Surface Water Ambient Monitoring Program (SWAMP) Monitoring Plan for Region 9

Improving Coordination of Monitoring of Coastal Wetlands in the San Diego Region

Fiscal Year 2010/11

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1 Summary Sheet

Beneficial Uses

This plan for the Surface Water Ambient Monitoring Program (SWAMP) will coordinate monitoring of coastal wetlands in the San Diego Region. The goal is to develop a cost effective and integrated monitoring program for coastal wetlands. Such coordination is designed to improve assessment of the health of coastal wetlands in the San Diego Region. The monitoring program will be designed around questions that directly relate to beneficial uses. Therefore, the results of the monitoring program can more directly be used to evaluate where and to what extent beneficial uses are degraded. This will allow future management actions to be better targeted toward addressing these deficiencies and restoring and protecting beneficial uses over the long-term.

Assessment Questions

The following assessment questions will be addressed by the San Diego Regional Water Quality Control Board (SDRWQCB) through the proposed plan:

The proposed assessment questions are:

1. Are coastal wetlands (individually and collectively) in the San Diego Region healthy?
2. What are the primary stressors causing degradation of coastal wetlands in the San Diego Region?
3. What are the long-term trends in the health of coastal wetlands in the San Diego Region?

To answer the questions, the following steps will be taken:

1. Review past and current monitoring programs, monitoring requirements, and assessments.
2. Develop a plan for an integrated and cost-effective monitoring and assessment program.
3. Coordinate the initial implementation of the integrated monitoring program.

Link to Statewide Monitoring Framework

The statewide SWAMP assesses the condition of beneficial uses, with a special focus on aquatic ecosystem health in wadeable streams. In addition, statewide SWAMP supports a study on the bioaccumulation of pollutants in sport fish. In 2010, the bioaccumulation program conducted sampling of sport fish in coastal areas including coastal wetlands in Southern California. This proposed monitoring plan focuses on the protection of beneficial uses in coastal wetlands

in the San Diego Region, and a more detailed assessment of those wetlands than is currently available. To assess the conditions of the coastal wetlands in the San Diego region, datasets from SWAMP statewide monitoring will be combined with data of the proposed integrated monitoring program. To combine those datasets, data that will be collected through the proposed integrated monitoring program will be SWAMP comparable. The SWAMP QA program and the SWAMP data management program will be included into the proposed program to ensure consistency with the statewide SWAMP program.

Clean Water Act Sections 305(b)/303(d)

The data produced by this monitoring plan will be used in water body assessments required under Clean Water Act (CWA) sections 305(b) and 303(d).

2 Background

Introduction

Coastal wetlands serve as buffers between land and ocean, and are important habitats for plants, fish, and wildlife, including several special status species. They are also highly valued and intensively used by humans for commercial, industrial, and recreational purposes. Wetlands services also include the enhancements of surface water quality, water storage and flood attenuation. Due to urbanization in Southern California, human activities have resulted in significant loss, modification, and/or degradation of many coastal wetlands. Coastal wetlands in the San Diego Region are subjected and vulnerable to a number of stressors, including but not limited to pollutants from developed watersheds, waterfront industrial and military facilities, vessels and atmospheric deposition. These pollutants and other anthropogenic stressors can negatively affect the suitability of fish and shellfish for human consumption, the suitability of waters for recreation, the aesthetic characteristics of waters, and the health of biological communities and ecosystems. To effectively protect and restore the beneficial uses of the coastal wetlands, the monitoring program for of these wetlands needs to be designed to give managers information about the status and trends of the health of these waters, and the stressors primarily responsible for degradation. In addition, the impact of potential sea-level rise through climate change needs to be considered in development of the monitoring program.

In the San Diego Region, a number of different monitoring and assessment programs are conducted by and for a number of different entities. Some of these programs are controlled by the San Diego Regional Water Quality Control Board (SDRWQCB); some are controlled by other entities. Although existing monitoring and assessment programs generate substantial amounts of data, important basic information about the conditions in San Diego Region waters does not result from the data collected, is not up-to-date, and/or is not easy to find, recognize, understand, or communicate to decision makers. Correcting these shortcomings may involve making major changes in existing monitoring and assessment programs that can be implemented through better coordination of monitoring. Because of the substantial level of effort and funding associated with currently required monitoring and assessment programs, making appropriate changes would result in correspondingly substantial improvements. Changes will need to be made in several aspects of monitoring and assessment, including making changes in monitoring designs, eliminating redundant efforts, replacing existing programs or program elements that are not successful, enhancing activities that are successful, filling in gaps where needed, and coordinating other activities where possible; making changes in analysis, synthesis, and evaluation of monitoring data (i.e., assessment); and making changes in the presentation, display, and communication of monitoring and assessment results.

Currently, several regulatory and non-regulatory programs conduct monitoring in the coastal wetlands in the San Diego Region, but these monitoring programs are not conducted in a coordinated, integrated manner. With tightening budgets, increasing anthropogenic influences, and continuing threats to beneficial uses, the goal of the proposed project is to move towards a collaborative approach by coordinating with the major stakeholders, as well as among different San Diego Water Board programs. The collaborative approach is also the focus of the most recent statewide SWAMP strategy and assessment framework (SWAMP Strategy 2010). This proposed project will serve as a pilot study for the implementation of the new SWAMP strategy and assessment framework.

The collaborative approach was successfully implemented for San Francisco Bay (San Francisco Estuary Institute 2010). The San Francisco Estuary Institute, the San Francisco Regional Water Quality Control Board, and the regulated community developed a collaborative effort to create a regional monitoring program for San Francisco Bay. The San Francisco Bay Regional Monitoring Program monitors conditions in San Francisco Bay, and it provides decision-makers information needed for effective management.

Also, the California Wetland Monitoring Workgroup (CWMW), which is affiliated with the California Water Quality Monitoring Council, was established to improve monitoring and assessment of wetland resources, and as well as to increase coordination and cooperation between local, state, and federal agencies, tribes, and non-governmental organization. The CWMW has developed and is currently implementing a statewide Wetland and Riparian Area Monitoring Program (WRAMP) (California Wetland Monitoring Group 2010). The proposed study will implement the goals of CWMW. In addition, the Southern California Coastal Water Research Project (SCCWRP) developed the Integrated Wetlands Regional Assessment Program (IWRAP) for Southern California.

The short-term goal for the proposed study is the development of an integrated and cost effective monitoring program. The long-term goal is the improvement of the health of coastal wetland and the better protection of their beneficial uses through improved monitoring, and the increased use of monitoring information in making management decisions. To be successful, implementation of the monitoring program and the management decisions need to follow an iterative and adaptive process that includes inputs from major stakeholders.

2.2 Past and Current SWAMP Monitoring

In the San Diego Region, SWAMP focused its efforts on monitoring wadeable streams. To date, SWAMP has not monitored coastal wetlands in the San Diego Region, except as part of the statewide SWAMP study on the bioaccumulation of pollutants in sport fish. In 2010, that study focused its efforts on coastal areas including some coastal wetlands in the San Diego region.

2.3 Other Monitoring Programs

A number of different monitoring and assessment programs are conducted by and for a number of different entities. Some of these programs are controlled by the SDRWQCB; some are controlled by other entities. Monitoring and assessment programs controlled by the SDRWQCB can be categorized as either SDRWQCB-directed programs or SDRWQCB-required programs.

SDRWQCB-directed programs are conducted by or for the SDRWQCB using funds in the SDRWQCB budget. Currently, funds for SDRWQCB-directed programs consist of (a) SDRWQCB laboratory contract funds (approximately $30,000/year) and (b) SDRWQCB SWAMP funds (approximately $240,000/year). SDRWQCB-required programs are conducted by or for dischargers pursuant to SDRWQCB requirements. To a large extent, SDRWQCB-required programs are devoted to producing information about discharges. The total annual cost of SDRWQCB-required programs is not known, but is estimated to be several million dollars per year, i.e., about an order of magnitude greater than the level of funding for SDRWQCB-directed programs. Other programs include citizen monitoring groups that conduct monitoring on a voluntary basis.

None of the SDRWQCB-directed monitoring currently supports monitoring in coastal wetlands. Some SDRWQCB-required monitoring is conducted in the coastal wetlands (1) Municipal Stormwater Permit, Ambient Bay and Lagoon Monitoring Program (ABL) and Regional Harbor Monitoring Program (RHMP); and (2) TMDL Monitoring (current TMDL Monitoring through 13267 orders) (San Diego County Municipal Storm Water Permit 2007).

Until recently, the Southern California Bight Regional Monitoring Program included sampling sites in San Diego Bay, but not in any other coastal wetlands in the San Diego region. Bight ’08 included monitoring of coastal wetlands in the San Diego Region for the first time (Southern California Bight 2008 Regional Marine Monitoring Survey 2008a and 2008b). Also, a Proposition 50 grant to the Southern California Coastal Water Research Project (SCCWRP) funded monitoring to support TMDL development in several coastal wetlands in the San Diego Region.

In addition, habitat restoration work has been done and is planned in several coastal wetlands in the San Diego Region, e.g. in San Dieguito Lagoon (JPA’s Park Master Plan 2000). Before, during, and after restoration, several monitoring programs have been conducted. SCCWRP developed the Integrated Wetlands Regional Assessment Program (IWRAP) for Southern California; information from IWRAP will be used for the proposed project. Extensive eelgrass monitoring is conducted in San Diego Bay and in Mission Bay by the Navy and others. A regional monitoring program in Southern California was recently developed (SCCWRP & Merkel and Associates 2011). Also, new and emerging monitoring and assessment programs will be tracked, and included if possible.

2.4 Proposed Coordination of Monitoring in Coastal Wetlands in the San Diego Region

The purpose of this proposed monitoring plan is to improve monitoring and assessment of the coastal wetlands in the San Diego Region through improved coordination of monitoring. All coastal wetlands in the San Diego Region are in need of an integrated and coordinated monitoring program. Currently, SWAMP funds a similar project to improve monitoring in the San Diego River watershed. Lessons learned from that project will be used for this proposed project.

The first step in protecting and improving the health of waters is the development of an appropriate monitoring program. Clear goals and objectives need to be established to guide development of the monitoring program. The monitoring currently conducted in the coastal wetlands in the San Diego Region is not coordinated or integrated. The proposed project will support efforts to coordinate and integrate monitoring in coastal wetlands in the San Diego Region. The major elements of the proposed effort to coordinate monitoring are: (1) convening a stakeholder group; (2) reviewing past and current monitoring programs, monitoring requirements, and assessments; (3) developing agreed upon common goals and objectives (4) developing a plan for an integrated and cost-effective monitoring and assessment program to address the agreed upon objectives; and (5) coordinating the initial implementation of the integrated monitoring program.

2.5 Objectives and Monitoring Questions

The following objective has been defined for the proposed project:

1. To develop a plan for an integrated, adaptive, and cost-effective monitoring and assessment program.
2. To coordinate the initial implementation of the integrated monitoring program.

The purpose of this project is to answer the following monitoring questions:

1. Are coastal wetlands (individually and collectively) in the San Diego Region healthy?
2. What are the primary stressors causing degradation of coastal wetlands in the San Diego Region?
3. What are the long-term trends in the health of coastal wetlands in the San Diego region?

These monitoring questions may be refined and expanded upon during the stakeholder coordination portion of the project. The term “health” will be discussed and defined during the proposed project. Also, several different

parameters that will indicate health and parameters that are stressors for wetlands will be discussed during the proposed project.

3 Study Methods

Study Design

No samples will be collected during this project. Existing monitoring data will be reviewed, and a cost-effective, integrated monitoring program will be developed. During the project, the past and current monitoring programs, monitoring requirements and assessments that exist for the coastal wetlands and the spatial and temporal frequency of data collected will be reviewed. In addition, the California Wetland Monitoring Workgroup (CWMW) developed an information management system for wetland and riparian information (Wetland Tracker); data from that system will be used for the proposed project.

3.1.1 Site Selection

Monitoring is currently not coordinated within or between coastal wetlands in the San Diego Region; therefore, all coastal wetlands in the San Diego Region will be included in the proposed study. The following list is an inventory of all coastal wetlands in the San Diego Region, from north to south:

1. Aliso Creek Mouth (in Laguna Beach; different than the Aliso Creek Mouth in Camp Pendleton below)
2. Dana Point Harbor
3. San Juan Creek Mouth
4. San Mateo Creek Mouth
5. San Onofre Creek Mouth
6. Las Flores Lagoon (aka Las Pulgas Creek Mouth)
7. Hidden Creek Mouth
8. Aliso Creek Mouth (in Camp Pendleton; different than the Aliso Creek Mouth in Laguna Beach above)
9. French Creek Mouth
10. Cockleburr Creek Mouth
11. Santa Margarita River Estuary
12. Del Mar Boat Basin
13. Oceanside Harbor
14. San Luis Rey River Estuary
15. Loma Alta Slough
16. Buena Vista Lagoon
17. Agua Hedionda Lagoon
18. Batiquitos Lagoon
19. San Elijo Lagoon
20. San Dieguito Lagoon
21. Los Peñasquitos Lagoon
22. Mission Bay (including tidal prisms of tributary creeks)
23. San Diego River Estuary

24. Famosa Slough
25. San Diego Bay (including tidal prisms of tributary rivers and creeks)
26. Tijuana River Estuary

Several coastal wetlands are listed for fecal indicator bacteria (fecal coliforms, total coliforms, enterococcus), sedimentation/siltation, nutrients, eutrophication, low dissolved oxygen, copper, lead, zinc, chlordane, PCBs, PAHs, sediment toxicity, and benthic community effects (305(b) and 303(d) (Integrated Report for the San Diego Region 2008).

3.1.2 Review of Existing Monitoring Data, Requirements, and Assessments

To develop an integrated and cost-effective monitoring and assessment program, existing monitoring data, requirements, and assessments need to be reviewed. Several stakeholder meetings will be convened to compile all existing monitoring data, monitoring requirements, and assessments. Also, available data on the historic ecology of the coastal wetlands will be included into the review. The facilitator(s) will review the data, and produce a table with the major programs, requirements, and assessments in the coastal wetlands. The San Diego Regional Data Portal and the California Environmental Data Exchange Network (CEDEN) will be used to help compile the necessary data if applicable.

3.1.3 Development of an Integrated and Cost-effective Monitoring and Assessment Plan

Based on the review of the existing monitoring and assessment programs, the facilitator(s) will develop an integrated and cost-effective monitoring and assessment plan for the coastal wetlands. The new monitoring and assessment plan will be developed in coordination with the stakeholders, and the SDRWQCB.

3.1.4 Implementation of New Monitoring and Assessment Plan

After developing the new integrated and cost-effective monitoring and assessment plan, the plan will need to be implemented. One or more initial meetings will be held to discuss implementation of the new plan. The goal is for the new integrated monitoring plan to be cost-neutral, so that it can be implemented without any additional resources. In the event that additional resources are necessary to implement the new program, then all stakeholders will need to collaboratively support the program, and/or determine program priorities. In the event that the new monitoring plan results in cost savings, it is anticipated that the cost savings will be used to fund new/additional monitoring program elements.

Data

3.1.5 Data Quality Evaluation and Data Reporting

The project will include a review of existing monitoring data. These data have typically gone through a quality control check. Some of the old data might be re-analyzed for potential changes that could improve efficiencies and reduce costs. Data will be compiled in the California Environmental Data Exchange Network (CEDEN), and EcoLayers which is a data portal that is specialized for the San Diego Region. When the data are uploaded at the data portal, the quality of the data will be checked, and flagged if no quality control is available or if data do not pass the quality check.

3.1.6 Data Management

No new data will be produced during the development of the plan. It is possible that implementation may result in new data collected. Any new data will be stored in the California Environmental Data Exchange Network (CEDEN) and in the regional data portal EcoLayers. The data that will be compiled during this monitoring plan will be used for a future cycle of the water quality assessment under Clean Water Act (CWA) sections 305(b) and 303(d). The data that will be reviewed under this project will be compiled in the EcoLayers data portal.

4 Coordination and Collaboration

The goal of this project can be achieved only by coordination and collaboration. Eric Stein and Martha Sutula from the Southern California Coastal Water Research Project (SCCWRP) and Brock Bernstein (independent consultant) will facilitate the coordination of the proposed project.

The SDRWQCB will collaborate with other regulatory and regulated agencies, non-governmental organizations, and non-profit organizations to improve monitoring coordination in the coastal wetlands in the San Diego Region. A stakeholder group will be convened for the project which will include the major stakeholders. The stakeholders will help guide the process, and will be involved every aspect of the process.

In addition, the proposed project will collaborate with Joe Purohit from EcoLayers to integrate the project into the regionally developed data portal.

The goal of the project is to coordinate and integrate different monitoring programs in the coastal wetlands in the San Diego Region. SWAMP data will be integrated with other monitoring efforts such as (1) monitoring conducted in accordance with State/San Diego Water Board regulatory requirements (e.g., receiving water monitoring required by municipal storm water permits including the Regional Harbor Monitoring Program), other NDPES permit holders, 401 water quality certifications, Waste Discharge Requirements); (2) monitoring conducted in accordance with regulatory requirements of other agencies; (3)

monitoring conducted independent of regulatory requirements (e.g. citizen monitoring); and (4) monitoring conducted as part of State grant projects.

Also, the proposed project will closely coordinate with the Central Coast Wetland Group as this group is currently completing an evaluation of coastal river mouth lagoons along the entire coast of California.

5 Quality Assurance

The facilitators for the project will develop a program for a systematic evaluation of the various aspects of the project to ensure that standards of quality are being met.

6 Deliverable Products/Reporting

The deliverables for the proposed project are as follows:

Coastal Wetlands Monitoring Coordination
1. Convene a stakeholder group, submission of agenda, attendance list and stakeholder group member list, and meeting minutes, deliverable date: 12/31/2011
2. Regular meetings with stakeholder group over the period of the project, submission of agendas, attendance lists, and meeting minutes, deliverable date: one month after meeting
3. Collection of past and current monitoring programs, monitoring requirements, and assessments, submission of table with programs, deliverable date: 4/31/2012
4. Review past and current monitoring programs, monitoring requirements, and assessments, submission of technical memo on review, deliverable date: 7/30/2012
5. Develop a monitoring and assessment program plan, submission of technical memo in program plan, deliverable date: 01/31/2013
6. Convene meeting for the coordination of the initial program implantation, submission of agenda, attendance list and technical memo for initial implementation, deliverable date: 01/31/2013

Project Schedule

The schedule for the proposed project is as follows:

	08/ 11	09/ 11	10/ 11	11/ 11	12/ 11	01// 12	02/ 12	03/ 12	04/ 12	05/ 12	06/ 12	07/ 12	08/ 12	09/ 12	10/ 12	11/ 12	12/ 12	01/ 13
Convene meeting, submission of material																		
Regular meetings, submission of material																		
Collection programs, submission table																		
Review programs, submission of tech. memo																		
Project plan, submission of memo																		
Convene meeting submission material,and memo																		

7 References

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