
ANNUAL MONITORING REPORT 2005-2006

**Stormwater Monitoring Coalition
Of Southern California**

September 21, 2006

INTRODUCTION

As a result of the increasing regulatory focus and the lack of scientific knowledge base, both stormwater regulators and municipal stormwater management agencies throughout southern California have developed a collaborative working relationship. The goal of this relationship is to develop the technical information necessary to better understand stormwater mechanisms and impacts, and then develop the tools that will effectively and efficiently improve stormwater decision-making. As individuals and agency representatives, there was early recognition that these issues are oftentimes not localized, but typically cross watershed and jurisdictional boundaries. This relationship culminated in a formal letter of agreement, signed in 2000, by all of the Phase I municipal stormwater NPDES lead permittees and the NPDES regulatory agencies in southern California to create the Stormwater Monitoring Coalition (SMC) (Table 1).

Table 1. List of member agencies in the Stormwater Monitoring Coalition.

California Regional Water Quality Control Board, Los Angeles Region
 California Regional Water Quality Control Board, San Diego Region
 California Regional Water Quality Control Board, Santa Ana Region
 City of Long Beach
 County of Orange, Public Facilities and Resources Dept.
 County of San Diego Stormwater Management Program
 Los Angeles County Department of Public Works
 Riverside County Flood Control and Water Conservation District
 San Bernardino County Flood Control District
 Southern California Coastal Water Research Project
 Ventura County Watershed Protection District

As a first step, a panel of experts was commissioned to help define a five-year research agenda for the SMC. The research agenda, published in 2001, consisted of 15 unique projects developed around three main foci: 1) developing a regional monitoring infrastructure; 2) understanding stormwater runoff mechanisms and processes; and 3) assessing receiving water impacts. Regional monitoring infrastructure included projects such as standardization of sampling and reporting programs. Stormwater runoff and mechanisms included projects such as peak flow impacts. Receiving water impacts included projects such as developing regional bioassessment protocols.

As the research agenda finishes its fifth year and the initial agreement that bound the SMC together ends, the SMC is considering its future. Rather than let the Coalition dissolve, however, the SMC has agreed to another five-year term. Moreover, they have identified four new members that want active participation within the group. The new agencies include Caltrans, the City of Los Angeles, the State Water Resources Control Board, and the US Environmental Protection Agency. The SMC welcomes these new members and looks forward to working together.

This past year has been another positive and productive resource to its member agencies. Nine of the 15 projects identified in the Research Agenda have been completed or are underway and all of the completed projects have been on time and on (or under) budget. Not only does the collaborative nature of SMC projects represent tremendous value to the member agencies because project costs are split across multiple agencies, but the SMC has been successful in attracting outside resources and agency support. For example, all but a single project has attracted additional funds amounting to well over \$500,000. In addition, we have received in-kind assistance from inland wastewater dischargers, environmental groups, universities, and regulatory or stormwater agencies that are not currently SMC members. The power of collaboration should magnify as the SMC continues to be successful in accomplishing its goals. Below is a list of the project accomplishments during the 2005-06 Fiscal Year.

PROJECT ACCOMPLISHMENTS

Building A Regionally Consistent and Integrated Freshwater Stream Bioassessment Monitoring Program

status: 67% complete

proposed budget \$280,000

Assessment of freshwater biological communities represents a potentially powerful tool for evaluating the effects of discharges in southern California creeks and streams. Bioassessments integrate the effects of multiple stressors, including chemical pollutants and physical alterations in receiving waters. The value of biological assessments is that they are closer to many of the defined beneficial uses of receiving waters (i.e. aquatic life, warm water habitat, cold water habitat) than chemically-derived water quality objectives.

The goal of this study is to build a regionally consistent bioassessment monitoring program. This project will be completed in three phases including: 1) building a monitoring infrastructure; 2) calibrating and validating a regional assessment tool; and 3) designing an integrated, coordinated regional monitoring program. The first phase focuses on creating a monitoring infrastructure so that multiple agencies are properly trained, data are collected in comparable manners, and data can be efficiently shared. The second phase focuses on developing an assessment tool that is robust enough to be used by all agencies across the region. This will enable a consistent approach for evaluating the status of freshwater biological communities and provide the answers regarding community impacts to managers in meaningful and understandable terms. The third phase focuses on creating a study design that most efficiently answers specific questions of interest at large regional scales. Addressing some questions at regional scales can provide cost efficiency for addressing reference condition, cumulative impacts, and when nested within a local sampling design, provides unparalleled information for providing context to local monitoring data.

Our main collaborator on this project is the California Department of Fish and Game (CDF&G). The project is 50% funded by the SWRCB, whose main desire is to ensure integration with the Surface Water Ambient Monitoring Program (SWAMP). This will provide further value to SMC member agencies. To help accomplish this project, an SMC Technical Subcommittee has been formed.

All three phases have been implemented by the SMC. The first goal towards monitoring infrastructure is nearly completed. SMC member agencies have used training, workshops, field audits, enhanced laboratory quality assurance activities, and draft information management and field protocol documents. Of particular note, SMC member agencies have helped to create an important network of laboratory taxonomists called the Southwestern Association of Freshwater Invertebrate Taxonomists that will be important in standardizing and ensuring the quality of laboratory identifications. The second task to evaluate an assessment tool is nearing completion. The southern California index of biological integrity (SC IBI) was being tested in low gradient streams with 45 samples collected last summer and the laboratory analysis completed just this quarter. The Bioassessment Technical Working Group will review these preliminary data analysis at their upcoming meeting. The project has been so successful that the Working Group helped SCCWRP and CDFG to prepare a State Consolidated Grant proposal to test the SC IBI in another important habitat; non-perennial streams. Finally, the Working Group is about one-third of the way through its third task of developing a Regional Watershed Monitoring workplan. The goal of the Regional Watershed Monitoring program would be to increase the effectiveness of existing NPDES monitoring programs by integrating the monitoring not only among permittees, but with other large-scale programs such as the State's Surface Water Ambient Monitoring Program (SWAMP). The Working Group has identified three important questions for regional monitoring to address:

- What is the ecosystem health of watersheds in the So Cal Region?
- What are the major stressors to aquatic life?
- Are conditions in locations of special interest getting better or worse?

The Working Group has started creating the monitoring design to answer these questions. What's more, they have begun identifying redundancies and inefficiencies in existing NPDES programs that could be reprogrammed towards a regional design so that minimal increases in effort will be required to implement it. One other way to help implement the regional monitoring program is to find additional partners. To this end, the Wetland Recovery Project (WRP), other RWQCBs, and additional NPDES permittees have approached the SMC for potential collaboration. This project should be completed within the upcoming fiscal year.

Laboratory Intercalibration Study

status: 5% complete

proposed budget \$60,000

One goal of the southern California Stormwater Monitoring Coalition (SMC) is to compile monitoring data from separate monitoring programs to make regionwide

assessments. The SMC has begun integrating their monitoring programs by agreeing on goals, objectives, and study designs as part of their development of a southern California Model Monitoring Program ftp://ftp.sccwrp.org/pub/download/PDFs/419_smc_mm.pdf. As part of the model monitoring program, 11 analytical laboratories that perform chemical analysis of runoff samples for SMC member agencies conducted an intercalibration study to assess interlaboratory variability and enhance comparability.

The laboratory intercalibration study quantified the range of variability both within and among laboratories that SMC member agencies can expect when examining their own data, or combining data with other agencies. It was successful because the laboratories worked together to minimize interlaboratory variability through the use of performance-based limits for accuracy, precision, and sensitivity. The intercalibration study also defined a series of protocols for specific analytical techniques where performance-based guidelines needed to be enhanced with methodological consistency to ensure comparability. Finally, the intercalibration and resulting guidelines/protocols were documented in a Laboratory Guidance Manual for SMC member agency laboratories ftp://ftp.sccwrp.org/pub/download/PDFs/420_smc_chem.pdf.

The laboratory Guidance Manual and intercalibration effort, however, was incomplete in three areas. The first area was the need to repeat the intercalibration periodically as new laboratories, or new personnel at existing laboratories, come along. The second area was the need to intercalibrate on additional constituents. The original laboratory calibration focused on suspended solids (TSS), nutrients, and trace metals. Organic constituents such as chlorinated hydrocarbons (CHC), organophosphorus pesticides (OP), and polycyclic aromatic hydrocarbons (PAH) were not included. Third, the integration of the laboratory performance-based guidelines were insufficiently integrated into monitoring programs. While the Laboratory Manual could be used as citation for monitoring agencies or regulatory compliance, no specific permitting or contractual language was provided for SMC member agencies.

The goal of this proposal is to complete the three areas of missing information to make the Laboratory Guidance Manual an ongoing and effective document. It will involve three steps: 1) repeat the laboratory intercalibration for TSS, nutrients, and trace metals; 2) initiate an intercalibration for organic constituents; and 3) create draft contract language for integration into stormwater monitoring programs. This project has just started and will take at least three years to complete. However, the outlook for success is so positive, the SMC is amending the agreement to include toxicity testing.