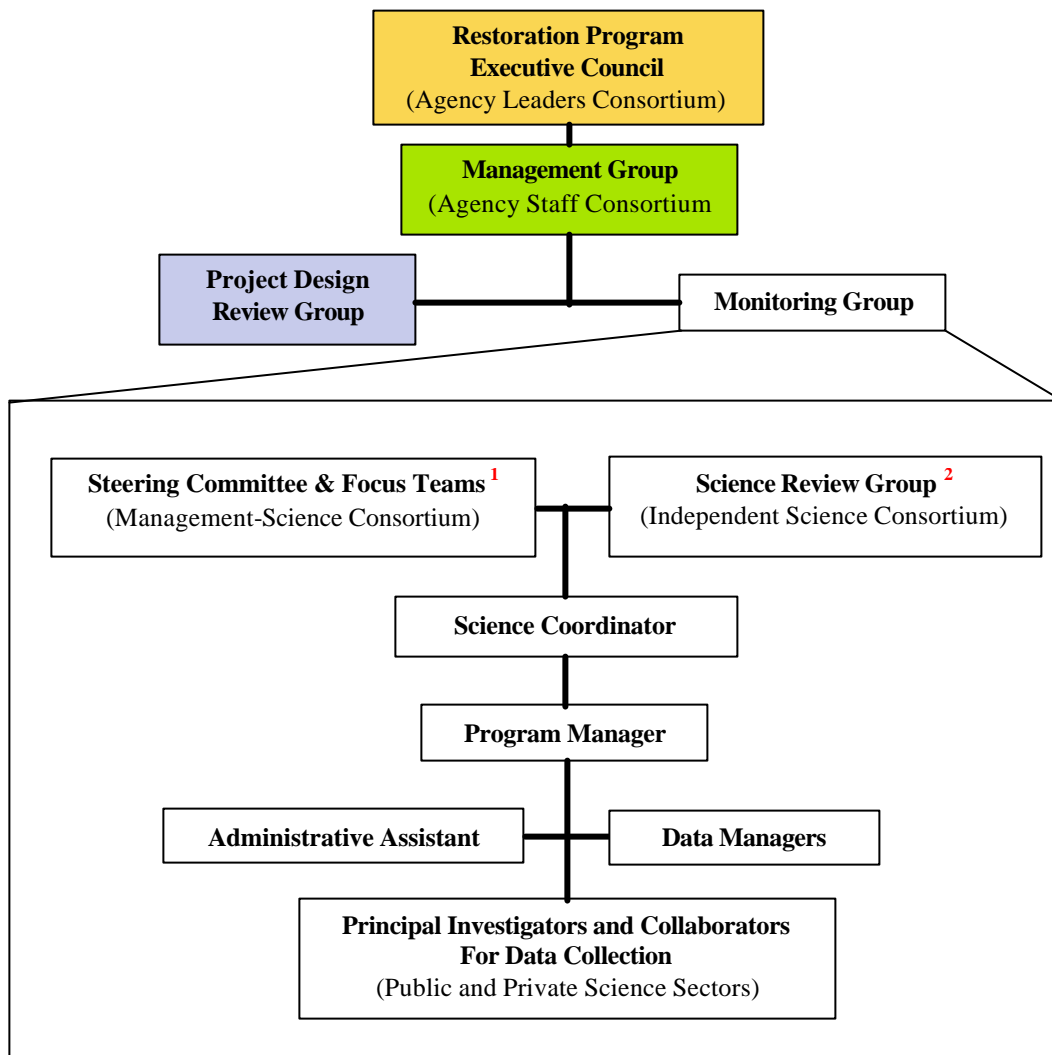


Management Structure, Staffing Plan and Basic Work Flow

The WRMP is designed as the monitoring organization of the San Francisco Bay Area Wetlands Restoration Program. A committee of state and federal agency executives who have the authority to coordinate policy planning and to direct the human and financial resources of their agencies governs the Restoration Program. The Executive Committee is supported by a Management Group of senior staff from the agencies who can summarize issues for the Executive Committee. The Management Group oversees the work of the Design Review Group and the WRMP. The Design Review Group provides technical advice and review for wetland restoration and mitigation projects, and works closely with the WRMP to identify the priorities for project monitoring.



1. The Management Group of the Restoration Program might subsume the duties of the Steering Committee.
2. The Science Review Group could be elevated to the Restoration Program at the same tier as the Management Group.

The proposed management structure calls for continuation of the Steering Committee, Focus Teams, Science Review Group, Science Coordinator who prepared this Program Plan. The proposed structure also calls for Program Manager, Administrative Assistant, and Data Managers who are employed to run the day-to-day operations of the WRMP, and Principal Investigators and Collaborators who are funded as sub-contractors for data collection and analysis under the direction of the Science Coordinator and Program Manager.

The WRMP must be carefully structured with adequate administrative and scientific support to achieve the coordination and collaboration of a successful Program. A structure has been designed to meet the following general requirements, based on the initial projects of the WRMP during FY 2001-03.

- ?? The structure must include administrative support for timely and accurate accounting and reporting of workflow and finances. The Program cannot succeed without adequate resources dedicated to program administration, including contracting and personnel management.
- ?? The structure must support the goals and objectives of the Program, with an emphasis on scientific excellence. The program should be able to assemble the best scientific teams possible from all available resources, private or public. The Program should be open to new ideas and talent, but should provide continuity through stable institutions and professional mentoring.
- ?? The structure must promote integration among the many scientific disciplines of the Program. The structure should facilitate open interpretations of monitoring and research results from a variety of scientific perspectives.
- ?? The structure must include pathways of information flow between wetland scientists and wetland managers to assure that the Program has the feedback mechanisms necessary to practice adaptive management.

Steering Committee

The Steering Committee consists of senior staff in the wetlands regulatory, management, and protection agencies of the region plus the Leaders of the scientific Focus Teams. A core group of agency members, including the co-chairs, initially decides the number of Focus Teams and nominates Team Leaders. The selected Team Leaders can help adjust the role of the Steering Committee and the Focus Teams. Membership in the Steering Committee is not necessarily restricted to any particular group of agencies or scientists. New members can be added to build institutional support and relevance for the Program. Some governmental members of the Steering Committee also serve of the Management Group of the Restoration Program.

The Steering Committee has been responsible for translating management questions and concerns into monitoring questions and special study objectives. The Steering Committee has also responsible for overall Program planning and development, including selection of Focus Team Leaders, formulation of Focus Team tasks, oversight of special studies, direction of the Science Coordinator and support staff, plus development of this Program Plan.

The Steering Committee has played an essential role to govern the WRMP during its early development in advance of the establishment of the Recovery Program. The Steering Committee has also served as the intersection of science and management. In the future, the duties of the Steering Committee of the WRMP may be subsumed by the Management Group of the Recovery Program, which may interact directly with the Focus Team Leaders and with the Science Coordinator to sustain the dialogue between managers and scientists.

**WRMP Steering Committee
Active Member Organizations 2002**

US Army Corps of Engineers
California State Resources Agency
US Environmental Protection Agency
SF Bay Regional Water Quality Control Board
US Fish and Wildlife Service
California Department of Fish and Game
National Oceanic and Atmospheric Administration
California Coastal Conservancy
SF Bay Joint Venture
SF Bay Conservation and Development Commission
San Francisco Estuary Institute
San Francisco State University
University of California at Berkeley
Napa County Mosquito Abatement District
Contra Costa County Mosquito Abatement District
Point Reyes Bird Observatory

Scientific Focus Teams

The Focus Team Leaders form their Teams based upon criteria developed by the entire Steering Committee. The Team Leaders serve as liaisons between the Steering Committee and the Focus Teams. The Teams provide ongoing technical support to the WRMP. For example, since their inception in spring 2000, the Focus Teams have been

building the scientific foundation of the Program. They have been developing conceptual models of wetlands form and function; translating management questions into monitoring questions; nominating indicators of wetlands status, trends, processes, and functions based on the conceptual models and management questions; drafting protocols for data collection; and describing broad approaches to sampling and data analysis.

The next stage of Program development will require the Focus Teams to transition from planning to implementation. Focus Team members are likely to be involved with data collection through their own organizations. To the extent that the WRMP receives grants and contracts to conduct monitoring, the Focus Team Leaders will serve as Principal Investigators. The main continuing role of the Focus Teams in the WRMP will be for protocol development and review of monitoring results and Program reports. The Focus Teams will continue to work through the Team Leaders as the Program Plan is implemented.

Focus Teams and Leaders for WRMP 2001-02

Physical Processes Team

Karl Malamud Roam	Contra Costa Mosquito Abatement District
Stuart Siegel	Wetlands and Water Resources

Bio-Geo Chemistry Team

Jay Davis	San Francisco Estuary Institute
-----------	---------------------------------

Plant Team

Mike Vasey	San Francisco State University
------------	--------------------------------

Invertebrates Team

Bruce Thompson	San Francisco Estuary Institute
----------------	---------------------------------

Fish Team

Todd Hopkins	San Francisco State University
--------------	--------------------------------

Mammals, Reptiles, and Amphibians Team

Andree Breaux	Regional Water Quality Control Board
---------------	--------------------------------------

Birds Team

Gary Page	Point Reyes Bird Observatory
Nadav Nur	Point Reyes Bird Observatory

Landscape Ecology Team

Maggi Kelley	University of California at Berkeley
--------------	--------------------------------------

Statistical Design Team

Don Stevens	Oregon State University
Tony Olson	USEPA

Science Review Group

The Science Review Group (SRG) has been planned but not established. It is expected to involve scientists and engineers, who do not serve on any Scientific Focus Team of the WRMP, do not expect to gain political or financial benefit from the outcomes of the WRMP, but who have outstanding abilities to advise and review regional science programs. SRG members can come from inside or outside the region.

To provide the level of technical advice and review that is required, the SRG might need to include experts in the larger scientific or technical aspects of the WRMP, including ecology, biology, hydrology, program-level statistical design, science management, and information technology. It is also anticipated that the SRG will include members who understand the tensions between environmental science and policy, such that they can help the Management Group and Executive Council fashion an effective monitoring program.

The Science Review Group may be elevated to the Recovery Program at the tier of the Management Group to more directly advise the Managers Group and the Executive Council.

The Steering Committee has asked the Committee of Science Advisors (CSA) of SFEI to help develop a detailed duty statement for the SRG and to help recruit qualified members. The CSA has worked with the chairs of the Steering Committee to draft the following broad statements about the potential role the SRG.

Draft Description of Roles and Responsibilities for the Science Review Group Noting Key Questions to Answer

- ?? Review the overall program plan, especially the relationship between program structure and program mission. Is the design of the Program consistent with the Program's?
- ?? Review the structure of the program, especially with regard to integration across disciplines. Does the Program promote scientific integration?
- ?? Review the quality controls and quality assurances for the monitoring data. Are data subject to excessive or undisclosed error or bias?
- ?? Review the relevance or value of the monitoring questions. Are the right questions being asked?
- ?? Help estimate the needed levels of funding and staffing to assure Program success. Is the Program over-reaching or not reaching far enough?
- ?? Review the rationale for selected indicators, indicator sets, and indices. Are the right methods of data collection and analysis being used in the correct ways?
- ?? Review the data management and information systems. Are data adequately protected and accessible for the right audiences?
- ?? Help develop a process of scientific review and revision of the Program and the technical products. What should be the process of overall Program review? Are the products useful?

Science Coordinator

The Science Coordinator fosters overall technical support for the WRMP. Since the inception of the Program, the Science Coordinator has drafted scopes of technical work for the Focus Teams, developed guidelines to conduct the work, drafted development plans for the Program, written proposals for funding to support the science and information technology of the Program, planned and held conferences and discussion sessions to reach consensus about technical approaches, presented the Program to related interests inside the region and elsewhere, and transferred outside expertise to the WRMP.

In the future, the Science Coordinator will continue to play a lead role in coordination of technical efforts within the Program and between it and related science programs and projects. The Steering Committee of the WRMP (and/or the Management Group of the Recovery Program) can request the Science Coordinator to respond to service requests from the Focus Team Leaders, the Science Review Group, and other groups of the WRMP.

Draft Description of Roles and Responsibilities for the Science Coordinator

- ?? Foster collaboration among the Focus Teams and data authors.
- ?? Foster integration between the policy interests and science interests of the WRMP and other aspects of the Restoration Program.
- ?? Foster technical collaboration between the WRMP, Design Review Group, and other technical organizations outside of the Restoration Program.
- ?? Help develop strategies and proposals for funding science in the Restoration Program.
- ?? Help inform other Program participants about technical studies and reports related to their interests.
- ?? Develop and help conduct a peer review processes for the WRMP.
- ?? Communicate Program and project plans, status, and findings to a broad range of different audiences.
- ?? Represent the Restoration Program at regional, national, and international scientific conferences and symposia.
- ?? Oversee the design and content of the annual public report of the Program.
- ?? Oversee quality control and quality assurance procedures.

WRMP Program Manager

The Program Manager will be responsible for the daily operations of the Program, as directed by the Steering Committee of the WRMP and/or the Management Group of the Restoration Program. The WRMP Program Manager and the Science Coordinator will work closely together to make certain that the Coordinator can support the internal operations of the Program, and that the Manager can support the outreach efforts and coordination with other programs and projects.

This will include soliciting contractors and managing contracts, organizing fieldwork among all data collectors, Planning and holding meetings and workshops, supervising QA/QC and data flow, organizing internal and external reviews, and reporting.

Draft Description of Roles and Responsibilities for the Program Manager

- ?? Prepare requests for proposals, select contractors for data collection and analysis, and manage their contracts.
- ?? Help the Science Coordinator manage a process of refereed peer review.
- ?? Plan and hold technical meetings, workshops, and conferences.
- ?? Work with the Steering Committee and/or Managers Group to develop and distribute agendas, schedules, and minutes of WRMP meetings.
- ?? Coordinate the Information Technology Team and Administrative Assistant with regard to the Program.
- ?? Oversee the production of the annual public report of the Program.
- ?? Provide supporting materials to the Steering Committee, Science Coordinator, Science Review Group, and Data Authors.

Administrative Assistants

The Administrative Assistant will provide clerical and administrative support to the Science Coordinator and the Program Manager, with an emphasis on contract management and personnel support. For example, the Administrative Assistant will direct outside requests for information, plan logistical and facilities support for meetings and conferences, maintain rosters and contact lists, handle bulk mailings, work with accountants to maintain current ledgers, help track project timelines for timely completion of progress reports and tasks, and prepare invoices.

Information Technology Team

The IT Team includes one or more database designers and managers, QA/QC officers, web masters, and report production personnel. The IT Team is responsible for technical development and maintenance of the information system, including databases;

data formatting; implementing quality controls and quality assurances; web site development and maintenance; creation and maintenance of list servers and other electronic communication methodologies; GIS development and production; and the design, layout, and production of WRMP reports.

Data Authors and Collaborators

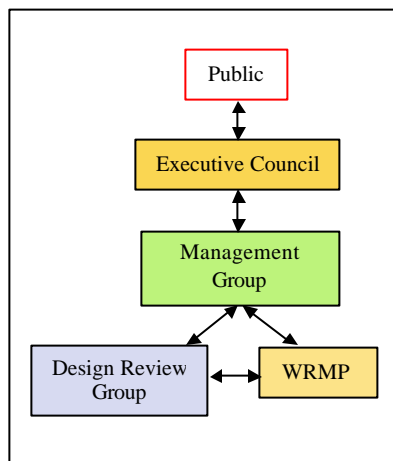
The Data Authors and Collaborators will be responsible for data collection, analysis, and data entry into the information system for the Program, as directed by Program Manager. Data authors will participate in original interpretations of the data, and they will review reports and other products that are based on their data. In some cases, Focus Team Leaders or members will be Data Authors or Collaborators. The Program Manager will work with the Steering Committee and/or Management Group to prevent conflicts of interests for partners and collaborators who participate in planning as well as implementation of the WRMP.

Work Flow Scenarios

Improving Wetland Projects

The following scenario describes the expected working relationships between the Executive Council, Management Group, Design Review Group, and the WRMP for improving the design and function of wetland restoration and mitigation projects.

Scenario 1: Project Monitoring



A. The Management Group and the Executive Council select a wetland project to be addressed through the Recovery Program. A project might be selected because it is especially important in ecological or economic terms and therefore might incur unusually large risks, or it might represent special opportunities to advance the science of wetland restoration or monitoring. Any person or organization can nominate a project to the Management Group for address through the Restoration Program.

B. The Management Group sends the selected project to the Design Review Group, which assembles the expertise necessary to describe, in qualitative terms, the technical uncertainties and ecological risks surrounding the project. The Design Review Group will also provide early advice on appropriate ecological goals and objectives for the project, given its location, size, existing ecological functions, and constraints, in the context of the Regional Habitat Goals and other concerns. Based on the project's goals and objectives, the Design Review Group and the project sponsor work together to render a set of habitat conceptual designs.

C. The Design Review group provides the goals, objectives, qualitative risk assessment, and conceptual habitat plans to the WRMP. The WRMP adds recommendations about which stressors and response indicators should be monitored for the project. The

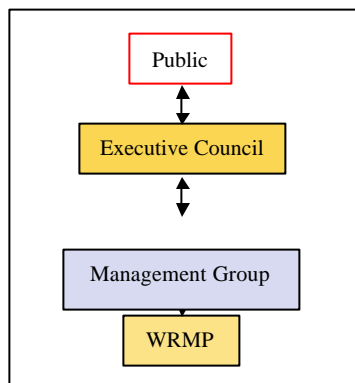
recommendations include instructions for standard data collection, data quality control, data management, and data review. The protocols for data collection have been readied by the WRMP with peer review. The Design Review Group and the WRMP provide a joint report of technical uncertainties and ecological risks, project goals, objectives, habitat plans, and monitoring recommendations to the Mangers Group.

- D. The Management Group transfers the joint report on the project from the Design Review Group and the WRMP to the project sponsor.
- E. The project sponsor develops the detailed engineering plans and monitoring plans for the project, and provides these to the Management Group, which transfers them to the Design Review Group and the WRMP for their review. The Design Review Group and WRMP meet jointly with the project sponsor to work out any critical revisions in the project design or the monitoring plan.
- F. The project sponsor receives permits for the project, initiates the project on the ground, and begins monitoring the project.
- G. Based on the monitoring recommendations, the data come from the project sponsor to the WRMP for management. The project sponsor's analyses and interpretations of the monitoring data are reviewed by the WRMP, in conference with the Design Review Group and the project sponsor. The WRMP, Design Review Group, and project sponsor provide a joint report to the Management Group on the status and trends of the project, relative to ambient conditions. If necessary, majority and minority opinions are presented. The report may include recommendations for changes in habitat design, engineering, and monitoring.
- H. The Management Group reports the status and trends for the project to the Executive Council, which authorizes a public report from the Management Group.

Monitoring Ambient Conditions, Stressors, and Ecosystem Functions

The following scenario describes the expected working relationships between the Executive Council, Management Group, and the WRMP for monitoring major stressors, ambient status and trends of wetlands in the region, and the ecosystem effects of wetlands projects.

Scenario 2: Wetland tracking And Special Studies



- A. Each year, the Executive Council and the Management Group work with the WRMP to define the highest priority in formation needs (i.e., management questions) that should be addressed by the WRMP.
- B. The WRMP translates the management concerns into monitoring questions or special study objectives. The WRMP provides the Management Group with a general technical approach and scientific rationale for addressing each priority question. The plan will include a description of inter-dependencies among the questions such that their priority rankings can be revised.

- C. For wetland tracking, the WRMP develops or revises the set of standard approaches for data collection, data management, data quality control, analysis, and reporting. For special studies, the WRMP collaborates with other programs and organizations to develop the study plan. This step can involve collaborations among many sources of expertise, plus peer review.
- D. The WRMP arranges for data collection through agencies, NGOs, private contractors, and academic institutions.
- E. The WRMP works with the data authors to prepare annual reports to the public through the Management Group and the Executive Council on the regional status and trends of wetlands.