



## STAFF MEMORANDUM

TO: Board Members and Alternates

FROM: Scott Petersen, Water Policy Director

DATE: November 5, 2020

RE: Update on Science Program

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### SUMMARY

The San Luis & Delta-Mendota Water Authority's ("Water Authority") current science commitments for Fiscal Year 21 (March 1, 2020 – February 28, 2021) may be considered in three categories. First, the Water Authority re-budgeted \$362,063 in the current budget to fund seven studies previously authorized to be funded. Second, the Water Authority began the year with approximately \$62,026 in funds remaining from the State and Federal Contractors Water Agency ("SFCWA") to fund three studies initially authorized by SFCWA and transferred to the Water Authority for funding and management. Third, the Water Authority has budgeted \$500,000 in the current budget for science studies. More detail regarding the various science commitments is provided below. In total, the Water Authority started the current fiscal year with approximately \$924,089 available to fund science, of which \$623,089 has been obligated.

### 1. Previous Commitments - \$362,063 in FY 21 Budget

Subject	Description of Work / Objective(s)	FY 21 Budget
Rice Fields Fish Food Study – Delta Fallowing Pilot Program	Study of flooded rice ground relative to food production for native fish. Goal to better understand aquatic food web productivity on managed floodplains	\$31,290
Development of eDNA monitoring tool for detection of Delta Smelt	Goal to develop an accepted eDNA monitoring tool for species detection in tidally mixed aquatic ecosystems in the Delta, and to advance eDNA aquatic monitoring towards a state-of-science that can be applied in the context of scientific, policy, and regulatory decision-making	\$63,000
Sacramento-San Joaquin Delta Fallowing Pilot Evapotranspiration Monitoring Program	Study between April 1, 2018 and September 30, 2018 of consumptive use on between 2,000 and 4,000 acres in the legal Delta during the 2018 irrigation season. Goal to identify a method of reliable measurement of the reduction in	\$10,000

	consumptive use associated with temporary crop idling on lands within the legal Delta.	
Establishing Environmental Baselines for the Shallow Shoals of Tule Red Bathymetry, Water Quality, and Macroinvertebrate Densities	Study of Tule Red tidal restoration project that is expected to provide food resources and rearing habitat to contribute to the recovery of native fish and wildlife. Goal to gather baseline data needed to better understand the effects of the tidal marsh restoration process on the Project intertidal mudflat and subtidal (together shallow shoals) areas.	\$45,274
Interior Delta Export Effects Study	Study of specific data gaps related to export operation effects on juveniles salmonids. Goal to fill information gaps on juvenile salmonid survival in the south Delta to update salmonid loss models, optimize survival for salmonids near salvage facilities, and support water reliability through enhanced coordinated operations.  Last year, the Study didn't receive its anticipated Proposition 1 grant to go to scale, so Authority funding provided for the study to continue and provide capacity for a grant application for the recent Proposition 1 grant funding notification, which was recently awarded.	\$30,785
Delta Smelt Incidental Take Limit Research	Funds support the evaluation of differences in salvage between pre- and post-BiOp conditions and the determination of how much variance in salvage can be explained by each of the predictor variables. Support provided to ICF Jones & Stokes, Inc., through a cost share with SWC.	\$14,252
CAMT Facilitation	Funds support facilitation and assistance with CAMT and CSAMP meetings. Main contracts with Essex Partnership (Bruce DiGennaro) and Hansen Environmental (Chuck Hansen) held by SWC. The Water Authority has shared the facilitation costs informally with State Water Contractors, but moving forward facilitation costs are anticipated to be provided by Reclamation, with water contractors funding studies.	\$75,000

## 2. SFCWA-Funded Studies Being Managed by the Water Authority - \$4,628 Remaining

Subject	Description of Work / Objective(s)	SFCWA Funds Remaining
Analysis of Phytoplankton Blooms and Ambient	Study of phytoplankton abundances and biogeochemical rates and review of	\$0

Phytoplankton Populations in the Delta	Phytoplankton bloom events data. Goal to analyze existing data to improve understanding of controls on phytoplankton blooms in the north Delta, and to assess the relationship of those blooms to zooplankton population abundances and growth rates.	
Measuring Impact of Control of yellow Starthistle in the Northern Sac. Valley and Superior California on Watershed Runoff and Groundwater Levels	Study of the water benefits of yellow Starthistle (YST) control. If there appears to be replicable water supply benefit from YST removal, will prepare plan of recommended YST removal in California that results in increased runoff and/or improved groundwater levels.	\$4,628
Rice Fields Fish Food Study – Delta Fallowing Pilot Program	Study of flooded rice ground relative to food production for native fish. Goal to better understand aquatic food web productivity on managed floodplains	\$0

### 3. New Science - \$500,000 in FY 21 Budget

Subject	Description of Work / Objective(s)	FY 21 Budget
Science Studies/Efforts		\$500,000
Joint Funding of CSAMP Delta Smelt Structured Decision Making Scientific Support	Funds support development of additional biological support for the Delta Smelt Structured Decision Making process, specifically Identification and exploration of key effect pathways for impacts to each delta smelt life stage.	\$25,000
Joint Funding for Initiation of Delta Channel Maintenance Planning Effort	Funds support development of and establish criteria for silt removal operations and mitigation measures for a long-term channel maintenance program in the South Delta	\$50,000
Joint Funding of Delta Smelt Structured Decision Making Phase 3	This funding would support management and technical analyses required to conduct Phase 3 for the CSAMP Delta Smelt Structure Decision Making (SDM) project. Technical analyses would include modeling and the application of other analytical tools to evaluate the consequences of proposed management actions for Delta Smelt as well as the evaluation of potential consequences to other resource values including water supply and agriculture. Phase 3 is scheduled to occur from September 2020 to September 2021.	\$75,000
Joint Funding for Hanson Environmental as CAMT Technical Support	This funding would support continued CAMT participation by Dr. Charles Hanson through a contract with the State Water Contractors. Dr. Hanson assists in the development of various workplans and products, including Charters,	\$30,000

	presentations, whitepapers, and other materials to support collaborative science.	
Joint Funding to Enhance Decision-Support Predictions for Management Actions to Benefit Delta Smelt	This work is to develop a path forward to enhance decision-support predictions for management actions to benefit Delta Smelt. This contract would support management of a series of engagements with experts and CSAMP members to identify and explore potential approaches for the structure and function of an advanced decision-support model that would incorporate system productivity and other factors that could benefit Delta Smelt. SLDMWA funding would be used to augment funding being provided by the Delta Science Program and the State Water contractors to cover Dr. Denise Reed’s time to organize and facilitate engagements, including an expert workgroup, and to prepare a draft white paper documenting the outcomes from the effort.	\$4,000
Water Blueprint for the San Joaquin Valley 501(c)(3) Education Fund, Socioeconomic Impact Study Phase 2	Completion of Phase 2 of the 8-county study, using IMPLAN, to describe the economic and socio-economic impacts of water supply deficit in the Valley and to provide economic analysis support for various policy options promulgated by the Technical Committee to address the imbalance	\$15,000

**FUTURE SCIENCE PROGRAM DIRECTION**

The recently released federal Biological Opinions require annual scientific review of the Reasonable and Prudent Measures scientific panel review in years 4 and 8 of the implementation of the Biological Opinions.

It is anticipated that increased engagement on scientific studies to prepare sufficient scientific bodies of knowledge on the adaptive management provisions of the new biological opinions will be necessary from public water agencies in order to adequately prepare for the 4- and 8-year scientific review of the implementation of the new Biological Opinions. Staff is coordinating with CSAMP/CAMT, as well as Reclamation, NOAA Fisheries and U.S. FWS to determine anticipated annual scientific investments necessary to prepare for the scientific panels.

Authority staff is planning to focus on key areas for the 2021 and future budgets, in order to assist in the development of a more coordinated science strategy between public water agencies and state and federal agencies who fund the scientific enterprise. Specifically, these recommended areas are:

- Technical Support for Authority Engagement in Regulatory Processes

- Steelhead Monitoring and Protection
- Delta Smelt Structured Decision Making Scientific Expertise
- CSAMP/CAMT Support
- Development of Voluntary Agreement Science Plan

### **Technical Support for Authority Engagement in Regulatory Processes**

The Authority has need of additional biological expertise to provide comments and a higher level of engagement with regulatory entities, including the State Water Resources Control Board, NOAA Fisheries, the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife and others. Specifically, Authority staff is proposing to issue an RFQ for scientific and biological support services and to establish contracting authority with a number of consultants for on-demand services centered on the areas of expertise of the respective consultant and staffing availability.

### **Steelhead Monitoring and Protection**

The status of steelhead population trends continues to pose a threat to water supply reliability for south-of-Delta Central Valley Project contractors. Significant data gaps exist in the scientific body of knowledge regarding steelhead, including a method for estimating population levels and continued support of the I/E ratio in state level regulatory proposals. Steelhead species receive less funding than other scientific research, indicating an opportunity where the Authority could add value to the scientific enterprise. Specifically, there is a need for better data analysis and synthesis for steelhead.

### **Delta Smelt Structured Decision Making Scientific Expertise**

Compass Resources, who manages the Delta Smelt Structured Decision Making process, has identified a need for a biologist for biological resource support, including literature searches that would better inform the SDM process. The Authority and the State Water Contractors are jointly funding this expertise.

### **CSAMP/CAMT Support**

The Authority has remained engaged in CSAMP/CAMT and has jointly funded facilitation support, technical support and scientific studies related to management actions associated with project operations.

### **Development of Voluntary Agreement Science Plan**

The Authority has previously funded facilitation of the Governance, Science and Adaptive Management Working Group and staff is proposing to continue that commitment through contributing funds for the development of the Science Plan for implementation of the Voluntary Agreements.