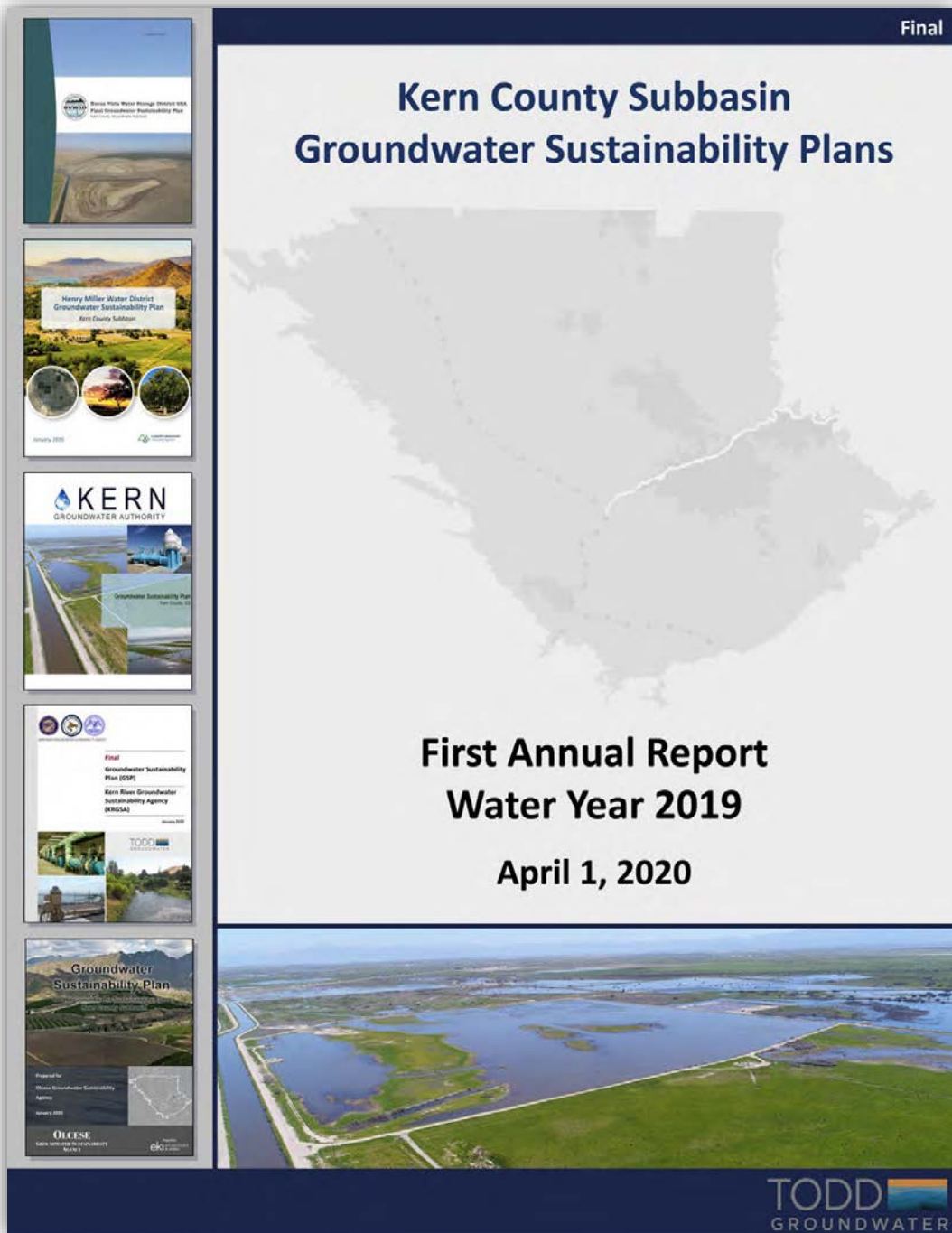




Kern River Groundwater Sustainability Agency (KRGSA)

1ST GSP ANNUAL REPORT KERN COUNTY SUBBASIN

KRGSA BOARD MEETING
JUNE 4, 2020



FIRST GSP ANNUAL REPORT

- Submitted to DWR April 1, 2020
- Covers Water Year 2019
 - Oct 1, 2018 – Sep 30, 2019
 - Reporting period ends before GSPs were finalized or adopted
- Some analyses date back to WY 2015 (last year of the model)

<https://sgma.water.ca.gov/portal/gspar/preview/9>

Kern County Subbasin Groundwater Sustainability Plans



First Annual Report Water Year 2019

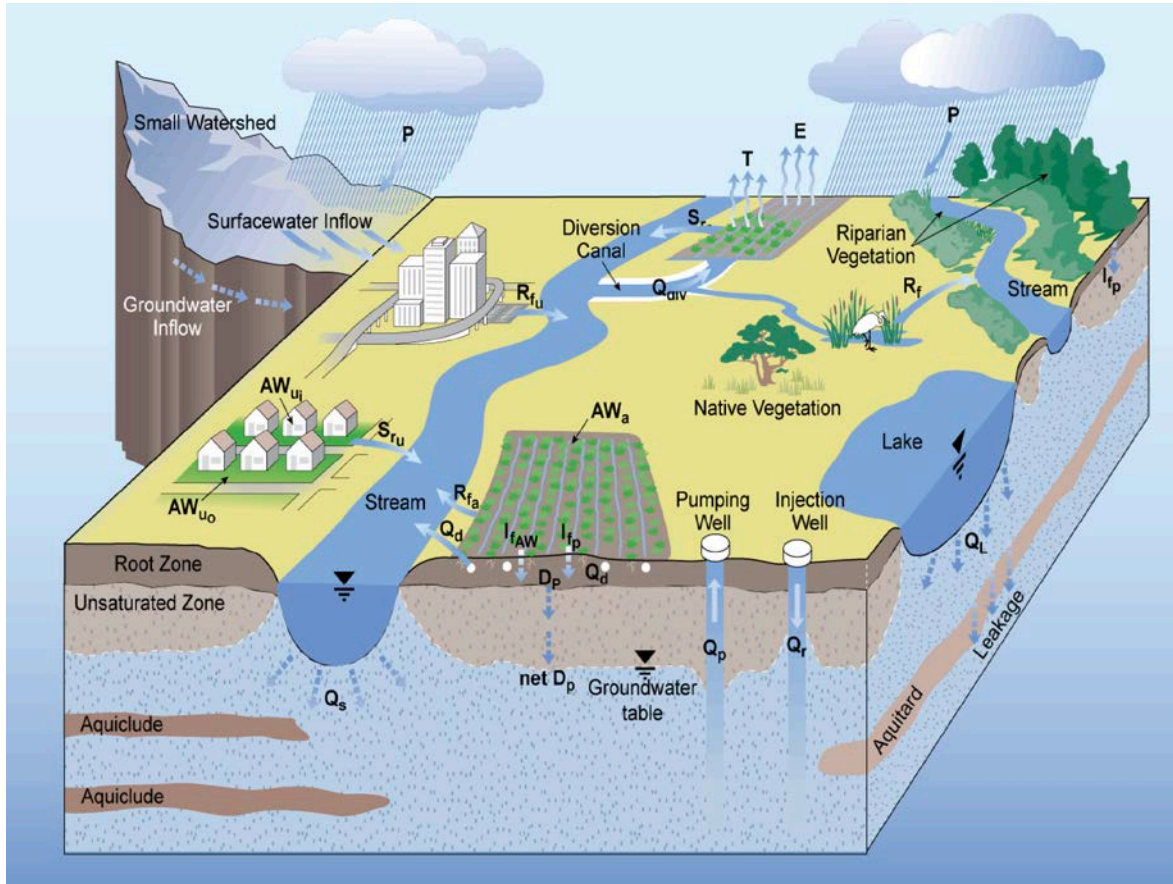
April 1, 2020



REQUIRED ELEMENTS

- Groundwater Elevations historical through WY 2019 (25-year period)
- Groundwater Extractions WY 2019 (agency data and model METRIC update)
- Surface Water Supply and Total Water Use WY 2019 (agency data and model update)
- Change in Groundwater in Storage historical through WY 2019 (model)
- Progress reports for GSP implementation by each agency (19)

UPDATED MODEL WY 2016 – WY 2019

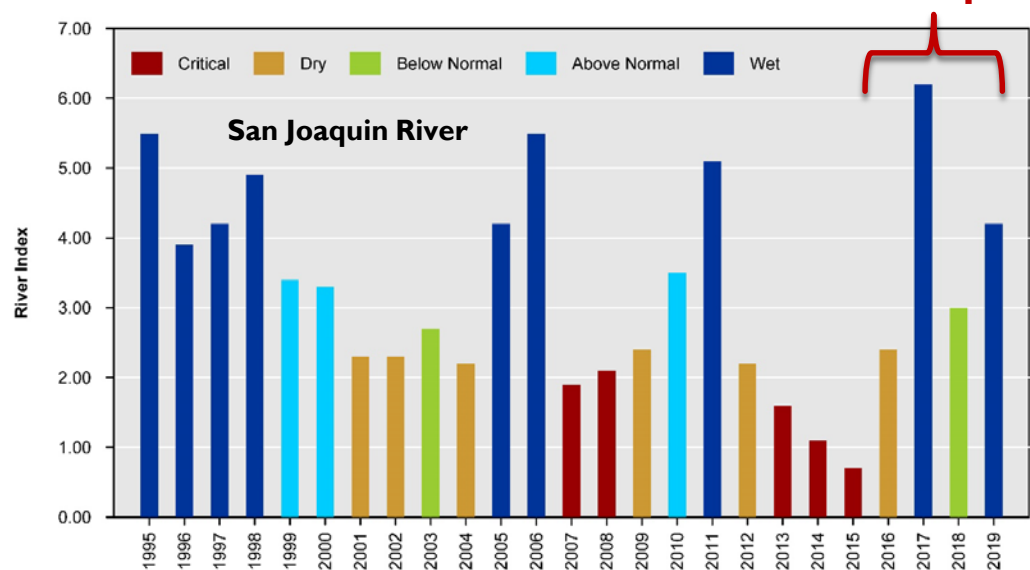
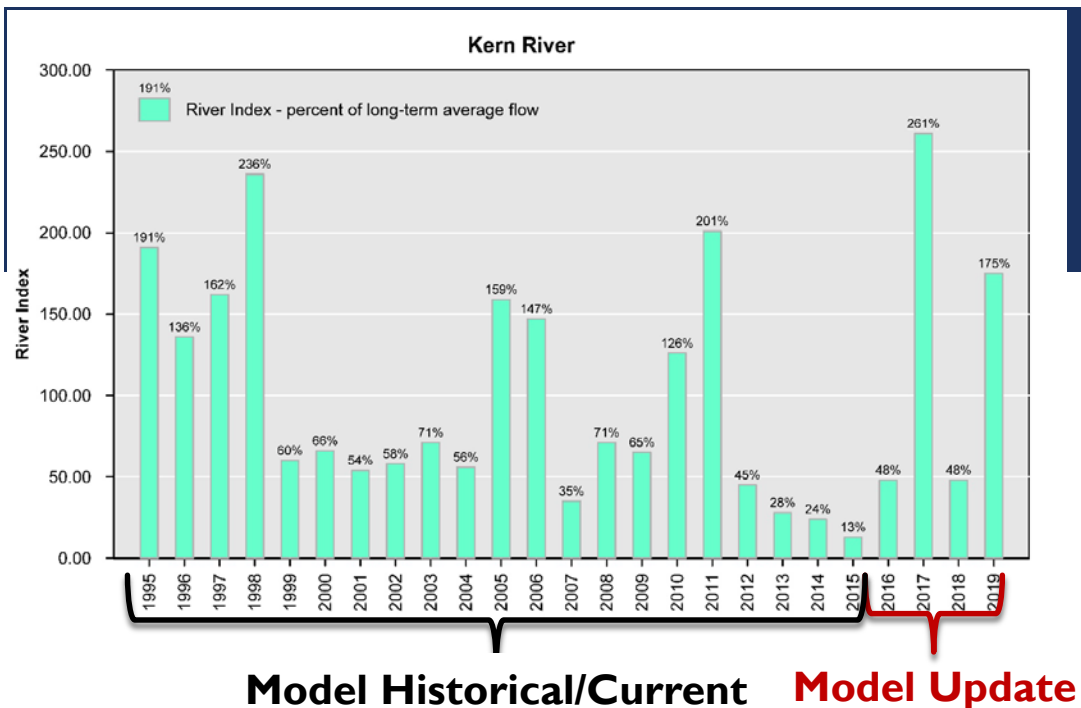


■ Input Data from 37 Agencies

- Surface water deliveries
- Managed recharge and banking
- Bank recovery pumping
- Urban water supplies and use
- Local water sources and use

■ Other Data Sets

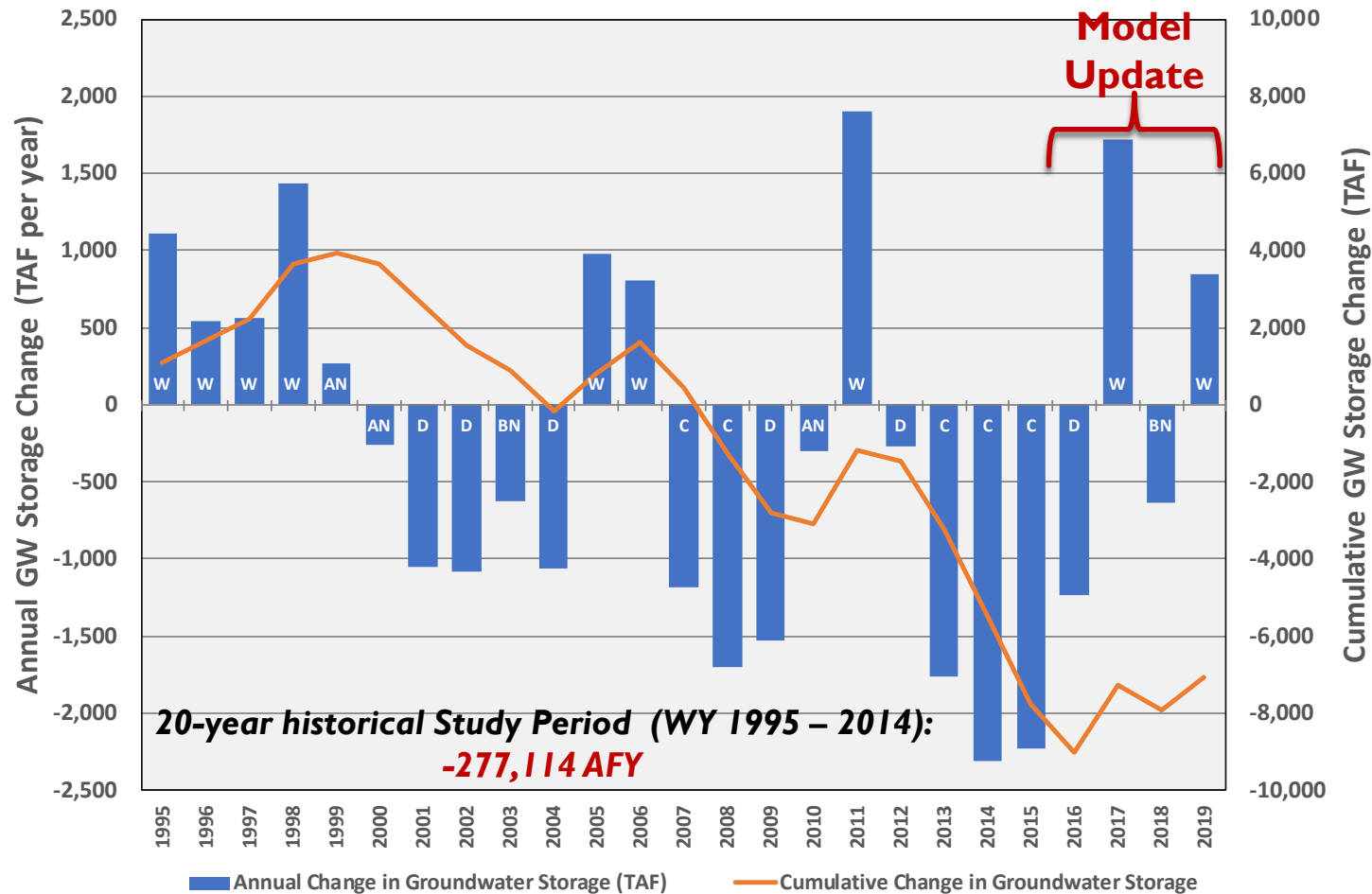
- ITRC METRIC ET data
- PRISM precipitation data
- Kern River Hydrographic Reports (and data)



HYDROLOGY UPDATED MODEL TIME PERIOD

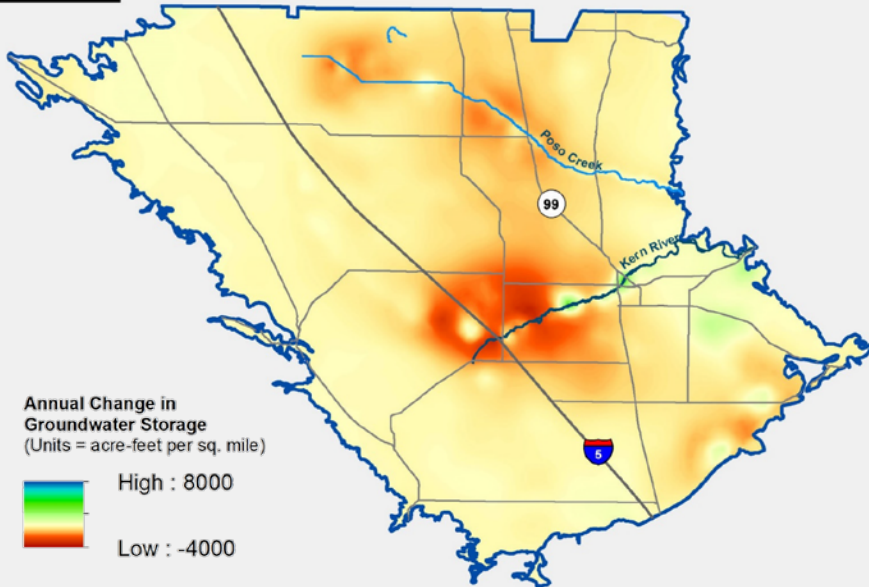
- WY 2016 – dry, Kern River Index 48%
- WY 2017 – wet, Kern River Index 261%
- WY 2018 – dry, Kern River Index 48%
- WY 2019 – wet, Kern River Index 175%
- Average Kern River Index 133%

CHANGE IN GROUNDWATER IN STORAGE KERN COUNTY SUBBASIN

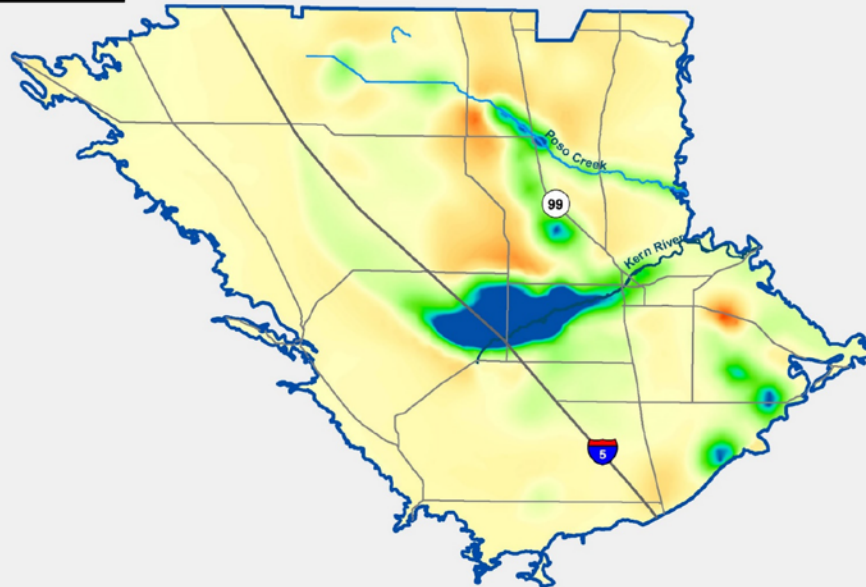


- WY 2016: -1,229,970 AF
- WY 2017: +1,722,971 AF
- WY 2018: -636,030 AF
- WY 2019: +851,260 AF
- Net increase of 708,231 AF
- Average Annual 177,058 AFY

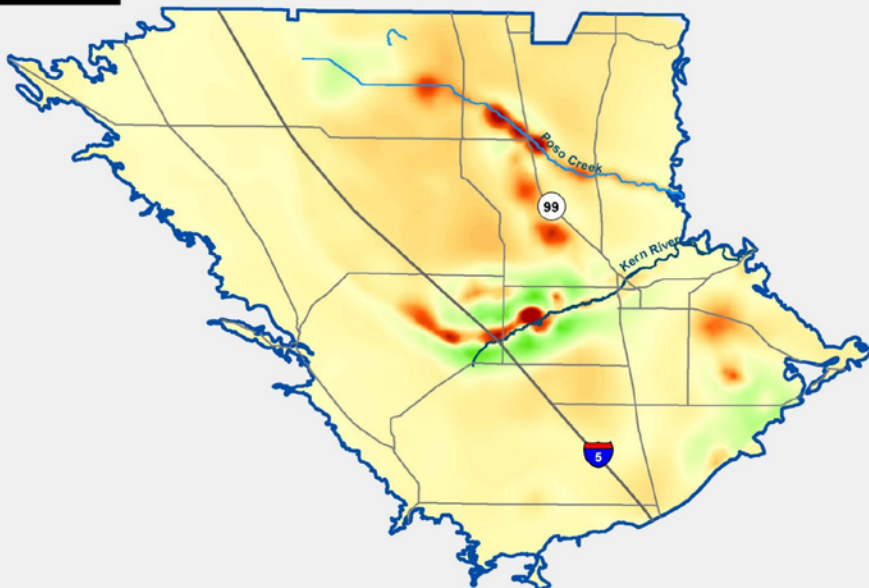
Year: 2016



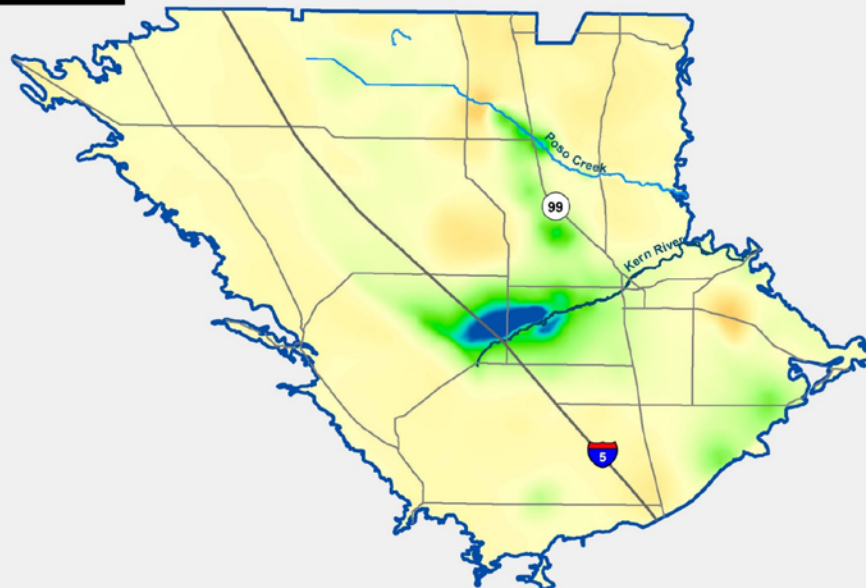
Year: 2017



Year: 2018



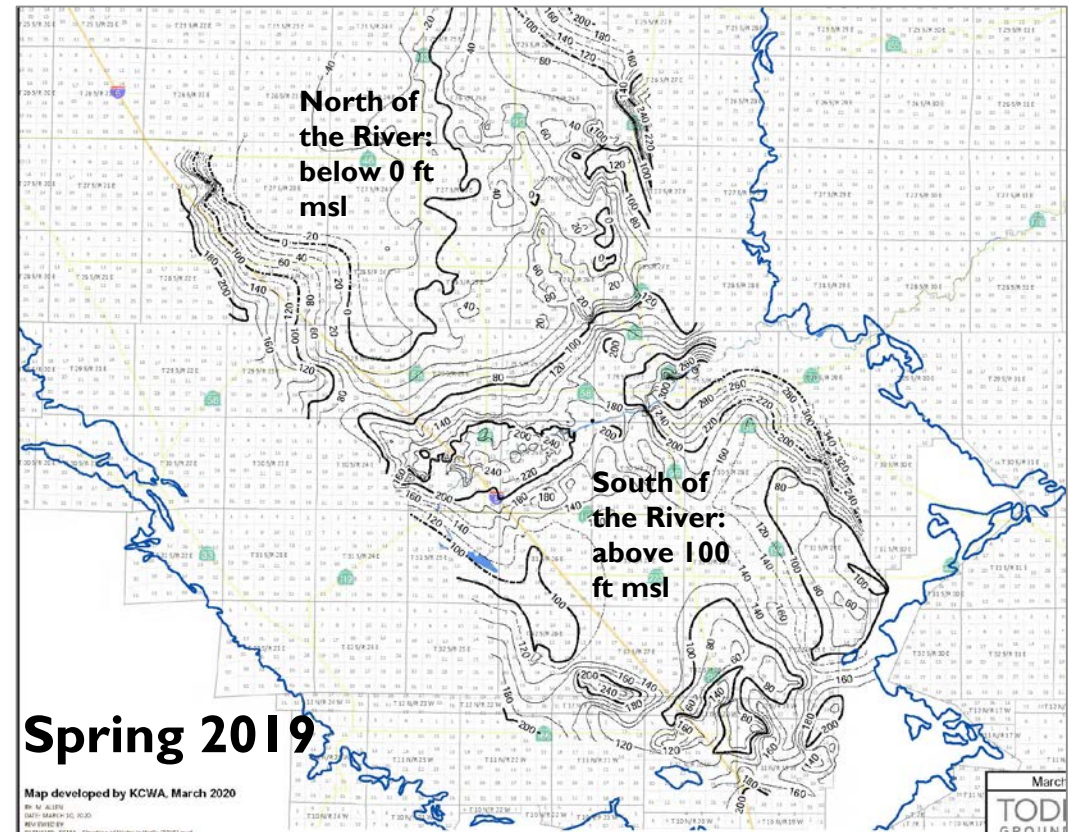
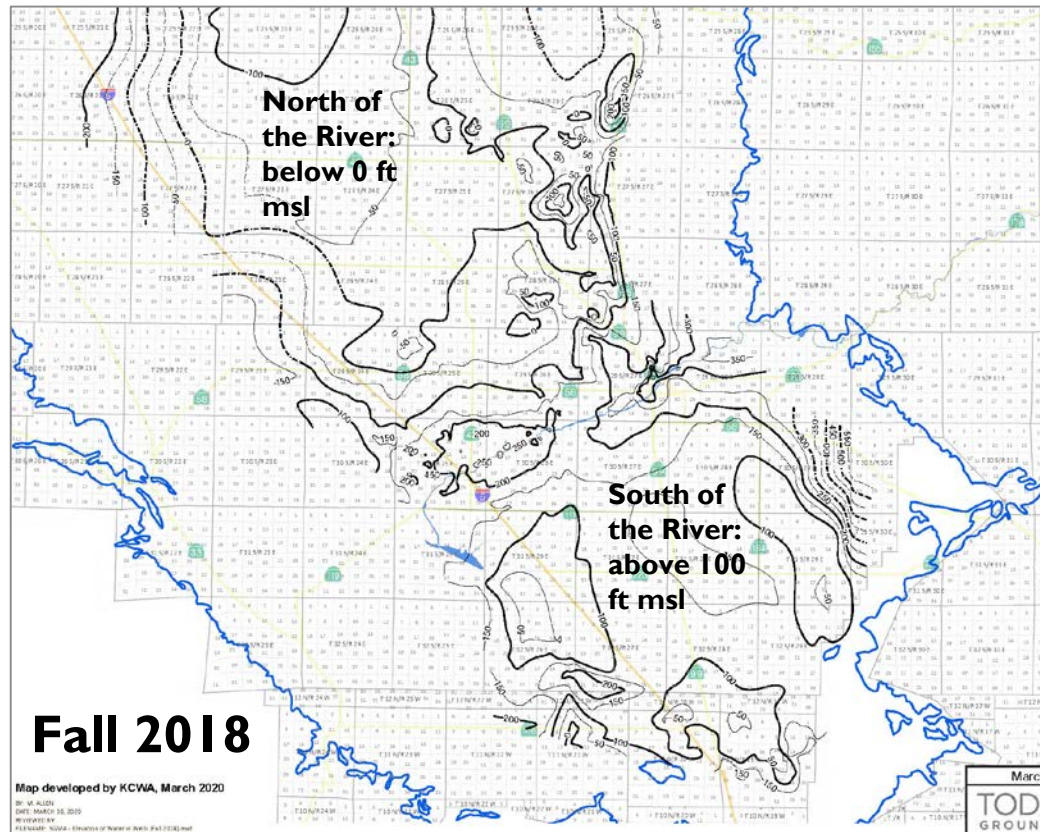
Year: 2019



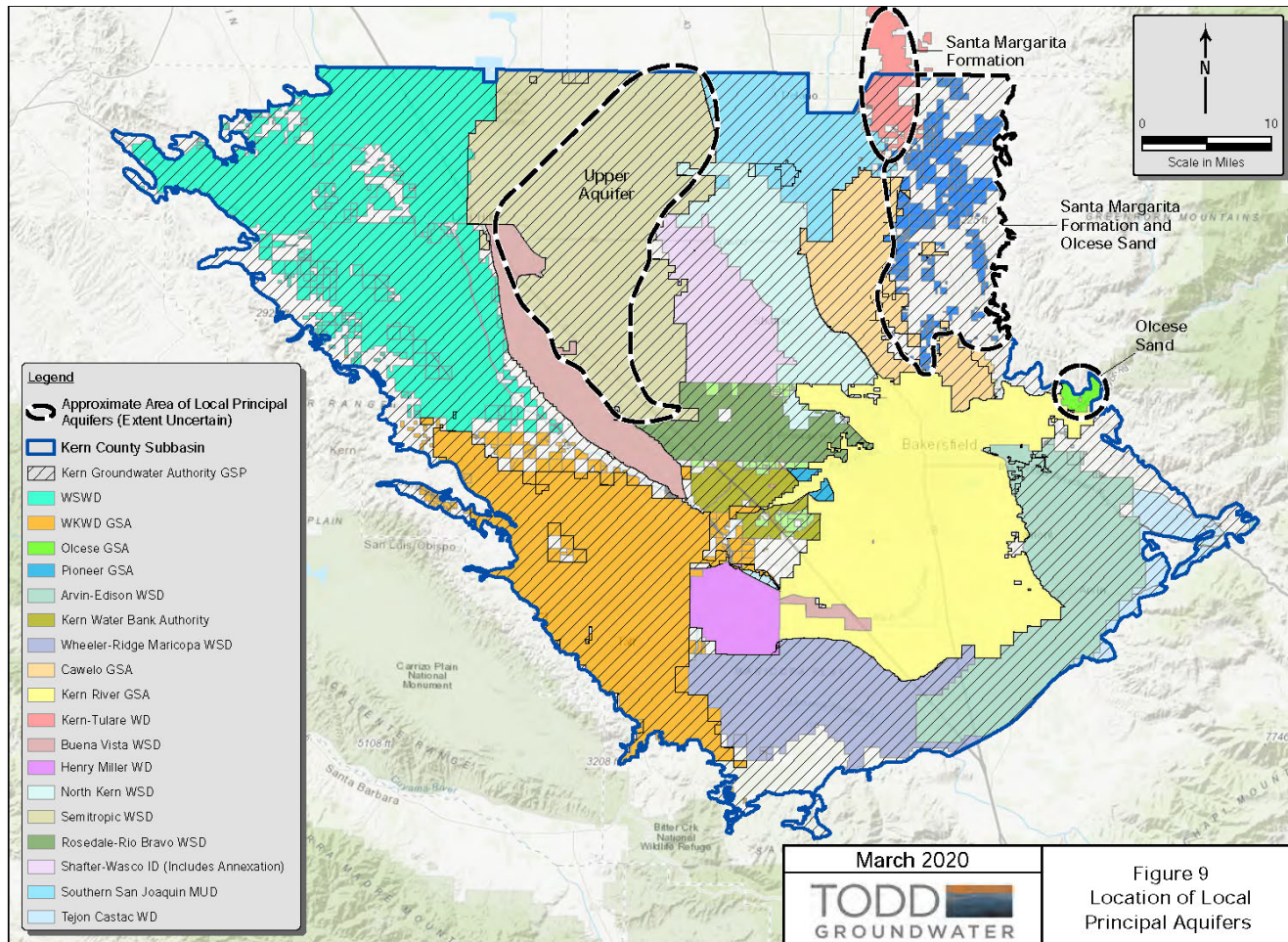
CHANGE IN GW IN STORAGE

- Subbasin-wide analysis
- Demonstrates the large influence of banking
- Includes some water identified for export

WATER LEVEL CONTOUR MAPS – KCWA PRIMARY PRINCIPAL AQUIFER

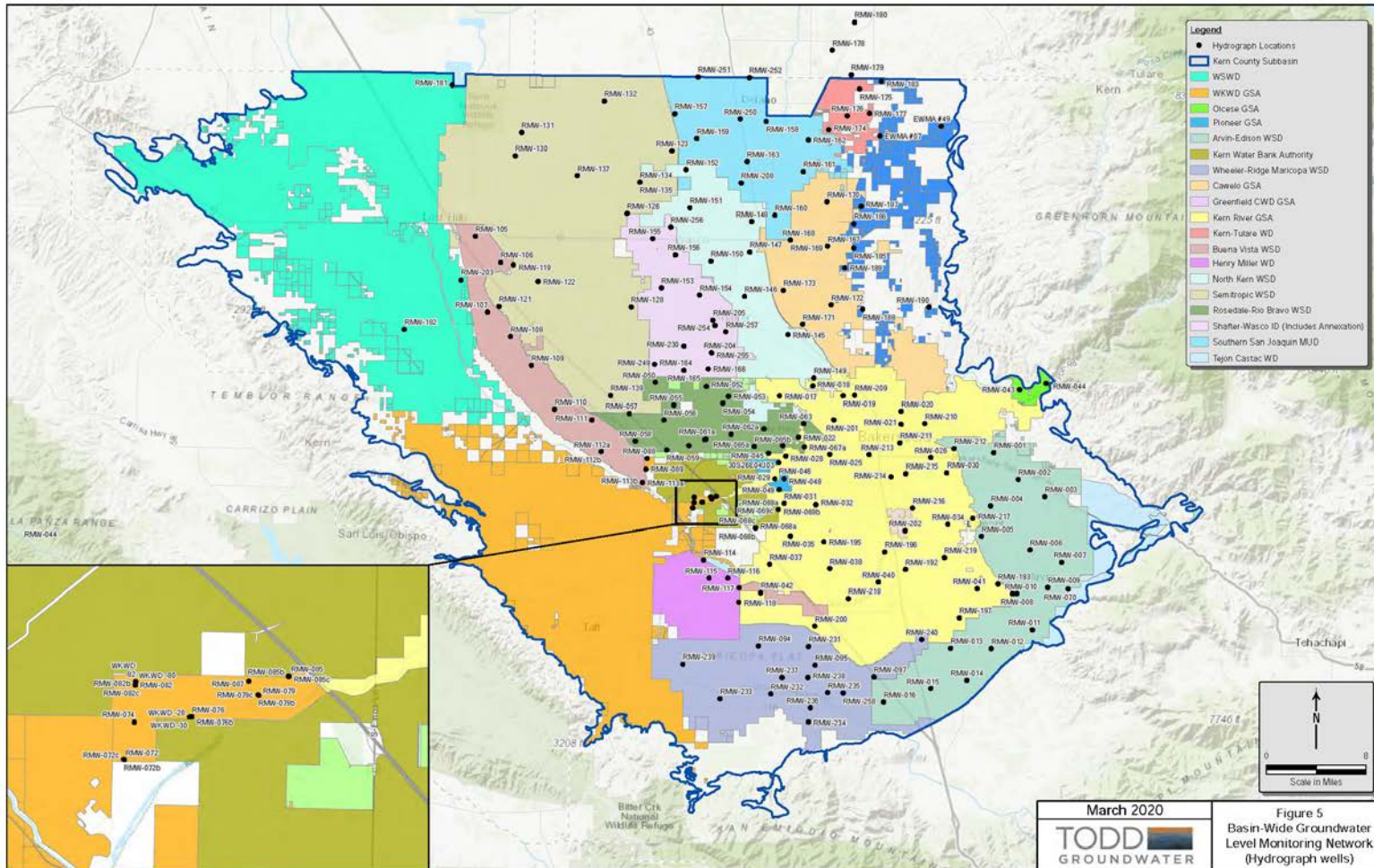


FOUR ADDITIONAL LOCAL PRINCIPAL AQUIFERS



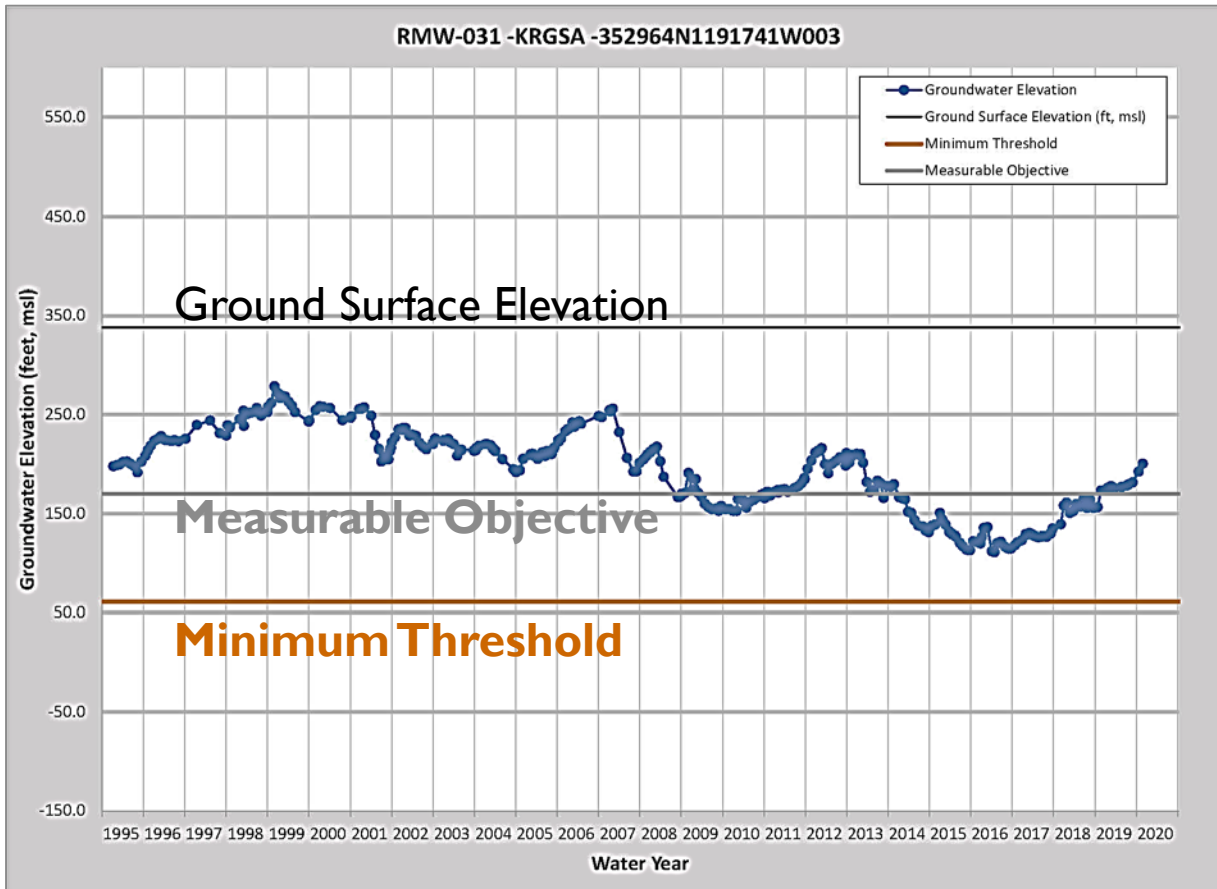
- Four additional Principal Aquifers
 - Upper Aquifer (SWSD)
 - Santa Margarita (KTWD)
 - Santa Margarita & Olcese Sand (EWMA)
 - Olcese Sand (OWD)
- Insufficient data to prepare water level contour maps for this report
- Remains a requirement for future reports

SUBBASIN GSP MONITORING NETWORK



- More than 200 wells in the GSP Subbasin Monitoring Network
- Currently working with DWR to QC and make corrections to monitoring data as needed
- Generated hydrographs for network wells with Minimum Thresholds (MTs) and Measurable Objectives (MOs)

218 HYDROGRAPHS IN APPENDIX



- GSP Monitoring Network Wells
- Historical data to the extent available
 - WY 1995 – WY 2019
 - Historical Study Period from GSP updated to present
- Consistent Scales and Formatting
- Demonstrate water levels above Minimum Thresholds

GROUNDWATER EXTRACTIONS

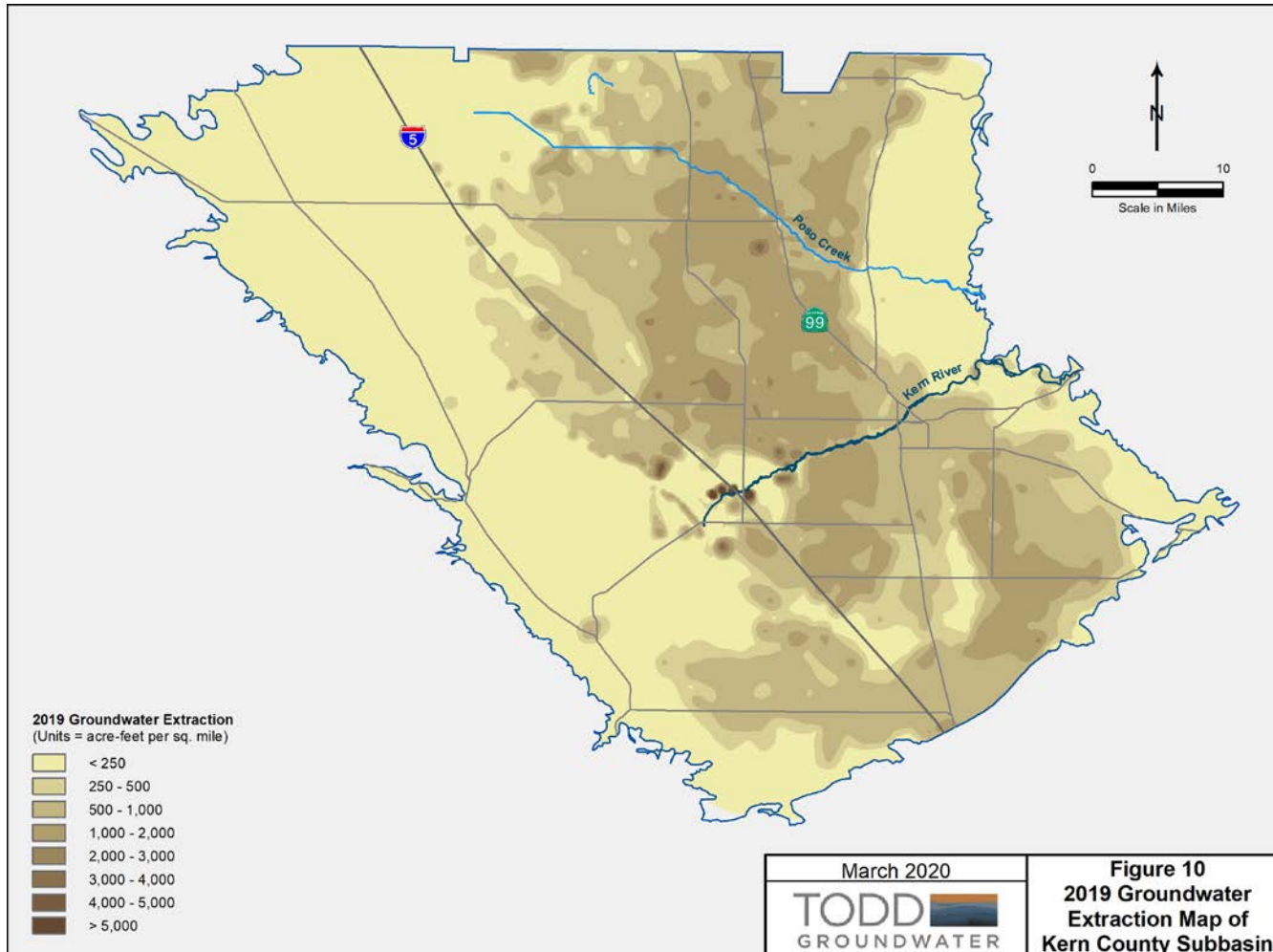


Figure 10
2019 Groundwater
Extraction Map of
Kern County Subbasin

- 1,284,183 AFY Total Subbasin Pumping
 - 150,892 AFY – urban (12%)
 - 1,096,779 – agricultural (85%)
 - 36,512 – other (incl. recovery for export)

Groundwater Extraction	Total Groundwater Extractions	Meters Volume	Electrical Records Volume	Land Use Volume	Groundwater Model Volume	Other Methods Volume
Water Use Type	Acre-ft	Acre-ft	Acre-ft	Acre-ft	Acre-ft	Acre-ft
Urban	150,892	128,115	0	22,777	0	0
Industrial	0	0	0	0	0	0
Agricultural	1,096,779	19,945	0	1,076,834	0	0
Managed Wetlands	0	0	0	0	0	0
Managed Recharge	0	0	0	0	0	0
Native Vegetation	0	0	0	0	0	0
Other	36,512	21,531	0	14,981	0	0
Total	1,284,183	169,591	0	1,114,592	0	0

Surface Water Supplies WY 2019

Surface Water Supply	Surface Water Supply Volume
Surface Water Supply Source	Acre-ft
Central Valley Project	505,061
State Water Project	1,121,965
Colorado River Project	0
Local Supplies	1,065,772
Local Imported Supplies	75,469
Recycled Water	35,609
Desalination	0
Other Water Source	1,524
Total Surface Water Supply	2,805,400

58% imported supplies, 42% local supplies

Total Water Use by Water Use Sector WY 2019

Total Water Use	Total Water Use Volume
Water Use Sector	Acre-ft
Urban	199,977
Industrial	0
Agricultural	2,445,679
Managed Wetland	23,074
Managed Recharge	1,173,060
Native Vegetation	0
Other Water Source Type	36,512
Total Water Use	3,878,302

WATER USE DATA TABLES

- Tabulated from agency data and model
- Total Water Use: 4,089,583 AFY
 - Groundwater: 31%
 - Surface Water (local + imported): 68%
 - Recycled/reused water: 1%

Total Water Supplies by Source Type WY 2019

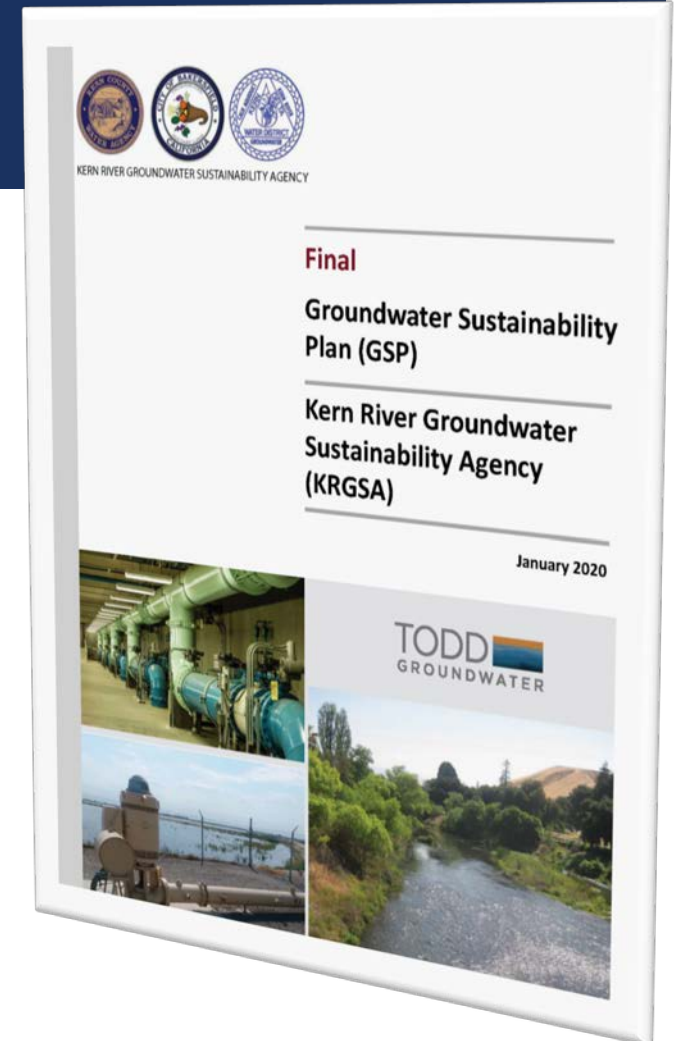
Total Water Use	Total Water Supply by Volume
Water Source Type	Acre-ft
Groundwater	1,284,183
Surface Water	2,768,267
Recycled Water	35,609
Reused Water	1,524
Other Water Source Type	0
Total Water Supply	4,089,583

(Difference of 211,281 AFY (about 5%) is assumed to be associated with conveyance losses/recharge)

DRAFT

KRGSA GSP IMPLEMENTATION PROGRESS

- Implementation of GSP Monitoring Network
 - Collected data in WY 2019 for about 22 of 39 wells (some program wells added late 2019)
 - Coordinated with other agencies in the KRGSA Plan Area for monitoring and reporting
 - Water levels above minimum thresholds during reporting period
- Implementation of Projects and Management Actions
 - WAP in KDWD recharged 34,604 AF of project water during the reporting period
 - Optimized Conjunctive Use by the City recharged 75,317 AF of project water during the reporting period
 - ENCSD Water System Consolidation project completed agreements, CEQA documents, and construction planning
 - Metropolitan Banking project recharged more than 55,000 AF with a net benefit to groundwater of 6,140 AF
 - Numerous other management actions in progress
 - Coordinated on this First Annual Report





QUESTIONS?

