

SB X2 1

Nitrate in Groundwater

Report to the Legislature

TECHNICAL REPORT 4: GROUNDWATER QUALITY

SWRCB-RBs-CDPH Meeting

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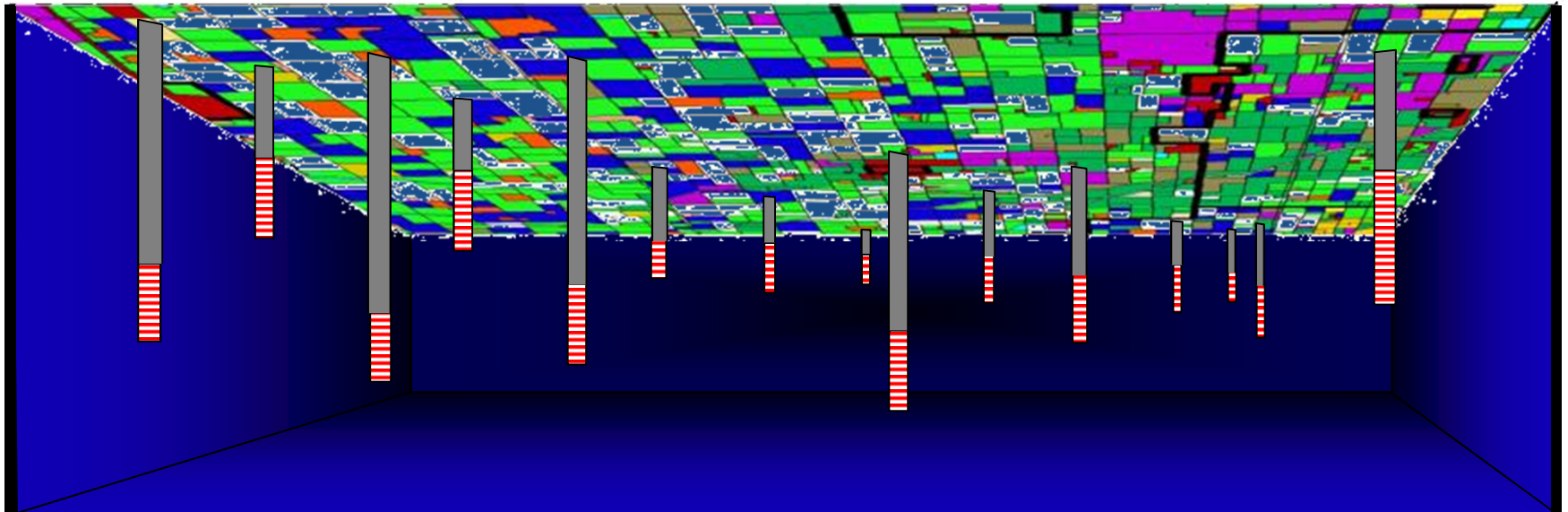


Key Questions to Address

“Who currently has a nitrate problem?”

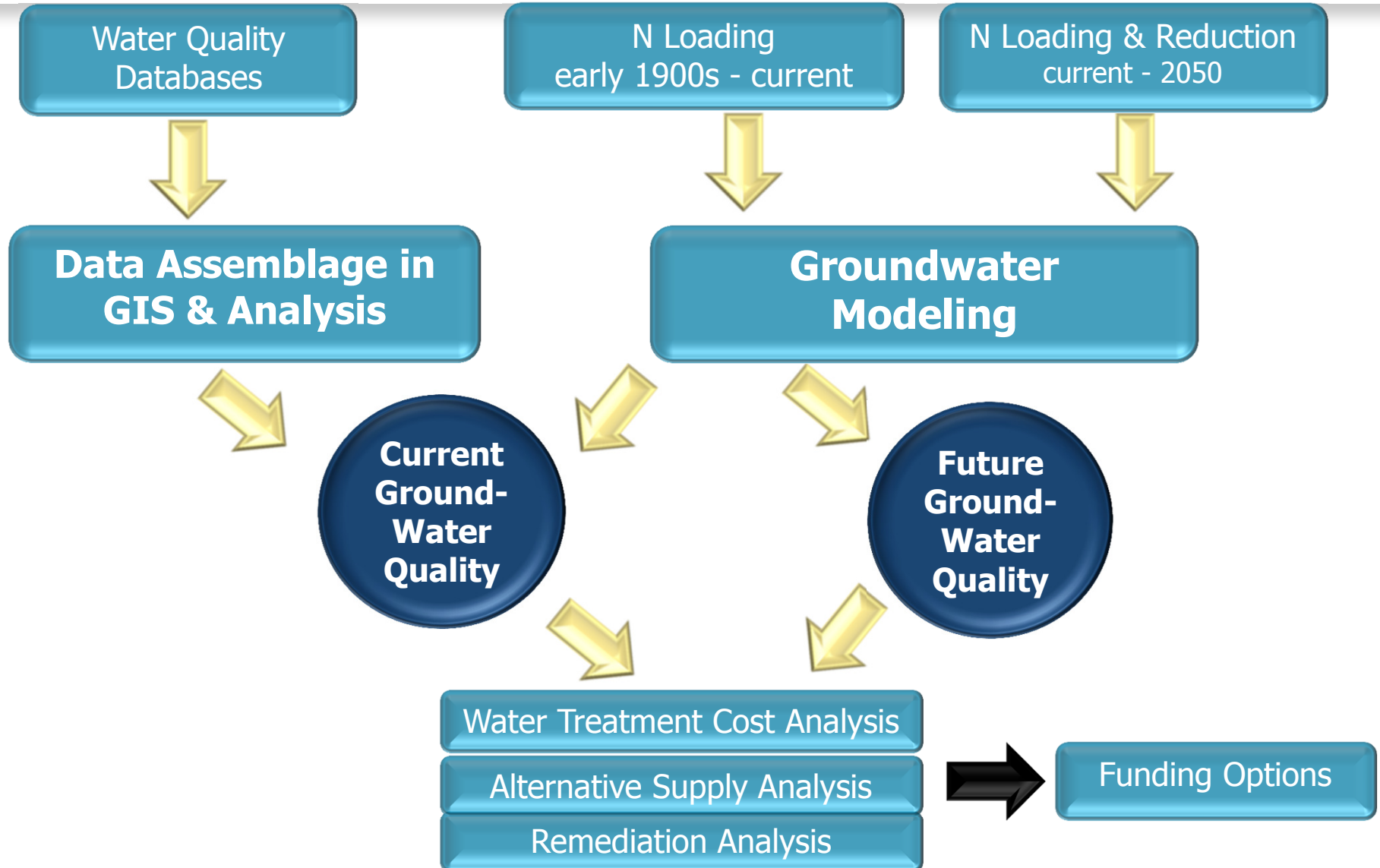
“Where else do we currently have nitrate problems, but don’t know about it?”

“What will the nitrate problem be in the future (2050)?”





Dual Approach

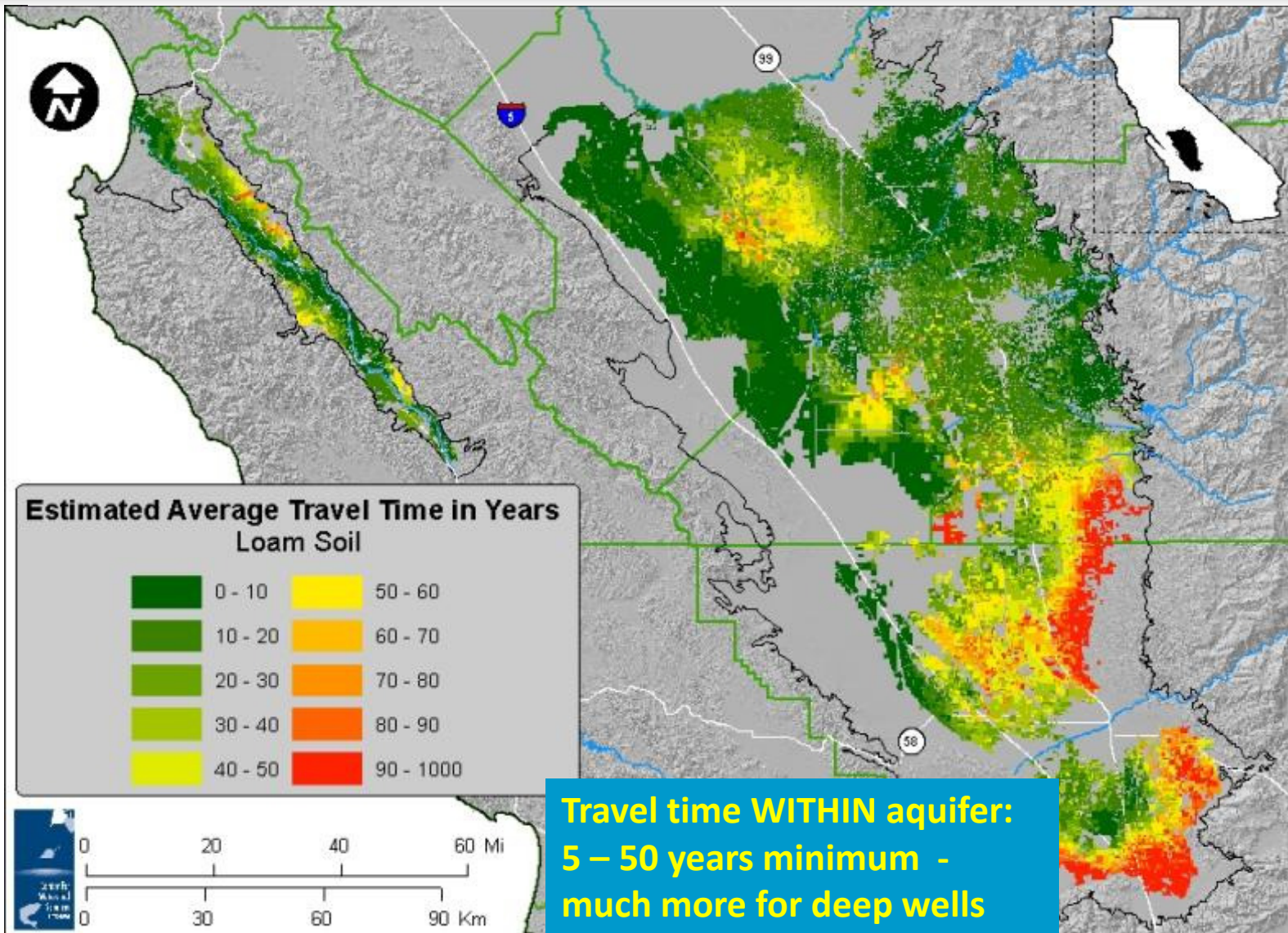




Nitrate Data: Distribution over Time, by Data Source

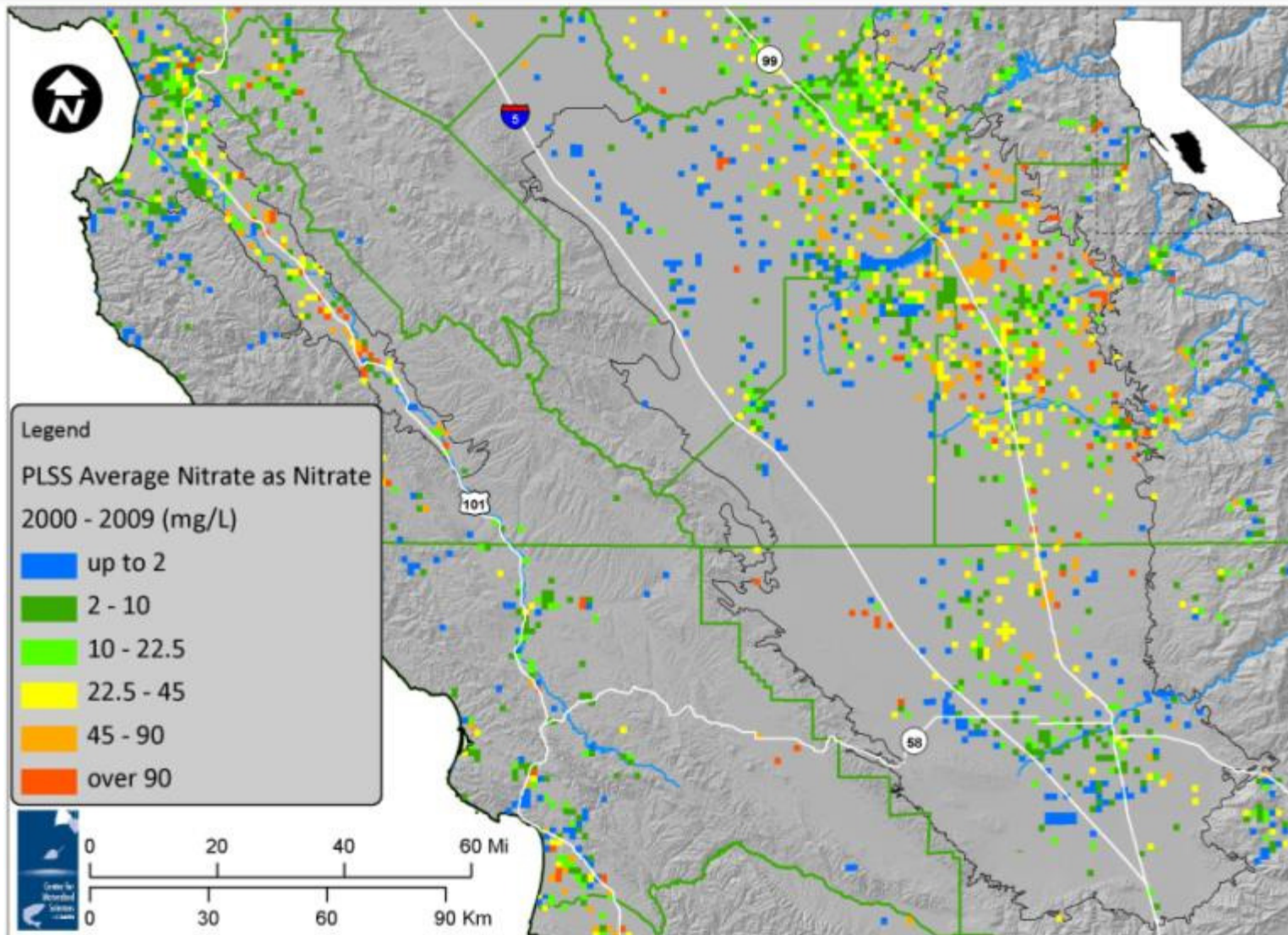
Key Data Source	# of Samples	# of Wells	pre-1950s	1950s	1960s	1970s	1980s	1990s	2000s	Region
California Department of Public Health	62,153	2,425			2	16	1,022	1,478	2,096	study area wide
RB5 Dairy Monitoring and Reporting Program	11,300	6,459							6,459	Tulare Lake Basin
EPA STORET data (non-overlapping locations)	4,946	2,883	70	1,056	1,249	978	235			study area wide
SWRCB Environmental Monitoring Data	2,601	537							537	study area wide
Department of Pesticide Regulations	814	71							71	Fresno and Tulare County
Department of Water Resources Bul. 130	505	256			96	135	80			Salinas Valley
SWRCB GAMA Tulare County domestic well tests	141	141							141	Tulare County
Westlands Water District	77	49	-						49	Westlands WD
Department of Water Resources	44	28							28	Westlands WD
Burow, 1998	36	19					17	19		Fresno County
USGS Priority Basin study	19	18	-						18	study area wide
Monterey County Health Department, paper records	5,674	452	2				302	409	427	Monterey County
Monterey County Health Department, electronic records	1,574	388							431	Monterey County
Monterey County WRA Reports, print only	1,001	234						247	101	Monterey County
Kern County water quality database	3,825	3,002	18	1,072	399	527	251	379	361	Kern County
Fresno County domestic well tests	369	369				2	2	14	351	Fresno County
Kings County	19	13					4	1	9	Kings County
Tulare County	17	4					2	3	4	Tulare County

Travel Time from the Crop Root Zone to the Water Table





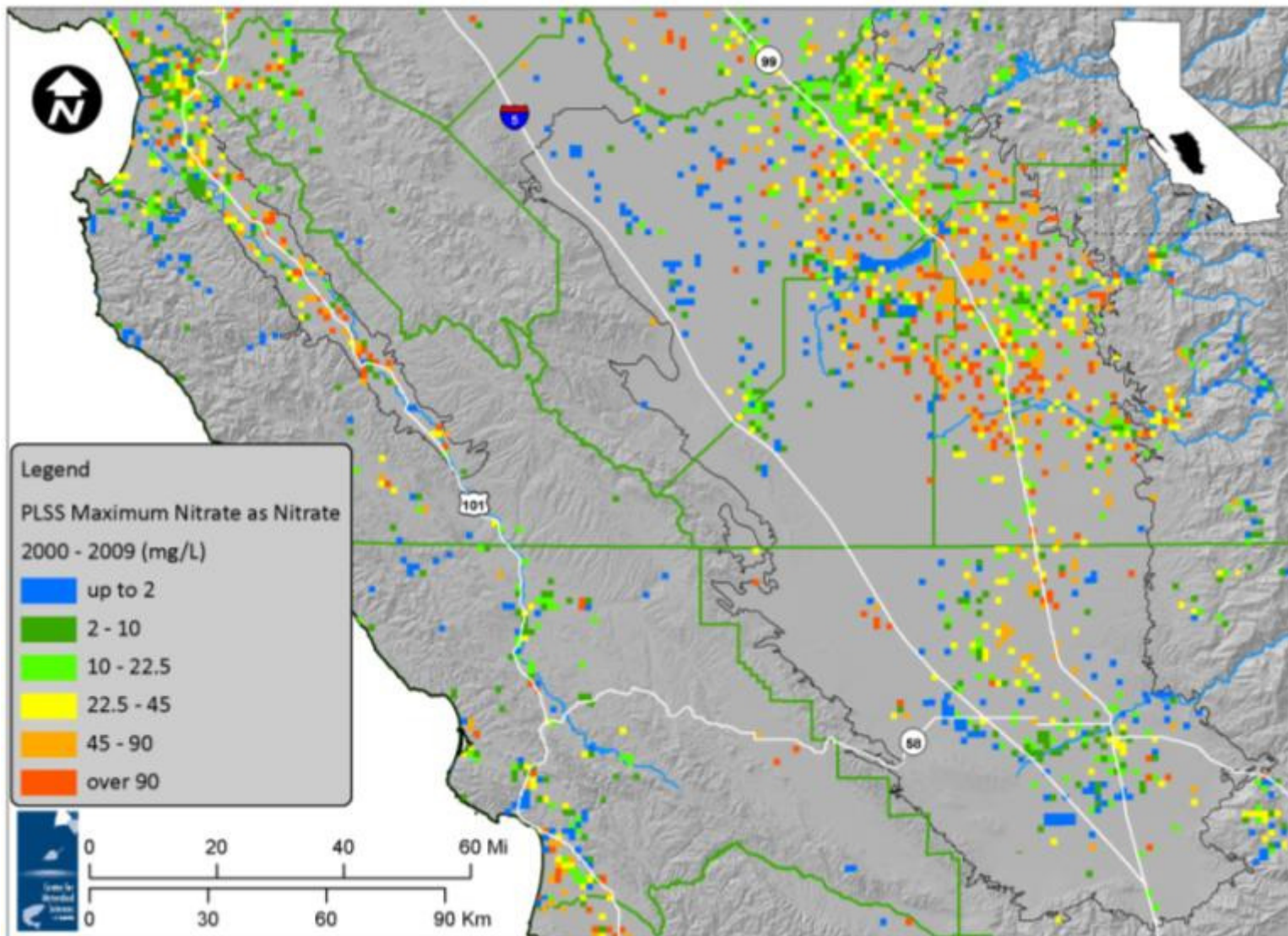
Average Nitrate Concentrations by PLSS section





CASTING:

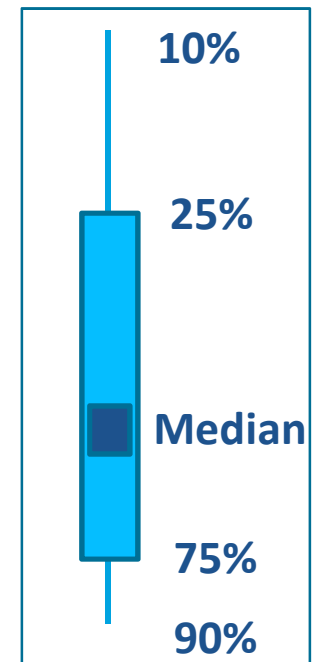
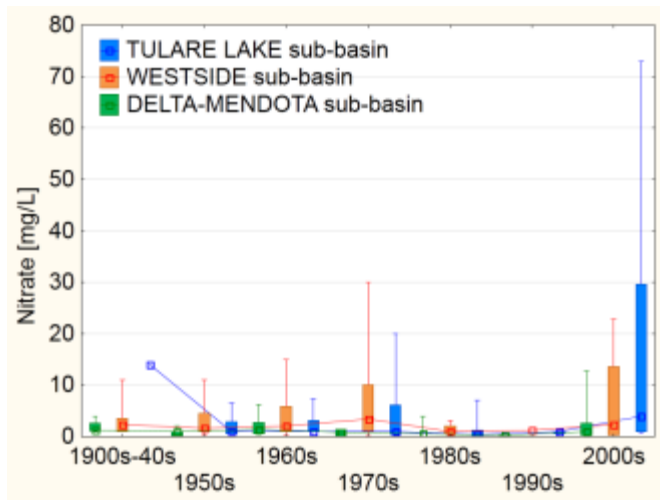
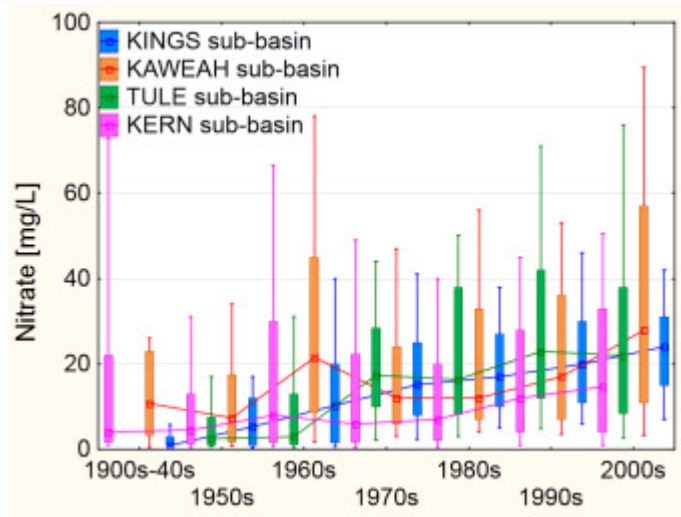
Maximum nitrate concentrations by PLSS section





Historic Nitrate Trends, TLB: Exceedance Rate

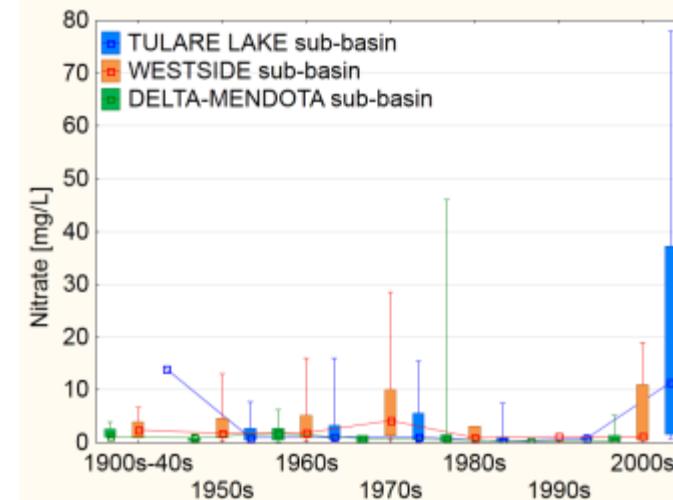
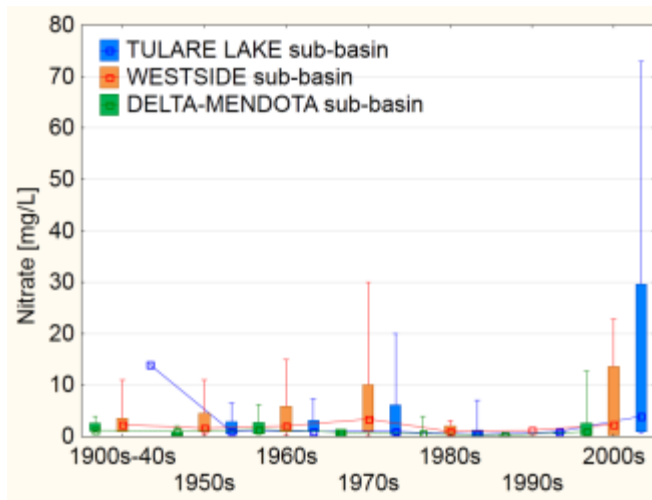
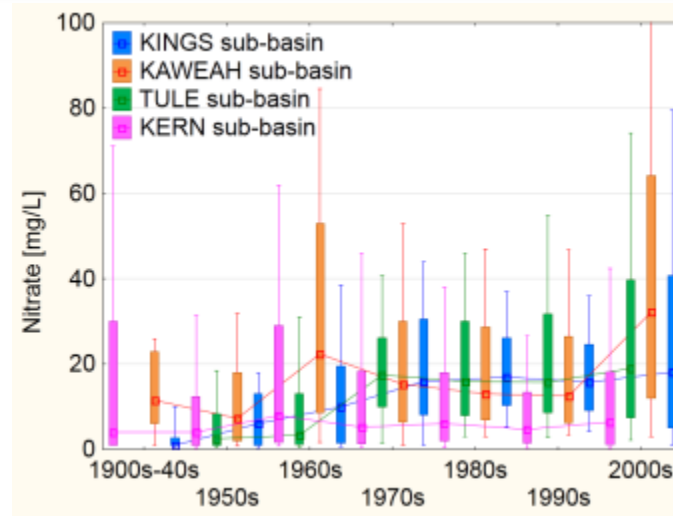
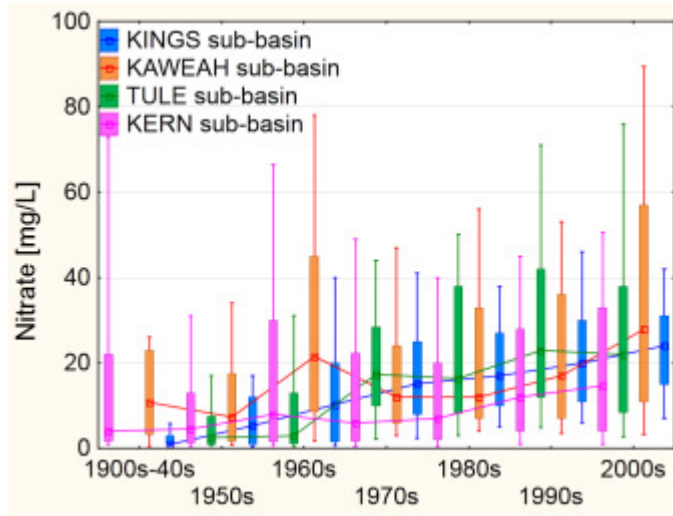
by
Sample
Record



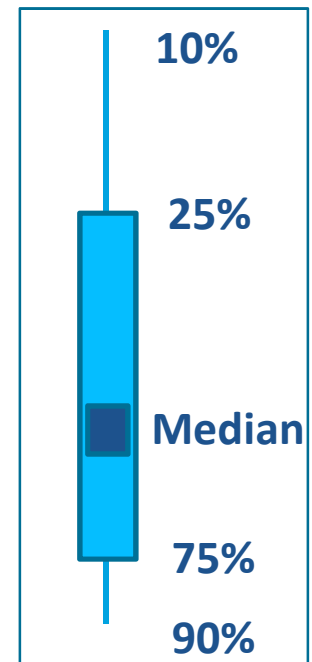


Historic Nitrate Trends, TLB: Exceedance Rate

by
Sample
Record

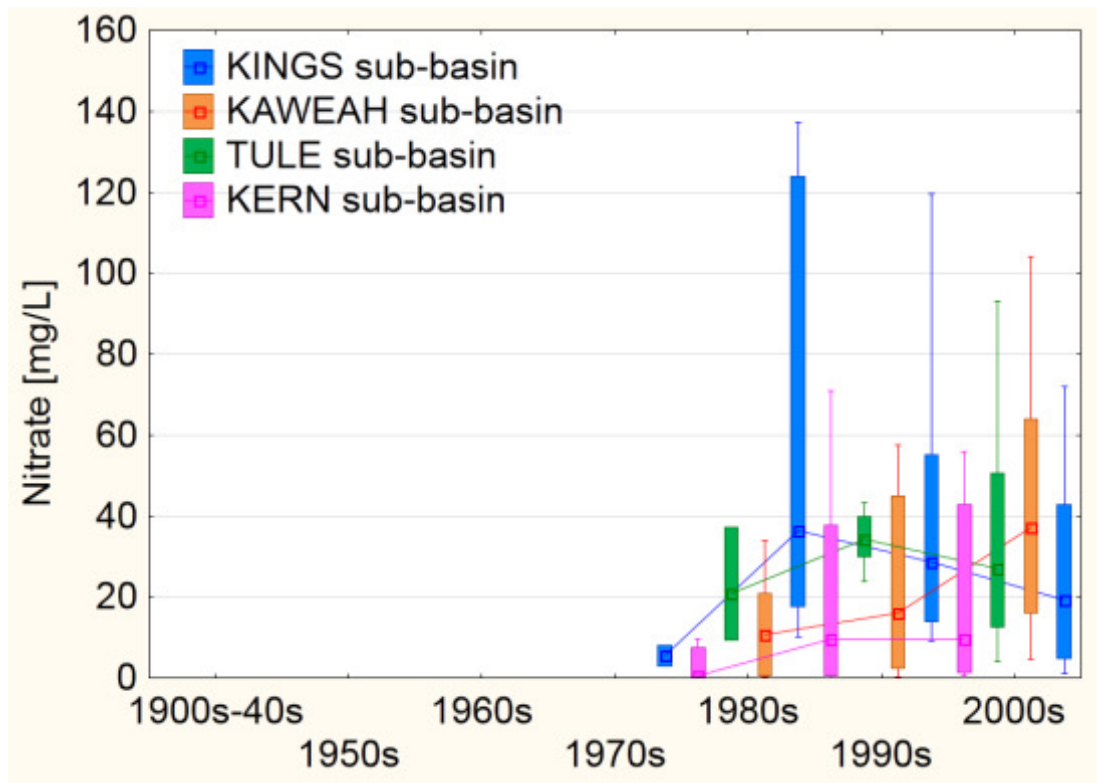


by
Well
(Average
within
Decade)

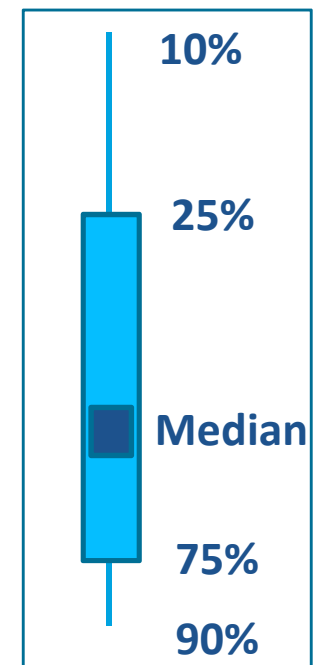




Historic Nitrate Trends, TLB: Low Production Wells Only

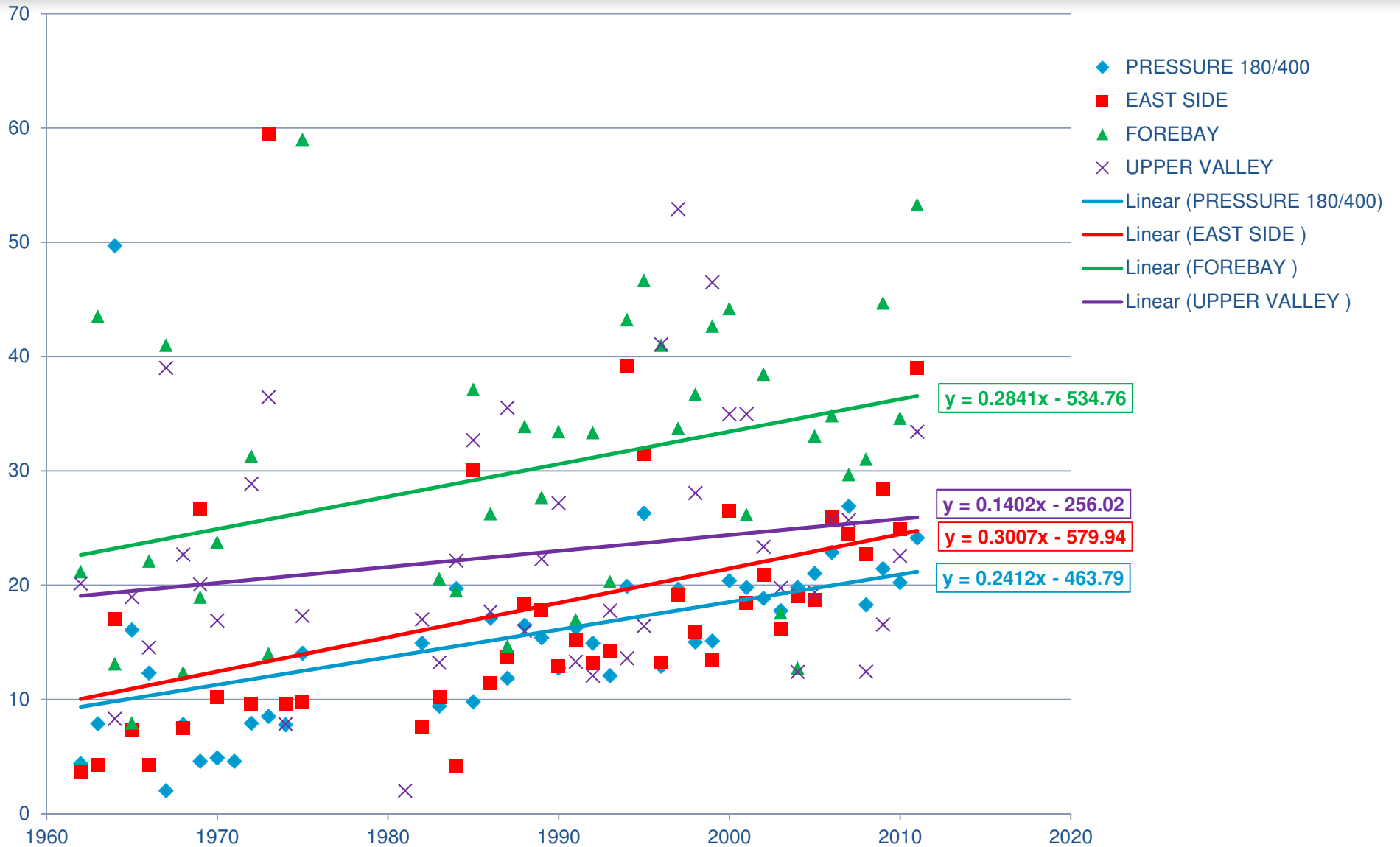


by
Well
(Average
within
Decade)





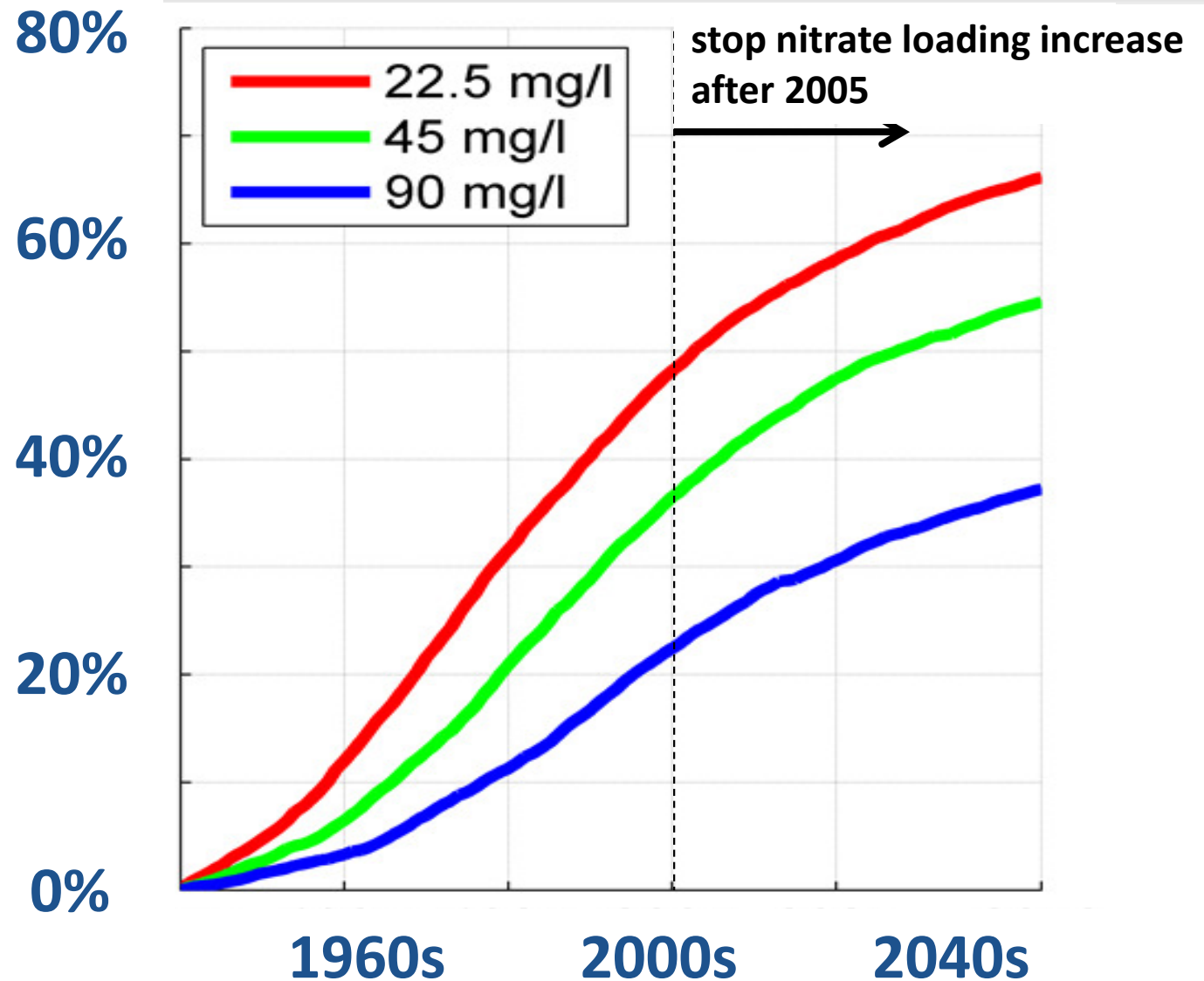
Average Annual Nitrate Concentration by Subarea (excluding environmental monitoring wells)





Recent Loading => Long-Term Increase

**Modeled
Exceedance
Probability**
(Approximate)





Key Findings

- Widespread nitrate contamination
- Eastern TLB and Salinas Valley most affected
- Lack of long-term, representative water quality datasets
- Steady long-term increases in nitrate in some, but not all areas
- Extensive area where at least some wells exceed MCL / high risk

Questions?

