

**Regional Water Quality Control Board
Los Angeles Region**

**Surface Water Ambient
Monitoring Program**

FY 2007/08 Workplan

June 9, 2008

1. Introduction

The Los Angeles Regional Board has a monitoring allocation of \$317,900 from Fiscal Year 2007-8. We plan to utilize these funds to help implement Bight'08 coastal monitoring in Southern California and to perform follow-up monitoring to the SWAMP 2007 lake study to determine whether fish advisories are warranted in several lakes in Region 4.

2. Goals and Objectives/Assessment Questions

2.a. Bight'08 Coastal Monitoring

The proposed Southern California Bight 2008 Regional Monitoring Project (Bight'08) is a continuation of the successful cooperative regional-scale monitoring begun in southern California. Bight'08 builds upon the previous regional monitoring efforts conducted in 1994, 1998 and 2003. Bight'08 will expand the 2003 survey by including new participants, answering additional questions, and measuring more parameters.

The Bight'08 Survey is organized into five technical components: 1) Coastal ecology; 2) Shoreline microbiology; 3) Water quality; 4) Hard bottom; and 5) Areas of special biological significance. The Los Angeles Regional Board plans to provide support from the SWAMP regional allocation to help implement the coastal ecology component of Bight'08. Coastal ecology has its focus on sediments. The work plan is supported by three companion documents detailing Field Methods and Logistics, Quality Assurance (QA), and Information Management.

The overall goal of the coastal ecology component of Bight'08 is to assess the condition of the benthic environment and the health of the biological resources in the Southern California Bight (SCB). To accomplish this goal, Bight'08 will focus on three primary objectives:

1. Estimate the extent and magnitude of ecological change in the SCB,
2. Determine the trends in extent and magnitude of ecological change in the SCB, and
3. Determine the mass balance of pollutants that currently reside within the SCB.

2.b. SWAMP Lake Follow-up Monitoring

Three management questions were articulated to guide the 2007 survey of the status of bioaccumulation in sport fish of California lakes and reservoirs:

- 1) Should a specific lake be considered impaired and placed on the 303(d) list due to bioaccumulation of contaminants in sport fish?
- 2) What is the condition of California lakes with respect to bioaccumulation in sport fish?
- 3) Should additional sampling of bioaccumulation in sport fish at a lake be conducted for the purpose of developing consumption guidelines?

Sampling of lakes and reservoirs was conducted statewide in 2007 and will be continued in 2008 to address the first two management questions. The Los Angeles Regional Board augmented the statewide study in 2007 to allow for sampling of 32 lakes within Region 4. Based on the preliminary results from the 2007 sampling, the Los Angeles Regional Board proposes to move forward with follow-up sampling in some of these Region 4 lakes in 2009 to address question number 3.

3. Monitoring Design

3.a. Bight'08 Coastal Monitoring

The areal extent, magnitude, and trends component of Bight'08 will involve sampling approximately 360 sites for sediments in the SCB between July 1 and September 30, 2008. The summer period was chosen for the study because it represents a period of steady weather during which the indicators we measure are expected to remain stable. Sampling sites were selected using a stratified random approach, with the strata corresponding to the subpopulations of interest (offshore strata include inner shelf, mid-shelf, outer shelf, upper slope, lower slope and basins, Channel Islands; embayment strata include estuaries, ports, bays and marinas). Stratification ensures that an appropriate number of samples are allocated to characterize each population of interest with adequate precision. We aimed to allocate thirty sites to each strata because this yields a 90% confidence interval of about $\pm 10\%$ around estimates of areal extent (assuming a binomial probability distribution and $p= 0.2$). This level of desired precision was selected because differences in response of less than 10% among subpopulations are unlikely to yield different management decisions.

The mass balance component of Bight'08 will involve sampling within three deep basins (Santa Monica Basin, San Pedro Basin, and the San Diego Trough). Targeting these areas will help refine the mass estimates for these habitats.

Bight'08 will measure multiple indicators at each site in order to relate contaminant exposure (sediment chemistry), biological response (sediment toxicity, benthic infaunal community, demersal fish and macroinvertebrate community), and habitat condition (sediment grain size, total organic carbon). Collecting measures of contaminant exposure with measurements of biological response at common sites allows investigators to identify and statistically model

associations between altered ecological conditions and particular environmental stresses. Habitat indicators help discriminate between changes caused by anthropogenic and natural factors.

3.b. SWAMP Lake Follow-up Monitoring

SWAMP has not yet determined the assessment thresholds that will be used to determine the need for follow-up monitoring of lakes and reservoirs. This issue will be addressed by SWAMP and the Bioaccumulation Oversight Group (BOG) over the next few months. However, preliminary review of the 2007 monitoring data by Los Angeles Regional Board staff suggests that follow-up monitoring due to elevated PCB concentrations may be required in at least 10 lakes and reservoirs in Region 4.

SWAMP also has not yet determined the amount of bioaccumulation data that would be required or desirable to allow evaluation of the need to issue a fish consumption advisory. SWAMP expects to develop recommendations for follow-up monitoring in consultation with the Office of Health Hazard Assessment (OEHHA) within the next year. The Los Angeles Regional Board intends to participate in these discussions and would implement follow-up monitoring pursuant to such recommendations.

4. Implementation

4.a. Bight'08 Coastal Monitoring

Region 4 would assist implementation of the Bight'08 design in 2008 by providing laboratory analyses of pyrethroids and pyrethrins for 170 samples collected by Bight'08 participants plus 17 field duplicate samples. Fifty sediment samples also will be tested with *Mytilus* at the surface water interface to examine larval development.

The analytical work to be provided by the Los Angeles Regional Board to support Bight'08 would cost approximately \$116,384. Toxicity testing will be conducted by the California Department of Fish and Game Laboratory in Granite Canyon. Chemical analyses will be conducted by the California Department of Fish and Game Laboratory in Rancho Cordova.

4.b. SWAMP Lake Follow-up Monitoring

Sample collection will be conducted in 2009 by California Department of Fish and Game, Moss Landing Pollution Studies Laboratory field sampling crews at the number of sites selected using the techniques developed for the SWAMP BOG statewide study.

For chosen sites, the MPSL-DFG SWAMP field sampling crew will collect the samples, and will provide for storage of samples in proper containers and at proper temperature until return to the laboratory. MPSL-DFG SWAMP field crew staff shall enter data into the most current MLML SWAMP data management system, including latitude and longitude and GPS coordinates recorded during collection of fish at stations, and including digital cross-referenced photographs, directions to the site, and a site map shall be provided for the site for future reference. Other information collected in the field by MPSL-DFG SWAMP field crew staff should also be provided to MLML SWAMP data management staff, including field conditions and any other ancillary information, as requested/authorized and as site conditions allow. All of the field information requested shall be used in order to submit information for inclusion in the SWAMP database.

Sufficient numbers of fish shall be collected by MPSL-DFG SWAMP field crew staff in order to allow MPSL-DFG and all other contract analytical laboratory staff to perform the analyses to be conducted at each station. Sample collection and subsequent processing and testing will be performed according to the SWAMP BOG Quality Assurance Project Plan (QAPP) and SWAMP Laboratory SOPs.

5. Data Analysis and Reporting

5.a. Bight'08 Coastal Monitoring

Data analysis and report writing will be completed by the Bight'08 participants, with input from Los Angeles Regional Board staff. A toxicity assessment report could be available by late 2008 or early 2009. A final report assessing sediment chemistry data probably would not be available until 2010. All sediment chemistry and toxicity data produced with SWAMP support will be submitted for inclusion in the SWAMP database.

5.b. SWAMP Lake Follow-up Monitoring

Field crews will use the most recent SWAMP Field Data sheets for collecting field information and will enter the field data into the SWAMP 2.5 database. Regional Board staff anticipates submitting the data to OEHHA to evaluate the need for a fish advisory for each lake sampled. Regional Board staff would expect to produce a final assessment report in 2009 or 2010.