

FY 2019-2020

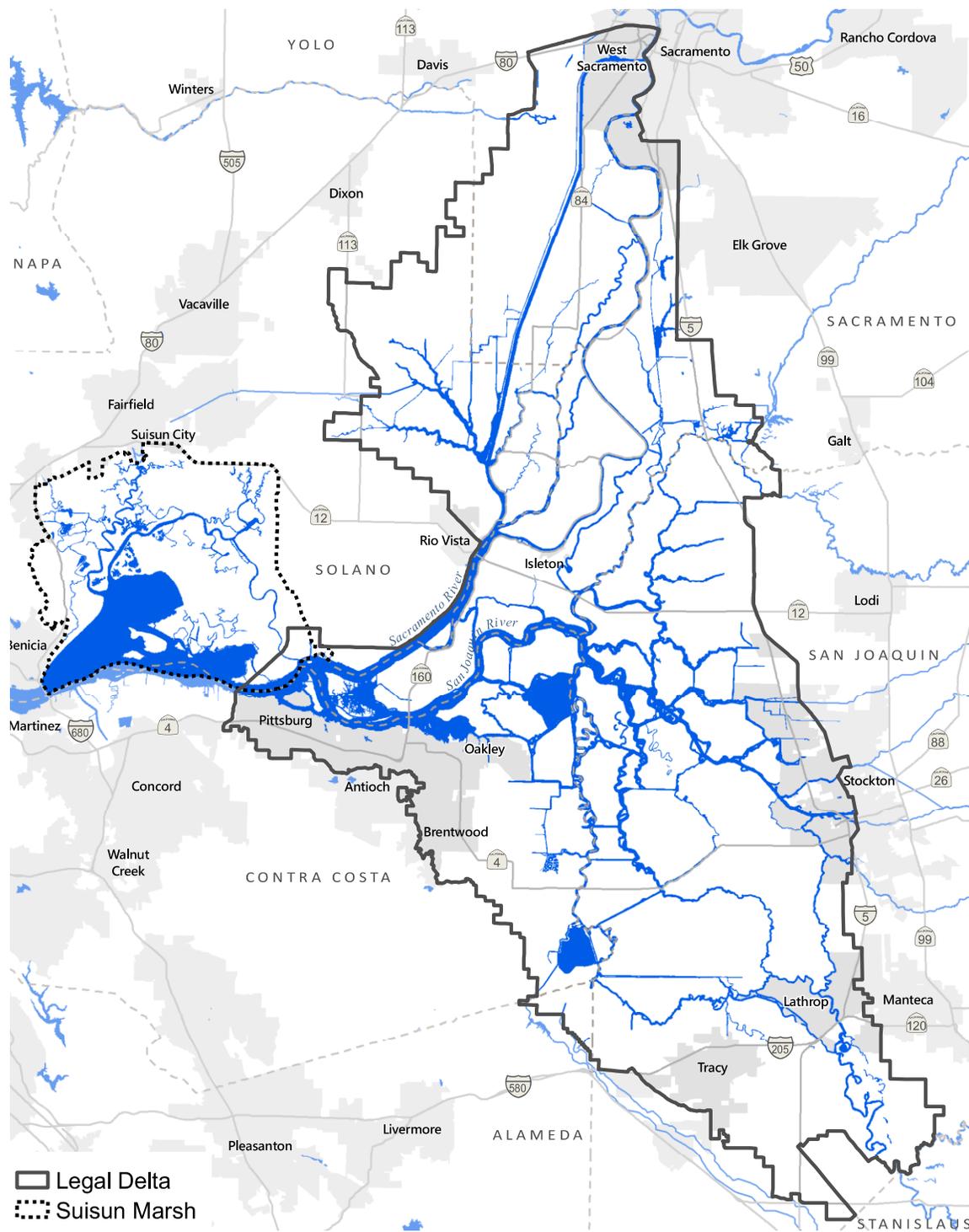
FY 2019-2020 Delta Crosscut Budget Report

Building an Effective
Delta Science Enterprise



**Delta Plan Interagency
Implementation
Committee**

DELTA STEWARDSHIP COUNCIL



The geographic boundary for the Delta Crosscut Budget is the legal Delta 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).



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Acknowledgements

Photos throughout this document are courtesy of the California Department of Water Resources.



Foreword

We're excited to present the second annual Delta Crosscut Budget Report. A project of the Delta Plan Interagency Implementation Committee (DPIIC), the annual reporting of Delta science expenditures implements a process for collecting data that encompasses all of the Delta science enterprise and includes contributions from many DPIIC agencies.

Since 2018, DPIIC has been working to examine science funding within the Delta science enterprise with the aim of achieving the following goals:

- **Improve efficiency:** Implement common accounting and reporting protocols across funding agencies and coordinate critical review of science funding in the Delta;
- **Prioritize:** Identify and prioritize key management questions for water resilience and science investments to guide the update of the multi-agency [Delta Science Action Agenda](#) for 2022-2026; and
- **Look forward:** Assess the evolving science needs in the Delta in a rapidly changing environment and publish a [science needs assessment](#).

Building on the inaugural [Delta Crosscut Science Budget for FY 2018-19](#), this report for FY 2019-20 continues the focus on improving efficiency. As we collect more years of data, the Delta Crosscut Budget Report will help decision makers prioritize future science funding and help us to look forward by identifying where there might be gaps in future 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 and to help formulate policy recommendations that are responsive to current and long-term management needs. With two years of reporting, it is premature to make funding or policy recommendations. Still, this report gets us closer to informing our effort to make science funding more effective.

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.



New this year is a pilot effort to collect restoration funding data. This data 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. Areas for improvement in the collection and presentation of the restoration data—and the science data—will be identified as we adaptively manage the collecting and reporting of this information.

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 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.



Susan Tatayon
Chair, Delta Stewardship Council



Ernest Conant
Regional Director, Bureau of Reclamation

“As we collect more years of data, the Delta Crosscut Budget Report will help decision makers prioritize future science funding and help us to look forward by identifying where there might be gaps in future funding needs.”



FY 2019-2020 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 2019 - June 2020 (FY 2019-20). The Delta Crosscut Budget Report takes the place of the Interim Federal Action Plan (IFAP). Eleven agencies reported their funding activities for this fiscal year (see box at right for agency names and associated acronyms). Six agencies reported only science investments; four reported both science and habitat investments; and one reported only habitat investments.

Funding Agencies

Council	Delta Stewardship Council
Delta Conservancy	Sacramento-San Joaquin Delta Conservancy
DFW	CA Department of Fish and Wildlife
DWR	CA Department of Water Resources
NMFS	U.S. National Marine Fisheries Service
Reclamation	U.S. Bureau of Reclamation
SWC	State Water Contractors
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Westlands	Westlands Water District

Delta Crosscut Budget Science Investment Results FY 2019-2020

Agencies reported their funding for the following categories¹ of science activities:

- **Core Monitoring:** Monitoring that provides information on a seasonal and daily basis to inform specific decisions, such as operations for water supply and fish species protective actions. Core monitoring is conducted almost entirely for regulatory compliance.
- **Status and Trends Monitoring:** Monitoring that contributes to long-term datasets used to compare environmental conditions (e.g., species populations, water quality) over time. This information improves system

Science Activities

- Core Monitoring
- Status and Trends Monitoring
- Synthesis
- Targeted Foundational Research
- Targeted Immediate Research

¹ The white paper, *Funding Science to Meet Tomorrow's Challenges*, provided these standardized definitions for categories of science activities, which were approved at the April 2019 DPIIC meeting. Expenditure for habitat restoration or staff are not included as part of the science activities captured in the reporting; habitat restoration investments were reported separately, and that data is shared on page 14 of the report.



understanding and can be applicable to a variety of management decisions rather than a specific action. Like core monitoring, status and trends monitoring are also primarily required for regulatory compliance.

- **Synthesis:** The combining of diverse information from multiple sources into one concept, model, finding, or report. Synthesis can take many forms from (1) analyzing and integrating data across multiple datasets to (2) summarizing findings across a range of sources to help support decision-making. Synthesis can be tied to regulatory compliance and non-regulatory functions.
- **Targeted Foundational Research:** Science activities 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 research is not typically linked to regulatory requirements.
- **Targeted Immediate Research:** Science activities that aim to answer current management questions by providing evidence to support or refute hypotheses. This research is not typically 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. Based on that simplification, during this period, the reporting agencies invested 55 percent of science funding in regulatorily-related activities and 45 percent in non-regulatorily required research in the Delta.

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.



Table 1 provides an overview of the total expenditures in science funding across the different categories of science activities (described on pages 6-7) in FY 2019-20. The table and Figure 1 group the five state agencies' and four federal agencies' funding into "state" and "federal" contributions, respectively; funding from the SWC, a non-profit association, is categorized as an "Other Agencies" contribution. State agencies contributed 53 percent of all Delta science funding, \$59.5 million, just over half of which funded core monitoring activities. Federal agencies contributed 46 percent of total science funding, \$59.4 million, 42 percent of which funded targeted foundational research. Other agencies contributed \$0.9 million, 78 percent of which funded targeted immediate research. Total expenditures across all funding organization types and project categories come to \$129.2 million.

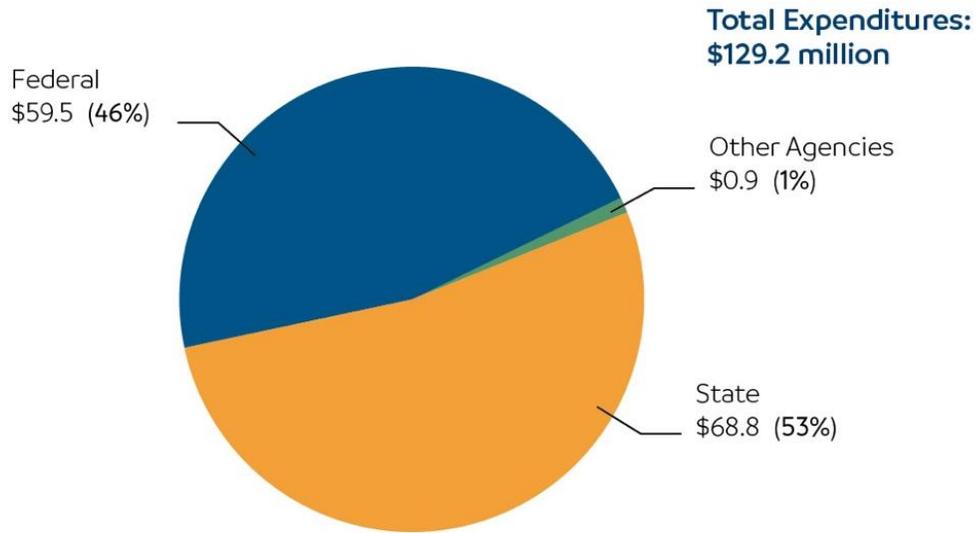
Table 1 Total Science Funding Expenditures (in millions of dollars) across Project Categories by State, Federal, and Other Agencies²

Total Expenditures (Millions \$)	State Agencies	Federal Agencies	Other Agencies	Total
Core Monitoring	\$37.4	\$9.6	-	\$47.0
Status and Trend Monitoring	\$4.8	\$14.1	-	\$18.9
Synthesis	\$4.4	-	-	\$4.4
Targeted Foundational Research	\$15.3	\$25.1	\$0.2	\$40.6
Targeted Immediate Research	\$6.9	\$10.7	\$0.7	\$18.3
TOTAL	\$68.8	\$59.5	\$0.9	\$129.2

² Table 1 does not include costs associated with habitat projects. See pages 15-19 for reporting on habitat restoration investments. Additionally, all amounts are rounded to the nearest hundred thousand.



Figure 1 Total FY 2019-20 Science Expenditures by State, Federal, and Other Agencies (in millions of dollars and percent of total funds)



Figures 2 and 3 illustrate that Core Monitoring comprises 37 percent of total FY 2019-20 expenditures across funding agencies. Targeted Foundational Research is 31 percent of expenditures. Status and Trend Monitoring and Targeted Immediate Research are 15 and 14 percent of total expenditures, respectively. Synthesis makes up three percent of total expenditures. The most significant change between how FY 2018-19 and 2019-20 expenditures were allocated across science project categories was the growth in investment in targeted foundational research, which grew from 18 to 31 percent of the total.

Figure 2 Total FY 2019-20 Science Expenditures by Project Category (in millions of dollars and percent of total funds)

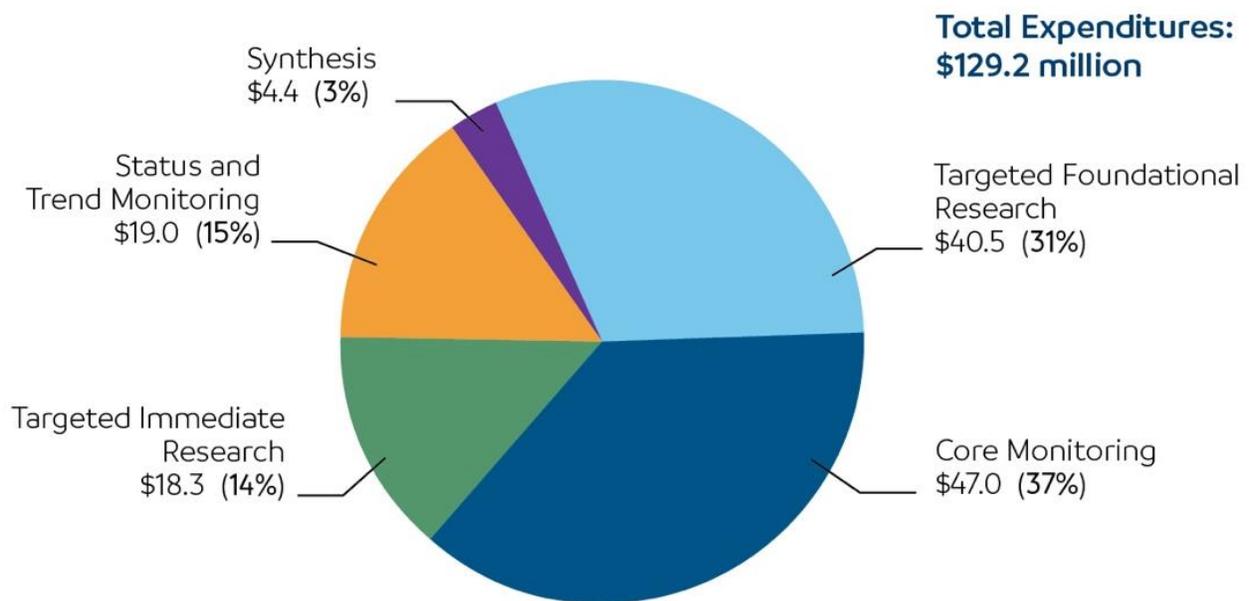


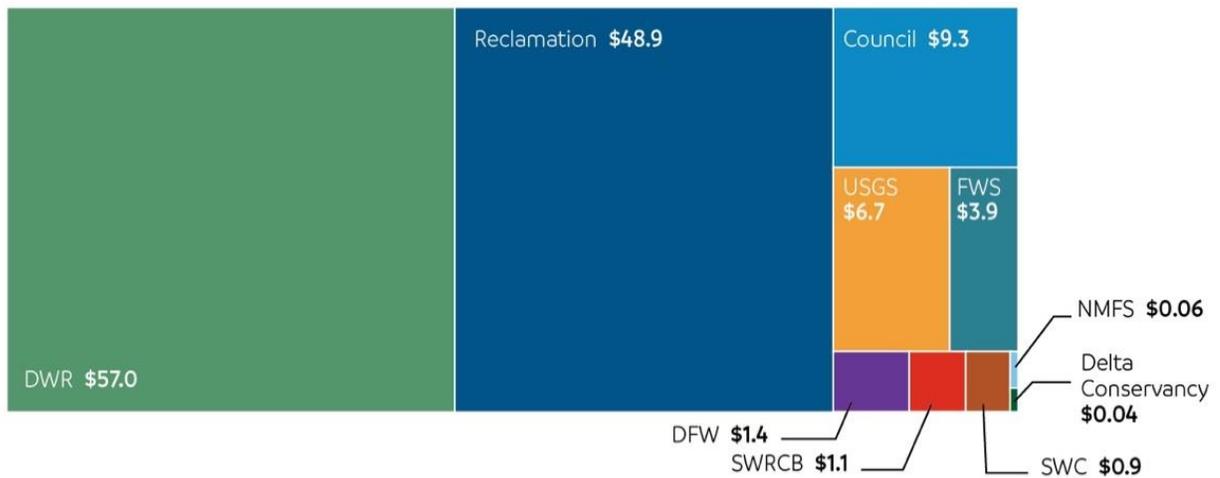
Figure 3 is provided as a very rough comparison of FY 2018-19 and 2019-20 data. FY 2018-19 and 2019-20 data are not directly comparable for several reasons, including: two additional agencies (USGS and Delta Conservancy) reported investments for FY 2019-20; some agencies identified new projects for FY 2019-20 that were active but not reported the previous year, and the Crosscut Budget team decided not to retroactively correct last year's numbers; and at least one agency reported labor dollars for FY 2019-20 after excluding those funds in FY 2018-19 reporting

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



Figure 4 represents proportional science expenditures by agency. The total dollar value of each agency's investments is provided next to their agency name. DWR and Reclamation have the highest single-agency expenditures for FY 2019-20. The Council, USGS, and USFWS have the next highest expenditures. DFW, SWRCB, SWC, NMFS, and the Delta Conservancy all have expenditures of less than \$1.5 million dollars.

Figure 4 Total FY 2019-20 Science Expenditures (in millions) by Funding Agency³



³ FY 2019-20 Expenditures totaled \$129.2 million. Because of rounding, the individual agency expenditures in this chart total \$129.3 million.



Table 2 provides an overview of the funding sources utilized for science expenditures during FY 2019-20 and which agencies accessed each source. Each funding agency is contributing funds from a single funding source with the exception of the Council, which has two funding sources, and Reclamation, which divides its expenditures amongst three funding sources.

Table 2 Funding Sources by Agency

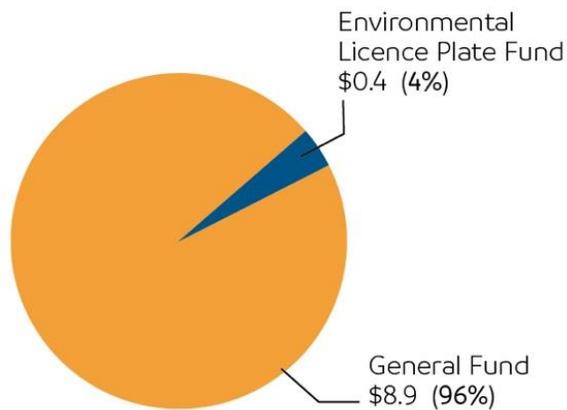
Agency	Funding Source
CA Department of Fish and Wildlife	Proposition 1
CA Department of Water Resources	State Water Project Fund
Delta Conservancy	Proposition 1
Delta Stewardship Council	General Fund
	Environmental License Plate Fund
National Marine Fisheries Service	NMFS West Coast Region
State Water Contractors	State Water Contractors Science Budget
State Water Resources Control Board	General Fund
U.S. Bureau of Reclamation	Water & Related Resources
	CalFED Bay Delta Fund
	Central Valley Project Restoration Fund
U.S. Fish and Wildlife Service	FWS Resource Management
U.S. Geological Survey	Congressional Appropriations



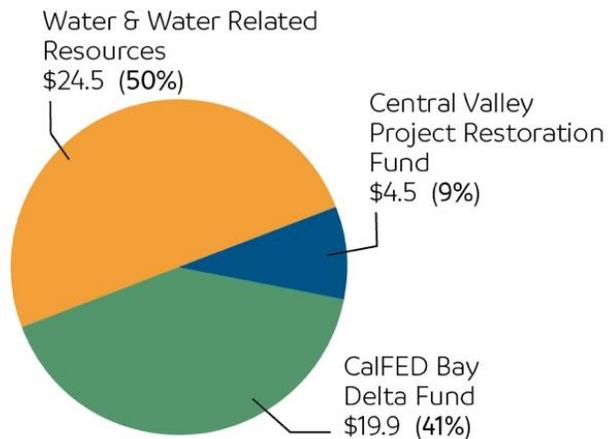
Figure 5a illustrates that 96 percent of the Council’s funding is sourced from the General Fund, with the remaining contributions sourced from the Environmental License Plate Fund. Figure 5b shows that half of all Reclamation’s FY 2019-20 expenditures were from the Water and Related Resources fund; the CalFED Bay Delta Fund supported 41 percent of Reclamation expenditures and the Central Valley Project Restoration Fund was used for the remaining nine percent of Reclamation funding.

Figure 5 FY 2019-20 Science Expenditures by Funding Source

5A Delta Stewardship Council FY 2019-20 Science Expenditure by Funding Source (in millions of dollars and percent of total funds)



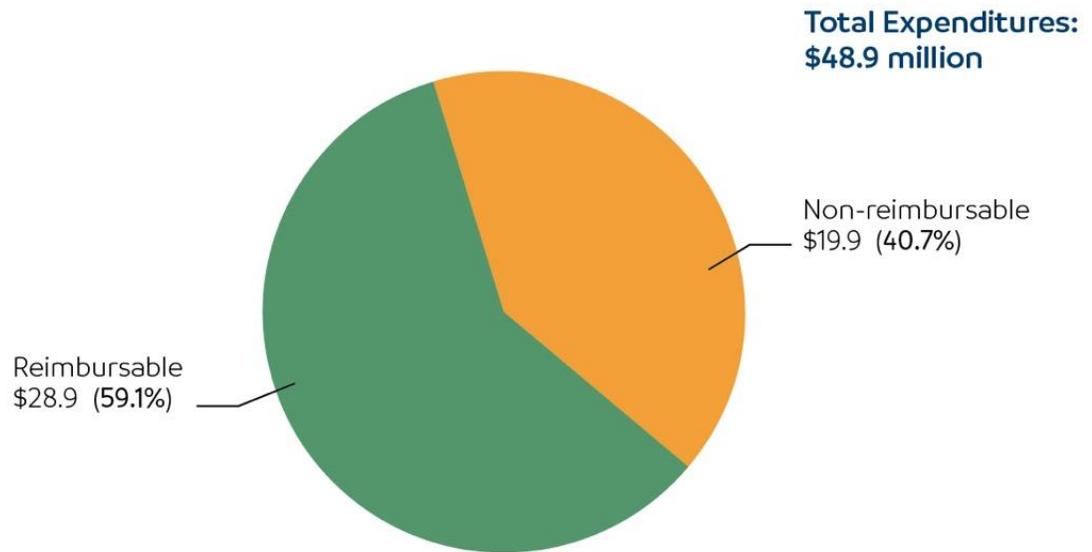
5B U.S. Bureau of Reclamation FY 2019-20 Science Expenditure by Funding Source (in millions of dollars and percent of total funds)



\$28.9 million or 59 percent of Reclamation’s science expenditures were reimbursable as seen in Figure 6; about 41 percent were non-reimbursable. In general, reimbursable costs are recovered from the Water Contractors and Power Customers through existing rate structures.



Figure 6 US Bureau of Reclamation FY 2019-20 Reimbursability of Science Expenditures (in millions of dollars and percent of total funds)



Delta Crosscut Budget Habitat Restoration Investment Results FY 2019-2020

New this 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. DPIIC members have 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 was optional for year one of habitat restoration data collection. Submissions were received from five of the agencies: DWR, Reclamation, Westlands, the Delta Conservancy, and DFW. The data and feedback received this year will guide future development of habitat restoration reporting.

Figure 7 illustrates the FY 2019-20 total expenditures on habitat funding. The figure groups the three state agencies’ (DWR, DFW, and the Delta Conservancy) and single federal agency’s (USBR) funding into “state” and “federal” contributions, respectively; expenditures by Westlands, a federal water contractor, are categorized as an “Other Water Agencies” contribution. State agencies contributed 67 percent of all Delta habitat project investments reported.



Figure 7 Total FY 2019-20 Habitat Expenditures by State, Federal, and Other Agencies (in millions of dollars and percent of total funds)

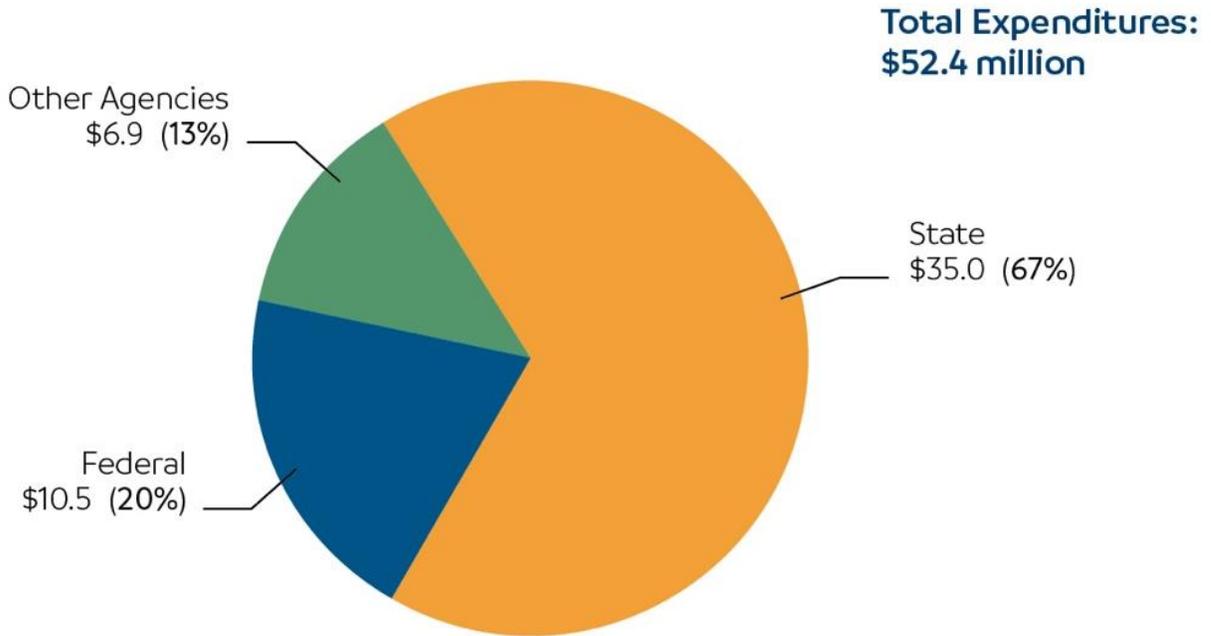


Figure 8 identifies habitat expenditures in FY 2019-20 by agency. DWR was responsible for 56 percent of all habitat expenditures, a total of \$29.3 million.

Figure 8 Total FY 2019-20 Habitat Expenditures (in millions) by Funding Agency and Funding Source

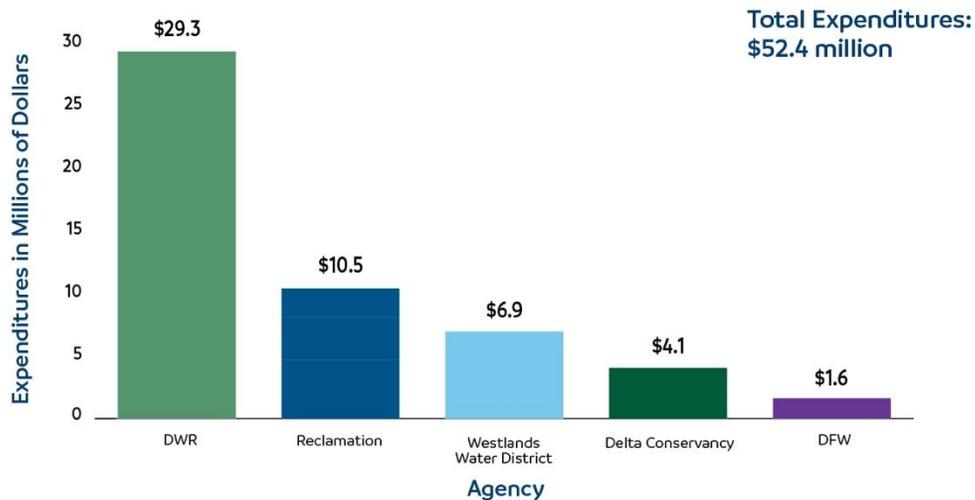


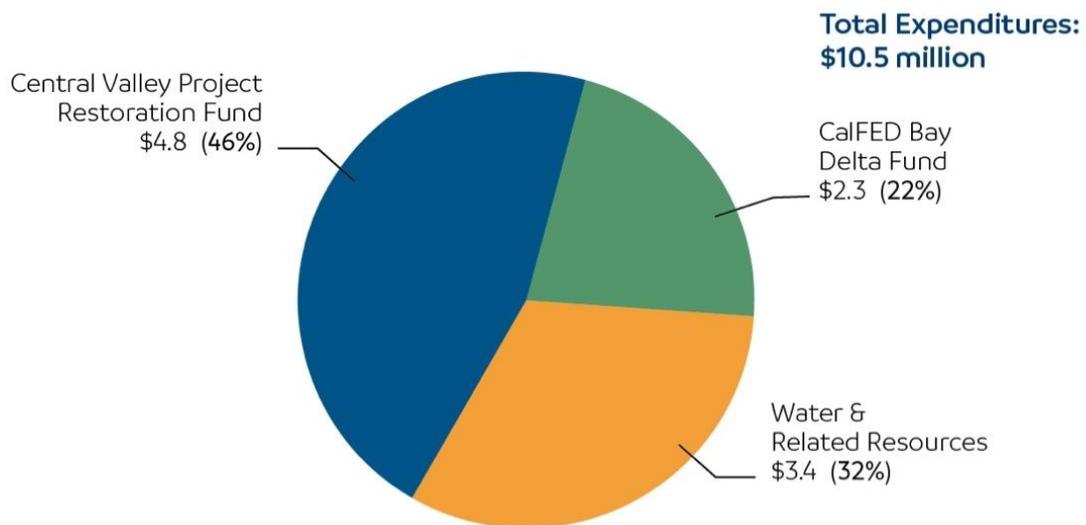
Table 3 lists the funding sources utilized by each agency for habitat expenditures. Each funding agency is using funds from a single funding source with the exception of Reclamation, which divides its expenditures amongst three funding sources.

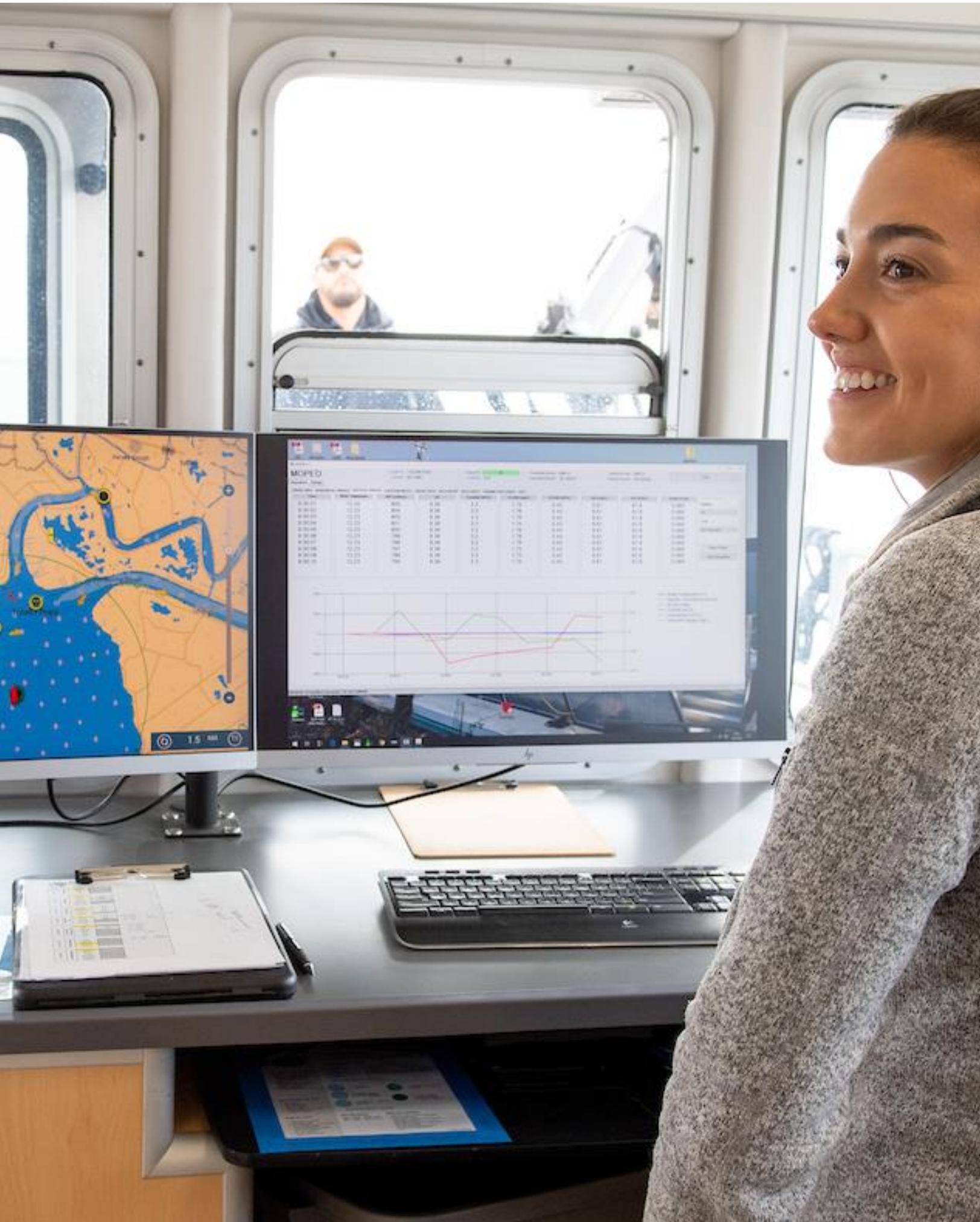
Table 3 Funding Sources by Agency

Agency	Funding Source
CA Department of Water Resources	State Water Project Fund
CA Department of Fish and Wildlife	Proposition 1
Delta Conservancy	Proposition 1
Westlands Water District	Westlands Water District
U.S. Bureau of Reclamation	Water & Related Resources CalFED Bay Delta Fund Central Valley Project Restoration Fund

Figure 9 illustrates that nearly half of all Reclamation’s FY 2019-20 habitat expenditures were sourced from the Central Valley Project Restoration Fund; Water and Related Resources and CalFED Bay Delta Funds supported the remaining 32 percent and 22 percent of expenditures respectively.

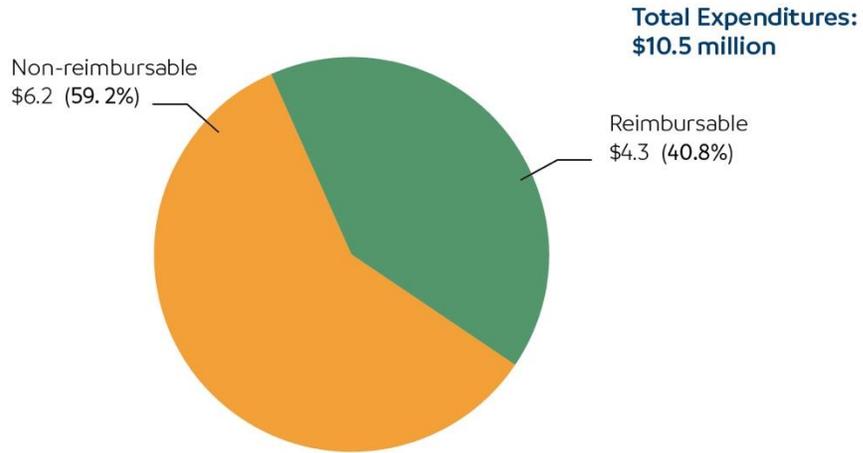
Figure 9 US Bureau of Reclamation FY 2019-20 Habitat Expenditures by Funding Source (in millions of dollars and percent of total funds)





\$4.3 million or 41 percent of total FY 2019-20 expenditures were reimbursable. The remaining 59 percent were non-reimbursable. In general, reimbursable costs are recovered from the Water Contractors and Power Customers through existing rate structures.

Figure 10 US Bureau of Reclamation FY 2019-20 Reimbursability of Habitat Expenditures (in millions of dollars and percent of total funds)



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, Reclamation, 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

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/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 number of agencies participating in reporting increased by three for FY 2019-2020. Some DPIIC agencies did not report because they either did not fund any science during FY 2019-20 or were unable to provide information for this reporting period. The participating agencies for FY 2019-20 were the Council, Delta Conservancy, DFW, DWR, NMFS, Reclamation, SWC, SWRCB, USGS, USFWS, and Westlands.

Definitions of Project Categories for Reporting

The white paper, *Funding Science to Meet Tomorrow's Challenges*, provided standardized definitions for categories of science activities (listed on pages 6-7), 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 2020 to develop additional categories for the habitat investments to be collected as part of the FY 2019-20 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 Reclamation reviewed the data, identifying—where possible—potential inaccuracies, data gaps, and potential double-counting of expenditures.



Future Improvements

In developing this second Annual 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. Their ideas are shared in the separate appendices of this report. In addition, in order to improve this Annual Report, a questionnaire will be sent to the DPIIC membership to get feedback on potential changes and additional areas of emphasis.





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