Table 2: Short Descriptions of Proposals for RMP Special Studies in 2019

Workgroup	Study Name	Budget	Summary	Deliverables
Emerging Contaminants	Emerging Contaminants Strategy	$70,000	Annual update of CEC Strategy, including tracking new information, updating the Tiered Framework and Multi-Year Plan. Increasing needs for stakeholder support, coordination of pro bono studies, and development and use of CEC transport model.	Technical assistance to stakeholders; Update and share CEC Strategy; Refine monitoring and science strategy related to Possible Concern contaminants, with particular attention to ecotoxicity data gaps.
Emerging Contaminants	Non-targeted Analysis of Fish and Wildlife	$25,000 (3-year study, total $75,000)	Non-targeted analysis (NTA) is part of the triad of methods the RMP is using to identify and track CECs. This study will leverage a proposal that has been submitted to Sea Grant to fund a three-year study evaluating Bay biota using novel non-targeted analyses. A variety of sport fish will be analyzed to assess the importance of feeding habitats (open water vs shallow margins), spatial location, and trophic status. In addition, apex predators such as cormorants (eggs) and harbor seals (blubber) will be used to assess the potential for biomagnification of these CECs in the food web.	Draft Manuscript & Factsheet (Spring 2021) Final Manuscript and Factsheet (Fall 2021)
Emerging Contaminants	Contaminants of Emerging Concern in Urban Stormwater	$180,000 (2-year study, Y2: $267,000)	Preliminary results from a 2016 RMP Special Study that scanned Bay water samples for contaminants via non-targeted analysis suggest that stormwater has the potential to contain significant levels of potentially harmful contaminants. A two-year study is proposed to provide an intensive and pioneering examination of CECs in urban stormwater. Analysis will include a targeted list of key CECs in urban stormwater developed to probe stormwater-related Coho salmon aquatic toxicity in the Puget Sound region and an additional three classes of emerging contaminants identified as critical stormwater data needs: per and polyfluoroalkyl substances (PFASs), phosphate flame retardants, and ethoxylated surfactants. The first year would include site selection and pilot sample collection and analysis for all four CEC classes, and the second year would focus on collecting a greater number of samples for this Bay Area-wide screening study. If insufficient samples are collected within two years, study may be extended to a third year.	Draft Manuscript and Summary (Spring 2021) Final Manuscript and Summary (Fall 2021)
Emerging Contaminants	Ethoxylated Surfactants in Ambient Water, Margin Sediment, and Wastewater	$123,200	This study will analyze a broad suite of ethoxylated surfactants in three Bay matrices: ambient water, sediment, and wastewater. This study would provide information to help determine whether ethoxylated surfactants should be classified as Moderate Concern contaminants. The data will also guide development of a monitoring and management strategy for this class of contaminants. Investigation of ethoxylated surfactants in the stormwater pathway is proposed by the Contaminants of Emerging Concern in Urban Stormwater study.	Draft Manuscript and Summary (August 2020) Final Manuscript and Summary (January 2021)
Emerging Contaminants	Sunscreens in Bay Area Wastewater Effluent	$50,300	UV sunscreen chemicals are widely used in personal care products (e.g., sunscreens and cosmetics) and commercial products (e.g., paints and plastics). They are discharged to the environment through the washing off of these chemicals during swimming or other outdoor activities, or discharged indirectly via wastewater treatment facilities from showering or bathing activities. These chemicals are also likely to leach from paints and plastics. Several sunscreen chemicals are known to be toxic and can cause endocrine disruption. This study will quantify sunscreens in Bay Area effluents to assess whether they may be a potential concern for the Bay.	Draft technical memorandum (June 2020) Final tehcnical memorandum (September 2020)
Sources Pathways and Loading	Small Tributaries Program Management	$40,000	The goal of the STLS Program over the next few years is to continue to provide information to RMP Stakeholders and the public that directly supports the identification and management of PCBs and Hg sources, concentrations, loads, and the determination of trends in relation to management efforts and beneficial uses in San Francisco Bay. This task is to support the Small Tributaries POC stormwater concentration and loading program through monthly communication with BASMAA program and Water Board representatives, including regular check in phone calls, planning for and development of meeting agendas and materials, preparation of meeting summaries, and monitoring the agenda of and attendance at key external meetings.	Written meeting summaries for each meeting

Sources Pathways and Loading	Small Tributaries Loading POC Watershed Characterization Reconnaissance Monitoring	$175,000	Over past four years, RMP has funded a watershed characterization reconnaissance study to identify high leverage watersheds and subwatersheds for PCBs and Hg sources and to develop a remote sampler method to decrease costs and increase ease of data collection. This proposal is a continuation of that monitoring effort. The study will help gain further knowledge and understanding of PCBs and Hg concentrations and particle ratios in stormwater in areas that have a disproportionately larger area of older urban and industrial land use. It is primarily a field study and the level of effort will be tailored to the amount of budget available.	Draft technical report (December 2019) Final technical report (July 2020)
Sources Pathways and Loading	STLS Regional model development to support trends strategy Part I - Planning	$60,000	The draft STLS Trends Strategy outlines a process to answer the key management question of how loads of pollutants of concern (e.g., PCBs) are changing over time. Progress has been made in trend analysis for individual watersheds, but questions remain as how the loads at the regional scale have and will change as a result of decadal long management actions and in relation to TMDL goals. The draft STLS Trends Strategy identified this question as a priority and developed a multi-year plan of using regional modeling to obtain initial answers by 2021. This proposal is to develop a detailed Modeling Implementation Plan to guide regional modeling effort in next few years, as the implementation of the first year of the multi-year plan.	Draft Modeling Implementation Plan (May 2019) Final Modeling Implementation Plan (July 2019)
Sources Pathways and Loading	Advanced Data Analysis, Phase II	$50,000	Reconnaissance data collected during single storms have provided good evidence to support enhanced management effort in watersheds with high PCB concentrations in water and on sediment particles. However, to date, such data have had only limited value for prioritization of management effort in watersheds exhibiting moderate or lower concentrations. This project proposes to enact the second phase of development and application of enhanced ranking and fingerprinting methods for the spatial prioritization and identification of watersheds, sub-watersheds, and PCBs source areas. The outcome of this proposal will be a finalized stepwise methodology and application of that methodology to existing stormwater datasets to help prioritize areas for enhanced management or further sampling.	Draft technical report (May 2019) Final technical report (November 2019)
Sources Pathways and Loading	STLS Regional model development to support trends strategy Part II - Beta hydrology model	$50,000	Following the approval of the Modeling Implementation Plan, a phased approach will be employed to develop the regional model, starting with hydrology, followed by suspended sediment, and then POCs. This proposal represents the first phase of the model development and will cover hydrology only. Initiating hydrology model in 2019 will help provide insights on early lessons learned and inform refinement and modification of the scope of work for 2020. The hydrology model will be used as basis for sediment and Pollutants of Concern (POC) modeling in the subsequent years.	Draft Model Development Report (May 2020) Final Model Development Report (June 2020)
Exposure and Effects	Support for Dredging Project Bioaccumulation Evaluations, Part 2	$48,000	The Dredged Material Management Office (DMMO) is responsible for approving millions of cubic yards of routine dredging projects in the San Francisco Bay to maintain safe navigation. Dredged sediment and the remaining residual sediment are evaluated to ensure projects do not produce adverse environmental impacts. We propose to support these sediment bioaccumulation evaluations through two targeted studies. The first is to review all the PCB bioaccumulation test results to assess the performance of current bioaccumulation testing trigger thresholds. The results of this review may be used to support reassessing total PCB bioaccumulation trigger threshold. The second is to review and recommend a standard set of values for bioaccumulation modeling. This information would ensure that bioaccumulation evaluations use the best available science and are consistent within the region. The recommendations from this study will save dredgers and regulators time and money by improving the efficiency and consistency of dredging project evaluations.	Kickoff Meeting (October 2018) Draft Report (April 2019) Final Report (August 2019)
Exposure and Effects	Exposure and Effects Workgroup Strategy Coordination and Technical Support	$5,000	Develop an updated multi-year plan for the Exposure and Effects Workgroup. Funds for this task would enable SFEI to continue to consult with the EEWG regarding plans for the next iteration of Exposure and Effects activities that can inform management decisions in San Francisco Bay. Funds would also support small-scale synthesis of information that is needed to support these discussions.	Updated Multi-Year Plan (June 2019)

Exposure and Effects	Synthesis of Benthic Community Data in the Whole of San Francisco Bay using the M-AMBI Index Phase II	$29,000	Evaluation of macrobenthic community condition is an integral component of sediment quality assessment, and is a required element of the SQO assessment framework. We do not, at present, have robust and validated tools to interpret macrobenthic community health in the mesohaline, oligohaline, and tidal fresh water habitats of San Francisco Bay Estuary (i.e., 50% of the whole system). Consequently, SQO assessments showing 52% of San Francisco Bay with poor benthic condition may be inaccurate and misrepresenting the apparent extent of contaminant-impacted sediments. We propose to update the SQO assessments of San Francisco Bay by incorporating a newly revised version of the M-AMBI (Multivariate AZTI Marine Biotic Index) benthic index designed to work in multiple estuarine habitats across the United States, including the polyhaline, mesohaline, and oligohaline habitats in the San Francisco Bay Estuary. As part of the Phase I portion of this study (currently funded), we are calibrating the M-AMBI across the estuary's different habitats. Once this work is completed, we will be able to integrate the M-AMBI scores into the SQO assessment framework and recalculate SQO assessments (M-AMBI plus existing chemistry and toxicity tools) for the whole estuary. This will allow for the first time, a robust SQO assessment of the potential impacts of toxic, sediment-bound chemicals on the macrobenthic resources of the San Francisco Bay Estuary.	Final report summarizing findings, including R scripts, Phase I MAMBI calibration, and full SQO assessments of 2008-2012 RMP samples (December 2019)
Exposure and Effects	Developing Bioscreening Thresholds for the Glucocorticoid Receptor Cell Assay	$50,000	Contaminants of emerging concern (CECs) exerting endocrine disrupting properties present a major concern for the health of coastal ecosystems. While they are typically found at very low concentrations (picogram to nanogram per liter range), they can act jointly via a common mode of action leading to adverse effects on aquatic organisms. This issue cannot be fully addressed using the current chemical-by-chemical risk assessment approach, which targets known chemicals and relies on chemicalspecific toxicity thresholds. Moreover, traditional toxicity endpoints (e.g. growth and survival) do not represent the variety of other relevant sublethal effects that can be induced by prolonged exposure to low levels of CECs, such as impaired tissue development, immune functions, behavior, or reproduction. In vitro cell assays have been proposed as rapid bioanalytical screening tools to detect and integrate the response of multiple known and unknown CECs, thus providing the potential for a more comprehensive assessment approach. But before cell assays can be incorporated in monitoring programs, it is essential to establish the quantitative linkage between key cellular events and organismal responses, a key component in developing a robust interpretive framework for bioanalytical screening results. Due to the lack of relevant ecotoxicological data for many CECs, such linkage has only been characterized for a few classes of CECs (e.g. estrogenic chemicals). This project aims to advance the role of cell assays in environmental assessments by developing bioanalytical screening thresholds associated with relevant toxicity endpoints for a group of understudied CECs known as steroidal anti-inflammatory drugs or glucocorticoids (GCs). This bioanalytical interpretive framework will help water quality managers in their task to protect beneficial uses of aquatic resources by identifying and prioritizing CECs that are most likely to impact aquatic life.	Year 1 funding will be used to complete Task 2: evaluation of GCs impact. The deliverable will be a progress report summarizing the most reliable endpoints impacted by GCs in Menidia. (June 2020)
Exposure and Effects	Efficient extraction of endocrine disruptors from sediments from San Francisco Bay	$18,200	Our Phase 2 study suggested that there was low level of estrogenic activity in San Francisco Bay waters. However, we were not able to clearly determine if sediments were contaminated or not, as the method employed to extract chemicals from the sediments may not have been the best. The current study will address this gap in our knowledge and to begin to develop a method that can be standardized for adequate monitoring strategies in the bay. Results from this study will begin to enable managers to determine whether or not additional cleanup is necessary for treated effluents that are disposed into sensitive estuarine environments. This work will not only be important for California, but also for other states that border marine environments and which may still be using old technologies for water treatment and discharge. The overall objective of this effort is to develop a method to adequately extract hormone mimics from bay sediments. This targeted study will have two objectives: (1) To develop a robust extraction method for endocrine disruptors that may be bound to sediments obtained from San Francisco Bay (2) To test the extracts by two in vitro assays: InVitrogen estrogen receptor (ER) transactivation assay and glucocorticoid receptor (GR) transactivation assay.	Final Report (December 2019)

Nutrients	High Frequency Moored Sensor Network: data analysis, interpretation, and maintenance	$360,810	High frequency water quality data will be collected through a network of in situ moored sensors in Lower South Bay and South Bay. Instruments measure multiple parameters, including specific conductance (or salinity), temperature, depth, dissolved oxygen, turbidity, chlorophyll-a, fDOM, and phycocyanin, and data is used to assess condition, inform mechanistic investigations of factors regulating water quality, and calibrate/validate water quality models. Funding will be used for mooring maintenance, data management (including QA/QC), and data interpretation.	Refined / cleaned dataset for additional year of data (multiple parameters), and application of enhanced QAQC protocols to additional parameters (e.g., chl-a). Several technical reports or progress reports, developed based on mooring data. Data report summarizing results from 2017 and 2018 South Bay shoal mooring and Suisun Bay. Phase II of Mooring Program: proposed structure for next phase of mooring work (stations, analytes), and initials steps implementing that new structure (within time/budget constraints)
Nutrients	Ship-based Monitoring for Nutrient-Related Parameters with USGS	$180,042	Discrete samples and in-situ sensor-based measurements will be collected during USGS cruises in San Francisco Bay aboard the R/V Peterson on ~12 full-bay cruises and an additional ~12 South Bay cruises (Figure 1), with a SFEI staffer participating as a field technician during cruises. The overall program continues USGS' long-term water quality studies in San Francisco Bay, and is jointly funded by USGS, the RMP, and the NMS. Data from the program play critical roles in nearly all of NMS' activities, including condition assessment, hydrodynamic and biogeochemical model calibration and validation, and improved understanding of nutrient behavior and nutrient-related effects within SFB.	Nutrient and chl-a data will be made publicly available through USGS's website. Datasets for toxins, phytoplankton microscopy, and pigments will also be made publicly available through the NMS. Results will be summarized in the NMS Annual Report (funded through other projects). Similar to past years, data will be used within numerous other NMS activities(e.g., model calibration, condition assessment, assessment framework development).
Microplastics	Microplastic in San Francisco Bay Sport Fish	$110,300 (+$26,000 tissue analysis, +$26,000 third site, +$10,000 archiving)	With external funding from the Moore Foundation and the RMP, SFEI has just completed the first year of a two-year study to characterize microplastic in San Francisco Bay. The project will provide information to address many of the management questions articulated in the RMP Microplastic Strategy. A key element that was not included in the Moore project was the characterization of microplastic in sport fish. Sport fish are an important food source to humans and Bay wildlife and are integrators of contaminants present in Bay water, sediment, and prey fish. In 2019, as part of RMP Status and Trends monitoring, sport fish will be collected, and analyzed for a suite of contaminants. This project proposes to augment the existing RMP efforts by including microplastic analyses. Shiner surfperch and striped bass from up to two sites will analyzed for microplastics in the gut. Optional add-on studies includes analyzing for microplastics in the muscle tissue in a subset of the fish samples and gut analysis of fish samples from a third site.	Manuscript (Summer 2020) RMP Sport Fish Report (Summer 2020)
Sediment	Bay Sediment Conceptual Understanding and Monitoring Strategy	$77,600	In fall 2016, the RMP provided $50,000 toward an EPA-funded project titled Healthy Watersheds Resilient Baylands (HWRB). The RMP funds are for the development of a sediment monitoring strategy for addressing key data gaps related to the transport of sediment to and within the Bay. Since developing the scope of work for the HWRB project, there has been a growing focus on sediment monitoring in the Bay that has led to a reevaluation of the necessary components of the sediment monitoring strategy development effort. Specifically, there needs to be a conceptual understanding of Bay sediment dynamics that can be used to develop monitoring and modeling priorities. There also needs to be close coordination with the newly-formed RMP Sediment Workgroup and other regional efforts focused on Bay sediment monitoring, and a stand-alone sediment monitoring strategy that is available for use by the RMP and other partner organizations sooner than the completion of the HWRB project. There should also be a presentation of the sediment monitoring strategy to the RMP Sediment Workgroup and key stakeholders. This funding request is for budget to support these additional project components.	Draft Conceptual Understanding of Bay Sediment Dynamics & Sediment Monitoring Strategy (May 2019)\n\nFinal Conceptual Understanding of Bay Sediment Dynamics & Sediment Monitoring Strategy (August 2019)\n\nPresentation of Conceptual Understanding and Strategy to RMP Sediment Workgroup (October 2019)

Sediment	Update of Erosion and Deposition in San Francisco Bay	$77,000	In 2014 and 2015 the Ocean Protection Council (OPC) contracted for bathymetric surveys of large portions of San Francisco Bay. This data along with recent NOAA, USGS, and California State University Monterey Bay surveys can now be combined to create a revised bathymetric bathymetric Digital Elevation Model (DEM) of the whole of San Francisco Bay (South Bay, Central Bay, San Pablo Bay, and Suisun Bay). Analysis of these surveys and comparison with the USGS DEMs of earlier surveys will provide an update on the quantities and patterns of erosion and accretion in the Bay over the past 25 to 35 years. Such information can be used to assess how the Bay has responded to changes in sediment supply from the Delta and tributaries and provide managers with data for making decisions on a variety of issues including exposure of legacy contaminated sediment and strategies for beneficial dredge disposal.	Composite DEM for 2014-2015 (July 2020) Draft Report (July 2020) Final Report (October 2020)
Sediment	Workshop on Sediment Screening and Testing Guidelines for Beneficial Reuse of Dredged Sediments	$30,000	The San Francisco Bay Regional Water Quality Control Board has guidelines for chemical testing requirements and evaluation of test results for the placement of dredge materials in beneficial reuse environments, such as wetland restoration (SFBWRCB. 2014). These guidelines sometimes prevent dredged sediments from the Bay and flood control channels from being beneficially reused despite the fact that there is an urgent need for sediment for wetland restoration around the Bay. The purpose of this study is to organize a workshop with technical experts and stakeholders to discuss whether the current approach to screening contaminants in dredged sediments is too protective, not protective enough, or just right. The deliverable will be a workshop summary that will distil the findings relative to the charge questions and recommendations to the Water Board regarding revisions to the Sediment Screening and Testing Guidelines.	Workshop (May 2019) Workshop Summary (Sep 2019)
Sediment	Sediment Bulk Density Study	$30,000	The definition of sediment bulk density and the conversion between sediment bulk mass to bulk volume is an important step in many sediment calculations. It is used in dredging operations, sediment modeling studies, in the design of wetland restoration projects. The proposal is to create guidance on the definition of bulk density for use in San Francisco Bay projects, to provide typical values for different environments, and protocols for measuring and reporting bulk density in the future.	
Sediment	Golden Gate Sediment Flux Modeling Study	$45,000	The U.S. Geological Survey (USGS) measured sediment fluxes through the Golden Gate during complete tidal cycles in March and June 2016 and February 2017. The sediment flux measurements in February 2017 showed a greater sediment flux into San Francisco Bay on flood tide than the flux out on the preceding ebb tide. USGS hypothesized that this result occurred because the measurements were made on the falling limb of the hydrograph and that during peak outflows the sediment flux out was greater than the flux in. This study proposes to simulate the sediment flux across the February 2017 high flow period, validate the model-predicted sediment flux using the one tidal cycle of flux observations collected by USGS, and then compute the total predicted sediment flux through the Golden Gate over a 3-month period. The primary motivation is to understand why the measured sediment flux back into the Bay during the observation period was greater than the flux out, and whether this is related to being on the tail end of the sediment pulse. The model simulations can also be used to assist in developing surrogate measurements of sediment flux at the Golden Gate that are critical for understanding the overall sediment mass balance in San Francisco Bay. The predicted sediment flux at the Golden Gate will be compared to observed parameters such as suspended sediment concentration (SSC) at Alcatraz or Sacramento-San Joaquin Delta (Delta) outflow to develop these relationships. Predicted sediment fluxes between each subembayment will also be calculated from this simulation to inform calculation of sediment fluxes within the Bay.	Technical Memorandum (June 2019)
PCBs	Priority Margin Unit Stormwater PCB Monitoring	$40,000	This proposed study would yield valuable information on PCB concentrations and particle ratios in stormwater in two Priority Margin Unit (PMU) watersheds. The study areas include the major subwatersheds draining into the Emeryville Crescent, and one subwatershed draining into San Leandro Bay. The subwatershed draining into San Leandro Bay is downstream of a recently remediated hotspot, the former General Electric (GE) transformer and electrical equipment facility, where PCB contamination was severe. The goals of the study are to better estimate current PCB loads into these PMUs (a critical component of the PMU mass budgets) and to support tracking of the effectiveness of the major remediation action on the GE property. Sampling will be completed over two years, as storms allow.	Technical report that may be stand-alone or included in the POC Reconnaissance Report (Oct-Jan 2020)
PCBs	PCB Strategy Coordination and Technical Support	$10,000	The 2014 update of the PCB Strategy called for a multi-year effort to implement the recommendations of the PCB Synthesis Report (Davis et al. 2014) pertaining to: 1. identifying margin units that are high priorities for management and monitoring, 2. development of conceptual models and mass budgets for margin units downstream of watersheds where management actions will occur, and 3. monitoring in these units as a performance measure. A thorough and thoughtful planning effort is warranted given the large expenditures of funding and effort that will be needed to implement management actions to reduce PCB loads from urban stormwater. The goal of RMP PCB Strategy work over the next few years is to inform the review and possible revision of the PCB TMDL and the reissuance of the Municipal Regional Permit for Stormwater (MRP), both of which are tentatively scheduled to occur in 2020.	Updated Multi-Year Plan (June 2019)

PCBs	Shiner Surfperch Priority Margin Unit Survey	$60,000	Conceptual site models for PCBs in priority margin units have been developed for the Emeryville Crescent and San Leandro Bay. The San Leandro Bay model was supported by an intensive field study. These conceptual site models identified shiner surfperch as a crucial indicator of impairment in these areas, due to their explicit inclusion as an indicator species in the TMDL, their importance as a sport fish species, their tendency to accumulate high concentrations, their site fidelity, and other factors. The conceptual site models recommend periodic monitoring of shiner surfperch to track trends in the PMUs, and as the ultimate indicator of progress in reduction of impairment. Shiner surfperch and other sport fish species will be monitored in 2019 as part of RMP Status and Trends (S&T) monitoring. A coordinated sampling of PCBs in shiner surfperch in four PMUs is proposed as an add-on to the 2019 S&T sport fish sampling. This coordination will yield significant savings in data management and reporting, because these results can be easily added to the S&T activities with negligible additional cost. In addition, a dataset for shiner surfperch will be obtained that is directly comparable across the four PMUs and the five locations that are sampled in S&T.	Section in report on RMP S&T Sport Fish Sampling (Draft by December 2020, Final by February 2021)
Selenium	Selenium Strategy Coordination & Technical Support	$10,000	These funds will support SFEI coordination and technical support for workgroup activities and continuing development of the Selenium Strategy.	Selenium workgroup meeting
Selenium	North Bay Clam and Water Part I - Monitoring	$75,000	Following the development of the North Bay Selenium TMDL, the San Franciso Bay Water Board asked the Selenium Workgroup to develop a long-term monitoring design for North Bay. The goal of this proposal Concurrent Potamocorbula amurensis and water samples will be collected from two USGS long-term clam monitoring stations in Susiun Bay in July-September 2019 and Decmeber 2019-February 2020. These two sampling periods precede (1) the fall sturgeon muscle plug study and (2) the sturgeon pre-spawning period, when reproductive females are particularly sensitive to selenium toxicity. Clam concentrations collected during these preceding months will (1) inform the linkage between dietary selenium patterns and observed sturgeon tissue selenium concentrations, and (2) provide information about selenium exposure patterns that can inform expectations of sturgeon selenium concentrations during the sensitive pre-spawning period when sturgeon will not be sampled directly. Composite clam samples will be collected at each site each month and analyzed for total selenium. A single grab sample will be collected at each site each month, and analyzed for dissolved, particulate, and total selenium, as well as TSS, TOC, and chlorophyll a. Samples will be analyzed by the laboratory selected during the selenium laboratory intercomparison study.	Data tables available internally. Key results will be presented at the 2020 Selenium Workgroup meeting.

Selenium	Sturgeon Muscle Plug Part I - Monitoring	$22,000	In March 2016, the State Water Resources Control Board approved a Selenium TMDL for North San Francisco Bay, which established a white sturgeon muscle tissue target of 11.3 ug/g dry weight as a basis for evaluating impairment. From 2014-2017, the RMP conducted annual monitoring of selenium in sturgeon muscle plug tissue, through a collaboration with the California Department of Fish and Wildlife (CDFW) and other partners. Power analyses indicate that long-term monitoring of 60 samples per year at a biennial frequency is needed to detect long-term trends driven by changes in environmental selenium sources within a 20 year period. Selenium monitoring in sturgeon was last conducted in 2017, and is not planned for 2018. This study proposes to continue this sampling in 2019, to continue tracking condition relative to the TMDL target and to evaluate long-term trends. Muscle plugs will be collected in August-October 2019 from 60 sturgeon collected during the CDFW sturgeon population study in North Bay. Samples will be analyzed by the laboratory selected during the selenium laboratory intercomparison study. Funding for data management and reporting is requested and prioritized separately.	Data tables available internally. Key results will be presented at the 2020 Selenium Workgroup meeting.
Selenium	North Bay Clam and Water Part II - Data Management & Reporting	$40,000	This study would fund data management and reporting for the clam and water data collected in 2019 (see proposal above). This report will present key results and interpretation of the data collected during this first year of sampling following the North Bay long-term selenium monitoring design.	Draft Report (Fall 2020) Final Report (Winter 2020)
Selenium	Sturgeon Muscle Plug Part II - Data Management & Reporting	$24,000	This study would fund data management and reporting for the sturgeon muscle plug data collected in 2019 (see proposal above).	Draft Report (Fall 2020) Final Report (Winter 2020)