



SECTION 5

WATERSHED MANAGEMENT MEASURES

5. WATERSHED MANAGEMENT MEASURES

INTRODUCTION

During FY 07-08, the Program conducted a variety of watershed-related management measures and activities. They included conducting watershed assessment activities and special studies, and participating in and coordinating with the Santa Clara Basin Watershed Management Initiative (SCBWMI) sub and core groups. Activities described in this section are consistent with Provision C.10 (i.e., Watershed Management) of the Program's NPDES Permit.

The Program's watershed management strategy (pursuant to NPDES Permit Provision C.10) is to integrate its watershed management efforts with the SCBWMI. Activities that include implementing environmental monitoring and assessment measures are necessary components needed to fully integrate our efforts. Therefore, it is important to note that watershed management measures described in this section are not entirely independent from activities described in Section 4 – Monitoring Activities. Information gained from conducting studies and implementing activities/measures described in both sections have been used (and will continue to be used) in concert to meet objectives outlined in Permit Provisions C.7, C.9, and C.10. They include: (1) characterizing watersheds and stormwater discharges; (2) assessing existing or potential adverse impacts to beneficial uses; (3) identifying potential sources of pollutants of concern; (4) aiding in developing and implementing strategies for controlling adverse impacts on beneficial uses; and (5) assessing the effectiveness of pollutant prevention/control measures.

BACKGROUND

The Water Board encouraged starting the SCBWMI in 1996. The first meetings of the SCBWMI's Core Group and subgroups were held in 1997. During FY 98-99, SCBWMI stakeholders formally joined in a signatory document outlining the SCBWMI's mission, goals and objectives. The Santa Clara Valley Water District and the Cities of San Jose, Sunnyvale and Palo Alto committed additional funds and other resources to the SCBWMI. A Report Preparation Team (RPT) consisting of staff from these agencies developed a plan, schedule, and outline for a Watershed Assessment Report (WAR). The RPT and the SCBWMI subgroups began preparing sections of the WAR soon after.

In late 1999, the Program prepared *Watersheds 2000: A Vision of the Santa Clara Valley Urban Runoff Program's Role in Watershed Management and the Santa Clara Basin Watershed Management Initiative*. This document outlines the Program's long-term vision, roles and responsibilities with regard to the SCBWMI and provides a monitoring/continuous improvement and outreach strategy.

The Program's involvement in the SCBWMI is organized by the concept of continuous improvement, as described in the Program's Urban Runoff Management Plan (URMP). The SCBWMI identifies specific watershed issues and recommendations that are brought to the Program's Management Committee for consideration and action as appropriate. In addition, results from SCVURPPP studies related to watershed monitoring, assessment and management are frequently distributed, presented and discussed with SCBWMI subgroups. This approach creates an informed and coordinated partnership between the Program and SCBWMI.

FY 07-08 SCVURPPP ACCOMPLISHMENTS***Bay Area Macroinvertebrate Bioassessment Information Network (BAMBI)***

The increased interest in bioassessment within the Bay Area spawned the formation of the Bay Area Macroinvertebrate Bioassessment Information Network (BAMBI) in February 2002. BAMBI is a network of scientists, watershed managers, regulators and community members interested in using biological communities as indicators (i.e., benthic macroinvertebrates) of stream health in the San Francisco Bay Area. The goal of BAMBI is to maximize the utility of aquatic bioassessment in the Bay Area by developing a programmatic and analytical framework for the collection, sharing, analysis and use of bioassessment data. Specific activities conducted by BAMBI in FY 07-08 are presented below. Additional information on BAMBI is provided at www.bayareabugs.org.

BAMBI 2008 Annual Meeting

Since 2002, Program staff has helped coordinate an Annual BAMBI meeting where bioassessment data and analyses can be presented from a local, regional or state perspective. On January 30, 2008, the sixth annual BAMBI meeting was held. Presentations included an update on the development of the Index of Biotic Integrity (IBI) for San Francisco Bay Area creeks, long-term variability of bioassessment data and the effects of urbanization on BMIs. Presenters included UC Berkeley PhD candidates and Program staff. The meeting agenda for the January 30 meeting and presentations by Program staff are included within Appendix D-1.

Index of Biotic Integrity (IBI) for San Francisco Bay Area Creeks (SCVURPPP)

In collaboration with Alameda Countywide Clean Water Program and Water Board staff, Program staff developed a draft Work Plan to outline tasks that should be completed during the development of a Benthic Macroinvertebrate Index of Biotic Integrity (B-IBI) for creeks in the San Francisco Bay Area. An IBI serves as an easy-to-use scorecard for determining the condition of water quality and stream habitat (i.e., stream health) using biological communities. The IBI approach is designed to maximize detection of degradation by controlling for natural variation in biological communities. The San Francisco Bay Area IBI Work Plan was included in the Program's *FY 04-05 Annual Report*.

The Work Plan has six main tasks listed in sequential order:

1. Form Technical Advisory Group;
2. Compile Existing BMI Data from Participating Agencies/Organizations;
3. Standardize Datasets and Import into Database;
4. Develop Reference Conditions;
5. Select Metrics for the IBI; and
6. Develop, Validate and Refine IBI.

During FY 07-08, Program staff contributed substantial in-kind services towards the completion of tasks 1 through 5. The following are status summaries for these tasks:

Task 1: Technical Advisory Group (TAG) - A Technical Advisory Group (TAG) was formed in 2006. The TAG consists of Program, California Department of Fish and Game (CDFG) and USGS staff, UC Berkeley graduate students and other Bay Area municipal stormwater program staff. On June 21, 2006, the TAG met to discuss the initial steps in developing reference conditions for Bay Area creeks. A meeting agenda was included within Appendix D-1 of the

Program's *FY 05-06 Annual Report*. The TAG discussed the B-IBI at the January 30, 2008 BAMBI meeting and provided additional input.

Task 2 – Compile Existing Data – In FY 07-08, Program staff spent a substantial amount of time collecting and compiling existing benthic macroinvertebrate data from eight Bay Area counties. Data sources included the Water Board, municipal stormwater programs and volunteer monitoring programs. Data from approximately 400 sites have been compiled. Although this task is likely to be ongoing due to the need to manage bioassessment data collected in the future, it is deemed complete for the purposes of the B-IBI development.

Task 3: Standardize Datasets and Import into Database – Datasets compiled in Task 2 were standardized into a format that could be imported to the California Ecological Data Application System (Cal EDAS), which is currently housed at SCVURPPP. All bioassessment data collected through spring 2005 has been placed in Cal EDAS. In FY 07-08, Program staff began generating data outputs needed to complete Tasks 4-6.

Task 4: Develop Reference Conditions – The development of biological reference conditions for Bay Area creeks is an integral step in completing the B-IBI. Reference conditions provide a way for comparing biological data from a potentially impacted site to a “least disturbed” site. They are also used to determine the degree of impact of a site. On June 21, 2006, the TAG met to begin discussing reference conditions development. As a next step, Program staff began working with UC Berkeley PhD candidates to conduct a GIS based land use analysis to define “least disturbed sites” that will form the pool of reference sites used to establish the B-IBI.

Task 5: Select Metrics for the B-IBI – In FY 07-08, Program staff began conducting analyses to determine the pool of metrics that will be used in the B-IBI. This task will continue into FY 08-09.

In FY 08-09, Program staff plans to continue supporting and actively participating in BAMBI activities, with specific objectives to complete a Draft Provisional B-IBI for San Francisco Bay Area creeks.

Unified Stream Assessment – Matadero Creek

In accordance with the Multi-Year Plan Receiving Waters Monitoring Plan, the Program conducted a screening-level continuous creek walk during the summer 2007 to assess the overall condition and potential impacts to creeks in the Matadero Creek watershed. Based on the information collected, the report entitled *Unified Stream Assessment in Matadero Creek Watershed* was developed and is included in Appendix D-2. This report documents the methods and results of creek walks conducted in the Matadero Creek watershed using the Unified Stream Assessment (USA) protocol. The USA uses visual observations to provide an overall picture of the condition and features of the creek channel and riparian corridor. Overall reach condition (e.g., bank stability, instream and riparian habitat, floodplain connectivity) is qualitatively assessed. In addition, individual impacts such as creek crossings, utilities, outfalls, areas with erosion, channel modifications and trash are documented. Potential uses for the creek walk data include helping with the interpretation of existing screening-level data, informing the design of future monitoring watersheds, and assisting with the selection and targeting of activities aimed at improving creek health and water quality condition.

Evaluating the Utility of the Unified Stream Assessment

During 2008, the Program collaborated with San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) to develop a guidance document on the potential uses of the Unified

Stream Assessment (USA) protocol based on recent experience in the Bay Area (See Appendix D-3). This document, which is entitled *Unified Stream Assessment: Potential Uses for Stormwater Program - San Francisco Bay Area Examples* is intended for use by municipal stormwater programs and other interested agencies. In future years, Phase I municipal stormwater programs in the Bay Area will likely be required to conduct stream surveys using the USA or an equivalent method.

Data generated through USA surveys can address multiple stormwater monitoring-related objectives. Stormwater programs that need to further develop their monitoring programs may conduct USA surveys to establish baseline data, identify the types and locations of potential impacts to water quality, identify potential Beneficial Uses to protect and threats to such Uses, and identify or refine monitoring objectives, parameters and sampling locations. Programs may also use USA survey data to better understand stream conditions and threats to water quality upstream and downstream of existing monitoring sites. This will assist in the interpretation of existing monitoring data and the identification of appropriate stormwater BMPs and potential restoration activities.

Stream Studies Inventory

The Watershed Assessment and Monitoring Subgroup (WAMS), an entity within the SCBWMI, has a mission to provide the SCBWMI with a solid scientific foundation for watershed planning. One of WAMS's tasks is to coordinate the SCBWMI's data collection and data management efforts with stream monitoring studies within the Basin. The *Inventory of Santa Clara Basin Stream Studies* (SSI) is a result of this task and was initially prepared by the Program in November 1998. The purpose of the SSI is to promote inter-agency awareness of environmental investigations within riparian corridors and to facilitate coordination of related data collection and management. It also describes stream-related multi-stakeholder studies and projects that were in-progress in the Santa Clara Basin. The SSI was updated, revised and reissued in February 2000 (Version 2.0), July 2001 (Version 3.0), August 2002 (Version 4.0), November 2003 (Version 5.0) and June 2005 (Version 6.0) (www.scvurppp.org).

On September 15, 2006, the Program finalized the *Inventory of Santa Clara Basin Stream Studies (Updated Version 7.0)*. This version describes twenty-nine related multi-stakeholder studies and projects that recently started or are in-progress within the Santa Clara Basin. Information for seven new studies was added to the updated version and twenty-two ongoing projects were updated with current information. Eight projects listed in the SSI Version 6.0 Report were determined to be complete or discontinued. As a result, they are not included within the updated SSI Version 7.0. Information describing the completed studies was archived into the Program's metadata database.

Watershed Data Management

To comply with its NPDES permit, the Program compiles, develops and analyzes a variety of data sets and reports. Most of this data is collected and generated as part of the Program's environmental monitoring and assessment activities. A majority of the information collected and used by the Program originates from different municipalities and agencies that conduct studies within Program jurisdictional boundaries.

The Program developed a relational database as an initial task to systematically describe and document data used for its activities. The intent of the database is to demonstrate its usefulness of how to systematically and efficiently collect and document all of the relevant data

used in the Program's activities. In addition, the database was designed to explore the feasibility of eventually expanding and coordinating its maintenance and use with other agencies and organizations in the Program.

The SCVURPPP metadata database currently stores information on watershed studies described in the updated SSI Version 7.0 as well as archived information from previous versions of the SSI. The database was also developed to produce a report listing current project information in a format similar to previous SSI Reports. The project summaries of the 2003 SSI report were produced from the database. In addition, the Program database provides querying capabilities for watershed information listed in both the SSI and SCBWMI's Metadata Database.

The SCVURPPP Metadata Database guidance manual entitled *SCVURPPP Metadata Database Program User Documentation* is also available. The manual describes software and hardware requirements, installation procedures, data entry procedures and querying techniques for watershed information listed in both the SSI and SCBWMI's Metadata Database. The *SCVURPPP Metadata Database Program User Documentation* can be found on the Program's website (www.scvurppp.org).

Develop Strategies for Controlling Impacts of Land Use on Beneficial Uses

During FY 07-08, the Program collaborated with the SCBWMI Land Use Subgroup (LUS) on the following activities:

- At the July 11, 2007 LUS meeting, Program staff provided an update of San Mateo County's Sustainable, Green Streets and Parking Lots Program. This program, initiated to directly address the connection between motor vehicle transportation and water quality, is funded by motor vehicle registration fees. It is designed to generate support for the widespread use of stormwater pollution prevention and treatment and flow control BMPs that are well suited for use within streets and parking lots.
- The Program, in collaboration with the LUS, sponsored a session and a mobile workshop at the 2007 conference of the California Chapter of the American Planning Association (CCAPA) held in San Jose (September 30 – October 3, 2007). Program staff gave the presentation entitled "Site Design Elements for Protecting Water Quality" as part of the session entitled "Ground-truthing Smart Growth and New Urbanist Developments". Program staff also developed the program for and helped lead a mobile workshop that featured visits to several local sites with exemplary site design elements, including a green roof at Agilent Technologies in Santa Clara, a pervious concrete parking lot at Congregation Sinai in San Jose, and vegetated swales at the Tully Library in San Jose. Mobile workshop evaluation responses showed that the majority of participants gave the workshop high remarks. A detailed summary entitled "Summary of Sessions and Mobile Workshop at the 2007 CCAPA Conference" was prepared for LUS and Program staff use.
- In spring 2008, Program staff assisted LUS to conduct a four-question survey of Santa Clara Valley municipalities on the need for municipal staff training regarding riparian corridor protection. Survey results were presented in the report entitled "Riparian Corridor Training Needs: Survey Results". The report was finalized on April 8, 2008 (see www.scbwmi.org/PDFs/SUMMARY_2008_LUS_Riparian_Survey.pdf). LUS is exploring two training options: a creekside trail design roundtable, and riparian corridor training for development review staff.

- In June 2008, Program staff worked with LUS to develop and finalize a two-page fact sheet entitled *Top Ten Development Tips to Protect Creeks*. The fact sheet is intended for distribution to planners, designers and project applicants. In addition, LUS prepared a PowerPoint presentation based on information presented within the fact sheet. The presentation will be made to city planners and Co-permittee staff at future meetings and training sessions.

Controlling Sources of Pollutants Through Support of Product Stewardship

Many pollutants identified as “pollutants of concern” by SCVURPPP are contained in products that are required by federal and state law to be disposed of as hazardous or universal waste. In addition, consumer products make up a large percentage of wastes disposed of in landfills. In recent years, due to legislative bans and rising environmental awareness, the quantity of household hazardous waste (HHW) being disposed of at local HHW collection programs has increased significantly. Most HHW programs are not equipped or funded sufficiently to handle this increasing demand.

In February 2007, based on a recommendation from the SCVURPPP Watershed Education and Outreach AHTG, the Management Committee convened a Work Group to evaluate the HHW source reduction and funding issues in Santa Clara County, and recommend both long-term and short-term solutions. Work Group members included representatives from the Program, Co-permittees, County HHW Program, and the environmental community. The Work Group, with assistance from Program staff, developed and distributed a memorandum entitled “Recommendations for Addressing Household Hazardous Waste Source Reduction and Funding Issues” on October 31, 2007. The Work Group’s recommendations included the following:

- CPSC Participation -- SCVURPPP and its Co-permittees should consider joining the California Product Stewardship Council (CPSC) to demonstrate support for “extended producer responsibility” (EPR) legislation and programs. EPR is a policy approach that holds producers responsible for the costs of responsibly managing their products at their end of life. Some examples of the EPR approach include take-back programs for batteries and cell phones where manufacturers, not local government agencies, bear the disposal cost.
- EPR Resolutions – Co-permittees should consider adopting EPR resolutions and environmental procurement policies, and designate staff to be responsible for following up on these issues with their City Councils/Boards. EPR resolutions will set the stage for support letters and lobbying by their agencies, and send a message to legislators that this issue is a priority for government agencies.

In September 2007, the SCBWMI Core Group identified product stewardship as a priority and formed a Product Stewardship Subgroup to address these issues in Santa Clara Valley watersheds. A representative of SCVURPPP is participating on this Subgroup. One of the Subgroup’s tasks is to track the progress of SCVURPPP Co-permittees on the two recommendations stated above. In a progress report to the Management Committee dated July 17, 2008, the Subgroup provided the following information:

Co-permittees and organizations that have signed the CPSC Pledge of Support:

- Cupertino
- Los Altos
- Los Altos Hills
- Palo Alto
- San Jose
- Santa Clara County
- Santa Clara Valley Water District
- Sunnyvale
- SCVURPPP
- West Valley Clean Water Program
- CLEAN South Bay

Co-permittees with adopted Extended Producer Responsibility Resolutions:

- Campbell
- Cupertino
- Los Altos
- Los Altos Hills
- Los Gatos
- Monte Sereno
- Santa Clara County
- Saratoga
- Sunnyvale

The Subgroup also reported that Mountain View, Palo Alto, and San Jose expect to present Product Stewardship Resolutions to their respective city councils before the end of 2008, and the Environmental Advisory Committee of the Santa Clara Valley Water District is considering development of environmental procurement policy recommendations.

**Table 5-1
Status of FY 2007-2008 Watershed Management Measures Projects¹**

Title	Category/ Monitoring Priority (MP) ² / Permit Provision	Capsule Scope	Product(s) ³	Status Schedule
FY 07-08 Rapid Bioassessments	Permit Provision C.7 and C.10	Evaluate water and physical habitat quality in Santa Clara Basin Watersheds.	<i>Watershed Monitoring and Assessment Summary Report: Coyote Creek and Lower Penitencia Creeks^{4a, b}</i>	Completed- 9/15/08
Bay Area Macroinvertebrate Bioassessment Information Network (BAMBI)	MP #4	Collaborate with other BASMAA member agencies to develop regional bioassessment tools necessary to provide context to bioassessment data collected in Santa Clara Basin creeks.	BAMBI – annual meeting agenda and three PowerPoint presentations ^{4a}	Completed- 1/30/07
Unified Stream Assessment – Matadero Creek	MP #3	Conduct screening-level continuous creek walk to assess the overall condition and potential impacts to creeks in the Matadero Creek watershed	<i>Unified Stream Assessment in Matadero Creek Watershed</i>	Completed- 9/15/08

¹ Projects reviewed and approved for inclusion in Work Plan by Budget Ad Hoc Table Group.

² Monitoring Priorities (updated at Monitoring AHTG meeting November 8, 1999):

- 1) New projects needed to implement the results, and achieve the goals, of current projects.
- 2) New projects that implement continuous improvement items identified through the annual review process.
- 3) Projects that support the Santa Clara Basin Watershed Management Initiative in one of the following ways:
 - a) Investigate Beneficial Uses and Causes of Impairment (including field work)
 - b) Review and Compile Environmental Data and Make it Accessible
 - c) Develop Strategies for Controlling Impacts of Land Use on Beneficial Uses
 - d) Facilitate and Support WMI Subgroups (including coordination with other agencies)
- 4) Projects identified through participation in regional monitoring collaborative efforts, including the Regional Monitoring Program and BASMAA.

³ Refer to Appendix C-1 for additional details.

⁴ a) Provided within *FY 06-07 Annual Report*

b) Provided on Program's website (www.scvurppp.org)

**Table 5-1
Status of FY 2007-2008 Watershed Management Measures Projects¹**

Title	Category/ Monitoring Priority (MP) ² / Permit Provision	Capsule Scope	Product(s) ³	Status Schedule
Evaluating the Utility of the Unified Stream Assessment	MP #3 & 4	Develop a guidance document for use by municipal stormwater programs and other interested agencies on the potential uses of the Unified Stream Assessment (USA) protocol based on recent experience in the Bay Area.	<i>Unified Stream Assessment: Potential Uses for Stormwater Programs San Francisco Bay Area Examples</i>	Completed- 5/28/08
Stream Studies Inventory	MP#3b	Promote inter-agency awareness of environmental investigations within riparian corridors and facilitate coordination of related data collection and management.	<i>Inventory of Santa Clara Basin Stream Studies (Version 7.0) Report^{4a,b}</i>	Completed- 9/15/06
Watershed Data Management	MP#3b	Develop a metadata database that is focused on description, documentation, and indexing of the data sets, sources, and reports	Updated Metadata Database	Ongoing
WMI Watershed Assessment and Monitoring Subgroup (WAMS)	MP#3d	Provide administrative support to WAMS.	Meeting summaries	Completed as needed
WMI Environmental Indicators Work Group (Work Group "I")	MP #3d	Provide comments on prototype environmental "score card" assessing the health of the Coyote Creek mainstem.	Comments on draft environmental "scorecard"	Completed 8/06

**Table 5-1
Status of FY 2007-2008 Watershed Management Measures Projects¹**

Title	Category/ Monitoring Priority (MP) ² / Permit Provision	Capsule Scope	Product(s) ³	Status Schedule
Support for Land Use Subgroup	WMI Subgroups MP# 1, 3c, 3d	Provide administrative support and leadership for the Land Use Subgroup. Maintain the subgroup mailing list; prepare and distribute agendas; chair meetings; edit and distribute meeting summaries; liaison to, and correspond with, the SCBWMI Core Group other subgroups as needed; update workplans; facilitate interaction between consultants and the subgroup; summarize, compile, and convey subgroup products.	Detailed summary – <i>Summary of Sessions and Mobile Workshop at the 2007 CCAPA Conference</i> Report – <i>Riparian Corridor Training Needs: Survey Results</i> Fact sheet – <i>Top Ten Development Tips to Protect Creeks.</i>	Completed - 11/1/07 Completed - 4/8/08 Completed - 6/18/08