

**STATE OF CALIFORNIA**  
**Budget Change Proposal - Cover Sheet**  
 DF-46 (REV 10/20)

<b>Fiscal Year</b> 21-22	<b>Business Unit</b> 3860	<b>Department</b> Water Resources	<b>Priority No.</b>
<b>Budget Request Name</b> 3860-011-BCP-2021-GB		<b>Program</b> 3230	<b>Subprogram</b>

**Budget Request Description**  
 Groundwater Recharge Technical Assistance

**Budget Request Summary**

The Department Of Water Resources (DWR) requests \$2 million from Proposition 68 (\$650,000 per year over two years, FY 21-22 through FY 22-23, and \$700,000 in FY 23-24) for State Operations to work with local agencies to holistically plan and assess water availability, conveyance infrastructure, on-farm recharge sites, opportunities for adjusting upstream reservoir operations based on weather forecasts, requirements for environmental river flows, among many other factors. This planning work is critical to the successful implementation of groundwater recharge projects.

<b>Requires Legislation</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Code Section(s) to be Added/Amended/Repealed</b>	
<b>Does this BCP contain information technology (IT) components?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, departmental Chief Information Officer must sign.</i>	<b>Department CIO</b>	<b>Date</b>

**For IT requests, specify the project number, the most recent project approval document (FSR, SPR, S1BA, S2AA, S3SD, S4PRA), and the approval date.**

**Project No. Project Approval Document:**

**Approval Date:**

**If proposal affects another department, does other department concur with proposal?**  Yes  No  
*Attach comments of affected department, signed and dated by the department director or designee.*

<b>Prepared By</b> Ajay Goyal	<b>Date</b> 12/16/2020	<b>Reviewed By</b> Duard MacFarland	<b>Date</b> 1/6/2021
<b>Department Director</b> Kathie Kishaba	<b>Date</b> 1/6/2021	<b>Agency Secretary</b> Amanda Martin	<b>Date</b> 1/6/2021

**Department of Finance Use Only**

**Additional Review:**  Capital Outlay  ITCU  FSCU  OSAE  Dept. of Technology

<b>PPBA</b> Sergio Aguilar	<b>Date submitted to the Legislature</b> 1/8/2021
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## Analysis of Problem

### A. Budget Request Summary

The Department Of Water Resources (DWR) requests \$2 million from Proposition 68 (\$650,000 per year over two years, FY 21-22 through FY 22-23, and \$700,000 in FY 23-24) for State Operations to work with local agencies to holistically plan and assess water availability, conveyance infrastructure, on-farm recharge sites, opportunities for adjusting upstream reservoir operations based on weather forecasts, requirements for environmental river flows, among many other factors. This planning work is critical to the successful implementation of groundwater recharge projects.

### B. Background/History

The driest four consecutive years of statewide precipitation in the historical record were in 2012-2015. In March 2015, the state had record-low statewide mountain snowpack of only five percent of average. The drought resulted in a lack of adequate surface water supply, which forced numerous water users to modify their water use, including an increase of groundwater pumping in many areas. During this drought, the Sustainable Groundwater Management Act (SGMA) went into effect, establishing a new state framework and local tools for managing California's groundwater, significantly changing how groundwater is managed in the state.

As is typical of California climate, the five years of drought were followed by the wettest water year on record. Storms started in late November 2016 and intensified through February 2017. These storms caused local flooding and high water in major streams. More than 100 incidents were reported by the State-Federal Flood Operations Center by mid-March 2017, including boils, seepages, sloughing, bank erosion, overtopping, slippage, levee breaks, and local flooding. Several reservoirs encroached their flood reservation pool from the heavy precipitation and high reservoir inflows. The San Joaquin River flow remained near flood stage for months, as heavy rains were followed by snowmelt. Climate change impacts related to flooding are expected to be particularly severe in the San Joaquin River Basin because it is a high-elevation, snow-melt driven watershed.

The state will continue to experience recurring extreme weather events, which will be intensified by climate change. Climate change is expected to continue to change snowpack, sea level, and river flows. More precipitation will likely fall as rain instead of snow. Climate change is also expected to result in more variable weather patterns throughout California. More variability can lead to longer and more severe droughts. This potential change in weather patterns will exacerbate flood risks and add additional challenges for water supply. DWR and other state, federal, regional, and local entities, are actively exploring opportunities to determine how flood and groundwater management (Flood-MAR) can be integrated to provide mutual benefits. Flood-MAR is DWR's recommended approach for how to best integrate flood and groundwater management.

SGMA implementation is revealing an unprecedented local demand for groundwater recharge projects, the success of which depends on a comprehensive understanding of entire watershed systems including their associated groundwater basins. With few exceptions, that degree of understanding does not currently exist. This request will enable DWR to work with local agencies to holistically assess water availability, conveyance infrastructure, on-farm recharge sites, opportunities for adjusting upstream reservoir operations based on weather forecasts, requirements for environmental river flows, among many other factors.

## Analysis of Problem

The 2018 Budget Act appropriated \$2.5 million in State Operations funding from Proposition 68, Chapter 11.5, Section 80145(a)(1)(C) for strategic planning, communication and engagement with stakeholders and Flood-MAR practitioners, development of the Flood-MAR Research and Data Plan, development of analytical tools necessary to analyze Flood-MAR projects, and a reconnaissance study to analyze Flood-MAR opportunities in the Merced River Basin. Approximately \$1.2 million of the \$2.5 million was expended in FY 18-19. The remaining \$1.3 million was reappropriated for use in FY 19-20 to continue Flood-MAR activities. DWR's Sustainable Groundwater Management Program contributed \$1 million in FY 18-19 and \$714,000 in FY 19-20 to the Flood-MAR program for analysis of Flood-MAR opportunities to improve the sustainability of groundwater resources.

The System Reoperation Program has existing baseline funding of approximately \$1 million per year for FY 19-20 and FY 20-21. Of that amount, \$250,000 is budgeted per year for Flood-MAR.

### Resource History (Dollars in thousands)

<b>Program Budget</b>	<b>PY – 4</b>	<b>PY – 3</b>	<b>PY – 2</b>	<b>PY-1</b>	<b>PY</b>	<b>CY</b>
Authorized Expenditures				\$3,500	\$2,264	\$2,750
Actual Expenditures				\$2,200	\$2,264	\$2,750
Revenues				0	0	0
Authorized Positions				3	5	5
Filled Positions				3	5	5
Vacancies				0	0	0

## Analysis of Problem

### Workload History

Workload Measure	PY – 4	PY – 3	PY – 2	PY-1	PY	CY
Identify Flood-MAR opportunities, challenges, and barriers, including a White Paper on Flood-MAR			X			
Convene a Flood-MAR research advisory committee comprised of 13 subcommittees to identify data gaps and develop a research and data plan.				X	X	
Conduct a reconnaissance study of the Merced River Basin to evaluate opportunities for Flood-MAR projects to support benefits such as water supply reliability, groundwater sustainability, ecosystem enhancement, flood protection, etc.				X	X	X
Develop new models, upgrade existing models, and integrate models to comprehensively evaluate the management of headwater resources to groundwater resources. The integrated modeling approach allows evaluation and balancing of multiple benefits of using flood water for recharge.				X	X	X
Educate public, local agencies, and researchers, and potential implementors about the Flood-MAR strategies. Participate in conferences and workshops. Support development of partnerships among related water resource communities and agencies.				X	X	X

## Analysis of Problem

### C. State Level Consideration

This request supports the implementation of the Sustainable Groundwater Management Act and the following actions of the Water Resilience Portfolio:

Action #3.4: Explore ways to further streamline groundwater recharge and banking efforts 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.

Action #11.0: Support the expansion of wetlands to create habitat, filter runoff, buffer floods, and recharge groundwater

Action #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.

Action #27.4: Support utilization of emerging technologies and partnerships to better estimate severity of future flood and drought conditions, including seasonal snowpack and runoff that generate most of California's water supply.

### D. Justification

Groundwater is a critical and integral component of California's overall water supply, serving residents, businesses, farms, and industries. Approximately 30 million Californians (about 75 percent) depend on groundwater for a portion of their water supply. On average, groundwater provides about 40 percent of total annual agricultural and urban water uses. Some regions are 100 percent dependent on groundwater for their supply. Severely depleted groundwater aquifers are making groundwater resources unsustainable, causing land subsidence, and impacting agricultural production, ecosystems, and regional economy, and reducing reserves for drought years. Climate change will cause increased severe flooding and extended droughts adding to challenges for water supply reliability.

SGMA requires water users to manage their basins sustainably requiring recharging more and, in some regions, pumping less. However, implementation of sustainability plans will be challenging, especially in regions that rely on excessive pumping. SGMA implementation is revealing an unprecedented local demand for groundwater recharge projects, the success of which depends on a comprehensive understanding of entire watershed systems including their associated groundwater basins. With few exceptions, that degree of understanding does not currently exist.

This request will enable DWR to work with local partners to holistically plan and assess water availability, conveyance infrastructure, on-farm recharge sites, opportunities for adjusting upstream reservoir operations based on weather forecasts, requirements for environmental river flows, among many other factors. This planning work is critical to the successful implementation of groundwater recharge projects.

## Analysis of Problem

### E. Outcomes and Accountability

#### Projected Outcomes

Workload Measure	CY	BY	BY+1	BY+2	BY+3	BY+4
Assess water availability on watershed scale		X	X	X		
Assess conveyance infrastructure for groundwater recharge		X	X	X		
Assess suitability of recharge sites		X	X	X		
Adjust upstream reservoir operations based on weather forecasts		X	X	X		
Assess requirements for environmental flows		X	X	X		

### F. Analysis of All Feasible Alternatives

**Alternative 1: Approve \$2 million in Proposition 68 funds over three years for DWR to work with local agencies to implement groundwater recharge projects.**

Pros: DWR will have funding to work with local agencies to implement groundwater recharge projects and support their implementation of SGMA.

Cons: There is a state cost.

**Alternative 2: Deny this funding request.**

Pros: There will be less of a state cost.

Cons: The opportunity to work with local agencies to implement groundwater recharge projects will be lost.

### G. Implementation Plan

DWR will work with local agencies to holistically plan and assess water availability, conveyance infrastructure, surface and sub-surface geology, on-farm recharge sites, opportunities for adjusting upstream reservoir operations based on weather forecasts, requirements for environmental river flows, among many other factors. This planning work critical to the successful implementation of groundwater recharge projects.

### H. Supplemental Information

None.

## Analysis of Problem

### I. Recommendation

Approved Alternate 1, the request for a new appropriation of \$2 million from Proposition 68 funds for DWR to work with local agencies to implement groundwater recharge projects.

# BCP Fiscal Detail Sheet

BCP Title: Groundwater Recharge Technical Assistance

BR Name: 3860-011-BCP-2021-GB

Budget Request Summary

## Personal Services

Personal Services	FY21 Current Year	FY21 Budget Year	FY21 BY+1	FY21 BY+2	FY21 BY+3	FY21 BY+4
Salaries and Wages Earnings - Permanent	0	132	132	132	0	0
<b>Total Salaries and Wages</b>	<b>\$0</b>	<b>\$132</b>	<b>\$132</b>	<b>\$132</b>	<b>\$0</b>	<b>\$0</b>
Total Staff Benefits	0	66	66	66	0	0
<b>Total Personal Services</b>	<b>\$0</b>	<b>\$198</b>	<b>\$198</b>	<b>\$198</b>	<b>\$0</b>	<b>\$0</b>

## Operating Expenses and Equipment

Operating Expenses and Equipment	FY21 Current Year	FY21 Budget Year	FY21 BY+1	FY21 BY+2	FY21 BY+3	FY21 BY+4
5301 - General Expense	0	208	208	208	0	0
5340 - Consulting and Professional Services - External	0	244	244	294	0	0
<b>Total Operating Expenses and Equipment</b>	<b>\$0</b>	<b>\$452</b>	<b>\$452</b>	<b>\$502</b>	<b>\$0</b>	<b>\$0</b>

## Total Budget Request

Total Budget Request	FY21 Current Year	FY21 Budget Year	FY21 BY+1	FY21 BY+2	FY21 BY+3	FY21 BY+4
<b>Total Budget Request</b>	<b>\$0</b>	<b>\$650</b>	<b>\$650</b>	<b>\$700</b>	<b>\$0</b>	<b>\$0</b>

## Fund Summary

### Fund Source

Fund Source	FY21 Current Year	FY21 Budget Year	FY21 BY+1	FY21 BY+2	FY21 BY+3	FY21 BY+4
State Operations - 6088 - California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Fund	0	650	650	700	0	0
<b>Total State Operations Expenditures</b>	<b>\$0</b>	<b>\$650</b>	<b>\$650</b>	<b>\$700</b>	<b>\$0</b>	<b>\$0</b>
<b>Total All Funds</b>	<b>\$0</b>	<b>\$650</b>	<b>\$650</b>	<b>\$700</b>	<b>\$0</b>	<b>\$0</b>

## Analysis of Problem

### Program Summary

#### Program Funding

Program Funding	FY21 Current Year	FY21 Budget Year	FY21 BY+1	FY21 BY+2	FY21 BY+3	FY21 BY+4
3230 - Continuing Formulation of the California Water Plan	0	650	650	700	0	0
<b>Total All Programs</b>	<b>\$0</b>	<b>\$650</b>	<b>\$650</b>	<b>\$700</b>	<b>\$0</b>	<b>\$0</b>

### Personal Services Details

#### Salaries and Wages

Salaries and Wages	FY21 Current Year	FY21 Budget Year	FY21 BY+1	FY21 BY+2	FY21 BY+3	FY21 BY+4
3261 - Sr Engr	0	132	132	132	0	0
<b>Total Salaries and Wages</b>	<b>\$0</b>	<b>\$132</b>	<b>\$132</b>	<b>\$132</b>	<b>\$0</b>	<b>\$0</b>

#### Staff Benefits

Staff Benefits	FY21 Current Year	FY21 Budget Year	FY21 BY+1	FY21 BY+2	FY21 BY+3	FY21 BY+4
5150600 - Retirement - General	0	41	41	41	0	0
5150900 - Staff Benefits - Other	0	25	25	25	0	0
<b>Total Staff Benefits</b>	<b>\$0</b>	<b>\$66</b>	<b>\$66</b>	<b>\$66</b>	<b>\$0</b>	<b>\$0</b>

#### Total Personal Services

Total Personal Services	FY21 Current Year	FY21 Budget Year	FY21 BY+1	FY21 BY+2	FY21 BY+3	FY21 BY+4
<b>Total Personal Services</b>	<b>\$0</b>	<b>\$198</b>	<b>\$198</b>	<b>\$198</b>	<b>\$0</b>	<b>\$0</b>