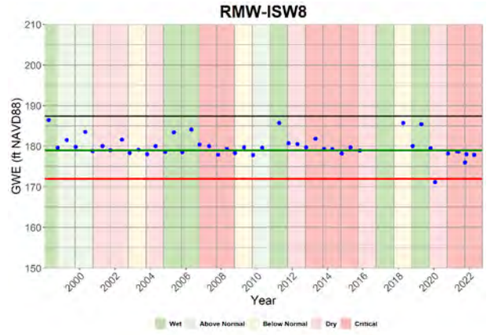

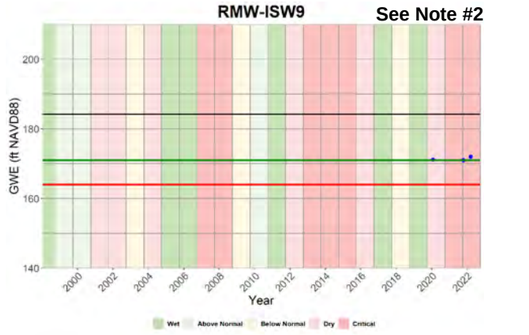

Legend

- Cosumnes Subbasin (5-022.16)

Groundwater Sustainability Agency

- Amador County Groundwater Management Authority
- City of Galt
- Clay Water District
- Galt Irrigation District
- Omochumne-Hartnell Water District
- Sacramento County
- Sloughhouse Resource Conservation District
- County Line
- Major Stream
- Folsom South Canal
- RMW- ISW
- Groundwater Elevation
- Ground Surface Elevation
- MT
- MO
- 2027 Interim Milestone (see note #5)

Water Year Type

- Wet
- Above Normal
- Below Normal
- Dry
- Critical

Abbreviations

ft NAVD88	= feet above mean sea level
GWE	= groundwater elevation
MO	= Measurable Objective
MT	= Minimum Threshold
RMW-ISW	= Represenatitve Monitoring Well for Interconnected Surface Water

Notes

1. All locations are approximate.
2. Water levels were not measured in RMW-ISW2, RMW-ISW3, RMW-ISW7 or RMW-ISW9 during Water Year 2022.
3. Water levels were not measured in RMW-ISW4 during Spring Water Year 2022.
4. Measurements recorded for RMW-ISW2 after 10 January 2020 are considered questionable as all values are increased by up to 60 feet compared to recent data.
5. Interim Milestones only set for RMW-ISWs in disconnected reaches lacking Groundwater Dependant Ecosystems.

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(Scale in Miles)

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Representative Monitoring Well - Hydrographs

Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-4c

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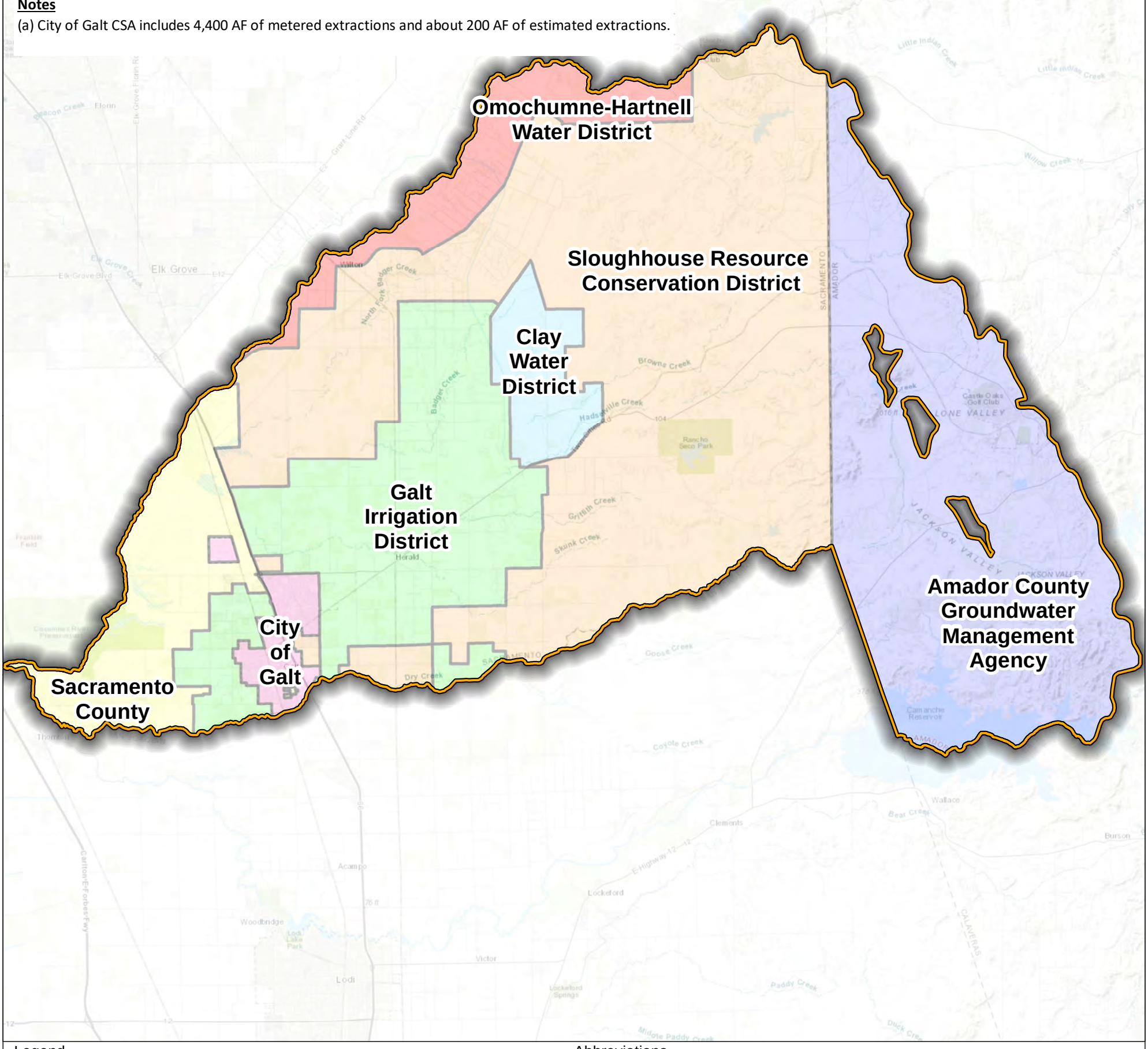
Groundwater Sustainability Agency	Total Estimated Extractions (AF)
Amador County Groundwater Management Authority	1,700
City of Galt[(a)]	4,600
Clay Water District	8,200
Galt Irrigation District	57,700
Omochumne-Hartnell Water District	6,900
Sacramento County	15,400
Sloughhouse Resource Conservation District	44,800
Total	139,300

Notes

(a) City of Galt CSA includes 4,400 AF of metered extractions and about 200 AF of estimated extractions.



Legend

Groundwater Subbasin

- Cosumnes Subbasin (5-022.16)

Groundwater Sustainability Agency

- Amador County GMA
- City of Galt
- Clay WD
- Galt ID
- Omochumne-Hartnell WD
- Sacramento County
- Sloughhouse RCD

Abbreviations

DWR = California Department of Water Resources
GMA = Groundwater Management Authority
ID = Irrigation District
RCD = Resource Conservation District
WD = Water District

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 9 March 2023.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - 2018.

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(Scale in Miles)

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General Locations and Volumes of Annual Extractions Water Year 2022

Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-5

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RMW-WL11
RMW-WL10
RMW-WL13
RMW-WL8
RMW-WL9
RMW-WL12
RMW-WL18
RMW-WL4
RMW-WL7
RMW-WL14
RMW-WL5
RMW-WL6
RMW-WL1
RMW-WL19
RMW-WL16
RMW-WL3
RMW-WL15
RMW-WL2
RMW-WL17
Arkansas Creek
Laguna Creek
Willow Creek
Cosumnes River
North Fork Badger Creek
Badger Creek
Hadselville Creek
Carabas Paleo-Ridge
Willow Creek
Rancho Seco Lake
Jackson Creek
Deadman Gulch
Dry Creek
Camanche Reservoir

Legend

- RMW-WL
- Major Stream
- Folsom South Canal
- Lake and Reservoir

Groundwater Subbasin

- Cosumnes Subbasin (5-022.16)

Storage Change (ft/yr)

- ≤ - 1
- - 0.999 to - 0.750
- - 0.749 to - 0.500
- - 0.499 to - 0.250
- - 0.249 to 0.000
- >0.001

Abbreviations

CoSANA = Cosumnes, South American, and North American model
ft/yr = feet per year
DWR = California Department of Water Resources
RMW-WL = Represenatitve Monitoring Well for Chronic Lowering of Water Levels

Notes

1. All locations are approximate.
2. CoSANA calculates the volume of storage change within model element, and the element-by-element change was normalized by dividing the volumetric change in storage by the area of each respective model element and the results mapped in units of feet

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 9 March 2023.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - Final Prioritization, dated February 2019.
3. Storage change calculated by the updated numerical model (Appendix M "CoSANA - An Integrated Water Resources Model of the Cosumnes, South American, and North American Groundwater Subbasins, November 2021" in "Groundwater Sustainability Plan for the Cosumnes Subbasin, December 2021").

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(Scale in Miles)

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Map Showing the Distribution of Model-Calculated Changes in Groundwater Storage between October 1, 2021 through September 30, 2022 (Water Year 2022), Normalized by Model Element Area and Reported in feet

Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-6

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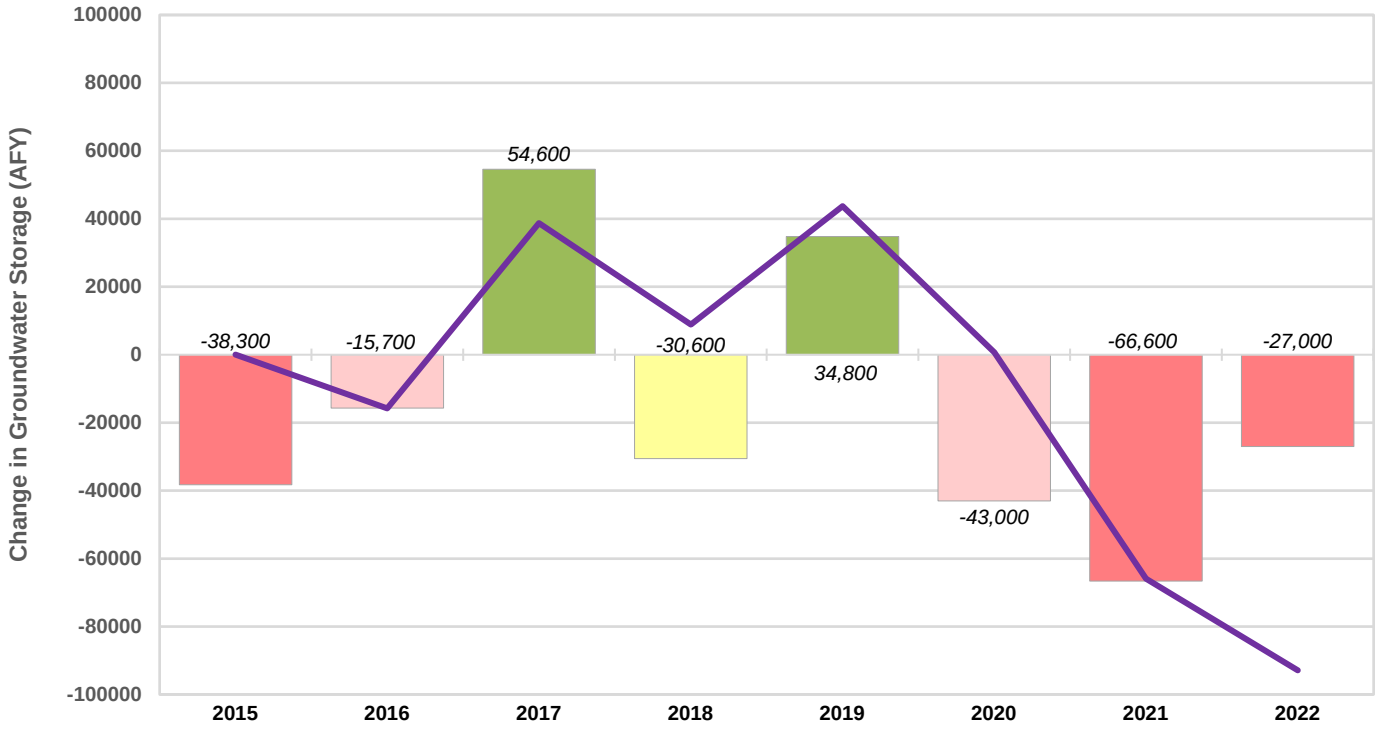
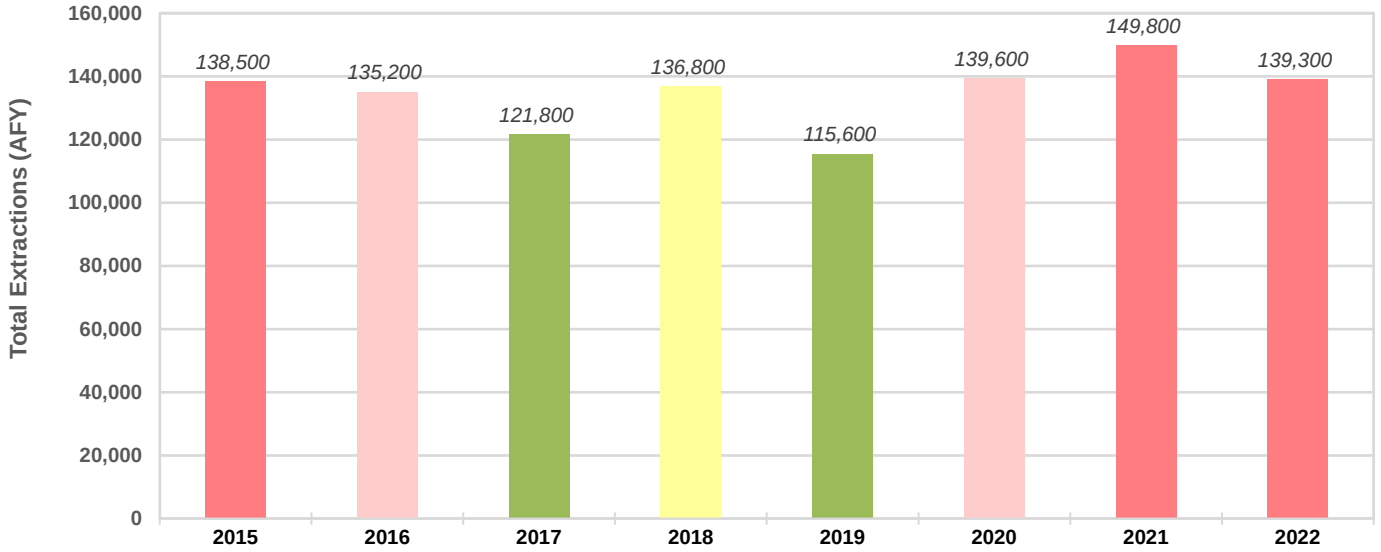
Path: X:\C20149.01\Map\03\Figure AR-6. Change in Storage Numerical Model.mxd





Legend

DWR Water Year Type and Annual Groundwater Storage Change (AFY)

- Wet
- Above Normal
- Below Normal
- Dry
- Critical
- Cumulative Storage Change Since 2015 (AFY)
- Estimated Extractions (AFY)

Abbreviations

AFY = acre-feet per year
DWR = California Department of Water Resources
WY = Water Year

Notes

1. Water Year is defined as the October of the previous year through September of the current year.
2. All values are rounded to the nearest 100 AF.

Sources

1. DWR Water Year type for 2015 - 2021 is from DWR's Water Year Hydrologic Classification Indices for the San Joaquin Valley (http://cdec.water.ca.gov/reportapp/javareports?name=WSIHIST).
2. WY 2022 assigned the water year type based on previous years having similar annual precipitation and evapotranspiration.

Annual Change in Groundwater Storage, Groundwater Use, and DWR Water Year Type

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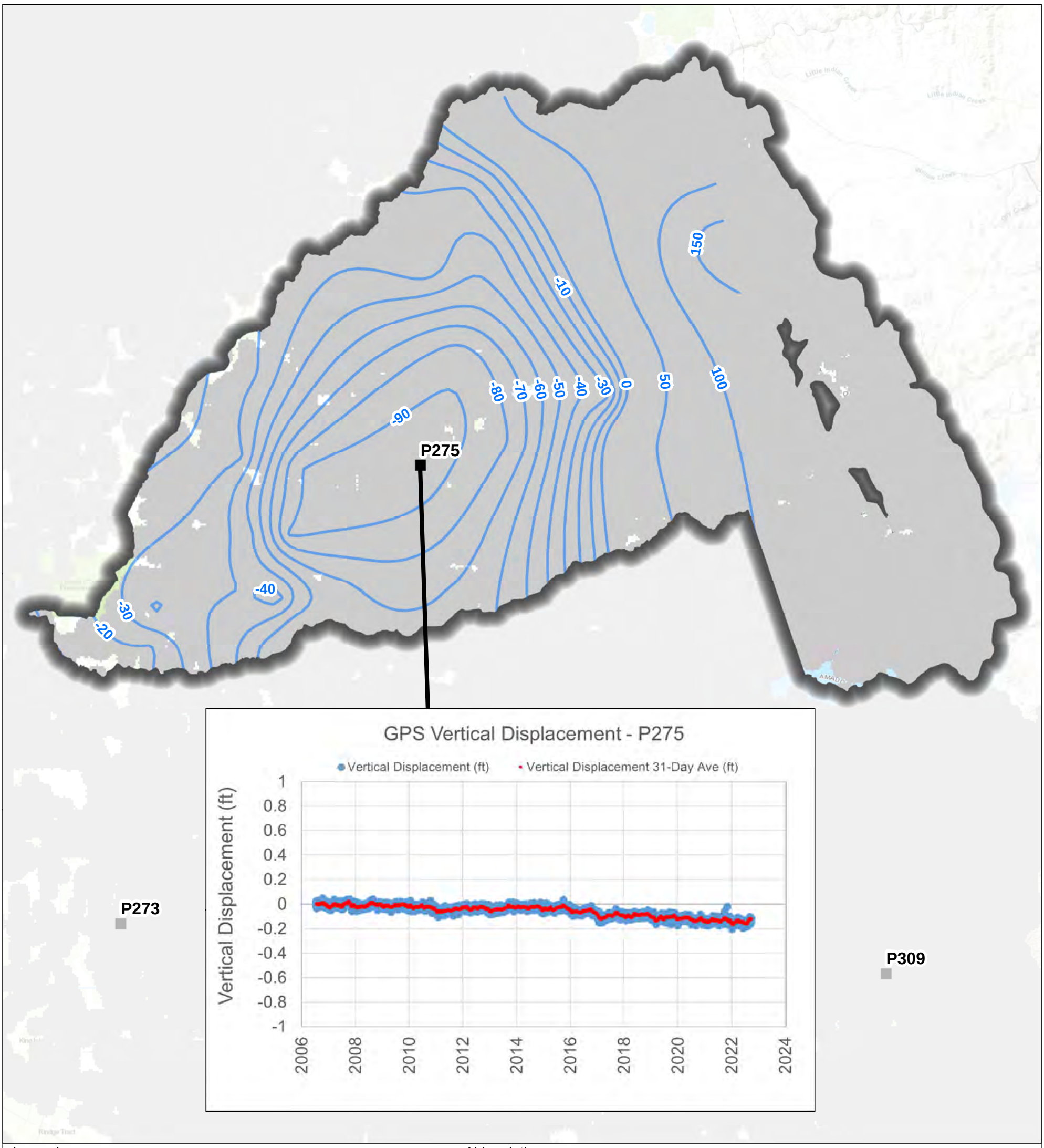
Cosumnes Groundwater Autority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-7



Legend

- Subsidence Monitoring Station
- Fall 2021 GWE (ft NAVD 88)

Groundwater Subbasin

- Cosumnes Subbasin (5-022.16)

TRE Altamira InSAR Vertical Displacement WY 2022

- < - 1 ft
- - 1.0 to - 0.8 ft
- - 0.8 to - 0.6 ft
- - 0.6 to - 0.4 ft
- - 0.4 to - 0.2 ft
- - 0.2 to - 0.1 ft
- - 0.1 to 0.1 ft
- > 0.1 ft

Abbreviations

DWR = California Department of Water Resources
ft = feet
ft NAVD 88 = feet above the North American Vertical Datum of 1988
GWE = Groundwater Elevation
SGMA = Sustainable Groundwater Management Act

Notes

1. All locations are approximate.
2. TRE Altamira InSAR data displayed shows October 2021 through October 2022.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 3 March 2023.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - Final Prioritization, dated February 2019.
3. GPS subsidence monitoring data and Vertical Displacement data are from the SGMA Data Viewer: https://sgma.water.ca.gov/webgis/appid=SGMADataViewer#currentconditions
4. GWE contours from Figure AR-2.

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(Scale in Miles)

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Subsidence Monitoring WY 2022

Cosumnes Groundwater Authority
Cosumnes Subbasin
March 2023
C20149.01

Figure AR-8

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