



# Cleaner Water Through Collaboration and Research

## OVERVIEW

Nitrates are common chemicals used in agriculture that can easily contaminate groundwater that rural communities depend on to drink and water their crops. In response, the California legislature directed the state Water Resources Control Board to prepare a report on the scope, sources, impacts, and future of the potential problem, and to identify policy and management responses. In 2010, the Water Board turned to expertise at UC Davis to conduct an independent \$1.7 million study in two particularly vulnerable pilot regions, the Tulare Lake Basin and Salinas Valley.

These regions include four of the top five counties in the U.S. for agricultural production, almost 40 percent of California’s irrigated cropland, and over half of the state’s animal farming industry. One in ten people living in California’s most productive agricultural areas were found to be at risk of exposure to harmful levels of nitrate in drinking water, including some of the poorest communities in California.

## THE RESEARCH

“Cleaning up nitrate in groundwater is a complex problem with no single solution,” said Jay Lund, director of the UC Davis Center for Watershed Sciences and co-author of the report. Indeed, the research involved an interdisciplinary team of researchers, spanning hydrology, engineering, soil science, economics, and informatics. Preparation for the report to the Water Resources Control Board spanned 20 months.

“California groundwater quality is a significant concern to the Water Boards, and this comprehensive report presents current science and potential solutions on how to deal with this chronic and longstanding issue,” said State Water Board executive director Thomas Howard.

## THE POLICY IMPACT

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The governor’s administration formed several high-level policy and technical advisory committees to follow up on the study recommendations, including significant interaction between study participants and the advisory committees. State and regional agencies continue to explore regulatory measures to address the scope of the issues and solutions outlined in the UC Davis report.

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### LESSONS LEARNED

Engaging in policy requires extensive outreach and communication, with numerous public presentations, uncommon of a typical academic project. It also requires a team effort. The UC Davis Center for Watershed Sciences, in close collaboration with UC Division of Agriculture and Natural Resources, UC Davis News Service, UC Davis College of Agricultural and Environmental Sciences, and the State Water Board, had extensive and frequent outreach presentations, meetings, and briefings throughout the course of the study, an intensive briefing series in preparation of the study release, and outreach, consultation, and follow-up meetings for over a year following the study release. This included scientific and technical meetings and a wide range of stakeholder meetings– briefings with the governor’s administration at the secretarial level, with state agency personnel, with major statewide stakeholder representatives, and in the local basins, including major local agricultural stakeholder groups. Advance notice and engagement of stakeholders is important so that they do not feel blindsided. Industry organizations are critical stakeholders.

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The issues were inherently complex and challenging – finding the balance between agriculture, environment, economic and community concerns – but the study definitively changed the substance of discussions on safe drinking water in rural communities toward the science – despite political indecision on how to respond.

The study demonstrated that UC Davis and the UC system have all the components needed for such a major interdisciplinary science and policy project.

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