

Draft Concept Proposal for an Assessment of Water Quality Threats to the Long-term Sustainability of the North Sacramento County Groundwater Basin

The Sacramento Groundwater Authority (SGA) will submit a grant application to the California Department of Water Resources for funding of an assessment of water quality risks to long-term groundwater sustainability in northern Sacramento County to be completed as part of SGA's groundwater management program. SGA is a joint powers authority created by the cities of Citrus Heights, Folsom, and Sacramento, and Sacramento County to collectively manage the groundwater basin underlying Sacramento County north of the American River. The public is invited to contact Rob Swartz at (916) 967-7692 or rswartz@rwah2o.org for more information.

Problem Statement

In April 2000, a broad representation of stakeholders signed the historic Sacramento Water Forum Agreement. The Agreement ensures a reliable water supply for the region through the year 2030, while providing significant protections of the lower American River. To implement the Agreement, diversions from the American River during dry or environmentally sensitive times must be reduced along with an increased reliance on groundwater supplies during those periods. Unfortunately, significant groundwater contamination has come to light since the Agreement was signed that may substantially threaten the region's ability to implement the terms of the Agreement. These threats come in the form of known regional contaminant plumes, releases of contaminants from local businesses or residences, and future threats from contaminants not currently monitored or whose regulatory standards may become more stringent.

Study Purpose

To conduct an assessment of the potential impacts of water quality threats on the region's ability to maintain a sustainable groundwater supply and implement the Sacramento Water Forum Agreement.

Study Goals and Objectives

- Significantly increase our level of understanding of the threats to sustainable high quality groundwater in the SGA area.
- Identify through the use of a recently enhanced integrated groundwater and surface water model (IGSM) application the potential extents of regional contamination plumes as they travel in groundwater under future conditions.
- Identify and evaluate the potentially impacted facilities/infrastructure resulting from the possible future extents of contaminant plumes or from lowered water quality standards for various contaminants of concern in the region.
- Understand how the potentially impacted facilities/infrastructure affects the ability of the region to maintain a sustainable water supply during dry periods.
- Provide a tool for the region's water managers to evaluate and prioritize water quality threats and to develop near-and long-term plans for a sustainable groundwater supply.

Study Approach

- Assemble a comprehensive dataset of known or potential contamination threats in the SGA area into a common geographical information system (GIS) platform.
- Use GIS technology to analyze and identify where the most significant water quality threats coincide with areas most reliant on groundwater for supply.
- Use the recently updated regional groundwater flow model to run scenarios for projecting 5, 10, 15, 20, 25, 50, and 100 years into the future using demands forecast for the year 2030. This will estimate a range of regional extents of the known contaminant plumes assuming advective flow with the regional aquifer system.
- Use the GIS analysis and model results to identify which facilities could be impacted at various future time steps and to recommend monitoring activities for the advanced detection of contamination.
- Assess the potential loss of storage volume within the groundwater basin to determine our ability to ensure a sustainable supply through dry and multiple-dry years.
- Identify and analyze the potential local impacts (water supply, environment, economic, etc.) from the possible loss of use of impacted facilities and aquifer storage.
- Identify broader potential impacts to the region, the Delta, and the state water supply resulting from the loss of water supply facilities associated with these contaminants.