

Ensuring High Quality Water in the Sacramento River Basin for Communities, Ecosystems, and Farms

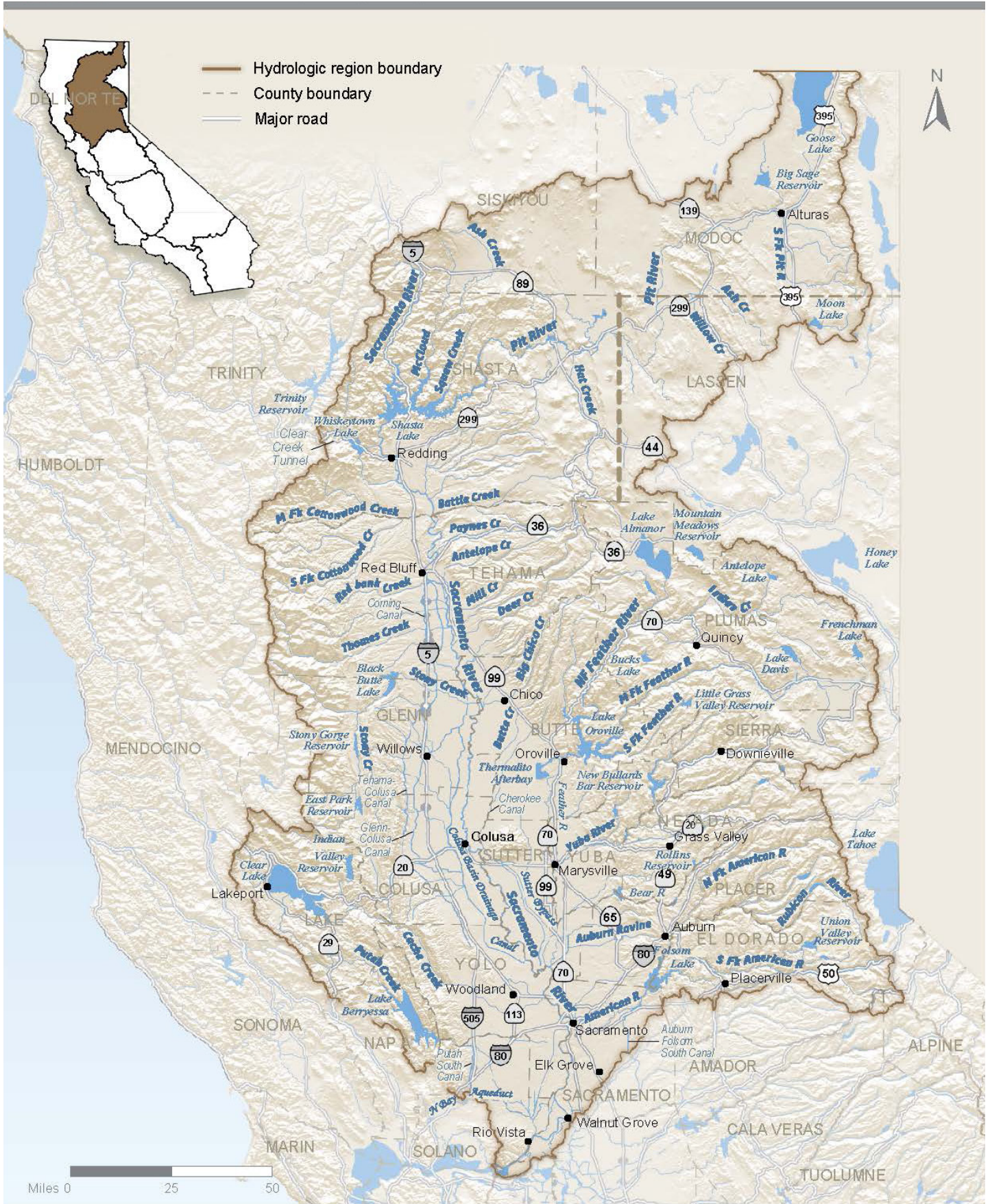
The State of Water Quality



Water quality is *essential* to ensure the ecological and economic sustainability of the natural and working lands of the Sacramento Valley, with its the world-renowned mosaic of productive farmlands, wildlife refuges and managed wetlands, cities and rural communities, and meandering rivers that support and feed fisheries and natural wildlife habitats. The Sacramento Valley is sourcing our sustainable future through responsible management of the essential resource that millions of birds, hundreds of thousands of fish, thousands of farms and millions of people all rely on—water.

The Sacramento River Basin leadership has advanced a regional approach focused on sustainable water management and climate resilience for **all** beneficial uses and users of water in the Sacramento River Basin as described below. For generations the communities and farming families in the Sacramento River Basin have cultivated a shared vision for a vibrant way of life throughout the region that depends upon high quality water for all forms of life. These leaders and their families live, work and play in the region and have a direct interest in ensuring high quality water for all these purposes. This approach builds on the culture and strong partnerships in the region with water suppliers, local governments, landowners and conservationists--all working together with state and federal agencies to ensure safe drinking water, healthy aquatic life and reliable water supplies for farms and ranches.





SERVING HIGH QUALITY WATER FOR MULTI-BENEFITS

Multi-benefit water management is the hallmark of the Sacramento River Basin. See [Managing Water in the Sacramento Valley for Multiple Benefits](#). Successful multi-benefit water management, from ridgetop to river mouth, advances nature-based solutions that require high-quality water is available for drinking water, aquatic species and the ecosystem, and farming--both now and as we look to the future. The regional approach for high quality water includes:

- **Access:** ensuring that all communities in the Sacramento River Basin have access to safe drinking water and that both farms and ecosystems have reliable and high-quality water, which, when combined with land and sun, brings the region to life.
- **Source Water Protection:** through continued implementation of the Irrigated Lands Regulatory Program Waste Discharge Requirements (WDR) for both surface water and groundwater quality, other site-specific WDRs, the Basin Plan Amendment for CV-SALTS, and groundwater quality protection under the Sustainable Groundwater Management Act (SGMA).

The following describes how the regional approach will ensure that high-quality water will be available for three categories of beneficial use: 1) drinking water for communities, 2) aquatic health for the ecosystem, and 3) farming and ranching.

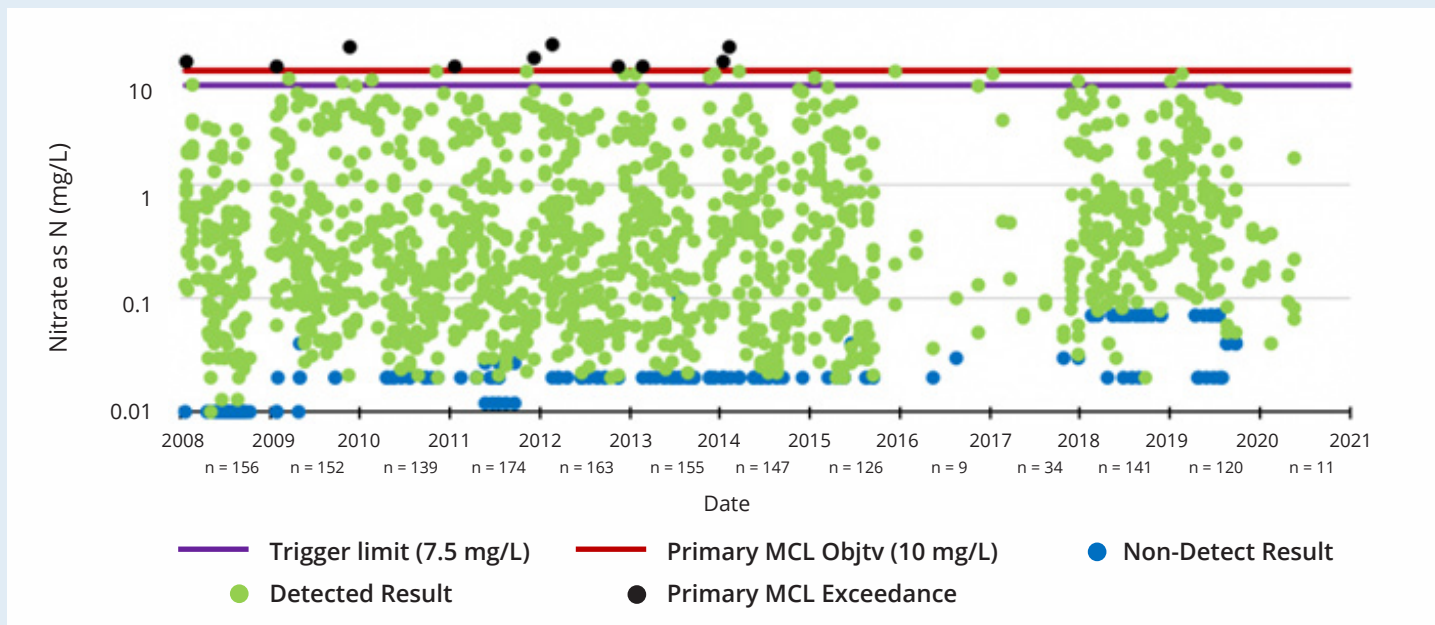
SAFE DRINKING WATER FOR COMMUNITIES

All Californians have a right to safe, clean, affordable and accessible water under the “human right to water” established in state law in 2012. Sacramento River Basin leaders are committed to advancing a comprehensive approach to expand and ensure access to clean, safe and affordable drinking water for all communities. This approach is described in detail in [Ensuring Access to Safe Drinking Water for All California Communities](#). NCWA convenes the North State Drinking Water Solutions Network as a forum to share information and coordinate efforts aimed at ensuring that all communities in the Sacramento River Basin have access to safe drinking water. Successful implementation of sustainable drinking water solutions will require utilization of both the policy tools and financial resources available to state agencies, as well as the knowledge and expertise of local communities and water managers.



The following chart shows the current state of drinking water quality in the Sacramento River Basin as seen through nitrate monitoring from 2008-2020, with the **surface** water samples below the 10 mg/L objective set to protect the drinking water beneficial use.

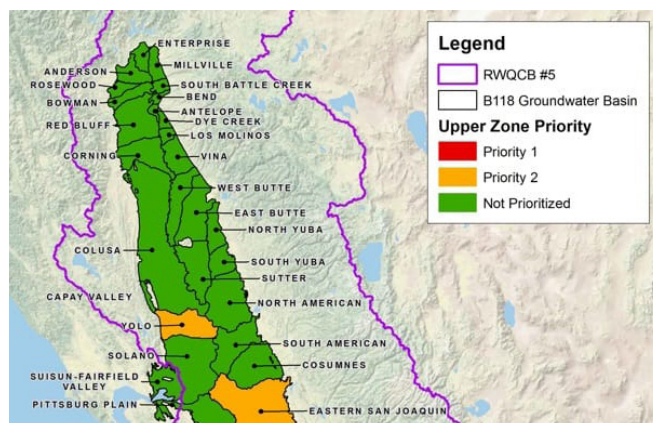
Sacramento Valley Water Quality Coalition—Nitrate as N (2008-2020)



Source: Mike Troughon and Steve Maricle, Larry Walker Associates (February 2021). Also see [Sacramento River Watershed: Groundwater Quality Conditions and High-Resolution Nitrate and TDS Mapping](#).

Looking to the future, the following will help ensure access to high quality drinking water, with a focus on **groundwater**.

- Growers are actively monitoring, documenting, and working to better manage their agronomic nitrogen use as part of the Irrigated Lands Regulatory Program, with the summary results of the Irrigation Nitrogen Management Plans reported annually to the Regional Board.
- The Central Valley Regional Water Quality Control Board began implementation of the CV-SALTS program in 2020 with additional focus on nitrate management in priority areas. As the following map shows, the focus in the Sacramento River Basin will be in Yolo County (Priority 2), where there is a concerted effort to develop management practices to address historical nitrates in groundwater in advance of the management zone regulatory requirements. As part of this coordination, the Woodland-Davis Clean Water Agency has already switched its supplies from groundwater to the Sacramento River.



Source: [CV-SALTS Nitrate Control Program](#)

- Growers are working to protect groundwater quality that is the source of drinking water for small community water systems and domestic wells based on the State Water Resources Control Board's [2021 Aquifer Risk Assessment Map](#), which currently shows limited risk to domestic wells and small water systems in the Sacramento River Basin.
- The [Community Water Center's Drinking Water Tool](#) is also helpful with research support from UC Berkeley's Water Equity Science Shop (WESS).

AQUATIC HEALTH FOR THE ECOSYSTEM

The Sacramento River Basin has an amazing ecosystem that is closely integrated with farmlands and rural communities. There is a concerted effort to improve and bring this ecosystem to life through:

- The [Sacramento Valley Salmon Recovery Program](#) will benefit all fresh-water life stages of salmon through the careful integration of water and habitat in the upper, middle and lower reaches of the regions' rivers and creeks, as well as the historic floodplain.
- The [Central Valley Joint Venture](#) and many partners to advance its Implementation Plan, which will include efforts to improve water supplies for refuges, ricelands and managed wetlands that provide vital habitat for birds and other terrestrial species.
- [Reactivating the historic floodplain](#) in the Sacramento River Basin, which is designed to produce an aquatic food web and safe haven for fish and wildlife.

The following shows the state of water quality as it affects aquatic health as seen through more than 1205 water column and sediment samples from 22 waterbodies throughout the Sacramento River Basin from 2012-2020.

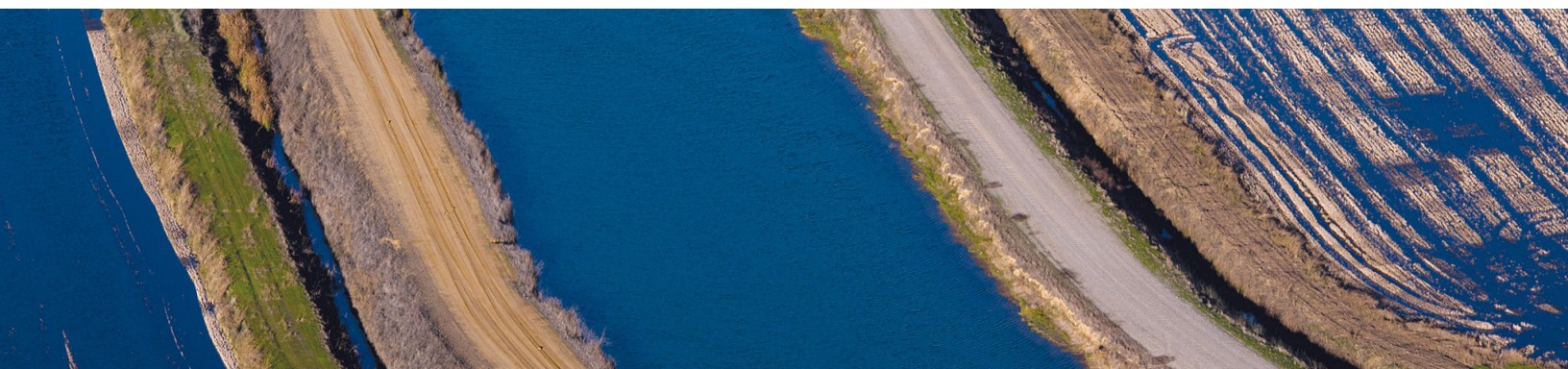


Count of Toxicity Samples by Test Organism/Toxicity Endpoint: 2012-2020



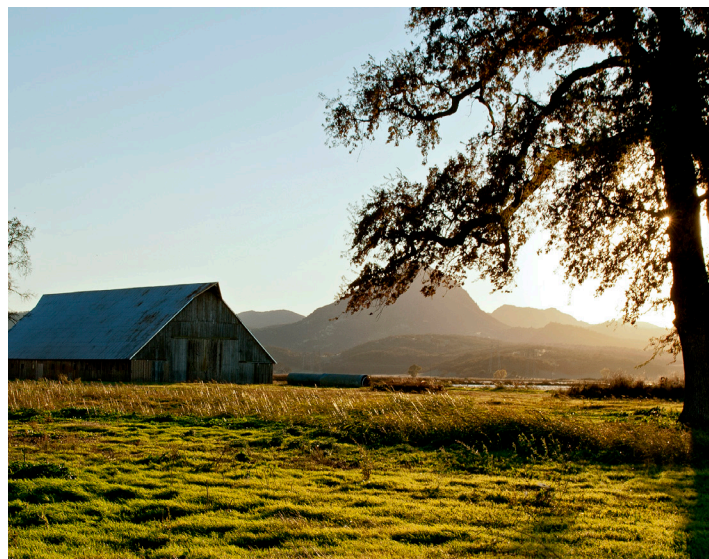
In summary,

- There is rare toxicity (<1% of all samples) to *Selastrum* (algae) and *Ceriodaphnia* (water flea) showing these species are doing well, which suggests the protection of algae (phytoplankton) and invertebrates (zooplankton) that are important food for fish and wildlife;
- No toxicity to *Pimephales* (fathead minnow), suggesting the protection of a sensitive fish species;
- Low frequency of toxicity to *Hyalella*, a shrimp-like invertebrate that feeds on algae and diatoms and is a major food source for waterfowl along the Pacific Flyway.
- For *Hyalella* most samples showed no significant toxicity, with the red samples linked to pyrethroids in sediments, which triggers further analysis. *Hyalella* samples with statistically significant toxicity requiring further analysis has averaged 7% annually, with only one management plan underway to address persistent toxicity in nine years of sampling.



FARMING AND RANCHING

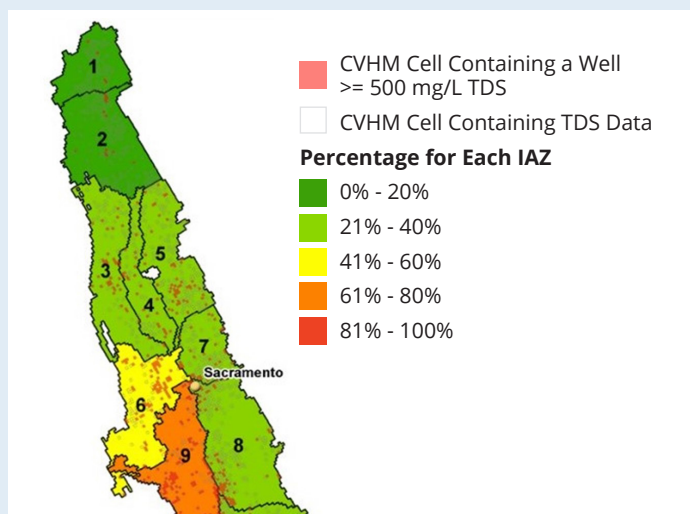
Nearly two million acres of pastoral family farms—world renowned ricelands, nuts, fruit, tomatoes, fresh produce and irrigated pasture—propel the Sacramento River Basin’s economic engine and social fabric. More than 9000 owners and operators of irrigated lands farm the fertile soils in the region and they cultivate a diverse array of crops that contribute to the rich mosaic of land uses in the region. The Valley’s farmland is unique in the way it also provides both habitat and food for salmon and birds along the Pacific Flyway. The Sacramento River Basin has a deep connection between the urban and rural areas that is reflected in Sacramento’s designation as America’s Farm to Fork Capital.



The following map shows the state of water quality for farming and ranching, where the Regional Board standard to protect agricultural beneficial uses is 700 $\mu\text{S}/\text{cm}$ or 450 mg/L. This standard is being met in nearly all parts of the Sacramento Valley, with some additional focus required in localized areas in Yolo and Solano counties. Importantly, salinity levels have generally improved across the region since 1969.

Percent of CVHM Cells Containing a Well With TDS \geq 500 mg/L

(Analysed Separately for Each IAZ) Years: 2000-2012



Source: [Central Valley SNMP Characterization of the Hydrologic Regions](#)

Salt management is critical to agriculture as evaporation and crop transpiration remove water from soils which can result in an accumulation of salts in the root zone, which at high levels can inhibit plant growth. A Salinity Management Plan for the Sacramento Valley will be submitted to the Regional Board, which will guide actions by farmers and ranchers, water suppliers, and agricultural processors, who all have a personal interest to ensure high quality water to continue viable agriculture in the region and their way of life.

The technical information in this document was developed and summarized by scientists at: [Larry Walker Associates](#) for surface water quality, and [Luhdorff and Scalmanini Consulting Engineers](#) for CV-SALTS groundwater quality characterization and assessment.

For more information, please contact:

- [North State Drinking Water Solutions Network](#)
- [Sacramento Valley Water Quality Coalition](#)
- [California Rice Commission](#)
- [Central Valley Clean Water Association](#)
- [CV-SALTS](#)



NCWA
Northern California Water Association

May 2021