



# Update 2018

California Water Plan Update 2018 (Update 2018) provides recommended actions, funding scenarios, and an investment strategy to bolster efforts by water and resource managers, planners, and decision-makers to overcome California's most pressing water resource challenges. It reaffirms State government's unique role and commitment to sustainable, equitable, long-term water resource management; it also introduces implementation tools to inform sound decision-making. The plan's broad and diverse portfolio of recommended actions address California's critical, systemic, and institutional challenges.

Update 2018 presents a vision where all Californians benefit from such desirable conditions as reduced flood risk, more-reliable water supplies, reduced groundwater depletion, and greater habitat and species resiliency — all for a more sustainable future. Planning and policy priorities will have a mutual understanding of resource limitations, management deficiencies, and shared intent — with a focus on sustainability and multi-benefit actions that result in greater public health and safety; healthy economy; ecosystem vitality; and cultural, spiritual, recreational, and aesthetic experiences.

DWR will engage with statewide and regional water planning communities, including federal and Tribal partners, to begin implementing the recommended actions in support of the [Governor's Water Resilience Portfolio](#) initiative.

Update 2018 is comprised of a number of documents that were prepared for, or used in, developing the plan. These include the supporting documents and featured companion State plans (available in the tabs below). Also available for review are the public review draft and public comments. Additionally, the Water Plan's [Resource Management Strategies](#) and [Update 2013 Regional Reports](#) provided foundational information for Update 2018.

## **Messages from Secretary Crowfoot and Director Nemeth**

**[News Release](#) | [Executive Summary](#)**

**[California Water Plan Update 2018](#)**

### **Note:**

1. This version of Update 2018, fully accessible per Web Content Accessibility Guidelines 2.0, Level AA, provides additional data, in tabular form, on regional applied water use in 2011 (a wet year) and 2014 (a critically dry year), to complement the proportional uses and supplies represented on California maps in Chapter 1.

2. You may request California Water Plan Update 2018 documents listed but not currently available on this page by contacting us at [cwpc@water.ca.gov](mailto:cwpc@water.ca.gov).

## **Supporting Documents**

California Water Plan Update 2018 draws from and builds on reference documents related to water resources to enhance the content and produce a better plan with each succeeding update. They provide the methodology, assumptions, data,

estimates, and other information used in the development of this update.

- **2018 California Tribal Water Summit Proceedings** — The summit proceedings provide a summary of the summit speakers, panels, and discussions that occurred during the two-day summit in April 2018.
- **California Must Enhance Groundwater Recharge and Storage** — This summary describes the University of California Agriculture and Natural Resources' and the California Economic Summit's proposed actions to increase implementation of groundwater recharge projects in California. The information was compiled during a stakeholder meeting in September 2018.
- **California Water Action Plan Implementation Report: 2014–2018 Summary of Accomplishments** — The implementation report highlights the accomplishments during the implementation of the “California Water Action Plan” from 2014 to 2018.
- **California Water Plan Glossary** — The glossary contains terms used in the text of Update 2018 and additional terms related to water resources.
- **Contributors to California Water Plan Update 2018** — Developing the water plan requires the knowledge, work, expertise, research, and technical advice of scores of individuals and groups — governmental, private, and nonprofit — representing multiple disciplines and many State agencies; federal, Tribal, regional, and local interests; and environmental, agricultural, and urban stakeholders. This list acknowledges their work in the preparation of Update 2018.
- **Corporate Water Stewardship and the Case for Green Infrastructure** — This report presents how private sector investment in green infrastructure can reduce water-related risks and provide multiple co-benefits while helping companies achieve water-stewardship goals.
- **Disadvantaged Communities Visioning Workshop Recommendations** — This report presents recommendations that support a more effective, equitable, and accessible roadmap to meeting the water needs of disadvantaged communities.
- **Ecosystem Services and California's Working Landscapes: Market Mechanisms to Revitalize Rural Economies** — This report explores current and potential markets for water provision, agricultural production, climate stability, outdoor recreation, and biodiversity to identify ways of mapping, valuing, and investing in ecosystem services to help protect California's natural capital and narrow the economic divide between its urban and rural regions.
- **Engaging the Business Community on Watershed Sustainability Assessments: Opportunities, Challenges, and Recommendations** — Engagement between the public and private sectors can be a powerful tool for assessing, addressing, and reducing shared water risks. This report provides an overview of opportunities, challenges, and recommendations for achieving this engagement.
- **Flood-MAR: Using Flood Water for Managed Aquifer Recharge to Support Sustainable Water Resources** This white paper explores opportunities to use flood-managed aquifer recharge (Flood-MAR). It demonstrates the need for Flood-MAR to become an important part of California's portfolio of water resource management strategies to help significantly improve water resource sustainability and climate resiliency throughout the state.
- **Funding Mechanism Inventory and Evaluation** — This document provides a description of the current and novel funding mechanisms, as well as assumptions used in the funding analysis in Update 2018.
  - Supporting Document Summary
- **Funding Scenario Analysis** — This document provides a description of the funding analysis as well as the scenarios evaluated by the funding analysis in Update 2018.
- **Future Water Scenarios** — This document covers future water supply and demand scenarios developed by the California Water Plan to analyze long-term future climate, urban growth, and land use conditions and their effect on long-term water demand conditions.
  - Supporting Document Summary
- **Historical Expenditures and Current and Future Funding Needs** — This document provides a description of California's water resources management historical expenditures and the current and future funding needs in the state.
- **Integrated Regional Water Management Panel Discussion Summaries: California Water Plan Update 2018: 2017 and 2018 Plenary Meetings** — A compendium of panel discussions and session activities, this report provides a summary of the integrated water management sessions DWR hosted in conjunction with the Integrated Regional Water Management (IRWM) Roundtable of Regions, during the Water Plan plenary meetings in support of Update 2018.
- **Process Guide for Update 2018** — This article summarizes the elements of the Update 2018 development process,

- while highlighting the organizational structure and methods used to facilitate a robust, iterative collaboration among agencies, California Native American Tribes, stakeholders, and the technical team.
- **Progress Report for Implementation of Assembly Bill 1755, the Open and Transparent Water Data Act** — This report includes the background, accomplishments, and next steps for implementing A.B. 1755. It describes the strategic plan, initial protocols, use case development, long-term governance and funding options, the implementation planning by eight partner State agencies, and stakeholder engagement.
- **Recharge Roundtable Call to Action: Key Steps for Replenishing California Groundwater** — This report summarizes results of a Groundwater Resources Association of California and the University of California Water Security and Sustainability Research Initiative workshop to identify key actions needed to significantly increase recharge to California groundwater systems.
- **Report on the Water Sustainability Atlas Pilot Project with Recommendations** — This report provides the accomplishments and recommendations for full-scale implementation on the prototype Sustainability Atlas successfully used in three pilot projects for the American River Basin IRWM region, the San Diego IRWM region, and the Mojave IRWM region.
  - Supporting Document Summary
- **Stakeholder Perspectives: Recommendations for Sustaining and Strengthening Integrated Regional Water Management** — This report provides stakeholder recommendations on actions needed to sustain and strengthen the practice of IRWM with the goal of achieving regional sustainability.
  - Supporting Document Summary
- **State Board of Food and Agriculture Letter to Governor Brown** — Recommendations for Groundwater Managed Recharge — This letter delivers the recommendations related to groundwater recharge from the board to the governor in support of achieving the goals of the Sustainable Groundwater Management Act (SGMA) and the “California Water Action Plan.”
- **Strategic Data Framework** — The Strategic Data Framework aims to connect the California Department of Water Resources programs to support achieving the sustainable water management goals of the Water Plan, the “California Water Action Plan,” and SGMA.
- **The Sustainability Outlook: A Summary** — The Sustainability Outlook establishes a comprehensive method, or tool, for tracking and reporting the progress and the effectiveness of implementing water management actions and policies, as well as return on investment. By doing so, the Sustainability Outlook provides shared agreement and consistency across State government and local governments throughout California.
  - Supporting Document Summary
- **Sustainability Outlook Indicator Descriptions and Methodology** — The Sustainability Outlook relies on identified indicators to track status and progress toward sustainability, including the effectiveness of State water policies and return on investments. This document details the process for developing the indicators as defined within the California Water Plan (Water Plan).
- **Sustainability Outlook Pilot Project: Russian River Watershed** — The Russian River watershed was selected as a pilot area because of established relationships in the watershed. In addition, the innovative and participatory local entities involved have fewer distinctive jurisdictions or agencies, compared with other watersheds in the state. As planned, this pilot is applying the outcome-based planning concepts advanced by Update 2018 at a watershed scale.
- **Sustainability Outlook Pilot Project: Santa Ana River Watershed** — The Santa Ana River watershed was selected as a pilot area because of established relationships in the watershed, as well as the innovative sustainability planning of the One Water One Watershed plans coordinated by the Santa Ana Watershed Project Authority. The “One Water One Watershed 2.0 Plan” (2014) created an indicators-based tool for assessing integrated regional water management plan performance, based on earlier California Department of Water Resources grant-supported work at the Council for Watershed Health, and “California Water Plan Update 2013” work at the University of California, Davis. This pilot draws from the earlier work and the experience in the region with application of the Water Foundation’s Sustainability Water Management Profile.
- **Water Budget Development Practitioner’s Handbook (DRAFT)** — The Water Budget Handbook will provide a tool that uses data and models to develop water budgets for any geographic area and time period. This will allow local agencies to develop their own water budgets.
- **Water Budget Pilot Projects** — As proof of concept for the Water Budget Handbook, pilot projects for the Tulare Lake and Central Coast hydrologic regions demonstrate the value of water budgets to achieve and manage water resources

sustainability.

- Supporting Document Summary
- **Water Portfolios and Balances** — Water portfolios and balances describe the distribution of water throughout the hydrologic cycle, water use by the urban and agricultural sectors, water in the environment, and water supply sources used to meet these uses at the statewide and regional levels.
  - Supporting Document Summary

## **Featured Companion State Plans**

These State government plans, related to water resources, were used to inform policy recommendations and short- and long-term actions in California Water Plan Update 2018.

<b>Plan</b>	<b>Agency</b>	<b>Year Published</b>
<b><u>2015 Statewide Comprehensive Outdoor Recreation Plan</u></b>	California Department of Parks and Recreation	2015
<b><u>2016–19 Strategic Action Plan</u></b>	Sierra Nevada Conservancy	2015
<b><u>2017–2022 Delta Conservancy Strategic Plan</u></b>	Sacramento-San Joaquin Delta Conservancy Board	2017
<b><u>2018 Energy Policy Report Update</u></b>	California Energy Commission	2018
<b><u>2018 State Hazard Mitigation Plan</u></b>	Governor’s Office of Emergency Services)	Public Review Draft, 2018
<b><u>2018 Strategic Fire Plan for California</u></b>	California Department of Forestry and Fire Protection	2018
<b><u>Bulletin 118 — Interim Update 2016</u></b>	California Department of Water Resources	2016
<b><u>California 2030 Natural and Working Lands Climate Change Implementation Plan</u></b>	California Environmental Protection Agency, California Natural Resources Agency, California Department of Food and Agriculture, California Air Resources Board, California Strategic Growth Council	January 2019 Draft
<b><u>California Agricultural Vision Update</u></b>	California Department of Food and Agriculture, State Board of Food and Agriculture	2019
<b><u>California Biodiversity Initiative: A Roadmap for Protecting the State’s Natural Heritage</u></b>	California Natural Resources Agency, California Department of Food and Agriculture, Governor’s Office of Planning and Research	2018
<b><u>California Drought of 2012–2016</u></b>	California Department of Water Resources	in preparation
<b><u>California EcoRestore</u></b>	California Natural Resources Agency	
<b><u>California Native American Tribal Engagement in the California Water Plan Update 2013 — Tribal Engagement Plan</u></b>	California Water Plan, Tribal Communication Committee	2010

<b>Plan</b>	<b>Agency</b>	<b>Year Published</b>
<b><u>California Ocean Protection Council Five-Year Strategic Plan 2012–2017</u></b>	California Ocean Protection Council	
<b><u>California State Wildlife Action Plan</u></b>	California Department of Fish and Wildlife	2015
<b>California Strategic Growth Council Strategic Plan 2012–2014</b>	Strategic Growth Council	2012
<b><u>California Transportation Plan 2040</u></b>	California Department of Transportation	2016
<b><u>California Water Action Plan</u></b>	California Natural Resources Agency, California Department of Food and Agriculture, California Environmental Protection Agency	2016
<b><u>California Water Commission Strategic Plan 2012</u></b>	California Water Commission	2012
<b><u>California’s 2017 Climate Change Scoping Plan Update</u></b>	California Air Resources Board	2017
<b>California’s Forests and Rangelands: 2010 Strategy Report</b>	California Department of Forestry and Fire Protection	2010
<b>California’s Forests and Rangelands: 2017 Assessment</b>	California Department of Forestry and Fire Protection	2017
<b><u>Central Valley Flood Protection Plan 2017 Update</u></b>	California Department of Water Resources	2017
<b><u>The Delta Plan</u></b>	Delta Stewardship Council	2017
<b>Department of Toxic Substances Control 2014–2018 Strategic Plan</b>	California Department of Toxic Substances Control	2014
<b>Division of Safety of Dams: Strategic Plan</b>	California Department of Water Resources	2018
<b><u>Environmental Goals and Policy Report</u></b>	Governor’s Office of Planning and Research	Draft, 2015
<b><u>General Plan Guidelines</u></b>	Governor’s Office of Planning and Research	2017
<b>Investing in California's Flood Future</b>	California Department of Water Resources	in preparation
<b>Making Water Conservation a California Way of Life: Implementing Executive Order B-37-16</b>	California Department of Water Resources, California State Water Resources Control Board, California Public Utilities Commission, California Department of Food and Agriculture, California Energy Commission	2017
<b><u>Making Water Conservation a California Way of Life: Primer of 2018 Legislation on Water Conservation and Drought Planning Senate Bill 606 (Hertzberg) and Assembly Bill 1668 (Friedman)</u></b>	California Department of Water Resources, California State Water Resources Control Board	2018

<b>Plan</b>	<b>Agency</b>	<b>Year Published</b>
<b><u>Recycled Water Policy</u></b>	State Water Resources Control Board	2013
<b><u>Regional Water Quality Control Plans (Basin Plans)</u></b>	State Water Resources Control Board	various
<b><u>Rising Seas in California: An Update on Sea-Level Science</u></b>	California Ocean Protection Council	2017
<b><u>Safe Drinking Water Plan for California</u></b>	State Water Resources Control Board	2015
<b><u>Safeguarding California: Implementation Action Plans</u></b>	California Natural Resources Agency	2016
<b><u>Safeguarding California Plan: 2018 Update – California’s Climate Adaptation Strategy</u></b>	California Natural Resources Agency	2018
<b><u>San Francisco Bay/Sacramento – San Joaquin Delta Estuary Water Quality Control Plan</u></b>	State Water Resources Control Board	in preparation
<b><u>Stakeholder Perspectives – Recommendations for Sustaining and Strengthening IRWM</u></b>	California Department of Water Resources	2017
<b><u>State Coastal Conservancy Strategic Plan 2018-2022</u></b>	California State Coastal Conservancy	2017
<b><u>State of California Emergency Plan</u></b>	Governor’s Office of Emergency Services	2017
<b><u>Stormwater Targets for Groundwater Recharge and Direct Use in Urban California</u></b>	California Department of Water Resources	2019
<b><u>Strategic Plan for A.B. 1755, the Open and Transparent Water Data Act</u></b>	California Department of Water Resources, State Water Resources Control Board, California Department of Fish and Wildlife, Water Quality Monitoring Council, Governor’s Office of Planning and Research, California Government Operations Agency, Delta Stewardship Council, California Natural Resources Agency	2018
<b><u>Strategic Plan Update 2008-2012</u></b>	State Water Resources Control Board	2008
<b><u>Strategy to Optimize Resource Management of Storm Water</u></b>	State Water Resources Control Board	2016
<b><u>Threat, Hazard Identification and Risk Assessment 2018</u></b>	Governor’s Office of Emergency Services	2018
<b><u>Vision 2030 Strategic Plan</u></b>	Delta Protection Commission	2015
<b><u>Water Action Plan</u></b>	California Public Utilities Commission	2010

The Update 2018 Public Review Draft was released on December 21, 2018 for public review. We received 50 comment letters, all available upon request.

<b>#</b>	<b>Date Received</b>	<b>Submitted by</b>	<b>Organization(s)</b>	<b>Status</b>
<b>1</b>	1/2/2019	Beverly Walsh	General Public	Incorporated as Appropriate
<b>2</b>	1/8/2019	Terri McCartney	Hopland Band of Pomo Indians	Incorporated as Appropriate
<b>3</b>	1/9/2019	Ginia Wickersham	General Public	Incorporated as Appropriate
<b>4</b>	1/9/2019	Greg Zlotnick	San Juan Water District	Incorporated as Appropriate
<b>5</b>	1/9/2019	Donna Miranda-Begay	Tubatulabal Tribe	Incorporated as Appropriate
<b>6</b>	1/10/2019	Gary Arant	Valley Center Municipal Water District	Incorporated as Appropriate
<b>7</b>	1/15/2019	Martin Harris	Terra Land Group, LLC	Incorporated as Appropriate
<b>8</b>	1/17/2019	Kelly Gage	San Diego County Water Authority	Incorporated as Appropriate
<b>9</b>	1/18/2019	Kimberly A. Thorner	Olivenhain Municipal Water Distric	Incorporated as Appropriate
<b>10</b>	1/18/2019	Carlos Riva	Poseidon Water	Incorporated as Appropriate
<b>11</b>	1/18/2019	Carol Mahoney	Alameda County Flood Control and Water Conservation District, Zone 7	Incorporated as Appropriate
<b>12</b>	1/18/2019	Michael Cohen	Alianza Coachella Valley, Audubon California, Defenders of Wildlife, Environmental Defense Fund, Pacific Institute, and Sierra Club	Incorporated as Appropriate
<b>13</b>	1/18/2019	Michelle Berditshevsky	Medicine Lake Citizens for Quality Environment, and Mount Shasta Bioregional Ecology Center	Incorporated as Appropriate
<b>14</b>	1/18/2019	Richard Johnson	Sacramento Area Flood Control Agency	Incorporated as Appropriate
<b>15</b>	1/18/2019	Brad Coffey	Metropolitan Water District of Southern California	Incorporated as Appropriate
<b>16</b>	1/18/2019	Jackson A. Minasian	Minasian, Meith, Soares, Sexton & Cooper, LLP	Incorporated as Appropriate
<b>17</b>	1/18/2019	David Bolland	Association of California Water Agencies and California Municipal Utilities Association	Incorporated as Appropriate
<b>18</b>	1/20/2019	George Kunkel	Kunkel Water Efficiency Consulting	Incorporated as Appropriate
<b>19</b>	1/20/2019	Bud Hoekstra	General Public	Incorporated as Appropriate
<b>20</b>	1/21/2019	Gary Trachtman	ARCADIS	Incorporated as Appropriate
<b>21</b>	1/21/2019	Thomas D. MacCarthy	Mojave Water Agency	Incorporated as Appropriate
<b>22</b>	1/21/2019	Chris Petersen	Groundwater Resources Association of California	Incorporated as Appropriate

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<b>23</b>	1/21/2019	Katie Ruby	California Urban Water Agencies	Incorporated as Appropriate
<b>24</b>	1/21/2019	Tom Wheeler	Madera County	Incorporated as Appropriate
<b>25</b>	1/21/2019	Alicia Dunkin	Orange County Water District, Sonoma Water, Turlock Irrigation District, Yuba Water Agency, and San Diego County Water Authority	Incorporated as Appropriate
<b>26</b>	1/21/2019	Paul Kelley	CalDesal	Incorporated as Appropriate
<b>27</b>	1/21/2019	Michael Obermiller	City of Poway	Incorporated as Appropriate
<b>28</b>	1/21/2019	John Woodling	Regional Water Authority	Incorporated as Appropriate
<b>29</b>	1/21/2019	Caroline Koch	WaterNow Alliance	Incorporated as Appropriate
<b>30</b>	1/21/2019	Paul A. Cook	Irvine Ranch Water District	Incorporated as Appropriate
<b>31</b>	1/21/2019	Russ Freeman	Westlands Water District	Incorporated as Appropriate
<b>32</b>	1/21/2019	Mike Antos	Santa Ana Watershed Project Authority	Incorporated as Appropriate
<b>33</b>	1/21/2019	Elizabeth Lovsted	Eastern Municipal Water District	Incorporated as Appropriate
<b>34</b>	1/21/2019	Teresa Gomez	City of Oceanside	Incorporated as Appropriate
<b>35</b>	1/21/2019	Verna Jigour	V Jigour LLC	Incorporated as Appropriate
<b>36</b>	1/20/2019	Delon Kwan	Los Angeles Department of Water and Power	Incorporated as Appropriate
<b>37</b>	1/21/2019	Joseph Berg	Municipal Water District of Orange County	Incorporated as Appropriate
<b>38</b>	1/21/2019	Robert Hemphill	Strelitzia Ventures	Incorporated as Appropriate
<b>39</b>	1/21/2019	Timothy K. Parker	Parker Groundwater	Incorporated as Appropriate
<b>40</b>	1/22/2019	Sherri Norris	California Indian Environmental Alliance	Incorporated as Appropriate
<b>41</b>	1/22/2019	Lynn Rodriguez	IRWM Roundtable of Regions	Incorporated as Appropriate
<b>42</b>	1/22/2019	James H Marple	Citizens for Responsible Watershed Management	Incorporated as Appropriate
<b>43</b>	1/18/2019	Bobbie Henry	Inter-Tribal Council Of California	Incorporated as Appropriate
<b>44</b>	1/22/2019	Cora Kammeyer	Pacific Institute	Incorporated as Appropriate
<b>45</b>	1/21/2019	Jack Hawks	California Water Association	Incorporated as Appropriate
<b>46</b>	1/22/2019	Maddie Duda	The Environmental Justice Coalition for Water	Incorporated as Appropriate



<b>#</b>	<b>Date Received</b>	<b>Submitted by</b>	<b>Organization(s)</b>	<b>Status</b>
<b>47</b>	1/22/2019	Giles Coon	Los Angeles County Public Works	Incorporated as Appropriate
<b>48</b>	1/22/2019	Osha R. Meserve	Soluri Meserve	Incorporated as Appropriate
<b>49</b>	1/25/2019	Katherine Gledhill	North Coast Resource Partnership	Incorporated as Appropriate
<b>50</b>	2/4/2019	Emily Abfalter	McKinleyville Community Services District	Incorporated as Appropriate

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