

Draft Water Storage Policy Paper

Summary

California's water management challenges are well documented—a failing ecosystem and inability to meet flood protection and water supply needs for agriculture, municipalities, and industry. Looking forward, the challenges only appear greater. California's water management system lacks the flexibility to respond to the inevitable variations in precipitation and water needs and reduce conflicts at critical times.

In 2009, the State of California established a policy framework for addressing California's water future, based on the comprehensive, integrated action plan outlined in the 2008 *Delta Vision Strategic Plan*. At the core of the policy framework are the Two Co-Equal Goals: (1) Protecting, restoring, and enhancing the Delta ecosystem; and (2) Providing a reliable supply of water for Californians.

Water storage and retention is a critical element of a more flexible water management system. Existing and new surface storage, integrated with existing and new conveyance facilities and with improved local and regional groundwater management can provide needed flexibility to meet ecosystem and water user needs better through floods and droughts.

Actions by water managers, State and Federal agencies, elected officials, stakeholders, and the general public must be aligned to a common set of objectives and outcomes. The objectives and outcomes serve to set long-term direction and to measure progress and make course corrections.

Operating Objective: Capture more water when it is abundant and divert less when it is dry to reduce conflicts at critical times for fish and other ecosystem needs.

Implementation Objective: Implement additional new storage upstream of the Delta and accessible dry-year surface and groundwater supplies downstream¹ of the Delta by the time any new Delta conveyance is operational.

Protection Objective: Respect the public trust, water rights, and area of origin protections and avoid, minimize, and mitigate environmental and economic impacts wherever feasible.

The State, Federal Agencies, water users, and other stakeholders need an action plan to accelerate and implement integrated storage projects to assist in meeting the Two Co-Equal Goals, including:

Integrated Analysis. The evaluation and analysis of existing and proposed surface and groundwater storage projects must consider how storage will integrate with Delta operations and contribute to more flexible water management for the ecosystem and economy.

Institutional Alignment. Improved regional partnerships (with authority for analysis and action) must work with better-organized State and Federal agencies to plan and negotiate public and user benefits to be achieved for each project.

Investment Approach. Immediate funding is needed to complete integrated analyses of water storage and identify ecosystem, water quality, and water supply benefits and develop cost allocations. Funding for analysis, design, permitting, and construction is expected to be a mix of Federal, State, and regional/local funds.

This Policy Paper provides the Governor, California Legislature, and Federal elected officials and agency leadership a simple, straightforward strategy and implementation plan for integrated surface and groundwater storage evaluations, actions, and investments. The action plan identifies six actions to be completed in the next 18 to 24 months leading to decisions and implementation of water storage projects that provide public and user benefits.

¹ For the purposes of this paper, "downstream of the Delta" refers to all areas served by Delta diversions.

California's Water Management Challenge

California's water management challenges are well documented. The Mediterranean climate typically provides wet winters and dry summers that support a unique and diverse environment, foster the nation's most productive agriculture, and draw people and business to the Golden State from around the globe. California's precipitation is more varied than any other state in the country, to which the environment and people have adapted. As the population and economic productivity of the state have grown, so too has the care and concern for the environment, leading to increased attention and regulation to protect and preserve habitats, fish, and wildlife. Unfortunately, over the same period of time, investment in maintaining and improving our water management systems has not kept pace with the growing demands and needs.

Today, California's water management system cannot adapt to the challenges ahead. The system was built to meet 20th Century needs but is stretched to the breaking point. The system breaks when there is too much water and the system fails when there is too little water. People and the environment are paying the price. Fish populations are dangerously low in the Sacramento-San Joaquin Delta and watershed and have not responded substantially to regulatory efforts. Water shortages in the current and inevitable future drought will cause economic disruption in many regions of the state and additional stress for important fish and wildlife species. The fears about water shortages and reallocations have led to a virtually continuous state of controversy, conflict, uncertainty, and paralysis.

As California looks to the future, more change is on the way. The state's population is expected to surpass 50 million people by 2050. Groundwater overdraft problems in some areas are more evident and the subject of State and local consideration of regulatory actions and policies. In addition, climate change is likely to further strain the state's environment and water management infrastructure. Warming temperatures may increase summer water demands and have already reduced winter snowpack, which is expected to continue. Weather patterns may be more variable, with wet periods being wetter and dry periods longer and drier. Rising sea levels are expected to threaten coastal infrastructure, estuary environments, and water quality in the Delta, the heart of California's water management system.

Efforts have been made to address current conflicts and long-term ecosystem needs through water quality and flow regulation and pumping restrictions, but documentation of ecosystem and fish population improvement has proven elusive. However, the overall water management system now lacks the flexibility to respond to the inevitable variations in precipitation and water needs. California needs a more flexible water management system that can address the variability of when and how water comes, meet public trust needs for the environment, and integrate with regional water management strategies.

In 2009, the State of California established a policy framework for addressing California's water future, based on the comprehensive, integrated action plan outlined in the 2008 *Delta Vision Strategic Plan*. At the core of the policy framework are the Two Co-Equal Goals: (1) Protecting, restoring and enhancing the Delta ecosystem; and (2) Providing a reliable supply of water for Californians. The Two Co-Equal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. Indeed, protecting and restoring ecosystems, providing reliable water supplies, and protecting and enhancing regional economies are the heart of meeting California's future water management needs.

Water storage and retention is a critical element of a more flexible water management system. This Policy Paper outlines the strategy for identifying, evaluating, designing, constructing, operating, and paying for new water storage and retention as part of an integrated, flexible water management system to achieve the Two Co-Equal Goals and meet regional needs—that is, surface and groundwater storage operated in an integrated way with water conveyance, demand management, and other regional water management strategies.

Objectives and Outcomes

A more flexible water management system will not be built overnight. Numerous projects, operational changes, and commitments and agreements must be aligned and implemented over many years, even decades, to realize effective water management for the 21st Century. Therefore, actions by water managers, State and Federal agencies, elected officials, stakeholders, and the general public must be aligned to a common set of objectives and outcomes. The objectives and outcomes serve to set long-term direction and to measure progress and make course corrections.

Objectives

Two primary objectives drive the development of storage and retention facilities and operations to achieve the Two Co-Equal Goals and meet California's water needs.

Operating Objective: **Capture more water when it is abundant and divert less when it is dry.** Reduce conflicts between human and environmental water needs by capturing and diverting water when it is least harmful to the environment (and potentially most harmful to life and property) and leave more water in the system at critical times in drier periods to support ecosystem health.

- In wet years, capture more water in surface reservoirs and hold it for environmental, water quality, and water supply purposes and, when feasible, move it to groundwater storage and surface reservoirs downstream of the Delta.
- In dry years, reduce diversions of naturally occurring flows from the watershed and shift to greater reliance upon groundwater and surface storage for agriculture and urban needs.
- Improve real-time monitoring capabilities to inform more refined and integrated facility operations (storage and conveyance) consistent with the Two Co-Equal Goals.

Implementation Objective: **Implement optimum volumes of new storage upstream of the Delta and accessible dry-year surface and groundwater supplies downstream of the Delta by the time any new Delta conveyance is operational.** Operate both storage and conveyance consistent with the Two Co-Equal Goals. Optimum volumes of storage are to be determined by integrated operations modeling, taking into consideration environmental regulations and fish and wildlife needs, user benefits, and water rights, and area of origin protections.

Protection Objective: Respect the public trust, water rights, and area of origin protections and avoid, minimize, and mitigate environmental and economic impacts wherever feasible.

Upstream of Delta

Implement new storage and retention upstream of the Delta and integrate operations of new and existing storage consistent with the Two Co-Equal Goals.

Replace Snowpack Storage. By 2050, by some estimates, the Sierra snowpack is projected to lose 25 to 40 percent of its historical storage due to the effects of climate change (3.75 to 6 MAF).

Instream Flows and Refuge Supply. Integrated operations of existing and new storage can increase instream flows and reduce temperature at critical times in the Sacramento and San Joaquin Rivers and tributaries for spawning, rearing, and migration and provide reliable water supplies for State and Federal wildlife refuges in the Central Valley.

Water Diversions. Additional local and regional water storage flexibility upstream of the Delta could reduce water diversions in the Delta watershed at critical times for fish and wildlife.

Conjunctive Use. Increased surface storage capture of wet period flows could be moved to groundwater storage in the Sacramento Basin, San Joaquin Basin, Tulare Lake Basin, and urban areas at more fish-friendly times.

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Delta

Use additional water storage capacity upstream and downstream of the Delta to improve fish habitat, water quality, and water supply in the Delta.

Inflow/Outflow. Improve Delta inflow and outflow at critical times to meet environmental, water quality, and water supply needs.

Water Quality. Maintain Delta water quality at critical times to meet State and Federal requirements.

Diversions. Reduce Delta diversions in dry and critically dry years through the use of stored water supplies.

Downstream of Delta

Improve surface and groundwater storage and management, local infrastructure, and demand management to provide additional accessible dry-year supplies downstream of the Delta for agricultural and urban uses.

Groundwater Conditions. Address groundwater overdraft conditions in the Delta watershed and areas served by the CVP and SWP.

Dry-Year Demands. Increase flexibility to reduce dry year Delta water demands with sufficient accessible, stored water downstream of the Delta (surface and groundwater).

Emergency Supply. Provide sufficient storage downstream of the Delta to ensure municipal public health and safety and minimum flows for agriculture for six months, in the event of a Delta water supply outage.

Implementation Strategy

Efforts over the past 15 years to increase the flexibility of the water management system to achieve the Two Co-Equal Goals have not been successful. Evaluation of major storage projects to provide public and user benefits through the Central Valley Project and the State Water Project have not moved from study to implementation. The tightening regulatory approach to water management has further reduced system flexibility. Moving storage projects from evaluation to implementation on a faster timeline depends on three core strategies: integrated analysis, institutional alignment, and investment approach.

Integrated Analysis. Existing storage studies have not evaluated operations and benefits of additional storage integrated with the Two Co-Equal Goals for the Delta, local and regional needs for water supply and water quality, and potential new conveyance in the Delta. Each project must complete its own feasibility study and environmental review, but the true benefits and opportunities resulting from storage are realized through integrated operations. The evaluation and analysis of the CALFED storage projects and any additional storage projects identified by the California Water Commission and others must consider how storage will integrate with Delta operations and contribute to more flexible water management for the ecosystem and economy.

Institutional Alignment. Water storage needs champions—champions for the water supply benefits and champions for the public benefits. The California Water Action Plan notes that regional interests need to step forward to pay for water supply benefits. The regional interests (water users) are waiting for more certainty in the regulatory requirements to determine how much water might be available from new storage. It is a standoff. New institutional alignment is needed. Regional partnerships of potential beneficiaries are formed for Sites, Temperance Flat, and Los Vaqueros. Improved or expanded partnerships are needed for Shasta, San Luis, American River/Sacramento conjunctive use, and San Joaquin groundwater storage. There is no effective coordination among State and Federal agencies to identify and prioritize public benefits of storage during planning and design (the California Water Commission is only identifying how a water bond could finance public benefits during construction). A team or partnership should specifically be assigned with representatives of the fisheries, flood management, and recreation agencies to define, develop, and prioritize system-wide and project-specific public benefits of storage during planning and design. These “public” and “user” benefit partnerships then need to work together to develop, and indeed negotiate, an integrated approach to plan and operate storage for ecosystem management and water supply reliability.

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Investment Approach. Immediate funding is needed to complete integrated analyses of water storage and identify ecosystem and water supply benefits. Additional funding flexibility is needed to provide funding for regional partnerships and a “public benefits” partnership to complete these integrated analyses that would contribute to each project’s feasibility study, environmental review, and to project and system-wide decision-making. Funding for analysis, design, permitting, and construction is expected to be a mix of Federal, State, and regional/local funds. Language in the current water bond anticipates that up to 50% of water storage project construction could be funded by the State bond funds, with the remaining costs paid by water supply beneficiaries and federal funding. Funding from all sources would be more likely with more certain definition of water supply amounts and allocations for public and user benefits.

The objectives and performance outcomes outlined above can only be achieved through integrated storage operations that maximize ecosystem, water supply, water quality, recreation, and other benefits. The institutional alignment and investment approach are necessary to move projects from analysis to implementation.

Action Plan

Strong leadership and accountability, institutional coordination and alignment, funding, and integrated analysis are needed to move storage projects from concept to completion and operate California’s water system to achieve the Two Co-Equal Goals.

1. **Complete evaluations of integrated surface and groundwater storage** with existing and new conveyance to achieve the Two Co-Equal Goals and meet operating objectives (see also #6) (regional coalitions, jointly with Federal and State agencies).
 - a) Complete integrated system-wide analysis of major storage projects and integrated groundwater storage to define ecosystem and water management benefits and opportunities and to refine storage amount targets.
 - b) Complete project-specific viability² analyses for integration of regional storage projects and local groundwater management.
 - c) Complete inventory and evaluation of local storage projects to identify potential contributions to regional self-reliance and system operations to achieve the Two Co-Equal Goals.
 - d) Identify potential operational and performance assurance mechanisms that may be necessary to achieve desired funding.
2. **Establish and announce a joint commitment by the Governor and Secretary of the Interior** to lead, commit resources, and set policy direction to accomplish well-defined water storage and integrated operations objectives, with a specific timeline to quantify and negotiate public and users benefits.
 - a) Appoint public benefits working committee by State and Federal fisheries, flood management, and recreation agencies to define public benefits objectives and priorities for each storage project and participate in project and system-wide planning and project development.
3. **Identify regional champions** (Sacramento Valley, San Joaquin Valley, Bay Area, and Southern California) to form or revise regional coalitions to define integrated operations and beneficiaries.

² For the purposes of this document, a viability analysis is an integrated, multi-benefit analysis of major storage projects conducted by local/regional water users to determine costs, benefits, and potential cost allocations and to develop regional partnerships.

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4. **Establish joint Federal/State/regional funding** for integrated analyses of multi-purpose benefits of regional storage projects and of local projects that provide system benefits.
 - a) Allocate \$5 million of state drought relief funds and/or inter-regional funding to regional coalitions to complete an integrated, system-wide analysis (\$500,000) and project viability analyses for Temperance Flat, Sites, Shasta, and Los Vaqueros reservoirs (\$4.5 million).
 - b) Identify necessary Federal funding authorizations and implement cooperative agreements for integrated system analysis, project viability analyses, and final feasibility studies.
 - c) Establish local/regional procedures and commitments for matching funds.
 - d) Develop a current, consistent methodology for evaluating costs, benefits, and cost allocations for water storage projects.
 - e) Support a California water bond that provides substantial funds for constructing new, integrated storage to increase the operational flexibility of the State Water Project and Central Valley Project to achieve the Two Co-Equal Goals.
 - f) Provide State and Federal funding support for local storage projects that measurably reduce reliance on the Delta watershed at critical times for fish and other natural resources.
5. **Empower regional coalitions** to design and implement integrated evaluation and development of regional surface and groundwater storage projects and infrastructure, consistent with State and Federal guidelines (State and Federal agencies). Coordinate and align with IRWM regional activities wherever possible.
 - a) Sacramento Valley
 - b) Bay Area
 - c) San Joaquin Valley and Tulare Lake Basin
 - d) Southern California
6. **Establish accountability mechanisms and timelines for the Action Plan implementation and regular progress reporting** to the Delta Stewardship Council Interagency Implementation Committee, consistent with the science and information needs, performance measures, and issues for future evaluation and coordination identified in the Delta Plan.

Timeline and Responsibilities

The following is a preliminary conceptual timeline for the actions identified above. Further discussion among all of the responsible entities is needed to refine the action plan and timeline.

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