



Turlock Management Zone Pilot Study

Steering Committee Meeting

Turlock Irrigation District
APRIL 17, 2019



MEETING AGENDA

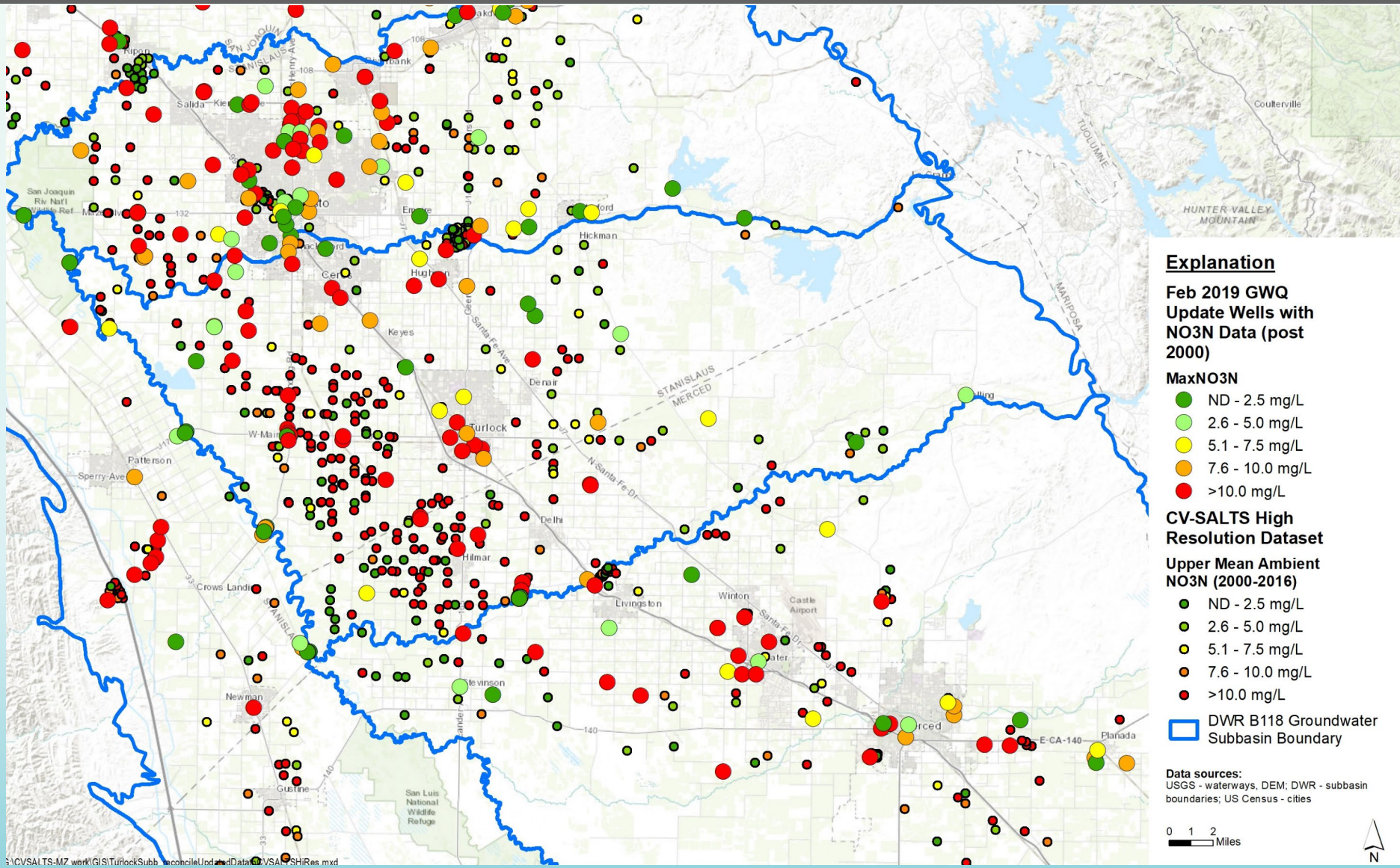
- Introductions/Agenda Review
- Status of State Board Approval of Basin Plan Amendment/
Nitrate Control Program Adoption Update
- Initial Groundwater Quality Assessment - Update
- Refinement of Areas with Potentially High Nitrate – Update
- Early Action Plan
- Identification of Permitted Dischargers in Turlock Subbasin
- Public Education & Outreach Opportunity
- Project Schedule
- Posting Pilot Study Materials
- Review Action Items
- Schedule Next Meeting



DATA ANALYSIS - UPDATE

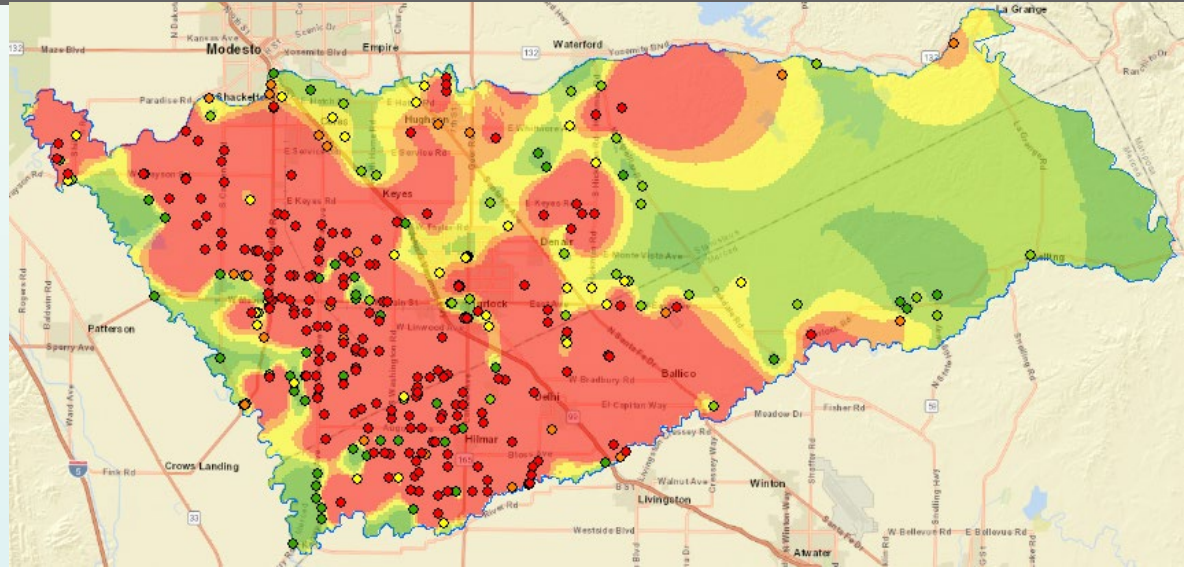
- Initial Groundwater Quality Assessment
- Wells Exceeding Nitrate Objective

PRELIMINARY UPDATED UPPER ZONE NITRATE (2000-2019 MAXIMUM)

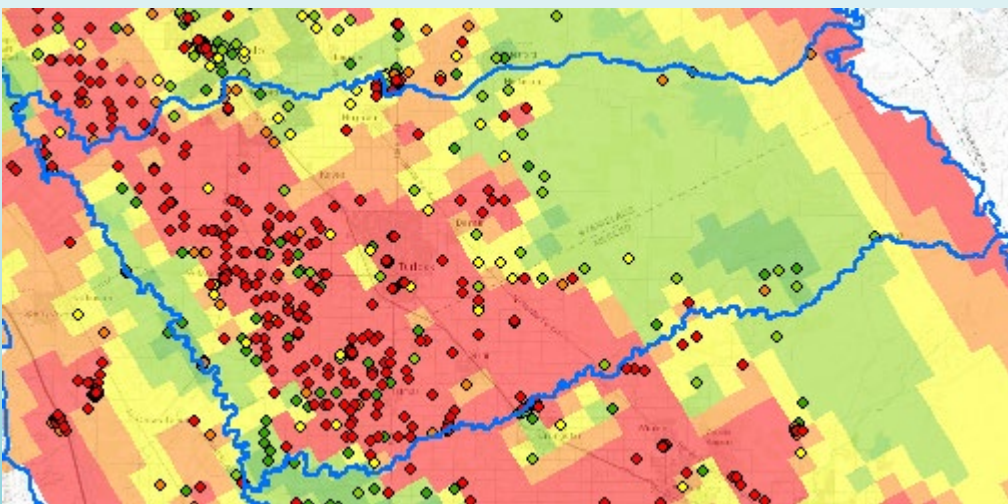


NITRATE KRIGED WQ MAP UPDATE WITH UPPER ZONE WELLS

- Updated vs Original High Resolution CV-SALTS Upper Zone Nitrate Datasets
- Post-2000 average data



Updated Feb 2019



Upper Mean Ambient Nitrate
Post 2000 (mg/L as N)

- ≤2.5
- >2.5 - 5.0
- >5.0 - 7.5
- >7.5 - 10.0
- >10.0

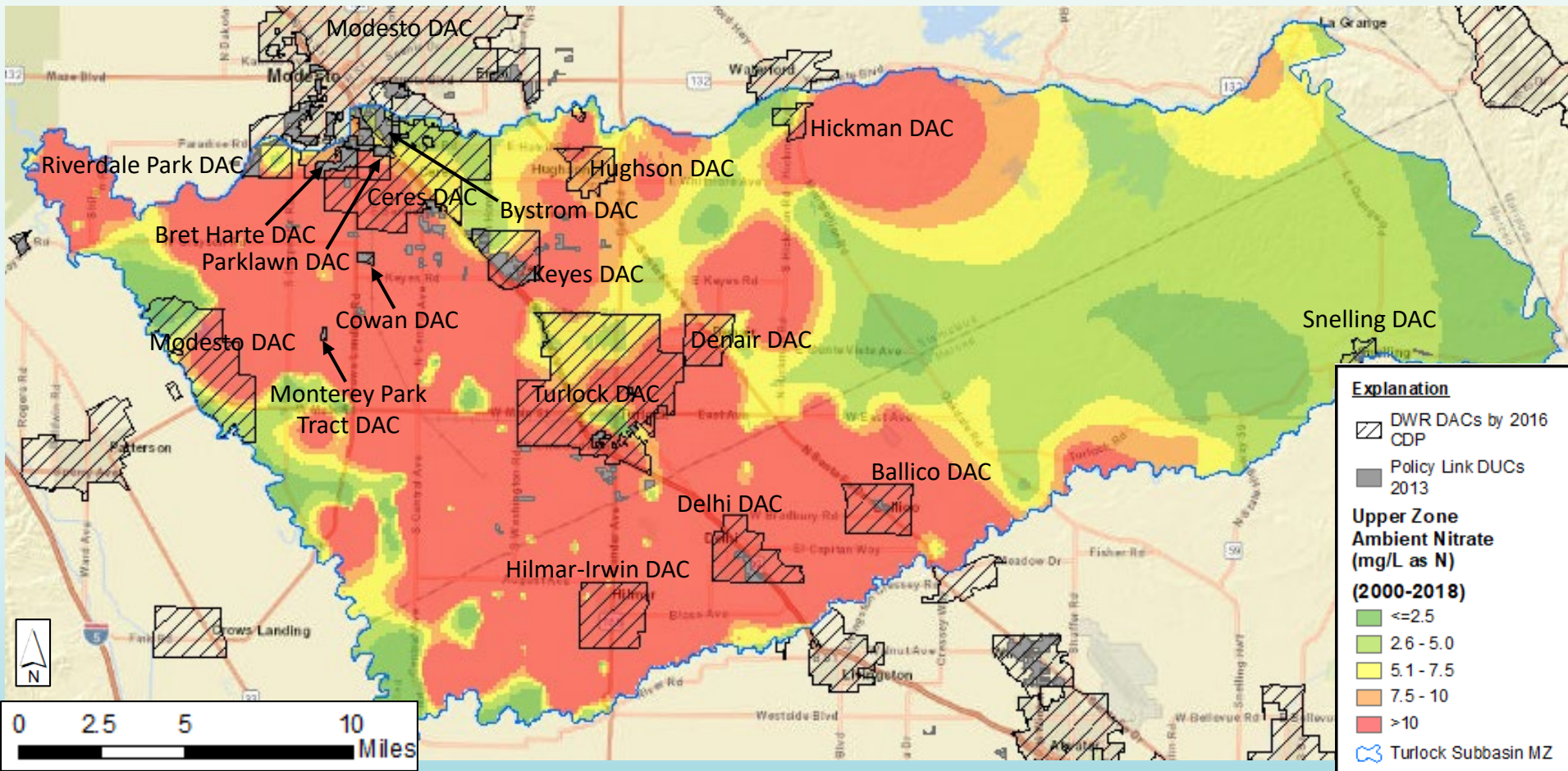
Upper Zone Nitrate (mg/L as N)

- ≤2.5
- 2.6 - 5.0
- 5.1 - 7.5
- 7.5 - 10
- >10

CV-SALTS, 2016
High Resolution

NITRATE IN UPPER ZONE: UPDATED MAP WITH DAC/DUC BOUNDARIES

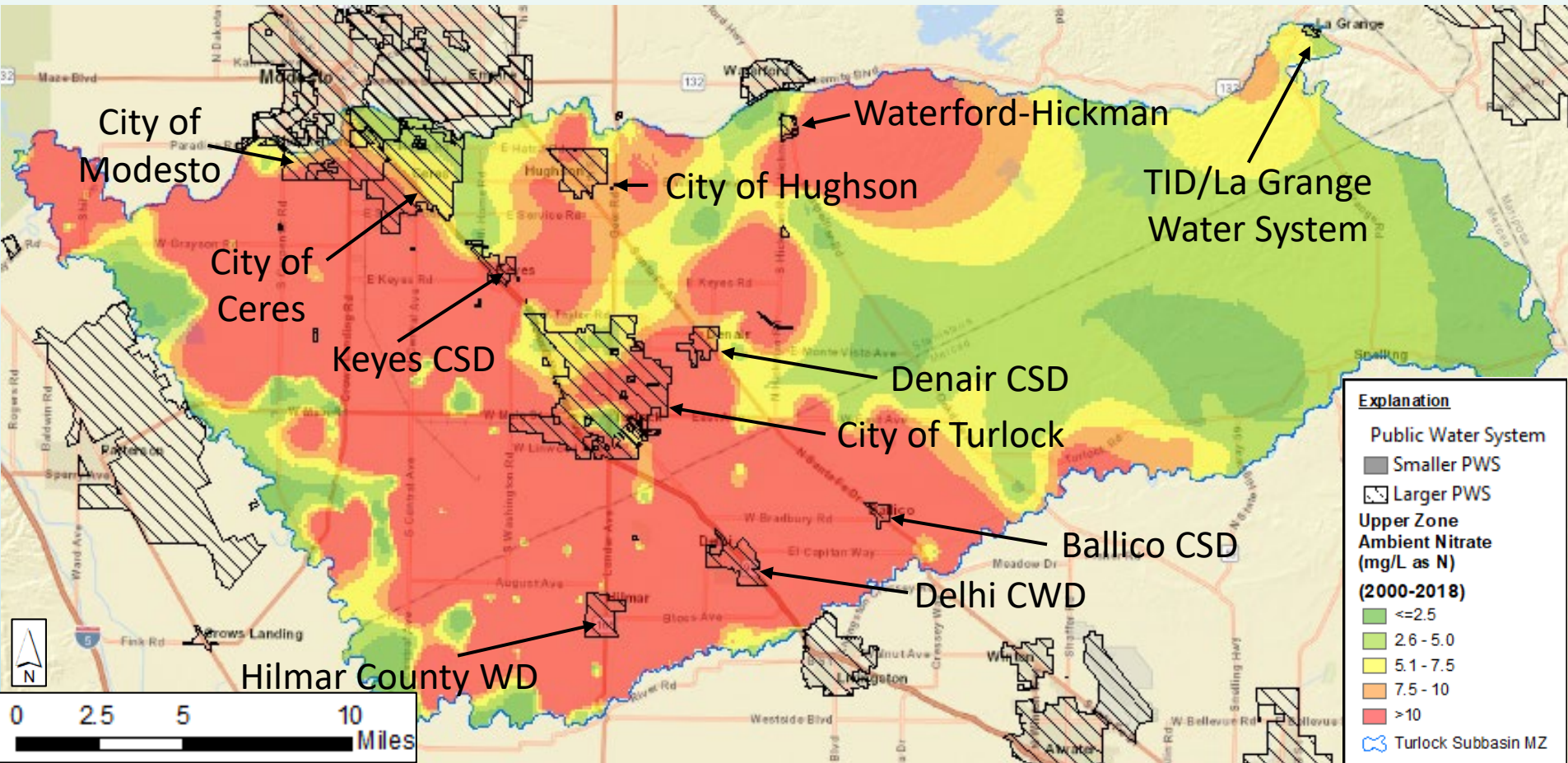
Approximately 17 DWR DACs and 44 Policy Link DUCs in the Turlock Subbasin MZ.



Based on spatial location, 14 out of 17 DACs and 31 of 44 DUCs overlay ambient upper nitrate >10 mg/L as N.

NITRATE IN UPPER ZONE: UPDATED MAP WITH PUBLIC WATER SYSTEM BOUNDARIES

Approximately 35 Public Water Systems Residential Service Areas in the Turlock Subbasin MZ

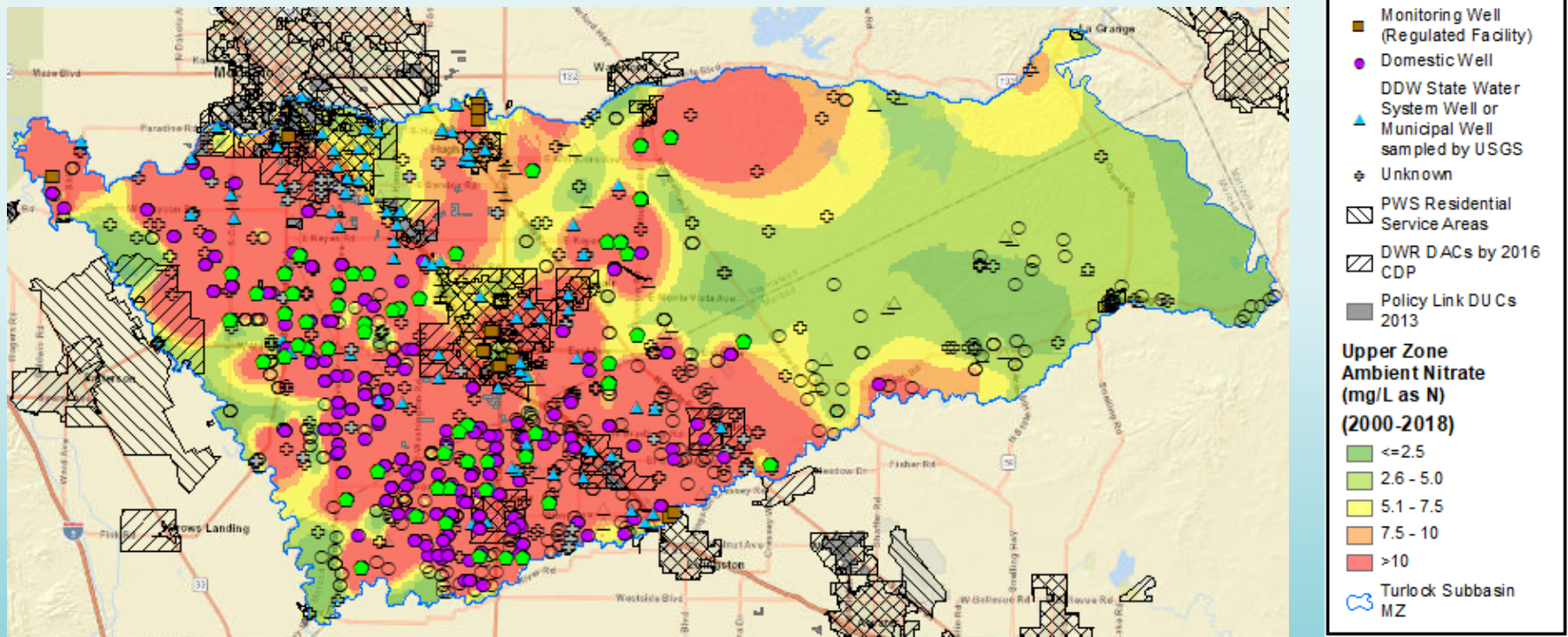


Based on spatial location, 21 out of 35 PWS residential service areas overlay ambient upper nitrate > 10 mg/L as N.

NITRATE IN UPPER ZONE: UPDATED MAP WITH WELLS THAT EXCEED NO3-N MCL (10 MG/L)

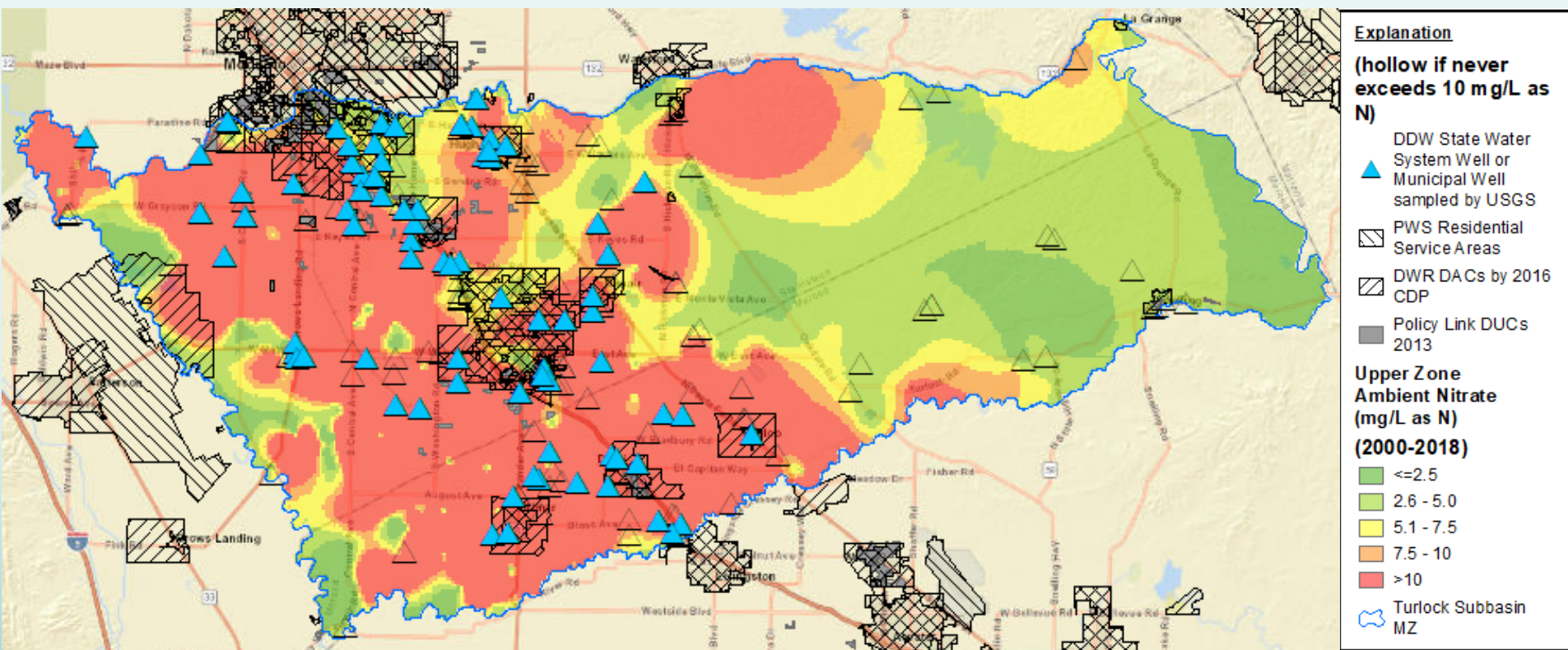
Approximately 1,755 wells in the Turlock Subbasin MZ have measured nitrate concentrations. 771 of 1,755 wells have exceeded the NO3N MCL of 10 mg/L as N in Turlock Subbasin MZ:

- 93 Public water supply wells (out of 266)
- 479 Domestic wells (out of 970)
- 89 Ag wells (out of 151)
- 37 Regulated Facility MWs (out of 69)
- 73 Unknown well types (out of 299)



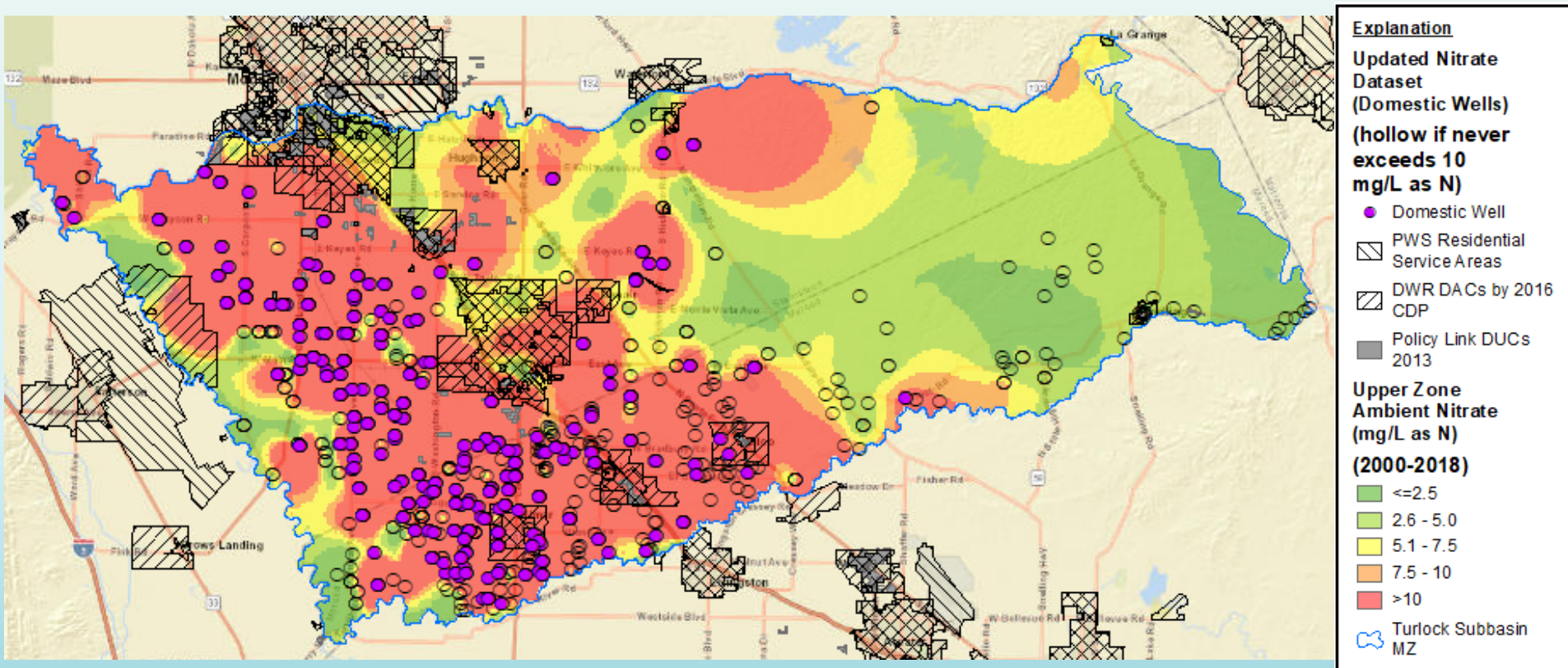
NITRATE IN UPPER ZONE: UPDATED MAP WITH PWS WELLS THAT EXCEED NO₃-N MCL (10 MG/L)

93 public water supply wells (out of 266, or 35%) in Turlock Subbasin MZ with measured nitrate data have exceeded the NO₃-N MCL (10 mg/L).



NITRATE KRIGED WQ MAP UPDATE WITH SAMPLED DOMESTIC WELLS THAT EXCEED THE MCL (10 MG/L AS N)

479 Domestic wells (out of 970, or 49%) in the Turlock Subbasin MZ with measured nitrate data have exceeded the NO₃-N MCL (10 mg/L).

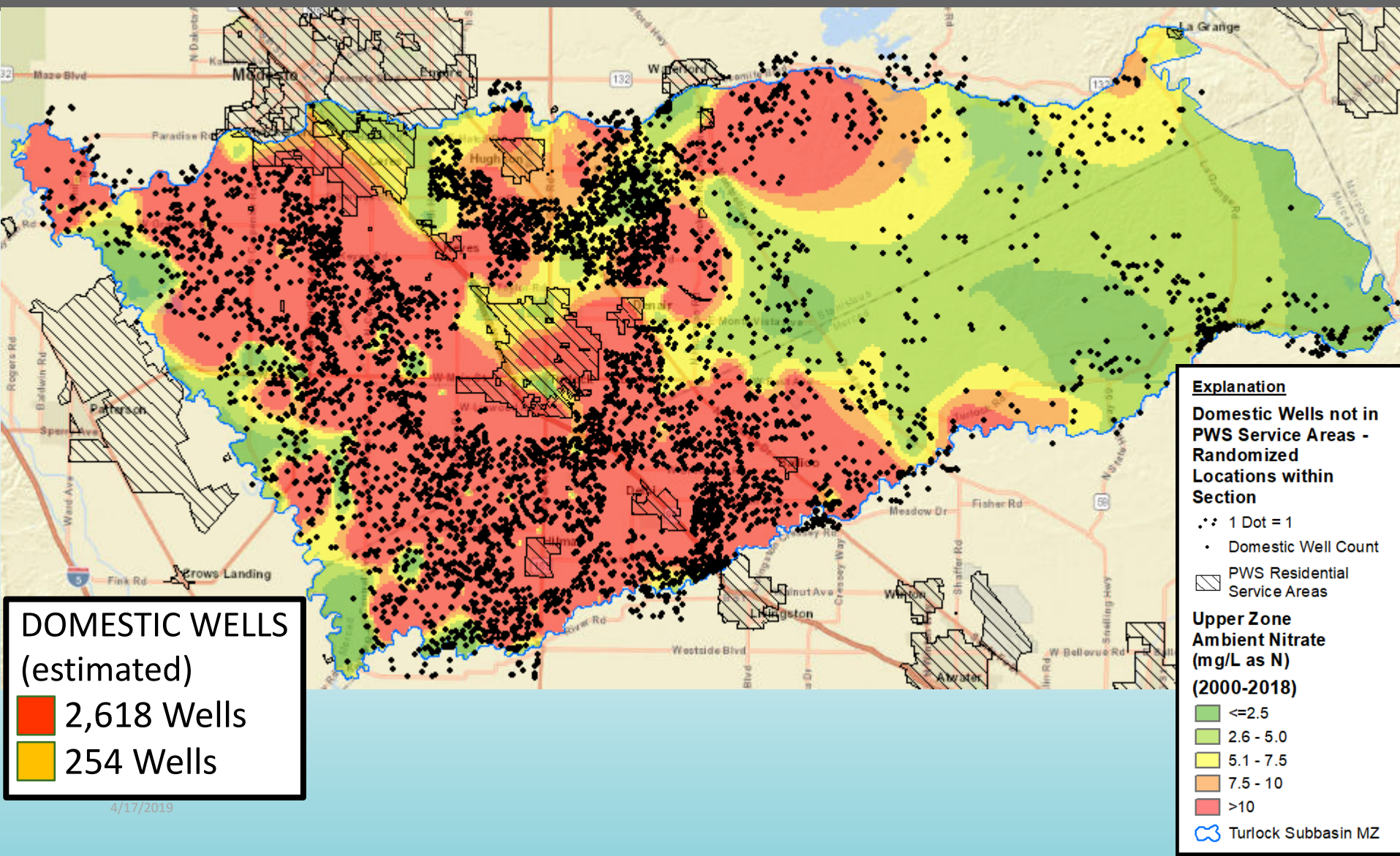




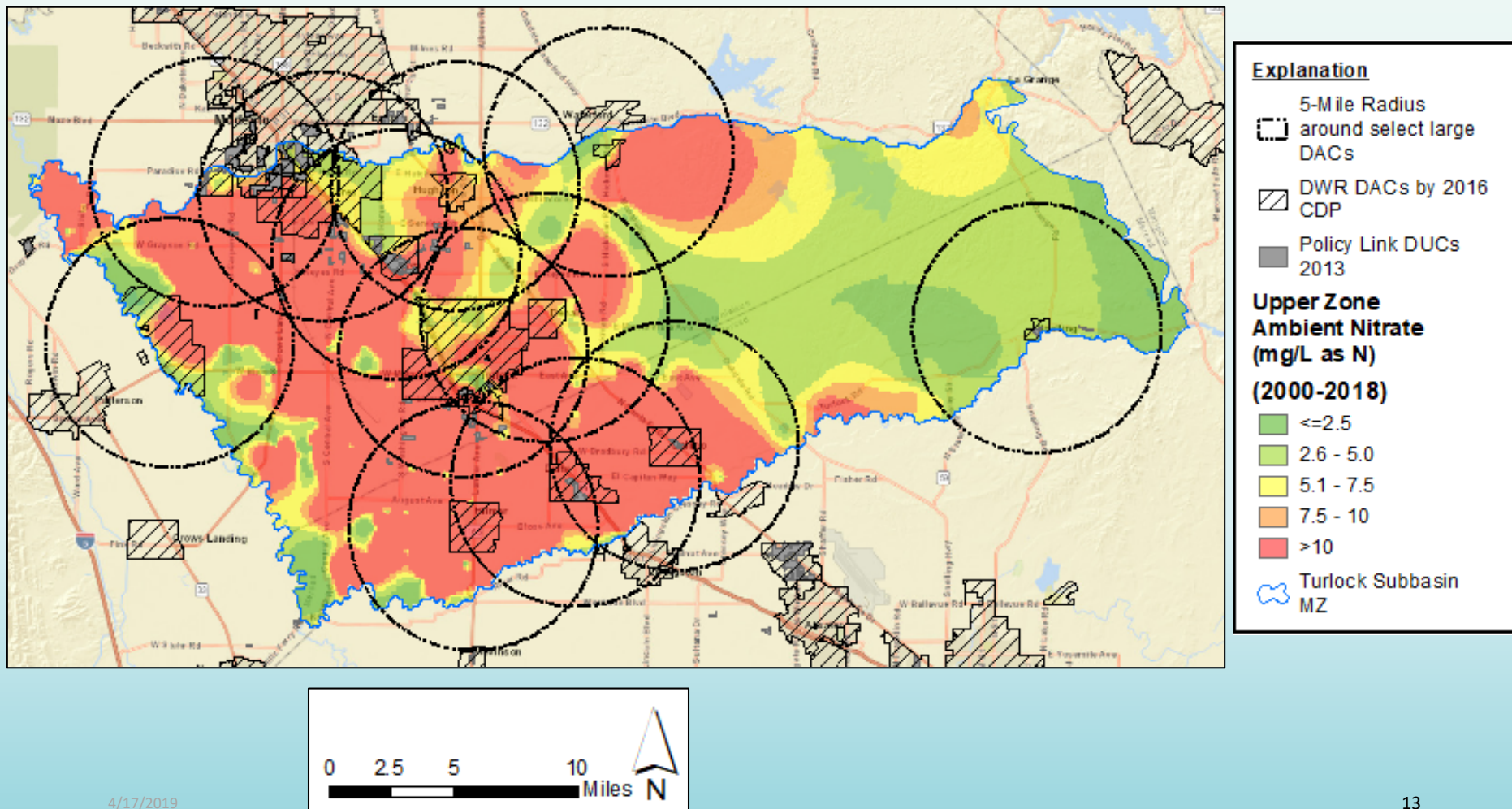
EARLY ACTION PLAN

- Process to Identify Residents with Impacted Domestic Wells
- Discuss Other EAP Elements

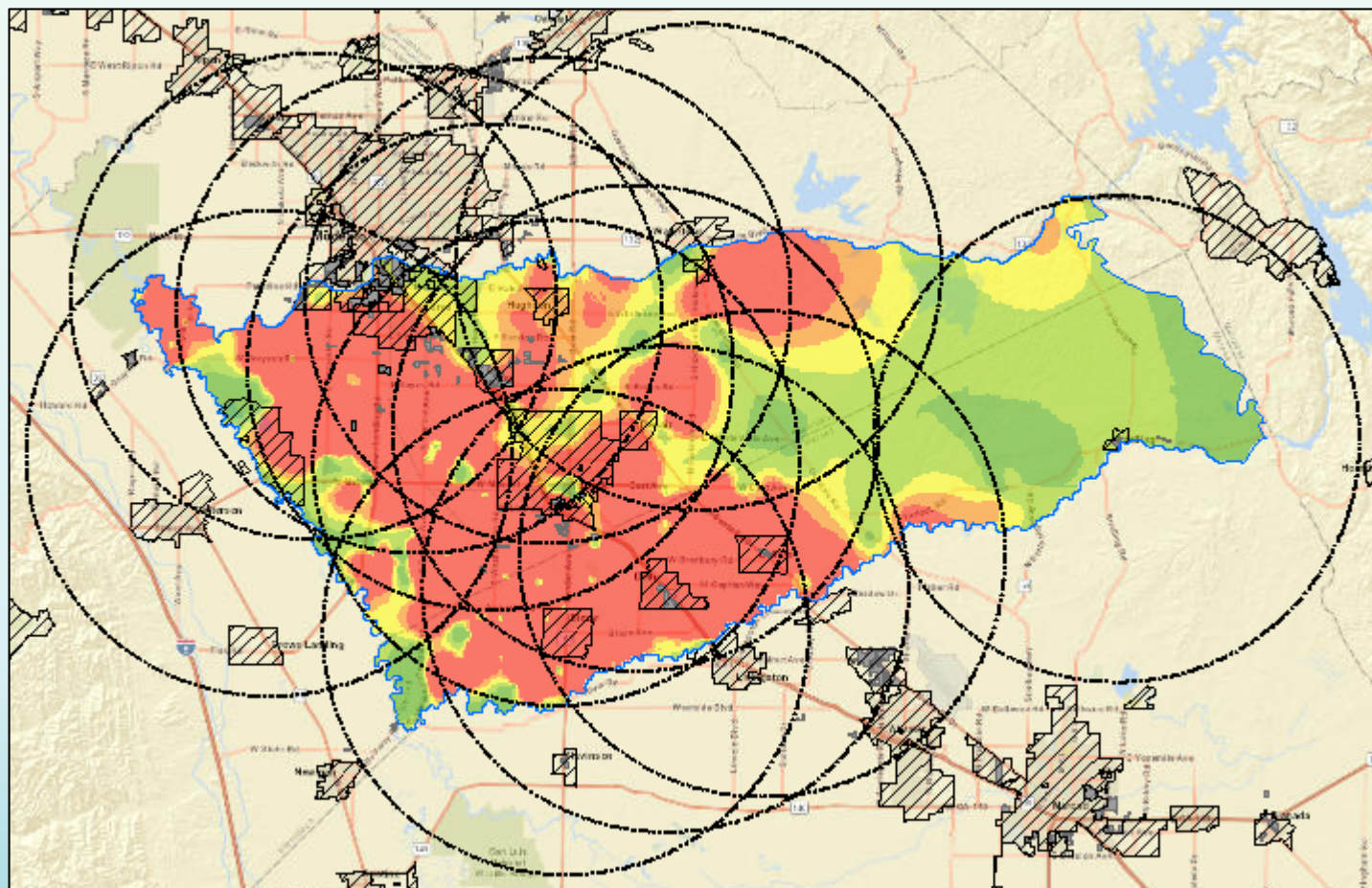
INTERSECTION OF PUBLIC WATER SUPPLY SERVICE AREAS, APPROXIMATE DOMESTIC WELL LOCATIONS AND MAPPED ELEVATED NITRATE IN UPPER ZONE DATASETS



5-MILE RADIUS AROUND DACS



10-MILE RADIUS AROUND DACS



Explanation

10-Mile radius
around select large
DACs

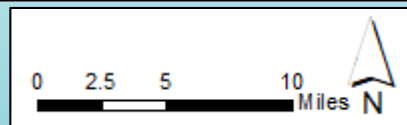
DWR DACs by 2016
CDP

Policy Link DUCs
2013

Upper Zone Ambient Nitrate (mg/L as N) (2000-2018)

<=2.5
2.6 - 5.0
5.1 - 7.5
7.5 - 10
>10

Turlock Subbasin
MZ

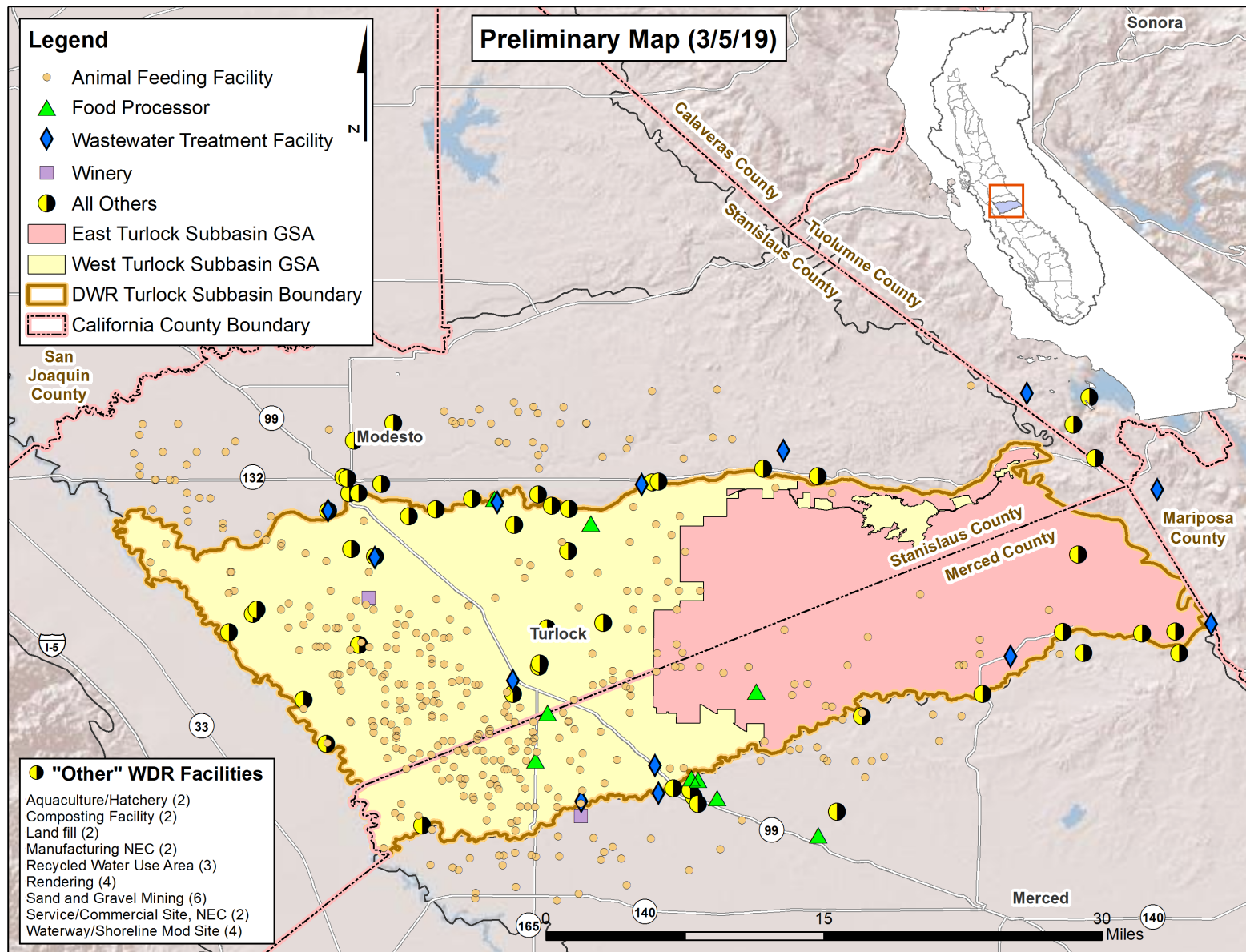




IDENTIFICATION OF PERMITTED DISCHARGERS

- Updated List
- Outreach Efforts
- Identification of Nitrate Management Practices

LOCATION OF OF KEY DISCHARGERS



PUBLIC EDUCATION & OUTREACH OPPORTUNITY

- Overview of Related PEOC Efforts
- Discuss Potential Outreach Materials for MZ





PROJECT SCHEDULE





NITRATE CONTROL PROGRAM SCHEDULE

2019	2020												2021												2022			
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
Management Zone Pilot Study Technical Assistance Grant Prepare Preliminary Management Zone (PMZP) Proposal with Early Action Plan (EAP)	270 days																											
	Submit PMZP with EAP w/i 270 days of Notice to Comply									Board Review																		
										No minimum deadline			180 days						Board Review									
													Submit FMZP w/i 180 days of receipt of Board comments						No minimum deadline			180 days						
																						Submit MZIP w/i 6 months of Board accepting FMZP						
										60 days																		
									Begin implementation of EAP w/i 60 days of submittal unless Board deems incomplete																			

- Assumption – Notice to comply received by January 1, 2020
- Board Review of Deliverables – No minimum deadline in regulation

FMZP = Final Management Zone Proposal;
MZIP = Management Zone Implementation Plan

MANAGEMENT ZONE (MZ) PROJECT SCHEDULE – PILOT STUDY VS. REGULATORY DELIVERABLES

2019	Pilot Study (Grant) Schedule	Regulatory Schedule
Feb	Steering Committee meetings; draft deliverables for review 	Not applicable until Basin Plan Amendment (BPA) approved
Mar		
Apr		
May		
June		
July	Submit Final Grant deliverables by end of August = Draft Preliminary Management Zone Proposal (PZMP)	
Aug		
Post- Aug 2019	 Develop PMZP Templates for future MZs based on work in two Pilot Study areas	Notice to Comply with Nitrate Control Program received after BPA effective date Continue work on PMZP, as needed  270 days to formally submit PMZP to Regional Board

Key Preliminary MZ Proposal (PMZP) Grant Deliverables

- MZ boundary
- Initial list of participants
- Initial assessment of groundwater conditions
- Current treatment and control efforts/mgmt. practices
- Initial identification of public water supplies or domestic wells with nitrate exceeding objective
- Early Action Plan



FINAL AGENDA ITEMS

FINAL AGENDA ITEMS

- Posting Pilot Study Materials
- Review of Action Items
- Schedule Future Meeting



Adjournment

OTHER AGENCIES IN TURLOCK SUBBASIN

