

North Coast Regional Water Quality Control Board

TO: James Jasper, Sonoma County Water Agency, Chief Engineer and Director of Groundwater Management
 Marcus Trotta, Sonoma County Water Agency, Principle Hydrogeologist

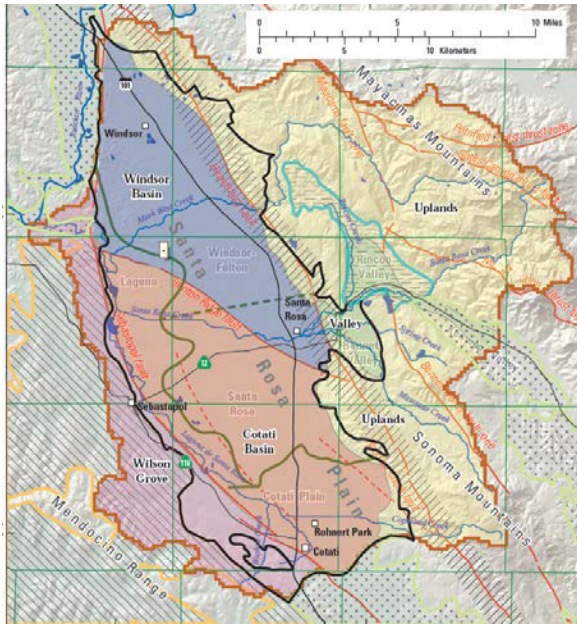
FROM: Jeremiah Puget, Senior Environmental Scientist, Groundwater Specialist
 Groundwater Protection and Point Source Control Division

DATE: September 09, 2017

SUBJECT: Groundwater Quality Trends in the Santa Rosa Plain Basin

This memo contains a summary and some trend analysis of groundwater data available from the US Geologic Survey (USGS) [Hydrologic and Geochemical Characterization of the Santa Rosa Plain Watershed](#) and the State Water Resources Control Board [Groundwater Ambient Monitoring and Assessment \(GAMA\) program](#).

Santa Rosa Plain Watershed



Maximum Nitrate Concentrations

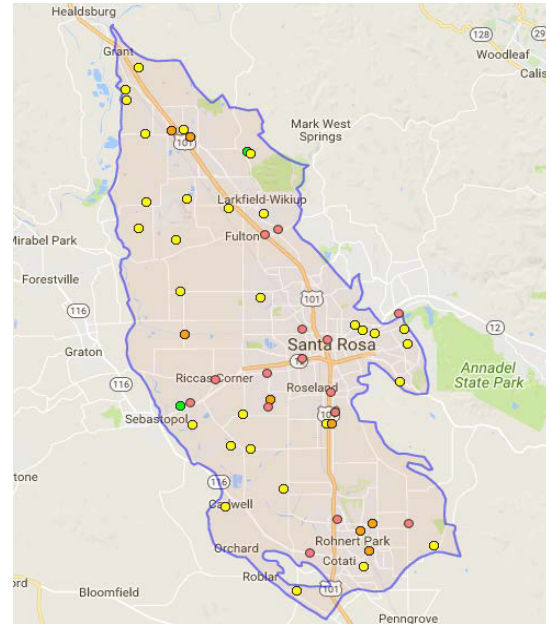


Figure 1. Above left shows the Santa Rosa Plain Watershed. Above right shows the maximum nitrate concentrations between 1947 and 2017.

Water Quality Objective / Maximum Contaminant Level = 10 mg/L

- Non detect
- Detection < half of MCL
- Detection > half of MCL
- Detection > MCL

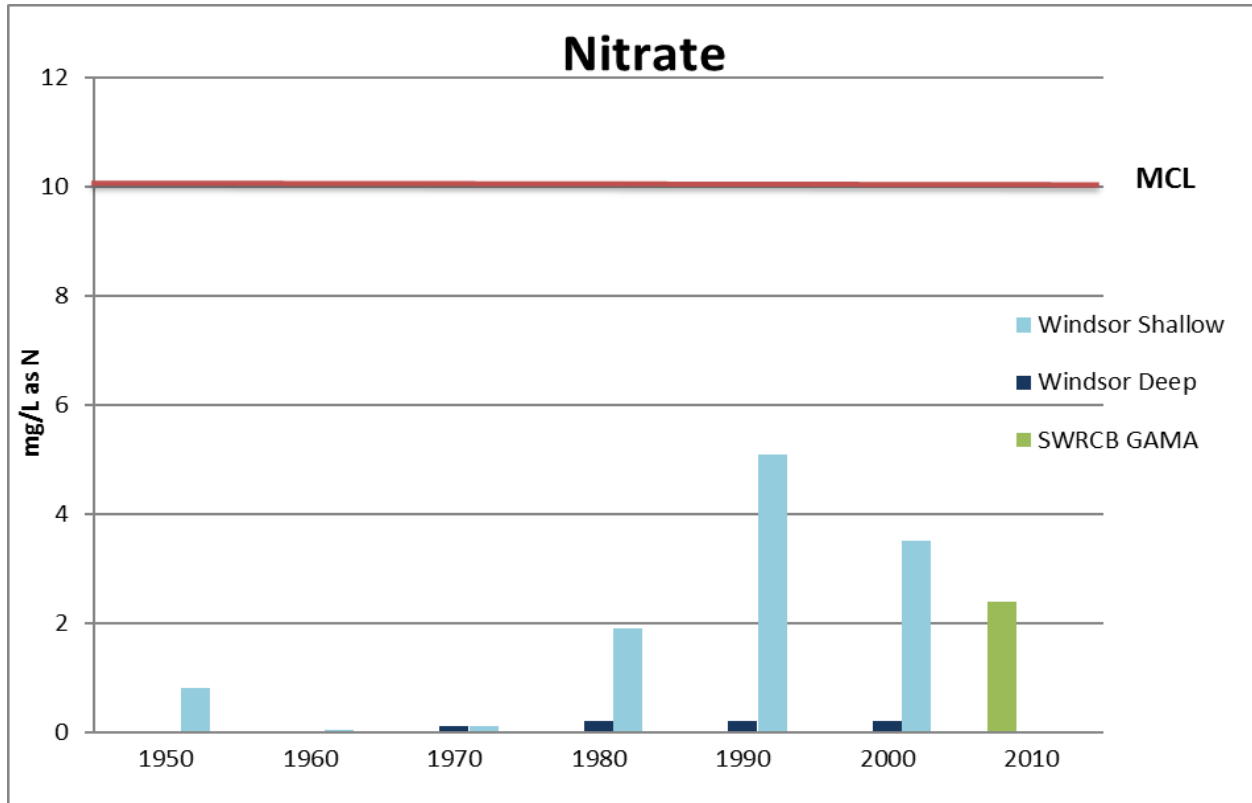


Figure 2. Shows average nitrate results in the Windsor Sub-Basin. Shallow data is <150' below surface grade (bsg). Deep data is >150' bsg Note: GAMA data in the 2010 decade has not been separated by depth.

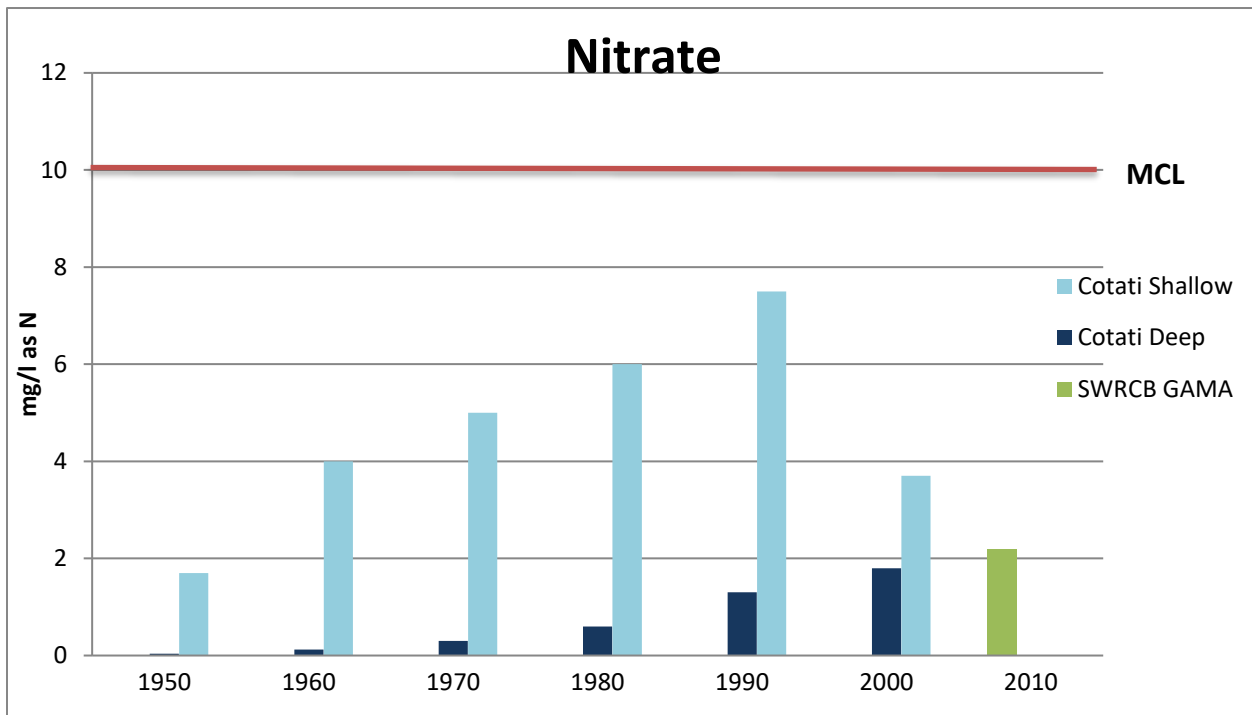


Figure 3. Shows average nitrate results in the Cotati Sub-Basin. Shallow data is <150' bsg. Deep data is >150' bsg. Note: GAMA data in the 2010 decade has not been separated by depth.

USGS Santa Rosa Plain Groundwater Study More Russian River = Reduced Pumping

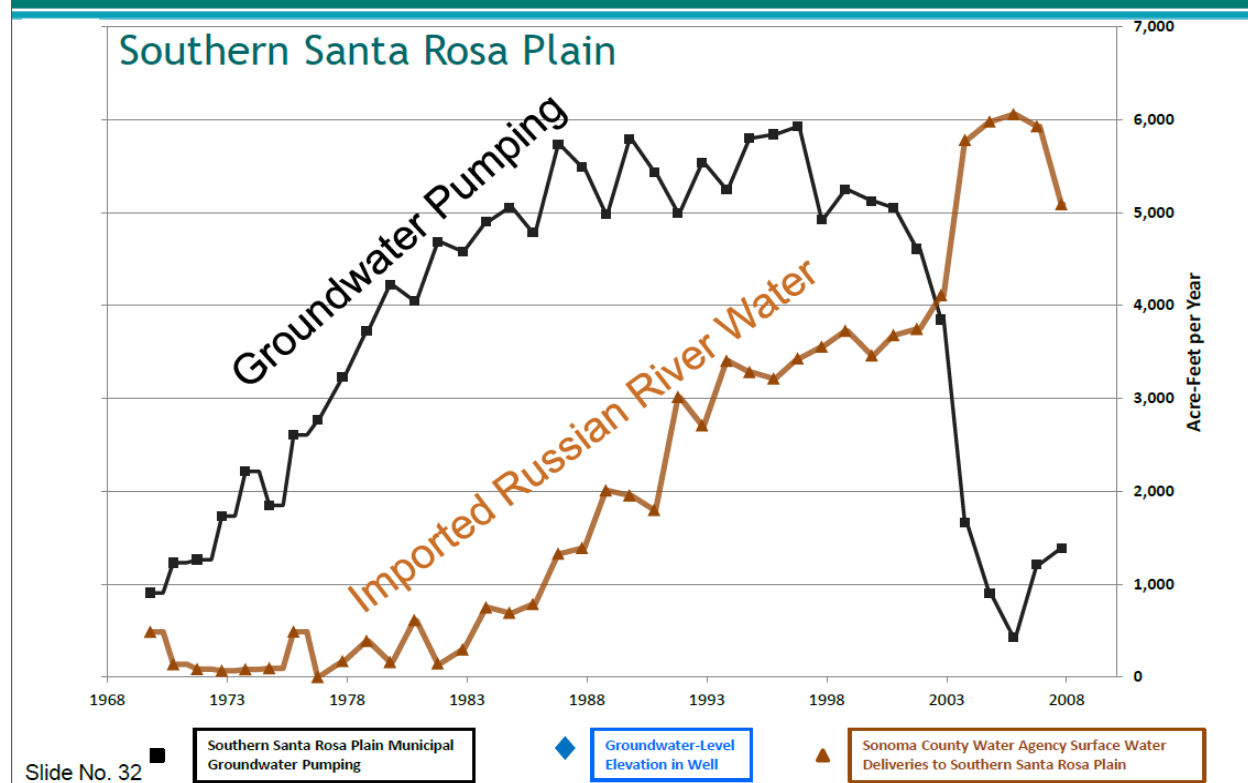


Figure 4. USGS and SCWA data on groundwater pumping and imported Russian River Water Supply in the Cotati Sub-Basin over time. Note: The nitrate concentrations in the shallow zone of the Cotati Sub-basin

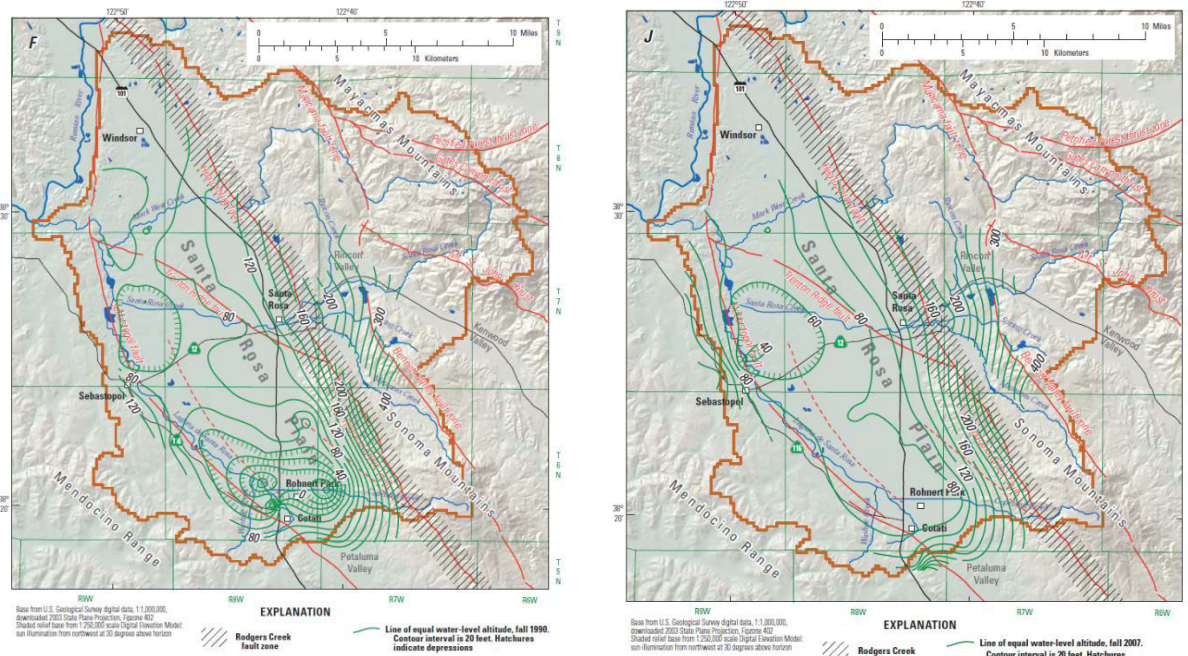
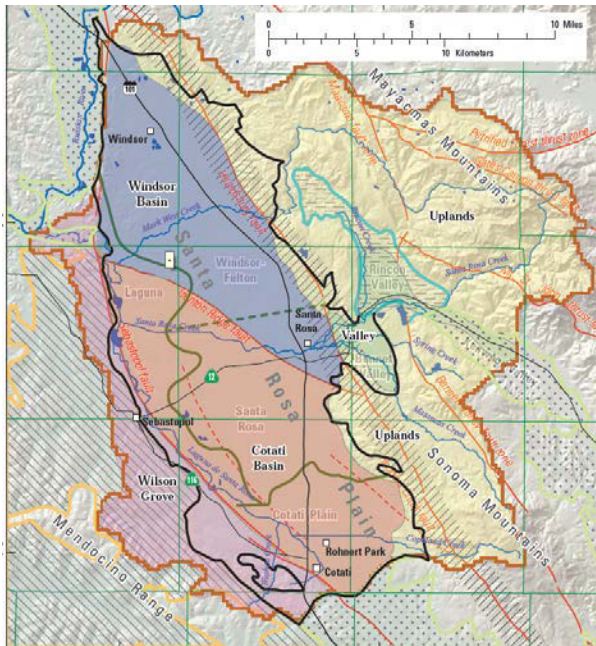


Figure 5. On the left depict groundwater elevations in the fall 1990. On the right depict groundwater elevations fall 2007. In the 1990s groundwater pumping led to a depression in Cotati Sub-Basin.

Santa Rosa Plain Watershed



Maximum TDS Concentrations

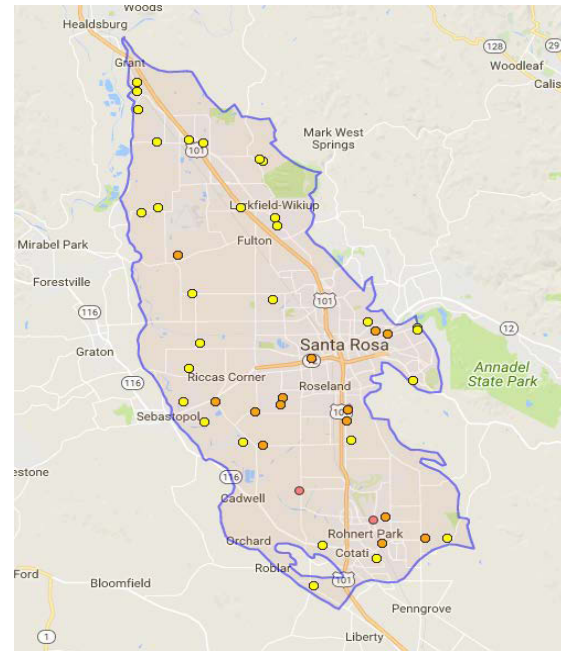


Figure 6. The images above on the left show maximum TDS concentrations between 1947 and 2017. The image on the right shows the Santa Rosa Plain Watershed.

Water Quality Objectives / Secondary Maximum Contaminant Level = 500 mg/L & Agricultural Water Quality Goal = 450 mg/L

- Detection >100 < 500 mg/L
- Detection > 500 <1,000 mg/L
- Detection > 1,000 mg/L

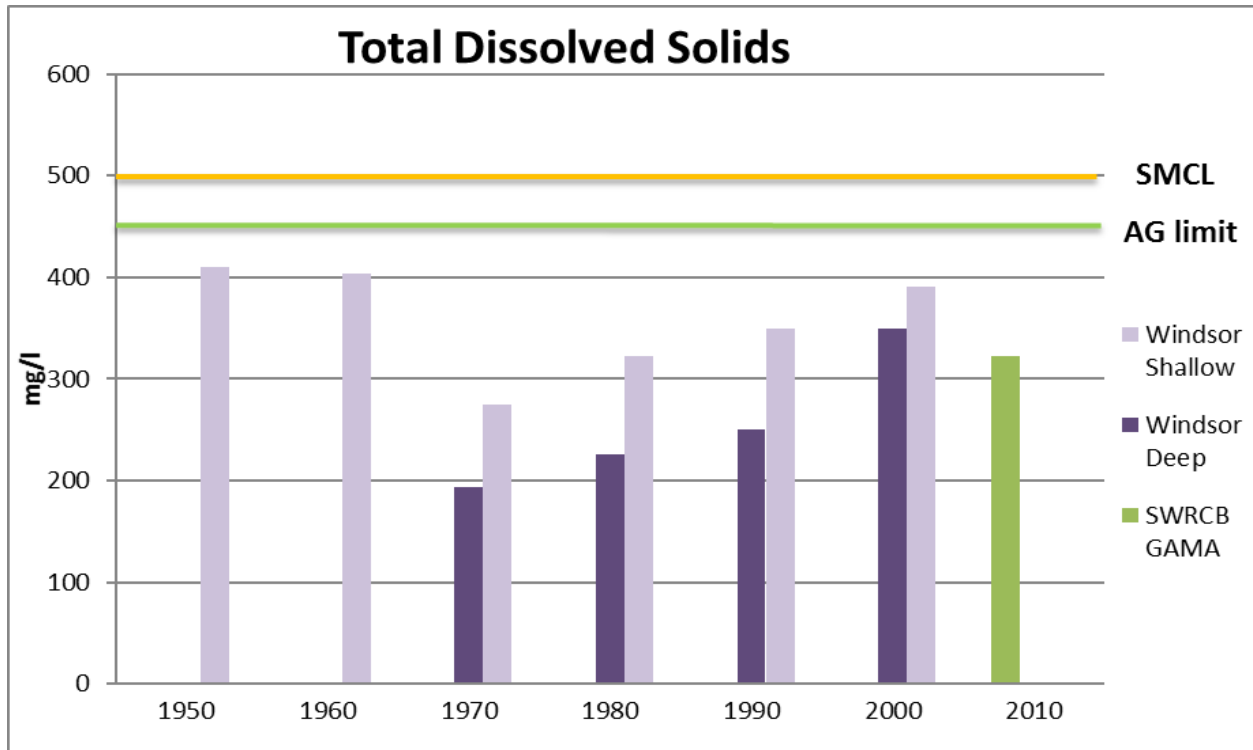


Figure 6. Shows average TDS results in the Windsor Sub-Basin. Shallow data is <150' bsg. Deep data is >150' bsg. Note: GAMA data in the 2010 decade has not been separated by depth.

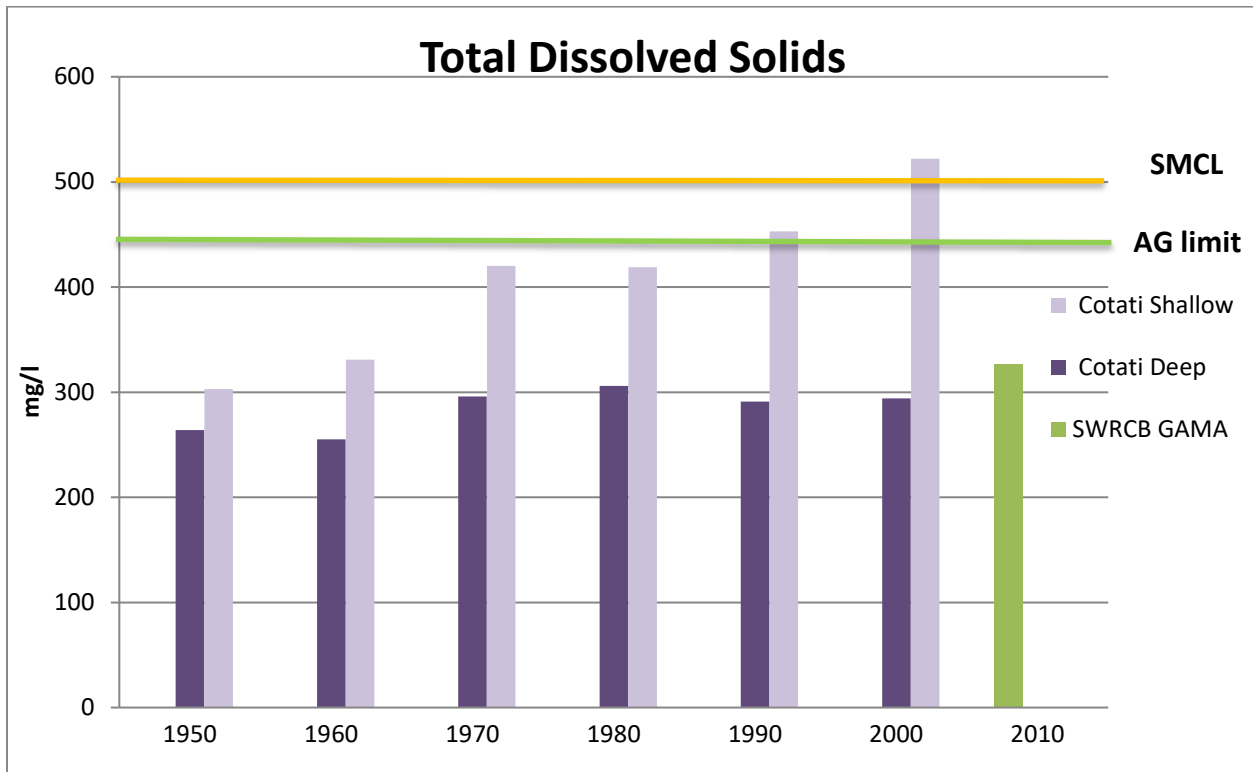


Figure 7. Shows average TDS results in the Cotati Sub-Basin. Shallow data is <150' bsg. Deep data is >150' bsg. Note: GAMA data in the 2010 decade has not been separated by depth.