

Farmers Experience Unequal Impacts of State-Level Water-Conservation Efforts

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Key Facts

Since its enactment in 2014, the California Sustainable Groundwater Management Act (SGMA) has contributed to a system of “big winners and big losers” among farmers in the Tulare Lake Basin.

Farmers adopt three divergent strategies in response to SGMA: *nimblity*, *abandonment* and *policy engagement*.

Policymakers should seek to understand these strategies in their efforts to minimize the pressures placed on farmers by state-level water-conservation efforts.

*During periods of drought, water-conservation efforts and water-supply management can have significant impacts on agricultural livelihoods. In a recent study¹ of farmers in California’s Central San Joaquin Valley, we sought to understand how and why farmers facing significant water shortages make livelihood decisions, and how such decisions are affected by broader socio-political contexts. We found that government public-policy intervention has created a system of “big winners and big losers,” leading farmers to adopt three divergent strategies: *nimblity*, *abandonment*, and *policy engagement*. Policymakers should seek to understand these strategies in their efforts to minimize the pressures placed on farmers by state-level water-conservation efforts.*

Background

In September 2014, following significant periods of ongoing extreme drought, the California Sustainable Groundwater Management Act (SGMA) was signed into California state law by Governor Jerry Brown. This landmark water-management policy was enacted to stop the overdraft of groundwater basins statewide and bring these regions into balanced levels of pumping and recharge. Citing climate change and the threat of prolonged drought to the state, SGMA established a new framework for how groundwater would be managed locally and required existing local governmental agencies to form Groundwater Sustainability Agencies (GSAs) in over-drafted basins. Across 140 groundwater basins in California, 260 GSAs were charged with designing and implementing Groundwater Sustainability Plans that would achieve long-term sustainable management of groundwater basins by balancing water outflows and inflows, determining “water budgets” and water allocation in groundwater basins, and protecting or restoring groundwater quality and quantity throughout SGMA’s reach.

During these periods of drought, an overreliance on groundwater has made the Tulare Lake Basin in the Central San Joaquin Valley one of California’s most critically over-drafted groundwater basins.² The basin is one of the most productive agricultural regions in the world, with over 20,000 km² of irrigated farmland which yielded a total value in agricultural products of over \$113 billion in 2022 alone.³ Groundwater overdraft has led to long-term declines in groundwater levels and has impacted the water table of the region resulting in the drying out of irrigation wells.

Periods of historic drought have resulted in the enactment of new governance structures in the region, placing farmer decision-making within the narrow bounds

of SGMA. In our study, we sought to include farmer voices and identify broader systems that influence farmer’s livelihood choices when facing resource scarcity. We sought answers to the following questions: what are the livelihood strategies and land use decision-making strategies of local farmers and how have those farmers been impacted by the implementation of SGMA? How are farmers responding to living in areas where scarce water resources have generated policies that may create further restraints?

Exploring SGMA’s impact on Tulare Lake Basin farmers

We collected data for our study during 36 months of ethnographic fieldwork conducted in the Tulare Lake Basin between 2018 and 2022. We undertook formal interviews with 48 farmers while also carrying out ethnographic fieldwork in the region more informally. This included participating in policy meetings, community engagements and activities, and visiting farms. To capture how farmers built livelihood strategies in the face of changing policy and environment conditions, as well as to understand how farmers were adapting to changing environmental conditions, we deployed a comparative multi-case analysis approach, treating each farmer as an individual “case.” Data underwent three stages of analysis, moving progressively from descriptions to themes to assertions.⁴

Farmers adopted three strategies to manage SGMA conditions

We found that farmers adopted one or more of three strategies: *nimblity*, *abandonment*, and *policy engagement*. *Nimblity* refers to diversifying and switching crops to survive. Since the advent of SGMA regulations, crop

1. Visser, M.A., Kumetat, G., Scott, G., 2024. Drought, water management, and agricultural livelihoods: Understanding human-ecological system management and livelihood strategies of farmers in rural California. *Journal of Rural Studies*. Volume 109, 103339, ISSN 0743-0167. <https://doi.org/10.1016/j.jrurstud.2024.103339>
2. *Tulare County Conditions*. (n.d.). NIDIS Drought.Gov. <https://www.drought.gov/states/california/county/Tulare>
3. California Agricultural Statistics Review 2022-2023. 2023. California

Department of Food & Agriculture. https://www.cdfa.ca.gov/Statistics/PDFs/2022-2023_california_agricultural_statistics_review.pdf
4. Creswell, J.W., 1998. *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. Sage Publications.
5. Press Release: State Invites Applications For Projects to Permanently Conserve Agricultural Land, Reduce Emissions – Strategic Growth Council. (2023, April 26). California Strategic Growth Council. <https://sgc.ca.gov/news/2023/04-26.html>

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rotations, land use, and resource-management decisions have become less about keeping land productive and more about reducing groundwater overdraft to comply with groundwater sustainability plans. We found that farmers adopting a nimblity approach moved to three primary crop switching strategies: fallow fields, switching to less-water-intensive/lower-revenue-generating crops, and installing solar panels on previously productive lands.

Abandonment refers to selling off and moving out of California agriculture. Some farmers noted that the implementation of SGMA has created a variety of new options for farming in the region, including the option to sell land to developers, major investment companies, government entities, and nonprofits. For some, this has resulted in pursuing a strategy of leaving California agriculture altogether. The advent of water rights and water markets under SGMA may have induced larger farmers to buy up smaller farms either in land acreage or in water rights. Farmers holding land that only has access to groundwater may have more difficulty selling, however. This has contributed, in the words of one of the farmers we interviewed, to “a universe in California agriculture of big winners and big losers.”



Policy engagement refers to taking advantage of new SGMA-created opportunities for farmers to become engaged in policy discussions and arenas, as well as in water-governance structures themselves throughout the state. Over 2/3 of the farmers in our study were active in policy discussions, debates, and governance boards surrounding water allocation in the Tulare Lake Basin in one form or another. For many, engagement was underscored by both a rational self-interest as well as a deep genuine concern for the water supply and quality of water in their local communities. These farmers regularly attended meetings of irrigation districts, water districts, and public hearings surrounding water issues at the local, county, and state levels.

Focus on specific local conditions to ease pressures of SGMA

Our analysis shows how the intersections of human and natural systems and resources influence—and by extension are influenced by—livelihood strategies adopted by farmers in the Tulare Lake Basin. Policymakers should

consider whether SGMA can ensure an equitable system of resource management and economic development in this region in the long term. Our findings underscore a need to better understand region-specific policies and strategies related to water-supply management that are developed in response to macro-level policy decisions. More specifically, our findings highlight the need to identify specific local conditions that may help buffer or further hinder agricultural producers under SGMA.

One promising policy directive is the Sustainable Agricultural Land Conservation Program, which uses state proceeds from cap-and-trade to “protect critical agricultural lands that are at risk of conversion to more energy intensive uses by allocating grants focused on three areas.” These include efforts to shift policy and economic strategies that target the development of agricultural land types as well as those that focus on acquiring and permanently protecting the land from development. Currently, the program has 168 acquisition projects (covering 194,000 acres in total) and has awarded over \$373 million in funds looking at conserving agricultural land in the state of California.⁵ While the impact of this program has yet to be evaluated, the potential to support sustainable crop switching and

land following suggests that this may be an avenue through which to ease pressures of the kind prompting farmers—particularly smaller farmers—to abandon California agriculture altogether.

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