SF ESTUARY
Wetlands
Regional
Monitoring
Program

Funding Strategy for the SF Estuary Wetlands Regional Monitoring Program

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1. Introduction

Tidal wetlands in the San Francisco Estuary face an uncertain future due to climate change, continued development pressure, and other regional stressors. Accelerating sea level rise and decreased sediment supplies threaten to drown and erode existing tidal wetlands and undo tidal wetland restoration progress made to date. A lack of standardized, coordinated, and shared monitoring for tidal wetlands reduces the ability to track if intended targets for restoration have been met, such as flood protection for shoreline communities, targets for wildlife habitat or individual species, or public health and recreation benefits. The WRMP can leverage monitoring data to respond and adapt to these challenges and help support a more resilient estuary.

The San Francisco Estuary restoration community is working rapidly to protect and restore wetlands that can provide flood protection, recreation, water quality improvement, and habitat for surrounding communities. In order to meet a regional target of 100,000 acres restored by 2030, close coordination is needed among land managers, scientists and regulators. The WRMP will improve wetland restoration project success by putting in place regional-scale monitoring to increase the impact, utility and application of permit-driven monitoring to inform restoration practices and utilize science-based decision-making. Once in place, the WRMP will be a robust, technically sound, collaborative regional monitoring program that includes:

- Monitoring site network
- Open data sharing platform
- Comprehensive science framework (included within April 2020 WRMP Program Plan)

The WRMP Plan was released in April 2020 and lays the foundation for the development of this program. The next steps include determining the funding model and governance structure, developing the data management system, conducting outreach to the intended user community, and implementing priorities from the Science Framework.

This funding strategy was developed in close consultation with project partners after reviewing relevant program examples from across the United States. The purpose of the funding strategy is to:

- Provide an analysis of cost for program implementation over the first three years
- Identify initial funding priorities for the WRMP
- Describe strategies for seeking sustainable funding of the WRMP

We expect the WRMP will begin to move into implementation in 2022. Program implementation success depends on close coordination with relevant stakeholders while continuing to ensure a fair and transparent decision-making process. This document will be updated over time and does not represent a final approach to funding. It does attempt to lay out initial costs and strategies. For the purposes of the WRMP, science is defined as the process of collecting and analyzing environmental data and turning it into information that can be used to support decision making.

Monitoring Programs Examined to Develop Cost Estimates

Regional Monitoring Program for Water Quality in the San Francisco Bay (Bay RMP)

Program goal: Collect data and communicate information about water quality in San Francisco Bay in support of management decisions. Management questions include: 1) What are the concentrations (or masses) of contaminants in the Bay?; 2) are those concentrations of concern?; 3) what are the pathways to the Bay?; 4) have concentrations increased or decreased?; and what are the associated impacts of those contaminants?

Program participants include municipal wastewater (35) which contribute 46% of funds, industrial wastewater (9) contributes 11%, municipal stormwater (9) contributes 25%, and dredgers (6 + project-based) contribute 18%. Bay RMP staff include Lead Scientist, Program Managers, Senior Scientists, Environmental Scientists, Environmental Analysts, and Data Analysts.

The funding model is split almost evenly between program management (32%), monitoring (33%), and special studies (31%) (4% is unallocated). Relevant guidance for the WRMP includes: coordinate with other monitoring programs early, coordination is time consuming, project management needs do not scale linearly with the size of the program, and include external experts where possible.

National Estuarine Research Reserve System-Wide Monitoring Program and the Centralized Data Management Office

Mission of System-Wide Monitoring Program: Develop quantitative measurements of short-term variability and long-term changes in water quality, biological systems, and land-use / land-cover characteristics of estuarine ecosystems for the purpose of informing effective management.

The program includes place-based data collection, standardized protocols, national/regional coordination, centralized data management, and connections to other networks. Monitoring coordinators and technicians get together once a year. They have a shared database management strategy. Core program components include include staffing for a data coordinator (not just a program coordinator), 3 full time data analysts (dedicated personnel), 6 part time staff (QA/QC is performed by field staff), annual training workshop (60% of funding goes to staff and training workshop), and external/collaborative Data Management Committee (DMC) to provide guidance, oversight and support. NOAA provides 70 percent of funding.

Puget Sound Ecosystem Monitoring Program (PSEMP)

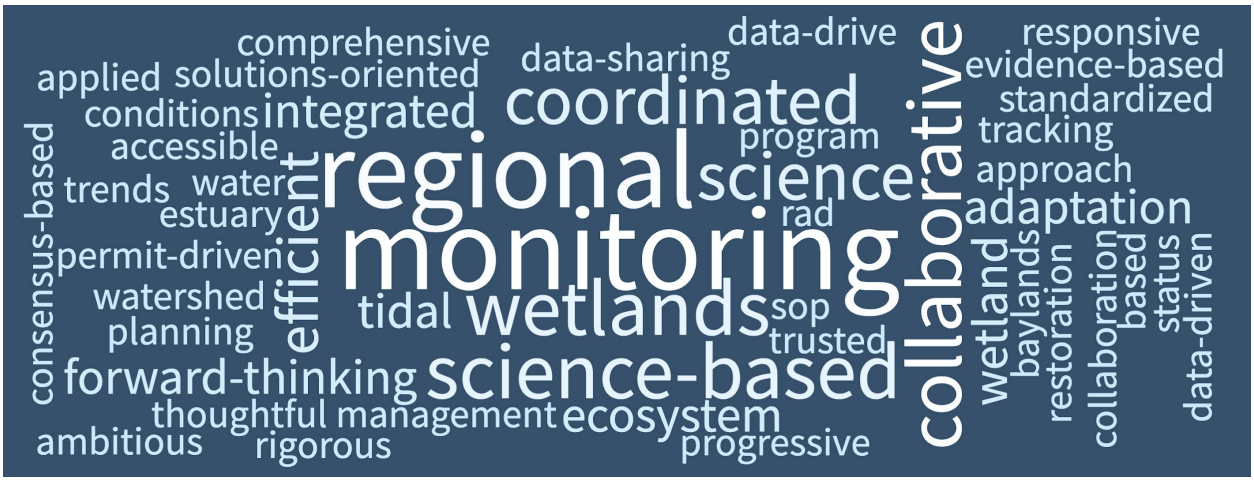
PSEMP is a collaborative network of subject matter experts from many monitoring organizations and different parts of the region. They work with partners to inform adaptive management of Puget Sound and generate, organize, synthesize, and communicate scientific information, across political and organizational boundaries, to track ecosystem conditions that directly address management and science questions critical to Puget Sound recovery.

PSEMP's objectives: 1) Increase collaboration across monitoring programs by creating and maintaining forums for open communication, data sharing, synthesis, and effectiveness assessment; 2) Support adaptive management of recovery efforts by facilitating dialogue among PSEMP participants, planners, managers, and decision-makers. 3) Improve communication within and beyond the monitoring and assessment community to improve access to credible information to guide recovery decisions.

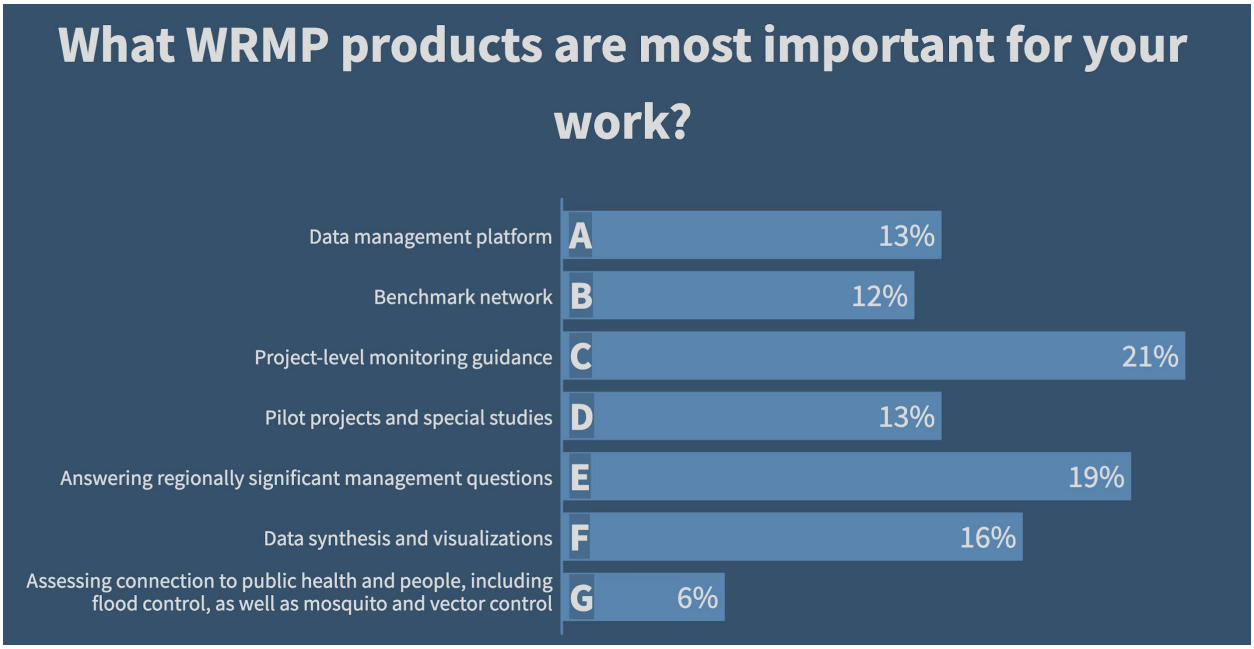
PSEMP program components, staffing, and funding leverages large amounts of in-kind contributions of time and data from participating organizations. Coordination to support Steering Committee, Work Groups, and linkages to other programs includes Puget Sound Partnership staff (2 FTEs, 1 vacant), contracts to support Working Group Coordinators (.25 FTE, ~$40,000 per WG), other contracts to support objectives (e.g. communications strategy), and PSEMP projects that synthesize monitoring information to support adaptive management ($175,000/year for contracts managed by PSP staff)

Key Messages about the WRMP

In discussion with the Steering Committee (SC), several key messages about the WRMP emerged. The word cloud below was generated during a SC meeting and highlights some of the key words used by our core decision-makers to describe the WRMP. In a rough sense, relative size indicates frequency of the mentioned words.



The SC members were also asked what WRMP products were most important to their work. The responses, shown below, reflect the importance of a program with close coordination between the SC and the Technical Advisory Committee (TAC) as well as regulatory agencies to ensure that science priorities are utilized to develop project-level monitoring guidance, answer WRMP management questions, as well as further develop the WRMP Science Framework (including the benchmark network) and the data management platform.



2. Program Cost Assessment

This assessment is intended to provide a baseline and initial cost estimate for WRMP program areas over the first 3 years of program implementation. The WRMP development process is currently funded by an EPA Region 9 Wetland Program Development grant through 2021. Following the completion of this grant, the WRMP will transition to a program with basic, core

functions to initiate the program in Year 1. Future phases of WRMP planning will refine the program's Science Framework, data management approach, and funding and governance strategies as described in the WRMP Program Plan. These future phases will be guided by the WRMP Steering Committee, with input from the Technical Advisory Committee. The program is divided into four primary program areas. Some of the key work items within these program areas are listed below. Program implementation will be phased, increasing capacity from year to year.

WRMP Program Areas

Program Management	Program administration, financial management, internal and external coordination, Steering Committee coordination
Data Management	Quality assurance system, database maintenance, updates to standard operating procedures (SOPs) and template
Science Implementation	Data acquisition, analysis and visualization, Technical Advisory Committee (TAC) coordination, workgroup coordination, external science advisors. In some cases the WRMP may fund monitoring/data collection and in other cases it may partner with other entities to complete WRMP science or utilize existing data.
Communications	Responses to information requests, presentations at conferences and meetings, website maintenance, outreach products, communications plan, WRMP Science Update Report, WRMP Annual Meeting

The WRMP program areas are intended to begin with implementation of the WRMP Science Framework key priorities as identified by the TAC and SC, and then grow over time. As outlined in the WRMP Plan, these priorities are:

- Develop a regional geospatial baseline map, conduct regional baseline and subsequent routine surveys and inventories of the distribution, abundance, diversity, and condition of tidal wetlands throughout the region, using existing tools and metrics to the extent practicable and new tools and metrics where necessary.
- Establish the WRMP Monitoring Site Network, starting with the Benchmark Site Network (network of relatively undisturbed mature marshes throughout the region that can provide early warning of landscape-scale change).
- Conduct repeated surveys (detect change) of living organisms and their habitats (indicators), and standardize the metrics and reporting for indicators that are common to projects and baseline/subsequent ambient monitoring, across the range of project designs and restoration practices.
- Analyze existing data on the relative roles of estuarine and upland/watershed sources of sediment to counter the threats of marsh drowning, mudflat loss, and shoreline erosion driven by sea level rise.
- Assess the broad range of interactions between people and wetlands that should be monitored for the safety of people and health of the wetlands. This process should better

integrate flood control and mosquito and disease vector control into project planning and assessment, and similarly integrate wetland restoration into flood control planning.

Year 1, 2 and 3 Program Functions

The work plan for Year 1, 2 and 3 reflects what we estimate is needed to create a program that can grow over time. This work plan may be subject to change. The table below denotes tasks that require funding to proceed and the year in which the funding is needed.

WRMP Proposed Work Plan

Green cells indicate funded tasks and white cells indicate no funding allocated.

Task	Subtask	Year 1	Year 2	Year 3
Program Management	Program administration			
	Financial management			
	Internal and external coordination			
	SC coordination			
Data Management	Quality Assurance System			
	Database Maintenance			
	Updates to SOPs and Templates			
Science Implementation	Data acquisition and science implementation			
	Data analysis and visualization			
	TAC coordination			
	Workgroup coordination			
	External science advisors			
Communications	Responses to Information Requests			
	Presentations at Conferences and Meetings			
	Website Maintenance			
	Outreach products			
	Communications plan			

	Update Report			
	Annual Meeting			

Program cost is broken out according to the core program areas. Several assumptions were made that informed the development of this cost assessment. The underlying analysis of the budget can be found at this link.

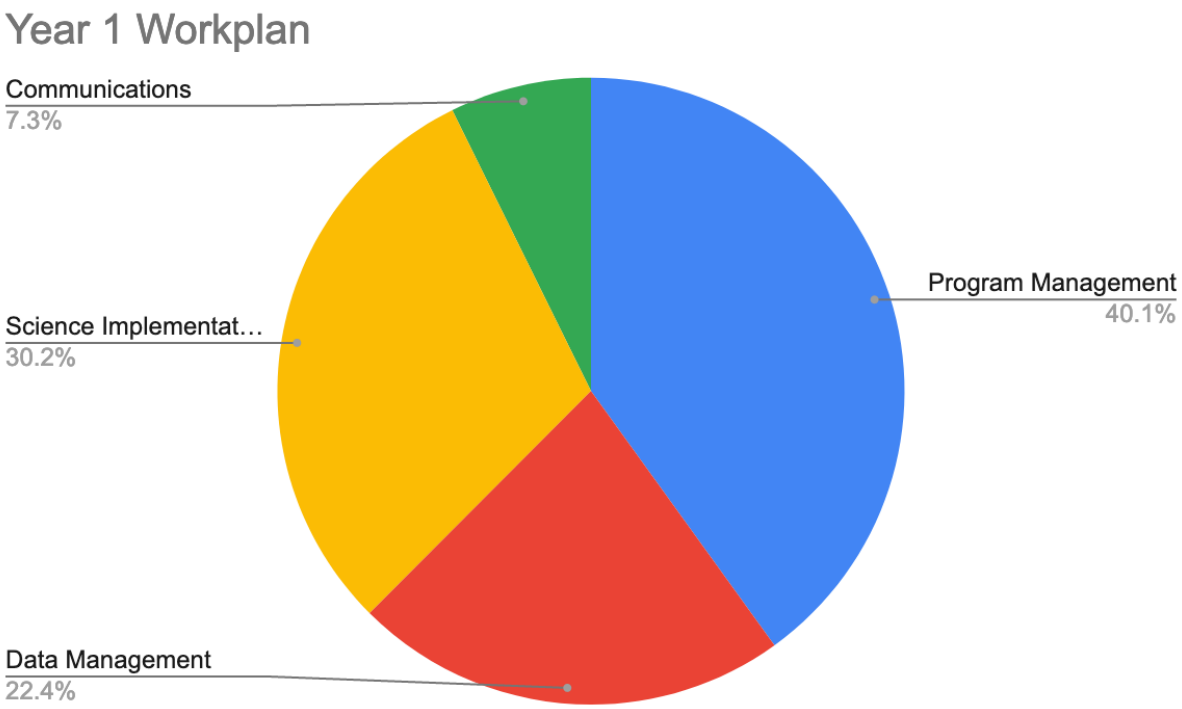
- Staff costs assessed here all come from top of range hourly rates from the Metropolitan Transportation Commission (MTC). It is likely that the actual work listed here will be split up and managed by multiple entities. Using this approach gives us an overall, rough idea of cost but staff rates vary greatly agency by agency.
- MTC salary costs are “middle of the road.” Science implementation through new data collection will be managed by external contracts that are sent out to bid by RFP or equivalent fair, transparent procurement process.
- Staffing assumptions are based on equivalent positions at MTC but actual staffing may require higher or lower level staffing, depending on need.
- Contract and fiscal support, including staff time for processing invoices etc. beyond the Program Manager will be supported by organizational overhead.
- Decisions are yet to be determined about the WRMP host entity/ies. Assessing the cost of the program and options for funding was identified as a top priority, and precise organizational arrangement is uncertain. This assessment does not imply a preferred organizational arrangement or host entity/ies.
- Any budget line item could be utilized for staff cost or for consultant cost. It is possible that the WRMP will be housed by one entity that contracts out various aspects of science and data management or communications work. It is also possible that the WRMP will be housed by multiple entities through a legal agreement and that all aspects of the program will be performed by staff of these entities.
- The fiscal entity will need to be adaptable as new potential funding sources arise.
- The cost for communications could include the development of the WRMP Science Report or incorporation of WRMP science reporting into The State of the Estuary Report or other publications. It could also include annual or semi-annual meetings on WRMP Science. The need for broader transfer and communication of findings on WRMP Science will increase as the program grows. In general, this is one area that is slightly under resourced. Additional funds would be needed to achieve communication goals.

WRMP Program Cost Suggested Budget

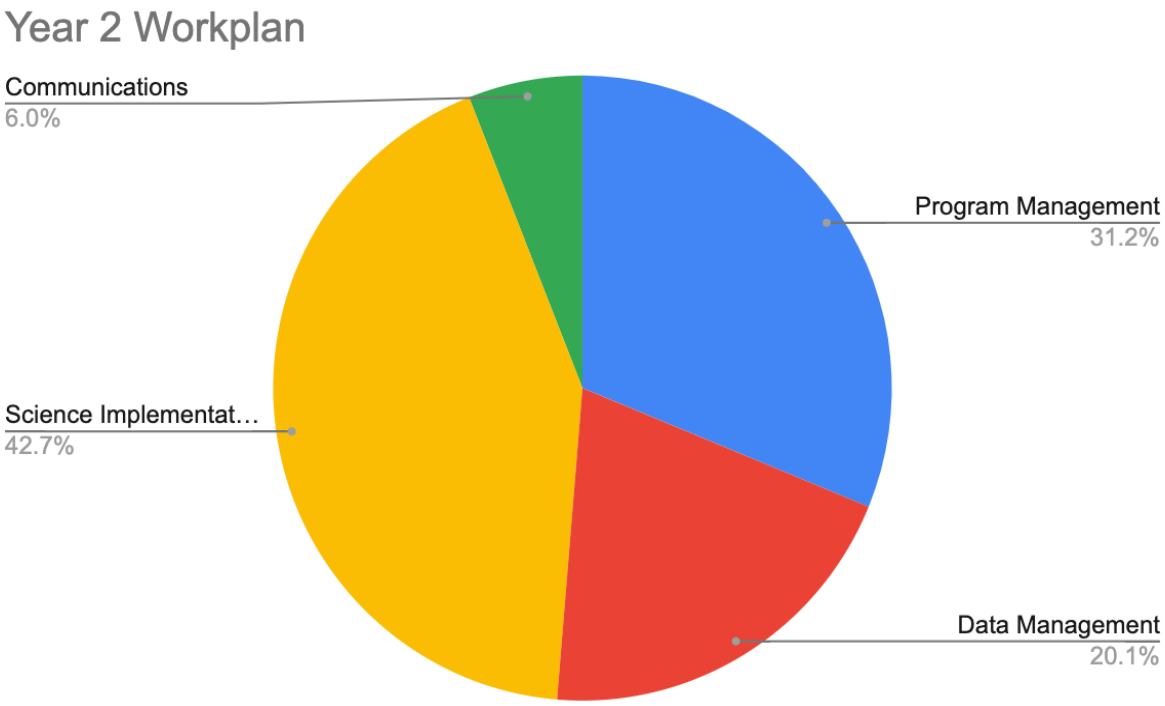
Year	Task	Total
Year 1	Program Management	$ 219,633
	Data Management	$ 122,986
	Science Implementation	$ 165,777
	Communications	$ 39,987
	Total	$ 548,383
Year 2	Program Management	$ 245,523
	Data Management	$ 158,228
	Science Implementation	$ 336,105
	Communications	$ 47,035
	% Increase	43%
	Total	$ 786,891
Year 3	Program Management	$ 245,523
	Data Management	$ 158,228
	Science Implementation	$ 249,347
	Communications	$ 118,378
	% Increase	43%
	Total	$ 1,122,396

Note: Program management is expected to be a larger percentage of costs in first year due to "start-up" needs and is anticipated to remain below 35% of the overall program budget following Year 1. See Budget Breakdown charts below:

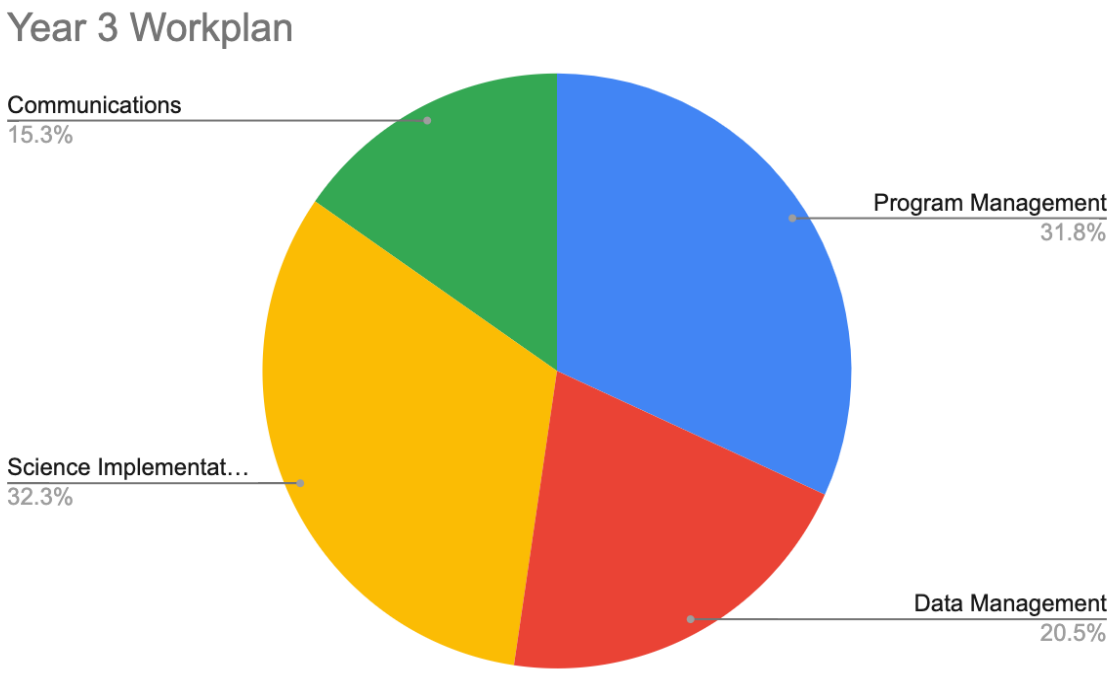
Year 1 Budget Breakdown



Year 2 Budget Breakdown



Year 3 Budget Breakdown



3. Funding Sources and Approaches

Initial phases of the WRMP will be supported through seed funding over the next 2-5 years. This may be provided by grants or small contracts to support program development and implementation. The existing funding that supported this program development process is considered seed funding. Long-term funding sources will need to be flexible to support the many ways that entities within the San Francisco Bay achieve compliance monitoring, regional baseline and benchmark monitoring. For example, while some organizations pay consulting firms to carry out monitoring, others utilize existing staff funded by local, state or federal entities; nonprofits that engage volunteers; or academic partnerships that engage graduate students, and may not be able to pay a fee as a replacement. In addition, the science priorities within the WRMP will be implemented in phases, and different science content elements will require different funding sources.

Following completion of the WRMP Plan, the following possible funding sources have been identified as a priority to explore in 2020 - 2021.

Optional Monitoring Payment

For projects that require compliance monitoring associated with permit conditions, permittees may pay into the WRMP to have the WRMP or project partners carry out monitoring of their

project site. Project proponents could also seek funding from grant sources such as the SF Bay Restoration Authority to include optional monitoring payments within grant-funded budgets. Optional monitoring payments will be discussed and considered by some of the regulatory agencies involved in the WRMP during the next phase of the development process. Each agency would need to determine if this method is consistent with existing laws and aligns with long-term objectives allowable under their respective authorities. Optional monitoring payments alone are unlikely to fund the Program entirely due to the small number of restoration project sponsors that might participate.

Grants and Contracts

Grants and contracts may support some aspects of the WRMP. Contracts may be awarded for pilot projects or monitoring efforts at a specific project location to support implementation of the WRMP Science Framework, or other aspects of the WRMP. These funds might be managed directly by the WRMP Program Administrator, or through project partners and would be coordinated through the Steering Committee.

The SF Bay Restoration Authority may be a viable source of funding through these means, either through grant payments or creating an annual allocation to the WRMP to support various aspects of the program. This funding source could support data management or science implementation, focused on supporting project delivery and success within the SFBRA grant program.

Alternatives

Private philanthropy might supplement the funding portfolio to add capacity, either in a specific area -- eg, communications -- or more broadly across all aspects of the burgeoning program. While the team might not devote resources towards cultivating such relationships, the program would welcome such contributions. In addition, additional options could exist including legislative funding with the Natural Resources Agency or other agencies. This will continue to be pursued where opportunity arises.

4. Roadmap

Next steps for the WRMP will be to further develop and explore the funding sources prioritized in this document.

WRMP Funding Priorities

Next steps for the WRMP development process will include close consultation with project partners. The funding sources listed here will all require a unique approach to develop a comprehensive and compelling proposal.

Optional Monitoring Fee	The WRMP team is in close coordination with regulatory agencies to discuss the viability of this approach. In Winter 2021, the Core Team, along with members of the WRMP SC and TAC, will host a workshop with the BRRIT and other interested parties. Piloting the optional monitoring fee with 1-2 projects would allow regulators to "road test" the approach and identify any major challenges so they can be corrected before deploying more broadly.
Grants and Contracts - SF Bay Restoration Authority	WRMP partners have been invited to present to the SFBRA Management Board, Advisory Committee and Oversight Committee. In all of these engagements, support was expressed for potentially providing financial support to the WRMP. The team is now exploring this potential more closely and will develop a path forward in Fall 2020.
Grants and Contracts - Other sources	No specific additional funding sources have been identified at this time to support foundation program work. The WRMP is exploring sponsoring related programs that may carry out WRMP science, and in particular may pilot methods or approaches of high priority to the WRMP. Additional funding sources may come to light that are especially well suited to the core program tasks described in the work plan. The WRMP will remain enterprising and responsive as these opportunities arise.

Next Steps

The information here provides a conceptual framework for potential costs and funding sources for the WRMP. The estimated budget is a rough estimate for the full monitoring program and does not reflect available funding. It provides a starting point for seeking funding, but it is not detailed enough to obtain funding. It provides a starting point, and the budget will be revised over time. The priorities listed here will serve as a guide if full funding is not achieved in Year 1, with core program functions being funded first. Successful funding of the WRMP will require close coordination and planning with the funding entities listed here, and the WRMP Steering Committee.

Groundwork is already being laid for this in discussions occurring with multiple partners and funding agencies. This includes initial discussion on the costs and work tasks described in this Funding Strategy, and how they best align with organizational missions and priorities. It is expected that one or more proposals will be submitted for funding in 2021. The optional monitoring fee will need to be adopted slowly, starting with agencies that have expressed the highest interest in participating. It is expected that the close coordination required to implement the optional monitoring fee will continue into 2021. A workshop with permit analysts is planned for early 2021 to begin the discussion on the flexibilities in permits and authorizations that can provide support for the WRMP, which is an important step for the optional monitoring fee.

A full update on options for funding proposals will be brought to the Steering Committee in December 2020 for discussion.