

SUPPLEMENTAL EXECUTIVE OFFICER SUMMARY REPORT

September 9, 2009

ITEM: 10

SUBJECT: Report: Surface Water Ambient Monitoring Program, (SWAMP). (*David Gibson, Bruce Posthumus, Cynthia Gorham-Test*)

PURPOSE: To provide an overview and update on SWAMP, its major efforts, and the existing water quality condition and ecological health of watersheds in the San Diego Region.

PUBLIC NOTICE: This is an information item. There are no legal noticing requirements.

DISCUSSION: The Surface Water Ambient Monitoring Program (SWAMP) was created in 2000 pursuant to AB 982 (WC section.13191) and is implemented by the State Board and Regional Boards. The goals of SWAMP are to determine the quality of waters of the state and to provide high quality data to resource managers, decision makers and the public. In order to achieve this goal, SWAMP develops protocols and new indicators, establish QA/QC, and data management. SWAMP program is conducting monitoring on a statewide level, and on a regional level.

Condition of the San Diego Region Water Bodies:

The San Diego Region SWAMP included sampling and analysis of all 11 Hydrologic Units in a rotating watershed, targeted tributary design from 2001-2006 (Supporting Document 1). The results of this first SWAMP effort are presented in 11 Watershed Reports and a Synthesis Report that were prepared in 2007 and 2008 under contract by SCCWRP for the San Diego Regional Board. The assessment included evaluations of water chemistry, water and sediment toxicity, benthic macroinvertebrate community structure, and physical habitat. The ecological health of a watershed was assessed using the Index of Biotic Integrity

(IBI), chronic toxicity testing results, and water chemistry exceedances of thresholds for aquatic life. These reports document water quality conditions and ecological health in each of our major watersheds, provide baseline data from which future trends in water quality, ecological health, and beneficial use attainment can be assessed in our watersheds, and the reports serve as a management tool for focusing our regulatory resources in the San Diego Region.

The Synthesis Report abstract (Supporting Document 2) provides a regional scale assessment of all 11 watersheds, and recommendations to the SWAMP program for the San Diego region.

The results of the assessments are summarized in Table 1 (Supporting Document 3). Most indicators showed evidence of moderate to severe widespread impacts in the different watersheds. Table 1 provides a stark picture of biological health in most San Diego Region watersheds, which have suffered moderate to severe impacts as indicated by all four indicators. Although this conclusion is based on monitoring results from only a few monitoring stations located in each watershed, the consistency of those results supports the validity of this conclusion.

All eleven of the Watershed Reports and the Synthesis Report are posted on the San Diego Water Board website at http://www.waterboards.ca.gov/sandiego/water_issues/programs/swamp/index.shtml (Scroll down to the bottom of the webpage).

Future Direction of the San Diego Region SWAMP Effort

For 2009 and 2010 spring monitoring events, the San Diego Region SWAMP will focus on three programs: 1) post wildfire water quality assessment; 2) a partnership with the Stormwater Monitoring Coalition Program; and 3) sampling perennial and non-perennial stream reference sites.

Post-Wildfire water quality assessment. The San Diego Region SWAMP has included sampling and analysis of watersheds impacted by the 2003 and 2007 wildfires. The San Diego Region will fund the CA Dept. of Fish & Game's Aquatic Biology Lab to complete a full analysis and report on results of Post-fire monitoring conducted from spring 2004 through spring 2009 in the San Diego Region. This report will assess and quantify the effects upon water quality from

the multiple stressors associated with varying degrees of watershed impact from the wildfires, and, if practicable, evaluate the outcomes of the recovery efforts.

Stormwater Monitoring Coalition (SMC) Partnership: The SMC is implementing a Southern California Regional Watershed Monitoring Program. The SMC has undertaken a collaborative effort to monitor the health of coastal watersheds in the Los Angeles, Santa Ana and San Diego Regions. The mission of the SMC is to cooperatively answer technical questions thereby enabling better scientific decision making related to storm water management. The SMC effort is being coordinated by SCCWRP. The sampling design includes watersheds in six counties in Southern California including Riverside, Orange, San Diego, San Bernardino, Los Angeles, and Ventura Counties. Unlike previous watershed condition assessments that have relied on targeted station selection, the SMC effort has randomly selected stream reaches for assessment to ensure statistically significant and reliable results that will characterize conditions across the watersheds. The monitoring effort is scheduled to continue for at least five years. The San Diego Region SWAMP is an active partner in this effort and is providing one-third of the funding for monitoring work in spring 2009 and 2010.

San Diego Reference Condition Characterization. Identifying and characterizing reference conditions is a critical need statewide when using biological indices to assess beneficial use attainment, evaluating the effects of specific discharges on receiving waters, or documenting hydromodification impacts. To enhance the statewide SWAMP reference condition assessment effort, the San Diego Region in partnership with the CA Dept. of Fish & Game's Aquatic Biology Lab will identify potential reference conditions using the quantitative, GIS based approach developed and published in the Southern California Index of Biotic Integrity to identify stream reaches that represent undisturbed or minimally disturbed conditions. Concurrent sampling and assessment of these stations provide a benchmark for comparison for other projects that documents changes among all sites that are due to short-term weather patterns (e.g. El Nino years) long-term climate change, and to provide a basis of comparison for reference to non-reference conditions from year to year for specific projects or regulatory decisions. SWAMP identified and sampled

Reference sites in 2007, and will continue Reference site sampling in 2010.

Statewide SWAMP Initiatives

The SWAMP Bioaccumulation Oversight Group (BOG) studies bioaccumulation of pollutants (such as mercury and PCBs) in fish tissue. SWAMP recently released a technical report presenting results from the first year of a screening survey of the contaminant accumulation in fish from California lakes and reservoirs. The Perennial Streams Assessment is a statewide probability survey of the biological condition of perennial, wadeable streams. The Reference Conditions Management Plan is currently being implemented. The implementation includes intensive sampling of Reference sites in the entire state to assess the natural variation of Reference sites.

State Water Board SWAMP, SCCWRP and CalEPA are embarking on developing biological objectives to build a regulatory bioassessment program. Biological objectives are the narrative or numeric expressions describing the qualities that must be present to support desired conditions in a waterbody; they serve as the standard against which monitoring results are compared. The project is scheduled to be completed in two phases covering six years.

A technical document was released on May 2, 2009 for Standard Operating Procedures (SOP) for collecting and field-processing benthic stream algae for the California State Water Resources Control Board (SWRCB) SWAMP Program. The Algae Bioassessment SOP (Algae SOP) provides instructions for (1) collection of samples for taxonomic identification of benthic diatoms and soft-bodied algae, (2) collection of samples for determination of algal biomass and (3) estimation of percent algal cover. The Algae SOP was reviewed and approved by the SWAMP Roundtable members. The Algae SOP was written by Dr. Elizabeth Fetscher of the Southern California Coastal Water Research Partnership (SCCWRP), Dr. Lilian Busse of the San Diego Regional Board, and Dr. Pete Ode of the CA Department of Fish and Game, Aquatic Bioassessment Laboratory.

The California Environmental Data Exchange Network (CEDEN) is partly funded by SWAMP. SCCWRP has been

designated as the Southern California Regional Data Center to directly supply this data to the CEDEN system. High quality data from governmental agencies and universities from past years continues to be entered into this database. Environmental data associated with SWAMP, other governmental programs or agencies, non-governmental organizations, or universities can be stored in this database.

KEY ISSUES:

1. The Watershed Reports and Synthesis Report provide a baseline assessment from which trends in water quality and ecological health can be evaluated.
2. The condition of San Diego Region watersheds is a result of multiple stressors altered water chemistry, high toxicity, and degraded physical habitat.
3. Ambient water quality and biological monitoring data can be used: to assess if a waterbody should be a priority focus for the our region, to evaluate if management strategies are improving conditions on a waterbody, or as a straightforward determination of sources and quantities of pollutants coming from a subwatershed or entire watershed..
4. SWAMP is critically underfunded statewide relative to its mission. Integration and coordination of SWAMP initiatives with regulatory monitoring requirements and with monitoring being conducted by other agencies and non-governmental organizations is essential to maximize efficiency and improve effectiveness at addressing important water quality questions.

LEGAL CONCERNS:

None

SUPPORTING DOCUMENTS:

1. San Diego Region SWAMP Monitoring Locations Map.
2. Synthesis Report Abstract.
3. Ecological Health Indicators for Sample Sites in San Diego Region Watersheds.

RECOMMENDATION(S):

1. Develop a Regional Board Monitoring Strategy to guide integration and coordination of SWAMP with regulatory and non regulatory monitoring being conducted in the San Diego Region.