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California Water Action Plan Implementation Report

2014–2018 Summary of Accomplishments

January 2019





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California Water Action Plan Implementation Report

2014–2018 Summary of Accomplishments

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This report is available in electronic form: http://resources.ca.gov/california_water_action_plan.

Water goes to the heart of what California is and what it has been over centuries. ... Every one of us and every creature that dwells here form a complex system which must be understood and respected.

~ Gov. Edmund G. Brown Jr.*

We glide our paddles through the water.
The lake reflects a cloudless morning sky—
heron glides, her wings arch upward
as we slow and hover, floating
between island and shore, and turn
toward what we cannot know.

~ William O'Daly**

* Excerpted from Governor Brown's 2016 State of the State address, Sacramento, CA, January 21, 2016.

** Excerpted from "Lake Wicwas," by William O'Daly. *Water Ways*, by William O'Daly and JS Graustein, Folded Word Press (NH), 2017. (Mr. O'Daly is Supervisor of Technical Publications at the California Department of Water Resources.)

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Moving the Needle on Sustainable Water Management

Even the most casual observer can see this is a transformational moment in California water. Extreme weather events, aging infrastructure, declining ecosystems, and severe groundwater overdraft pose significant challenges to the state. Climate change is magnifying the threat.

Recognizing the need for a coordinated and strategic State effort, Governor Edmund G. Brown Jr. directed the secretaries for the California Natural Resources Agency, the California Environmental Protection Agency, and the California Department of Food and Agriculture to identify actions to address urgent needs and provide the foundation for sustainable management of California's water resources.

The *California Water Action Plan* (Water Action Plan), released in January 2014 and updated in 2016, is designed to meet three broad objectives: more reliable water supplies; restoration of important species and habitat; and a more resilient, sustainably managed water resources system that can better withstand inevitable and unforeseen pressures in the coming decades. The plan's multipronged approach requires that we employ every tool available to adapt to the "new normal." We must fundamentally change our approach to water management to prepare the state for a changing climate.

In the nearly five years since the plan's release, State agencies and their local, federal, and tribal partners have made significant progress.

Even as the state careened from five years of severe drought to record-breaking rainfall and flood emergencies, steady advances were made on all 10 priority actions set forth in the Water Action Plan.

Among the highlights:

Proposition 1: Overwhelmingly approved by California voters in 2014, Proposition 1 authorized \$7.5 billion in general obligation bond funding for ecosystems and watershed protection and restoration; water supply infrastructure projects, including new surface and groundwater storage; safe drinking water; water recycling; and other water management strategies aligned with the Water Action Plan. As of December 2018, \$6.6 billion has been appropriated and committed to projects and various granting programs. More than 1,100 projects are in various stages of implementation, and 108 projects have been fully completed.

Drought/Climate Resiliency: California's recent five-year drought was the deepest in modern history and provided a glimpse of what's in store as climate change alters rain and snowfall patterns. The state weathered the drought with minimal economic impact because of local investments in conservation, water recycling, and water storage, though the localized human and environmental costs outside urban areas were significant. Emergency efforts also helped provide drinking water to some communities that saw their wells

go dry. Additional investments — including nearly \$2.7 billion in Proposition 1 funding conditionally awarded to eight surface and groundwater storage projects, \$600 million in water recycling grants and loans, and more than \$100 million to fund safe drinking water projects — will help create resiliency needed for inevitable future droughts.

Water Conservation: With severe drought providing the impetus, California made significant strides on both urban and agricultural water conservation in recent years. Urban Californians cut water use by nearly 25 percent compared with pre-drought levels and have maintained a significant water-saving ethic even after the drought. Building on a May 2016 executive order issued by Governor Brown, State agencies worked with stakeholders to create a framework for eliminating water waste, improving water use efficiency and drought-proofing local and regional water supply portfolios. A legislative package signed in May 2018 will pave the way for further improvements in conservation and drought planning.

California WaterFix: While the State continues to invest in conservation and local water supplies, water conveyed from the Sierra Nevada through the Delta remains a crucial supply for 27 million Californians. WaterFix, the State’s science-driven project to protect the reliability of that supply, while restoring more natural flow patterns in the Delta, has reached several key milestones. The State is working to advance it through remaining steps and permits needed to begin construction.

Ecosystem Enhancement: Protecting and restoring ecosystems is a key priority of the Water Action Plan. California is investing in numerous multi-benefit habitat and flood-risk reduction projects around the state, including projects at the Salton Sea, in the Delta and its tributaries, in upper Sierra Nevada watersheds, and in coastal areas. The State also took a historic step to update flow requirements for the San Joaquin River and its tributaries for the protection of native fish and their habitat.

Similarly, the State is working to secure removal of four hydroelectric dams on the Klamath River to reopen hundreds of miles of historic habitat for salmonids.

Sustainable Groundwater Management: Landmark legislation, signed by Governor Brown in 2014, provided tools and authorities for local agencies to strengthen groundwater management and meet new sustainability goals. In a key milestone, more than 99 percent of the state’s high- and medium-priority basins are now covered by groundwater sustainability agencies, which are tasked with submitting groundwater sustainability plans to the State beginning in 2020. The State continues to provide oversight and technical assistance to local agencies.

While some actions undertaken since 2014 created immediate results, many efforts underway today will take years to reach fruition. The hard work and investments guided by the Water Action Plan will continue, with the intent that the plan will be updated and used for guidance by future administrations and their partners.

Highlights of the actions taken to implement the Water Action Plan in 2017 and 2018 are illustrated on pages 4–7. Highlights of years 2014, 2015, and 2016 are included in Appendix A on page 31.

2017 Highlights

January

Proposed Budget Funds Water Priorities

Gov. Brown's proposed 2017-2018 State Budget provides \$179M for emergency drought response and \$291M for other Action Plan priorities.

(All Actions)

Funding Aims to Restore Delta Ecosystems

CDFW awards \$7.2M in Prop 1 funds for projects that improve ecological conditions for native fish and wildlife in the Delta.

(Actions 3, 4)



March

CA Climate Investments Fund Water Projects

With funding from California's cap-and-trade program, DWR awards nearly \$18M in grants for 14 projects to promote water-energy savings and reduce GHGs. **(Actions 1, 2)**

Grants to Clean Up Groundwater Contamination Awarded

Water Board awards \$24M for 42 projects to help remediate soil and groundwater contamination that threatens human health and the environment. **(Actions 6, 7)**

Potential WSIP Grant Applicants Receive Assistance

CWC holds public workshop to orient potential applicants to Water Storage Investment Program requirements. **(Action 6)**

May

Disadvantaged Communities Receive Regional Planning Grants

DWR receives proposals and begins awarding more than \$51M in grants to promote greater involvement by disadvantaged communities in IRWM planning. **(Action 2)**

Final Environmental Documents for Delta Research Station Certified

DWR certifies the final EIR/EIS for its proposed scientific field station on 5 acres of former Rio Vista army base in the Delta. **(Actions 3, 4)**

Drinking Water Sources Protected

Water Board awards nearly \$120M for 25 projects that prevent and clean up groundwater contamination of drinking water sources. **(Actions 6, 7)**

February

Oroville Spillways Incident Prompts Close Coordination

In response to the Oroville Spillways incident, DWR coordinates with many local, State, and federal partners to ensure public safety.

(Action 9)



Governor Acts to Bolster Dam Safety

Governor announces plan to bolster dam safety and flood protection, including significant funding for flood control and emergency response actions. **(Action 8)**

Strategy Ensures Delta's Economic Sustainability

Delta Conservancy releases a locally driven 50-year marketing strategy for Delta tourism.

(Action 3)

April

Governor Lifts Drought Emergency, Promotes Conservation

By EO, Governor ends drought state of emergency; Administration releases plan to prepare for future droughts and make conservation a California way of life.

(Actions 1, 5)

Increased Water-Energy Efficiency

CEC provides \$2.9M to develop automated, programmable irrigation management system to reduce water-energy use. **(Action 1)**

Landmark Carbon Offset Methodology Approved

Delta Conservancy receives approval of carbon offset methodology to quantify GHG-emission reductions from restoration of deltaic and coastal wetlands. **(Action 3)**

Recommendations Made for Improving Regional Sustainability

State agencies host regional sustainability water summit and publish report that includes stakeholders' recommendations for sustaining and strengthening IRWM. **(Action 2)**

June

Governor's State Budget Funds Water Priorities

Legislature approves and Governor signs 2017-2018 State Budget, providing \$85M for emergency drought response and \$178M for other Action Plan priorities.

(All Actions)

Strategy to Aid Salmon and Steelhead Launched

CNRA releases science-based Sacramento Valley Salmon Resiliency Strategy to address the needs of salmon and steelhead. **(Action 4)**

Flood Risk Reduction and Ecosystem Restoration Move Forward

DWR begins construction of Southport Levee Setback and continues to design Lower Elkhorn Basin Levee Setback Project to reduce flood risk and restore important ecosystems. **(Actions 4, 8)**

Grants Provide Safe Drinking Water to Disadvantaged Communities

Water Board issues more than \$3.7M in emergency grant funding for 30 projects to help provide safe drinking water to small disadvantaged communities. **(Actions 2, 7)**

July

On-Farm Water Efficiency Enhanced

CDFA provides grants to 57 agricultural operations for irrigation system efficiencies. **(Action 1)**

Groundwater Sustainability Agencies Formed

Local agencies in 140 groundwater basins have formed more than 260 groundwater sustainability agencies. **(Actions 2, 6)**

Prop 1 Grants Provide Safe Drinking Water

Water Board issues \$51M in Prop 1 grants for 51 projects to provide safe drinking water to small disadvantaged communities. **(Actions 2, 7)**

CA WaterFix Hits Major Milestone

Following State and federal permits, DWR certifies final EIR for California WaterFix. **(Action 3)**

September

Collaborative Road Map for Delta Science Released

DSC releases Science Action Agenda that prioritizes and aligns science actions to achieve the objectives of Delta Science Plan. **(Actions 3, 4, 9)**

CA Water Plan 2018 Plenary Meeting Held

DWR hosts public meeting for California Water Plan, focusing on priority recommendations, investment and financing strategies, regional management, realigning regulations, and data-driven decision-making. **(All Actions)**



November

Salton Sea Management Agreement Approved

Water Board approves a landmark agreement to restore and manage the Salton Sea over the next 10 years to protect public health and critical Pacific Flyway habitat. **(Action 4)**

Permanent Regulations Prohibit Wasteful Water Use

Water Board initiates regulatory process to make prohibitions on wasteful water-use practices permanent. **(Actions 1, 5)**

Delta Plan Amendments Proposed

DSC considers amendments to Delta Plan in response to changing circumstances and conditions in the Delta. **(All Actions)**

August

Nationally Recognized Flood Protection Plan Adopted

DWR develops and CVFPB adopts Central Valley Flood Protection Plan update with portfolio of recommended actions and long-term investment strategy. **(Actions 2, 4, 6, 8, 9, 10)**

Central Valley Wildlife Refuges Receive Funding

CNRA announces \$89M in grant funding to increase or improve reliability of water deliveries to Central Valley wildlife refuges. **(Action 4)**



WSIP Applications Received

CWC receives 12 applications seeking a total of \$5.79B, twice the amount of funds available from Prop 1. **(Actions 3, 6)**

October

Water Agencies Vote to Support CA WaterFix

Governing boards of more than 10 local agencies vote to participate in California WaterFix, signaling the water supply and ecosystem improvement project's financial viability. **(Action 3)**

State of Emergency Declared Due to No. CA Wildfires

Governor declares State of Emergency for 8 N. California counties to fund wildfire response and reparation. **(Action 9)**

Delta Cross Channel Operations Assist Fall-Run Salmon

CDFW coordinated with USFWS, NMFS, DWR, and Reclamation to modify gate operations to reduce straying of fall-run Chinook salmon into Central Delta. **(Actions 3, 4, 9)**

Ceremony Marks Completion of Folsom Dam Auxiliary Spillway

USACE, Reclamation, CVFPB, and DWR celebrate completion of nearly a decade of work on the new Folsom Dam auxiliary spillway. **(Action 8)**

December

Groundwater Agencies Set to Receive Prop 1 Grants

DWR receives applications for \$86M (incl. \$16M benefiting severely disadvantaged communities) for groundwater sustainability plans and projects. **(Action 6)**

Climate Adaptation Plan Finalized

CNRA updates Safeguarding California plan, providing strategies to adapt to climate change. Publicly available in January 2018. **(All Actions)**

Yolo Bypass Floodplain Restoration Hits Milestone

DWR and Reclamation prepare draft environmental documents to restore 17,000 acres of floodplain habitat, the largest project of its kind in Central Valley. **(Actions 3, 4)**

State of Emergency Declared Due to Southern CA Wildfires

Governor declares State of Emergency for Los Angeles, Ventura, Santa Barbara, and San Diego counties to fund wildfire response and reparation. **(Action 9)**

Droughts Prior to Historical Records Reconstructed

With DWR funding, University of Arizona reconstructs droughts prior to historical record in 6 S. California watersheds, using evidence from tree rings. **(Action 5)**

2018 Highlights

January

Proposed Budget Funds Water Priorities

Gov. Brown's proposed 2018-2019 State Budget sets aside more than \$400M for Action Plan priorities, supported by SB 5 (Prop 68) approved by voters in June 2018. [\(All Actions\)](#)

State Continues to Invest in Protection and Cleanup of Groundwater

Water Board awards more than \$40M for projects that clean up and prevent groundwater contamination of drinking water wells. [\(Action 7\)](#)



March

DWR Honored for Climate Leadership

For the third time in four years, DWR has won a Climate Leadership Award for efforts to combat climate change. [\(All Actions\)](#)

Validated Water Loss Audit and Reporting Regulations Are Final

DWR adopts rules for urban retail water suppliers to annually conduct, validate, and report on water loss audits. [\(Action 1\)](#)

Regulations Adopted for Augmenting Reservoirs with Recycled Water

Water Board action provides a reliable, drought-resilient, sustainable option for supplementing surface reservoirs with recycled water. [\(Actions 2, 5\)](#)

Desalination Projects Move Forward

DWR awards more than \$44M in grant funding to nine desalination projects to increase local and regional drinking water supplies. [\(Actions 2, 5\)](#)

May

Fremont Weir Groundbreaking Marks Milestone for Yolo Bypass Fish Passage

DWR, Reclamation, and CNRA celebrate groundbreaking of a critical habitat improvement project in Yolo Bypass. [\(Actions 3, 4\)](#)

Water Conservation Objectives and Drought Planning Established

Governor signs SB 606 (Hertzberg) and AB 1668 (Friedman) to help the state better prepare for droughts and climate change. [\(Actions 1, 5\)](#)

Draft Prioritization of Groundwater Basins Released

DWR releases a draft prioritization of groundwater basins, as required by Sustainable Groundwater Management Act. [\(Action 6\)](#)

Partnership Formed for CA WaterFix

DWR enters into Joint Exercise of Powers Agreement with Delta Conveyance Design and Construction Authority for design and construction of California WaterFix. [\(Action 3\)](#)

February

East Porterville Water Project Connects 755 Homes

State and local agencies, led by DWR, help homeowners affected by California's multi-year drought by connecting 755 homes in East Porterville to a safe, reliable, permanent water supply. [\(Action 7\)](#)

Completion of SWP's East Branch Extension Commemorated

The East Branch Extension, designed and built in partnership with local agencies, allows local water managers to further diversify their water portfolios, including recharging aquifers. [\(Actions 2, 6\)](#)

Construction Wraps Up for Fish Release Sites in Delta

Salvaged fish from Skinner Delta Fish Protective Facility have better odds of survival, as they return to Delta at two new state-of-the-art release sites to be operated jointly by DWR and Reclamation. [\(Actions 3, 4\)](#)

New Dam Safety Requirements Enacted

Governor signs AB 1270, which requires the State to consult with dam safety organizations on changes to State's existing Dam Safety program. [\(Actions 8, 9\)](#)

April

Grants Awarded to Groundwater Agencies

DWR awards \$85.8M in grants for groundwater sustainability projects that directly benefit severely disadvantaged communities. [\(Action 6\)](#)

Tribal Water Summit Held

DWR hosts Tribal Water Summit to address an array of water issues between the State of California and California Native American Tribes. [\(Action 2\)](#)



Delta Projects Receive Prop 1 Funding

The Delta Conservancy awards \$17M to 8 projects in Delta to restore habitat, improve water quality, eradicate nutria, and sustainably manage agriculture. [\(Actions 3, 4\)](#)

WAFR Report Provides First-of-its-Kind Analysis

DWR assists agencies by releasing report on water available for replenishing groundwater basins and bringing them into sustainable balance. [\(Action 6\)](#)

June

Final State Budget Funds Water Priorities

Legislature approves and Governor signs 2018-2019 State Budget, providing more than \$450M from passage of Prop 68 for Action Plan priorities. [\(All Actions\)](#)

Wastewater Infrastructure Projects Financed

Water Board issues \$425.7M via Clean Water State Revolving Fund for construction of wastewater treatment and water recycling facilities. [\(Actions 2, 7\)](#)

Emergency Drinking Water Grants Awarded

Water Board issues more than \$2.1M for 36 projects that provide safe drinking water to small disadvantaged communities. [\(Action 7\)](#)

July

Water Storage Projects Receive Conditional Funding

CWC approves conditional funding for 8 water storage projects that collectively will boost California’s water storage capacity by 4.3 maf. **(Action 6)**

Stormwater Capture Projects Move Forward

Water Board grants more than \$57M for projects that will capture more than 1,400 af of stormwater and dry weather runoff annually. **(Action 2, 6)**

Safe Drinking Water Grants Awarded

Water Board issues more than \$28M in Prop 1 grants to provide safe drinking water to small disadvantaged communities. **(Action 7)**

Wildfire State of Emergency Declared

Governor declares State of Emergency for Siskiyou, San Diego, Santa Barbara, San Bernardino, Riverside, Shasta, Mariposa, Lake, Mendocino, and Napa counties imperiled by wildfires. **(Action 9)**

September

Hazard Classification of CA Dams Updated

DWR releases information on the 1,246 dams under the State’s jurisdiction, listing dams’ downstream hazard classification and reservoir restriction status. **(Action 8)**

State Commits to Greater GHG Emissions Reduction

With Global Climate Action Summit underway in San Francisco, DWR announces its commitment to cut GHG emissions by 60% or more below 1990 levels. **(All Actions)**

Governor Acts to Protect Unique Biodiversity

Governor signs EO to safeguard California’s unique plants, animals, and ecosystems threatened by climate change. **(Action 4)**

Fire Recovery, Ecosystem, and Watershed Projects Funded

CDFW awards nearly \$28M for large-scale wildfire response projects and Central Valley salmon resilience and recovery efforts. **(Action 4)**

November

DWR Meets Public Safety Milestone

DWR announces meeting goal of completely reconstructing the main spillway at Oroville Dam by Nov. 1, in preparation for winter storms. **(Action 8)**

Major Levee Construction Protects People and Property

DWR and SAFCA address seepage and stability deficiencies along Sacramento River East Levee and North Area streams. **(Action 8)**



August

Making Water Conservation a California Way of Life

DWR and Water Board release public review draft of primer on 2018 legislation regarding water conservation and drought planning. **(Actions 1, 5)**

Flood Project Partnership Agreement Executed

USACE, the Sutter Butte Flood Control Agency, and DWR execute agreement for the Sutter Basin Project along the Feather River West Levee. **(Action 8)**

Small Community Wastewater Facilities Upgraded

Water Board issues more than \$81M in grants to help small communities modernize their wastewater treatment facilities to meet current standards. **(Action 2)**

October

Dutch Slough Tidal Restoration Breaks Ground

DWR, along with State and local partners, celebrate the groundbreaking of the Delta’s largest tidal wetlands restoration project. **(Actions 3, 4, 7)**



Statewide Flood Preparedness Promoted

DWR, with support from multiple agencies, led California Flood Preparedness Week to encourage Californians to “Be Aware, Be Prepared and Take Action.” **(Action 8)**

Segment of Marysville Ring Levee Completed

DWR, CVFPB, USACE, and Marysville Levee District finished construction of a 40-foot-deep cutoff wall to improve flood protection for Marysville. **(Action 8)**

December

State Agencies Outline Plan to Improve River Flows for Fisheries

DWR and CDFW present progress to Water Board on voluntary agreements to improve river flows and restore habitat for Sacramento River and San Joaquin River watersheds. **(Actions 3, 4, 9)**

Water Board Updates Bay-Delta Plan

Water Board adopts plan to restore water flows through the Lower San Joaquin River and its tributaries and makes allowances for collaborative voluntary agreements. **(Actions 3, 4)**

Drinking Water Infrastructure Financed

Water Board awards \$296.9M via State Revolving Fund for 24 projects to ensure water systems continue providing safe drinking water to communities. **(Action 7)**

CA Water Plan Update 2018 PRD Released

DWR releases public review draft of California Water Plan, providing recommended actions, funding scenarios, and investment strategy to help overcome the state’s water resource challenges.

California Water Action Plan Primary Actions

Action | 1 Making Water Conservation a California Way of Life

Action | 2 Increase Regional Self-Reliance and Integrated Water Management Across All Levels of Government

Action | 3 Achieve the Co-Equal Goals for the Delta

Action | 4 Protect and Restore Important Ecosystem

Action | 5 Manage and Prepare for Dry Periods

Action | 6 Expand Water Storage Capacity and Improve Groundwater Management

Action | 7 Provide Safe Water for All Communities

Action | 8 Increase Flood Protection

Action | 9 Increase Operational and Regulatory Efficiency

Action | 10 Identify Sustainable and Integrated Financing Opportunities

Action | 1

Making Water Conservation a California Way of Life

Five years of severe drought drove home the fact that using water wisely must be a part of daily life for Californians. Long-term water conservation, efficient use, and local and regional drought planning are critical to California’s resilience to drought and climate change.

Building on emergency water restrictions adopted at the height of the drought in 2015, the Brown Administration issued an executive order in 2016 directing State agencies to create a long-term conservation framework with four key objectives: 1) using water more wisely, 2) eliminating water waste, 3) strengthening local drought resilience, and 4) improving agricultural water-use efficiency and drought planning.

The State also provided significant financial assistance to help local agencies boost water conservation, save energy, and reduce greenhouse gas emissions (GHGs).

In May 2018, Governor Brown signed Senate Bill (SB) 606 (Hertzberg) and Assembly Bill (AB) 1668 (Friedman) requiring a suite of actions to make long-term improvements in water conservation and drought planning for agricultural and urban water suppliers, small water systems, and rural communities.

These new laws provide complementary authorities and requirements for State agencies and water suppliers. The legislation will transform State water conservation requirements by focusing on efficient water use, while accounting for unique climatic, demographic, and land-use characteristics of each water supplier’s service area. As an initial action to assist local and regional entities with implementation of the legislation, the California Department of Water Resources (DWR) and the State Water Resources Control Board (State Water Board) released a draft primer on the water conservation and drought planning



DWR’s colorful Water-Wise Garden, as part of the department’s “Water Conservation: Rain or Shine” exhibit at the 2017 California State Fair, encouraged an estimated 635,000 fairgoers to continue a lifestyle of conservation.

legislation for public review. DWR and the State Water Board also held listening sessions throughout the state. The final primer was distributed to public in November 2018.

The State also developed regulations for water loss audits, as required by SB 555 (Wolk, 2015) and reviewed nearly 400 validated audit reports submitted by urban water suppliers.

Efforts to reduce water system leaks in California include:

- Development of the Validated Water Loss Audit Regulations, as required by SB 555. The California Water Commission (CWC) approved the regulations in 2017.
- Review of nearly 400 urban water suppliers validated water-loss audit reports. Most of the water suppliers received technical assistance as part of California-Nevada American Water Works Association's \$3.2 million *Water Loss Technical Assistance Program* funded by the State Water Board.

Some of the investments the State has made in water conservation include:

- Awarded \$22 million in Proposition 1 rebates to California household residents to convert turf to drought-tolerant landscaping, with a total estimated reduced water use of 1,400 acre-feet (af).
- Developed grant agreements for 44 agricultural water-use-efficiency projects and awarded nearly \$30 million from Proposition 1 for improving agricultural water conservation.
- Developed loan agreements for two urban water-use-efficiency projects, awarding \$3.25 million from Proposition 1 under the *CalConserve Revolving Fund* program
- California Department of Food and Agriculture (CDFA) and DWR collaborated on a \$6 million jointly funded pilot program to finance innovative on-farm and agricultural water agency efficiency projects. Utilizing funds from California Climate Investments and other sources,

CDFA has made \$84 million available to date and funded 614 projects that will save more than 100,000 af annually through the State Water Efficiency and Enhancement Program. The program provides incentives to growers to implement efficiencies, such as drip and low-pressure systems and soil moisture monitoring.

The California Energy Commission (CEC) has embarked on a number of water- and energy-efficiency projects related to agricultural and winery operations, cooling towers, and leak detection. CEC is also developing water and efficiency standards for spray sprinklers, irrigation controllers, and tub-spout diverter.



Turf replacement demonstration garden in the 2018 Save Our Water campaign.

Action | 2

Increase Regional Self-Reliance and Integrated Water Management Across All Levels of Government

Helping regions diversify their supply portfolios and invest in sustainable water management strategies is key to a secure water future.

The Brown Administration has actively supported these efforts by providing grants, loans, facilitation services, and technical assistance to develop local supplies and promote collaboration within and among California's regions.

Whether it's programs to increase water use efficiency, protect or create habitat, recycle water for reuse or removing salts and contaminants from groundwater, local agencies have leveraged billions of dollars in public funding to make significant strides in regional self-reliance and integrated water management.

Proposition 68, passed by voters in June 2018, authorized \$4.1 billion in funding for drought response, water, parks, climate, coastal protection, and outdoor access for all. Several programs will increase regional self-reliance, including funding for multi-benefit projects, groundwater sustainability, and floodplain management.

The State Water Board awarded more than \$230 million in 2017 and more than \$123 million in 2018 in water recycling grants and loans. In addition, the Water Board issued \$1.7 billion in 2017 and \$425 million in 2018 in *Clean Water State Revolving Fund* financing for wastewater infrastructure projects. To increase the use of recycled water protective of public health, the Water Board adopted regulations for surface water augmentation that uses recycled water, and DWR updated the recycled water dual plumbing standards for the 2019 edition of the California Plumbing Code.

In 2018, DWR awarded over \$44 million in Proposition 1 grant funding for desalination projects that will increase local and regional water supplies.

DWR developed targets for future use of recycled water and urban stormwater to better prepare for future droughts, and the Water Board provided more than \$57 million in grants for stormwater projects.

DWR hosted the third Statewide Tribal Water Summit in April 2018. Several other State agencies informed tribes of available technical and financial assistance. During the summit, DWR in partnership with University of California, Davis, debuted "Climate Conversations," a series of short videos featuring tribal members discussing their perspectives of, and experiences with, a changing climate and how it is affecting their livelihoods and culture.

To strategically inform the future of integrated regional water management (IRWM), DWR released *Stakeholder Perspectives: Recommendations for Sustaining and Strengthening Integrated Regional Water Management* in April 2017, laying out more than 70 recommended actions compiled during an intensive, three-year process of stakeholder outreach and engagement across the state.

In April 2017, DWR partnered with the Water Education Foundation to host a water summit, "Building Capacity for Regional Sustainability." The water summit brought together about 200 water leaders and practitioners, representing all water sectors, urban and agriculture land uses, environmental interests, tribes, and disadvantaged communities. The group discussed challenges and opportunities

involved in managing water resources for sustainability within and among California’s diverse regions. The consensus identified what would be needed from the State: leadership, continued financial support, data/technical assistance, regulatory alignment, and flexibility.

DWR finalized agreements for over \$51 million in Proposition 1 funding to support disadvantaged community involvement in IRWM. As described later, under Action 7, the Water Board also provided significant financial and technical assistance for disadvantaged communities. Although previous bonds included stipulations to ensure funding of projects that benefitted disadvantaged communities, Proposition 1 went further to ensure that traditionally underrepresented communities and their needs are identified and more directly addressed. For the first time, the legislation also allows for tribes to be eligible applicants.

DWR, the Water Board, and the California Department of Fish and Wildlife (CDFW)

coordinated their efforts and hosted a Proposition 1 tribal consultation in July 2018 to leverage limited resources and deliver coordinated messages.

In fall 2018, DWR released the Proposition 1 IRWM Implementation Grant Program (Round 1) draft solicitation package for public review and held public and tribal meetings to solicit comments. An estimated \$400 million in IRWM grants will be awarded in two rounds, starting in 2019, with not less than \$51 million of this amount benefiting disadvantaged communities. This process will be coordinated with the Water Board’s Proposition 1 \$90 million stormwater grant program.

In consultation with the California Air Resources Board, DWR completed agreements for 13 projects funded through the *Greenhouse Gas Reduction Fund*. These projects are designed to reduce water use by 45,600 af and lower GHG emissions by an estimated 574,000 metric tons.



The April 2018 Tribal Water Summit addressed indigenous water rights and explored further partnerships to meet tribal water policy needs.

Action | 3

Achieve the Co-Equal Goals for the Delta

Since 2009, the co-equal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Sacramento-San Joaquin Delta (Delta) ecosystem have been the touchstone for State water policy.

The Brown Administration has marked significant progress on a suite of initiatives designed to support long-term water supply reliability, as well as ecosystem enhancement, for key species.

Since the release of the *California Water Action Plan* (Water Action Plan) in 2014, the State Water Board and departments within the California Natural Resources Agency (CNRA) have advanced both regulatory and voluntary pathways to improve river flows to help restore native fish populations.

In 2018, the Water Board took historic action by updating its *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan), the State's regulatory framework for balancing the complex relationships between Delta environmental objectives and water diversions and exports. The update establishes new requirements to restore water flows through the Lower San Joaquin River and its tributaries — the Stanislaus, Tuolumne and Merced rivers — to provide reasonable protection for fish and wildlife in conjunction with other uses of water. The Water Board is now in the process of updating flow requirements for the Sacramento River watershed and Delta outflows, as well.

On a separate but related track, negotiations have continued apace to secure voluntary agreements among water users to support flow and habitat improvements in the Delta and its tributaries.

If successful, these voluntary agreements could be incorporated into the Bay-Delta Plan and contribute to meeting the plan's objectives by integrating flow and habitat actions to meet regulatory standards and support all beneficial uses of water.

In another key initiative, the *California WaterFix* project accomplished several regulatory and permitting milestones on the road to protecting reliable water supplies for 27 million Californians by upgrading aging water infrastructure in the Delta and restoring more natural flow patterns. Milestones include:

- Release of certified environmental documents in December 2016.
- Completion of permits under State and federal Endangered Species Acts and release of biological opinions in June 2017.
- Issuance of incidental take permit under California Endangered Species Act in August 2017.
- Completion of Parts 1 and 2 of the Water Board's Change in Point of Diversion Petition process.
- Development and circulation of supplemental environmental documents that evaluate proposed project refinements.
- Formation of a joint powers authority known as the Delta Conveyance Design and Construction Authority (DCA), composed of local public water agencies participating in WaterFix. The DCA is charged with final design and construction of WaterFix facilities, under the oversight of DWR's Delta Conveyance Office.
- Formation of the Delta Conveyance Finance Authority to secure financing for WaterFix implementation.

- Release of cost-benefit analysis that finds WaterFix could bring billions of dollars in benefits to Californians who obtain their water from participating State Water Project (SWP) contractors. The benefits include improved water quality, more reliable water supplies, enhanced disaster preparedness, and climate change resilience.



Joint Exercise of Powers Agreement is signed between DWR and the Delta Conveyance Design and Construction Authority.

In parallel, the State is well underway with implementation of *California EcoRestore*, which will advance restoration and enhancement of at least 30,000 acres in the Delta by 2020. In 2018, construction began on four projects that will restore more than 3,000 acres of tidal and floodplain habitat. In addition, construction began on the *Fremont Weir Adult Fish Passage Project* to significantly improve fish passage for adult salmon and sturgeon. A first-of-its-kind request for proposal mechanism was developed for the DWR *Fish Restoration Program*, securing 480 additional acres of tidal habitat through contracts for turnkey restoration projects.

In recognition of its groundbreaking carbon sequestration and wetland restoration work in the Delta, DWR was awarded the San Francisco Estuary Partnership's Outstanding Environmental Project Award.

The Delta Stewardship Council's (DSC's) Delta Plan Interagency Implementation Committee completed 10 semiannual meetings in its mission to advance priority actions for the Delta and further achieve the co-equal goals through State and federal coordination.

In cooperation with State and federal agencies, the DSC initiated an amendment to *The Delta Plan* in 2017, focused on identifying opportunities for restoring, protecting, and enhancing the Delta ecosystem. Using best available science, the process sets targets, policies, recommendations, and performance measures. Over the past two years, the DSC has invested nearly \$10 million to support scientific research on Delta ecosystems, complementing CDFW's contribution of approximately \$20 million for Delta science over the past four years.

CDFW developed the *Delta Conservation Framework* as a handbook for conservation planning efforts in the Delta. The framework provides a template for regional and stakeholder-led approaches to restoring ecosystems functions to the Delta landscape.

The Sacramento-San Joaquin Delta Conservancy (Conservancy) has invested over \$24 million in Proposition 1 funds in ecosystem restoration, water quality, and agricultural sustainability projects, many of which contribute to the 30,000-acre EcoRestore objective.

The Conservancy is near completion of a *Central Delta Public Lands Strategy* to coordinate management of Delta public lands and inform investments in ecological improvements, and economic viability. This process brought together all Delta interests to develop a widely vetted strategy and partnerships that will contribute significantly to achieving the co-equal goals for the Delta.

Action | 4

Protect and Restore Important Ecosystem

Protecting and restoring California’s native ecosystems is imperative to our future. Streams that once meandered through lowland and floodplain habitats have lost connection with coastal estuaries and the Pacific Ocean, contributing to the decline of salmon and steelhead, and limiting habitat for other species.

The Brown Administration has worked aggressively to restore natural flows and create more resilient habitat that can also help recharge groundwater, naturally purify water, and reduce flooding.

Nowhere is restoration more urgent than the Salton Sea, an inland sea whose rapidly declining water levels pose one of the state’s most pressing public health and environmental challenges.

In March 2017, the State committed to a 10-year plan to address air quality and ecological threats at the Salton Sea. The plan’s first phase focuses on constructing wetlands and other projects to suppress dust on areas of previously submerged lakebed — known as *playa* — that have been or will be exposed by 2028.

The State Water Board adopted a regulatory framework (Order WR 2017-0134) for meeting aquatic habitat restoration and dust mitigation milestones, and the Brown Administration worked with the State Legislature to enact SB 615 (Hueso, 2017), which will ease the path to a managed and ecologically viable Salton Sea. Voter-approved bond funds of nearly \$300 million are dedicated specifically for implementing Salton Sea air quality and habitat restoration projects totaling 29,000 acres over the next decade.

DWR, in collaboration with CDFW and CNRA, awarded grants for two wetland restoration projects at the Salton Sea: one at the north end

of the Sea, the Torres-Martinez Tribal Wetlands Habitat Enhancement and Creation Project, and the other, the Red Hill Bay project, at the south end of the sea. Both projects address the loss of aquatic habitat for fish and migratory birds, as well as provide dust mitigation on areas of exposed *playa*.

DWR continues to develop new dust management actions to mitigate current and future dust problems in the Imperial Valley caused by the decreasing surface area of the Salton Sea. One 3,770-acre project at the south end is slated to start construction in 2020, and a 2,000- to 3,000-acre project at the north end should start shortly after that.

Wildlife management agencies have long sought regulatory frameworks that facilitate “advance mitigation,” the practice of protecting and restoring large, well-planned areas of habitat prior to, and in anticipation of, infrastructure projects that may affect the environment. AB 2087 (Levine, 2016) created such a framework. In 2017, CDFW began implementing this new policy, and it is anticipated that subsequent agreements between public infrastructure agencies, such as DWR, will encourage development of more broadly beneficial infrastructure and conservation projects.

State conservancies, such as the State Coastal Conservancy, the Delta Conservancy, and the Sierra Nevada Conservancy, continued to grant tens of millions of dollars from Proposition 1 for habitat restoration and climate change adaptation projects. In 2017, CNRA granted \$89 million to four projects that will help ensure more reliable water supplies for Central Valley wetlands and wildlife refuges.

CDFW granted \$35 million from Proposition 1 for watershed and habitat restoration projects. And with funding from California’s GHG

cap-and-trade program, CDFW continued to fund coastal and Delta wetland and mountain meadow projects that restore ecological function while also sequestering harmful GHGs.

Using the Delta Smelt Resiliency Strategy as a template, CNRA developed the *Sacramento Valley Salmon Resiliency Strategy* to guide near-term work toward recovered salmon populations. The strategy focuses on the freshwater portion of the salmonid life cycle, with emphasis on enhancing spawning and juvenile rearing habitat and eliminating physical barriers to adult migration.

In the Klamath Basin, the State continued to work with partners to advance removal of four hydroelectric dams to reopen hundreds of miles of historic habitat for salmonids. Building on an agreement signed in 2016 by Governor Brown and a coalition of government, tribal, and nongovernmental organization leaders, the Water Board held scoping meetings and issued a draft Klamath Dam removal water-quality certification and a draft environmental impact report in December 2018.

Over the past two years, the Water Board issued draft study plans for hydrologic and surface

water-groundwater interaction models in three priority watersheds (South Fork Eel River, Ventura River, and Shasta River) and conducted stakeholder outreach and engagement. These models will inform establishment of flows in priority watersheds to support anadromous fish.

DWR commenced the construction of *Dutch Slough Tidal Restoration Project* in May 2018. The project will benefit native species by re-establishing natural ecological processes and habitats for the benefit of fish and wildlife species. It will also contribute to scientific understanding of Delta habitat restoration and provide shoreline access and educational and recreational opportunities.

Significant growth in commercial cannabis cultivation following adult use legalization led the Water Board, in 2017, to adopt a new *Cannabis Cultivation Policy*. Left unchecked, cannabis cultivation poses serious threats to water quality and fish and wildlife by diverting water or releasing fertilizers, pesticides, and sediments into waterways. The new policy establishes strict protections for riparian areas and wetlands and protects stream flows from contamination and over diversion of water.



White pelicans congregate on the Salton Sea's slowly receding shores. Throughout 2018, the State continued work on habitat restoration, air quality, and water supply projects to protect the sea's future.

Action | 5

Manage and Prepare for Dry Periods

California is known for its variable hydrology, but the latest climate science tells us droughts and other extreme conditions will become more frequent and severe. Effective management and planning for all hydrologic conditions will reduce impacts of acute water shortages and lessen costs of State response actions.

In response to record-breaking drought, Governor Brown formed an Interagency Drought Task Force in December 2013 and declared a statewide drought emergency in January 2014. The State Water Board enacted emergency water-use restrictions that resulted in a 24-percent reduction in urban water use in 2015, while the State partnered with the Association of California Water Agencies to urge Californians to reduce their water use through the statewide *Save Our Water* program.

Although the Governor ended the official drought emergency in April 2017, pockets of water shortages continued in Fresno, Kings, Tulare, and Tuolumne counties. Impacts will linger for years in communities where drinking water supplies were disrupted, groundwater levels declined, and agricultural land was taken out of production.

The Water Board continued to receive and assess water production data from urban water suppliers. Since June 2015, more than 3.3 million acre-feet (maf) of water has been conserved by urban water users, enough to supply more than 14 million people with water for an entire year.

During 2014 and 2015, the Water Board issued orders approving petitions from the DWR (State Water Project) and the U.S. Bureau of Reclamation (Central Valley Project) to adjust water quality and flow requirements in the Bay-Delta. The orders allowed additional storage of 1.3 maf of water in State and federal reservoirs for salinity control, water export, and cold water for fish. The orders were modified several times

to adjust for changing conditions during the peak of the drought.

To help better prepare for the next drought, State agencies — DWR, the Water Board, California Public Utilities Commission, CDFA, and CEC — published a report with recommendations to improve planning for future droughts, including extending the length of dry periods agencies must plan for.

In 2018, the report led to passage of legislation directing agencies to develop guidance for drought planning needs of small water systems and rural communities, recognizing that these communities are often more vulnerable during droughts. Since counties sometimes play a big role in improving drought planning, the legislation also directs DWR to present recommendations on county drought planning to the Governor and California State Legislature by January 1, 2020.

DWR, in coordination with the Water Board and CDFA, also will help agricultural water suppliers implement the requirements of the new legislation.

The Water Board, DWR, and the California Office of Emergency Services (Cal OES) provided technical and financial assistance to drought emergency drinking water projects in the communities of East Porterville, Monson, Hardwick, Okieville, Romaldo, El Porvenir, and Cantua Creek. State agencies also assisted these communities with project planning and construction to ensure they receive safe and reliable drinking water.

DWR held drought preparation workshops in rural communities in 2018 and continued to support drought-affected communities with permanent water supply in Fresno, Tulare, Tuolumne, Madera, and Kings counties.

Action | 6

Expand Water Storage Capacity and Improve Groundwater Management

California needs more places to capture and store water during wet times to manage through inevitable droughts. Climate change, which already is reducing Sierra Nevada snowpack and challenging our water delivery system, makes it even more critical to add storage in as many different forms as possible.

There is also an urgent need to better manage groundwater basins to reverse alarming declines in groundwater levels and protect local communities and economies against impacts of prolonged dry periods.

Voter-approved Proposition 1 dedicated \$2.7 billion for public benefits associated with new groundwater and surface water storage projects, setting the stage for the State to make the most significant investment in water storage in a generation through a competitive process managed by the CWC.

This first-of-its-kind program marked a paradigm shift in the way storage projects are funded, with investments based on the public benefits provided by projects in the areas of ecosystem improvements, water quality improvements, flood control, emergency response, and recreation. After a two-year effort to develop regulations for the program, the CWC conducted an extensive evaluation and review process over 11 months to identify and rank the projects with the strongest return on public investment.

In July 2018, the CWC approved conditional funding for eight projects that collectively would boost California's water storage capacity by 4.3 maf. The projects range from expanding existing reservoirs, to enhancing groundwater storage, to building new surface storage facilities.

Project applicants will continue their work to secure necessary permits, environmental documents, financial commitments, and contracts required before final funding can be awarded.

The Sustainable Groundwater Management Act (SGMA) put California on the path to strengthen local management and monitoring of the state's most critical groundwater basins. SGMA empowers local agencies to adopt groundwater management plans tailored to the resources and needs of their communities. SGMA assigned DWR the dual tasks of providing ongoing technical assistance to local agencies as they develop plans and evaluating the adequacy of those plans. DWR established the Executive Sustainable Groundwater Management Office in 2018 to heighten the focus and department-wide support moving forward.

SGMA also tasked the State Water Board with providing a state backstop to protect basins that are not managed sustainably.

The process to define groundwater rights, known as adjudication, also underwent broad reform in 2015 to ensure consistency with SGMA. This reform streamlines adjudications into a more cost-effective process, which must work in concert with SGMA, to support sustainable groundwater management.

Since 2015, State and local agencies have successfully implemented the initial requirements of SGMA by the statutory milestones. More than 99 percent of the state's high- and medium-priority basins met the deadline to form groundwater sustainability agencies (GSAs), which are now tasked with submitting groundwater sustainability plans (GSPs) beginning in 2020.

DWR continues to implement other areas of responsibility, including reviewing prioritization of groundwater basins, assessing locally proposed basin boundary modifications, and evaluating alternatives to groundwater sustainability plans submitted by local agencies.

During 2017 and 2018, DWR assisted GSAs, local agencies, and stakeholders in implementing SGMA by providing a cumulative total of over \$2.6 million in facilitation services to 44 basins, \$16.2 million in Proposition 1 grant funds for groundwater projects benefiting severely disadvantaged communities, and \$69.6 million in Proposition 1 grant funds for GSP development. In May 2018, DWR made available Technical Support Services to GSAs; about \$1.4 million in services have been requested. DWR also released several guidance documents and hosted 14 public meetings, technical assistance workshops, and webinars to provide transparency and solicit input on DWR's regulatory and assistance actions.

To ensure State and local agencies use similar future climate projections, DWR is leading the effort to align climate scenarios and tools. The climate change scenario selection is standardized across all DWR's programs and for local water management, such as SGMA and the Water Storage Investment Program.

DWR released the final *Water Available for Replenishment* report in April 2018. The report shows that water available for aquifer recharge may be limited in many regions, except in years of high precipitation.

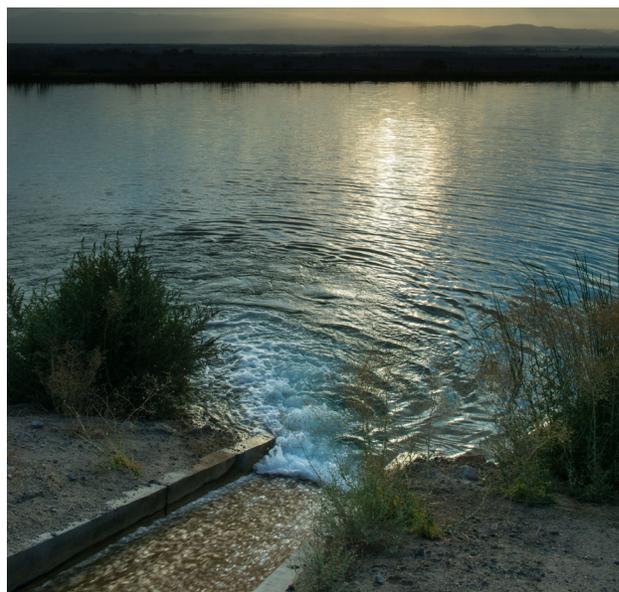
The *System Reoperation Study Phase III Report: Assessment of Reoperation Strategies*, was published in August 2017. In this study, DWR evaluated reoperation strategies in greater detail for Lakes Shasta, Oroville, and McClure, along with their associated groundwater basins. The goals of the report are to concurrently improve water supply reliability and flood protection, as well as to provide for ecosystem protection and restoration. For the next phase, the report recommends evaluation of using floodwater for managed

aquifer recharge (Flood-MAR) on farmland and working landscapes.

Managed groundwater recharge provides an opportunity to support sustainable management of groundwater for agricultural, domestic, and environmental uses. CDFA, alongside several partner State agencies, hosted forums and workshops to better explore and understand managed groundwater recharge opportunities in the state. The events highlighted the innovation and collaboration taking place around opportunities for groundwater recharge.

DWR released a white paper in June 2018, describing Flood-MAR and demonstrating the need to make it part of California's portfolio of water resource management strategies, to significantly improve water resources sustainability and climate resiliency.

The Water Board issued temporary water rights permits for groundwater recharge to assist project applicants in their efforts to increase aquifer storage and optimize surface and groundwater storage.



Coachella Valley Water District's Thomas E. Levy Groundwater Replenishment Facility in Coachella, California, percolates imported Colorado River water into the eastern subbasin of the Coachella Valley's aquifer.

Action | 7

Provide Safe Water for All Communities

All Californians have a right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. To this end, the Brown Administration worked with the Legislature to consolidate the State’s drinking water program with other surface and groundwater quality programs into one single agency at the State Water Board. Unifying these programs has achieved broader efficiencies and synergies that best position the State to respond to existing and future drinking water challenges. The Administration has made a priority of assisting small community water systems in their efforts to provide safe drinking water.

The Governor signed legislation authorizing the Water Board to require a public water system — under certain conditions — to consolidate with a failing water system, when doing so would be best for small communities. Since June 2015, the Water Board has completed approximately 100 water system consolidations.

When severe drought caused wells to go dry in the Tulare County community of East Porterville, a multi-agency partnership, which included DWR, the Water Board, and Cal OES, completed work on a new distribution system that is delivering safe drinking water to 755 homes. DWR also completed water supply projects in six additional communities in Santa Barbara, Kings, Tulare, and Tuolumne counties.

The Water Board provided financial and technical assistance to many disadvantaged communities throughout the state.

In 2017, the Water Board awarded:

- \$51 million for 50 projects that provide safe drinking water to small disadvantaged communities.
- \$3.7 million in emergency funding to support 30 emergency drinking water projects in small disadvantaged communities.

In 2018, the Water Board awarded:

- \$28.4 million for 31 projects that provide safe drinking water to small disadvantaged communities.
- \$2.1 million in emergency funding to support 36 emergency drinking water projects.

The Water Board also provided \$230 million in 2017 and \$296.9 million in 2018 from the Drinking Water State Revolving Fund to finance improvements to drinking water infrastructure throughout the state. Through the Proposition 1 grant funding, the Water Board awarded \$120 million in 2017 and more than \$26 million in 2018 for projects that prevent and clean up groundwater contamination of drinking water sources.

The CEC has initiated a novel low-energy biofiltration treatment system for groundwater contaminated with nitrate and perchlorate, which can generate safe potable water for communities. The project has been allocated \$1.7 million and is scheduled to be completed in 2020.



In East Porterville, three State agencies —DWR, State Water Board, and Governor’s Office of Emergency Services — partnered with the City of Porterville, other Tulare County agencies, and local non-government organizations to deliver a permanent solution to the water woes of East Porterville.

Action | 8

Increase Flood Protection

California is prone to both droughts and floods, and sometimes both in the same year. One in five Californians lives in a floodplain, and an estimated \$580 billion in assets is vulnerable to flood hazards.

The Brown Administration is actively promoting flood control projects that provide multiple benefits while also adding to the state's climate resilience.

The February 2017 spillway emergency at Oroville Dam underscored the importance of investing in water infrastructure. As of November 2018, the main spillway was completely reconstructed to handle its original design capacity of 270,000 cubic feet per second. DWR also has launched a comprehensive assessment to identify ways to enhance the long-term integrity of the Oroville Dam complex to ensure public safety for downstream communities.

In the wake of the Oroville incident and significant flood impacts elsewhere in the state, Governor Brown announced a comprehensive package of public funding and policy proposals to address flood impacts and future flood management needs in the Central Valley, coastal regions, and other areas.

The Governor's proposal included the appropriation of \$400 million for flood projects from Proposition 1, \$50 million from the State's General Fund for emergency response, and several new policies to strengthen the ability of DWR's Division of Safety of Dams (DSOD) to assess and assist more than 1,200 regulated dams across the state. The proposal also included new requirements for dam owners and operators related to infrastructure integrity monitoring, potential inundation mapping, and more. The Brown Administration worked closely with the State Legislature to appropriate

necessary funds and cement these new policies in state law. DWR's flood teams continue to assist local agencies in their efforts to fix or strengthen the levees protecting urban centers, small communities, and agricultural regions.

DWR launched a comprehensive spillway re-evaluation program in 2017 to assess dam appurtenant structures, including spillways, to confirm they meet minimum safety standards, starting with those that potentially pose the highest hazard.

The storm events of January and February 2017 caused widespread damage to levees in the Sacramento and San Joaquin valleys. Local maintaining agencies and DWR, along with the U.S. Army Corps of Engineers (USACE), are responsible for maintaining the integrity of many levees, bypasses, and other facilities to continue to protect California's Central Valley. In 2017, DWR repaired 30 sites where damage to the levee was deemed critical and repaired nine critical sites in 2018. An additional 38 sites are being designed and permitted for construction in 2019 and 2020.

DWR developed, and the Central Valley Flood Protection Board adopted, the 2017 update to the *Central Valley Flood Protection Plan*. The plan's main purpose is to articulate a programmatic approach, including finance strategies, to improve and maintain levees and other flood facilities of the *State Plan of Flood Control*. But the plan goes beyond strategies to reduce flood risk. Leveraging input from nongovernmental organizations, academia, and local government, the plan also includes strategies to restore Central Valley ecosystems and replenish drought-starved groundwater basins with floodwaters. As such, the plan is emblematic of a broader evolution in State infrastructure investments: maximizing the value of every public dollar

invested. Encouraged to pursue multiple public values through individual projects (e.g., flood, ecosystem restoration, recreation), the State’s engineers, scientists, and policy-makers are redefining what is possible.

The DSC adopted the *Delta Levee Investment Strategy*, the product of a multi-agency effort to update priorities for State investments in the Delta levee system, to reduce the likelihood and consequences of levee failures. New regulations that help guide State investments in levee improvements and rehabilitation will go into effect in the spring of 2019.

Regionally, DWR partnered with the West Sacramento Area Flood Control Agency to complete the *Southport Setback Levee Project*. This project constructed more than five miles of setback levee and strengthened the existing levee, while providing more than 150 acres of mixed floodplain and riparian habitat. This project is a significant step toward the goal of a 200-year level of flood protection in the area.

DWR funded research by the University of California at San Diego’s *Center for Weather and Water Extremes* to create a classification system for atmospheric rivers based on strength and potential for precipitation. The four categories are weak, moderate, strong, and extreme.

Through the California Silver Jackets (a collaboration among multiple partner agencies), DWR led the seventh annual statewide Flood Preparedness Week, which focused on the constant message of “Be Aware. Be Prepared. Take Action.” In 2018, the two specific themes were high-water mark and flood after fire. This joint effort encouraged local communities to organize flood awareness events, adopt resolutions and proclamations, disseminate social media messages, and help Californians become better prepared for flood disasters.



Starting in May 2017, DWR and its construction contractors began repairing and rebuilding Oroville’s main and emergency spillways. As of November 1, 2018, the main spillway was successfully reconstructed, meeting DWR’s public safety construction milestone.

Action | 9

Increase Operational and Regulatory Efficiency

Efficiently operating the state’s water system to deliver water and comply with environmental requirements is a hallmark of 21st century water management.

Improved technology, enhanced coordination, and integrated approaches are key to balancing water supply and environmental needs.

State, federal, and local agencies worked together through both drought and flood emergencies to coordinate response and improve future operational and regulatory efficiency.

During the extreme winter storms of 2017, the Emergency Operations of the State-Federal Flood Operational center was activated for more than 150 days. DWR coordinated with federal, State, and local flood partners (National Weather Service, National Aeronautics and Space Administration, Federal Emergency Management Agency, California National

Guard, USACE, Cal OES, and counties) to effectively support flood response efforts. In addition, DWR continues to work closely with the National Oceanic and Atmospheric Administration to enhance long-term weather forecasting.

Significant progress also has been made to improve the State’s approach to dam safety. Consistent with legislation enacted in 2018, DWR’s DSOD is consulting with independent dam safety and dam safety risk-management organizations to propose changes to DSOD’s existing dam safety program to ensure public safety. DSOD will be consulting with a team of 14 dam safety and risk experts from USACE, the U.S. Bureau of Reclamation (Reclamation), the Association of State Dam Safety Officials, and the United States Society on Dams to implement risk-informed decision-making into its *Dam Safety Program* to increase operational and regulatory efficiency.



The State-Federal Flood Operations Center is activated during the extreme winter storms of 2017.

In 2015, Governor Brown signed SB 88 (Committee on Budget and Fiscal Review), which provided the State Water Board authority to adopt measurement and reporting requirements for water diverters. The Water Board is now collecting better water use information from most water diverters in the state. Equipped with this new information, the State is better positioned to administer the water rights system and protect senior water rights holders and the environment. In addition, legislation passed in 2017 will create a new Office of Administrative Hearings at the Water Board, to ensure more timely and transparent hearings on water right enforcement actions.

The DSC's Delta Science Program continued to advance the vision of *One Delta, One Science* by adopting the *Science Action Agenda* developed through multi-agency collaboration. The Science Action Agenda prioritizes and aligns science actions to inform management decisions, fill gaps in knowledge, promote collaborative science, build the science infrastructure, and achieve the objectives of the *Delta Science Plan*. The DSC's Delta Plan Interagency Implementation Committee, composed of 17 high-level State and federal agency leaders, continued to work better-coordinated science into discussions that also included agency priorities, ecosystem restoration progress, and decision-making.

The DSC also hosted the 10th Biennial Bay-Delta Conference in 2018, bringing together State and federal scientists and managers to discuss major scientific findings and management actions in the Bay-Delta system. Elsewhere, CDFW coordinated with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, DWR, and Reclamation to modify Delta Cross Channel operations, aiming to reduce straying of fall-run Chinook salmon into the Central Delta and meet hatchery production goals.

The CEC is working on a proof-of-concept study to evaluate the feasibility of using groundwater storage and cycling surface reservoirs to shift the SWP's Southern California water deliveries to non-summer months. The main goal is to reduce electric grid demand during the summer.



The Delta Stewardship Council adopted its Science Action Agenda to focus and coordinate high-priority science investigations — including water quality monitoring — across multiple State and federal agencies.

Action | 10

Identify Sustainable and Integrated Financing Opportunities

California has a rich history of making sound financial investments in water resources. But experts agree current investments are not keeping pace with the need. Infrastructure is aging, levees need repair, and water supply reliability for the environment, farms, and the economy cannot be taken for granted. Many communities with limited resources and insufficient technical capacity lack safe drinking water and remain disproportionately vulnerable to drought and flood impacts.

State agencies have worked with stakeholders to identify options to leverage existing funding for California water management and explore additional concepts that can inform funding decisions over the long term.

As noted elsewhere in this report, the Water Action Plan has guided significant investments in sustainable water management and

supported a more integrated approach to planning and managing water.

Voter-approved Proposition 1 of 2014 authorized \$7.545 billion in general obligation bonds to fund ecosystem and watershed protection and restoration; water supply infrastructure projects, including surface and groundwater storage; and drinking water protection. In 2018, voters authorized \$4.1 billion in bond funding through Proposition 68 for State and local parks; environmental protection and restoration projects; water infrastructure projects, including groundwater sustainability; and flood protection projects.

These investments help move California along the path of managing its water resources for sustainability.



Over the past five years, these grant and loan programs have provided a major source of State financial investment for multi-benefit water infrastructure projects.

Acronyms and Abbreviations

AB	Assembly Bill
Action Plan, or Water Action Plan	California Water Action Plan
af	acre-feet
B	billion
Bay-Delta Plan	Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary
CA	California
Cal OES	California Office of Emergency Services
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CNRA	California Natural Resources Agency
Conservancy	Sacramento-San Joaquin Delta Conservancy
CVFPB	Central Valley Flood Protection Board
CWC	California Water Commission
Delta	Sacramento-San Joaquin Delta
DCA	Delta Conveyance Design and Construction Authority
DSC	Delta Stewardship Council
DSOD	Division of Safety of Dams
DWR	California Department of Water Resources
EIR	environmental impact report
EIS	environmental impact statement
EO	executive order, or Executive Order
Flood-MAR	flood managed aquifer recharge

GHG	greenhouse gas
Gov.	Governor
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
IRWM	integrated regional water management
M	million
maf	million acre-feet
N.	Northern
NMFS	National Marine Fisheries Service
PRD	public review draft
Prop	Proposition
Reclamation	U.S. Bureau of Reclamation
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
S.	Southern
SGMA	Sustainable Groundwater Management Act
SWP	State Water Project
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WAFR	Water Available for Replenishment
Water Board, or State Water Board	State Water Resources Control Board
WSIP	Water Storage Investment Program

Useful Web Links

Assessment of Reoperation Strategies

[http://www.water.ca.gov/system_reop/docs/System Reoperation Study Fact Sheet \(08-01-2017\).pdf](http://www.water.ca.gov/system_reop/docs/System_Reoperation_Study_Fact_Sheet_(08-01-2017).pdf)

CalConserve Revolving Fund

<https://water.ca.gov/Work-With-Us/Grants-And-Loans/CalConserve-Water-Use-Efficiency-Loan-Program>

California EcoRestore

<http://resources.ca.gov/ecorestore/>

California Water Action Plan

http://resources.ca.gov/california_water_action_plan/

California WaterFix

<https://californiawaterfix.com/>

Cannabis Cultivation Policy

https://www.waterboards.ca.gov/water_issues/programs/cannabis/

Center for Weather and Water Extremes

<http://cw3e.ucsd.edu/>

Central Delta Public Lands Strategy

<http://deltaconservancy.ca.gov/wp-content/uploads/2018/11/Public-Lands-Conservation-Strategy-Public-Review-Draft.pdf>

Central Valley Flood Protection Plan

<http://cvfpp.ca.gov/cvfpp/>

Clean Water State Revolving Fund

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/

Dam Safety Program

<https://water.ca.gov/Programs/State-Water-Project/Oroville/Oroville-Spillways/DSOD-Inspection-Reports>

Delta Conservation Framework

<https://www.wildlife.ca.gov/Conservation/Watersheds/DCF>

Delta Levee Investment Strategy

<http://deltacouncil.ca.gov/delta-levees-investment-strategy>

Delta Science Plan

<http://deltacouncil.ca.gov/science-program/delta-science-plan-o>

Drinking Water State Revolving Fund

https://www.waterboards.ca.gov/drinking_water/services/funding/SRF.html

Dutch Slough Tidal Restoration Project

<https://water.ca.gov/Programs/Integrated-Regional-Water-Management/Delta-Ecosystem-Enhancement-Program/Dutch-Slough-Tidal-Restoration-Project>

Fish Restoration Program

<https://water.ca.gov/Programs/Environmental-Services/Restoration-Mitigation-Compliance>

Fremont Weir Adult Fish Passage Project

<http://resources.ca.gov/ecorestore/2018/06/fremont-weir-groundbreaking-marks-milestone-for-yolo-bypass-fish-passage/>

Greenhouse Gas Reduction Fund

<https://ww2.arb.ca.gov/our-work/programs/california-climate-investments/ci-funded-programs>

One Delta, One Science

<http://deltacouncil.ca.gov/science-program/one-delta-one-science-path-building-common-knowledge>

Sacramento Valley Salmon Resiliency Strategy

<http://resources.ca.gov/sacramento-valley-salmon-resiliency-strategy/>

Save Our Water

<https://saveourwater.com/>

Science Action Agenda

<http://scienceactionagenda.deltacouncil.ca.gov/>

Southport Setback Levee Project

http://resources.ca.gov/docs/ecorestore/projects/Southport_Setback_Levee.pdf

Stakeholder Perspectives: Recommendations for Sustaining and Strengthening Integrated Regional Water Management

http://www.water.ca.gov/irwm/docs/IRWM_Recommendations.pdf

State Plan of Flood Control

https://water.ca.gov/LegacyFiles/cvfmf/docs/DRAFT_SPFC_Descriptive_Doc_20100115.pdf

State Water Efficiency and Enhancement Program

<https://www.cdfa.ca.gov/oefi/sweep/>

System Reoperation Study Phase III Report: Assessment of Reoperation Strategies

<https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/System-Reoperation-Program/Files/Assessment-of-Reoperation-Strategies.pdf>

The Delta Plan

<http://www.deltacouncil.ca.gov/delta-plan-o>

Water Available for Replenishment (report)

<https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Statewide-Reports/WAFR/Final/Water-Available-for-Replenishment---Final-Report.pdf>

Water Loss Technical Assistance Program

https://ca-nv-awwa.org/canv/CNS/Partnership_for_Saving_Water/techassistance.aspx

Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/

Appendix | **A**

2014–2016 California Water Action Plan Implementation Highlights

2014 Highlights

January

Governor Releases Water Action Plan

Governor releases *California Water Action Plan*, following coordination with state agencies, tribes and public

Governor Takes Action on Drought

Governor issues drought emergency declaration and proposes 2014/15 State budget that includes funding for Action Plan implementation, including drought response (**Actions 1-5**)

Drought Forum Raises Awareness

CDFW sponsors forum to discuss drought information needs and ways to improve preparedness (**Action 5**)

Adjusted Operations Save Water

Upon petition by DWR & BOR, State Water Board issues order to allow adjusted operation of the State and Federal Projects to save water for critical needs (**Actions 5, 9**)

Integrated Projects Receive Grants

DWR awards \$153M to 20 regions to support 138 integrated multi-benefit projects (**Actions 2, 5**)

March

Emergency Legislation Helps Drought-Stricken Communities

Governor and Legislature collaborate on accelerated drought relief and Action Plan implementation package (SB 103/104; over \$687M). State agencies quickly responded by working with the American Red Cross and community organizations to deliver water to those in need (**Actions 1, 2, 5, 7**)



Low Interest Loans for Water Recycling

State Water Board makes available \$800M in low-interest loan funds to increase water recycling and provide alternative drought-proof supply for communities (**Actions 1, 2, 5, 7**)

May

Save Our Water Month

Governor proclaims May to be *Save Our Water Month* and State Intensifies public campaign with TV/radio ads and planned State Fair Exhibits (**Actions 1, 5**)

Work Begins to Prioritize Delta Levee Investments

DSC releases concept paper and establishes inter-agency funding agreements to prioritize State investments in Delta levees, consistent with the Delta Plan (**Actions 3, 8**)

State Coordinates Voluntary Actions in Key Watersheds

State Water Board adopts emergency fish flow regulations to maintain minimum flows in 3 Sacramento River tributaries, and coordinates with CDFW to develop voluntary cooperative agreements with landowners to achieve minimum flows (**Action 4**)

Emergency Funding for Drinking Water Systems

State Water Board issues the first grants to aid communities with drinking water systems impacted by drought. By summer's end, over \$13 M was granted (**Actions 2, 5, 7**)

February

State Closes Rivers to Fishing

The CA Fish & Game Commission takes unprecedented emergency action to close waters to fishing to protect native fish from low water flows in waterways significantly impacted by drought (**Actions 4, 5**)



State Addresses Fisheries Crisis

CDFW begins coordinating with federal agencies and commercial fishing industry, leading to State-led trucking of 30M fish to the SF Bay (**Actions 4, 5, 9**)

April

Governor Orders Redoubling of Drought Efforts

Governor issues Executive Order to redouble state response to drought. Aims to increase water management flexibility for state/local water managers and regulatory entities and provide conservation incentives (**Actions 1, 5**)

State Publishes Groundwater Shortages Report

DWR publishes report identifying groundwater basins in the state with potential groundwater shortages and gaps in groundwater monitoring (**Actions 5, 6, 7**)

June

Final State Budget Funds Action Plan and Drought Relief

Final 2014/15 State Budget provides an additional \$100M+ in funding priorities for the Action Plan and helps lay solid fiscal foundation for implementing near-term actions, including money for water supply assessments, local technical assistance, water rights enforcement, and fish habitat restoration (**Actions 1, 2, 4, 5**)

Delta Communities Receive Flood Emergency Response Funds

DWR awards \$5M in grants to flood control agencies in the Delta to prepare for flood emergencies (**Action 8**)

State Prioritizes Groundwater Basins

DWR releases statewide ranking of 515 groundwater basins in the state collectively producing greater than 90% of California's annual groundwater; 127 basins ranked high and medium priority (orange/yellow on map) (**Action 6**)

State Eases Path to Recycled Water Use

State Water Board adopted a new General Order allowing the regional boards to streamline the permitting of recycled water uses, including agricultural and landscape irrigation, dust control, and some industrial processes (**Actions 2, 9**)

July

State Consolidates Water Quality Programs

Effective July 1, Drinking Water Program is relocated from CDPH to State Water Board; consolidating major water quality programs within the Board allows State to better manage/protect water resources and ensure safe drinking water for Californians (*Actions 2, 7, 9*)

State Adopts Emergency Conservation Regulation

State Water Board approves emergency regulation to ensure urban water agencies and their customers increase water conservation or face possible fines/other enforcement (*Actions 1, 5*)

New Grant Program will Restore Wetlands and Reduce Carbon

CDFW releases grant solicitation for wetland restoration projects to be awarded in 2015; projects will sequester greenhouse gas/carbon, restore critical wildlife habitats, and aid water supply objectives (*Action 4*)

September

Water Year 2014 ends as California's 4th driest

Landmark Groundwater Legislation Passes

The Legislature passes, and the Governor signs, historic groundwater policy reform that paves the way for sustainable groundwater management across the state. Emphasis is on local control, coordinated basin management, and limited but effective state involvement (*Action 6*)



Families without Drinking Water Get Relief

Governor issues order making funding available through the California Disaster Assistance Act to provide water for drinking and sanitation to households currently without running water (*Actions 5, 7*)

November

Voters Approve Water Bond (Proposition 1)

An unprecedented 64% of California voters approve a \$7.5 billion water bond, designed to help implement the Action Plan's broad range of actions

Agency Coordination Promotes Efficiency on Delta Solutions

Delta Stewardship Council (DSC) convenes the second Delta Plan Interagency Coordinating Committee meeting, focusing on advancing Delta science, cross-agency collaboration, and Action Plan implementation (*Actions 3, 4*)

State Publishes Report on Drought Impacts to Groundwater

DWR publishes report identifying areas where drought has significantly impacted groundwater resources (*Actions 5, 6, 7*)

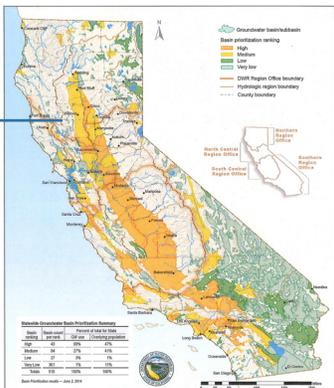
August

Grants Promote Water Desalination

DWR awards a total of \$8.7M in grants to eight water desalination projects throughout the state focusing on construction, research, feasibility and/or demonstration (*Actions 1, 2, 5*)

Legislature Approves New Water Bond

The Legislature and the Governor negotiate and approve AB 1471 (Rendon), a \$7.5 billion water bond slated for the November Ballot (*Actions 1-8*)



October

State Publishes California Water Plan Update

DWR, on behalf of the State, publishes the 2013 update of the *California Water Plan* (Bulletin 160), continuing the legacy that began with the 1957 Bulletin 3- California Water Plan. This update includes vital information on the State's water conditions, including groundwater and flooding (*All actions*)

Grants Aid California Farmers

CDFA awards \$3.6M in Greenhouse Gas Reduction funds for 93 projects to implement on-farm irrigation systems that use less water and energy and reduce greenhouse gas (*Actions 1, 5*)

Expedited Grants Increase Regional Self Reliance

DWR announces \$221M in grants to regions (incl. disadvantaged communities) to implement over 100 near-term drought relief projects, leveraging more than \$3 local per \$1 state funds. Shortest grant process in history of IRWM program (*Actions 2, 5*)

December

Grant Program Encourages Water-Energy Efficiency

DWR receives 96 applications requesting \$142M in Greenhouse Gas Reduction Funds for the 2014 Water-Energy Grant Program, well in excess of the \$19M available. Awards will be made in 2015 (*Actions 1, 2, 5*)

State Continues Collaboration with Tribes

California Tribes and state resource agencies finish a year of monthly consultation and coordination meetings about drought response, conservation programs, and impacts on cultural resources (*Actions 2, 5*)

2015 Highlights

January

Proposed Budget Funds Water Priorities

Governor proposes 2015-16 State Budget, which includes funding for such Action Plan priorities as continued drought response. **(All Actions)**

Local Groundwater Agencies Get Help

DWR offers facilitation services to assist local efforts in forming new groundwater governance entities. **(Actions 2, 6)**



Drought Plan Protects Water Supplies and Fish

State/Federal Water Projects and Fish and Wildlife Agencies propose operational adjustments to protect water supplies and fisheries **(Actions 4, 5, 9)**

March

Governor Signs \$1B Drought Legislative Package

Working with the Legislature, Governor signs \$1B emergency drought legislation. **(Action 5)**

Regulations Issued to Protect Salmon

Water Board adopts emergency regulations to protect fisheries. **(Actions 4, 5)**

State Takes Urgent Conservation Action

Water Board makes urgent changes in water rights to conserve municipal water supplies and protect fish. **(Actions 1, 2, 4, 5, 7)**

Sierra Nevada Watershed Management Effort Begins

Sierra Nevada Conservancy and U.S. Forest Service launch new integrated watershed management program. **(Actions 4, 5, 6, 7, 8)**

May

Emergency Barrier Protects Delta Water Quality

DWR installs barrier to protect Delta water quality from ocean salinity intrusion caused by drought (barrier later removed in November 2015). **(Action 5)**

State Invests in Water & Carbon Savings

DWR awards \$28M for projects that save 270,000 acre-feet of water and reduce 199,000 metric tons of greenhouse gases. **(Actions 1, 2)**

Delta Committee Adopts Science Actions

DSC's Delta Plan Interagency Implementation Committee adopts high-impact science actions to improve Delta management. **(Actions 3, 9)**

Streamlined Guidelines and Drinking Water Funds Announced

Water Board announces streamlined guidelines and \$19M to address emergency drinking water needs. **(Actions 5, 7, 9)**

February

Survey Shows Water Storage Potential

CWC conducts statewide survey to develop inventory of water storage projects that may seek Water Storage Investment Program funding. **(Action 6)**

State Provides Emergency Drinking Water Funding

Water Board announces availability of \$2.1M in emergency drinking water funds for 15 projects in drought-stricken communities. **(Actions 2, 5, 7)**

New Technology Used to Monitor Fish

DWR uses improved camera system to monitor Delta Smelt to reduce fish entrainment. **(Action 3)**

April

Governor Restricts Statewide Water Use

Executive order requires 25% urban water-use reduction statewide. The regulations were adopted by the Water Board in May. **(Actions 1, 5)**

Governor Announces CA EcoRestore and CA WaterFix

State and federal leaders unveil updated plans to achieve Delta ecosystem restoration and water supply reliability. **(Actions 3, 4, 9)**



State Funds Boost Rural Flood Protection

DWR invests \$9M in levee patrol road repair to improve emergency response capabilities for rural flood protection. **(Action 8)**

June

President Obama Announces Federal Drought Assistance for California

President Obama responds to the state's drought crisis with \$18M to provide jobs for CA workers dislocated by the drought. **(Action 5)**

Adopted State Budget Funds Water Priorities

Legislature approves and Governor signs 2015-16 Budget with \$2B for CA Water Action Plan implementation. **(All Actions)**

State Hosts Prop 1 Tribal Government Consultation

CWC, CDFW, DWR, and Water Board sponsor a 2-day Tribal Government Consultation on Prop 1 funding opportunities. **(All Actions)**

Safe Drinking Water Plan Released

Water Board publishes *Safe Drinking Water Plan for California*, a strategy to ensure safe drinking water for all Californians. **(Action 7)**

State Funds Habitat/Carbon Sequestration

CDFW provides \$21M for projects to restore 2,400 acres of Delta/coastal wetlands and mountain meadows. **(Actions 3, 4)**

Climate Report Reveals New Data

DWR releases *California Climate Science and Data Report*, highlighting challenges and opportunities for adaptation. **(Actions 1, 2, 5, 8)**

Guidebook Assists Agricultural Water Suppliers

DWR publishes guidebook to assist agricultural water suppliers affected by drought. **(Actions 1, 5)**

July

Flood Conservation Strategy Released

DWR publishes draft Conservation Strategy to support ecosystem restoration; an essential part of the *2017 Central Valley Flood Protection Plan*. (Actions 4, 8)

Landscape Irrigation Ordinance Strengthened

CWC adopts DWR's revised Landscape Ordinance, requiring more efficient landscape irrigation systems statewide. (Actions 1, 5)

Summit Showcases Technology-Drought Nexus

The Governor's Office, Imagine H2O, and ACWA sponsor a summit to discuss how to leverage technology to build a drought-resilient California. (Actions 1, 2, 5)

Drought-Stricken Community Gets Water

Water Board approves \$0.5M to bring safe drinking water to Central Valley community of 1500 people. (Actions 5, 7)

September

Partnership Forms to Advance Flood and Habitat Protection

CNRA convenes federal, State, and local agencies to coordinate Yolo Bypass flood protection and habitat restoration. (Actions 4, 8)

State Incentivizes Water Efficiency on Farms

CDFA selects 100 projects totaling \$9.4M to implement efficient on-farm irrigation systems. (Action 1)

Scientists Publish Delta Challenges Report

Four former DSC scientists author the *Delta Challenges Report*, laying out the perils of status-quo Delta water supply and ecosystem management. (Action 3)

State Hosts Drought Workshops

DWR completes more than 100 drought-related workshops in local communities statewide. (Actions 1, 5)

November

Governor Acts to Protect Fish and Bolster Drought Response

Governor issues executive orders directing CDFW, DWR, and other agencies to bolster the State's drought response efforts. (Actions 1, 5)

Historic Dam Removal Benefits Salmon

State Coastal Conservancy and partners demolish San Clemente Dam, allowing threatened Steelhead to access 25 miles of historic spawning habitat. (Actions 4, 8)

State Readies for "El Niño"

CalOES establishes storm-ready Web portal; DWR finalizes Delta Flood Emergency Plan and completes inspections of 1600 miles of levees. (Actions 3, 8, 9)

Input on Climate Adaptation Plan Sought

CNRA publishes draft *Safeguarding California: Implementation Action Plans* to improve CA's response to a changing climate. (Actions 1-9)

Ag Water Efficiency Grant Funding Announced

CDFA announces \$16M for investment in systems to reduce water/energy use. (Actions 1, 5)

August

State Hosts Chief Army Engineer for Drought and Flood Project Tour

Governor's Office, Senator Feinstein's Office, DWR, and CalOES host top USACE commanders for CA drought tour. Completion of Folsom Dam auxiliary spillway also highlighted. (Actions 5, 6, 8, 9)



NASA Casts Light on State's Groundwater Crisis

Supported by DWR, NASA publishes report revealing areas of the state affected by subsidence resulting from excessive pumping of groundwater. (Actions 5, 6)

Rebates Incent Urban Water Conservation

DWR provides \$40M in Prop 1 funding for turf removal and replacement of inefficient toilets. (Actions 1, 5)

Prop 1 Drinking Water Grant Guidelines Approved

Water Board releases guidelines for providing \$260M grant funding for drinking water infrastructure projects. (Actions 5, 7)

October

Salton Sea Legislation Signed

Working with the Legislature, Governor signs various bills to protect Salton Sea, boost water conservation, strengthen groundwater management, and improve water quality. (Actions 1, 4, 5, 6, 7)

Prop 1E Funding Set to Lower Flood Risk

DWR awards \$246M for 7 urban flood projects and recommends \$15.3M for critical levee repairs by local agencies. (Actions 2, 4, 8)

More Prop 1 Grants Announced

DWR announces availability of Prop 1 grant funding: \$31M for ag. water agencies and \$10M for counties with stressed groundwater basins. (Actions 1, 6)

December

Grants Benefit Wildlife and Watersheds

CDFW receives Prop 1 grant applications for ecosystem and watershed protection. Est'd \$31.4M total awards planned for early 2016. (Actions 3, 4)

Regions Set to Receive Grants for Integrated Projects

DWR approves \$232M for award in early 2016 to 26 regions (incl. \$50M benefiting disadvantaged communities) for integrated, watershed based projects. (Actions 1-9)

Delta Restoration Projects Advance

CDFW, DWR, CVFPB, and others coordinate on funding and permitting of the Knights Landing Outfall Gates project to improve fish passage in the Delta. (Actions 4, 8)



2016 Highlights

January

Proposed Budget Funds Water Priorities

Governor proposes 2016-2017 State Budget, providing \$323M for emergency drought response and an additional \$600+ M for other Action Plan priorities. **(All Actions)**

Two-Year Old Action Plan Gets an Update

CNRA, CalEPA, and CDFW release the 2016 Action Plan update. **(All Actions)**

Restoration Grant Programs Funded

CDFW announces \$31.4M in Prop 1 funds for 24 projects aimed at restoring species and enhancing water supply. **(Action 4)**

Water Rights Regulations Adopted

SWRCB adopts measurement and reporting regulations for surface water-right holders and claimants who divert water. **(Action 5)**

Truckee River Flows Improved

Diverse groups gathered to celebrate decades of effort to improve flows to benefit the environment and recreation. **(Actions 4, 6)**

March

21 Counties Receive Groundwater Grants

DWR awards \$6.7M in Prop 1 grants to address stressed and critically overdrafted basins. **(Action 6)**

Disadvantaged Communities Receive Technical Assistance

DWR and SWRCB help DACs and tribes develop Prop 1-eligible drinking water, wastewater, stormwater, and groundwater projects. **(Actions 2, 7)**

Salmon Protected by Renewed Regulation

The Russian River Tributaries Emergency Regulation renews SWRCB's authority to collect information from landowners and water suppliers to inform future actions. **(Actions 4, 5)**

May

Governor Takes Action to Make Water Conservation a CA Way of Life

With EO B-37-16, Gov. Brown bolsters the state's climate and drought resilience. SWRCB adopts emergency "stress test" regulation. **(Actions 1, 5)**



Urban Water Loss Audits Aid Compliance

SWRCB awards \$3.2M to establish the Water Loss Control Collaborative, making statewide water management more efficient and resilient. **(Action 1)**

February

Resolutions Affirm Rights to Water

SWRCB adopts pair of resolutions affirming the human right to water, tribal cultural uses of water, and subsistence fishing. **(Actions 1, 7)**

Water and Habitat Projects Receive Millions in Prop 1 Funding

SWRCB and WCB award over \$322M in Prop 1 funding for projects targeting water quality and supply, habitat restoration, and public access. **(Actions 2, 4, 5, 7)**

Delta Tributary Settlement Agreement Process Begins

CNRA and CDFW initiate ecosystem restoration planning that complements SWRCB Bay-Delta Water Quality Control Plan. **(Actions 3, 4)**

April

On-Farm Irrigation Efficiency Enhanced

CDFW awards \$16M from AB 32 for 129 projects to reduce water and energy use. **(Action 1)**



Commitment to Klamath Renewed

California and Oregon, with federal, tribal, and private-sector partners, advance historic agreement to remove dams. **(Action 4)**

June

Historic Groundwater Regulations Adopted

DWR adopts regulations to guide the development of GSPs, as mandated by the Sustainable Groundwater Management Act of 2014. **(Action 6)**

Delta Conservation Framework Launched

CDFW launches high-level conservation framework for the Delta, Yolo Bypass, and Suisun Marsh, to serve as the long-term continuation of CA EcoRestore. **(Action 3)**

Recycled Water Use Streamlined

SWRCB adopts General Order to streamline permitting of recycled water use. **(Actions 1, 2, 5)**

First Consolidation of Small and Large Water Systems

SWRCB issues first consolidation order, directing City of Tulare to provide water to a DAC whose water system was in violation of arsenic levels. **(Action 7)**

July

Funding Aims to Improve Engagement of Disadvantaged Communities

DWR issues guidelines for Prop 1 IRWM grant funds, with \$51M allocation to improve DACs statewide. *(Action 2)*

Strategy Promotes Delta Smelt Resiliency

CNRA releases science-based strategy to address legacy and future challenges to Delta smelt sustainability. *(Actions 3, 4)*

Funding Targets Coastal Water Quality

SWRCB approves \$10M to help protect the coastline and public health by rehabilitating aging sewer infrastructure. *(Actions 2, 4, 7)*

Hearings Begin on Proposed Water Supply Diversions

SWRCB holds public hearings on DWR's request to add three new diversion points for CA WaterFix. *(Action 3)*

September

New Flow and Salinity Objectives Proposed

SWRCB releases draft objectives for water flow in major tributaries to San Joaquin River and for salinity levels in southern Delta. *(Actions 3, 4)*

Ecosystem Restoration and Water Quality Grants

Delta Conservancy allocates \$6.3M from Prop 1 for nine ecosystem and water quality projects. *(Actions 3, 4)*



State Explores Feasibility of Direct Potable Reuse

SWRCB submits report to Legislature on the feasibility of developing criteria for direct potable reuse. *(Actions 2, 5, 7)*

November

Elevating Delta Science and National Awareness

DSC brings together key scientists from across the country to improve national awareness of the Delta and develop a world-class Delta science program. *(Actions 3, 4, 9, 10)*

Public Weighs in on Flood Feasibility Study

DWR, after receiving stakeholder input, release Sacramento and San Joaquin river basin-wide feasibility studies, addressing multi-benefit flood improvements. *(Action 8)*

Framework for Conservation as a CA Way of Life Released

DWR, SWRCB, CPUC, CEC, and CDFA, in consultation with stakeholders, release draft framework on long-term water conservation in CA. *(Actions 1, 5)*

August

East Porterville Gets Permanent Water Supply

DWR hooks up the first 31 properties to new, sustainable water source, eliminating the need for emergency water deliveries. *(Actions 2, 5, 7)*

Restoration Project Benefits Smelt

DWR and SFCWA break ground on the Tule Red Restoration Project, opening wetlands to tides in Suisun Marsh, per USFWS's Delta Smelt OCAP BiOp. *(Action 4)*

State-Federal Support for Salton Sea Affirmed

Deputy Interior Secretary Connor and CNRA Secretary Laird sign an MOU to coordinate management activities to benefit the Salton Sea. *(Action 4)*

October

CA Water Plan 2018 Launched

DWR hosts public meeting for CA Water Plan, focusing on investment and finance strategies, as called for in the CA Water Action Plan. *(All Actions)*

Levee Project Protects Feather River Communities

SBFCA and CVFPB complete the multi-phase Feather River West Levee Project, providing 200-year-level flood protection. *(Action 8)*

Barrier Prevents Fish Entrapment

RD 108 and DWR break ground on the Wallace Weir Fish Rescue Facility, preventing adult salmonids from straying into the Colusa Basin Drain. *(Actions 3, 4, 8, 9)*



December

Delta Flood Risk Assessment Released

DPC identifies feasible financing mechanisms to pay for levee improvements and other methods of reducing Delta flood risk. *(Actions 3, 8, 10)*

Central Valley Flood Protection Plan Updated

CVFPB and DWR release public draft of the updated flood plan; the final plan will be adopted in 2017. *(Actions 4, 8, 10)*

Sea Level Rise and Water-Energy Studies Funded

CEC awarded \$30M to 30 studies of sea level rise and innovative water-energy efficiency technologies. *(Actions 2, 4, 5, 7)*

