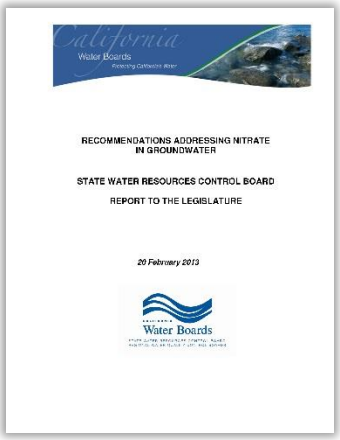
Turlock Basin Study and Salinity Management Strategies



EKI prepared a regional-scale study evaluating salinity sources and potential salinity management strategies in the Central Valley's Turlock Groundwater Sub-basin. EKI worked closely with the Turlock Irrigation District to identify key data, issues, and questions prior to publishing the study. Information was compiled from publicly-available sources including agricultural and municipal pumping records, imported surface water records, land use maps, water quality data, and dairy, municipal, and food processing operational and waste management practices.

EKI estimated salt quantities contributed to surface water and to groundwater by each identified source. EKI then compared the predicted rate of increase of groundwater salinity with the observed rate of increase. The salt balance indicated that salt is accumulating in the saturated zone at a rate of about 57,000 tons per year. EKI modeled total dissolved solids (TDS) concentration trends in the Turlock Subbasin groundwater using a "complete-mix system" model that allows a broad understanding of the potential effect of continued salt addition on groundwater quality without a complicated modeling effort.

EKI found that it was not necessary to determine salt loads exactly to understand the relative magnitude of individual source contributions, offering a lower cost and more-rapid identification of salt management strategies compared with complex, long-term modeling efforts. EKI put forward this mass balance approach as a cost-effective, understandable, and transparent method to identify what the California Department of Water Resources describes as "salt management's low hanging fruit." The goal is to facilitate coordination among stakeholders and identifying productive avenues for policy development, without the need for complex basin-wide groundwater flow and solute transport modeling.

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