

A Modernizing Water Management System in California

By David Guy, NCWA and Darren Cordova, MBK Engineers | October 2024

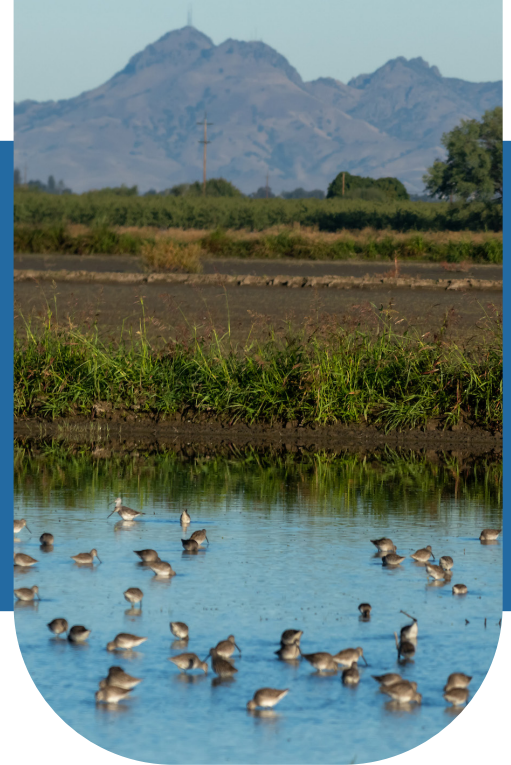
There have been significant efforts over the past several years to update and modernize California's water rights system to adapt to an uncertain climate and address many of the challenges we have seen as the water rights priority system has been tested over the past decade.

Several years ago, we offered [Observations on a Modern Water Rights System](#) from our experiences and vantage in the Sacramento River Basin working with water right holders, conservation partners, and the State Water Board to practically implement the water rights system for multiple benefits during challenging and changing times. Since that time, there has been a lot of attention paid to this issue and we have been encouraged with the forward progress on implementing the water rights priority system during periods of *scarcity*—generally in droughts and the summer—when rivers are fully appropriated. As we look forward, we believe opportunities exist to make the water rights system work better for California during periods of *availability*—generally the fall and winter—for fish and wildlife, groundwater replenishment, and storing water in strategic locations for multiple uses when needed.

As we think about implementing the water rights system and improving our infrastructure during the fall and winter, we have been inspired by the creative ideas offered around this concept

by the Newsom Administration in its [Water Resilience Portfolio](#), [California's Water Supply Strategy: Adapting to a Hotter, Drier Future](#) and the [California Salmon Strategy for a Hotter, Drier Future: Restoring Aquatic Ecosystems in the Age of Climate Change](#), which we encourage further reading. We also recommend the forward thinking offered by the Public Policy Institute of California (PPIC), which has “concluded that while California has made great strides in planning and preparing for a drier, hotter future, equal emphasis is now needed on improving management during wet years.” (See e.g., [Priorities for California's Water: Stewarding the Wet Years](#)). Perhaps most encouraging is the positive tenor of the dialogue and extensive collaboration surrounding water rights, [nature-based solutions](#), and improved infrastructure to serve water for multiple benefits within a changing climate and the weather whiplash we have all seen dominate the water landscape.

This forward progress on water rights administration and legislation is described below, followed by our ideas on how we can continue to improve the water rights process, particularly during periods of availability. Finally, we urge more robust enforcement of the water rights system.



Administration of Water Rights

Modernizing the water rights information system is a foundational element to strengthening and supporting the water rights system in California. This includes:

UPWARD Process

The State Water Board is advancing the UPWARD process--Updating Water Rights Data for California--to improve the way the state collects and manages its water rights data and information. California's water rights data includes information on water use, demand, and when, where, and how water is diverted from streams and rivers. This type of information is critical for data-driven water management decisions, particularly when hydrology affects supply, such as during droughts. UPWARD is designed to create a 21st century, modern platform that is crucial for California's long-term water resilience in the face of ongoing climate change.

The State Water Board has completed the technical planning phase and is currently



in the final of three software development phases. The initial development phases include building the foundational functions of the new data system, identifying areas that may need additional attention in subsequent enhancement phases, and scaling up the paper document digitization processes. Development will continue through 2024, with an initial demonstration of the system's core functions (Minimum Viable Product) anticipated by the end of 2024. The UPWARD Advisory Committee, which includes a representative from NCWA and a representative from MBK Engineers, has been meeting to advise the State Water Board. [More information is available here.](#)

Stream Gauges

To assist with better water management and the administration of the water rights system, there is a focus on improving stream gauges for more reliable information. To assist in this process, we strongly supported and helped advance SB 19 in 2019 ([see here](#)), we participated in the advisory committee, and we are now encouraged with the [Stream Gage Improvement Program](#) process to implement and fund the program. Robust and reliable sources of data, including stream gauges, are foundational to the development, refinement, and implementation of multi-benefit water management approaches, with a priority for "modernizing and reactivating stream gauges



where lack of data contributes to conflicts in water management or where water can be more effectively managed for multiple benefits....” (Water Code §144(d).) More information is available on the [State Water Board website](#).

Diversion Reporting & Measurement

There has been a concerted effort to improve reporting around water management in California. During the last decade, many additional reporting and measurement requirements have been added to the large number of reporting requirements already in place for irrigators and municipalities. To assist water right holders in this process, MBK Engineers has prepared a detailed summary on [Reporting, Measuring, and Planning Requirements for Water Users](#) that has served as guidance for water right holders to comply with the numerous requirements as part of the ongoing efforts for regional sustainability in the Sacramento River Basin, and to help ensure that water will be available to serve multiple benefits, both now and in the future. This is an important process that has become increasingly expensive and time consuming for water right holders and water managers and would benefit from streamlining and avoiding redundancy of reporting.

Most entities have been adapting their annual reporting processes to comply with the added requirements, although in some areas there are diverters that have not been reporting water diversion and use. Generally, these are believed to be relatively smaller diversions; however, it is important that all surface water diversion and use is correctly reported to assist with improving the accuracy to implement the water right priority system.

In coordination with the State Water Board, NCWA and MBK Engineers have emphasized the importance of simple and straightforward educational materials regarding water rights and

reporting requirements to inform diverters of the basic aspects for those requirements. The State Water Board published two Fact Sheets with links to additional resources: [Water Rights 101](#) and [Water Use Reporting Requirements](#). In addition to these fact sheets being available on the State Water Board’s website, they have been mailed to certain landowners along at least one stream. We have urged the State Water Board to expand its public outreach by disseminating the fact sheets to landowners along other streams to be comprehensive, as well as broadcasting those in social media and in other publications, including to other organizations that can spread the information to their area. Wider distribution of the fact sheets may assist to reach diverters that are unaware of the State Water Board’s requirements and website.

Diverters that are uncertain whether they should be reporting surface water diversions, or how they should be reporting their surface water diversions to the State Water Board, should consult these fact sheets and additional resources, and if necessary, contact the State Water Board at (916) 341-5431 for assistance.



Water Rights Legislation

The California Legislature has been active in the past three years, making steady incremental progress on important refinements to the water rights process, with a handful of bills emerging into law to make the process better and more complete.



This includes:

- SB 1205 (Allen) directs the State Water Board to promulgate regulations related to developing a water availability analysis (WAA) as part of the water rights application process. The regulations specifically detail how potential effects of **climate change** should be considered in the WAA;
- AB 2108 (Rivas) specifies the State Water Board and each Regional Board conduct outreach to identify issues of **environmental justice, disadvantaged communities, and tribal communities** as early as possible in planning, policy, and permitting processes;
- SB 389 (Allen) authorizes the State Water Board to **investigate the diversion and use of water** from a stream system to determine whether the diversion and use are based on upon appropriation, riparian right, or other basis of right;
- SB 756 (Laird) enhances the enforcement authorities of the State Water Board and the nine Regional Water Quality Control Boards as it relates to **unlicensed cannabis cultivation**; and
- AB 460 (Bauer-Kahan) imposes more **strict fines and penalties** for violations of water rights;
- The state budget in several years has supported the UPWARD process, with full legislative support from water suppliers for responsible improvements throughout California. [See letter.](#)

Opportunities and Focus Ahead

Much of the new energy around water rights is focused on securing water for multiple benefits, with an emphasis on serving water for fish and wildlife. As we look to the future in California, how can we integrate the water delivery system with the water rights system to better serve water for fish and wildlife and groundwater replenishment?

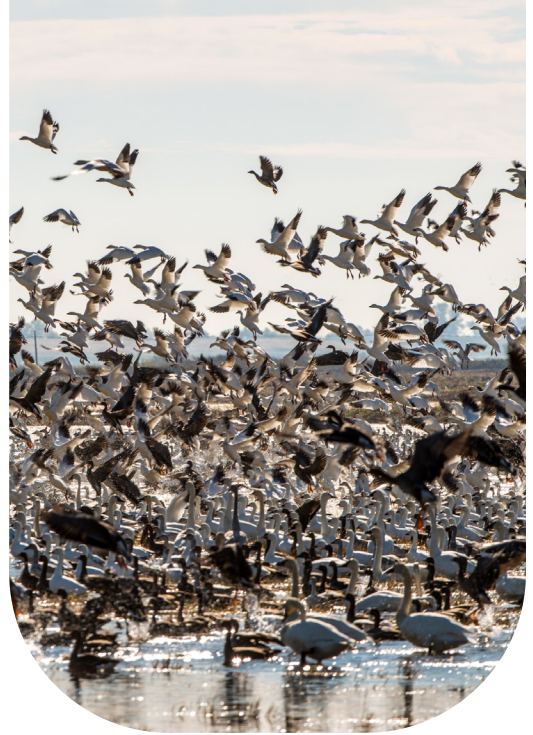
In addition to the constitutional directive that “the general welfare requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable,” [California’s Water Supply Strategy: Adapting to a Hotter, Drier Future](#) and [California Salmon Strategy for a Hotter, Drier Future](#) provide a good roadmap to advance these important efforts.

In the Sacramento River Basin, the stage is set for these actions as we have learned over the past several decades the value in using water on the landscape for fish and wildlife. In the 1990s, ricelands evolved from traditional burning practices during the fall to rice straw decomposition, which, with water on the landscape, provides an amazing food source for

birds and other fish and wildlife along the Pacific Flyway and throughout the region, and helps with biodiversity serving [225 species](#). Riparian and other fall/winter water rights have been essential for these efforts.

Additionally, the passage of the Central Valley Project Improvement Act (CVPIA) provided new opportunities for improved water supplies for wildlife refuges. In the Sacramento River Basin, nearly all the surface water supplies for refuges are served by nearby water suppliers, such as Glenn-Colusa Irrigation District, Reclamation District 1004, and Biggs-West Gridley Water District. In addition, public-private partnerships support refuges, such as those within [Llano Seco Ranch](#) located near Chico. Individual landowners have also made significant investments for fish and wildlife enhancements, such as along the Sutter Bypass, Colusa Basin Drain, and Yolo Bypass. There is still more work ahead to put water on the landscape for refuges and managed wetlands, which is described in [Central Valley Refuge Needs](#).

Building upon these landscape programs, the following are examples of efforts involving water rights that will be exercised during periods of availability, typically in the fall and winter, and will largely be used for the benefit of fish and wildlife and groundwater replenishment. Improvements to the water rights process is needed for all these examples to be successful and to scale up these landscape efforts.



Recharge

With weather whiplash in California and less surface water available due to hydrologic and regulatory conditions, there is increased reliance on our groundwater resources, which now requires an [accelerated program](#) to improve aquifer health as natural infrastructure and to recharge groundwater throughout California.

The Sustainable Groundwater Management Act (SGMA) provides that it is the intent of the Legislature “to increase groundwater storage and remove impediments to recharge.” (Water Code 10720.1(g)). The past several Governors have issued executive orders promoting and encouraging groundwater recharge, including the recent announcement on the 10-year milestone for SGMA, where the Governor stated: “recharging groundwater is key to California’s strategy for expanding water supplies and defending against hotter and drier conditions, which are estimated to reduce California’s water supply by up to 10% by the year 2040. The state is streamlining permits to fast-track groundwater recharge efforts and working towards an ambitious goal of increasing annual groundwater recharge capacity by 500,000 acre-feet.” [See here](#). Yet, despite these aspirations and assertions, the practical ability to secure permits and to then fully exercise permits for recharging groundwater continues to be limited and very challenging.

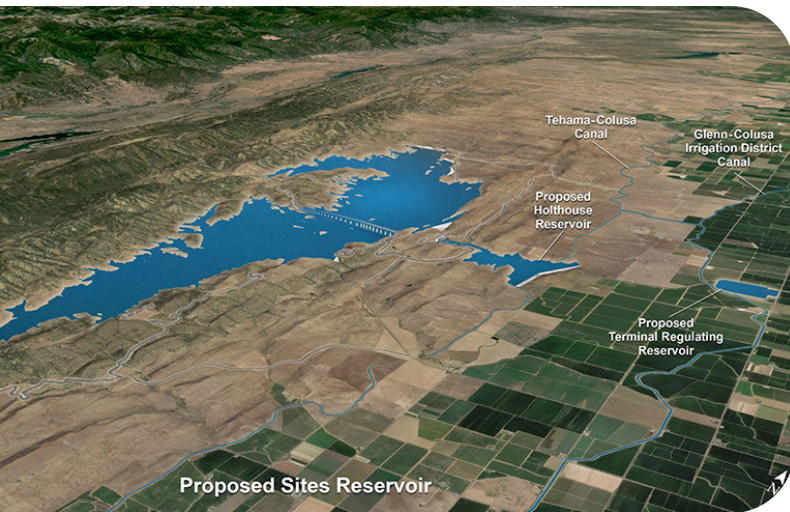
As explained in detail on the [State Water Board’s “Water Rights for Groundwater Recharge” webpage](#), “capturing and storing surface water generally requires an appropriative water right. Parties can obtain new water rights or change existing water rights to authorize groundwater recharge projects.” Several entities, many of whom have technical and financial support from the Department of Water Resources (DWR), have been pursuing temporary water right applications for groundwater recharge/extraction. Those entities have had limited success to physically divert water



Source: California Department of Water Resources

for groundwater recharge due to the process involved and thresholds for diversions imposed by the State Water Board. Some of those same entities are currently pursuing long-term water right applications for groundwater recharge and related beneficial uses; those processes involve years of effort at a significant expense and include uncertainty to obtain a permit that would allow for needed recharge. Other entities are pursuing approaches for groundwater recharge under existing water rights they hold or that are held by other entities such as DWR and the Bureau of Reclamation.

Additionally, there was some progress the past several years on the ability to recharge flood flows through SB 122 in 2023 and other related legislation. Some important refinements to this process were advanced this year in SB 1390, which stalled in the Legislature. We believe that some of the concepts discussed relative to SB 1390 would assist to simplify the process and expand groundwater recharge without injury to other legal users of water or the environment. In addition, other approaches should be explored to support groundwater recharge when the opportunity arises to capture available flow. Potential approaches may include alternative diversion criteria (for long-term permits, temporary permits, or a new de minimis process), maximum cumulative diversion limits in multi-year temporary permits, and/or establishing that groundwater recharge alone is a beneficial use of water.



Sites Reservoir

As Sacramento River Basin water resources managers look to serve multiple benefits in the future, the importance and need for Sites Reservoir becomes clear. Sites Reservoir is an innovative 21st century water project: an off-stream regulating reservoir on the west-side of the Sacramento Valley specifically designed to capture and store water generated during wet periods (like the atmospheric rivers that seasonally make landfall in California) to increase water flexibility, reliability, and resiliency in drier years. Estimates show that since January 2024, Sites Reservoir would have diverted and captured about 840,000 acre-feet of water. This would have been in addition to about 700,000 acre-feet diverted and captured during 2023, resulting in a full reservoir at the beginning of this summer. Importantly, Sites Reservoir, with the help of an environmental water manager and strong partnerships, can provide an environmental water budget to serve functional ecology and fish and wildlife in the region, in addition to supporting farming and communities.

The State Water Board Administrative Hearings Office (AHO) is now considering the water rights application for Sites Reservoir, which is needed to divert and then store this water in an off-stream

reservoir. The Governor has consistently indicated that Sites Reservoir is a [priority](#) and the State Water Board will consider and hopefully approve the water rights permit within the next year. [See Policy Statement.](#)

Water Rights for Floodplain Reactivation

Building on the refuge and ricelands supplies mentioned above, MBK Engineers is evaluating and summarizing potential water right options to assist in meeting water supply needs for [floodplain reactivation](#) in the Sacramento River Basin identified in the Floodplain Forward [Portfolio of Science-Based Actions](#) (Portfolio) for Fish and Wildlife. Historically, water rights were generally used in the spring and summer for farming and all year for cities and rural communities. Now, this season of water need is being expanded to include the fall and winter for fish and wildlife, such as the valuable efforts for water on the landscape to support birds and other terrestrial wildlife. Meeting those needs may require additional water rights. This report will 1) summarize the water supply needs for these habitat areas, 2) research and identify potential water right options to meet those water supply needs, and 3) identify water right options that can be used to inform potential entities and landowners interested in developing habitat lands that scale up floodplain reactivation and contribute to meeting the goals identified in the Portfolio.



Robust Water Rights Enforcement

It is in the best interest of all water right holders and the environment to have a robust water right enforcement process for the State Water Board.

Over the years, we have urged the State Water Board to pursue more aggressive enforcement of the water rights system as the water right holders, our communities, farms, and the environment depend upon this process. Recently, SB 389 and AB 460, referenced above, may assist in that direction. Additionally, the State Water Board has conducted outreach to diverters in several watersheds to obtain information regarding the basis of water rights for undocumented diversions, and where needed, any updates/revisions for those already reporting diversions. The State Water Board has also conducted visits along certain streams to identify undocumented diversions, with outreach to landowners for that same purpose, to strengthen implementation of the water rights priority system.

As indicated above, we believe the State Water Board should conduct outreach to diverters/landowners without documented water rights. We support the State Water Board's efforts to identify and follow-up regarding undocumented diversions to assist in informing those entities of the need and importance of reporting, while at the same time not unnecessarily burdening the water right holders that are currently reporting diversions.

Collaborative efforts at the watershed or subwatershed level are also potential approaches to assist in implementation of the water right priority system. We strongly encourage water user

coordination that involves constructive outreach and education to water users within a watershed. Empowering water users with a vested interest in successful enforcement can also reduce the need for enforcement action by the State Water Board.

Enforcement is time consuming, and in many cases, complex due to the details associated with the underlying water rights. The current process can take months or years to enforce upon an illegal or undocumented diversion. To assist in making additional progress on this, we believe the State Water Board should update, enhance, and implement the appropriate components of its proposed enforcement policy to address situations such as those described above. This would include a strategy for training and efforts by State Water Board staff to efficiently and effectively implement the water rights priority system. In addition, the Legislature should recognize and provide the State Water Board with narrowly-tailored, expedited approaches and tools, as well as staffing for strategic efforts, that enable the State Water Board to conduct swift and efficient enforcement to address illegal or undocumented diversions. Importantly, this does not require overreaching approaches that are beyond the intent of strengthening the State Water Board's resources to ensure a meaningful enforcement process.



Robust Water Rights Enforcement

In sum, we fully support and will continue to work hard in the Sacramento River Basin to modernize our water infrastructure and improve the water rights system to strengthen 21st century water management.

This ongoing effort will benefit from the expertise of our water resources managers and their consultants, partnering with state and federal agencies and conservation partners, to serve and steward water resources for multiple benefits, including cities and rural communities, farms, fish, wildlife, recreation, fire protection, and hydropower. Working together, we can modernize our water system and improve the administration of the water rights priority system as its legal and operational foundation with improved data, efficiency, and transparency.

The water rights system is adapting to meet the California challenge—making water work year-round for multiple benefits—serving water for 40 million people, our farms and businesses, fish and wildlife, recreation, and hydropower, all of which are critical for our communities, economy, and the environment. If you have any further ideas to modernize the water management system, we would appreciate hearing your thoughts, please share them with us at info@norcalwater.org.



**Working
together,
we can
modernize
our water
system.**



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