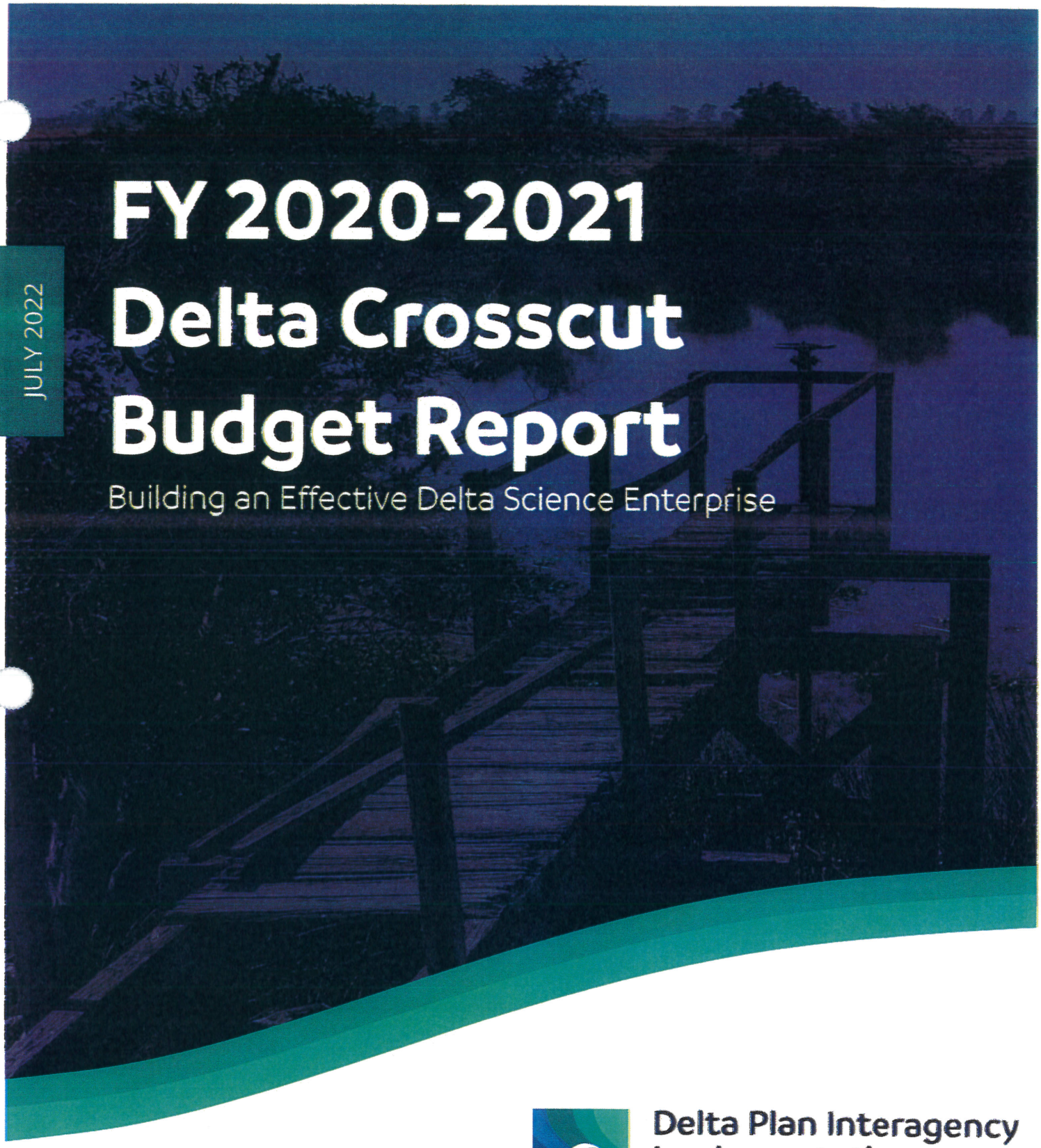
XIII.



JULY 2022

FY 2020-2021 Delta Crosscut Budget Report

Building an Effective Delta Science Enterprise

Delta Plan Interagency Implementation Committee

DELTA STEWARDSHIP COUNCIL

135

Blank

Table of Contents

136

137

The Delta Science Enterprise

State and federal agencies, non-governmental organizations (NGOs), and academic institutions fund and implement a wide variety of science programs and activities across the Delta. Together, these activities constitute the Delta science enterprise and inform a network of regional managers and stakeholders.

Delta Plan Interagency Committee (DPIIC)

The Delta Reform Act of 2009 (Delta Reform Act) charged the Delta Stewardship Council (Council) to establish and oversee a committee of agencies responsible for implementing the Delta Plan. Each agency shall coordinate its actions pursuant to the Delta Plan with the Council and the other relevant agencies. Water Code Section 85204

The Council established the Delta Plan Interagency Implementation Committee (DPIIC) after adoption of the Delta Plan in 2013 and continues to coordinate and oversee its activities as required by the Delta Reform Act.

DPIIC strives to facilitate Delta Plan implementation through collaboration in support of shared national, statewide, and local goals for the Delta. The Council aims to craft agendas that highlight the interconnections of the Delta Plan with initiatives, plans, or programs of DPIIC agencies. DPIIC explores opportunities to align agencies' actions in the Delta watershed, showcases DPIIC agencies' achievements, and guides actions to address pressing issues affecting Delta Plan implementation. These agencies are vital to making progress on achieving the coequal goals through four key elements: water supply reliability, Delta ecosystem health and restoration, Delta as a Place, and best available science in support of "One Delta, One Science."

Foreword

Achieving the coequal goals for California's Sacramento-San Joaquin Delta set forth in the State's 2009 Delta Reform Act is no small task. Adding the stressors of on-going drought and climate change makes it an even larger and more complex task. The Delta Reform Act provides goals and objectives for the Delta and requires the State's Delta Stewardship Council—and by extension the members of the Delta Plan Interagency Implementation Committee (DPIIC)—to make use of best available science and adaptive management. All of this requires funding for science.

Since 2018, DPIIC has been working to examine science funding within the Delta science enterprise with the aim of 1) achieving improved efficiency in science funding; 2) identifying and prioritizing key management questions and science investments; and 3) looking forward to prepare the Delta for a rapidly changing environment.

By implementing a process for collecting annual funding data that encompasses all of the Delta science enterprise and contributions from many DPIIC agencies, this third annual Delta Crosscut Budget Report helps the Delta science community and decision-makers understand how we're funding science now, informs efficiencies, and reveals gaps and opportunities for improvement. The report is also useful for helping to understand how funding for science here compares to that of our nation's other major estuaries. And new to this year's report are examples of projects and highlighted accomplishments as outgrowths of science funding from the DPIIC agencies (see dark green boxes throughout the report).

This year's report also includes year two of collecting and reporting restoration funding data, which is presented separately from the science data and reflects funds spent on acquisition, permitting, construction, and ongoing post-construction costs for a range of habitat projects that include federal biological opinions (BiOps) and State Incidental Take Permit (ITP) restoration as well as habitat associated with flood and multi-benefit projects.

This year's funding report is being released just months after the release of the 2022-2026 Delta Science Action Agenda (SAA), which identifies key management questions for ecosystem and water resilience and associated science actions to prioritize for funded research that advances our understanding of the Delta.

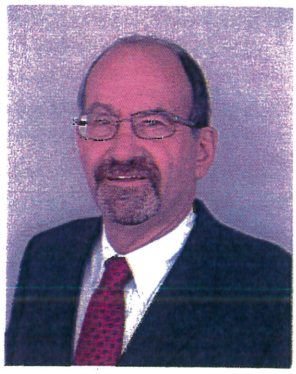
139

As we continue to collect more data, the Delta Crosscut Budget Report—along with the SAA—will help decision makers prioritize future science funding and help us to look forward by identifying where there are gaps in funding needs. After several years of annual reports on Delta science expenditures, the information can be analyzed and used to guide long-term science funding that is responsive to current and long-term management needs.

The Delta Stewardship Council and the U.S. Bureau of Reclamation—the DPIIC agencies coordinating this effort—are pleased to spearhead the collection, analysis, and reporting of this information.

We look forward to continuing to work with California's DPIIC leaders to annually report this essential information in a transparent and useable way as we work together to build a more effective Delta science enterprise that values and implements best available science, adaptive management, and "One Delta, One Science."

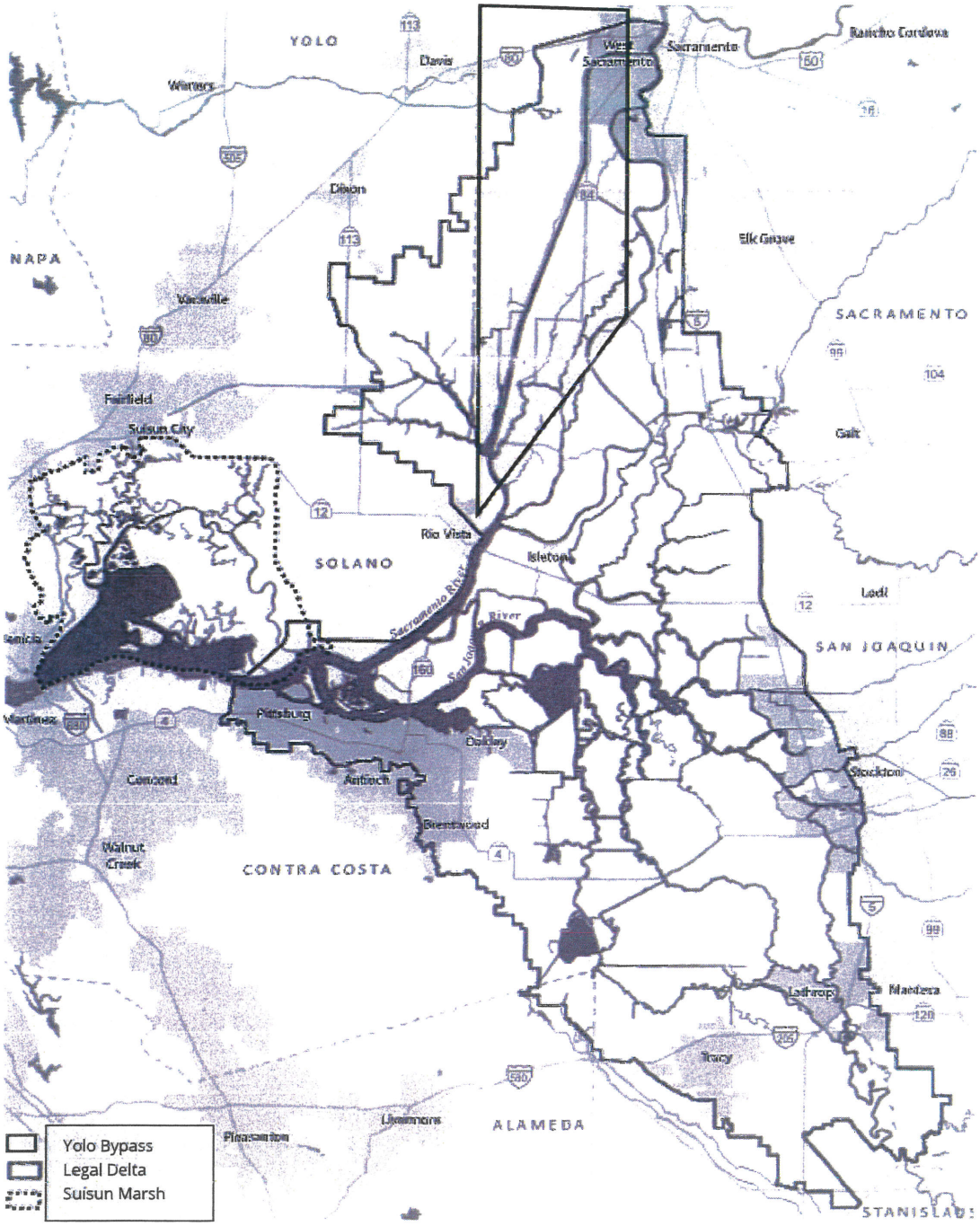
Jessica Roberts Pearson
Executive Officer, Delta Stewardship Council



Ernest Conant
Regional Director, Bureau of Reclamation

Map of the Sacramento-San Joaquin Delta

The geographic boundary for the Delta Crosscut Budget is the legal Delta, Yolo Bypass, and Suisun Marsh. This is the area referred to as the Sacramento-San Joaquin Delta or simply, "the Delta" throughout the report. Source: DSC 2018a (image modified for accessibility).



FY 2020-21 Delta Crosscut Budget Reporting

This Delta Crosscut Budget Report provides a summary of state, federal, and local investments in science activities in the Delta during the state fiscal year July 2020 - June 2021 (FY 2020-21). The Delta Crosscut Budget Report takes the place of the Interim Federal Action Plan (IFAP). Twelve agencies reported their funding activities for this fiscal year (see table below for agencies and water contractors with their associated acronyms).

Table 1 | Funding Agencies and Their Associated Acronyms

Acronym	Agencies
BC, P, WS	Banta Carbona, Patterson, and West Stanislaus Irrigation Districts
CDFW	California Department of Fish and Wildlife
DSC (Council)	Delta Stewardship Council
DWR	California Department of Water Resources
SLDMWA	San Luis & Delta-Mendota Water Authority
SWC	State Water Contractors
SWRCB	California State Water Resources Control Board
USBR	United States Bureau of Reclamation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Science Funding Accomplishments

Please note, in the green boxes throughout the report, you will find project highlights from agencies showcasing some of the results of science funding and the work the agencies are doing throughout the Delta.

Delta Crosscut Budget Science Investment Results FY 2020-21

Science Activities Definitions

Core Monitoring: Monitoring that provides information on a seasonal and daily basis to inform specific decisions on operations for water supply and fish species status. Core monitoring is conducted almost entirely to fulfill requirements for regulatory compliance.

Science Activities

1. Core Monitoring
2. Status and Trends Monitoring
3. Synthesis
4. Targeted Foundational Research
5. Targeted Immediate Research

Status and Trends Monitoring: Monitoring that contributes to long-term datasets used to compare environmental conditions (e.g., species populations, water quality) over time. Information improves system understanding and can be applicable to a variety of management decisions rather than a specific action. Status and trends monitoring is primarily required for regulatory compliance, although it may also be associated with non-regulatory efforts.

Synthesis: The combining of diverse information from multiple sources into one concept, model, finding, or report.

Targeted Foundational Research: Science efforts that provide the knowledge and context to inform long-term management and policymaking, while also identifying and understanding emerging issues so that natural resource managers can be better prepared for future challenges. This is not typically supported by funds allocated for science efforts linked to regulatory requirements.

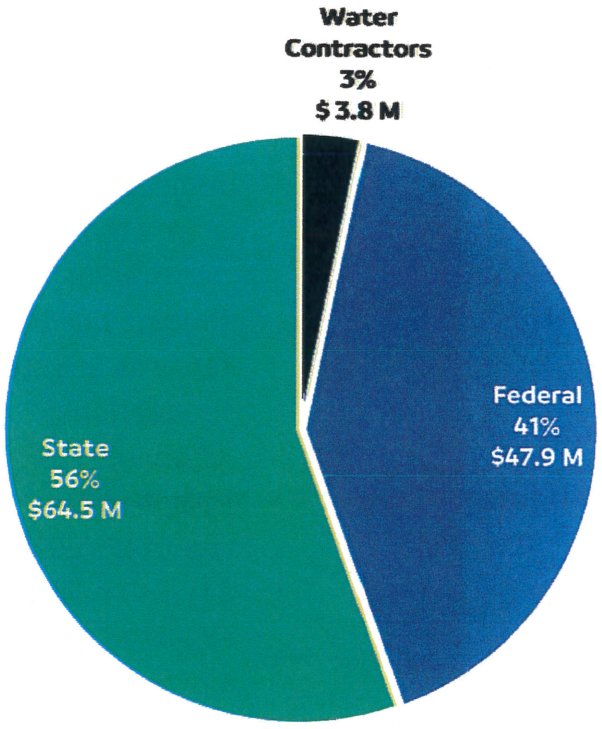
Targeted Immediate Research: Science efforts that answer current management questions by providing evidence to support or refute hypotheses. This is not typically supported by funds allocated for science efforts linked to regulatory requirements.

Some of this science is required under existing regulations and some investments are voluntary, in that the science is conducted by agencies to provide additional information not required under regulation but that expands understanding of the system's dynamics. While any of these categories can be regulatory or non-

regulatory, core monitoring, status and trends monitoring, and synthesis are most often activities required under existing regulations, and targeted foundational research and targeted immediate research activities are most often voluntary science investments.

The funding analysis and reporting that follows focuses on science activity categories, total expenditures, funding sources, and "reimbursability." The funding template included other metrics, but those were omitted from the following analysis because reporting in those categories was inconsistent across agencies; partial information on those metrics is available within the raw data files. Data was rounded to the tenth decimal point.

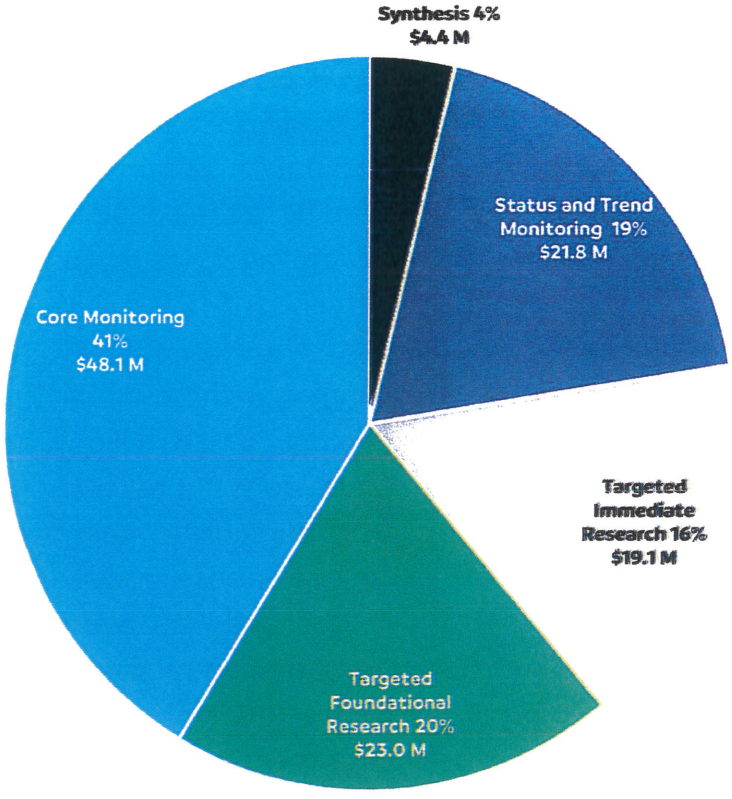
Figure 1 | Total FY 2020-21 Science Expenditures by State Agencies, Federal Agencies, and State and local water contractors (in percent of total funds and millions of dollars).



Figures 1 illustrates the science expenditures across funding agencies, which total $116,255,755. State agencies account for 56 percent of funding, a total of $64.5 million. Federal agencies represent 41 percent or $47.9 million, and State and local water contractors account for 3 percent or $3.8 million. The figure does not reflect "reimbursability." Reimbursable costs are those recovered by Federal and State agencies from the Central Valley water contractors and power customers through existing rate structures.

Figures 2 and 3 illustrate the distribution of expenditures across project categories and differences across the spending categories from FY 2018-19 to FY 2020-21. Core monitoring comprises 41 percent of total FY 2020-21 expenditures across funding agencies at $48.1 million. Targeted foundational research is 20 percent of expenditures at $23 million. Status and trend monitoring is 19 percent of expenditures at $21.8 million. Targeted immediate research reaches 16 percent of total expenditures at $19.1 million, while synthesis makes up 4 percent of total expenditures equaling $4.4 million.

Figure 2 | Total FY 2020-21 Science Expenditures by Project Category (in percent of total funds and millions of dollars)



The most significant change in total expenditures by project category across the years occurred in funding put towards targeted foundational research: $23 million in this report (FY 2020-21), $40 million in FY 2019-20, and $16 million in FY 2018-19. Another sizeable change: synthesis funding

145

was $4 million in FY 2020-21 and FY 2019-20 (3% and 4% of total funding, respectively), after having been $10 million FY 2018-19 (11% of total funding). Core monitoring, status and trends monitoring, and targeted immediate research saw less sizeable shifts in total dollars and percentage of total expenditures: core monitoring received $48 million in FY 2020-21, $47 million in FY 2019-20, and $37 million in FY 2018-19 (staying between 35 to 45% of total expenditures); status and trends monitoring received $22 million in FY 2020-21, $19 in FY 2019-20, and $10 million in FY 2018-19 (ranging between 10-20% of total expenditures); and targeted immediate research received $19 million in FY 2020-21, $18 in FY 2019-20, and $15 million in FY 2018-19 (consistently close to 15% of total expenditures). *Please note, while these comparisons may be useful since the largest funding agencies remained the same across all three years, funding agencies reporting have varied across years, so the total expenditures by category are not directly comparable.*

Figure 3 | Comparison of Science Expenditure (in millions) in FY 2020-21, FY 2019-20, and FY 2018-19 by Project Category

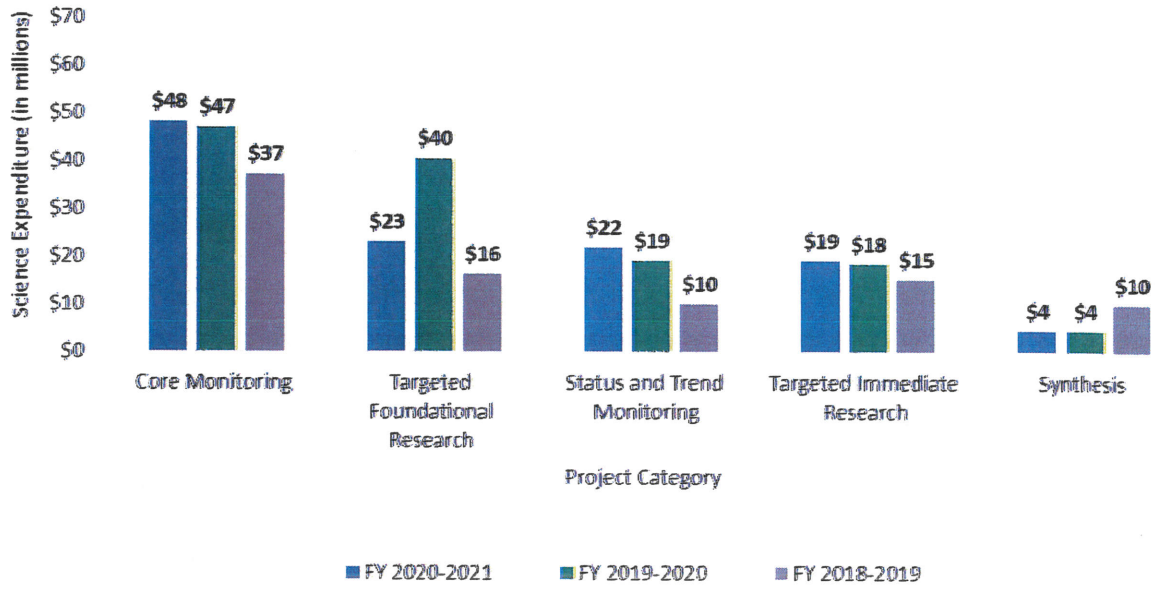


Figure 4 represents science expenditures by agency. The total dollar value of each agency's investments is provided above their name. DWR reported the highest single-agency expenditures for FY 2021-20 at $52.7 million, followed by USBR at $39.4 million, DSC at $8.1 million, USGS at $5.1 million, FWS at $3.5 million, SWC at $3.2 million, and DFW at $2.7 million. SWRCB reported $1 million in expenditures, BC/P/WS IDs $0.5 million, and SLDMWA less than $0.1 million.

Figure 4 | Total FY 2020-21 Science Expenditures (in millions) by Funding Agency

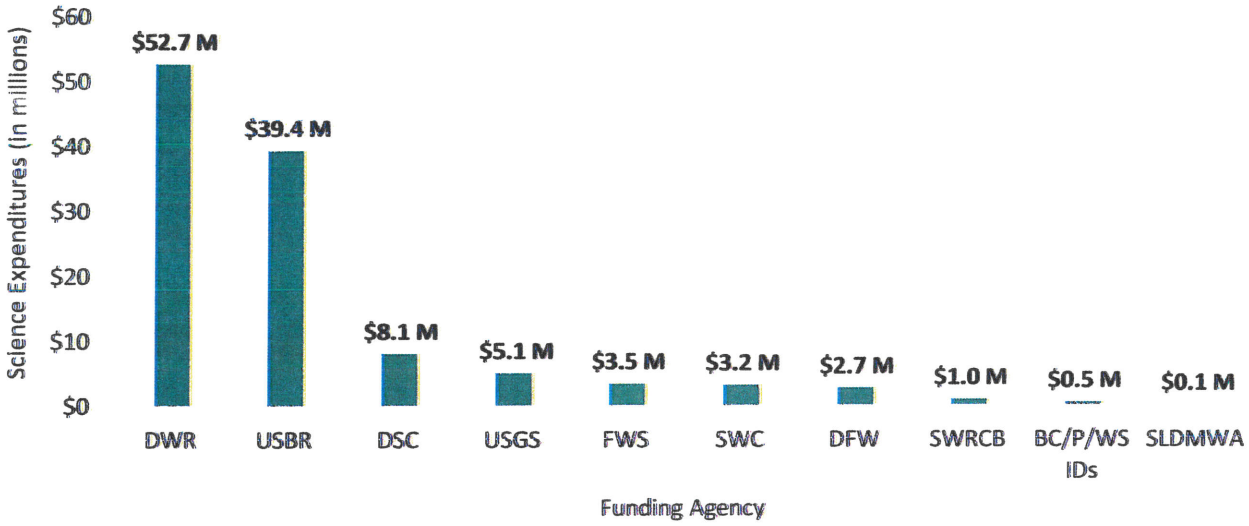


Table 2 | Science Funding Sources by Agency

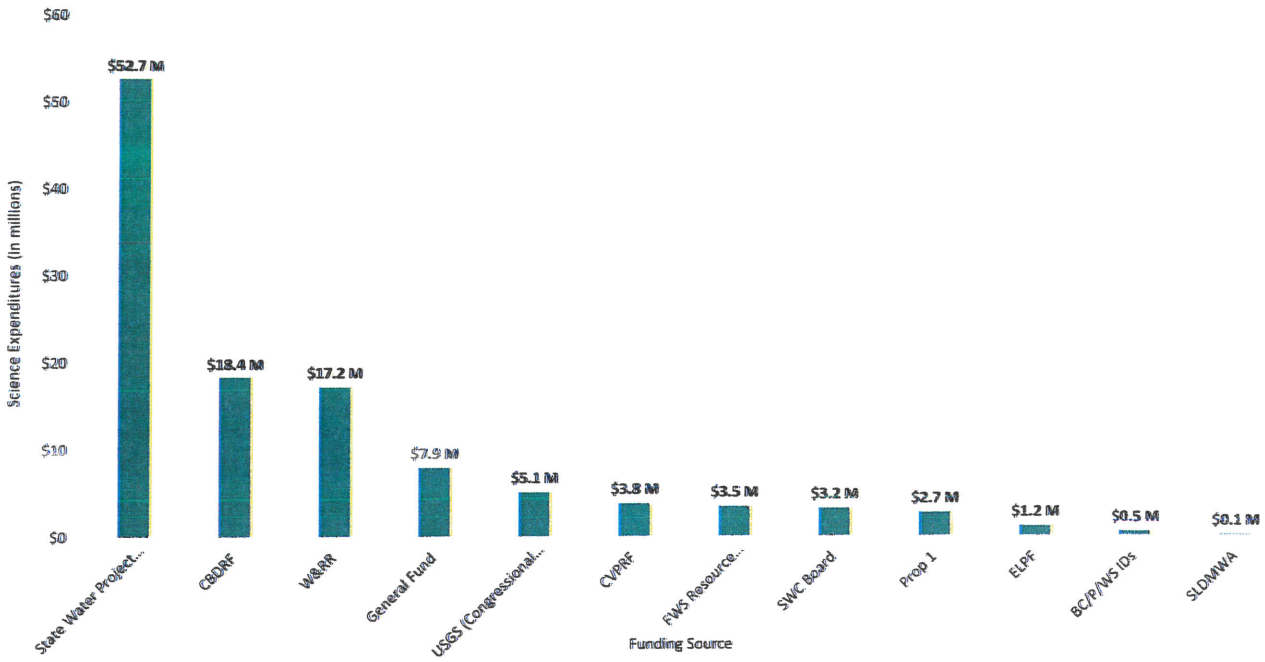
Table 2 illustrates that most agencies source their funds from a single funding source; USBR and DSC are the two exceptions, pulling funds from three and two funds respectively. Figure 5 illustrates how much funding was provided by each funding source in descending order. $52.7 million dollars in funding is sourced from the State Water Project Fund by DWR. USBR used $18.4 million from CBDRF, $17.2 million from W&RR, and $3.8 from CVPRF. DSC received and spent $7.6 million from the General Fund and $1.2 million from ELPF. USGS received and spent $5.1 million from Congressional Appropriations; FWS spent $3.5 million from their Resource Management Fund; the SWCs spent $3.2 million from their Board funds;

147

and DFW spent $2.7 million from Prop 1 funds. SWRCB received and spent $0.3 million from the General Fund. Banta Carbona, Patterson, and West Stanislaus Water Districts spent $0.5 million and SLDMA $0.1 million of their own funds.

Agency	Funding Source
DWR	State Water Project Fund
USBR	Water and Related Resources (W&RR)
USBR	California Bay Delta Restoration Fund (CBDRF)
USBR	Central Valley Project Restoration Fund (CVPRF)
DSC	General Fund
DSC	Environmental License Plate Fund (ELPF)
USGS	Congressional Appropriations
USFWS	FWS Resource Management
SWC	State Water Contractors' Board (SWC Board)
DFW	California Proposition 1 (Prop 1)
SWRCB	General Fund
BC/P/WS IDs	Banta Carbona, Patterson, and West Stanislaus Irrigation Districts (BC/P/WS IDs)
SLDMWA	San Luis and Delta-Mendota Water Authority (SLDMWA)

Figure 5 | Total FY 2020-21 Science Expenditures by Funding Source

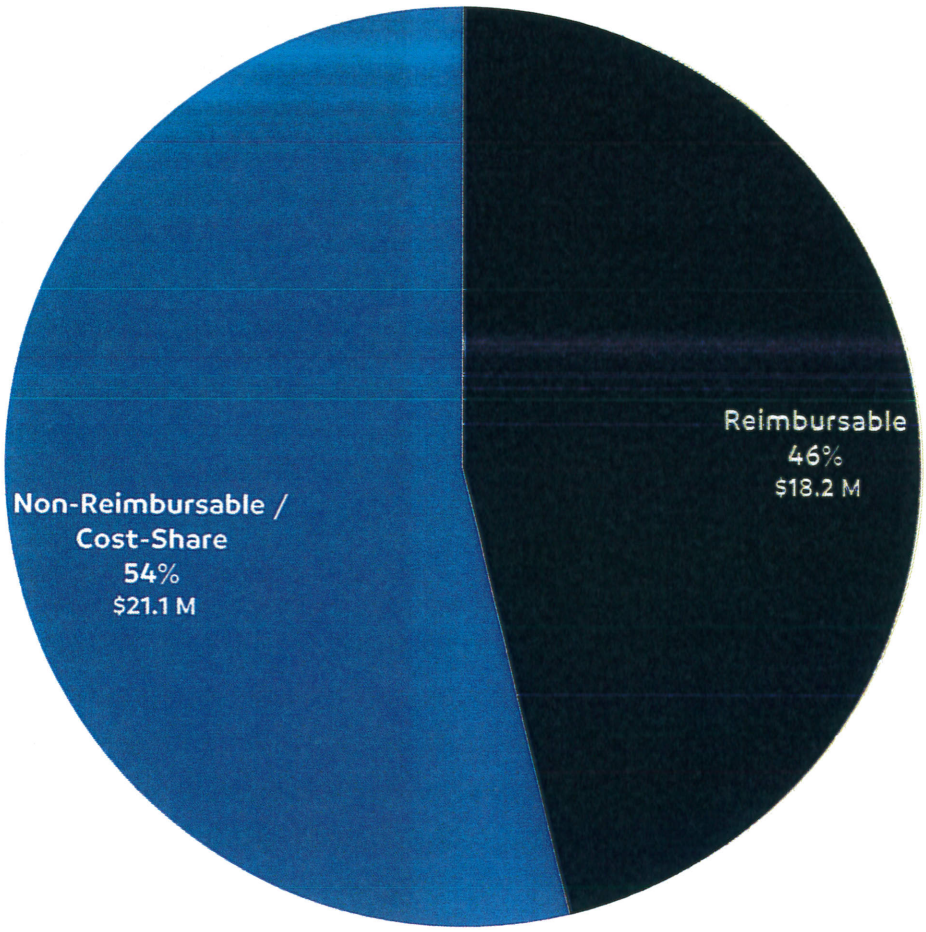


Science Funding Accomplishments - Delta Juvenile Fish Monitoring Program

DWR and USBR ensured the implementation of the Delta Juvenile Fish Monitoring Program continued to support the needs for juvenile winter, spring, fall, and late fall run Chinook salmon and steelhead distribution and catch indices necessary for real time and status and trend monitoring assistance. COVID impacted the spring and summer frequency of seine surveys, but trawling was rarely impacted.

149

Figure 6 | Total FY 2020-21 US Bureau of Reclamation "Reimbursability" of Science Expenditures (in percent of total funds and millions of dollars)



$18.2 million or 46 percent of USBR's science expenditures were reimbursable as seen in Figure 6; about 54 percent or $21.1 million were non-reimbursable/cost-share with the State. In general, reimbursable costs are recovered from the Central Valley Project water contractors and power customers through existing rate structures.

152

Delta Crosscut Budget Habitat Investment Reporting FY 2020-21

For the second year, the Crosscut Budget data collection effort included a spreadsheet tab to collect information on habitat restoration project investments. "Habitat projects" refer to a range of projects, including federal BiOp and state ITP restoration as well as other habitat investments associated with flood and multi-benefit projects. In FY 2019-20, DPIIC members voiced interest in capturing the broader costs of habitat projects given that the implementation of these projects is tied to ongoing learning and adaptive management – and therefore important to planning for long-term science funding and overall policy direction. There is interest in using this data to explore questions such as whether there is enough investment in science to understand the benefits of habitat investment, and conversely, whether habitat creation is occurring at a scale needed to inform scientific understanding of ecological processes. The habitat expenditures reported included acquisition costs, permitting costs, construction costs, and ongoing post-construction costs, while any synthesis, monitoring, and research that accompanied habitat projects (e.g., pre/post restoration monitoring or research to inform the design of a restoration project) continued to be reported as part of the science investments described in the section above. Reporting of habitat restoration data was again optional this year. Submissions were received by three agencies, USBR, DWR, and CDFW, down from five agencies in FY 2019-20. Last year's reporting also included investments by Westlands and the Delta Conservancy; the lack of a submission by these two agencies does not signify they did not have restoration funding, but rather, they did not choose to or have capacity or time to submit this year. The data and feedback received this year will guide future development of habitat restoration reporting.

Science Funding Accomplishments - Delta Smelt Supplementation Studies

DWR and USBR continue to fund supplementation studies and actions of the wild Delta smelt population with propagated fish within three to five years from issuance of the Service's October 2019 Biological Opinion. DWR, CDFW, USFWS, USBR, UC Davis, and USGS successfully implemented an experimental release of approximately 40,000 Delta smelt.

157

Figure 7 | Total FY 2020-21 Habitat Expenditures by State Agencies and Federal Agencies

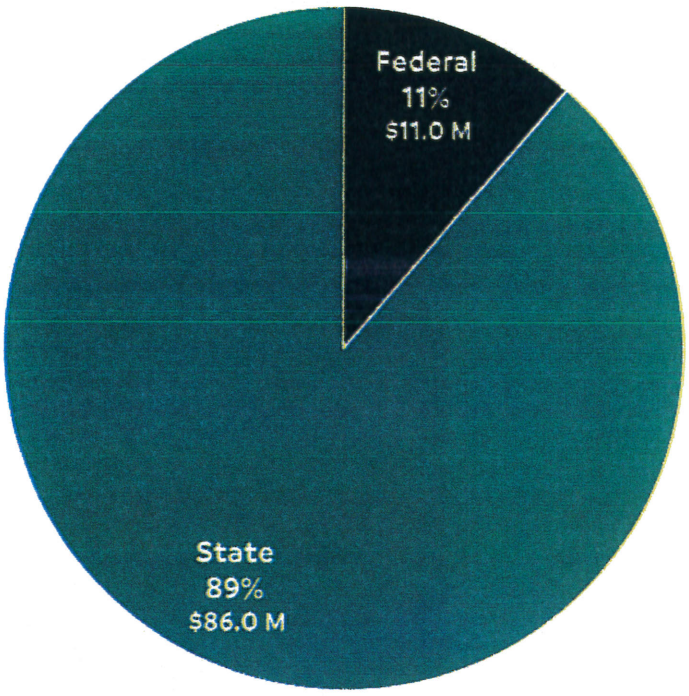


Figure 7 illustrates that $86 million or 89 percent of reported expenditures on habitat restoration were by State Agencies (DWR and DFW), and $11 million or 11 percent of habitat expenditures were by Federal Agencies (USBR).

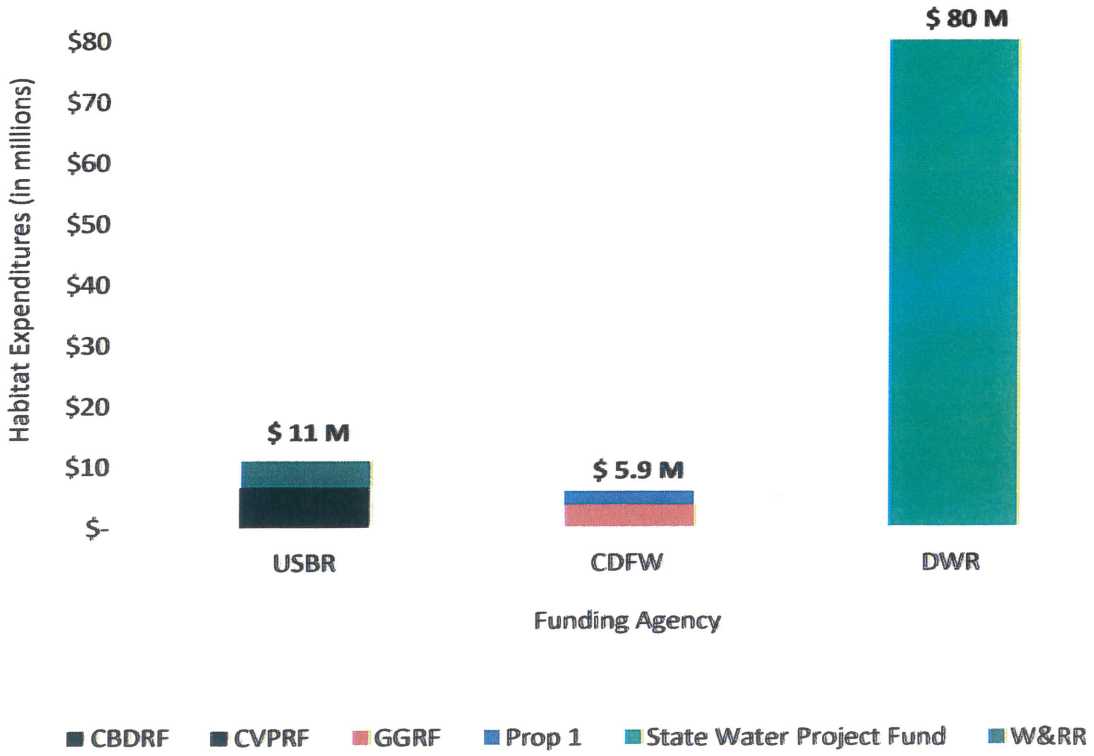
Table 3 Funding Sources by Agency for Habitat Expenditures

Table 3 lists the funding sources utilized by each agency for habitat expenditures. DWR is using funds from a single funding source, while USBR and CDFW are utilizing multiple funding sources. Figure 8 shows habitat expenditures for USBR, CDFW, and DWR broken down across funding source. USBR reported $11 million in habitat funding, with $4.3 million from W&RR, $6.4 million from CVPRF, and $0.3 million from CBDRF. CDFW's $5.9 million in habitat funding relied on $3.7 million from GGRF and $2.2 million from Proposition 1. DWR's $80 million in habitat funding was fully sourced from the State Water Project Fund. Altogether, reported habitat expenditures totaled $97 million.

152

Agency	Funding Source
USBR	Water and Related Resources (W&RR)
USBR	Central Valley Project Restoration Fund (CVPRF)
USBR	California Bay Delta Restoration Fund (CBDRF)
CDFW	Greenhouse Gas Reduction Fund (GGRF)
CDFW	California Proposition 1 (Prop 1)
DWR	State Water Project Fund

Figure 8 | Total FY 2020-21 Habitat Expenditures (in millions) by Funding Agency and Funding Source



153

Figure 9 | US Bureau of Reclamation FY 2020-21 Habitat Expenditures by Funding Source (in percent of total funds and millions of dollars)

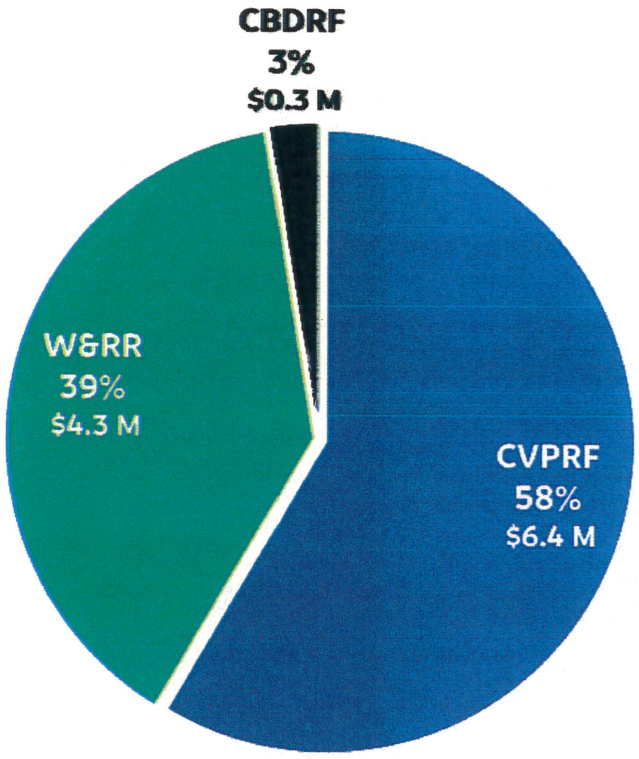


Figure 9 illustrates that over half of all USBR's FY 2020-21 habitat expenditures were sourced from the CVPRF (58 percent or $6.4 million). W&RR supported 39 percent of habitat expenditures ($4.3 million), while CBDF accounted for 3 percent of expenditures ($6.4 million).

Science Funding Accomplishments - Delta Science Program

During FY 2020-21, the Delta Science Program funded several projects including a project focused on remote sensing of the Sacramento-San Joaquin Delta to enhance mapping for invasive and native aquatic plant species and another project to research thiamine deficiency in Central Valley Chinook Salmon.

Figure 10 | US Bureau of Reclamation FY 2020-2021 "Reimbursability" of Habitat Expenditures (in millions of dollars and percent of total funds)

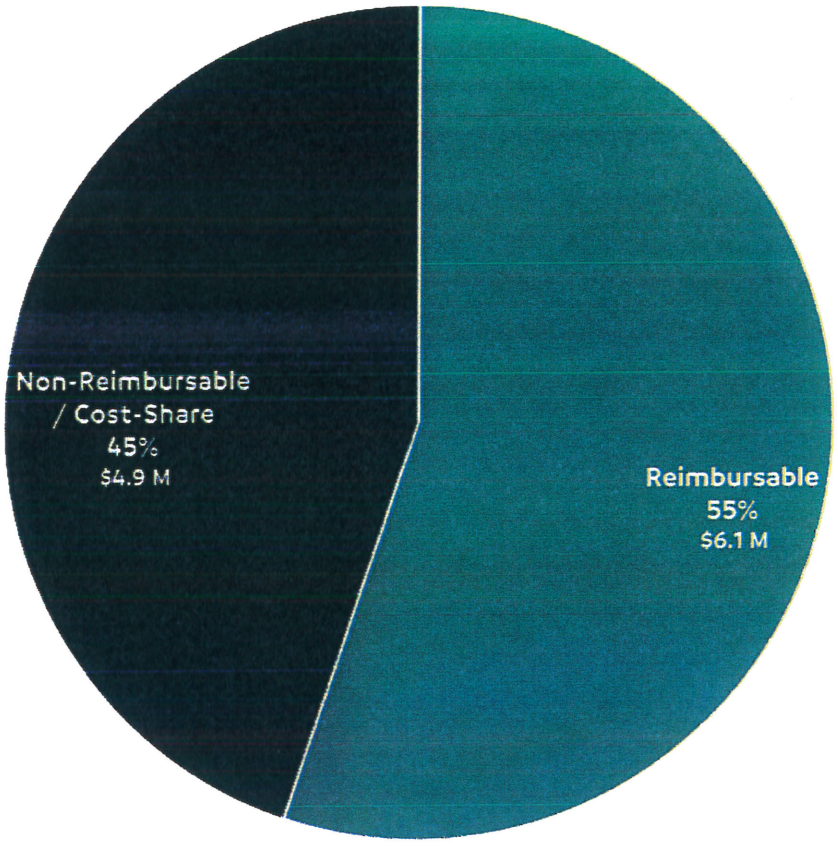


Figure 10 illustrates the "reimbursability" of USBR's habitat expenditures. $6.1 million or 55 percent of total FY 2020-21 habitat expenditures were reimbursable. The remaining 45 percent or $4.9 million were non-reimbursable or cost-shares with the State. In general, reimbursable costs are recovered from Central Valley Project water contractors and power customers through existing rate structures.

Accounting and Reporting Protocols

The following is a summary of the common accounting and reporting protocols used by participants in the Crosscut Budget. These provide participants with a universal and consistent method for accounting and reporting science expenditures for the Delta. All reporting agencies agreed to use the State's fiscal year to provide a common reporting period.

DPIIC representatives from the Council, DWR, DFW, NMFS, USBR, USFWS, USGS, and state and federal water contractors collaborated on the development of these protocols.

The following common accounting and reporting protocols were developed:

1. Standard Reporting Template
2. Standard Definitions
3. List of Reporting Participants
4. Definition of Science Categories for Reporting

Science Funding Accomplishments - Clifton Court Forebay Predatory Fish Relocation Study (DWR, Division of Integrated Science and Engineering)

Predatory Fish Relocation Study was implemented to comply with NMFS BiOP RPA Action IV 4.2(2)(a) which requires DWR to develop predation control methods for the Forebay to reduce salmon and steelhead prescreen losses. Under this study, DWR conducted a two-year trial of various fishing methods to capture and move predatory fish from the Forebay to Bethany Reservoir. DWR partnered with the CDFW to collect data on the predatory fish removed from the Forebay.

This study commenced in March of 2019. Several fishing methods were tested in the first year of the study, and the successful methods were used in the second year. The second year of field work ended in March 2020, earlier than the planned end date of June 2020, due to the COVID-19 pandemic. A final report was prepared and completed by June 2021 and transmitted to NMFS early July 2021.

Standard Reporting Template

The standard reporting template includes fields for funding agencies to provide information regarding the following:

- **Project Category:** Primary, secondary categories, and sub-purposes are identified, where appropriate, for those actions that meet multiple needs.
- **Geographic Scope:** Actions are limited to those directly/mainly in the Sacramento-San Joaquin Delta, Yolo, and Suisun Marsh.
- **Appropriating Agency:** Actions are only reported by the agency that appropriated the funding to implement the work.
- **Timing of Expenditure:** Expenditures and obligations reported are based on the State fiscal year (July 1 to June 30).
- **Audit Codes & Regulations:** Expenditures and obligations reported are consistent, to the extent practicable, with the Code of Federal Regulations (CFR) 200 (Uniform Administrative Requirements, Cost Principles, and Audit requirements for Federal Awards).

List of Reporting Participants

The total number of agencies participating in reporting increased by one since FY 2019-20 and by four since the first report in FY 2018-19. Some DPIIC agencies did not report because they either did not fund any science during FY 2020-21 or were unable to provide information for this reporting period. The participating agencies for FY 2020-21 were Banta Carbona Irrigation District, California Department of Fish and Wildlife, California Department of Water Resources, California State Water Resources Control Board, Delta Stewardship Council, Patterson Irrigation District, San Luis & Delta-Mendota Water Authority, State Water Contractors, United States Bureau of Reclamation, United States Fish and Wildlife Service, the United States Geological Survey, and West Stanislaus Irrigation District.

Definitions of Categories for Reporting

The white paper, Funding Science to Meet Tomorrow's Challenges, provided standardized definitions for categories of science activities which were then adopted into the Delta Science Funding Initiative Implementation Report's template for implementing an annual crosscut budget that was endorsed at DPIIC's November 2019 meeting.

Since expenditures for habitat restoration were not included as part of the science categories or collected as part of the first year of reporting, a DPIIC Subgroup met in summer 2019 to develop additional categories for the habitat investments to be

Science Funding Accomplishments - Lower Yolo Ranch (DWR, Division of Integrated Science and Engineering)

Lower Yolo Ranch is located within the Cache Slough Complex, at the southern end of the Yolo Bypass floodway. The newly created tidal marsh habitat will be connected to adjacent tidal marshes and open water to create greater food web productivity for the benefit of listed fish species as well as other native fish and wildlife. Construction was completed in 2020.

collected as part of the FY 2019-20 and FY 2020-21 budget (i.e., acquisition costs, permitting costs, construction costs, and ongoing post-construction costs). Those categories will continue to be refined in coming years.

Data Collection and Quality

Process for Data Collection

Council staff worked with DPIIC representatives to collect the data. Participating agencies were asked to complete the standard reporting template. The appropriating agency - not the implementing agency - reported expenditures.

Process for Quality Accuracy and Quality Control (QAQC)

The Council and USBR reviewed the data, identifying—where possible— potential inaccuracies, data gaps, and potential double-counting of expenditures.

Science Funding Accomplishments - Delta Tidal Habitat Projects

DWR has constructed seven projects totaling approximately 3,600 acres of tidal habitat that contribute towards the planned 8,000 acres of habitat. This includes:

- Lower Yolo Ranch
- Winter Island
- Tule Red
- Wings Landing
- Arnold Slough

159

Future Improvements

In developing this third Crosscut Budget Report, the participating agencies identified possible areas of improvements for future reports, including refining the template definitions and instructions for clarity and placing more emphasis on consistent reporting across years. These ideas are shared in the separate appendices of this report. In addition, to improve this Annual Report, a questionnaire will be sent to the DPIIC membership and Crosscut Budget Report users to get feedback on potential changes and additional areas of emphasis for future years.

1160

Appendix 1: Steps to improve Accuracy of Data Submissions and Multi-year Comparisons

Clarify how things are calculated

- Provide more information to the agencies regarding how things will be calculated. For instance, how does an agency know whether to count something when it could be reported by a partner agency. What is the distinction between what one agency should report versus another?

Provide more time for agencies to complete their reporting

- Begin the data gathering process as early as November to encourage wider participation and data.

Potential Improvements for FY 2021-22 Template

Clarify instructions and definitions for existing fields, as follows:

The "Reimbursability" Field:

- Clarify what is defined as reimbursable vs. a cost share. The reimbursable costs are recovered from the Central Valley Project water contractors and power customers through existing rate structures, while cost share is only if there was an agreement between agencies in place where agencies pay their own while working on a project item together. Some agencies used this as noted above while others used both as "Reimbursability." For this reason, this field should only be used again for USBR.

The "Expenditures" Field:

- In the previous year there was an "obligations" field and an "expenditures" field. This year, only "expenditures" was collected. There was feedback from agencies that, while this may have caused some confusion at first, it was much better for fiscal year reporting.
- Indicate which decimal point to report to.

Contact Information

Delta Stewardship Council

Amanda Bohl, Special Assistant for Planning and Science

Amanda.Bohl@deltacouncil.ca.gov

(916) 275-8429

162

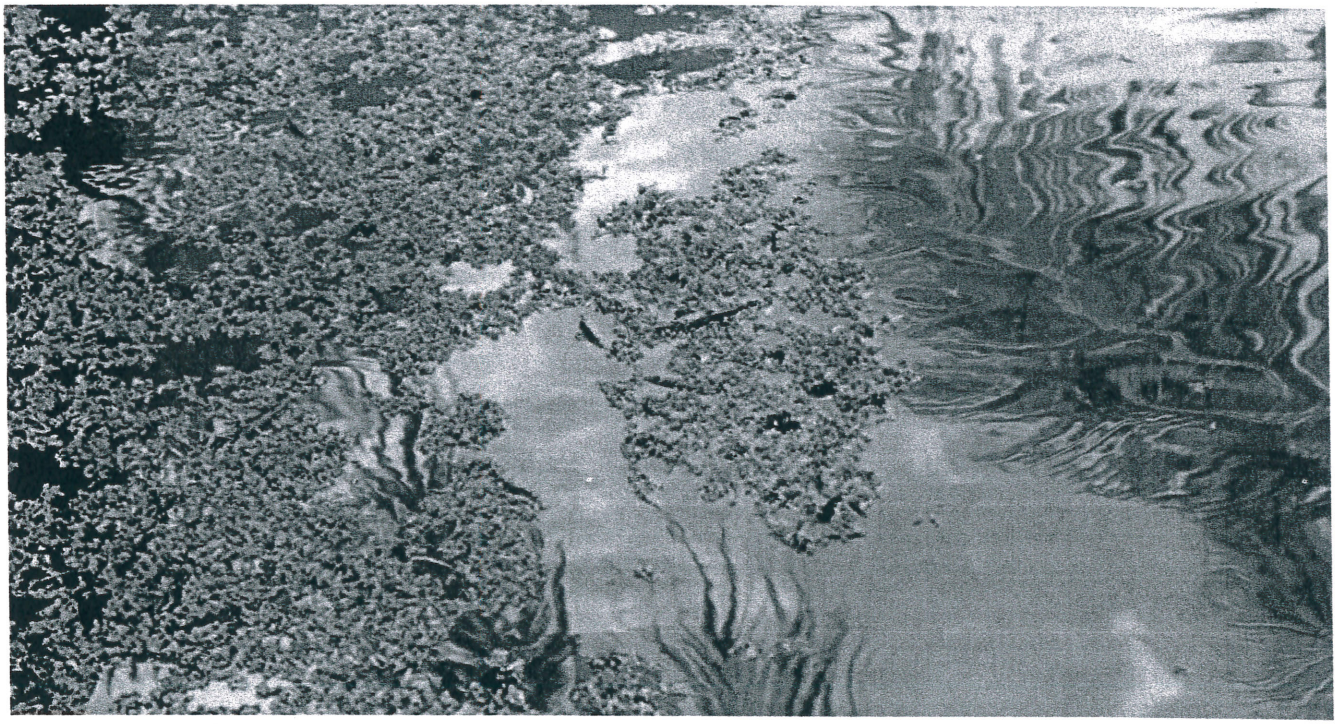
Blank

p111.

THIS JUST IN … With California expected to lose 10% of its water within 20 years, Newsom calls for urgent action

mavensnotebook.com/2022/08/11/this-just-in-with-california-expected-to-lose-10-of-its-water-within-20-years-newsom-calls-for-urgent-action

Maven Breaking News August 11, 2022 0 96



With California expected to lose 10% of its water within 20 years, Newsom calls for urgent action

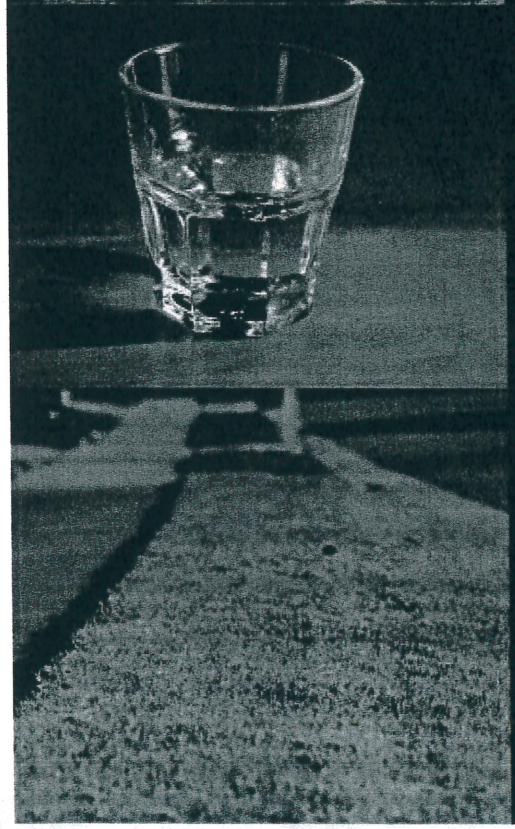
"*With California enduring a historic drought amplified by global warming, Gov. Gavin Newsom on Thursday released a new plan to adapt to the state's hotter, drier future by capturing and storing more water, recycling more wastewater and desalinating seawater and salty groundwater. The governor's new water-supply strategy, detailed in a 16-page document, lays out a series of actions aimed at preparing the state for an estimated 10% decrease in California's water supply by 2040 due to higher temperatures and decreased runoff. The plan focuses on accelerating infrastructure projects, boosting conservation and upgrading the state's water system to match the increasing pace of climate change, securing enough water for an estimated 8.4 million households. Newsom called it "an aggressive plan to rebuild the way we source, store and deliver water so our kids and grandkids can continue to call California home in this hotter, drier climate*." … " Read more from the LA Times here: With California expected to lose 10% of its water within 20 years, Newsom calls for urgent action

Newsom calls for boosting water supply projects to curb California drought, climate change

"*Gov. Gavin Newsom on Thursday said California must do more to expand its water supplies by building new reservoirs, desalination plants and recycled water facilities to address worsening droughts and water shortages from climate change. Newsom released a 19-page plan that directs state agencies to accelerate permitting and offer increased financial assistance to local water projects as the state struggles with its eighth year of drought in the past 11 years. The plan sets various targets and goals, many of them aiming to capture more water in wet years to save for dry years. Among the targets are doubling the amount of recycled water produced in the state by 2030, increasing stormwater capture 77% by 2030, and raising the height of the dam at San Luis Reservoir east of Hollister. …*" Read more from the San Jose Mercury News here: Newsom calls for boosting water supply projects to curb California drought, climate change

AUG 2022

CALIFORNIA'S WATER SUPPLY STRATEGY
Adapting to a Hotter, Drier Future



CALIFORNIA NATURAL RESOURCES AGENCY

Water Boards

CalEPA California Environmental Protection Agency

cdfa

165

Introduction

Our climate has changed. We are experiencing extreme, sustained drought conditions in California and across the American West caused by hotter, drier weather. Our warming climate means that a greater share of the rain and snowfall we receive will be absorbed by dry soils, consumed by thirsty plants, and evaporated into the air. This leaves less water to meet our needs.

This is our new climate reality, and we must adapt.

During his first months in office, Governor Newsom issued an **executive order** calling on State Agencies to create a comprehensive **Water Resilience Portfolio**. The Portfolio prioritized 10 key actions to secure California's water future. *Over the last two years we've* ***made major progress*** *that includes*: bringing our groundwater basins into balance; updating infrastructure to move water throughout the state; restoring river systems, including the nation's largest dam removal effort on the Klamath River; and improving water management through new voluntary agreements and technology improvements.

California is investing billions of dollars into these actions to secure the future of California's water supply.

Over the last three years, **state leaders have earmarked more than $8 billion to modernize water infrastructure and management.** The historic three-year, $5.2 billion investment in California water systems enacted in 2021-22 has enabled emergency drought response, improved water conservation to stretch water supplies, and scores of projects by local water suppliers to become more resilient to current and future droughts. The 2022-23 budget includes an *additional* $2.8 billion for drought relief to hard-hit communities, water conservation, environmental protection for fish and wildlife, and long-term projects to permanently strengthen drought resilience.

Over the last two years, scientists and water managers have been alarmed by the accelerating impacts of the warming climate on our water supply. **We now know that hotter and drier weather could diminish our existing water supply by up to 10% by 2040.** So we are ***taking action***.

We have invested billions in securing the future of California's water supply and this focused *Water Supply Strategy* updates state priorities based on new data and accelerating climate change.

To ensure California has the water needed for generations to come, this Strategy includes:

- **Create storage space for up to 4 million acre-feet of water,** allowing us to capitalize on big storms when they do occur and store water for dry periods
- **Recycle and reuse at least 800,000 acre-feet of water per year by 2030**, enabling better and safer use of wastewater currently discharged to the ocean
- Free up 500,000 acre-feet of water for new purposes each year by **permanently eliminating water waste** and using water more efficiently
- Make new water available for use by **capturing stormwater and desalinating ocean water and salty water in groundwater basins**, diversifying supplies and making the most of high flows during storm events

To match the pace of climate change, California must move smarter and faster to update our water systems. **The modernization of our water systems will help replenish the water California will lose due to hotter, drier weather, and generate enough water for more than 8.4 million households.**

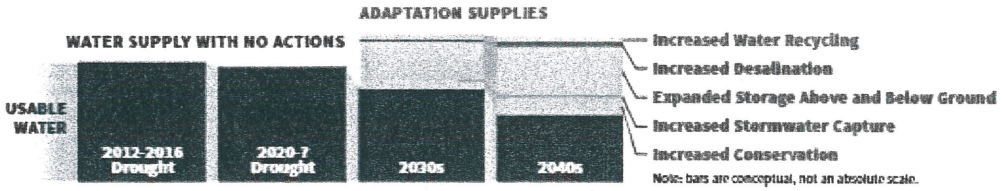
[redacted]

CALIFORNIA'S WATER SUPPLY STRATEGY
Adapting to a Hotter, Drier Future

This document outlines California's strategy and priority actions to adapt and protect water supplies in an era of rising temperatures.

Over the next 20 years, California could lose 10 percent[1] of its water supplies.

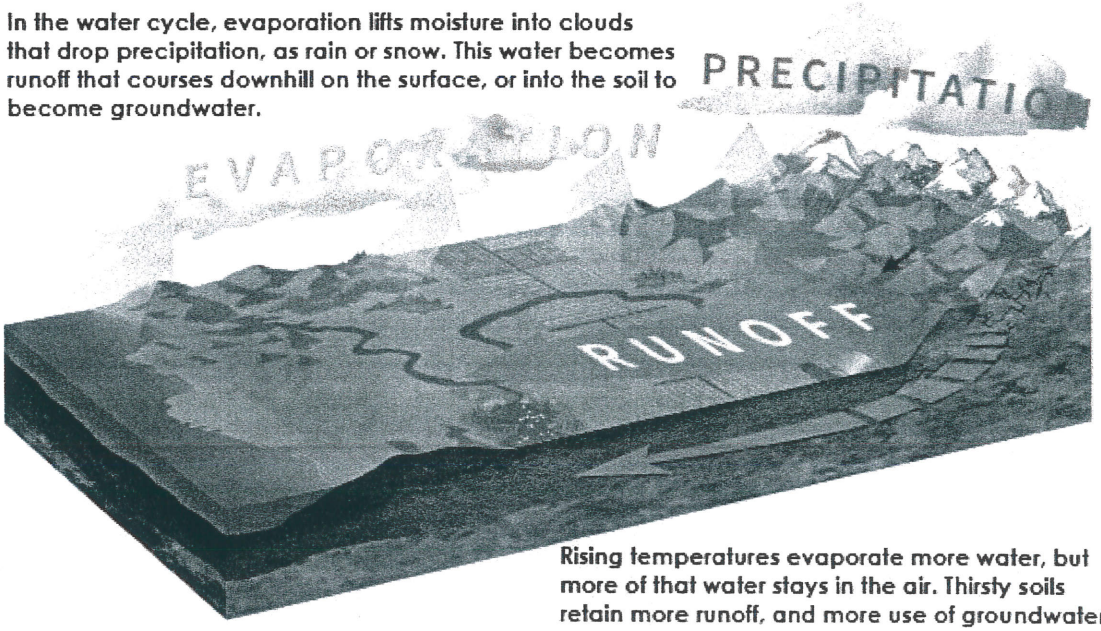
Our climate has changed, and the West continues to get hotter and drier. As it does, we will see on average less snowfall, more evaporation, and greater consumption of water by vegetation, soil, and the atmosphere itself.



In previous droughts the ratio of precipitation to evaporation to runoff has been similar. However, as temperatures rise, evaporation increases, with the consequence of a fall in runoff. As average temperatures continue to increase, the increase in evaporation will continue, with a concurrent drop in runoff.

The coming water cycle: the air claims more

In the water cycle, evaporation lifts moisture into clouds that drop precipitation, as rain or snow. This water becomes runoff that courses downhill on the surface, or into the soil to become groundwater.



Rising temperatures evaporate more water, but more of that water stays in the air. Thirsty soils retain more runoff, and more use of groundwater requires more water for recharging watertables.

[1] DWR estimates a 10% reduction in water supply by 2040 is a planning scenario that considers increased temperatures and decreased runoff due to a thirstier atmosphere, plants, and soils. According to the California Water Plan Update, California's managed water supply ranges from 60-90 MAF per year so the effect of a dryer climate results in a disappearance of about 6-9 MAF of water supply.

168