



California Agriculture Regulatory Update:

Water Supply, Nitrate and Salinity



August 2023

PREPARED BY:



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Introduction

California agriculture continues to face regulations on water quality and quantity, and potentially on water rights. Growers, collectively represented by third parties, respond to expanded monitoring, reporting, and management requirements. This update focuses on activities between April and August 2023 related to water supply and quality regulations, and also includes a summary of recent developments in new water rights legislation.

- **SGMA**
groundwater basin management
- **ILRP**
on-farm groundwater nitrate contamination prevention
- **CV-SALTS**
salt and nitrate control
- **Water Rights Legislation**
surface water quality management

Sustainable Groundwater Management Act - SGMA

Background

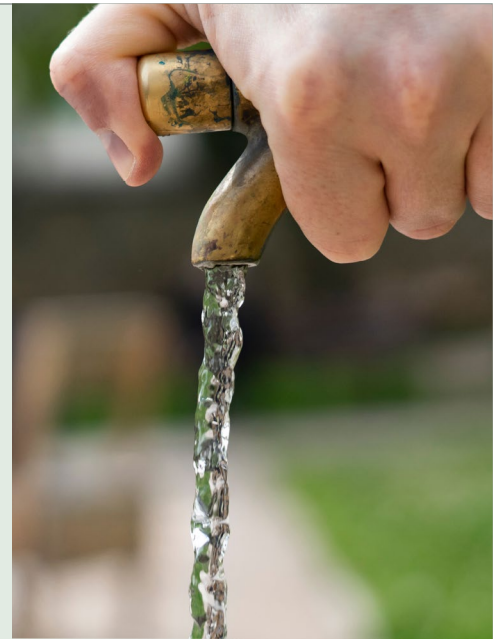
California passed legislation to formally regulate groundwater in 2014. To this end, the California Department of Water Resources (DWR) assigned a priority to each of California's 515 groundwater basins, based on factors such as groundwater pumping, population, and groundwater level history. Ninety-four groundwater basins were assigned high or medium priority. Together with adjudicated areas (where legal judgments negate the need for a GSP), the area represented by high and medium priority basins represents 98% of all pumping (20M ac-ft/year); 83% of the California's population (25M people) and 88% of irrigated land (6.7M ac).

Groundwater Sustainability Plans

California DWR empowered local agencies, called **Groundwater Sustainability Agencies (GSAs)**, within the 94 high and medium priority basins to plan how to balance their overdrafted groundwater basins by 2040. These plans, called **Groundwater Sustainability Plans (GSPs)**, were submitted to DWR for approval, which can take up to two years.

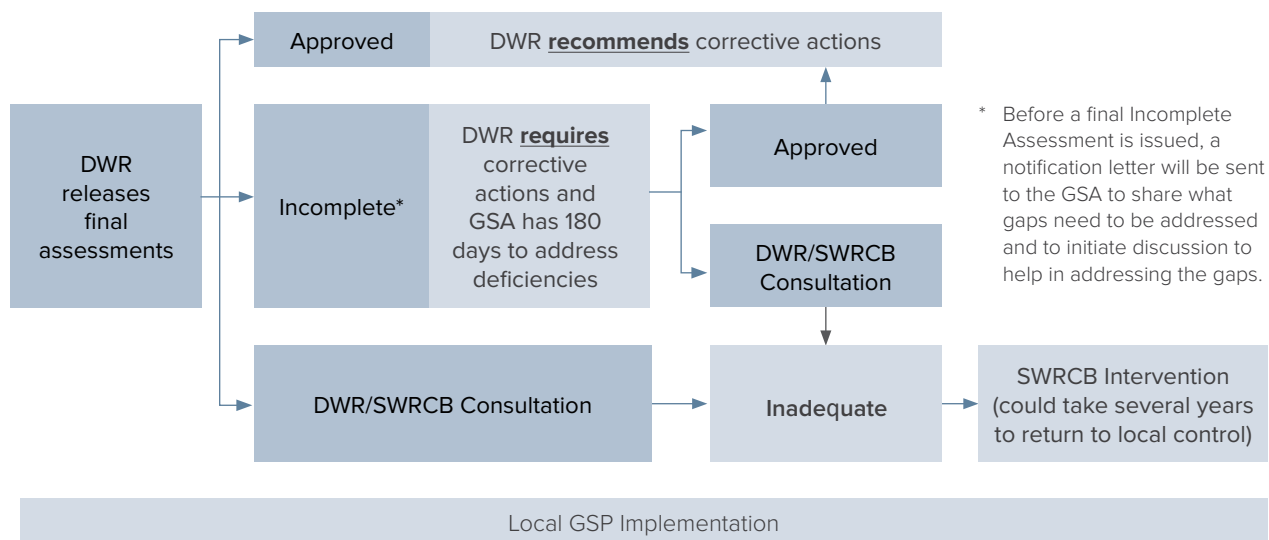
The Department of Water Resources (DWR) recently approved ten more GSPs in non-critically overdrafted basins. These GSPs include those from East Bay Plain, East Contra Costa, Ukiah Valley, Sierra Valley, North San Benito, North American, South American, Butte, Vina, and Wyandotte Creek basins. These 10 new approvals brings the total number of approved GSPs to 40 in 46 groundwater basins. Determinations for approved GSPs of the Merced, Westside and Kings Subbasins were released in August, 2023.

The State Water Resources Control Board is intervening in GSAs from six basins, whose GSPs were classified as inadequate. These include Chowchilla Subbasin, Delta-Mendota Subbasin, Kaweah Subbasin, Tule Subbasin, Tulare Lake Subbasin, and Kern Subbasin. GSAs in 37 remaining basins still have GSPs under DWR review.



SGMA GSP Pathways

DWR will assess plans no later than the two-year statutory deadline



Source: DWR GSP Evaluation fact sheet.

Grant Programs for GSP Implementation

Several entities were awarded Round 2 Sustainable Groundwater Management (SGM) Grant awards in June 2023. Over \$187M in grant funds were awarded to 31 GSAs, irrigation districts, water agencies, counties and cities from the General Fund and Proposition 68. Awards ranged from \$1.5M to \$16M.

Four out of 12 proposals for Multibenefit Land Repurposing Program grant funds were successful and received \$10M each. The proposals were from Kaweah Delta Water Conservation District, Pixley Irrigation District GSA, California Marine Sanctuary Foundation and County of Madera.

[Learn More](#)



California Department of Water Resources

<https://water.ca.gov/programs/groundwater-management/sgma-groundwater-management>



Irrigated Lands Regulatory Program - ILRP

Background

The ILRP is a complex regulatory program with many components. Initially, its focus was on developing and implementing **Irrigation and Nitrogen Management Plan (INMP) Summary Reports**. Farmers report on how much irrigation and nitrogen they are applying and submit this information to their water quality coalitions, who then summarize this information in a report to the Regional Water Quality Control Board. This information informs the overall strategy to manage nitrogen inputs to groundwater, which is an overarching program that everything else fits into called the **Management Practices Evaluation Program (MPEP)**.

This ILRP update focuses on Groundwater Protection (GWP) Targets, the third phase of a 3-phase process required by the State Water Board in areas that are considered highly vulnerable to nitrate concentration:

- **Phase 1** - Groundwater Protection Formula – method for estimating current nitrogen loading to groundwater from commercial irrigated agricultural lands.
- **Phase 2** - Groundwater Protection Values – estimated nitrogen loading rate for each township calculated with Groundwater Protection Formula
- **Phase 3** - Groundwater Protection Targets – estimated nitrogen loading for Receiving Water Limits to be met.

Agricultural coalitions used a groundwater flow and transport model to simulate groundwater nitrate loading (including non-ILRP sources) under different scenarios and management practices to develop the GWP draft targets. For each township, agricultural N-load (GWP Value) was iteratively reduced until the model indicated that produced water quality in shallow domestic wells would meet the maximum contaminant level of 10 mg N/L. In some cases, model results indicated that the current N-loading associated with irrigated agriculture meets this threshold. This occurred in 153 of 399 initially modeled townships.



For 20 townships with GWP values in the Sacramento Valley, GWP Targets were not developed because comparisons between predicted water quality results from the model and from monitoring data showed that the model is likely overestimating local nitrate concentrations. Observed groundwater nitrate concentrations in these townships are lower than 5 mg N/L. The Coalitions maintain that the overestimation was likely due to underrepresentation of denitrification during modeling. GWP Targets were developed for 379 townships in total.

For the last year, the draft GWP targets were reviewed by the State Board and by stakeholders including the public and environment justice groups. After some revisions, the GWP targets were approved in June 2023, on the condition

that a workplan be developed to evaluate model uncertainties and describe future validation efforts. The agricultural coalitions need to submit this workplan by April 2024, and once it is approved, develop a report on the results of an uncertainty analysis, validation of the model, and recommendations about how to improve the GWP targets. This report is also required to address the overestimations of nitrate-N contamination modeled in some parts of the Sacramento Valley and identify a better method to calculate appropriate GWP Targets for these townships during the next 5-year update in June 2028.



The main purpose of the Groundwater Protection Targets is to incorporate them into Groundwater Quality Management Plans (GQMPs), which agricultural coalitions must update with the GWP targets by June 2024.

The agricultural coalitions developed milestones, to be incorporated into the GQMPs, by analyzing coalitions' nitrogen application and harvest data. The milestones are based on crop-specific mass balances (nitrogen applied minus nitrogen removed, or A-R) from INMP Summary Report data collected between 2017 and 2020 and are proposed in townships where current loading is estimated to discharge greater than 10 mg N/L at the bottom of the root zone.

Learn More



California Department of Water Resources

www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/ilrp_decision_tree.pdf

Source: <https://sacriver.org/explore-watersheds/feather-river-subregion/upper-feather-river-watershed/photos/#!>



Central Valley Salinity Alternatives for Long-term Sustainability - CV-SALTS

Background

CV-SALTS is a collaborative initiative between industry, government, agriculture, and communities to address and control nitrate and salt accumulation in California water supplies. While the CV-SALTS salt control program is implemented at the Central Valley wide scale, the nitrate control program is administered by local organizations called Management Zones. Both programs apply to all industries and local governments, but the nitrate program is implemented by prioritizing areas according to nitrate exceedances (above the drinking water standard) in groundwater. Currently, the initial phase of the salt control program is under way, Priority 1 Management Zones are implementing their plans, and Priority 2 Management Zones are beginning to form.

Salt Control Program Prioritization and Optimization Study

The Prioritization and Optimization (P&O) Study began in December 2021 and is expected to take 10 to 15 years. To date, P&O study efforts have focused on a Baseline Characterization Report, which is a compilation of data including land use, water quality, salt sources, and other information relevant to both science and policy of salt management. Throughout this process, data management tools and databases are being developed and models for evaluating salt accumulation in pilot areas as well as the entire Central Valley have been selected.

The information in the Baseline Characterization Report will be used as foundational information for the remainder of the study, which aims to predict how different management approaches will affect salt accumulation in different parts of the Central Valley under various scenarios, such as drought, and natural factors such as soil type and climate.

Since January 2022, consultants conducting the P&O study under the guidance of CV-SALTS have gathered data on groundwater quality, surface water quality, salinity sources, and land use, and have chosen models that will be used in this multi-year effort. Currently, work is focused on developing inputs for, calibrating, and validating the model that will be used to estimate salt loading across the Central Valley. Throughout the remainder of 2023, analysts will work to:

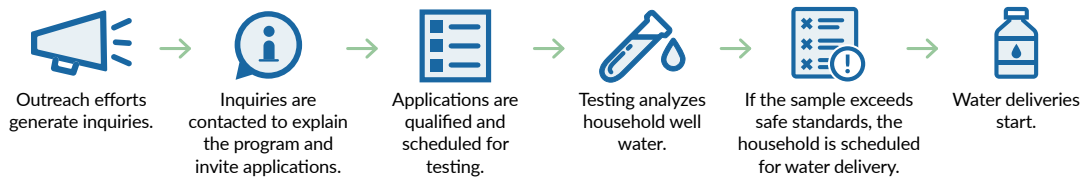
- Complete a Central Valley-scale salt load analysis to determine baseline conditions.
- Develop projections for future conditions using Central Valley-scale modeling tools.
- Identify and evaluate candidate archetype areas.
- Initiate Salt Management Region (SMR) and Salt Management Area (SMA) identification.

The modeling preparation is a large effort that includes estimating salt discharges from all industries, including agriculture, oil and gas, food processing and municipal. Specific to agriculture, the P&O study modeling and evaluation includes new information related to SGMA such as Airborne Electromagnetic Survey (AEM) data and information on recharge potential and planned land management and/or water use practices from Groundwater Sustainability Plans.

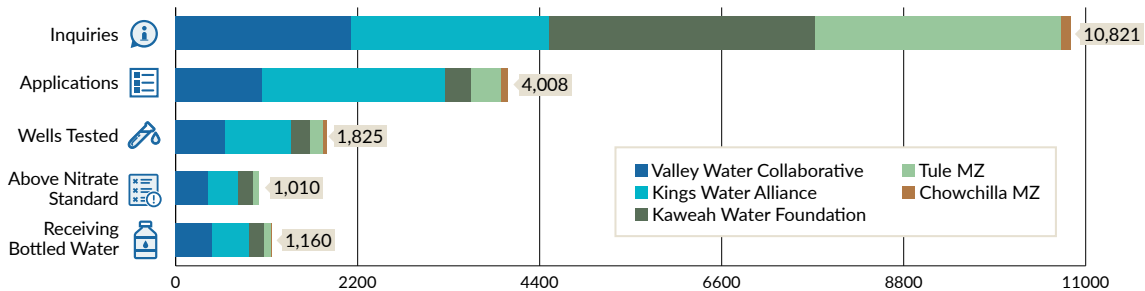
Nitrate Control Program

Management Zones for nitrate control are busy preparing their Management Zone Implementation Plans, required to be completed by September 5, 2023. In the meantime, Priority 1 Management Zones continue to deliver outreach and safe drinking water to communities throughout the Central Valley. These Management Zones are also coordinating on development of their Implementation Plans to learn from each other and realize efficiencies. Priority 2 Management Zones expect to receive their notices to comply by the end of 2023.

Households Processed for Bottled Water Deliveries



Cumulative Totals Since May 2021

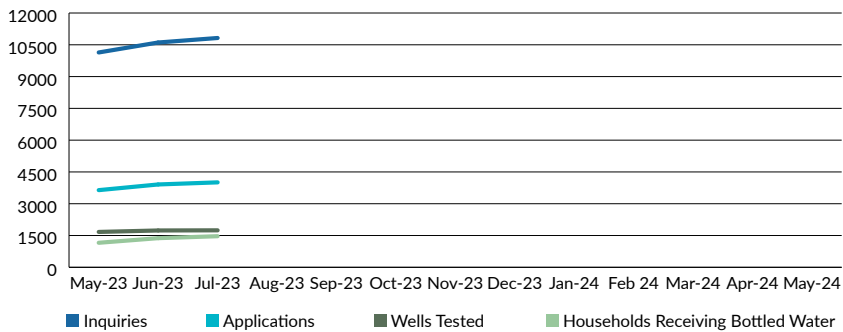


55% 55% of wells tested have exceeded the nitrate standard.

1,394 1,394 gallons per day provided to households from 7 free water fill stations.

Updated May 2023. Source: <https://www.cvsalinity.org/resources/>

Bottled Water Program Participation



21% of applications were ineligible or referred to other programs.



25% of applications have not responded to follow-up contacts.



POSTCARD & FLYERS

Management Zones use direct mail and door-to-door flyer distribution to get program information to potentially affected households. Rural areas pose a particular challenge for door-to-door efforts.

4
campaigns

30,941
household contacts



PROMOTION

Management Zones use radio, television, newspapers, road signs, and social media to describe and promote the program.

166
placements

2,016
impressions



MEETINGS & EVENTS

Management Zones hold in-person and online community meetings to describe the program and encourage applications.

7
events

166
participants



WEBSITES

Each Management Zone manages a website as an information source and means for residents to apply.

2,016
website visitors

343
online applications



ONE-ON-ONE DISCUSSIONS

Management Zones talk individually with residents at street events, door-to-door, and by phone to answer questions, follow-up on applications, and encourage participation.

336
events / activities

4,012
contacts

Updated May 2023. Source: <https://www.cvsalinity.org/resources/>



Water Rights Legislation

After two conflicts over the State Water Board's authority to curtail diversions of senior water rights holders in recent years, the State Water Board underwrote a report by UC Berkeley's Center for Law, Energy and the Environment on the powers needed to curtail diversions during droughts. The April 2023 report said that routine curtailments happen in other western States and California should follow suit, instead of waiting until times of extreme crisis.

To give the State Water Board the authority advised in the UC Berkeley study, three bills have been introduced in the California Legislature. These bills would give the State broader authority to review senior water rights, more power to curtail water diversions, and more clout in penalizing illegal diversions. Assembly Bill 1337 affirms the ability to curtail senior water rights holders. Assembly Bill 460 would make it easier for the State Water Board to clamp down on water rights holders who illegally take water and increase fines to as much as \$10,000 a day. These two bills passed initial floor votes but hearings were cancelled this summer and their direction is uncertain.

Senate Bill 389 would authorize the State Water Board to investigate the legitimacy of senior water rights (riparian and appropriative) and if they are unauthorized, enforced as trespasses. It passed in the Senate and will be considered next in the Assembly. Gov. Newsom would give the final approval to all three bills if they pass in these respective chambers.

Learn More

CV-SALTS

www.cvsalinity.org

Valley Water Collaborative (Modesto and Turlock subbasins)

<https://valleywaterc.org>

Chowchilla Management Zone

<https://www.maderacountywater.com/cv-salts>

Kings Water Alliance

<http://kingswateralliance.org>

Kaweah Water Foundation

<http://www.kaweahwater.org>

Tule Basin Management Zone

<https://www.tulemz.com>



Source: <https://sacriver.org/explore-watersheds/american-river-subregion/#!>



Land IQ provides these regulatory updates to help our clients stay informed about regulatory programs related to agriculture and water in California. To learn more about the regulatory and technical support that Land IQ provides to irrigation and water supply districts, GSAs, commodity groups, and private and public agencies, please visit our website at www.landiq.com or contact:

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