# 2023 WATER RESILIENCE PORTFOLIO

## Progress Report

# About the California Water Resilience Portfolio

In April 2019, Governor Gavin Newsom issued an Executive Order directing state agencies to develop recommendations to enable water security for all Californians. His Executive Order N-10-19 stated:

> "California's water challenges are daunting, from severely depleted groundwater basins to vulnerable infrastructure to unsafe drinking water in far too many communities. Climate change magnifies the risk. To meet these challenges, we need to harness the best in science, engineering, and innovation to prepare for what's ahead and ensure long-term water resilience and health. We'll need an all-of-the-above approach to get there."

In the Executive Order, the Governor called on the California Natural Resources Agency, California Environmental Protection Agency, and California Department of Food and Agriculture to develop a "water resilience portfolio," described as a set of actions to meet California's water needs through the 21st century. The Governor emphasized the need for actions that provide multiple benefits, utilize natural infrastructure such as forests and floodplains, embrace new technologies, encourage regional approaches, and build integration across state government and partnerships across diverse interests.

Following the Governor's direction, state agencies developed the Newsom Administration's Water Resilience Portfolio with extensive stakeholder input. The agencies released a final strategy in July 2020. The document includes 142 separate action to be taken by state agencies, as resources allow. Taken together, the actions strengthen state support for local efforts to withstand drought and flood, provide safe and reliable water supplies to all communities, and protect natural systems.

The portfolio recognizes that in California, water is largely managed at the local and regional level. Water supplies and needs vary tremendously by location, and so resilience will be achieved region by region, based on unique challenges and opportunities. The portfolio focuses on the state's role as a funder, operator of inter-regional infrastructure, maker of laws and policies, gatherer and sharer of data, conductor of research, setter of standards, catalyzer for coordination, emergency responder, and partner in addressing problems beyond the capacity of any single region to address. Our progress toward regional water resilience varies by location, but the Water Resilience Portfolio unites state government in fostering that progress.

***On the cover:*** *Snow runoff from snowpack near the California Department of Water Resources snow survey site at Phillips Station in the Sierra Nevada Mountains. Photo taken May 1, 2023.*

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# EXECUTIVE SUMMARY

State agencies issued the Water Resilience Portfolio in July 2020 at Governor Newsom's direction through Executive Order N-10-19. This comprehensive roadmap, sometimes called a "Water Master Plan," lays out a broad set of actions to build California's water resilience. State agencies drafted it with public input and partner collaboration. It identifies what must be done by state, federal, tribal and local governments and water agencies to adjust to climate change and ensure California can thrive into the future.

To track progress, in January 2022 state agencies provided an 18-month update on implementation of the strategy's 142 separate actions assigned to various state agencies. Now, three years after the Portfolio was issued, this report summarizes work completed over the latest 18 months, from January 2022 to September 2023.

Recent progress implementing Portfolio actions has been tremendous. This forward progress is driven by historic state budget investments from Governor Newsom and the Legislature; more than $8 billion of state funding was allocated to water resilience over the last three years. This historic funding enabled important improvements across the state including helping disadvantage communities secure clean, reliable water; funding hundreds of projects that will enable large and small communities to update infrastructure to weather drought and flood; and improving environmental conditions for fish and wildlife through habitat expansion.

This progress is also driven by necessity, as the state swung from severe drought to flooding over the last three years, triggering a concerted state response.

The Portfolio's actions helped state agencies prepare and plan for severe dry conditions as well as record wet conditions. Shortly after release of the document in July 2020, state agencies were forced to respond to record-setting drought. Notably, at the height of drought in August 2022, state leaders doubled down to create *California's Water Supply Strategy: Adapting to a Hotter, Drier Future*, which distilled a set of actions in the Portfolio to offset long-term losses to a hotter, drier climate. When prodigious rain and snow ended the drought, coordination made habitual by Portfolio implementation and key Emergency Proclamations issued by the Governor eased the way for state agencies to help local water districts capture a record volume of water in 2023.

After groundwater recharge, perhaps the greatest progress shows in assistance to operators of struggling small water systems. Since 2019, the number of people being served by failing water systems in California has fallen from 1.6 million people to 850,000 people. State drought investments of more than half a billion dollars – most in disadvantaged communities – made possible more than 200 separate water resilience projects, such as installation of a new well, storage tank and backup generator in the Tulare County community of Teviston; expansion of water service in the Glenn County city of Orland so that people with dry wells did not have to depend upon hauled water; and construction of a new water main and two pump stations to support the Duro Community on the San Pasqual Band of Indians Reservation.

Other examples of recent progress:

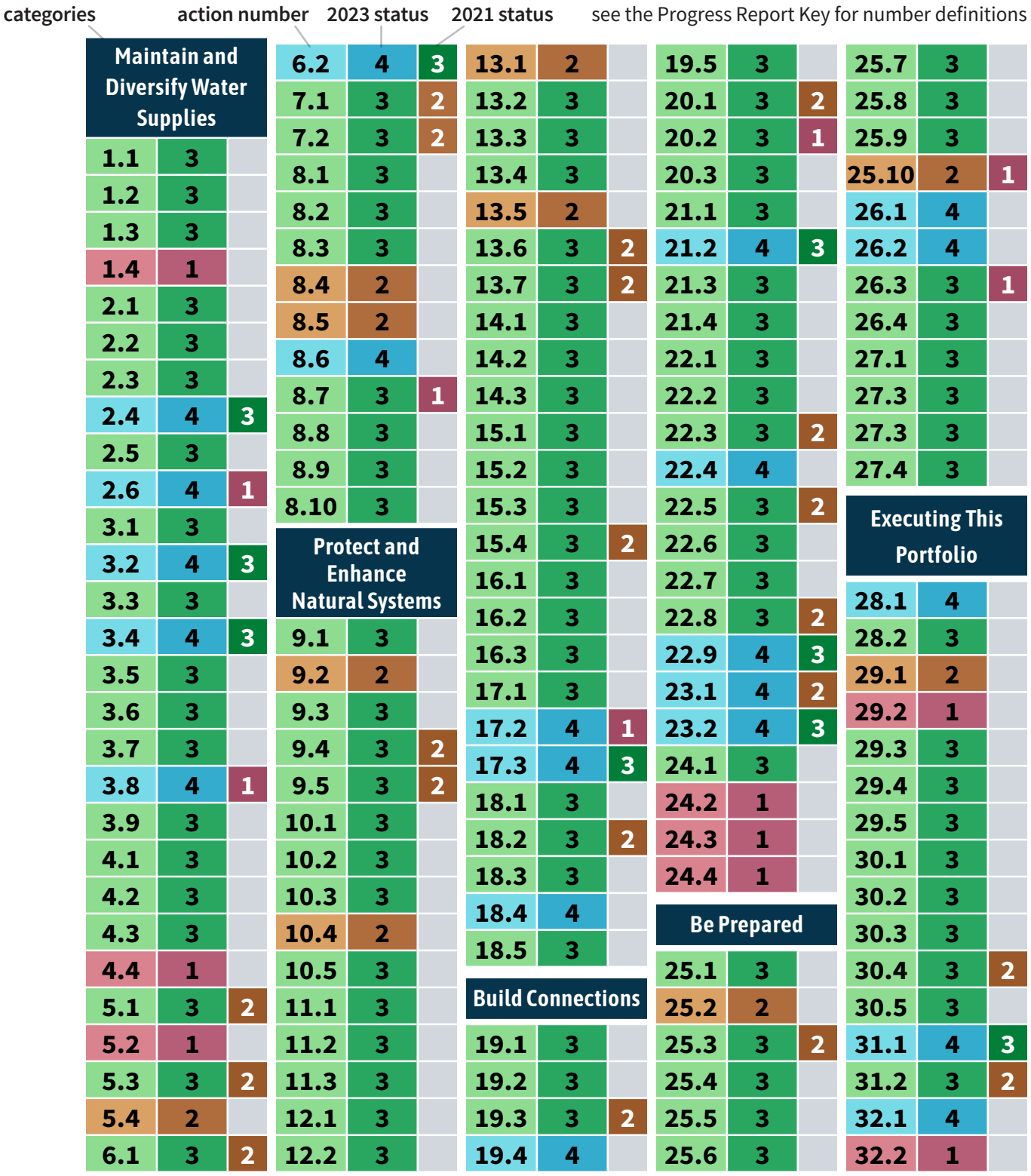
- State agencies collaborated with stakeholders to create the innovative LandFlex Program, under which farmers reduce agricultural pumping where drinking water wells are at risk of going dry. This program will help permanently eliminate the use of groundwater overdraft on each enrolled acre.

- In the extremely wet winter of 2022-23, state agencies rapidly cleared regulatory hurdles so local water districts could use floodwaters to recharge aquifers. For example, between December 2022 and May 2023, the State Water Resources Control Board authorized the diversion of 1.2 million acre-feet of water – more than enough to fill the Folsom Reservoir – for underground storage, wildlife refuges, and other purposes.
- In July 2023, the Water Board released proposed direct potable reuse regulations for public review, with final approval of a regulation expected in December 2023. If adopted, these first-in-the-nation regulations would allow water districts to put recycled water directly into distribution systems, greatly expanding local opportunities to use recycled water.
- Construction will start later this year on a project to create sandhill crane habitat and supply south Sacramento County agriculture with purified wastewater. This Sacramento Regional County Sanitation District project is the first of seven water storage projects eligible for $2.7 billion in bond funding to meet all statutory requirements and win a final state funding award, of $277.5 million.
- In July 2023, removal of dams commenced on the largest river restoration project in American history. The first of four Klamath River dams was dismantled. Three bigger dams upstream and downstream are on track for deconstruction in 2024 to reopen more than 300 miles of spawning habitat to salmon for the first time in a century. Dam removal should drive rejuvenation of the river upon which California's biggest tribal nations depend.

This progress report ranks implementation of *Portfolio* actions on a scale of 1 to 4, but many crucial actions never will be finished. They require continuous investments and oversight, like state support for local groundwater management, drought planning, and ensuring that Californians have equitable access to water, information, and opportunities to participate meaningfully in water resource decisions. These ongoing actions require adaptation based on geography, demographics, and hydrologic conditions across an incredibly diverse state.

As state agencies and key federal, tribal and local partners made progress together implementing the *Portfolio*, California's water challenges whipped from drought so severe it forced growers to fallow hundreds of thousands of acres of farmland to floods so big they refilled part of the historic Tulare Lake. The *Water Resilience Portfolio* and the 2022 *Water Supply Strategy* anticipate extreme weather. Steady, persistent implementation of these strategies, like that of the last 18 months, will position California to withstand and recover quickly in this changed climate.

## BY THE NUMBERS: progress expressed using numbers and colors



# THE PROGRESS REPORT

The pages that follow list each of the 142 separate actions in the final Water Resilience Portfolio, with a description of progress made since the Portfolio was released in July 2020. State agencies will continue to track progress and issue periodic reports.

## The Progress Report Key

The state agencies assigned one of four numbers to each action in the Portfolio to try to capture the current stage of progress:

**1** Scoping, organizing, defining actions and project goals and outcomes in progress.

**2** Securing funding, logistics, support materials; groundbreaking; beginning project work.

**3** Work, documentation and reporting in progress.

**4** Work nearly complete or completed; assessment or integration into ongoing efforts continues.

## Agency Acronyms Explained

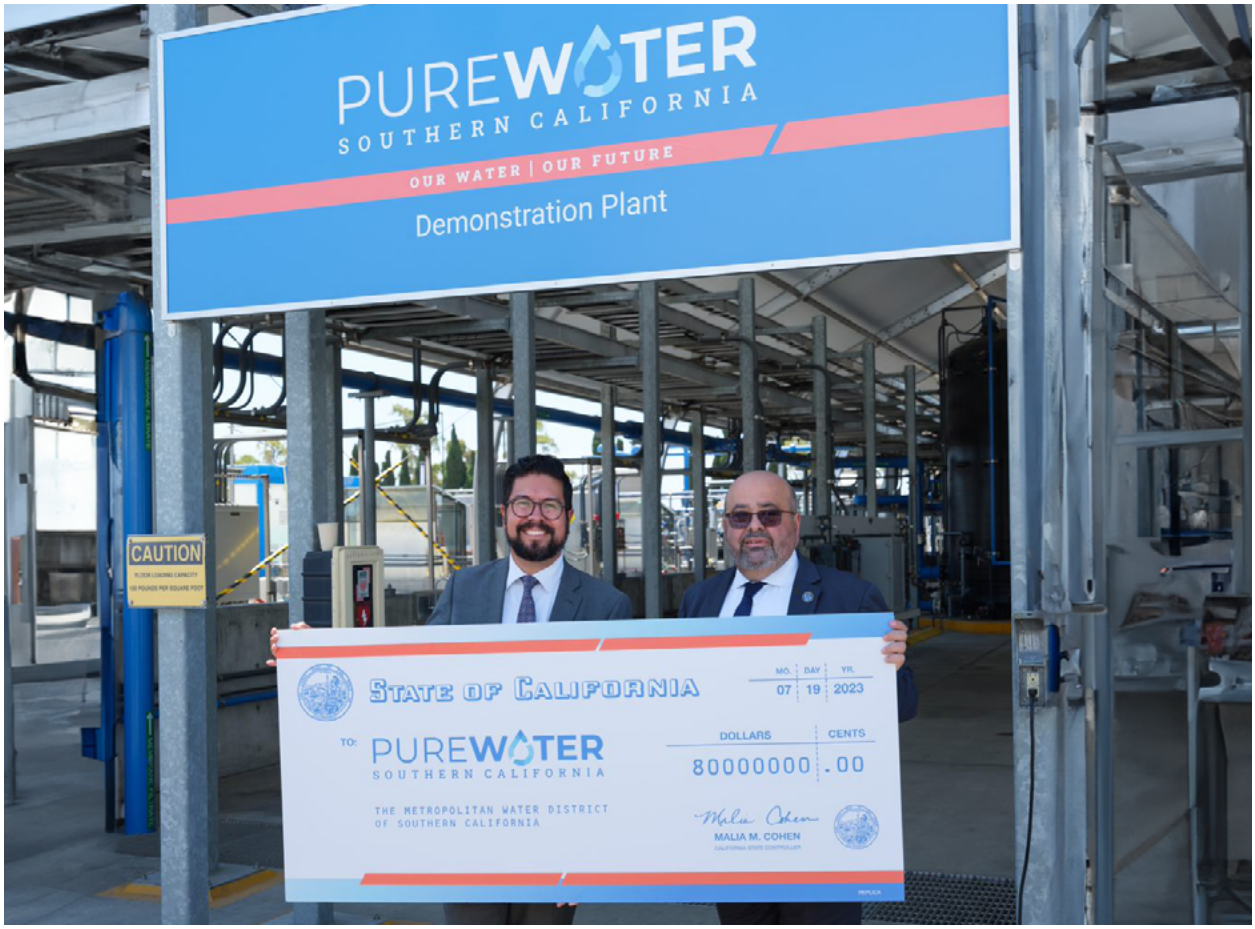
**CDFW** ..... California Department of Fish and Wildlife
**CalEPA** ..... California Environmental Protection Agency
**CDFA** ..... California Department of Food and Agriculture
**CNRA** ..... California Natural Resources Agency
**Cal OES** ..... California Office of Emergency Services
**CPUC** ..... California Public Utilities Commission
**DWR** ..... California Department of Water Resources
**Flood Board** ..... Central Valley Flood Protection Board
**Water Boards** ..... Regional Water Quality Control Boards
**Water Board** ..... State Water Resources Control Board

## The Water Resilience Portfolio (July 2020) final document

Find the document at https://waterresilience.ca.gov/wp-content/uploads/2020/07/Final_California-Water-Resilience-Portfolio-2020_ADA3_v2_ay11-opt.pdf.

# Maintain and Diversify Water Supplies

The weather whiplash of the last 18 months reinforced why California must take advantage of flood years to get through drought – and vice versa. Through the 2020-22 drought, the state invested more than $800 million in projects that will help big, small, and tribal water suppliers better endure the next inevitable drought. When a barrage of atmospheric rivers and a giant Sierra Nevada snowpack ended the drought in early 2023, state agencies invested in projects and permitting streamlining to expand groundwater recharge. State experts estimate that 3.8 million acre-feet of water – more than California's second-biggest reservoir can hold – was intentionally recharged from December 2022 through May 2023. The state continues to help suppliers of all sizes recycle wastewater, capture stormwater, protect water quality, improve efficiency, expand storage, desalinate water where economically and environmentally appropriate, and bring overdrawn groundwater basins into sustainable conditions.




*State Water Resources Control Board Chair Joaquin Esquivel presented an $80 million check in July 2023 to Metropolitan Water District of Southern California General Manager Adel Hagekhalil. The funds will be used to advance Pure Water Southern California, a large-scale water recycling program that will create a new source of water to benefit 19 million people. At a demonstration plant in Carson, Metropolitan is testing an innovative purification process to ensure the treated water meets the highest purification standards. Once built, the full-scale project will purify wastewater that is currently discharged to the ocean. Pure Water Southern California could be among the first projects in California to utilize direct potable reuse regulations proposed in July 2023 by the Water Board.*

## Help local water agencies achieve reliable access to safe and affordable water.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **1.1** | Implement the Safe and Affordable Drinking Water Act of 2019, with provision of interim water to 75 drinking water systems or schools, planning assistance for 100 systems, and permanent solutions for 100 systems by the end of 2020. Map drinking water-source aquifers at high risk of contamination and shortages and identify water systems and private wells that consistently fail to provide safe drinking water. | **Water Board** | **3** | Since 2019, the number of people being served by failing water systems in California has fallen from 1.6 million to 850,000. From July 2020 through March 2023, more than $436 million was committed to more than 300 projects in the Safe and Affordable Fund for Equity and Resilience program (approximately $300 million from the Safe and Affordable Drinking Water Fund). During this same period, more than 4,500 households received interim drinking water solutions, consolidation efforts were initiated for 250 systems, and long-term solutions were implemented for 100 systems. An updated SAFER Needs Assessment was released in April 2023, along with an interactive dashboard detailing drinking water systems with violations, those at risk of having violations, and the costs to addresses all the identified issues. The Aquifer Risk Map also was updated to include socio-economic drought risk for water systems with five to 15 connections and domestic wells. In all, since the start of the SAFER program in July 2019, the program has provided more than 276 communities with interim drinking water solutions, 433 communities with technical assistance or planning assistance, and 150 communities with long-term solutions. |
| **1.2** | Increase financial capacity to support drinking water projects through the Drinking Water State Revolving Fund and other state and local funding mechanisms. | **Water Board** | **3** | The 2021 and 2022 Budget Acts included $1.7 billion for drinking water and wastewater infrastructure. The additional funds will allow the state to accelerate drinking water project funding for disadvantaged communities that cannot afford a loan and address the human right to water. The Water Board continues to accept, review, and approve applications for Drinking Water State Revolving Fund (DWSRF) loan financing for ready- to-proceed projects and does not anticipate turning away projects that have submitted a complete application, met all DWSRF loan eligibility requirements, and addressed the human right to water. The federal Bipartisan Infrastructure Law signed by the President in November 2022 includes $2.2 billion to California's DWSRF over five years (2022-2026). The funds are in addition to annual DWSRF grants normally received from the U.S. Environmental Protection Agency. The additional funds can be used for standard DWSRF projects as well as replacement of lead service lines and treatment of emerging contaminants. Approximately 50 percent of the additional funds are in the form of loan forgiveness to help disadvantaged communities. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **1.3** | Work with the Legislature and stakeholder to explore feasible low-income water rate assistance options. | **Administration** | **3** | The Water Board continues to work with the Legislature and the Department of Community Services and Development on proposals that will provide low-income households with water affordability assistance for drinking water and wastewater services. The 2023 Budget Act shifts $200 million in Coronavirus State and Local Fiscal Recovery Funds from the Department of Community Services and Development to the Water Board and authorizes use of additional unexpended funds to extend the California Water and Wastewater Arrearage Payment Program supported by the American Rescue Plan Act of 2021. The budget extends the end date of the eligible period of arrearage forgiveness from June 15, 2021 to December 31, 2022. |
| **1.4** | Evaluate the feasibility of requiring a water quality test at the point of sale when selling a property supplied by a private well and disclosure of the test results to prospective buyers. | **Administration** | **1** | The Water Board developed and released its Aquifer Risk Map, which is intended to help prioritize areas where domestic wells and state small water systems may be accessing groundwater that does not meet primary drinking water standards. |

## Drive greater efficiency of water use in all sectors.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **2.1** | Implement existing "Make Conservation A Way of Life" laws (SB 606 and AB 1668, 2018), which create new efficiency standards for residential use and reporting requirements for agricultural use. | **DWR, Water Board** | **3** | In September 2022, Governor Newsom signed Senate Bill 1157, which updated the standards for daily per capita indoor water use to reflect the joint recommendations of DWR and the Water Board, as required by the "Make Conservation A Way of Life" laws. SB 1157 requires that from January 2025 to January 2030 the standard for indoor residential water use be 47 gallons per capita daily, and beginning January 1, 2030, the standard be 42 gallons per capita daily. These new standards would not apply to individual Californians and are one component of an overall water 'budget' that all urban retail water suppliers will need to meet. Also in September 2022, as required by the "Make Conservation A Way of Life" laws, DWR submitted recommendations for urban water use efficiency standards and commercial, industrial, and institutional performance measures to the State Water Board. The State Water Board kicked off formal rule-making in August 2023 on a proposed regulation that would establish unique efficiency goals for each urban retail water supplier in California and provide those suppliers flexibility to implement locally appropriate solutions. |

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| **2.2** | Simplify the Model Water Efficient Landscape Ordinance, which sets efficiency standards for landscaping of new and retrofitted developments. Support training for local government planners to ensure compliance with this law. | **DWR** | **3** | DWR solicited feedback on preliminary draft changes to the MWELO from the Landscape Statewide Advisory Group, which includes more than 400 local agency, landscape professionals, water suppliers, and academic/research staff. DWR developed a draft updated MWELO and anticipates seeking Water Commission approval to start the rulemaking process in fall 2023. DWR anticipates returning to the Commission for final approval in late 2023. With this update, DWR will not change existing requirements, only simplify and clarify requirements to improve implementation and reporting. Following the rulemaking, outreach and trainings are planned for local agencies in 2024. |
| **2.3** | Fund the State Water Efficiency and Enhancement Program (SWEEP) and prioritize grants for water-saving irrigation system improvements to socially disadvantaged farmers and ranchers in basins considered high priority under the Sustainable Groundwater Management Act (SGMA). | **CDFA** | **3** | The 2021 Budget Act included $110 million in additional funding for SWEEP, which has helped to improve water use efficiency on 170,000 acres of irrigated farmland to date. An estimated 149,000 acre-feet of water are saved each year through the funded projects. CDFA funds technical assistance providers to help growers with grant applications and project implementation. A minimum of 25 percent of the technical assistance grant funds must be used to provide outreach and technical assistance to socially disadvantaged farmers and ranchers. In the last round of farmer incentive grants, 26 percent of grants went to socially disadvantaged farmers and ranchers and 65 percent of grants are expected to reduce groundwater pumping in critically over-drafted groundwater basins. The 2021 Budget Act also included $15 million for technical assistance to assist farmers and ranchers with on-farm water efficiency through the Water Efficiency Technical Assistance (WETA) program). This funding resulted in 11 grants to Resource Conservation Districts (RCDs), universities, and nonprofits to provide technical assistance for on-farm water use efficiency, including, but not limited to irrigation and nutrient management training, and mobile irrigation labs to perform on-site pump and irrigation efficiency tests and training. The 2022 Budget Act authorized an additional $10 million for the SWEEP program. In the first half of 2023, CDFA held a solicitation for block grant applications for the SWEEP. This opportunity will support the use of SWEEP funding for regional strategic water conservation or groundwater sustainability efforts as organizations will disburse funds to farmers with projects that align with regional goals. The WETA program will announce a second round of awards in late summer 2023. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **2.4** | With public and stakeholder input, update the assumptions and methodologies of the Water Energy Cost Effectiveness Calculator, which helps investor-owned utilities determine the energy savings associated with water conservation. | **CPUC** | **4** | Based on a literature review and interviews with 22 stakeholders, the CPUC identified revisions needed to the calculator. In December 2021, the CPUC released the significantly updated W-E Calculator 2.0. Like its predecessor, the W-E Calculator 2.0 estimates the embedded energy savings (in kWh) of water-efficiency measures. However, while the previous calculator also estimated the avoided embedded energy cost and the avoided water-capacity cost, all cost-effectiveness functions have been removed from the W-E Calculator 2.0 and are now calculated in the CPUC's Cost Effectiveness Tool (CET). |
| **2.5** | Promote consistent and effective conservation messaging in partnership with local water districts. | **Administration** | **3** | The 2021 Budget Act included $8 million for the state-managed Save Our Water public awareness campaign, which launched targeted multi-lingual and multi-media advertising in 2022 in response to extreme weather. The 2022 Budget Act included $75 million over two budget years for a marketing campaign to make conservation a California way of life and support the State's turf replacement goal, including through a website and radio, television, and print ads; traffic and weather report sponsorships; digital ads; social media posts; social media influencer engagement; and partnerships with urban suppliers. |
| **2.6** | Evaluate proposals for an exemption from state income tax any rebates, vouchers, or other financial incentives issued by a local water agency for participation in water efficiency or stormwater runoff improvement programs. | **CNRA, CalEPA** | **4** | In August 2022, Governor Newsom signed Assembly Bill 2142, which exempts from state income tax calculations any grant, rebate or additional financial assistance awarded from a state or local agency for turf transition. The law will provide the exemption through tax year 2027. |

## Help regions secure groundwater supplies by supporting the transition to sustainable use.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **3.1** | Continue implementation of the Sustainable Groundwater Management Act (SGMA), including reviewing Groundwater Sustainability Plans submitted in January 2020 and 2022 and assuring basin-wide alignment across the state's more than 250 new groundwater sustainability agencies. Support local implementation however possible, and where basin managers are unable or unwilling to implement the law, exercise appropriate enforcement. | **DWR, Water Board, CDFW** | **3** | To date, DWR has received 119 groundwater sustainability plans, nine five-year periodic evaluations to alternative plans, and one new alternative plan, which is being adjudicated. Each of these plans is under review or has been reviewed under SGMA and the groundwater sustainability plan (GSP) regulations. Of the 20 GSPs received in January 2020, largely from critically overdraft basins, eight were approved with recommendations, and 12 were determined to be 'incomplete.' The 'incomplete' determination allowed groundwater sustainability agencies (GSAs) six months to rectify the deficiencies that precluded approval and re-submit to DWR in July 2022 and are currently under review. Six of these 12 GSPs were found to have addressed the deficiencies and determined to be adequate, while the remaining six basin GSPs were determined to be inadequate and were deferred to the Water Board for state intervention. DWR continues to closely coordinate with the Water Board to return these basins to local control and GSP implementation as soon as possible. To date DWR has approved GSPs for 40 of the 119 basins and plans to complete the initial plans for all basins by January 2024. DWR continues to provide financial, technical, and planning assistance to support SGMA implementation. In 2022, DWR awarded more than $150 million to 20 critically overdrafted basins through Round 1 of the Sustainable Groundwater Management Implementation Grant Program. In September 2023, DWR awarded $187 million to 32 groundwater subbasins to support 103 individual projects that enhance groundwater monitoring, water use efficiency, recharge, recycled water, and water quality. Of the $187 million, $160 million will directly benefit tribes and disadvantaged communities. CDFW coordinated technical reviews and prepared and submitted comments to DWR on dozens of GSPs in 2022. To date DWR, in coordination with local GSAs, has installed 175 dedicated groundwater monitoring wells at 78 sites across the state. DWR's determination of plan inadequacy for critically overdrafted basins is a trigger for Water Board state intervention under SGMA. The Water Board can schedule a probationary hearing, at its discretion. If a basin is put on probation, the Board begins collecting groundwater extraction information and fees from many groundwater pumpers. GSAs have a year to fix issues before the Board can move to the next step. After a year or more, the Water Board can take steps to manage groundwater more directly if they choose to adopt, after noticing and a hearing, an interim plan for the basin. An interim plan is intended to temporarily manage the basin until GSAs can develop and implement adequate GSPs. *( … continued)* |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **3.1** *(cont.)* | | | 3 | *(3.1 continued)* The Board works with GSAs to address issues throughout the state intervention process, and GSAs can request to exit state intervention as soon as issues are addressed. The Board released this tentative schedule for probationary hearings:<br>• Tulare Lake Subbasin – December 2023<br>• Tule Subbasin – January 2024<br>• Kaweah Subbasin – March 2024<br>• Kern County Subbasin – April 2024<br>• Delta-Mendota Subbasin – September 2024<br>• Chowchilla Subbasin – October 2024<br>The noticing and public engagement period leading up to each hearing is about five months long. Staff are planning public meetings in each basin in addition to monthly meetings with GSAs. Water Board staff also will consult with Tribes who may have knowledge of cultural resources in the basins. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **3.2** | Create a state interagency team to work with stakeholders to identify tools and strategies to address the economic, environmental, and social effects of changing land use and agricultural production as local groundwater managers implement sustainable groundwater management. | **Administration** | **4** | DWR coordinated with CDFA and stakeholders to create the LandFlex Program, under which $25 million was awarded in February 2023 to three groundwater sustainability agencies to help protect drinking water wells in underrepresented communities and reduce agricultural pumping. The program incentivizes participation by small- and medium-size farm operations where a reduction in agricultural pumping would help keep household and small community water system wells from going dry. With the grant funds, the Madera County, Greater Kaweah, and Eastern Tule groundwater sustainability agencies will work directly with interested growers to temporarily idle agricultural lands to provide immediate benefits for vulnerable domestic wells. This one-year drought relief measure is expected to keep 1,500 to 5,000 acre-feet of groundwater in the ground to avoid impacts on vulnerable drinking water wells. The program will also help permanently eliminate the use of groundwater overdraft on each enrolled acre. This longer-term benefit of the LandFlex program is designed to prevent the extraction of an estimated 100,000 to 200,000 acre-feet of groundwater, accelerating each GSA's efforts towards sustainable groundwater management. In June 2020, the Administration created three separate internal interagency teams to support local agency implementation of groundwater sustainability plans focused on enabling recharge, supporting local agencies as they plan for different uses of land, and supporting disadvantaged communities. The team focused on recharge used data from the Tuolumne River watershed to examine whether DWR's watershed studies that include climate change effects can be used to facilitate the water availability analyses required by the Water Board for water right decisions. The work helped frame the Governor's August 2022 Water Supply Strategy, which includes many actions state agencies are taking to support local groundwater recharge efforts. A second interagency team, focused on economic impacts, integrated the state's regional economic development specialists with the state's sustainable groundwater managers and led to the development of a toolkit of state resources available to support communities facing land-use changes. The third team, focused on disadvantaged communities, provided input to help shape the public outreach requirements of DWR SGMA grant programs and development of groundwater management principles and strategies to monitor, analyze, and minimize impacts to drinking water wells. Inter-agency support of SGMA implementation is wide-ranging and varies by issue. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **3.3** | Provide targeted support to local planning efforts to address potential land-use changes in regions implementing SGMA. | **Administration** | **3** | The Department of Conservation is managing an ongoing portfolio of planning, conservation, and capacity grant programs to support local plans for changing land use due to groundwater supply limits. In June 2023, the department awarded $35 million to regions that are adapting land use to improve sustainability of groundwater basins. The Multi-benefit Land Repurposing Program had previously awarded in May 2022 $40 million to regional collaborations led by local GSAs to prepare and implement strategic land repurposing plans to achieve ecological, social, and economic benefits. Further, the Department provides ongoing planning, capacity and agricultural land conservation grants through the Sustainable Agricultural Land Conservation (SALC) program that can be aligned with local land use planning efforts related to SGMA. In 2022, nearly $80 million in awards were made statewide from SALC. |
| **3.4** | Explore ways to further streamline groundwater recharge and banking efforts that do not exacerbate water quality issues, and provide technical assistance to facilitate the redirection of water during periods of extended high flows to allow water to sink into aquifers, including on agricultural land. Ensure diversions are protective of native fish and wildlife. | **Water Board, DWR, CDFW, CDFA** | **4** | Following release of the Water Supply Strategy in August 2022, the State Water Board, CDFW, and DWR collaborated on a process to engage with potential applicants to develop a temporary underground storage permit to capture flood flows. In January 2023, the State Water Board issued its first five-year temporary groundwater storage permit, authorizing the Omochumne-Hartnell Water District to divert 2,444 acre-feet from the Cosumnes River in Sacramento County. Approval of that permit followed Water Board issuance of a 180-day permit to the Merced Irrigation District and DWR, allowing them to divert up to 10,000 acre-feet from Mariposa Creek in Merced County to underground storage for irrigation. Seizing the opportunity from an extremely wet winter and spring to boost groundwater levels, the Water Board between late December 2022 and early June 2023 authorized the diversion of 1.2 million acre-feet of water – more than enough to fill the Folsom Reservoir – for underground storage, wildlife refuges and other purposes. In coordination with DWR and CDFW, the Water Board also provided technical assistance to several applicants, helping them to complete their forms and expedite recharge actions. Under Executive Orders issued by the Governor in March and May 2023 to expedite groundwater recharge, water users captured more than 91,000 acre-feet of water to recharge on more than 88,000 acres. DWR helped to arrange temporary pumps to facilitate movement of floodwaters into recharge basins from the Kings, Kaweah, Kern, Tule, and San Joaquin rivers, helping to recharge approximately 50,000 acre-feet of water. DWR is also working with San Joaquin Valley water suppliers to permanently remove orchards and vineyards from nearly 1,000 acres of land in order to increase the rates at which floodwaters recharged aquifers. DWR continues to study groundwater recharge opportunities throughout the San Joaquin Valley. DWR also is formulating pilot projects for groundwater recharge on agricultural land and floodplains and providing technical assistance to local public agencies applying for temporary water rights. In July 2023, the Legislature and Governor enacted legislation to make permanent some aspects of the Governor's Executive Orders that helped to facilitate groundwater recharge. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **3.5** | Make funding available for groundwater recharge and storage projects with multiple benefits. | **DWR, Water Board** | **3** | In 2021 and 2022, DWR awarded $68 million to 42 groundwater recharge projects that provide nearly 117,000 acre-feet of potential recharge capacity. In September 2023, DWR awarded an additional $187 million to 32 sub-basins. The funding will support 103 individual projects that enhance groundwater monitoring, water use efficiency, groundwater recharge, recycled water and water quality, including more than $160 million that will directly benefit Tribes and underrepresented communities. In addition, DWR's Urban Multi-benefit Drought Relief Program has awarded $30.2 million for eight projects that include a groundwater recharge benefit. The 2021-22 and 2022-23 Budget Acts also included $415 million for water recycling projects. Some of these funds may support water recycling projects that recharge groundwater basins. The Clean Water and Drinking Water State Revolving Funds also have the potential to fund groundwater recharge projects. Besides simplifying the permitting process and lowering fees for applicants, the Water Board's Division of Financial Assistance has provided a total of $1.2 billion in support to 34 projects that will bring a total of 115,000 acre-feet per year to the state's groundwater supplies. Six of these projects are already complete and adding 55,000 acre-feet per year, or enough to supply 165,000 households annually. |
| **3.6** | Create flexibility for groundwater sustainability agencies to trade water within basins by enabling and incentivizing transactional approaches, including groundwater markets, with rules that safeguard natural resources, small- and medium-size farms, and water supply and quality for disadvantaged communities. | **DWR, Water Board, CDFW, CDFA** | **3** | The 2021 Budget Act includes $18 million for enhanced groundwater monitoring; enhanced surveys to better manage drinking water, groundwater recharge, and groundwater-dependent ecosystems; and expansion of a groundwater accounting tool to support GSP implementation and the collaborative development of data standards to streamline data reporting to the state, and data standards. The accounting tool and data standards work is advancing in partnership with the California Water Data Consortium and Environmental Defense Fund. (Access to accurate data is fundamental to a well-functioning groundwater trading program.) Separately, at the request of the secretaries for CNRA, CalEPA, and CDFA, the Water Commission in May 2022 released a white paper on well-managed groundwater trading that can protect natural resources, small- and medium-size farms, and disadvantaged communities. The white paper was informed by input received via public workshops and expert panels. The 2023 Budget Act included $900,000 on a one-time basis to DWR to develop an implementation plan for groundwater trading that considers vulnerable users. The funding will support two positions and engage consulting services to help complete the plan. The plan will be developed based on recommendations in the Water Commission's white paper. This one-time planning effort will include interagency coordination among DWR, CDFW, CDFA, and the State Water Board. It will consider impacts on beneficial uses and users, with an emphasis on disadvantaged communities, small and medium farmers, and the environment. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **3.7** | Support use of aerial electromagnetic surveys, groundwater quality conditions, and well completion reports to identify optimal areas for enhanced recharge and critical connections in aquifer systems so that local governments may protect those lands from development and utilize for managed aquifer recharge. | **DWR, Water Board, CDFA** | **3** | In August 2021, DWR began statewide airborne electromagnetic (AEM) geophysical surveys in all medium- and high-priority groundwater basins where data collection is feasible. To date, the statewide AEM surveys are 95 percent complete, with approximately 15,000 line-miles of data collected, covering 78 groundwater subbasins, including the entire Central Valley. In addition to AEM data, DWR has also compiled nearly 13,000 high-quality, digitized lithology logs and 1,200 high-quality, digitized geophysical logs. Data and reports are published on the CNRA Open Data Portal, and complete datasets and reports are available for 90 percent of the planned survey area, including the entire Central Valley. AEM data are displayed on DWR's novel AEM Data Viewer, an online, GIS-based tool that allows the public to view and interact with the AEM data in a three-dimensional space that is accessible from a computer or mobile phone. As a part of DWR's upcoming Basin Characterization Program, DWR will publish a series of maps and tools to support advanced data analyses to support groundwater management. The first of these maps has been published and provides analyses of the Statewide AEM Survey data to support the identification of potential recharge areas. The maps are located on the SGMA Data Viewer and show the AEM data and interpretations for the shallow subsurface. The surveys are expected to be completed in fall 2023, resulting in a total of 85 groundwater subbasins being surveyed in less than 2.5 years. The remaining 10 percent of AEM data and reports are expected to be published by the end of 2024. This AEM data informs GSAs and counties seeking to manage their groundwater sustainably and support land use planning efforts, such as protecting and maximizing recharge areas. The surveys were launched with $12 million in Proposition 68 funding. |
| **3.8** | Explore streamlined permitting for low-hazard dams that are not across a stream channel or watercourse and are used principally for agricultural and groundwater recharge purposes. | **DWR** | **4** | AB 1164 (Chapter 923, Statutes of 2022) was signed by the Governor on September 30, 2022. This bill provides a new exemption from state dam safety regulation for dams owned or operated by public entities for agricultural uses or groundwater recharge, provided certain criteria are met. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **3.9** | Help regions prevent contamination of groundwater basins, including through seawater intrusion, and remediate contaminated groundwater basins that will enable large-scale water recycling and conjunctive use. | **Water Boards, DWR** | **3** | The 2021, 2022, and 2023 Budget Acts include a total of $522 million to the Water Board to support local water recycling projects and cleanup of groundwater to augment water supplies and include $125 million to help public water suppliers address groundwater contaminated by polyfluoroalkyl substances (PFAS). The federal Bipartisan Infrastructure Law (BIL) is anticipated to provide an estimated $460 million to the State Revolving Funds over five years to help address emerging contaminants, and the Water Board has submitted an application to receive a portion of the $5 billion in BIL funding appropriated nationwide for the Emerging Contaminants in Small or Disadvantaged Communities Grant program. Since 2021, DWR has awarded a total of $81 million in grants from various programs to help prevent seawater intrusion and clean up groundwater. |

## Support local and regional agencies to recycle or reuse at least 2.5 million acre-feet a year in the next decade.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **4.1** | Increase financial capacity to support recycling, reuse, and wastewater projects through the Clean Water State Revolving Fund and other state and local funding mechanisms. | **Water Board** | **3** | The 2021 Budget Act included $1.1 billion to complement the Clean Water and Drinking Water state revolving funds and assist local agencies with completing drinking water and wastewater projects. The Water Board has provided over $600 million in loan and grant funding from Propositions 1 and 68 to water recycling projects that will increase reuse of wastewater by approximately 265,000 acre-feet per year; the state bond funds were used in conjunction with an additional $1.7 billion in Clean Water State Revolving fund loans to fund 66 projects. The 2021, 2022, and 2023 Budget Acts also provide $447 million for water recycling projects. The federal Bipartisan Infrastructure Law will provide an additional $800 million to California's Clean Water State Revolving Fund that will help support the CWSRF's ability to fund water recycling and reuse. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **4.2** | Continue work on raw water augmentation regulations and treated drinking water augmentation regulations to allow purified recycled water to be moved directly into drinking water distribution systems. Following the steps outlined in AB 574 of 2017, continue research underway that is identified in the direct potable reuse criteria feasibility report to the Legislature and convene an expert panel to review the proposed criteria to assure they are adequately protective of health. | **Water Board** | **3** | The Water Board released proposed direct potable reuse regulations in July 2023. The formal comment period began July 21, 2023 and closed September 8, 2023. Final approval of the regulation by the Water Board is expected in December 2023. |
| **4.3** | Implement 2018 legislation (SB 966) that requires creation of risk-based water quality standards for onsite collection and non-potable reuse of water in apartment, commercial, and mixed-use building. | **Water Board** | **3** | The Water Board has been holding public workshops and developing a rulemaking package for onsite treatment and reuse of non-potable water. The Board expects to begin the formal rule-making process in late 2023. |
| **4.4** | Update 20-year-old "purple pipe" regulations to eliminate outdated and overly prescriptive requirements in order to expand use of non-potable recycled water while protecting food safety and the environment. | **Water Board** | **1** | Resources were redirected to direct potable reuse, another Water Resilience Portfolio priority. Permitting requests related to the drought have taken precedence. |

## Support cities and counties to make stormwater capture a growing share of their supply.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **5.1** | To address inconsistent approaches in how municipalities estimate the cost of stormwater programs, develop a framework to identify cost of compliance with stormwater permit requirements. | **Water Board** | **3** | Water Board staff is developing a Water Quality Control Policy to require standardized reporting for costs associated with municipal separate storm sewer systems (MS4). Staff have developed a draft list of cost categories for Phase I and Phase II permits based on a comprehensive review of all existing MS4 permits and annual reports from the last three fiscal years. Staff held a public workshop in April 2022 to share the draft cost categories and seek stakeholder feedback. Eleven permittees are participating in a pilot of the proposed cost reporting system. The pilot began in April 2023 and will continue through November 2023. Feedback from the permittees participating in the pilot will inform refinement of the policy. The policy and associated staff report, consisting of revised cost reporting categories, best accounting practices, reporting tool details, and implementation plan, is anticipated to be released in summer 2023 for public comment. The Water Board held a workshop to discuss the draft policy in September 2023. |
| **5.2** | Pilot stormwater capture and use projects through the Drinking Water State Revolving Fund to identify impediments to address and to provide a framework for additional future projects. | **Water Board** | **1** | The State Water Board awarded its final round of Proposition 1 stormwater funding in February 2021. During the solicitation, no projects were submitted that proposed use of state revolving funds. The 2022-23 Clean Water State Revolving Fund Intended Use Plan (IUP) made available $20 million in CWSRF loan forgiveness for stormwater mitigation projects that also contribute to water supply resilience and noted the availability of approximately $12 million of federal funding from the Overflow and Stormwater Grant program. The IUP also noted that the Water Board will amend the Stormwater Water Grant Program Guidelines to generalize them and fund stormwater projects regardless of funding source. The updated Guidelines are expected by the end of 2023. |
| **5.3** | Develop best management practices and standards for the design and construction of recharge wells used to capture urban stormwater. | **DWR** | **3** | In 2021 and 2022, DWR hosted a technical advisory committee of 81 representatives from a broad range of sectors and geographic areas of the state, with expertise in all aspects of well permitting, design, construction, maintenance, and destruction. DWR is using the input of the committee as it revises Bulletin 74, California Well Standards, for the construction, alteration, maintenance, and destruction of water wells, monitoring wells, cathodic protection wells, and geothermal heat exchange wells. DWR expects to release a draft update to Bulletin 74 in 2023 for public comment and then submit the updated bulletin to the Water Board. |
| **5.4** | Provide statewide authority for wastewater facilities to accept stormwater and incentivized stormwater permittees to divert their captured stormwater at times when wastewater facilities have the capacity to accept such diversions. | **Water Board** | **2** | Water Board staff is tracking progress of projects which include partnerships between stormwater and wastewater agencies. In addition, staff expect to execute a project in 2023 which will calculate the volume of stormwater captured across the state, including the volume of stormwater that is diverted to wastewater facilities. This estimate will be updated every five years to evaluate progress toward achieving increased stormwater capture goals. |

## Consider use of desalination technology where it is cost effective and environmentally appropriate.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **6.1** | Consider new desalination projects according to existing state criteria including the Water Board's Ocean Plan and the Coastal Act. | **Administration** | **3** | There are 12 existing seawater desalination plants permitted in California. Three seawater desalination projects have been proposed to state regulators recently:<br><br>Huntington Beach Desalination Project: In July 2021, Poseidon Water submitted its Coastal Development Permit application to the California Coastal Commission for the construction of the proposed Huntington Beach Desalination Project. In May 2022, the Coastal Commission denied approval of the facility's Coastal Development permit. The applicant has dropped plans to pursue a desalination project at this location.<br><br>Doheny Desalination Project: South Coast Water District proposes to construct and operate the Doheny Desalination Plant, designed to produce up to five million gallons a day of potable drinking water for southern Orange County. In March 2022, the San Diego Regional Quality Control Board approved the facility. In October 2022 the Coastal Commission approved the facility's Coastal Development permit. In December 2022, the California State Lands Commission issued a General Land Lease approval for the facility. The plant is expected to be operating in 2027.<br><br>Monterey Peninsula Water Supply Project: California American Water's proposed Monterey Peninsula Water Supply Project includes a desalination plant to provide for long-term water needs of the Monterey Peninsula community. In November 2022, the Coastal Commission approved a Coastal Development Permit for the proposed facility. The Central Coast Regional Water Quality Control Board has not yet received from California American Water a request for a waste discharge permit for the facility or a request for a determination that it would use the best available site, design, technology, and mitigation measures feasible to minimize harm to sea life and address potential shear entrainment impacts. Permitting options for the desalination brine discharge include updating the NPDES permit for Monterey One Water to incorporate the new discharge or developing a separate permit that specifies California American Water's desalination facility discharge. California American Water is also coordinating with Monterey One Water on the Pure Water Monterey water supply resiliency project Phase II expansion to increase water recycling for indirect potable reuse by California American Water. The Pure Water Monterey project has the potential to either preclude the need for a desalination project or decrease the required sizing of the desalination project. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **6.2** | Team with federal and academic partners to develop desalination technologies that treat a variety of water types for various uses, with a goal of enabling manufacturing of energy-efficient desalination technologies in the U.S. at a lower cost, same or better quality, and reduced environmental impact than non-traditional source. | **DWR, Water Board, California Energy Commission, CDFA, Ocean Protection Council** | **4** | In March 2023, the National Alliance for Water Innovation (NAWI) announced an investment of $9 million in 12 projects – several in California -- that will improve the energy efficiency of desalination and water reuse technologies across the country. The selected projects will drive decarbonization of the water and wastewater sectors through innovative technologies to treat, use, and recycle water. DWR has committed $16 million to NAWI. The Water Board is contributing $2.5 million through its bond-funded Recycled Water Research Program to support the NAWI research. NAWI is a $100 million, five-year U.S. Department of Energy research hub headquartered in Berkeley that aims to bring down the cost and energy consumption of desalination by approximately 75 percent, lower the environmental footprint of desalination, and foster small, modular desalination technologies that can be deployed in disadvantaged communities where connection to larger water supply systems is difficult. |

## Expand smart surface water storage where it can benefit water supply and the environment.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **7.1** | Accelerate state permitting of projects that protect and enhance fish and wildlife and water supply reliability – such as Sites, Pacheco Reservoir Expansion, and the Chino Basin Conjunctive Use Environmental Water Storage/Exchange Program – that were selected under the Water Storage Investment Program (Proposition 1). | **CNRA, CalEPA** | **3** | In June 2023, the Water Commission approved a final funding award to the Sacramento Regional County Sanitation District of $277.5 million of Proposition 1 funds for the Harvest Water project, which is expected to begin construction in 2023. Harvest Water is the first of the seven projects in the Water Storage Investment Program (WSIP) to reach the milestone of a final funding award. All seven projects met the statutory deadline of January 1, 2022 to ensure progress and remain eligible for $2.7 billion in Proposition 1 funding. The bond language requires the projects to meet four additional requirements before they can appear before the Water Commission for a final funding decision: complete final environmental documents, enter contracts for the non-public benefit cost share, contract with other state agencies for the administration of public benefits, and complete permits required to begin construction. State agencies have been directly assisting these locally-driven projects since 2018:<br>• To support completion of environmental documents and permits, the Water Commission awarded six projects early funding totaling $118 million.<br>• In utilizing the conditional commitment from the project that was withdrawn by its proponents, the Commission used $71 million to increase conditional commitments of three projects to meet their initial funding requests and gave all projects an inflationary adjustment of approximately four percent that totaled $100 million.<br>• The Water Commission is funding positions at the Water Board's Division of Water Rights to facilitate the handling of water right applications for these projects.<br>• The Sites Project Authority applied for a water right permit in May 2022. The Water Board worked with the applicant to complete missing information. In June 2023, the Water Board issued public notice of the Sites Project Authority's water right application.<br>• The Water Board continues to work with project applicants closely to help them develop necessary application and petition materials for the Los Vaqueros Reservoir Expansion Project and the Pacheco Reservoir Expansion Project.<br>• CDFW has entered into a reimbursable agreement with the Sites Project Authority and the Contra Costa Water District to provide dedicated staff to work on permits for the Sites and Los Vaqueros reservoir expansion projects.<br>• The Water Commission is supporting DWR staff costs to analyze the effects of the proposed storage projects on State Water Project operations, including Sacramento River flows, south-of-Delta exports, and water availability at various<br>*( … continued)* |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **7.1** *(cont.)* | | | | *(7.1 continued)*<br>times of the year. This includes preparation of agreements and contract amendments needed for the projects.<br>• DWR is leading the work on a supplemental environmental impact report for the three storage projects that involve environmental pulse flows, including analysis of the cumulative impacts on the State Water Project system. A draft supplemental EIR is expected in October 2023, with the final in 2024.<br>In addition, as directed in the Governor's August 2022 Water Supply Strategy, the Natural Resources Agency established an interagency strike team to facilitate state permitting and support completion of these projects. The secretaries of CNRA and Cal EPA, the directors of DWR and CDFW, and the executive director of the Water Board meet at least monthly to discuss the status of the projects, identify sticking points, and troubleshoot problems. The strike team flags and resolves issues that otherwise might languish. Top regional staff of the U.S. Bureau of Reclamation join the strike team meetings. Reclamation operates the Central Valley Project, and various Reclamation decisions and actions are needed to further the storage projects. |
| **7.2** | Acquire through contract a portion of storage, dedicated for environmental purposes, for the life of the water storage projects the Water Commission selected under the Water Storage Investment Program funded by Proposition 1. | **CDFW** | **3** | In 2022 and 2023, staff from the Water Commission, CDFW, DWR, and Water Board worked with the water storage project applicants on development of templates for the contracts for public benefit and final funding agreements. Those discussions should reduce the time required to negotiate the individual contracts for public benefits. In June 2023, CDFW and the Water Board signed the first public benefits contracts with Sacramento Regional County Sanitation District (Regional San), the sponsor of the Harvest Water project in southern Sacramento County. Under those contracts, Regional San will provide public benefits including enhancing wildlife habitat, improving Cosumnes River flows, and reducing the salt load in the Sacramento River and Delta waterways. |

## Protect and restore water quality by driving pollution reduction from a range of sources.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **8.1** | Implement AB 834, the 2019 legislation that requires the Water Board to establish and maintain a comprehensive harmful algal bloom program that includes incident response, monitoring, and website postings. | **CalEPA, CNRA, Department of Public Health** | **3** | The State and two Regional Water Boards continue to carry out the requirements set forth in AB 834. A second annual report was posted on the Water Boards' website in October 2022. The Water Board has procured substantial new services, equipment, and capacity for data for the program. A new data platform capable of integrating community-collected data is operational and data is flowing from multiple platforms to online maps. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **8.2** | Support statewide source control programs that use incentives, innovation, public education, and where necessary, enforcement to reduce nutrient, pesticide, erosion, and sediment discharge. | **Water Board** | **3** | The Regional Water Boards lead the state's Non-Point Source Program, which focuses on providing funding and support for projects to address non-point sources of pollution such as pesticides, sediment, and nutrients. Funding is made available annually and is largely directed to addressing impaired waters. |
| **8.3** | Support statewide source control programs for emerging contaminants of concern that are hardest to treat. | **Water Board** | **3** | Progress has been made to date on polyfluoroalkyl substances (PFAS) source investigations at airports, landfills, chrome plating facilities, wastewater treatment plants, bulk fuel terminals, and refineries. Approximately 950 source investigations are being conducted statewide along with the sampling of over 1,000 drinking water wells in the vicinity of these source areas. Data collected from wastewater treatment plant influent is expected to identify other potential industrial sources of PFAS for additional investigation. Once identified, the Regional Water Boards will work with those identified industrial facilities to identify safer alternatives and/or treatment options to mitigate the discharge of PFAS into wastewater. The State Water Board is working with the Regional Water Boards to start the process of incorporating monitoring and sampling requirements per federal guidance at these plants, since Effluent Limitation Guidelines for PFAS are expected from the U.S. Environmental Protection Agency (EPA). Other significant milestones from EPA will likely occur in early 2024, when six PFAS will have national drinking water standards and two of those PFAS, PFOA and PFOS, will be deemed hazardous substances, which provides a mechanism for cleanup as well as preventing contamination at future sites. The 2021, 2022, and 2023 Budget Acts include $125 million to support local agency treatment and testing of PFAS contamination in drinking water. A portion of this funding will be utilized to sample disadvantaged community water systems statewide for PFAS. The federal Bipartisan Infrastructure Law (BIL) is anticipated to provide an estimated $400 million to the State Revolving Funds over five years to help address emerging contaminants, and the Water Board also submitted an application to receive a portion (approximately $170 million) of the $5 billion in BIL funding appropriated nationwide for the Emerging Contaminants in Small or Disadvantaged Communities Grant program. The $4.2 million reimbursement authority allocated in the 2021 Budget Act to oversee cleanup of contaminants, including PFAS, can be directly used to investigate and remediate these types of PFAS sources. In 2019, the Water Board established the Constituents of Emerging Concern Program in the Division of Water Quality. The program will serve as the information hub and provide support for programs throughout the Water Boards. In 2023, the program will initiate development of a statewide contaminants of emerging concern strategy, which will include source-control management strategies. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **8.4** | Explore ways to expand the scope and capacity of existing multi-agency post-fire assessment teams to evaluate anticipated impacts to aquatic life and drinking water sources. | **CAL FIRE, Water Board** | **2** | The Water Board Emergency Management Program is leading a group related to three priorities outlined in the Governor's Wildfire and Forest Resilience Action Plan: the establishment of emergency forest restoration teams, the development of a restoration strategy for state lands, and the development of a restoration strategy for federal lands. The Water Boards' role is to identify and prioritize water quality concerns to ensure they are captured in these efforts. |
| **8.5** | Support mercury control programs to reduce human and wildlife exposure to mercury-contaminated fish. | **Water Board** | **2** | AB 762 (2019) authorized the Water Boards to make grants to local entities to fund posting of fish advisories in priority locations statewide. Reimbursement is ongoing. Implementation of total maximum daily loads (calculations of the maximum amount of a pollutant allowed to enter a water body) adopted across the state continues to address waters impaired by mercury. These water quality control plans will take decades or longer to achieve water quality objectives, so a focus on controlling exposure is necessary in the immediate term. |
| **8.6** | Develop and implement statewide water quality objectives for aquatic life. Assess biological communities to determine stream health and condition future projects to protect high-quality, high-functioning systems. | **Water Board** | **4** | The State Water Board adopted the Toxicity Provisions in December 2020. U.S. Environmental Protection Agency Region 9 approved the Provisions in May 2023. Staff is developing the technical foundation and policy options for a statewide water quality objective and implementation program for nutrients and other biostimulatory substances for wadeable streams. Water Board staff held a public staff workshop in July 2022 to discuss the project scope, project goals, research findings and future opportunities for stakeholders to be involved in project development. Future workshops are planned in 2024 to further discuss proposed water quality objectives and program of implementation options. |
| **8.7** | Support research, technical assistance, and grower training within the Fertilizer Research and Education Program to better manage nutrient application and irrigation practices to protect water quality. | **CDFA** | **3** | University of California Cooperative Extension has been awarded $3 million to hire six extension personnel whose work will be devoted to administering on-farm demonstrations and interactive trainings and workshops in nitrogen and irrigation management. These extension personnel will collaborate with local grower coalitions to focus resources on high-priority areas, crops, and growers, as determined by nitrogen reporting data. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **8.8** | Enhance dairy and livestock manure management programs to protect water quality, including activities that improve nutrient use efficiency and enable development of manure-based products, including bioenergy. | **CDFA** | **3** | The 2021 Budget Act included $32 million and the 2022 Budget Act included $48 million to reduce livestock methane emissions. These funds will be used to incentivize dairy and livestock operators to develop dairy digesters to capture methane gas or change their existing liquid-phase manure management process to a dry-phase manure management process. The Dairy Digester Research and Development Program at CDFA has funded 131 projects that have an annual greenhouse gas reduction of 2.3 million metric tons of carbon dioxide equivalent and provide dairies with double-lined lagoons to prevent nitrate leaching. The projects also enable installation of solid-liquid separation systems to separate the coarse portion of manure for use as a soil amendment/fertilizer or animal bedding. The Alternative Manure Management Program (AMMP) funds non-digester technologies on dairy operations. AMMP has funded 142 projects with an annual greenhouse gas reduction of 260,150 metric tons of carbon dioxide equivalent. This program utilizes the installation of solid-liquid separation systems to produce compost and incentivizes other practices that avoid methane emissions by creating aerobic manure management practices, such as composted bedded pack barns. In the last round of funding, AMMP awarded funds to a vermifiltration project that has the potential to treat manure flushed from barns and lanes and capture nutrients from the water in the form of worm casting, which can be used as a rich fertilizer and soil amendment. CDFA in collaboration with the California Dairy Research Foundation (CDRF) has received a federal grant for $75 million to incentivize the implementation of advanced manure management practices through the Dairy Plus Program. Some of the incentivized practices include vermifiltration, solid-liquid separation assisted by flocculants and/or bead filters, weeping walls, subsurface drip irrigation, and aerated composting. These projects are expected to reduce an annual 450,000 metric tons of carbon dioxide equivalent as well as capture the excess of nutrient in the water, while producing rich fertilizer, bedding, and soil amendment. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **8.9** | Support regionally-based salinity and brine management programs to improve water quality and supply reliability. | **Water Board, DWR** | **3** | In 2018, the Central Valley Water Board adopted Basin Plan Amendments that established, among other policies and programs, a valley-wide Salt Control Program. This is a phased program designed to address increasing salinity concentrations in soil and groundwater. During Phase I of the Salt Control Program, which is expected to last 10 to 15 years, most permittees in the Central Valley are required to participate in the development of a long-term salt management strategy known as the "Prioritization and Optimization Study." It is expected that this study will propose sustainability solutions that will include large-scale brackish groundwater desalinization projects. As of July 2023, there are 2,788 permittees participating in the study, or 89 percent of 3,142 total active permittees. Analytical/modeling tools were chosen and approved for the study and are currently being integrated, calibrated, and validated. DWR's Sustainable Groundwater Management Office has reviewed and continues to review local groundwater sustainability plans (GSPs) where degraded water quality from sea water intrusion or brackish groundwater conditions are impacting beneficial users. Local groundwater sustainability agencies (GSAs) are responsible for implementing their GSP and managing these conditions for sustainability. |
| **8.10** | Support efforts to address transboundary flows of contaminated water, trash, and sediment at our border with Mexico. | **CalEPA, CNRA** | **3** | In May 2023, DWR and the State Water Board, with local partners, broke ground on the Calexico New River Improvement Project. The New River contains untreated wastewater and other pollutants from Mexico as it flows north through the City of Calexico before emptying into the Salton Sea. This polluted waterway is a threat to human health and ecosystems and limits economic development in the Imperial Valley. To address this long-standing problem, the New River Improvement project received $47 million from the 2020 Budget Act, Proposition 68 and the Water Board to encase the New River polluted water in the Calexico area, minimizing direct or indirect human contact. The project has been in the works for over a decade and involved extensive local and state collaboration. The finished project will benefit the local severely disadvantaged community. CalEPA and the San Diego Regional Water Board continue to provide input to federal agencies on priority projects in the Tijuana River for $300 million in federal funding. The Regional Water Board coordinates with state and local agencies to develop and implement projects through the Tijuana River Valley Recovery Team. Colorado River Basin Regional Water Board staff participate in the Binational Technical Committee, which facilitates communication between the U.S. and Mexico over pollution problems and binational sanitation projects. Regional Water Board staff conduct monthly water quality sampling at the New River International Boundary to monitor constituents including nitrogen, phosphorus, bacteria, arsenic and selenium. |

# Protect and Enhance Natural Systems

A concerted effort by state agencies in the last two years to "cut the green tape" has made it easier to permit restoration projects, smoothing the way for expansion of floodplains and wetlands and other "green infrastructure" that harbor fish and wildlife while attenuating flood flows, filtering water, and recharging aquifers. The long-sought removal of dams on the Klamath River has begun, while other big projects – like construction of a fishway around Daguerre Dam on the Yuba River – are within reach. Under proposed voluntary agreements in the Sacramento-San Joaquin watershed, state and local water agencies are arranging higher river flows to help fish. Work continues to make the extraordinary asset of the Yolo Bypass function even better as a flood safety valve and nursery for salmon, sturgeon, and smelt. A big federal investment holds the promise to accelerate Salton Sea projects that minimize air pollution and feed migratory birds. Work to retrofit the state's hatcheries for a changed climate is well underway.

Photo courtesy of Stillwater Films

*In the summer of 2023, crews deconstructed Copco No. 2, the smallest of four hydroelectric dams being removed from the Klamath River under the direction of the Klamath River Renewal Corporation, a nonprofit organization formed in 2016 by 23 signatories – including the states of California and Oregon – of the amended Klamath Hydroelectric Settlement Agreement. Copco No. 2 dam was completely removed by October 2023. Three other dams on the Klamath River are scheduled for removal in 2024.*

## Help regions better protect fish and wildlife by quantifying the timing, quality, and volume of flows they need.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **9.1** | Develop rapid methodologies to establish regional instream flow metrics through the multi-partner California Environmental Flows Framework. Provide regional training on the environmental flow methods and tools to support local and statewide resource managers. Develop a series of case studies around the state to refine the tools. | **Water Board, CDFW, DWR** | **3** | The draft California Environmental Flow Framework (CEFF) was released to the public in November 2020. Comments were received and edits made to the report to reflect those comments. Multiple case studies are currently being finalized by members of the CEFF technical team, including several funded by Wildlife Conservation Board grants. CDFW provided CEFF/rapid methodology trainings to more than 100 CDFW regional and program staff in 2022. Water Board staff were redirected from ongoing CEFF-related work to address priority drought workload. |
| **9.2** | Conduct and utilize instream flow analyses to further develop instream flow recommendations for ecologically important streams to protect public trust values. | **Water Board, CDFW** | **2** | Additional work related to California Environmental Flows Framework (CEFF) was paused within the Water Board due to staff redirection to work on drought issues. Progress continues where dedicated funding sources are available for streams delineated for instream flow analyses in the 2014 California Water Action Plan, including the Ventura River, Shasta River, and Eel River. Interagency coordination on other important streams, such as the Scott River, is underway. CDFW is using the rapid instream flow analyses to develop flow criteria, which can be used to develop formal flow recommendations, on seven Water Action Plan streams including the Ventura River, South Fork Eel River, and Mark West Creek, and eight additional streams statewide (Mattole River, West Fork San Gabriel River, Santa Ana River, Santa Margarita River, Mojave River, Dos Pueblos Creek, Carpinteria Creek, and North Fork Navarro River). The Wildlife Conservation Board (WCB) awarded $735,644 in grants, in addition to $278,000 previously committed to develop ecological flow recommendations using CEFF, model actual flow conditions on streams statewide, implement a Community Water Management planning process, conduct monitoring, and develop designs for several projects on forested Trinity County sites. The WCB also funded planning activities to support future implementation of a diverse array of stream flow enhancement actions in the Navarro River and Outlet Creek watersheds, and in the Ventura River watershed. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **9.3** | Bring together regulators, tribes, water users, public water agencies, non-governmental organizations, and other stakeholders to develop innovative, voluntary solutions to water supply, water quality, and ecosystem protection. | **CNRA, CalEPA, CDFA** | **3** | In 2021 and 2022, the Wildlife Conservation Board awarded $13.8 million in grants to 13 separate projects in Napa, Shasta, Sonoma, Mendocino, Humboldt, Ventura, San Luis Obispo, Siskiyou, and Los Angeles counties to improve environmental conditions through landowner actions such as moving diversions from summer to winter, improving groundwater infiltration, and reducing spillage at water diversions and irrigation canals. In summer 2021, CDFW executed three emergency contracts with Scott River basin alfalfa growers to forego pumping of groundwater to augment Scott River flows for coho and chinook salmon. The emergency contracts lasted from August through December, and the Scott River Water Trust monitored the effectiveness of the augmented stream flows. In order to improve conditions for migratory waterfowl and shorebirds in a second consecutive dry year, DWR signed an interagency agreement with the California Rice Commission (supported by The Nature Conservancy) to help fund projects through the Bid4Birds Program. This program compensates rice farmers to flood their fields after harvest for the benefit of shorebirds, waterfowl, and other waterbirds. Under the agreement, the Bid4Birds Program also will be expanded to include compensation for flooding of private managed wetlands in the Sacramento Valley. Similarly, CDFW is contracting with The Nature Conservancy to implement their BirdReturns habitat incentive program on wildlife-friendly agricultural lands and wetlands in the Delta and San Joaquin Valley. CDFW and the National Marine Fisheries Service in August 2021 announced a Voluntary Drought Initiative designed to protect populations of salmon, steelhead, and sturgeon from the effects of the current unprecedented drought. The initiative provides a framework for water users to enter into individual agreements with the two agencies to maintain enough water for fish spawning and survival, and implement other collaborative actions like fish rescue, relocation, monitoring, and habitat restoration. In return, landowners and water users will benefit from a simplified permitting process under the federal and state endangered species laws and may receive incidental take authorizations for California Endangered Species Act-listed fish in case a participant unintentionally takes a listed fish species. CDFA developed a new pilot block grant model for its agricultural irrigation efficiency grant program (SWEEP), which was open to irrigation districts and groundwater sustainability agencies as well as other non-profit organizations and tribal governments to support improved irrigation efficiency within their regions. These organizations would work closely with agricultural operators to improve water use and conservation. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **9.4** | Work with universities, tribes, public water agencies, and non-governmental organizations to develop new tools for identifying functional ecosystem flows. | **CDFW, Water Board** | **3** | The Water Board paused work related to functional ecosystem flows, in particular the California Environmental Flow Framework (CEFF), due to staff redirection to work on drought issues. CDFW recently executed a new contract under Proposition 84 to fund continued development of functional flows tools with researchers at UC Davis and UC Berkeley. This collaboration between UC and CDFW uses fish monitoring data to develop hydrologic-based tools to identify functional ecosystem flows. The team is currently working on an analysis of five long-term fish monitoring data sets and is expecting technical reports in late 2023. CDFW participation as a member of the CEFF technical team represents an ongoing collaboration to identify, communicate, and implement functional ecosystem flows. Multiple efforts are also underway to develop regional applications of the functional flows. For example, staff at UC Davis and the Southern California Coastal Water Research Project are completing an analysis that assesses relationships of invertebrates to functional flows. |
| **9.5** | Develop analytical modeling tools that can be used to rapidly assess streamflow depletion tied to groundwater pumping. | **CDFW, DWR, Water Board** | **3** | DWR's Sustainable Groundwater Management Office has evaluated analytical solutions and is initiating the preparation of a guidance document to describe how best to develop quantified metrics for stream depletion. This guidance will include analytical models and methods but will also discuss when numerical models would be needed to understand the timing and distribution of depletion in complex settings that violate analytical model assumptions. DWR will seek input and feedback from state agency staff and external technical experts beginning in fall 2023 and intends to release incremental guidance through summer of 2024 to support GSP refinement. |

## Reconnect aquatic habitat to help fish and wildlife endure drought and adapt to climate change.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **10.1** | Support the revival of salmon, steelhead, lamprey, and other native fisheries and ecosystems central to several Native American tribes on California's second-largest river through the bi-state effort to remove four Klamath River hydroelectric dams and related river restoration activities. | **CNRA** | **3** | In November 2022, the Federal Energy Regulatory Commission (FERC) gave final approval for the Klamath River dams removal project. In June 2023, FERC approved work necessary to prepare for drawdown of reservoirs in January 2024. The smallest of the four dams, Copco 2, was removed in summer 2023. Removal of J.C. Boyle, Copco No. 1 and Iron Gate dams is planned during 2024. Restoration work should be complete in 2025, with maintenance and monitoring to follow. The dams are located in Klamath County, Oregon and Siskiyou County California. In December 2022, chairmen of the Yurok and Karuk tribes, the governors of California and Oregon, the U.S. Secretary of the Interior, and other tribal, state, and federal leaders met on the Klamath River to celebrate the 15 years of work that culminated in the FERC decision to issue license surrender orders for the dams to California, Oregon, and the non-profit Klamath River Renewal Corporation. The project is funded through Proposition 1, the 2014 California water bond, and surcharges on the California and Oregon customers of private utility PacifiCorp, the former owner of the dams. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **10.2** | Support a comprehensive culvert and fish passage improvement program, including along transportation corridors, using the strategy generated by the public-private California Fish Passage Forum and by piloting new approaches with state and federal agencies in coordination with the six regional California Fish Passage Advisory Committees. | **CDFW, Caltrans, California Transportation Commission, Fish and Game Commission** | **3** | The California Fish Passage Forum is a collaborative entity among state, local, and federal agencies, and fisheries conservation groups. The Forum mission is to protect and revitalize anadromous fish populations in California by restoring connectivity of freshwater habitats throughout their historic range.<br><br>Recent projects undertaken and/or funded by the Forum:<br><br>• Hosting a milestone event celebrating the pending removal of the four Klamath River Dams and work done over the last two decades to improve fish passage in the Klamath Basin.<br><br>• Opening up miles of stream for salmon and steelhead.<br><br>• Removing an abandoned impediment line in Ross Creek in Marin County to allow passage of juvenile steelhead.<br><br>• Restoring access to off-channel ponds and side-channel habitat along Lawrence Creek in Humboldt County.<br><br>• Replacing a fish passage facility to restore more than a mile of creek and reconnect Wildcat Creek to San Francisco Bay.<br><br>• Clearing barriers on Lower Stotenburg Creek, a tributary of Smith River.<br><br>• Installing a fish passage-friendly box culvert and road crossing on Mormon Slough in San Joaquin County.<br><br>• Barrier optimization plan for the Smith River watershed, which includes barrier assessments of 385 potential sites to determine current fish passage status.<br><br>• Supporting the State of California's Passage Assessment Database.<br><br>• Implementing the First Pass Incidental Report Form and Mobile Application.<br><br>• Rolling out FISHPass – a web-based tool for prioritizing fish passage projects.<br><br>• Refining Baseline Fish Habitat Layer for identifying barriers and prioritization.<br><br>• Holding virtual and in-person Forum meetings to advance Forum goals according to workplans, reporting through newsletters and annual reports.<br><br>Separately, in 2021 and 2022, the Wildlife Conservation Board (WCB) awarded another $11 million in grants for fish passage projects in San Mateo, Placer, Ventura, Mendocino, Siskiyou and San Diego counties. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **10.3** | Develop priorities and a process for removal or reconfiguration of aging or obsolete dams with collaborative partners. | **CDFW** | **3** | CDFW developed a Priority Barrier removal list, which is used annually for granting programs. The current document of all priorities defined by CDFW's Region Offices was finalized and released in December 2021, and CDFW is working on another update. In May 2023, Governor Newsom and CDFW announced a framework agreement between state, federal and local agencies to reopen miles of habitat to multiple native fish species and promote the return of imperiled spring-run Chinook salmon to their native habitat in the North Yuba River for the first time in more than 100 years. This collaboration between CDFW, Yuba Water Agency and NOAA Fisheries will resolve years of conflict. It includes construction of a new fishway – a channel resembling a natural river that salmon, steelhead, sturgeon and lamprey can follow to get around the U.S. Army Corps of Engineers' Daguerre Point Dam to reach more than 10 miles of healthy spawning habitat. |
| **10.4** | Evaluate, plan for, and respond to environmental stressors due to climate change, including development of regional contingency plans for fish and wildlife and ecosystems and promotion of climate change adaptation projects to prevent species decline. | **CDFW** | **2** | CDFW continues to coordinate closely with other agencies and conservation partners to plan and better prepare for the impacts of climate change on wildlife, utilizing Department-managed lands to prevent species decline. CDFW continues to evaluate impacts of climate change and identify management strategies for threatened, endangered, and other sensitive species in species reviews, status reviews, and conservation plans and through collaboration on conservation actions with partners. CDFW has engaged in stressor monitoring and evaluations to identify suitable habitats for translocations to expand populations of native fish susceptible to climate change. CDFW continues to expand genetics monitoring data to help inform population-level health of native fish. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **10.5** | Support urban stream restoration projects, including but not limited to multi-benefit erosion and flood management improvements that provide community access to clean water, daylight streams to create shaded corridors, remediate river-adjacent brownfields, and restore natural infrastructure. | **CNRA, CalEPA** | **3** | The 2021 and 2022 Budget Acts included a total of $16 million to DWR for grants to support urban stream restoration. In December 2022, DWR awarded $1.2 million for a project to improve water quality and restore habitat at the confluence of the Truckee River and Donner Creek in Nevada County and $4.4 million to ensure contiguous habitat and improve flood protection along Lower Colgan Creek in Sonoma County. DWR will continue to accept applications in 2023 and grant awards until the funds are all committed. Since 2020, the DWR urban streams program has funded 14 projects, including to restore sections of Devereux Slough in Santa Barbara County and daylighting sections of Codornices Creek in Berkeley. In 2021 and 2022, the Wildlife Conservation Board awarded $881,000 in the Ventura River watershed to help restore urban waterways, increase water use efficiency on agricultural lands, reverse groundwater depletion, and increase flow in the Ventura River. In 2020, the WCB awarded $350,000 to complete planning activities to restore the "Bowtie Parcel" along the Los Angeles River by daylighting a stormdrain and restoring two acres of riparian habitat. The 2021 and 2022 Budget Acts included $16 million for the Santa Monica Mountains Conservancy for projects that improve the climate resiliency or the protection of the Los Angeles River watershed or are a part of the revitalization plan developed by the Upper Los Angeles River and Tributaries Working Group. The 2021 and 2022 Budget Acts also included $16 million to the San Gabriel and Lower Los Angeles Rivers Conservancy for projects that improve the climate resiliency or the protection of the Los Angeles River watershed or are consistent with the Lower Los Angeles River Revitalization Master Plan. |

## Support the expansion of wetlands, including mountain meadows, to create habitat, filter runoff, buffer floods, and recharge groundwater.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **11.1** | Work with federal agencies to meet the water needs of wildlife refuges, which function together as a vital network for migratory shorebirds and waterfowl, including expediting transfer of water supplies to Central Valley Project Improvement Act refuges. | **CDFW** | **3** | In 2020 and 2021, the Wildlife Conservation Board awarded a total of $2.7 million to five separate projects that enhance water delivery and wetland habitat at Gray Lodge, Los Banos, and the North Grasslands Wildlife Areas. Through Proposition 1, CNRA has funded the North Grassland Water Conservation and Water Quality Project and the Biggs-West Gridley Water Conveyance Project, which will bring additional water to North Grasslands and the Gray Lodge Wildlife Areas, respectively. CNRA also helped to fund the North Valley Regional Recycling Project, which conveys tertiary-treated wastewater from Modesto through the Delta-Mendota Canal to farmers served by the Del Puerto Water District and to federal wildlife refuges in wet years. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **11.2** | Implement the new adopted State Wetlands Policy to make regulation of wetlands more protective, predictable, and consistent, and provide training to state and local water managers on those regulations. | **Water Board** | **3** | State Water Board staff have delivered training to Regional Water Boards and the regulated community on implementation of the 2019 Dredge and Fill Procedures. Staff implement the Procedures through issuance of water quality certification permits for dredge and fill projects. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **11.3** | Support expansion of multi-benefit floodplain projects across the Central Valley and coastal regions, including projects that reduce flood risk and restore or mimic historical river and floodplain processes, such as the Yolo Bypass and Cache Slough Partnership program. | **DWR, CDFW, CDFA, Flood Board** | **3** | From July 2001 to November 2022, the Wildlife Conservation Board (WCB) voted to fund several multi-benefit floodplain projects across the Central Valley and coastal regions, including the Battle Creek Confluence Sidechannel Restoration Planning Project ($1 million), the Bale Slough-Bear Creek Tributary Restoration Project ($1.7 million), and the Cienega Springs Ecological Reserve Wetland and Riparian Restoration Project ($6.5 million). DWR advanced major multi-benefit projects in the past 18 months: DWR and partners broke ground for the Lookout Slough Project in July 2022. This 3,000-acre multi-benefit project in the Yolo Bypass will reduce flood risk and restore valuable habitat for numerous threatened native fish and wildlife. The major construction components of the project (e.g., new flood protection levees, new tidal channels and wetlands) will be completed in 2023, with smaller elements and levee breaching to be completed in 2024. DWR initiated the CEQA process in July 2023 for the 3,000-acre Little Egbert Multi-benefit Project in the Yolo Bypass. This project will reduce flood risk for nearby communities, including Rio Vista, as well as restore habitat for threatened native species. DWR also initiated the Upper Elkhorn Basin Project in July 2023, which will complete a Feasibility Study of project alternatives to significantly reduce flood risk for the Sacramento area, improve agricultural levees, and restore floodplain habitat in the Yolo Bypass. On the Lower Elkhorn Basin Levee Setback Project, DWR completed construction of the 7-mile- long levee in the Yolo Bypass in 2022 and will remove the old 7-mile-long levee by December 2023, in time to be functional for the rainy season. This new setback levee will increase the flood flow capacity of the bypass and restore floodplain habitat. The project will be substantially complete in 2023. DWR and the Flood Board continue to collaborate with other state, federal and local agencies on the Yolo Bypass Cache Slough Partnership. DWR, the Flood Board, the Sacramento Area Flood Control Agency and the U.S. Army Corps of Engineers (USACE) have secured funding to begin the USACE Yolo Bypass Comprehensive Study, authorized in the Water Resource Develop Act of 2020. DWR and the Flood Board continue to develop the Yolo Bypass Cache Slough (YBCS) Master Plan and Program EIR, to support legislative requirements described in Senate Bill 369 (Chapter 275, Statutes of 2021). The Master Plan will present a vision of the future YBCS region and serve as a programmatic framework that outlines an integrated approach to implementing multi-benefit activities across a shared landscape. Public drafts of the Master Plan and Program EIR are scheduled to be released in 2024. DWR and the San Joaquin Area Flood Control Agency (SJAFCA) entered into a $3 million contract to fund SJAFCA to complete a Feasibility Study for expanding the Paradise Cut Bypass expansion project, which will reduce flood risk for communities including Tracy and Stockton and will explore opportunities to improve habitat and water quality in Delta waterways. |

## Curb invasive species altering California waterways.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **12.1** | Work to eradicate nutria, large rodents introduced to the Central Valley from South America, which jeopardize wetlands and levees by eating aquatic plants and burrowing. | **CDFW, CDFA, Delta Conservancy** | **3** | After being eradicated from California in the 1970s, a nutria was captured in Merced County in 2017. As of July 2023, the state nutria eradication program had removed 3,615 nutria. CDFW continues to see reductions in the number of nutria taken and the number of sites where the rodents are detected. The 2023 Budget Act includes at least $2.8 million a year for three years for CDFW to sustain the eradication effort. |
| **12.2** | Support programs that prevent, detect, and manage invasive species and pests; develop California-specific invasive species risk assessments; and evaluate and improve weed management efforts. | **CNRA, CalEPA, CDFA** | **3** | The 2021 Budget Act included $10 million over two years to the Invasive Species Council of California (ISCC), an inter-agency group charged by law with coordinating and ensuring complementary, cost-efficient, environmentally sound, and effective state activities regarding invasive species. The California Invasive Species Advisory Committee, which reports to the ISCC, worked with stakeholders through a public process to develop recommendations for the ISCC consideration. In November 2022, the ISCC approved $5 million in geographically diverse projects that aim to help protect agriculture, natural resources, and unique biodiversity across taxonomical groups. In addition, state agencies invest millions of dollars a year managing nuisance water species that can clog and damage waterways, including Brazilian waterweed, water hyacinth, and quagga and zebra mussels. CDFA participates in Local Weed Management Area meetings, provides weed mapping education, and oversees the GIS data for county agricultural commissioner weed efforts funded by CDFA. This data is managed and shared with non-government organizations to coordinate efforts and raise awareness of new and emerging weed problems. CDFA has partnered with the California Invasive Plant Council to collect data on weed control efforts from counties and other partners in 19 regions across the state. This information was compared with weed occurrence data to develop regional targets and multi-county plans for coordinating responses to emerging weed problems. CDFA evaluates pests by running risk analyses to assign pest ratings; higher pest ratings may trigger regulatory activities and associated management actions, identify priority targets for exclusion and eradication for CDFA and other entities, and provide funding and program activity justification. Within the last two years, wetland and aquatic weeds assigned ratings include Algerian sea-lavender and European sea-lavender (salt marsh weeds impacting endangered species habitat) and giant eelgrass, hydrilla, and Indian marshweed (aquatic weeds that could impact water navigation and endangered species habitat in the Delta). One highly impactful aquatic weed, water hyacinth, is currently being analyzed for a pest rating. |

## Align and improve permitting to help launch and incentivize more restoration, multi-benefit, and multi-partner projects.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **13.1** | Coordinate grant and loan programs across state agencies to make funding for multi-benefit projects, including restoration, easier to arrange and leverage. | **CalEPA, CNRA, CDFA** | **2** | The Strategic Growth Council (SGC) convenes the leadership of several state agencies including CalEPA, CNRA, and CDFA. In 2022, the SGC adopted a resolution on removing barriers to state funding and created an internal work plan. Member agencies, as part of an effort to embed equity in their work, have prioritized removing barriers to state funding using different strategies, including internal trainings, workshops, and aligning policy efforts. State agencies also provides regular updates to the California State Library's California State Grants Consolidated Web Portal, which can be accessed at www.grants.ca.gov. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **13.2** | Support the development of expedited and cost-effective permitting mechanisms for common types of restoration and enhancement projects. | **CNRA, CalEPA** | **3** | Many permitting mechanisms to speed environmental projects have been established by state agencies and are in use.<br>• The Habitat Restoration and Enhancement Act (HREA) of 2014 provides a streamlined permitting process for small projects. All HREA projects must be eligible for an exemption under CEQA for small habitat restoration projects not exceeding five acres in size to assure the maintenance, restoration, enhancement, or protection of habitat for fish, plants, or wildlife.<br>• CDFW and the Water Board jointly developed an application and permit review process for projects under HREA, administered by CDFW, and the 401 General Water Quality Certification Order for Small Habitat Restoration Projects, administered by the Water Board. This collaboration includes the Water Board's adoption of the Small Habitat Restoration General Order, a consolidated permit process for CDFW restoration activities for these types of projects (which previously required permitting of individual restoration projects).<br>• In August 2022, the Water Board adopted the Large Habitat Restoration General Order, a programmatic permit for common habitat restoration activities exceeding five acres in size. The general permit, which is a companion to the Small Habitat Restoration General Order, provides a streamlined pathway for review and approval of an application for larger restoration projects, such as improvements to stream crossing and fish passage, floodplain restoration, and removal of non-native invasive species.<br>• CDFW's Restoration Permitting Team worked with the National Oceanic and Atmospheric Administration Fisheries Service to develop a new process for issuing consistency determinations for restoration projects that have received approvals pursuant to a federal programmatic biological opinion.<br>• The Bay Restoration Regulatory Integration Team (BRRIT) is comprised of staff from each of the six state and federal regulatory agencies with jurisdiction over San Francisco Bay. This team provides project proponents with a "one-stop shop" for complex multi-benefit habitat restoration projects.<br>• In November 2021, the Newsom Administration, in cooperation with the Legislature, established a new exemption for habitat restoration projects regardless of size so long as the project is wholly beneficial, among other requirements.<br>• The Coastal Commission has approved programmatic permits for forest health and wildfire resilience restoration<br>*(… continued)* |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **13.2** *(cont.)* | | | | *(13.2 continued …)*<br>projects through Public Works Plans in San Mateo, Santa Cruz, and San Luis Obispo counties. The plans authorize projects in an approximately 230,000-acre area and allow for projects to move forward with streamlined review and without the need for additional coastal permits over the next 10 years. A similar Public Works Plan is currently being developed in Monterey County.<br>• CNRA entities have reviewed and improved their procedures for using the CEQA exemption for small (<5 acres) restoration projects. In the past two years, more than 200 of these exemptions were used throughout California. The California Tahoe Conservancy, for example, recently applied this exemption for small-scale restoration activities associated with habitat degradation from off-road highway vehicles.<br>• The Water Board developed Statewide Dredge or Fill Procedures that provide significant regulatory relief for Ecological Restoration and Enhancement Projects, clarify permit requirements, and streamline the application process. |
| **13.3** | Expand the Regional Conservation Investment Strategies approach established in 2017 under AB 2087 to guide mitigation needs for water-related projects. | **CDFW, CNRA** | **3** | CDFW has approved eight Regional Conservation Investment Strategies, including the latest for Santa Cruz County. Two others are under review (San Bernardino and North Baylands) and a third (San Joaquin Basin) is under development. Water-related species and habitat are included in most. The RCIS Program Guidelines, including for mitigation credit agreements, were updated and are now finalized and available on CDFW's website. From July 2020 until November 2022, the Wildlife Conservation Board awarded a total of $1.4 million in grants to help foster Regional Conservation Investment Strategies, including for the North Baylands in Marin, Napa, Solano and Sonoma counties and the San Joaquin Basin. |
| **13.4** | Incorporate strategically designed conservation planning (e.g., Natural Community Conservation Planning, Habitat Conservation Plans, Regional Conservation Investment Strategies) and other resource protection and recovery plans into mitigation approaches for levee modifications, operations, and maintenance. | **CNRA, CalEPA, CDFW** | **3** | DWR worked with local landowners and reclamation districts in the San Joaquin River basin to support an effort to secure approval of a Regional Conservation Investment Strategy by CDFW. The Wildlife Conservation Board awarded funding for the effort in November 2021. DWR also is working with the Three Rivers Levee Improvement Agency to establish a mitigation bank on the waterside of a new setback levee along the Feather River, which, when established, would provide mitigation credits for flood risk reduction-related improvements and operations and maintenance. The mitigation bank would be the first of its kind established by flood management agencies on the waterside of the levee along the Sacramento River. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **13.5** | Support the alignment of state permitting fees with level needed to properly fund state permitting agencies to deliver timely projects. | **CalEPA, CNRA** | **2** | The Water Board re-evaluates permitting fees on an annual basis and adjusts them accordingly to support the staff resources provided by the Legislature. In July 2020, The Division of Safety of Dams within DWR began using a new fee formula for dam owners that includes an additional surcharge on critical appurtenant structures such as spillways, which redistributes annual fees to more closely align a dam's annual fee with the additional regulatory oversight required for dams with such structures. CDFW is required to adjust the environmental document filing fees annually to account for the effects of inflation. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **13.6** | Pilot a project to evaluate the effectiveness of simplified environmental permitting processes and monitor whether such processes are achieving desired environmental outcomes. | **CDFW** | **3** | Following a fiscal year 2020-21 pilot of its Cutting the Green Tape (CGT) initiative, CDFW received permanent support for 18 new positions dedicated to the development of tools to accelerate granting, permitting, and environmental review processes for restoration projects. CDFW made significant progress in streamlining its own permitting processes within the regulatory framework of both the California Endangered Species Act (CESA) and Fish and Game Code. One product of this effort was a new tool for consolidating and streamlining the process for CESA and Fully Protected Species (FPS), called the Restoration Management Permit (RMP). The RMP consolidates CESA and FPS "take" authorizations into a single streamlined permit for restoration projects. CDFW worked with stakeholders in these permitting efficiency efforts and presented the RMP to the public at a series of workshops in spring 2021. The RMP template was finalized in summer 2021 and nine RMPs have been issued as of February 2023. CDFW also created new procedures to issue CESA Consistency Determinations for restoration projects using federal biological opinions, both project-specific and programmatic (BOs/PBOs). In addition, CDFW has developed programmatic permitting options while advancing project coordination with the federal wildlife and fisheries agencies. For example, CDFW developed a new process for issuing consistency determinations that involves CDFW's "pre-approval" of PBOs to ensure general consistency with CESA coupled with an expedited review of project-specific applications. Under this process, possible conflicts between CESA and the PBO are resolved at the front end, resulting in an expedited consistency determination process that focuses solely on project-specific review of an application for consistency with the PBO. As of February 2023, CDFW has issued six restoration consistency determinations. Additionally, Governor Newsom signed SB155 in late 2021, providing for a California Environmental Quality Act (CEQA) statutory exemption until January 1, 2025, for fish and wildlife restoration projects that meet certain requirements. As of February 2023, CDFW has concurred on exemptions for 14 eligible restoration projects. In terms of monitoring the effectiveness and outcomes of these efforts, CDFW's CGT Program has also furthered coordination with its existing grant programs to ensure funded projects have access to restoration permitting tools and synergy with granting and permitting staff. Following a CGT pilot grant solicitation in 2021, CDFW has further streamlined its grant application process with a rolling solicitation and consultations for interested parties. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **13.7** | Identify opportunities to meet legal standards in creative, collaborative ways, such as through voluntary agreements that enhance flows and habitat. | **CNRA, CalEPA** | **3** | In March 2022, state, federal and local water leaders announced broad agreement on measures to provide additional water flows and new habitat to help improve conditions in the Sacramento-San Joaquin River Delta watershed. In November 2022, another four water districts signed on to these so-called "voluntary agreements." The parties signed a memorandum of understanding (MOU) that outlines terms for an eight-year program that would provide substantial new flows for the environment to help recover salmon and other native fish, create new and restored habitat for fish and wildlife, and provide significant funding for environmental improvements and water purchases. The MOU also outlines a governance and habitat monitoring framework with clear metrics and goals to allow state, federal and local partners to analyze progress, manage adaptively and decide whether the program should be continued, modified or ended after eight years. The state had been actively working with local water agencies since 2016 to develop enforceable agreements to provide additional river flows and new habitat to help change the trajectory of declining native fish species. The agreements are now being translated into a legally enforceable framework that will be studied by the Water Board through an environmental review, evaluated through independent scientific peer review, and considered for adoption by the Water Board following a robust public process. In January 2023, the Water Board held a public workshop on the draft Scientific Basis Report, which describes the science behind the voluntary agreements. |

## Upgrade and maintain state wildlife refuges, hatcheries, and restoration areas.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **14.1** | Support research, monitoring, maintenance, and management of state habitat restoration projects, hatcheries, and wildlife refuges. | **CNRA, CDFW** | **3** | The 2021 Budget Act includes $49 million to CDFW to modernize fish hatcheries, provide support and equipment to bolster the capacity to rescue fish and monitor at-risk species, and improve water use efficiency on state-owned habitat lands. Maintenance of hatchery facilities has been ongoing through the support of Proposition 68 and drought funds. CDFW has completed or is in the process of completing over 50 projects at 20 hatcheries statewide that include meeting deferred maintenance needs and modernizing aging equipment such as replacing inefficient well water supply pumps with more energy- efficient and lower-water-use variable speed pumps, replacing aging high-carbon footprint diesel backup power generators with high-efficiency natural gas backup generators, and upgrading hatchery water recirculation and aeration systems. CDFW has partnered with the California Waterfowl Association and Ducks Unlimited to implement projects on CDFW-owned lands that will improve conditions for wildlife under future droughts. In 2021 and 2022, CDFW entered into more than $22 million in agreements that will improve the long-term drought resiliency of state-owned wildlife areas. CDFW has conducted research and monitoring of Chinook salmon and steelhead for thiamine deficiency in Central Valley hatcheries; continued evaluation of Chinook salmon release practices through coded wire tag recovery and monitoring; monitored contribution of natural and hatchery origin fish to hatchery broodstock for Hatchery Genetic Management Plan Reporting; and conducted genetic evaluations of hatchery salmon and trout species. In 2021, DWR completed a needs assessment analysis of all DWR monitoring, maintenance, and management obligations on habitat restoration sites both for DWR-owned lands or lands where DWR has responsibilities. This needs assessment will inform future staffing and resources needs and enable better tracking and reporting of current and future responsibilities. |
| **14.2** | Upgrade water and energy delivery systems on state-owned and managed land and in state hatcheries. | **CNRA, CDFW** | **3** | With the support of the Wildlife Conservation Board, U.S. Fish and Wildlife Service, and other conservation partners, CDFW continues to upgrade water and energy delivery systems on CDFW-managed lands. The 2021 Budget Act includes $49 million to modernize fish hatcheries, provide support and equipment to bolster the capacity to rescue fish and monitor at-risk species, and improve water use efficiency on state-owned habitat lands. CDFW has implemented projects at five hatcheries to improve water delivery systems, including installing variable-speed pumps to reduce electrical and ground water usage, and made improvements to water intakes to allow access to water at reduced streamflow levels. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **14.3** | Develop and implement scientifically sound hatchery and genetic management plans in coordination with tribal governments to reduce risks to listed fish species. | **CDFW** | **3** | CDFW, in coordination with DWR and the U.S. Army Corps of Engineers, have signed and submitted Hatchery Genetic Management Plans (HGMP) for the Feather River Hatchery Spring Chinook and Warm Springs Hatchery Steelhead programs to the National Marine Fisheries Service (NMFS). CDFW is preparing to submit the HGMP for the Fall River Hatchery Coho program that will be initiated upon removal of Iron Gate Dam on the Klamath. The U.S. Bureau of Reclamation is working with CDFW to draft a fall-run Chinook Hatchery Genetic Management Plan for the Nimbus Fish Hatchery. CDFW and Reclamation continue to coordinate with NMFS and tribes in the Klamath Basin to monitor projected mortality of juvenile fish at Iron Gate hatchery due to elevated C. Shasta, a fish parasite. CDFW continues to coordinate with NMFS to collect and analyze genetic data of salmon populations throughout California to inform management decisions. CDFW is also working with partner salmon hatchery owners including DWR, Reclamation, NMFS, and the East Bay Municipal Utility District on coded wire tag data analysis to improve hatchery practices and inform management. CDFW is funding research by NMFS, UC Davis and CDFW staff into causes and treatments of thiamine deficiency in California salmon. |

## Encourage investment in upper watersheds to protect water quality and supply.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **15.1** | Encourage enhancement of both forest and water management through watershed coordinator programs, resource conservation districts, and other groups coordinating regionally. | **Department of Conservation, CNRA, CalEPA** | **3** | Through its Regional Forest and Fire Capacity Program, the Department of Conservation has established a statewide network of multi-jurisdictional regional partners to lead watershed coordination, priority planning, and project development in their respective jurisdictions. The goal of the network is to have robust queues of shovel-ready projects to achieve watershed health goals that have broad stakeholder and agency support. This network of regional leaders and their partners underpins the California Wildfire and Forest Resilience Task Force and is being relied on to achieve the treatment goals of the Governor's Wildfire and Forest Resilience Strategy. Since 2019, the department has appropriated $150 million to support this network through 2028. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **15.2** | Work toward accomplishing the goals of the California Forest Carbon Plan, which recommends actions to achieve healthy and resilient forests that help the state meet greenhouse gas reduction goals. | **CNRA, CalEPA** | **3** | California has invested $2.7 billion over three years to meet the objectives of the 2018 Forest Carbon Plan and the Forest and Wildfire Resilience Action Plan. This investment spans 40 different programs implemented by 22 different departments, enabling the state to reach its target of 500,000 acres of forest and wildlands thinned or restored annually by 2025. These investments include $100 million for post-fire reforestation programs, over $500 million for forest health grants, and funding for State Parks, CDFW, and State Conservancies to help restore forests and protect them from catastrophic wildfires. Departments have launched 1,200 new wildfire resilience projects since 2021. From July 2021 to November 2022, the Wildlife Conservation Board awarded several projects that promote forest health and resiliency, including the Los Gatos Creek Watershed Fire Resiliency Project ($1.5 million) and the Sequoia Grove Restoration Project ($1.5 million). |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **15.3** | Encourage landscape-scale management efforts, modeled after approaches such as the Sierra Nevada Conservancy's Watershed Improvement Program and the Tahoe-Central Sierra Initiative, to restore the health of watersheds and improve community resilience. | **State Conservancies, CNRA, CalEPA** | **3** | State and federal partners continue to advance science-based, landscape-scale management efforts that improve forest health and watershed resilience in the Sierra Nevada and California Cascade region, aided in part by historic amounts of state and federal funding over the past two budget cycles. These investments are guided by the California Wildfire and Forest Resilience Action Plan and a Shared Stewardship Agreement between California and the U.S. Forest Service, each with a goal of treating 1 million acres per year in California by 2025. Containing 27 million acres, half of the state's forests, and watersheds that provide water to more than 75 percent of Californians, the Sierra Nevada and California Cascade region is critical in achieving these goals and safeguarding natural resources. By the close of 2022, the Sierra Nevada Conservancy (SNC) had awarded over $33 million to 49 wildfire and climate resilience projects across the Sierra Nevada Region under its Watershed Improvement Program that weaves together four priorities: restoring healthy ecosystems, improving community resilience, promoting sustainable recreation and tourism, and conserving natural and working lands. The SNC has also developed the Sierra Nevada Landscape Investment Strategy, along with a pilot grant program, that strives to align funding from multiple entities to provide one or two large landscape grants that support strategic portfolios of projects across large landscapes over a 5- to 10-year timeframe. Additionally, the Department of Conservation's Regional Forest and Fire Capacity Program, of which both SNC and the California Tahoe Conservancy serve as regional implementors, continues to significantly invest in the organizational and technical capacity of partners to collaborate, plan, prioritize and develop projects within a regional framework. A new TCSI-like large landscape collaborative, the Eastern Sierra Climate and Communities Resilience Project, has developed in the headwaters of the Los Angeles Department of Water and Power's Owens River system. This collaborative was catalyzed through RFFCP investment and is currently advancing forest restoration work across 56,000 acres and six different watersheds around the town of Mammoth Lakes. |
| **15.4** | Complete plans for watershed restoration investments in the drainages that supply the Oroville, Shasta, and Trinity reservoirs, consistent with 2018 legislation (AB 2551). | **CNRA, CalEPA** | **3** | California established a partnership with Google.org to help create a watershed-scale planning tool for forest health and wildfire resilience projects. The program, called Planscape, involves CNRA, the U.S. Forest Service, and the University of California. The initial phase of Planscape is complete and shows watershed conditions throughout the Sierra Nevada range. This planning tool helps identify ecosystem risks and equities across a watershed including wildfire, habitat, biodiversity, and watershed quality and yield. The project is coordinated across state agencies and federal partners and builds on existing tools and incorporates technical input from potential end users. Completion of the project is expected at the end of 2023. |

## Improve soil health and conservation practices on California farms and ranches.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **16.1** | Fund the Healthy Soils program, which supports on-farm practices that enhance water retention and provide other environmental benefits, through incentives, demonstrations, and technical assistance. | **CDFA** | **3** | The 2021 Budget Act includes $155 million over three years for CDFA's Healthy Soils program. To date, the program has funded 73 demonstration projects and 1,452 direct farmer incentive projects, of which more than 38 percent were administered to socially disadvantaged farmers and ranchers and/ or AB 1550 priority populations. |
| **16.2** | Enhance agricultural lands for biodiversity, resilience, and habitat benefits through incentives for on-farm conservation practices and innovative partnerships, | **CDFA, CDFW, Wildlife Conservation Board** | **3** | The 2021 Budget Act includes $675 million in sustainable agriculture investments and an additional $331 million over two years to support programs that include healthy soils, transition to safer sustainable pest management, alternatives to agricultural burning, and technical assistance for underserved farmers. In particular, the 2021 Budget Act includes $17 million for CDFA to provide technical assistance and support development of grower conservation management plans and $15 million for pollinator habitat. Separately, CDFW has completed two solicitations for its California Winter Rice Habitat Incentive Program, enrolling more than 40,000 acres of agricultural lands in the program. The program incentivizes the winter flooding of harvested rice fields and provides habitat for thousands of wintering waterfowl and migrating shorebirds. CDFW recently entered into an agreement with the California Rice Commission to implement this program on behalf of the Department for the next two years. CDFW also entered into an agreement with The Nature Conservancy to increase the prevalence of wetlands throughout the Central Valley and wildlife-friendly agriculture in the Delta. CDFW is currently in the process of extending this agreement for four more years and funding it with an additional $15 million. The CDFA Healthy Soils Program supports practices such as hedgerows that provide pollinator habitats, and CDFA received $800,000 for the Bee Safe Program, which provides funding to promote protection of commercial honeybees. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **16.3** | Support research and technical assistance, such as through the UC Cooperative Extension Climate Smart Agriculture Advisors program and resource conservation districts, to support farmers and ranchers with education about healthy soils, manure management, water and nutrient efficiency practices, on-farm recharge, drought adaptation, and land management changes. | **CDFA** | **3** | Approximately five percent of the funds allocated to CDFA's Climate Smart Agriculture (CSA) programs are made available for technical assistance. To date, 69 organizations have been funded, with awards totaling $4.8 million. An additional $1.2 million has been provided to the University of California Cooperative Extension to fund community education specialists to provide CSA technical assistance throughout the state to farmers and ranchers. In December 2022, CDFA signed a memorandum of agreement with UC Agriculture and Natural Resources, California Association of Resource Conservation Districts, and the federal Natural Resources Conservation Service to streamline technical assistance offered to producers. Working together, the partners will utilize their individual strengths to provide a coordinated approach and consistent service to help increase climate-smart agricultural practices throughout California. |

## Minimize air pollution and restore habitat at the Salton Sea.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **17.1** | Support achievement of milestones within the 10-year Salton Sea Management Plan to minimize air pollution and preserve fish and wildlife habitat. | **CNRA** | **3** | Staff continue to work on planning and implementing the projects defined in the 2018 Salton Sea Management Program Phase I 10-Year Plan, which includes nearly 30,000 acres of dust suppression and habitat projects. Currently about 5,800 acres are in construction and another 9,000 acres are in the planning and design phase. Work continues to complete environmental documentation, permits, land access agreements and water rights or agreements needed to fully implement the 30,000 acres of projects on exposed Salton Sea lakebed. The first major habitat project, the 4,110-acre Species Habitat Conservation (SCH) project, is under construction. In November 2022, the U.S. Bureau of Reclamation committed $250 million to support California's work at the Salton Sea, contingent upon water conservation actions in the Imperial and Coachella valleys to take some pressure off critically low federal reservoirs on the Colorado River. The federal funding will accelerate dust suppression and aquatic habitat projects at the Salton Sea and complement the $563 million in state funding committed to date to the Salton Sea Management Program. |
| **17.2** | Develop criteria and a monitoring plan to evaluate Salton Sea improvements to local air quality and environmental habitat. | **CNRA** | **4** | The Monitoring and Implementation Plan (MIP) was finalized in November 2022. An annual study plan is under development for implementation of the MIP. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **17.3** | Building upon previous work, complete an independent feasibility analysis of water importation options for the Salton Sea. | **CNRA** | **4** | An independent analysis of the feasibility of importing water to the Salton Sea was completed in September 2022. UC Santa Cruz convened an independent expert panel to review 18 water importation concepts submitted to the state in 2018, assess their technical and economic feasibility, and evaluate the overall viability of water importation as a long-term strategy for restoration of the Salton Sea. The Salton Sea Management Program included three concepts from the independent analysis as potential restoration concepts in the Draft Long-Range Plan. In 2023, DWR, the Salton Sea Authority, and the U.S. Army Corps of Engineers began a Feasibility Study to evaluate projects addressing the long-term challenges at Salton Sea. This feasibility study will build on the work completed in the Long-Range Plan. |

## Help protect the economic and ecological vitality of the Sacramento-San Joaquin Delta.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **18.1** | Continue to support local levee operations and maintenance in the Delta. | **DWR** | **3** | The DWR Delta Levees Maintenance Subventions Program partners with more than 70 local levee maintaining agencies covering approximately 700 miles of project and non-project levees in the Delta and annually contributes directly to levee maintenance and rehabilitation. In June 2022, the Central Valley Flood Protection Board approved $12 million for the fiscal year 2022-23 Delta Levees Maintenance Subventions Program. The local agencies' cost share on $12 million in state funding would be approximately $4.8 million. The 2023 Budget Act includes $40.6 million General Fund and bond funds for ongoing Delta projects that reduce risk of levee failure and flooding, provide habitat benefits, and reduce risk f saltwater intrusion contaminating water supplies. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **18.2** | Complete the update to the Bay-Delta Water Quality Control Plan for San Francisco Bay and the Delta, as required by law, and implement the Plan, potentially through voluntary agreements. | **Water Board, CalEPA, CNRA** | **3** | In September 2023, the Water Board released a draft staff report that evaluates environmental and related effects of instream flows and other potential changes to the San Francisco Bay/Sacramento-San Joaquin Bay-Delta Water Quality Control Plan. The nearly 6,000-page document was developed as part of the Sacramento/Delta update process that began in 2012 and incorporates input from multiple public workshops and recent tribal consultations and environmental justice listening sessions. It examines a proposal based on a 2018 Framework, proposed voluntary agreements, and other alternatives for addressing reasonable protection of water quality and fish and wildlife in the watershed. In spring 2023, the Water Board released a Notice of Preparation initiating preparation of a staff report and a draft Substitute Environmental Document (SED) regarding a potential amendment to the Bay-Delta Plan to incorporate the Tuolumne River Voluntary Agreement. The proposal, if adopted by the Water Board, would modify the program of implementation adopted with the December 12, 2018 Bay-Delta Plan amendments to the Lower San Joaquin River, including its three eastside tributaries (the Stanislaus, Tuolumne, and Merced rivers) to allow for the Tuolumne River Voluntary Agreement. In January 2023, the Water Board released the Scientific Basis Report, which describes the science supporting staff proposed Sacramento/Delta Update to the Bay-Delta Plan. |
| **18.3** | Complete a climate change vulnerability assessment and adaptation strategy for the Delta to protect people, with a particular focus on disadvantaged communities, habitat, water quality, and supply. | **DWR, Delta Stewardship Council** | **3** | The Council in June 2021 released the final version of a Vulnerability Assessment that evaluates the vulnerability of the Delta and Suisun Marsh to climate impacts through end of century. The findings of this assessment inform an Adaptation Strategy, which will help state agencies prioritize actions and investments and create a framework for future work both within and beyond the Council. The Council anticipates adopting a final adaptation strategy in late 2023. |
| **18.4** | Add an element to water management plans, which urban and agricultural suppliers submit to the state every five years, to ensure that districts that receive water from Delta-based projects demonstrate how they are reducing reliance on those supplies. | **Delta Stewardship Council, DWR, CDFA** | **4** | In March 2021, DWR updated the Agricultural and Urban Water Management Plan guidebooks to include an appendix with suggestions on how water suppliers can address reducing reliance on the Delta. For Proposition 1 Integrated Regional Water Management (IRWM) Program Implementation grant solicitations, DWR incorporated an eligibility requirement to ensure a region's contribution to regional water self-reliance. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **18.5** | Provide incentives and technical advice to Delta landowners for creating managed wetlands or cultivating rice to reverse land subsidence and reduce carbon emissions. Eliminate subsidence-inducing practices on state-owned lands and pursue alternative sources of revenue to support long-term land management. | **Delta Conservancy, DWR, CDFA** | **3** | The Delta Conservancy continues to provide technical support to private and public Delta landowners for conversion to managed wetlands and rice cultivation. In 2021-22, approximately 1,000 acres were converted to managed wetlands and several thousand more acres are in planning stage. There is a significant increase in interest in rice cultivation in the Delta from both rice growing associations and farmers. In 2021-22, approximately 2,000 acres were converted to rice and over 10,000 acres are expected to be converted in the coming growing seasons. Additionally, there are several planning efforts looking at whole-island mosaic approaches where rice, managed wetlands, habitat and high-value crops can be incorporated to address subsidence and carbon emissions and ensure long-term resilience and economic viability of the islands. To date, 1,850 acres of wetland and 600 acres of rice have been developed on DWR-owned land on Sherman and Twitchell islands. Another 1,000 acres of wetlands on Sherman Island are expected to be completed and operational during the summer of 2023. The Delta Conservancy received $36 million to support these activities. In May 2023, the Delta Conservancy board approved grant funding of up to $20.9 million for the Wetland Mosaic Landscape on Webb Tract Project proposed by the Metropolitan Water District of Southern California. During the two-phase project, Metropolitan will design and construct up to 3,500 acres of managed, flooded wetlands and up to 1,500 acres of rice fields on Webb Tract, located in the northeastern portion of Contra Costa County and owned by Metropolitan. |

# Build Connections

Most water in California is managed at the local level, but the state provides crucial information to those water managers, from current groundwater levels to future climate impacts to the likely path and severity of incoming storms. Recent investments already have improved the quality and availability of water data and weather and runoff forecasts. Federal and state partners will help make sure that the data and forecasts are steadily refined and put to practical use in the balancing act of managing reservoirs. State agencies are filling gaps in the stream gage network and digitizing paper water right records to expand public access. State-funded studies are revealing, on a watershed scale, where new conveyance, water banks, and diversion points can help people endure both flood and drought better. All Californians are invited to help shape the once-every-five-year update to the California Water Plan, with its emphasis on climate urgency, coordination across watersheds, and achieving equity.

*Participants at the California Tribal Water Summit held in April 2023 at the California Natural Resources Agency in Sacramento. The three-day Summit convened Tribal leaders, water managers, and community members to discuss the water policy and water management issues facing Tribal governments. Discussion topics included land return, tribal access, and rights of nature.*

## Modernize inter-regional conveyance to help regions capture, store and move water.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **19.1** | Plan, permit, and build new diversion and conveyance facilities (such as a tunnel) in the Sacramento-San Joaquin Delta to safeguard State Water Project deliveries drawn from the Sacramento and San Joaquin river systems. New conveyance should complement existing and improved through-Delta conveyance to promote operational flexibility, protect water quality, and improve aquatic habitat conditions while limiting local impacts. | **DWR** | **3** | In July 2022, DWR released a draft environmental impact report (EIR) for public review and comment. The public comment period ended in December 2022. Review and response to comments is underway, with the Final EIR due to be completed, certified and a Notice of Determination issued by the end of 2023. An environmental impact statement, performed by the U.S. Army Corps of Engineers under the National Environmental Policy Act, is expected to be finalized in mid-2024. Preliminary engineering is complete and program staff are initiating permitting with the Water Board and the Delta Stewardship Council. Work is underway to develop a Community Benefits Program, through collaboration with community members, that will identify and implement commitments to help protect and enhance the cultural, recreational, natural resource and agricultural values of the Delta. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **19.2** | Continue studies of subsidence effects on water infrastructure, including state flood facilities, and support strategies to minimize damage from ongoing subsidence, halt subsidence, and rehabilitate infrastructure. | **DWR** | **3** | The Governor's 2021 Water and Drought Resilience Package included $200 million over two years to restore lost conveyance capacity and directed DWR to administer a funding program. DWR established the Conveyance Subsidence Program (CSP) to expedite distribution of this initial $200 million, prepare to administer future state funds, and incentivize partners to secure federal and local funds to fully implement repairs needed to recover conveyance capacity for climate resiliency. The State Water Project (SWP) was allocated $70.3 million in state general monies to monitor subsidence, minimize future subsidence impacts, and plan project actions and features that address reduced capacity and/or operational flexibility regarding the San Luis Canal, a state-federal joint-use facility with Reclamation, and the California Aqueduct. DWR's California Aqueduct Subsidence Program (CASP) was initiated by the SWP to develop and implement the most beneficial and affordable preventive and corrective measures to mitigate the effects of subsidence, while planning the cost-beneficial remediation of anticipated future subsidence of its infrastructure. The corrective action components for the San Luis Canal and California Aqueduct that are necessary to remediate adverse impacts from existing subsidence are in various stages of planning, alternatives evaluation, and pre-design. Underway or near completion by CSP are a comprehensive hydraulic conveyance capacity report, a subsidence forecast projection report, and a consequence of no-action evaluation. CSP has begun the installation of a series of new instruments at various mile posts along the California Aqueduct to bolster publicly available data and further the general understanding of subsidence causation. DWR and the Water Board continue to work with local water districts to address groundwater pumping causing subsidence conditions. The 2021 Budget Act included $10 million to enhance statewide subsidence monitoring, which has allowed DWR to significantly improve the state's subsidence monitoring network, most notably the processing and reporting of satellite-based Interferometric Synthetic Aperture Radar (InSAR) data, which provides monthly subsidence data for more than 150 groundwater basins and covers about 40,000 square miles. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **19.3** | Conduct a feasibility analysis for improved and expanded capacity of federal, state, and local conveyance facilities to enhance water transfers and water markets. The analysis must incorporate climate change projections of hydrologic conditions. | **DWR** | **3** | DWR has inventoried past conveyance studies and conveyance projects included in local groundwater sustainability plans and is using the information to investigate if water supply shortages in the San Joaquin-Tulare Basin regions are driven by the unavailability of surface water and/or the inability to convey available surface water to targeted locations. The analysis will include conveyance of floodwater for groundwater recharge. The San Joaquin Watershed Studies (see action 27.1) will inform local opportunities to enhance water supply reliability, which will be applied to this conveyance study to investigate inter-regional conveyance. Site-specific conveyance opportunities to enhance water transfers and water markets will be completed once the San Joaquin Watershed Studies and climate change are included in this effort. The 2021-22 state budget included $29 million for DWR to conduct watershed-scale studies for the San Joaquin River watershed and its tributaries, develop integrated analytical models, identify vulnerabilities in the flood and water supply systems due to climate change and SGMA implementation, and identify adaptation strategies. |
| **19.4** | Assess a state role in financing conveyance projects that could help meet needs in a changing climate. | **Water Commission, DWR** | **4** | Through a months-long process that involved several regional, public workshops and expert panels, the Water Commission developed guidance for policymakers on a state role in financing water conveyance improvements. The Commission adopted a final white paper in June 2021. The Department of Water Resources utilized the suggestions in the white paper to guide the development of its Conveyance Aqueduct Subsidence Program. |
| **19.5** | Ensure effective long-term State Water Project management by completing risk-informed asset management plans for critical infrastructure that account for seismic, flood, and aging risks, among others. | **DWR** | **3** | The 2021 Budget Act provided additional positions to support implementation of SWP asset management and aging infrastructure activities. A key element of that effort is the creation and implementation of approximately 10 new Asset Management Plans for critical State Water Project water storage and conveyance facilities, systems, and equipment classes. These plans describe the inventory, condition, levels of service, and risks associated with the specific facility/asset class; establish lifecycle strategies to guide the operations, monitoring, maintenance, and renewal of the assets; and provide a 20-plus year forecast of future expenditures for the facility/asset class. These plans also inform updates to hundreds of equipment maintenance plans to drive improvements to maintenance programs and enhancements to emergency preparedness plans and exercises. In 2022, DWR completed the first two plans for its South Bay Aqueduct system and its power and instrument transformers. In early 2023, DWR began preparing the pipelines plan and plants asset management strategy. DWR plans to complete one to two new plans each year for the next four to five years, followed by continual updates on a five-year cycle. |

## Support groups and leaders in each of the state's regions to develop and execute integrated water resilience strategies.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **20.1** | Build on the Integrated Regional Water Management Program and other regional efforts to align climate scenarios and expand watershed-scale coordination and investments that contribute to water resilience. Emphasize integrated, multi-sector, and outcome-based planning, action, and monitoring. | **CNRA, CalEPA** | **3** | The IRWM story began in 2002 when the Regional Water Management Planning Act (SB 1672) was passed by the Legislature. Since then, various bond acts approved by California voters have provided over $1.5 billion to support and advance integrated, multi-benefit regional projects. The local match on the state funds has sometimes been on the order of four to one. Cities, counties, water districts, community and environmental groups, Tribes and others have worked collaboratively to organize and establish 48 regional water management groups, covering over 87 percent of California's area and 99 percent of its population. The last of the IRWM grant funds were awarded in May 2023; this final tranche of $143.7 million will support 115 projects that further groundwater recharge, strengthen flood management, increase water conservation and improve water quality. The Water Plan Update 2023 now under development by DWR seeks to build on the IRWM program and other regional efforts. Water Plan Update 2023 will:<br>• Focus on future scenarios for climate change and managing in the face of increased impacts.<br>• Support California's regions as they undertake watershed-based, multi-sector resilience planning with technical guidance, data, tools and decision support, and funding mechanisms.<br>• Strengthen water equity in State, Regional, and local planning and decision making to help ensure the human right to water in California.<br>Final release of the Water Plan Update 2023 is expected in late 2023. In addition, the 2022 Budget Act authorized DWR to distribute $24.5 million for watershed resilience planning grants. |
| **20.2** | Structure funding sources to reduce the hurdles for water projects that reflect integrated solutions, produce multiple benefits, and improve watershed function. | **CNRA, CalEPA, CDFA** | **3** | DWR significantly streamlined its 2021 and 2022 grant application processes for numerous grant programs to reduce the hurdles for applicants to obtain funding for integrated, multi-benefit projects and to increase the benefit provided to underrepresented communities and Tribes in watersheds across the state. Some of the improvements were made in response to public comments obtained through surveys and workshops. The affected grant programs included the 2021 Urban and Multibenefit Drought Relief Program ($268 million awarded for 148 projects), the 2022 Urban Communities Drought Relief Program, ($283 million awarded for 69 projects as of summer 2023), the 2021 and 2022 Small Communities Drought Relief Program ($278 million awarded for 138 projects), the Proposition 1 IRWM Implementation Round 2 Program ($201 million awarded for 146 projects in 2023), and the Proposition 68/General Fund Sustainable Groundwater Management Program ($150 million awarded in 20 grants for projects in critically overdrafted groundwater basins in May 2022). |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **20.3** | Support the capacity, participation, and full integration of tribal governments and under-represented communities in regional planning processes. | **CNRA, CalEPA, CDFA** | **3** | In July 2023, CNRA welcomed applications from Tribes and tribally-led entities for $100 million in funding for a new Tribal Nature-Based Solutions Program, including funding for shovel-ready, multi-benefit ancestral land return projects. CalEPA's Tribal Advisory Committee continues to meet on a regular basis to provide insight and guidance to the boards, departments, and offices within CalEPA. In 2023, multiple Tribal Advisory Committee vacancies were filled by tribal representatives from across the state. DWR invested $2.5 million in Proposition 68 State Operation funds to develop an Underrepresented Community Technical Assistance Program (URC TA Program) that is helping to identify the needs, risks, and vulnerabilities of URC with respect to the implementation of SGMA. A combination of 12 Tribes and other URCs were assisted through this initial phase. DWR has invested an additional $6.5 million in State Operation funds and $9 million from general fund local assistance to expand the program and bring in the Water Foundation and partners from the Groundwater Leadership Forum to conduct additional outreach, advocacy, and to expand the definition of URC to include underserved small farmers as outlined in Assembly Bill 179. These new partnerships, paired with for-profit consulting groups, will work with DWR's Financial Assistance Branch to educate and empower historically marginalized communities in California. From 2010 through October 2022, the total amount of Proposition 1, Proposition 84, and drought-relief funding administered by DWR's Division of Regional Assistance and awarded to under-represented communities and Tribes totals $634 million. Tribal and under-represented community representatives participate in quarterly meetings of the IRWM Roundtable of Regions' Disadvantaged Community and Tribal Involvement Workgroup, established in coordination with DWR in 2021. The SGMA Tribal Advisory Group meets quarterly. The California Water Plan Public Advisory Committee has integrated three Tribal representatives for statewide representation. DWR published a "Grants Best Practices" webpage to assist Tribes and underrepresented communities in grant development. |

## Ease movement of water across the state by simplifying water transfers.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **21.1** | Substantially reduce approval time for transfers while providing protections for the environment and communities. | **CNRA, Water Board** | **3** | DWR's Water Transfer Information Management System (WTIMS) is an online web application to facilitate preparation and review of water transfer proposals. It was improved in 2021 with an "intent to transfer" form. It provides a transparent platform for preparers and reviewers to exchange data and information in a timely manner. The Water Board received 32 water transfer petitions in 2022, covering 69 water rights and encompassing approximately 534,000 acre-feet of transfers. Sixteen of those transfer requests were withdrawn by the applicants (largely due to low reservoir storage conditions). Fifteen transfer petitions were approved and one is still pending. A new transfer process was approved by the Governor and became effective in 2023. Assembly Bill 2895 creates an optional streamlined pathway that can eliminate newspaper posting and certain hard-copy mailings (although the 'regular' process remains as well). The Water Board anticipates that the new optional process will eliminate up to ten days from the transfer process timeline. |
| **21.2** | Develop an open and transparent ledger system to allow for improved local and regional participation in the water transfer market. | **DWR** | **4** | The latest version of DWR's Water Transfer Information Management System has been in use since 2021, and improvements have been made to enhance the user experience, including an intent-to-transform form added in February 2021. DWR has developed 14 tutorial and demonstration videos for the public to better understand the new functionality of WTIMS 2.0 (links posted on DWR Water Transfer webpage). The DWR transfer team also is providing hands-on support and training to both proposal preparers and reviewers at the U.S. Bureau of Reclamation. DWR continues to enhance WTIMS features based on user feedback. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **21.3** | Develop best practices for inter- and intra-basin groundwater trading programs that protect communities, including standards for measuring, reporting, accounting, and monitoring groundwater use and trading. | **DWR, Water Board, CDFW, CDFA** | **3** | In May 2022, the Water Commission released a white paper on groundwater trading that framed the basic elements of well-functioning, protective groundwater trading programs. Those elements start with trust, access to accurate data, and a sound, well-implemented groundwater sustainability plan that has fully considered all beneficial groundwater users when setting sustainable conditions. The white paper also concluded that groundwater trading will only help achieve sustainable groundwater management in areas that have capped groundwater use; that have a system for tracking and accounting for groundwater levels, quality, and use; and that have allocated how much groundwater can be used by individual pumpers to reach a sustainable groundwater condition while avoiding undesirable results. DWR is advancing coordinated interagency efforts to identify the criteria to inform and develop groundwater trading guidance. In April 2023, DWR released guidance for considering and developing appropriate ways to monitor and address drinking water impacts that could serve as a foundation and potential driver for effective and well thought-out GSP implementation and associated groundwater trading. With funding from the 2021 Budget Act, DWR contracted with the Water Data Consortium to make an enhanced open source groundwater accounting platform available to groundwater users and groundwater sustainability agencies. |
| **21.4** | Explore an expedited process to facilitate transfers between Central Valley Project and State Water Project contractors. | **CNRA, Water Board** | **3** | The 2020 Water Board order to approve the temporary consolidation of State Water Project and Central Valley Project place of use expired on July 15, 2021. In anticipation, DWR and the U.S. Bureau of Reclamation solicited project contractors for potential 2021 exchange actions in February 2021 using a new template to standardize required information. After internal review to validate these exchanges, DWR and Reclamation filed the 2021 petition of change with the Water Board in May 2021. The Water Board processed a similar Consolidated Place of Use transfer request in 2022, approving transfer volumes of over 393,000 acre-feet. |

## Modernize water data systems to inform real-time water management decisions and long-term planning.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **22.1** | Develop data management training for state agencies that aligns protocols for water data access and management under the Open and Transparent Water Data Act of 2016 (AB 1755). | **DWR, Water Board, CDFW** | **3** | The College of Water Informatics at the Water Board's Training Academy continues to offer courses related to data literacy, data governance, data empowerment, and turning data into information. An emphasis in 2023 and ongoing is to offer specific courses focused on advancing racial equity. DWR is developing six open data courses in cooperation with subject matter experts: Data Management 101, Data Management Planning, Data for Decision-Making, Data Preservation, Data Quality 101, and Metadata 101. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **22.2** | Support state water data compliance with AB 1755. | **Administration** | **3** | The Open and Transparent Water Data Partner Agency Team is developing new communications tools and constantly improving accessibility to the data. Additional data resources are regularly added to the portals. Open water data catalogs continue to grow and improve. The Partner Agency Team, in partnership with the California Water Data Consortium, is convening is developing guidance materials for state agencies to support data reporting in compliance with AB 1755. |
| **22.3** | Streamline data submission and reporting to the state to avoid duplication and improve accuracy and consistency. | **Administration** | **3** | Water Board staff are working with the Water Data Consortium to better understand and optimize projects to streamline data reporting around high-priority water use case needs. The Consortium is managing two pilot projects specifically focused on streamlining data reporting related to urban water and groundwater data reporting. A grant with the U.S. Bureau of Reclamation to the Consortium is underway to enhance how water use data is shared and federated. The Water Board's Division of Drinking Water (DDW) and Office of Research, Planning, and Performance (ORPP) are collaborating on an effort to reduce the number of duplicative reports urban water districts must complete on quantities such as water supply and demand. Reporting requirements for the Production and Deliveries section (Section 6) of the DDW Electronic Annual Report, as well as the monthly ORPP Urban Water Supplier Conservation Report, will be satisfied by completing the SAFER Clearinghouse report on a monthly basis. |
| **22.4** | Align water diversion reporting by water users to a single date to simplify reporting. | **Administration** | **4** | Senate Bill 155, signed into law in September 2021, revises current water right reporting requirements to shift to a water year accounting (Oct. 1 through Sept. 30) and aligns all water right reporting dates to a single date. The legislation was proposed by Water Board. The Water Board has made administrative and technical changes in its data management systems to accommodate these changes and updated its regulations to align reporting dates as well, as of February 2023. |
| **22.5** | Assess and integrate state and federal surface and groundwater models. Using an agreed-upon approach, establish the assumptions, data inputs, modeling parameters, and other requirements to develop water mass balances that may be used by regions. | **Water Board, DWR** | **3** | DWR's Sustainable Groundwater Management Office continues regular technical coordination with the U.S. Geological Survey (USGS) on the comparison and alignment of USGS and DWR groundwater-surface water models (CVHM2 and C2VSimFG, respectively) of the Central Valley. DWR and the USGS are putting together a dashboard documenting and visualizing the comparison efforts. To date, this work has yielded substantive changes to both models to improve alignment. Further alignment of data sources and methods to fill data gaps is ongoing. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **22.6** | Build upon implementation of SB 19 of 2019, which requires an assessment of the state's stream gage network. Convene state, local, and federal agencies and assess and prioritize monitoring instrumentation needed (flow meters, remote sensing, weather stations, data logging, wireless transmission, etc.) to support regional resilience. | **DWR, Department of Conservation, Water Board, CDFW, Flood Board** | **3** | The SB 19 Stream Gaging Prioritization Plan was completed in 2022. The report found that there are approximately 1,000 gages operating and reporting data publicly in California. Of these, about 60 percent are operated by the U.S. Geological Survey (USGS), with the remaining gages operated by State or other agencies. A substantial number of gages are operated by third-party entities that are not publicly reporting data on statewide databases or lack sufficient data quality to be reported. DWR, the Water Board, CDFW, and the Department of Conservation are planning to reactivate up to 50 stream gages statewide over the next two years. The 2022 Budget Act includes an additional $23.9 million in 2023-24 and $2.8 million in 2024-25 to support reactivation and deployment of priority stream gages consistent with the SB 19 plan. |
| **22.7** | Explore ways to make water rights information easily available to the public by rebuilding the state's water right data base to include digital place of use, diversion, and case history information, made available on an easy-to-use geospatial platform. | **Water Board** | **3** | The 2021 Budget Act includes a one-time investment of $31 million for rebuilding the state's water right data system, including funding for digitizing existing records and updating the state's water right database. The 2023 Budget Act includes an additional $31.5 million. Permanent positions are also included as part of the budget to help implement this project, called Updating Water Rights Data for California, or UPWARD. The Water Board, in collaboration with the California Department of Technology, has chosen a vendor and is in the technical planning phase. This phase includes looking for gaps in business processes, identifying new workflows for water right holders and staff, and finalizing the "blueprint" for the future data system. The development phase for the new data system began in summer 2023, with an initial demonstration of the system's core functions anticipated by fall 2024. |
| **22.8** | Evaluate existing requirements for telemetered diversion data (real-time water use), including potential streamlining opportunities with existing monitoring and reporting requirements. Analyze the costs and benefits of phasing in requirements for telemetered diversion data to diversions of 500 acre-feet or more per year, down from diversions of 10,000 acre-feet a year, to evaluate the potential to help water users coordinate projects, transfers, environmental protection, and other management activities. | **Water Board** | **3** | The fiscal year 2022 Budget Act included permanent positions and contract funds for the Water Board to develop a telemetry pilot project. Staff hiring was completed in December 2022, and the project is in active development and implementation. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **22.9** | In support of sustainable water management and conservation innovation, enable the use of OpenET—a transparent, credible, and open-source web platform for quantifying field-scale evapotranspiration (a measure of consumptive water use) using publicly available satellite and weather data. | **DWR, CDFA, Water Board** | **4** | The Landsat 9 satellite was successfully launched from Vandenberg Space Force Base in September 2021; it is now combining with Landsat 8 to improve data access and reliability for OpenET. OpenET is functioning in California as a method for estimating crop evapotranspiration (ET), and provides users with field-scale estimates of ET across large landscapes over time. OpenET is expected to support the Delta Alternative Compliance Plan, the Fresno River adjudication, monitoring of performance of local groundwater sustainability plans, and the estimation of water use data in an open-source groundwater accounting platform being scaled by the California Water Data Consortium and Environmental Defense Fund, among other initiatives. OpenET is being led by Environmental Defense Fund, NASA, the Desert Research Institute and web developer Habitat Seven, with in-kind support from Google Earth Engine. The project has received funding from NASA, philanthropic foundations, Delta water agencies, and partners in the agricultural and water management communities. Applicants to CDFA's SWEEP (water use efficiency grant program) can use OpenET data to calculate potential water savings and improve their application. |

## Coordinate science crucial to water management.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **23.1** | Using the Delta Science Action Agenda and work of the Delta Science Program as a model, establish an inter-agency and public-private task force that includes diverse stakeholders and scientists with relevant expertise to prioritize key scientific questions statewide that must be answered to better inform water manages about how to best manage water supplies, water quality, and flood risk. | **CNRA, CalEPA, CDFA, Delta Stewardship Council** | **4** | In March 2022, in coordination with CNRA and DWR, Water UCI, a program within the social ecology department of the University of California, Irvine, undertook a survey of key stakeholders who expressed an interest in, and in some instances contributed input to, the Water Resilience Portfolio. The 15-question survey polled stakeholders under two broad categories: 1) those who explicitly asked to be kept apprised of issues related to the Portfolio as well as public officials, members of key non-governmental and community groups, and water industry leaders; and, 2) members of Tribal governments throughout California. The survey asked about key research needs to achieve a more water resilient California and possible workshop questions and issues. In May 2022, Water UCI convened approximately 50 stakeholders in a half-day workshop, including leading scientists from UC campuses and various research organizations, officials from water agencies from across the state, and representatives from non-governmental organizations and private industry. Workshop attendees discussed the most pressing scientific questions and research needs of California water managers. Water UCI researchers in June 2022 distilled the survey and workshop results into recommendations for CNRA and DWR tied to balancing water needs, adapting to climate change, addressing water equity, and enhancing data and information usefulness. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **23.2** | Improve Delta monitoring efforts based upon Delta Independent Science Board recommendations. | **Delta Stewardship Council** | **3** | In April 2022, the Delta Independent Science Board completed the most extensive yet of its reviews of Delta monitoring efforts. The review included an inventory of the physical, chemical, biological, geological, and socio-economic drivers of 157 monitoring activities across the Delta and a summarization of how these activities address the needs of decision makers. The ISB found a general lack of clarity around the problems that monitoring and adaptive management are intended to address. The ISB's monitoring assessment was paired with the Delta Plan Interagency Implementation Committee's science funding exercise and highlighted areas that need more information or where synthesis products would provide a high value. DWR is working with the inter-agency Collaborative Adaptive Management Team and the Collaborative Science and Adaptive Management Program to determine if additional assessments and reports are necessary. |

## Foster innovation and technology adoption across all water sectors.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **24.1** | Promote broadband deployment in unserved and underserved areas of the state to enable farmers and irrigation districts to use the latest water management technologies, including irrigation control. | **Administration** | **3** | In July 2021, the Governor enacted legislation to invest $6 billion over multiple years to enable access to broadband coverage with the construction of a state-owned open access middle-mile network and last-mile projects that connect unserved households and businesses with local networks. The Governor signed SB 156, which includes:<br>• $3.25 billion to build, operate and maintain an open access, state-owned middle- mile network – high-capacity fiber lines that carry large amounts of data at higher speeds over longer distances between local networks.<br>• $2 billion to set up last-mile broadband connections that will connect homes and businesses with local networks. The legislation expedites project deployment and enables Tribes and local governments to access this funding.<br>• $750 million for a loan loss reserve fund to bolster the ability of local governments and nonprofits to secure financing for broadband infrastructure.<br>• Creation of a broadband "czar" position at the California Department of Technology, and a broadband advisory committee with representatives from across state government and members appointed by the Legislature.<br>In October 2022, construction began in rural San Diego County on the first leg of the 10,000-mile broadband network aimed at bringing high-speed internet services to all Californians, no matter where they live. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **24.2** | In order to enable application of promising new technologies, where needed, consider amending laws and regulations that restrict programs to certain technologies. | **Water Board, DWR** | **1** | No progress to report. |
| **24.3** | Establish a state-managed "water innovators" clearinghouse where new approaches and technologies can be posted online. | **CNRA, CalEPA, CDFA, Office of Planning and Research** | **1** | In spring 2021, the Association of California Water Agencies launched an innovation webpage – www.acwa.com/innovation – to promote member agencies' innovative programs, practices, technologies and more. The page provides ACWA's 400-plus member water districts with a platform to share their unique innovations with other members and the broader water community. |
| **24.4** | Establish Secretaries' Awards for early, ambitious, or successful adoption of innovation, given by the Secretaries for the Natural Resources Agency, California Environmental Protection Agency, and Department of Food and Agriculture. | **CNRA, CalEPA, CDFA** | **1** | No progress to report. The Water Data Consortium, a close partner of several state agencies, plans to announce recipients of data innovation awards in December 2023. |

# Be Prepared

The flip in the last 18 months from historic drought to historic flood demonstrates that in an ever-hotter world, California water managers need the capacity to adapt. Building that capacity takes time and investment, and it is iterative work. Lessons from the drought of 2012-16 drove the state response to critically dry conditions in 2020, 2021, and 2022, including new state incentives to curb agricultural pumping where it dries up wells that supply homes. In the high water of January and February 2023, emergency streamlining of permits and diversion of river flow onto cropland helped mitigate flooding, making it plain to water managers everywhere that they need to get systems in place – administratively and physically – to do more of that in the next flood. The state invested billions of dollars in the last three years to upgrade struggling water systems, support local drought planning and advance flood projects that will better protect millions of city dwellers and many rural communities.

*A drone view of the James Irrigation District utilizing pumps from DWR's Emergency Pump Program in May 2023 to divert water and fill a basin for groundwater recharge in Fresno County. DWR supplied temporary pumps and equipment along the Kings and the Kaweah rivers in the Tulare Lake basin to divert floodwater off these rivers and reduce flood impacts in the former Tulare Lake lakebed. Local agencies were able to divert an estimated 20,517 acre-feet of floodwater for recharge in the Tulare Lake region from late April to late June.*

## Help regions prepare for new flood patterns.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **25.1** | Support implementation of the Central Valley Flood Protection Plan and its "state systemwide investment approach" to protect urban areas, small communities, and rural areas; improve operations and maintenance of the flood system; better coordinate reservoir operations; improve flood emergency response system; and integrate natural systems into flood risk reduction projects. | **DWR, Flood Board** | **3** | DWR and its regional partners have started to design and construct several state systemwide investment framework improvements in the Central Valley, such as expansion of the Sacramento Bypass and the Lower Elkhorn Levee Setback Project, both of which protect the greater Sacramento region. DWR and its local partners are purchasing land, easements, and right-of-way agreements to support the construction of flood risk reduction projects through the U.S. Army Corps of Engineers' one-time supplemental funding. The 2023 Budget Act includes $25 million to support projects that reduce the risk of flooding for Central Valley communities while contributing to ecosystem restoration and agricultural sustainability. The 2016 and 2018 Budget Acts also include $120 million in funding for state and local agencies to address deferred maintenance. Additionally, the 2022 Budget Act includes $109 million for flood management actions, including to work being conducted by DWR to implement the Central Valley Flood Protection Plan. The Flood Board has completed an initial investigation of revitalizing the Sacramento-San Joaquin Drainage District to address long-term funding needs for operation and maintenance and capital improvement for the State Plan of Flood Control. The study team has completed the beneficiary analysis and feasibility testing and is developing a draft Report of Findings that will be shared with interested parties for review and comment. The Flood Board will consider the final Report of Findings in December 2023. |
| **25.2** | Review state, federal, and local permitting processes for flood risk reduction projects and operations and maintenance and recommend ways to improve permitting processes. | **DWR, Flood Board** | **2** | DWR and Flood Board staff continue working to identify the regulations and permits on which to focus improvement efforts, the specific permitting needs for flood risk reduction projects and operations and maintenance activities, and the regulatory agencies that should be included in these efforts. The Yolo Bypass Cache Slough Partnership is developing a long-term operations and maintenance permitting strategy for the region. This strategy, upon approval of the resource agencies, can be used as a pilot to advance streamlined permitting throughout the flood system. DWR and Flood Board staff are also working with the Corps to improve the Section 408 process. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **25.3** | Research and explore ways to provide flood insurance beyond the national program. | **DWR, Flood Board** | **3** | In 2022, with DWR support, the Delta town of Isleton created a geologic hazard abatement district to lower the flood insurance premiums residents pay. The new district is working to determine how much to assess approximately 300 property owners enrolled in the National Flood Insurance Program (NFIP). Over time, the local assessments can also be used to implement repairs and improvements to Isleton's levee system, including incorporation of nature-based elements. By purchasing increased NFIP deductibles, the new district can lead to annual savings on NFIP premiums of 10 percent to 40 percent. UC Davis has released papers reviewed by DWR that summarize the overall NFIP trends in California relative to the U.S. and the effectiveness of Federal Emergency Management Agency (FEMA) public assistance to California relative to the U.S. DWR continues to work with the FEMA, which operates the NFIP, as it seeks to create more efficiency, transparency, and equity for all states and communities. DWR has been working with the U.S. Army Corps of Engineers on implementation of the National Levee Safety Program. Together DWR and the Corps have selected Bakersfield as one of three nationwide pilot projects to collect detailed information on non-Corps levee as-built conditions for incorporation into the National Levee Database in the fall of 2023. This data will then be reflected in FEMA's Risk Rating 2.0 flood insurance rates. |
| **25.4** | Update and refine the regional flood management strategy in the Central Valley Flood Protection Plan to account for the projected impacts of climate change in order to protect vulnerable communities and infrastructure and restore floodplains along the San Joaquin River and its tributaries. | **DWR, Flood Board** | **3** | As part of developing the 2022 CVFPP Update, released in December 2022, DWR and the Flood Board engaged San Joaquin River Basin partners and the public interests to scope a San Joaquin regional flood management strategy. The engagement process led to identification of 10 priority action for the region, including high-priority, low-regret actions for early implementation as funding becomes available; actions to address climate change impacts; actions on the tributaries that integrate flood and groundwater management for multiple benefits; structural actions that support 200-year level of protection in urban areas and up to 100-year level of protection in small communities; actions that increase conveyance of floodwaters, such as Paradise Cut Bypass; actions that reconnect and restore historic floodplains in the mid-San Joaquin River along the mainstem, such as near the Tuolumne River; actions that modify or maintain structures in rural areas; and actions that resolve ongoing policy issues. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **25.5** | Facilitate inter-agency annual dam, flood, debris flow, and wildfire emergency table-top exercises with emergency responders and local communities, focusing on testing emergency notification protocols, sirens and warning systems, and evacuation route planning. | **DWR, CAL FIRE, California Highway Patrol, CDFW, CDFA, Cal OES, Water Board** | **3** | DWR staff in 2022 conducted a dozen pre-season flood coordination meetings across the state with local, county, state, federal, and tribal partners to review roles and responsibilities during a flood and discuss available resources, a winter weather outlook, post-fire impacts and debris flow thresholds, and agency updates. Throughout the year, DWR staff participate in multiple annual emergency action plan (EAP) meetings, drills, and exercises conducted by dam owners across the state. These events ensure agencies that could be impacted by a dam-related emergency are familiar with the EAPs and potential impacts. DWR is an active member of several tsunami-related activities throughout the year, including the California Great Shakeout, World Tsunami Day, Tsunami Ready, North Coast emergency preparedness fairs, and Earthquake Country Alliance. In August 2022, DWR participated in a multi-agency functional exercise across the five Delta counties. The intent was to exercise readiness and response to a flood scenario. In fall 2021 and 2022, DWR participated in various winter weather workshops and flood emergency exercises led by local and county partners. |
| **25.6** | Augment financial assistance and expand state technical assistance for communities to update their local hazard mitigation plans and general plans to meet state adaptation requirements at least once every five years by prioritizing disadvantaged and flood-vulnerable communities. Updates should account for climate change and forecasted population growth. | **DWR, CalOES, Office of Planning and Research** | **3** | DWR is working with the U.S. Army Corps of Engineers to pursue a Continuing Authorities Program project for the underserved community of Planada. This study would start to identify potential flood risk reduction projects that could be included in Merced County's next local hazard mitigation plan update. DWR also is funding research at UC Davis to identify areas of future growth identified in statewide general plans that intersect with existing FEMA special flood hazard areas (i.e. floodplains). UC Davis will then assist communities to develop both land use and flood project ideas that could mitigate future flood losses based on existing planning growth into these hazard areas. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **25.7** | Provide hydraulic and economic modeling assistance to update the flood hazards within the California State Hazard Mitigation Plan, review the floodplain management elements of local hazard mitigation plans, and support flood loss avoidance studies following federally-declared disasters. These actions will maximize eligibility for federal financial assistance before and after disasters. | **DWR** | **3** | During the winter 2023 storms, DWR prepared real-time floodplain maps to support the State's emergency response activities for the communities of Pajaro, Watsonville, Salinas, Monterey, Patterson, Newman, Merced, Planada, Stratford, Alpaugh, Allensworth, Corcoran, Bakersfield, and areas along the Cosumnes River in Sacramento County. Following the event, DWR offered additional mapping and hydrologic and hydraulic technical support to these communities and others. These mapping activities will be reflected in the 2028 update of the State Hazard Mitigation Plan as well as the next updates of each communities' local hazard mitigation plan. In 2019, the Flood Board launched the Designated Floodway (DF) Modernization Program, which includes updating the outdated DF boundaries that were created in the late 1960's and 1970's. The initial effort included gathering all available data and analysis of areas in the Central Valley that need DF updating, development of implementation plans to conduct modeling and mapping, preparation of DF adoption including updated regulations, and securing adequate resources and funding to support the program. Pilot areas are currently being selected for the first effort of revising the DF boundary, conducting outreach and engagement with local agencies and the public, and identifying any environmental component needed for the Flood Board to adopt the new boundary. Rural areas and disadvantaged communities are in the greatest need for updates. The Flood Board plans to create a committee to focus on technical and policy issues while recommending areas of the DF that would benefit from modernization. DWR is working with Oak Ridge National Laboratories to prepare a new physically based model for the entire state to simulate the flood inundation associated with the UC/USGS ARkStorm 2.0 scenarios. The new Oak Ridge model will allow DWR to prepare detailed inundation maps, emergency response exercises, and in collaboration with local communities' future flood mitigation projects. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **25.8** | Partner with urban communities to improve existing and identify new flood risk reduction projects to meet or exceed state and federal requirements. | **DWR, Flood Board** | **3** | The Central Valley Urban Flood Risk Reduction (UFRR) Program is a cost-share program that partners with local agencies to implement flood risk reduction projects in urban areas of the Central Valley. The 2023 Budget Act includes $135.5 million over two years to support local agencies working to reduce urban flood risk. The 2023 Budget Act also includes $75 million to support local flood risk reduction projects, including communities impacted by recent storms, such as the Pajaro River Flood Risk Management Project. State and local agencies have invested over $1.6 million implementing projects ahead of the U.S. Army Corps of Engineers (USACE). There are two state/local projects under construction: the San Joaquin Area Flood Control Agency's Smith Canal Gate Project which protects approximately 8,000 properties in the Smith Canal area of Stockton, and the Reclamation District 17 100-year Levee Improvement Project, which protects portions of Stockton, Lathrop, and Manteca. Two urban communities achieved 200-year level of protection when their projects were completed: Sutter Butte Flood Control Agency's Feather River West Levee Repair Project which protects Biggs, Gridley, Live Oak, and most of Yuba City and the Three River Levee Improvement Authority's Goldfields project which protects Linda, Olivehurst, Arboga, and Plumas Lakes. Construction is complete on seven other UFRR projects. Two UFRR feasibility studies (Woodland and Mossdale Tract) are complete. The USACE has seven other Central Valley urban flood risk reduction projects totaling $7.3 billion that are in design and/or construction, which protect the areas of Marysville, Yuba City, Natomas, Sacramento, West Sacramento, Woodland, and Stockton. DWR conducts project implementation activities in support of these USACE-led projects. Construction on four projects is substantially complete (South Sacramento Streams, American River Common Features WRDA 96/99, the Joint Federal Project Folsom Dam Auxiliary Spillway, and the Sutter Basin Project). In all, the state has expended $220.2 million for Central Valley flood risk-reduction projects in fiscal year 2021-22, and the USACE has spent approximately $190 million in the same period. The 2023 Civil Works President's Budget includes $232.8 million for USACE Central Valley flood projects. Additionally, the 2022 Budget Act includes an additional $156.7 million to continue progress on these urban flood risk reduction projects. The state and local agencies partnered with USACE to complete $80 million of USACE Feasibility Studies to determine federal interest in the implementation of urban flood risk reduction projects in the Central Valley. Since 2014, five studies have been completed and authorized by Congress, one study (Woodland) received approval of the USACE Chief's Report in June 2021 and was authorized in the Water Resources Development Act of 2022. The Lathrop/Manteca Feasibility Study received federal funding and was initiated in 2022 and two future studies (Merced and Cache Creek Settling Basin) need federal funding to begin. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **25.9** | Partner with federal, tribal, and local agencies to support small community flood risk-reduction projects in vulnerable communities in the Central Valley and elsewhere. | **DWR** | **3** | DWR's Small Communities Flood Risk Reduction Program has completed feasibility studies for 14 of 35 communities to date. Five Sacramento County draft study reports were released in September 2021 for stakeholder review. A report for the City of Isleton is anticipated to be released in November 2021. Work is progressing on three implementation projects funded through Proposition 1E (2006) commitments. This grant program will be revised to align with DWR's Flood Management, Protection, and Risk Awareness Program funded through Proposition 68 (2018). The 2023 Budget Act includes $135 million as a flood contingency set-aside to support costs associated with flood preparedness, response, recovery, and other associated activities related to the 2023 storms, including supporting communities and vulnerable populations such as farmworkers from impacts. This includes $20 million to support flood relief in the community of Pajaro and $20 million to support flood relief in the community of Planada. |
| **25.10** | Make available to the public bathymetric analyses of channels in the Delta to help local flood control agencies, landowners, and habitat managers better understand levee conditions, habitat types, and channel siltation. | **DWR** | **2** | Existing bathymetric data is currently available at: https://gis.water.ca.gov/arcgisimg/rest/services/Bathymetry. DWR is working to enhance data-sharing methods using various publicly accessible websites and to develop a simplified custom data portal for accessing and more easily viewing the data. |

## Help regions prepare for inevitable drought.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **26.1** | Submit recommendations to the Governor and Legislature on how to improve drought planning for small suppliers and rural communities identified as vulnerable to drought, as required by AB 1668, the 2018 legislation. | **DWR, Water Board, CDFA** | **4** | In coordination with multiple state agencies and through an extensive stakeholder process, DWR developed recommendations that would allow small water suppliers and rural communities to meet their drought and water shortage planning needs. DWR also developed an online tool which enables small water suppliers and rural communities to explore their relative risk of drought and water shortage. The report and tool were submitted to the Legislature in April 2021. Recommendations from the report were adopted as a bill (SB 552), which was passed unanimously and signed by the Governor in September 2021. This new law requires small water systems of moderate size (1,000 to 2,999 connections) to develop abridged water shortage contingency plans and directs DWR to develop templates with the Water Board as guidance. Smaller public community water systems now have to consider drought in their emergency response plan. All small water systems (community and schools) must have resilience measures, such as an alternative water source, if feasible. The law requires DWR to periodically update the risk scoring and tools. The Water Board oversees the technical assistance to small water systems for their new requirements. Under this law, counties must develop a water shortage plan for state systems with fewer than 15 service connections and households on domestic wells. In lieu of a new stand-alone plan, the required elements may be incorporated into updates of other required plans, such as the General Plan and Local Hazard Mitigation Plan. |
| **26.2** | Review state actions during the 2012-2016 drought and use the lessons learned to inform response for future droughts. | **CNRA, CalEPA, CDFA, CAL FIRE** | **4** | In March 2021, CNRA submitted to the Legislature a report reviewing major state actions taken during the 2012-16 drought, challenges encountered, notable successes, efforts where the state needs to make improvements, and recommendations for improving future drought response. Multiple state agencies coordinated on preparation of the report. Lessons of the 2012-16 drought shaped the development of the Water Resilience Portfolio, the Governor's proposed budget in 2020-21 and 2021-22, and response to the 2019-22 drought. |
| **26.3** | Develop strategies to protect communities and fish and wildlife in the event of drought lasting at least six years. | **CNRA, CalEPA** | **3** | In 2022, at the request of CNRA and CalEPA leaders, the Water Commission began its consideration of long-term drought strategies by hosting expert panels and stakeholder discussions on the topic. In 2023, the Commission continued these efforts and held public workshops in July to inform drafting of a white paper with guidance for state policymakers on strategies for protecting communities and species in the event of a long-term drought. The white paper should be available for public review in the fall of 2023. The white paper will contain suggested strategies and guidance for state agency consideration when developing a set of investments and policies to support communities and the environment during drought. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
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| **26.4** | Provide financial and technical assistance and training to reduce drought risk to tribal and under-represented communities with small water systems and households on private wells. | **DWR, Water Board** | **3** | The 2021 Budget Act included $200 million for grants to support drought response projects and technical assistance for small, rural, and tribal water suppliers. DWR committed a total of $185 million to 89 eligible projects, including 13 tribal projects. Most of the funding was invested in disadvantaged communities. Another $5 million was made available to help counties establish standing drought task forces or to develop the county drought resilience plans required under the 2022 law (SB 552) that imposed new drought planning requirements on state and local governments. The 2022 Budget Act allocated another $95 million to DWR's small communities drought-relief grant program, and $20 million was made available to initiate a tank program. The tank program provides household water storage tanks and hauled water for residents whose wells have gone dry due to drought. The Water Board's Division of Financial Assistance utilizes multiple funding sources to support emergency and drought resiliency needs. During Fiscal Years 2021-22 and 2022-23, the Water Board committed funding to 30 drought emergency projects for a total of $3.8 million in funding, and 56 drought resiliency projects for a total of $246 million, to support small, disadvantaged water systems. In addition, the Water Board has committed $117.1 million in funding to counties and non-profits to address interim drinking water needs and build drought resiliency for approximately 4,000 households served by domestic wells. The Water Board's Technical Assistance Funding Program supports small water systems and communities with drinking water capital improvement project planning, community outreach, legal assistance, and other types of capacity development activities using primarily the Safe and Affordable Drinking Water Fund. As of July 2023, the Water Board's Technical Assistance Funding Program is assisting 18 small water systems and communities with directly addressing drought-related issues. A total of $8.22.8 million is budgeted for the technical assistance associated with these projects. |

## Improve the ability of regions to anticipate weather and climate changes.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **27.1** | Support regional decision making with watershed-scale climate vulnerability and adaptation assessments that include strategies to address risks to water supply, ecosystems, and water quality. | **DWR, Water Board** | **3** | DWR is conducting five watershed-scale studies for the San Joaquin River watershed and its tributaries, developing integrated analytical models, identifying vulnerability in the flood and water supply systems due to climate change and SGMA implementation, and identifying adaptation strategies. The analyses are being conducted with local partners using newly-developed analytical models covering headwaters to groundwater for each tributary watershed. The Merced River Reconnaissance Study, a prelude study of this larger effort and approach, is planned for release in fall 2023. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **27.2** | Support California Water Plan planning-area scale analysis of future flood risk, water demand, supply reliability, and water for the environment for a range of climate and growth scenarios. Incorporate climate change forecasts into permitting processes. | **DWR, Water Board, Office of Planning and Research, CDFA** | **3** | DWR has completed revisions to the Future Scenarios models for the Central Valley, reflecting current best practices in climate change analysis, and updated to analyze a range of vulnerabilities to water sectors. The analysis process and results are being documented as part of the California Water Plan Update 2023 and include a planning-area level assessment of surface water, groundwater, urban water use reliability, agricultural water use reliability, environmental impacts, and potential for flooding. DWR is currently expanding the Future Scenarios models to cover more of California, with a plan to expand by two hydrologic regions in 2028 and the remaining regions by 2033 (pending necessary funding). DWR plans to use the Future Scenarios analysis to evaluate adaptation strategies. California's Fifth Climate Change Assessment, administered by the Office of Planning and Research in partnership with CNRA, Energy Commission and Strategic Growth Council, produces a suite of climate change projections data and hydrologic scenarios. These will be available through the Cal-Adapt Analytics Engine in early 2024. |
| **27.3** | In cooperation with the U.S. Army Corps of Engineers and reservoir owners, evaluate the potential for implementing forecast-informed reservoir operations in watersheds where improved weather forecasting capabilities would allow reservoir operators to improve flood control and surface and groundwater supply storage. | **DWR** | **3** | DWR continues to support (and co-lead in the case of Lake Oroville) forecast-informed reservoir operations (FIRO) assessments in California. FIRO is in use at Lake Mendocino and has been expanded to the full Russian River, including Lake Sonoma. Orange County Water District is working with the U.S. Army Corps of Engineers to assess the viability of adjusting reservoir operation manuals to incorporate FIRO at Prado Dam on the Santa Ana River, with a final viability assessment slated for completion in October 2023. At Lake Oroville on the Feather River and New Bullards Bar Reservoir on the Yuba River, the Corps, DWR, and other partners developed an approach to align a FIRO viability assessment with a Water Control Manual update, to avoid sequential work. A final viability assessment is on track for completion in March 2024, and it will evaluate storm event frequency changes associated with climate change assumptions. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **27.4** | Support utilization of emerging technologies and partnerships to improve forecasts of precipitation seasonal snowpack, and runoff at all time scales to support more efficient water management now and to help estimate the impacts of climate change on future flood and drought conditions. | **DWR** | **3** | DWR continues to fund research partners at NASA, NOAA, and universities to prepare experimental seasonal precipitation forecasts and related climate diagnostic products to support drought preparedness and response. Work funded by DWR and led by the Center for Western Weather and Water Extremes (CW3E) includes forecasting, warning and decision support tools aimed at improving DWR and National Weather Service precipitation, atmospheric river, and sub-seasonal-to-seasonal climate forecasts. During the flood events in late 2022 and the first half of 2023, CW3E atmospheric river products were used routinely by DWR and the National Weather Service to assess the potential for major flooding from incoming storms, coordinate with reservoir operators and flood control managers, prepare emergency response activities, and notify partner agencies and the public of increased flood threats. DWR has made significant upgrades to its water supply forecasting procedures including updating historical climate data averages to the most recent 30-year period, which puts more emphasis on recent years and better reflects current conditions; developing new statistical models based on machine learning techniques; developing a new ensemble methodology to evaluate and improve wet- and dry-scenario forecasts; ingesting future precipitation forecasts from partners at NOAA; and developing runoff efficiency models that incorporate spatially-distributed snow data. During the winter and spring of 2022-23, DWR completed 65 Airborne Snow Observatory data collection flights and produced over 120 snow hydrology modeling reports from those data collections, which assisted reservoir operators in managing historic flood conditions. DWR has developed snow hydrology models for 18 watersheds in the Sierra Nevada and Southern Cascade mountains to help improve water supply forecasts. DWR also has continued work with the National Center for Atmospheric Research (NCAR) on developing physically-based and climate- informed hydrologic runoff forecasting models that can ingest remotely-sensed data (like the Airborne Snow Observatory data) and can better reflect changes in watersheds due to climate change or drought. DWR has developed real-time simulation forecast models to support State Water Project reservoir operations at Lake Oroville, Castaic Lake, and Pyramid Lake. Collectively, these new models and forecast improvement efforts should vastly improve runoff forecasting capabilities. |

# Executing This Portfolio

In the summer of 2022, two years after publication of the *Water Resilience Portfolio*, the accelerating impacts of the warming climate on water supply spurred state leaders to double down on a set of actions in the Portfolio. They released a Water Supply Strategy, designed to make up for the 10 percent loss of water supply California could face by 2040 as a result of hotter, drier weather. The strategy prioritizes expanded storage, greater water use efficiency, additional recycling and desalination of water, and improved forecasting, data, and management. State agencies charted significant progress carrying out the strategy in the past year. The *California Water Plan*, updated every five years, will further propel *Water Resilience Portfolio* progress; a draft of the 2023 plan update – and its trove of information about the current state of California water – will be released in September. Congress and the President made historic levels of funding available for water infrastructure nationwide, and California will seek federal funds wherever possible to accelerate its water resilience work.

*U.S. Interior Secretary Deb Haaland, left, and Camille Touton, U.S. Bureau of Reclamation Commissioner, in ball cap, on a tour of Specialty Crop Company farm in Madera County with California Agriculture Secretary Karen Ross, center, and Secretary for Natural Resources Wade Crowfoot, in black shirt, and U.S. Representative Jim Costa. Haaland toured the drought-stricken farm in August 2022, a day after President Biden signed the Inflation Reduction Act, which includes $4 billion to mitigate western drought conditions.*

## Institutionalize better coordination across state agencies.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **28.1** | Regularly convene the leaders of state agencies with water-related responsibilities to implement the portfolio actions and coordinate programs and expenditures. | **Administration** | **4** | Staff and leaders of the agencies implementing the Water Resilience Portfolio meet regularly to coordinate project implementation, policy decisions, and budget requests. In August 2022, in the midst of drought, they prepared "California's Water Supply Strategy: Adapting to a Hotter, Drier Future." This water supply strategy redoubles state focus on a subset of Portfolio actions intended to bolster water supply to compensate for hotter, drier conditions tied to climate change. Agencies together are tracking implementation progress of both the Portfolio and the Water Supply Strategy. |
| **28.2** | Broaden the impact of the California Water Plan, required every five years by law, by increasing alignment and coordination between contributing state agencies. Assess progress toward regional water resilience in Water Plan updates. Inventory recurring state-published water-related plans and assess whether each should be continued, modified, consolidated, or discontinued. | **DWR, Water Board, CDFW, CDFA, Flood Board, Delta Stewardship Council** | **3** | The California Water Plan (CWP) is the State's strategic plan for sustainably and equitably managing and developing water resources for current and future generations. A Public Review Draft of Update 2023 was released in September 2023. Update 2023 promotes climate resilience across regions and water sectors with a statewide vision, clear goals, watershed planning framework and toolkit, and progress-tracking dashboard of indicators. It includes regional summaries and water balances, planning and performance tracking tools, future scenarios, a dozen updated resource management strategies, and other technical and policy-related activities related to water resilience and sustainability. One chapter of Update 2023 is an inventory of water-related plans, programs, and policies. Update 2023 is informed by diverse communities of interest and place. Engagement venues include the Core State Agency Team, a Policy Advisory Committee, a Tribal Advisory Committee, regional forums and topic- and place-based workshops. |

## Partner with key non-state partners to improve coordination and alignment.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **29.1** | Establish regular dialogue with local and regional water stakeholders to improve how the state and regions work together to improve water resilience. | **CNRA, CalEPA, CDFA** | **2** | DWR participates in bimonthly meetings of the Integrated Regional Water Management Program Roundtable of Regions, a consortium of IRWM representatives from around the state. DWR also participates in quarterly disadvantaged community and tribal involvement workgroup meetings. DWR continues extensive stakeholder engagement as it develops its 2023 update to the California Water Plan, a comprehensive planning document required to be published every five years. Through the California Water Data Consortium, the AB 1755 Partner Agency team and non-state partners meet quarterly to prioritize and advance agency-level water and ecological data needs with non-state partner guidance and expertise. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **29.2** | Work with local and regional stakeholders to explore organizing specific water resilience portfolios in each region and pilot innovations. | **CNRA, CalEPA, CDFA** | **1** | No progress to report. |
| **29.3** | Consult and coordinate with California Native American tribes as directed under Executive Orders B-10-11 and N-15-19, which establish government-to-government consultation between the Administration and tribes. | **Administration** | **3** | State agencies have underway consultations with California Native American tribes on dozens of issues including pollution standards for specific streams, the proposed Delta conveyance project, disposition of lands associated with the Klamath River dams removal project, and a draft stormwater permit for the California Department of Transportation. In 2023, the Natural Resources Agency created a Deputy Secretary for Tribal Affairs position to improve coordination and consultation. The state's nine regional water quality control boards are in different stages of amending their Basin Plans – master water quality control planning documents – to include tribal beneficial uses, such as tribal subsistence fishing, and engaging with tribes to identify waters that support tribal beneficial uses. Four Regional Water Boards have adopted Tribal Beneficial Use definitions into their basin plans and the Lahontan Regional Water Board has begun the process of a developing a basin plan amendment to designate Mono Lake and its tributaries with Tribal Beneficial Uses. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **29.4** | Engage tribes to share traditional ecological knowledge with state agencies and stakeholders. | **CNRA, CalEPA, CDFA** | **3** | In June 2023, the Water Board held an informational item to provide information regarding the potential addition of tribal beneficial uses to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). In 2017, the State Water Board established and defined tribal beneficial uses. The addition of tribal beneficial uses to the Bay-Delta Plan would provide for explicit recognition and reasonable protection of these beneficial uses within the context of the Bay-Delta Plan, which is focused on instream flow and associated habitat conditions and implementation through water right related actions. For three days in April 2023, hundreds of tribal members gathered in Sacramento for DWR's Tribal Water Summit. Attendees discussed tribal perspectives on water policy, including building tribal, federal, and state partnerships through the Presidential Traditional Ecological Knowledge Policy, return of ancestral lands, increasing access and co-management of public lands, and funding of Tribal priorities. In September 2022, the Water Boards and CNRA coordinated the Cultural Heritage Pavilion at the annual Native American Heritage Month to create a platform for tribal cultural practitioners and elders to share traditional ecological knowledge and cultural practices with event participants. In 2022, the Central Valley Regional Water Board and the Los Angeles Regional Water Board reached the milestone of adopting Tribal Beneficial Uses definitions into their respective basin plans with the guidance and leadership from tribes and tribal representatives. In 2022, the Lahontan Regional Water Board, in partnership with the Kutzadika'a Tribe, began moving forward with the process of designating Mono Lake with Tribal Beneficial Uses. |
| **29.5** | Work with local, regional, national, and binational partners to promote cross-border cooperation to explore and implement opportunities to improve water resilience. | **CNRA, CalEPA** | **3** | In May 2023, DWR and the Water Board, with local partners, broke ground on the Calexico New River Improvement Project. The New River contains untreated wastewater and other pollutants from Mexico as it flows north through the City of Calexico before emptying into the Salton Sea. This polluted waterway is a threat to human health and ecosystems and limits economic development in the Imperial Valley. To address this long-standing problem, the New River Improvement project received $47 million from the 2020 Budget Act, Proposition 68 and the Water Board to encase the New River in the Calexico area, minimizing direct or indirect human contact. The project has been in the works for over a decade and involved extensive local and state collaboration. |

## Unify to pursue federal funding and cooperation.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **30.1** | Coordinate water resources priorities across state agencies and with local agencies and communities, as appropriate, to strengthen Congressional and federal agency support for California's water future. | **Administration** | **3** | The federal advisor in the Governor's Office and the external affairs deputies at CNRA and Cal EPA coordinate regularly with state agency leaders to advance California water priorities in Congress and with federal agencies including the Bureau of Reclamation, Army Corps of Engineers, National Marine Fisheries Services, Fish and Wildlife Service, and Environmental Protection Agency. The AB 1755 Partner Agency team, through the California Water Data Consortium, became an organizational member of the Internet of Water – a federal nonprofit organization working in partnership with U.S. Geological Survey, Department of Energy, and others to improve water data accessibility at the federal level. |
| **30.2** | Pursue federal funding for priority single-purpose and multi-benefit projects that may include flood risk reduction and ecosystem benefits and are of inter-regional value. | **Administration** | **3** | The 2021 Budget Act includes $141 million to leverage more than $1 billion in federal funding for Central Valley urban flood projects, including those that will help protect Stockton and Sacramento. This builds upon the $46 million in the 2020 Budget Act for similar projects. |
| **30.3** | Advocate to secure federal research that advances or improves California water management – for example, to meet California-specific forecasting needs. | **Administration** | **3** | In June 2023, DWR's interstate resources manager testified on behalf of the S2S Coalition and Western States Water Council at a House Science Committee hearing on reauthorization of the Weather Research and Forecasting Innovation Act of 2017 (PL 115-25). One provision of the act explicitly requires the National Oceanic and Atmospheric Administration to improve sub-seasonal to seasonal (S2S) forecasting and to submit a report to Congress describing the research needed to do so. DWR staff testified on the need to retain the existing language requiring NOAA to improve S2S forecasting and to add the pilot projects recommended in its report as explicit statutory requirements. |
| **30.4** | Pursue reforms of federal hazard-related programs to ensure adequate federal funding for California water infrastructure repair, maintenance, and improvements. | **Administration** | **3** | In June 2021, DWR submitted comments in response to the Federal Emergency Management Agency's Request for Information (FEMA-2021-0011) on the National Flood Insurance Program and Hazard Mitigation Assistance programs. In July 2022 DWR applied on behalf of smaller agencies for the pass-through grant from FEMA for High Hazard Potential Dams. For this grant, DWR is acting as the state representative for the program. California had nine dams with 31 projects and a federal request of $39 million for the 2022 grant. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **30.5** | Coordinate with federal land management agencies to improve forest resilience and watershed function on federal lands. | **Administration** | **3** | In August 2020, California signed a historic Shared Stewardship Agreement with the U.S. Forest Service that committed both parties to a comprehensive approach to forest and wildland resilience in the age of climate change. California and the Forest Service released the Forest and Wildfire Resilience Action Plan to outline the long-term vision of the Shared Stewardship Agreement and address obstacles to a coordinated approach. California has invested $2.7 billion over three years to fully fund California's commitments within the Shared Stewardship Agreement. This investment has already launched over 1,200 new wildfire resilience projects throughout California. Federal partners have also increased funding to meet the requirements of the joint strategy. The Forest Service owns 57 percent of the wildlands in California. |

## Actively integrate water resilience portfolio actions into other Administration efforts to build climate resilience.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **31.1** | Integrate the water resilience portfolio into the State Climate Action Plan that must be produced every three years. | **CNRA** | **4** | CNRA staff incorporated Water Resilience Portfolio goals, actions, and progress into the development of the 2021 State Climate Adaptation Strategy and the 2022 Implementation Progress Report. Work is underway to incorporate Water Resilience Portfolio and Water Supply Strategy progress into the 2024 Climate Adaptation Strategy. |
| **31.2** | Include water actions that build economic resilience into the Administration's Regions Rise Together Initiative | **Administration** | **3** | The Office of Planning and Research, California Go-Biz, and the Labor and Workforce Development Agency are administering The Community Economic Resiliency Fund (CERF). CERF has engaged 13 regional collaboratives across the state to develop comprehensive sustainable economic development plans. Members of the collaboratives are engaging DWR regional climate specialists and regional coordinators to ensure water resources are addressed within the economic planning efforts. |

## Track and report publicly on progress toward implementing this water resilience portfolio.

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **32.1** | Issue an annual status report regarding implementation of this water resilience portfolio. | **Administration** | **4** | This document is the progress report on the status of implementation of the 142 separate actions in the Water Resilience Portfolio. The first was published in January 2022. |

| ACTION | DESCRIPTION | DIVISION/OFFICE | PHASE | ACTION STATUS |
|---|---|---|---|---|
| **32.2** | Gather stakeholders from across the state each year to discuss progress implementing this portfolio and more broadly achieving water resilience across the state. | **Administration** | **1** | The state has not organized a stakeholder gathering focused entirely on the Water Resilience Portfolio, but state representatives involved in implementing the portfolio speak each year to dozens of groups and hundreds of stakeholders about building water resilience in California. DWR has engaged extensively with stakeholders and tribes in developing California Water Plan Update 2023, with a primary focus on promoting climate change adaptations; supporting California's regions as they undertake watershed-based, multi-sector resilience planning with technical guidance, data, tools, and decision support, and funding mechanisms; and strengthening water equity in state, regional, and local planning and decision making. |

# Governor's Executive Order N-10-19

***Previous page:*** *Fresno Irrigation District workers prepare to pump floodwaters from the Kings River into a Fresno Metropolitan Flood Control District basin to provide groundwater recharge in Fresno, California. Photo taken April 27, 2023.*

# EXECUTIVE DEPARTMENT
# STATE OF CALIFORNIA

**Executive Order N-10-19**

**WHEREAS,** water is a human right, and is central to California's strength and vitality; and

**WHEREAS,** we face a range of existing water challenges, including unsafe drinking water across the state, major flood risks that threaten public safety, severely depleted groundwater aquifers, agricultural communities coping with uncertain water supplies, and native fish populations threatened with extinction; and

**WHEREAS,** climate change is having a profound impact on water and other resources, making the climate warmer and more variable, which reduces mountain snowpack, intensifies drought and wildfires, and drives shorter, more intense wet seasons that worsen flooding; and

**WHEREAS,** California continues to grow, with our population projected to grow to 50 million over the next several decades and our economic activities expanding as the world's fifth largest economy; and

**WHEREAS,** the future prosperity of our communities and the health of our environment depend on tackling pressing current water challenges while positioning California to meet broad water needs through the 21st century; and

**WHEREAS,** many state programs, policies and investments are being implemented, such as the Sustainable Groundwater Management Act and new urban water efficiency standards, that can be built upon to meet these evolving challenges; and

**WHEREAS,** providing clean, dependable water supplies to communities, agriculture, and industry while restoring and maintaining the health of our watersheds is both necessary and possible; and

**WHEREAS,** achieving this goal requires a broad portfolio of collaborative strategies between government, sovereign tribes, local communities, water agencies, irrigation districts, environmental conservationists, academia, business and labor leaders, and other stakeholders.

**NOW, THEREFORE, I, GAVIN NEWSOM,** Governor of the State of California, by virtue of the power and authority vested in me by the Constitution and the statutes of the State of California, do hereby issue this Order to become effectively immediately.

**IT IS HEREBY ORDERED THAT:**

1. The California Natural Resources Agency, the California Environmental Protection Agency, the California Department of Food and Agriculture, in consultation with

the Department of Finance, shall together prepare a water resilience portfolio that meets the needs of California's communities, economy, and environment through the 21st century.

These agencies will reassess priorities contained within the 2016 California Water Action Plan, update projected climate change impacts to our water systems, identify key priorities for the administration's water portfolio moving forward, and identify how to improve integration across state agencies to implement these priorities.

2. These agencies shall first inventory and assess:

   a. Existing demand for water on a statewide and regional basis and available water supply to address this demand.

   b. Existing water quality of our aquifers, rivers, lakes and beaches.

   c. Projected water needs in coming decades for communities, economy and environment.

   d. Anticipated impacts of climate change to our water systems, including growing drought and flood risks, and other challenges to water supply reliability.

   e. Work underway to complete voluntary agreements for the Sacramento and San Joaquin river systems regarding flows and habitat.

   f. Current planning to modernize conveyance through the Bay Delta with a new single tunnel project.

   g. Expansion of the state's drinking water program to ensure all communities have access to clean, safe and affordable drinking water.

   h. Existing water policies, programs, and investments within state government.

3. This water resilience portfolio established by these agencies shall embody the following principles:

   a. Prioritize multi-benefit approaches that meet multiple needs at once.

   b. Utilize natural infrastructure such as forests and floodplains.

   c. Embrace innovation and new technologies.

   d. Encourage regional approaches among water users sharing watersheds.

   e. Incorporate successful approaches from other parts of the world.

f. Integrate investments, policies and programs across state government.

g. Strengthen partnerships with local, federal and tribal governments, water agencies and irrigation districts, and other stakeholders.

4. These agencies shall conduct extensive outreach to inform this process, including to other state agencies, sovereign tribes, federal and local government, local water agencies, agricultural groups, environmental justice and environmental conservation organizations, local and statewide business leaders, academic experts and other stakeholders.

**IT IS FURTHER ORDERED** that as soon as hereafter possible, this Order shall be filed with the Office of the Secretary of State and that widespread publicity and notice shall be given to this Order.

This Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its departments, agencies, or other entities, its officers or employees, or any other person.

**IN WITNESS WHEREOF** I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 29th day of April 2019.


GOVERNOR OF CALIFORNIA

ATTEST:

SECRETARY OF STATE

CALIFORNIA natural resources AGENCY

CalEPA California Environmental Protection Agency

cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

**STATE OF CALIFORNIA**
Gavin Newsom, Governor

**CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE**
Karen Ross, Secretary

**CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY**
Yana Garcia, Secretary

**CALIFORNIA NATURAL RESOURCES AGENCY**
Wade Crowfoot, Secretary

Document prepared by the
California Department of Water Resources,
Public Affairs Office, Creative Services Branch