

**Addendum 2****PROGRAM REPORT****Surface Water Ambient Monitoring Program (SWAMP)**

California Assembly Bill AB 982, requires that the State Water Resources Control Board (SWRCB) to develop a comprehensive ambient surface water quality monitoring program (SWAMP) to provide a picture of the overall water quality throughout the State and better characterize problem sites and reference conditions.

State and Regional Board monitoring coordinators, who meet regularly as the Water Quality Monitoring Coordinating Committee, have determined that available funding, both in staff and contract dollars, is not sufficient to adequately address both components independently. In addition, funding levels have fluctuated dramatically since the program began (e.g. Region 5's contract dollar allocation dropped from \$800,000 in FY00/01 to \$72,500 in FY01/02) making it difficult to maintain a stable monitoring program. Some stability occurred when funding for the program switched from General Fund to Waste Discharge fees. Overall funding however continues to be inadequate. For more information on the Statewide Program can be found at: <http://www.waterboards.ca.gov/swamp/index.html>

With staffing resources limited to 2.0-PY, SWAMP efforts in Region 5 have been developed to maximize monitoring frameworks already in place within each of the major Basins (the Sacramento River, San Joaquin River, and Tulare Lake Basins) and to leverage available resources. In general: the Upper Sacramento River Basin augments monitoring efforts by local watershed groups; the Lower Sacramento River Basin focused initial efforts on special studies evaluating ag-dominated and effluent-dominated water bodies with current efforts framed in a rotating watershed design; the San Joaquin River Basin built its monitoring effort on the existing framework utilized in the Grassland Bypass Project; and the Tulare Lake Basin focused on watersheds with known water quality impairments. Detailed information on these efforts, including annual workplans, sampling site locations, water quality data, and watershed/water quality studies, is available on Region 5's SWAMP web site at: <http://www.waterboards.ca.gov/centralvalley/programs/agunit/swamp/index.html>

Overall SWAMP goals in Region 5 include evaluating beneficial use protection, sources of potential impairment, and effectiveness of implementation efforts. To maximize resources, all monitoring efforts are coordinated with existing monitoring programs—both internal programs (TMDL, subsurface ag drainage, WDR, and Ag Waiver) and external programs (other agencies such as USGS and University of California and grant funded projects). A summary of current efforts within each basin follows.

**Upper Sacramento River Basin**

To date, SWAMP activity in the northern sector of the Sacramento River watershed has focused on establishing and implementing long-term water quality and watershed monitoring in the Upper Feather River and Pit River watershed areas

**Upper Feather River Watershed**

Monitoring started in 1999 and is continuing under the direction of the Feather River Coordinated Resource Management Program (CRMP). The monitoring program includes 26 sites (in a 3,000 sq. mi. watershed) where continuous recording and discrete samples and measurements are taken. Monitoring parameters include stream flow, channel morphology, aquatic habitat quality, chemical/physical/biological water quality constituents, macroinvertebrate and fish populations. A report on the monitoring program can be found on [www.feather-river-crm.org](http://www.feather-river-crm.org).

**Pit River Watershed**

Monitoring started in 2001 and will continue at least through 2005. The program was started by the RWQCB and is now under the direction of the Pit River Alliance, a collaborative group of resource agencies, landowners, private industry, and resource advocates. The program includes sites on the Pit River (11 sites), Fall River (12 sites), and major tributary streams (36 sites) in this 3,000 sq. mi. northeastern CA watershed. The Pit River is currently 303(d) listed for temperature, nutrient loading, and low dissolved oxygen. The monitoring program includes stream flow, various water quality constituents

(consistent with the requirements of the Ag Waiver program), channel morphology and habitat measurements, and macroinvertebrate populations. A report on the monitoring program can be found on [www.pitriverralliance.net](http://www.pitriverralliance.net).

### **Lower Sacramento River Basin**

The plan for monitoring in the lower Sacramento River Basin using 2004/2005 SWAMP funds includes two components: The first and largest component is a watershed-based assessment of water column toxicity in the American River Watershed. The focus of this assessment will include investigation of potential aquatic life toxicity associated with various land uses in the American River Watershed above Folsom Lake, including urban, agriculture, and historical mining. The second component includes an investigation of impacts to water quality in the suburban creeks in the lower Sacramento River Basin. The focus of this work includes better characterization of sediment toxicity detected with 2003/2004 SWAMP monitoring funds. The sediment toxicity detected with 2003/2004 monitoring was associated with pyrethroid pesticides. Complete Work Plans and Final Reports for earlier SWAMP funded work in the lower Sacramento River Basin can be obtained from: <http://www.waterboards.ca.gov/swamp/reports.html>

### **San Joaquin River Basin (SJR)**

The SWAMP program for the SJR builds upon a site-specific monitoring framework developed as part of the agricultural subsurface drainage management program that has evolved since 1985. Parameters were selected to measure the most limiting beneficial use impacts: salt, bacteria, TOC (drinking water); trace elements, toxicity, bioassessments (aquatic life); salt, boron, minerals (irrigation water supply); bacteria (recreation); and selenium (waterfowl). Bacteria analyses are completed in-house and have been verified through round-robin testing with University of California, Davis and Sierra Foothills Laboratory.

To identify potential sources of impairment, a layered monitoring framework was developed. The first layer is sites selected along the main stem of the river downstream of major inflows. The second layer is a series of sites representing inflows from specific sub-watersheds into the main stem of the river. The final layer is a more detailed survey of water quality within each of the sub-watersheds-once every 5-years.

To evaluate implementation efforts, the sites along the main stem of the San Joaquin River and those representing drainage inflows from five sub-basins have been designated as permanent monitoring locations. These sites will also allow evaluation of water quality over time and over water year types that can range from flood to critically dry years. Bioassessment has been conducted in the Basin through a separate effort and coordinated with the water column and sediment monitoring.

Findings to date have included weighted evidence indicating sediment toxicity associated with pyrethroids in a number of agricultural drains, sporadic acute and chronic water column toxicity associated with organics and nutrients in the lower watershed areas, and sporadic exceedences of the single sample E. coli bacteria objective (235 MPN) both in upper watershed area streams and the San Joaquin River itself.

All water quality information collected is available on the Region 5 SWAMP web site. In addition, draft reports on the first two subwatersheds surveyed (Northeast Basin: Cosumnes, Mokelumne, and Calaveras Watersheds; and Eastside Basin: Stanislaus, Tuolumne, and Merced Watersheds) will be posted in January 2005. The third rotation is occurring in the Westside Basin, which contains creeks draining the Coast Range north of Orestimba Creek and south of the Delta. Sampling in this basin began in October 2004 and is expected to continue through September 2005.

A special study was also conducted on the Fresno River. The Fresno River watershed has been identified as a possible contributor of nutrients. Algal blooms have been observed in Hensley Lake. The County of Madera Engineering Department was awarded a 205(j) grant to collect water quality data, develop a nutrient loading model, and develop a plan to reduce nutrients. To begin to obtain data prior to the execution of the grant contract the Fresno office used SWAMP funds to begin baseline sampling and gather preliminary data from the Fresno River and Hensley Lake. Four sampling events were conducted in the watershed between August 2001 and June 2002. The County of Madera is currently working on the final report for the 205(j) grant that includes data collected from this SWAMP sampling.

### **Tulare Lake Basin**

Historically the emphasis on water quality studies has been on groundwater, with SWAMP being one of the first major efforts evaluating surface water. To date the intent of the SWAMP program within the Tulare Lake Basin has been to collect baseline data from the Kern, Tule, Kaweah, South Fork Kings, and Lower Kings Rivers, and associated reservoirs and tributaries draining the west face of the Sierra Nevada. All of the aforementioned water bodies have similar land uses such as foothill development, recreational uses, industrial processes, agriculture, and livestock grazing.

Sampling has been for basic water quality parameters including temperature, dissolved oxygen, pH, EC, nutrients, and bacteria. Sampling efforts on the mainstem rivers and reservoirs draining the western face of the Sierra Nevada were to occur

on a quarterly timetable, based on seasonal conditions, to begin to establish baseline water quality conditions and to detect potential variations on a temporal and spatial scale. Due to contracting and/or staffing issues, a goal of quarterly sampling over the last three fiscal years has not always been met.

During the second half of FY 04/05, work has begun toward inputting all of the Tulare Lake Basin sampling data into the SWAMP database.

**Delta**

SWAMP work in the Delta is limited due to the extensive number of agencies currently involved in water quality modeling efforts—both directly and through grants. A three-year bioassessment program is being conducted under separate funding within Region 5, which will result in an overall assessment of conditions as well as development of both reference conditions and an Index of Biological Integrity. General water quality parameters and bacteria samples are being collected during each sampling event.

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**Addendum 2****PROGRAM REPORTS****SURFACE WATER AMBIENT MONITORING PROGRAM (SWAMP) UPDATE**

Since 2001, SWAMP has been operating statewide, although funding has been irregular at best (e.g. for Region 5 annual funding has fluctuated between \$800,000 and \$72,200). A stable funding source was tapped for the program in 2004 through the use of waste discharger fees. Full funding was to be re-established for FY 05/06. Currently State Board is proposing to significantly reduce the available SWAMP funding (for Region 5 from \$800,000 to \$300,000) in order to fund CIWQS (California Integrated Water Quality System), a database system being developed to capture all water quality information agency-wide. Staff and management have protested this planned redirection of funding for a variety of reasons including: lack of coordination with SWAMP to determine need; inequitable reduction in program funds (since SWAMP and the groundwater monitoring program are the only funds to be utilized for CIWQS although the system is purported to support ALL agency programs); and duplication of the current statewide SWAMP database. A final decision on the redirection of SWAMP funding is anticipated from State Board management in the next several weeks. Should the redirection occur, Region 5's FY 05/06 workplan will be revised to eliminate the majority of ambient sample collection and analysis. (JEC)