

Section 3.3 Monitoring Program Activities throughout the Region ('Regionwide')

An ongoing monitoring program is essential to water quality protection in the Region. The goal of monitoring is to characterize water quality and the degree of support for beneficial uses on both temporal and spatial scales. 'Baseline' data can be used to set standards for water bodies that currently do not have site-specific standards. 'Trend' information defines the need for, and allows prioritization of, restoration and/or regulatory actions. Monitoring can also document compliance with permit conditions, and the success (or failure) of remedial activities.

Because of the large size of the Region (> 33,000 mi²), the large number of water bodies in it, the difficulties of sampling in remote terrain and severe weather, and funding constraints, detailed monitoring data are available for only a few of the Region's waters. In the past, monitoring and assessment capabilities of the RWQCB have been very limited and tended to focus on specific problem areas or program needs. In FY 00-01, substantial new funding was provided in the Governor's budget for ambient water quality monitoring. This section describes current monitoring programs and discusses future plans and needs.

Current monitoring programs

Surface Water Ambient Monitoring Program (SWAMP) – In FY 00-01, the California Legislature for the first time provided funding at a level that will allow the RWQCB to conduct substantial monitoring of ambient water quality conditions. ("Ambient" monitoring refers to collection of information about the status of physical, chemical, and/or biological characteristics of a water body. It generally does not include discharger monitoring, investigations to identify sources of pollutants, or assessment of the effectiveness of individual management practices.) In FY 00-01, the Lahontan Region received 1.0 PY of position authority, and \$360,000 for ambient monitoring contracts. The Region created and filled a new, permanent position for a Regional Monitoring Coordinator. In FY 01-02, the Lahontan Region received a reduced amount for monitoring contracts, \$336,526. Allocations for future years are unknown. For more details on the Region's SWAMP workplan, contact Tom Suk, Lahontan RWQCB, (530) 542-5419, or via email: tsuk@rb6s.swrcb.ca.gov

Compliance Monitoring – Most regulated dischargers are required to participate in self-monitoring programs. Such monitoring can range from simple, periodic visual inspections (e.g., observation of erosion control practices or drainage facilities) to complex physical, chemical, and biological sampling and analyses. Because self-monitoring programs are generally focussed on specific sites and are limited in scope, discharger self-monitoring data cannot be relied upon to provide quantitative background information on most of the receiving waters of the Region, particularly for nonpoint source discharges.

Mitigation Monitoring – The California Environmental Quality Act (CEQA) requires that monitoring and reporting programs be established for any mitigation measures adopted as conditions of project approval. RWQCB staff often assist in establishment and/or review of mitigation monitoring requirements, however, by law this monitoring only evaluates whether mitigation measures were implemented or applied as specified, not whether such measures are effective at protecting water quality.

Complaint and Enforcement Monitoring – When investigating a reported water quality problem, the RWQCB may collect samples and take photographs to document the extent of the problem and provide a basis for enforcement or remedial action. Monitoring is also conducted by staff and/or the discharger as a follow-up to an enforcement action.

Toxic Substances Monitoring Program (TSMP) – Under the longstanding statewide TSMP, several surface water locations in the Region are sampled each year, and organisms (e.g., fish, benthic macroinvertebrates) from each station are analyzed for a spectrum of metals and/or organic compounds. Because of the small sample size and (in some cases) the lack of water quality criteria, results do not necessarily indicate impairment of beneficial uses. However, elevated levels often indicate the need for further study. For more information, visit: <http://www.swrcb.ca.gov/programs/smw/index.html>

Restoration/Remediation Monitoring – The RWQCB periodically conducts monitoring to evaluate the effectiveness of projects which have received partial or full funding from the state, or receive oversight from the state. For example, the RWQCB has used WMI funds and USEPA grants to support evaluations of watershed restoration and BMP implementation efforts at the Upper Truckee River, West Walker River, Bagley Valley, and other sites. The RWQCB also conducts regular sampling at a network of sites associated with the Leviathan Mine Pollution Abatement Project in Alpine County.

Citizen Monitoring – The RWQCB has made a modest effort to engage interested citizens in monitoring programs. Most notably, WMI funds were used in FY 98-99 to provide bioassessment training for citizen monitors in the Truckee River watershed. That citizens' group continues to be active in monitoring of stream conditions in the Truckee area. A more concerted effort to coordinate citizen monitoring is now led by the SWRCB's Division of Water Quality, "Clean Water Team." For more information on citizen monitoring, visit: <http://www.swrcb.ca.gov/nps/volunteer.html>

Lake Tahoe Interagency Monitoring Program (LTIMP) – The intent of the LTIMP is to foster coordination among the many entities that conduct monitoring in the Lake Tahoe Basin. RWQCB staff participate in LTIMP functions and follow LTIMP guidance when conducting monitoring in the Tahoe Basin.

Ground Water Monitoring – The statewide Well Investigation Program (WIP) was initiated in 1986. Funding has been sporadic. Some public drinking water supply wells in the Lahontan Region have been tested for organic chemicals. Fewer than 1% of the wells tested in the Region have been found to be degraded. Most recently, the SWRCB has begun the development of a comprehensive, state-wide Ground Water Ambient Monitoring and Assessment (GAMA) program. The GAMA program is coordinated by the SWRCB's Division of Clean Water Programs. For more information on GAMA, visit: <http://www.swrcb.ca.gov/cwphome/land/gama/webpages/gamahome.htm>

Other Monitoring – In addition to the ambient and regulatory monitoring described above, other types of monitoring take place within the Region as part of the TMDL and nonpoint source programs. Monitoring specific to the five focus watersheds in the Region is described elsewhere in this Chapter (please see Sections 2.1g, 2.2g, 2.3g, 2.4g, and 2.5g).

Future monitoring plans and needs

The Region plans to continue the monitoring efforts described above, and to expand them as funding allows. Monitoring needs are summarized below.

As directed by the Legislature, the State Water Resources Control Board (SWRCB) has prepared a plan for a comprehensive, state-wide "Surface Water Ambient Monitoring Program" (SWAMP). The SWAMP proposal recognizes that the existing monitoring programs of the SWRCB and RWQCBs are inadequate to assess the ambient conditions of the State's waters, and that substantial additional resources will be needed in order for the RWQCBs to assess water quality and beneficial uses. The SWAMP provides a framework for a comprehensive, state-wide monitoring program for surface waters. If funded by the Legislature, the SWAMP would become the cornerstone of the Region's surface water monitoring efforts. Specific needs for the Lahontan Region are summarized below for the next five fiscal years. (Note: These estimates assume that ground water monitoring will continue to be coordinated by the SWRCB from a central location in Sacramento. These estimates therefore do not include monitoring needs for ground water.)

FY 02-03

Summary of needs for FY 02-03 =

- **2.0 PYs**
- **\$5,000 for equipment/supplies**
- **\$1,360,000 for contracts**

In addition to the Regional Monitoring Coordinator, the Region needs an additional position (ES II or ES III) to assist with the following tasks: data entry and management, water quality assessment, and field assistance. (Note: If the additional staff position is not provided, the Region would need an estimated \$100,000/year additional in contract funds to pay for external assessment of monitoring data.) The Region also needs approximately \$5,000 to purchase sampling equipment and supplies in FY 02-03. Estimated contract needs for FY 02-03 are as follows:

Amount	Topic	Objective(s)
\$700,000	surface water sampling	document physical and chemical water quality at selected sites throughout the Region
\$150,000	macroinvertebrate bioassessment	document benthic macroinvertebrate assemblages and develop an index of biological integrity
\$50,000	periphyton bioassessment	document periphyton assemblages and develop an index of biological integrity
\$75,000	Lake Tahoe turbidity	refine & utilize new technologies for measuring turbidity at Lake Tahoe
\$35,000	MTBE-BTEX	document MTBE-BTEX concentrations in Lake Tahoe
\$200,000	poly-aromatic hydrocarbons (PAHs)	document PAH concentrations in areas of heavy motorboat use, and conduct ecotoxicity studies
\$100,000	amphibian/fish ecotoxicity	provide matching funds for USGS long-term study to establish environ. Indicators in region
\$50,000	bacteria	utilize new technologies (i.e., DNA fingerprinting) to determine bacteria levels and sources
\$1,360,000	TOTAL	

FY 03-04

Summary of needs for FY 03-04 =

- 2.0 PYs
- \$15,000 for equipment/supplies
- \$1,605,000 for contracts

The need for 2 positions will remain constant throughout the 5-year planning horizon. (Note: If the additional staff position is not provided, the Region would need an estimated \$100,000/year additional in contract funds to pay for external assessment of monitoring data.) The need for equipment and supplies will increase as the RWQCBs monitoring programs expand. While most of the work would be performed by contractors, RWQCB staff would need equipment and supplies to conduct sampling: (1) for analytes that have short holding times and contractors are not readily available to collect and analyze samples in conformance with established holding times (i.e., bacteria, hexavalent chromium); (2) when there is no time for contract execution (i.e., documenting aquatic conditions prior to an expected disturbance, or in response to unforeseen environmental changes, such as invasion of exotic species, extreme weather events, etc.); and (3) to facilitate citizen monitoring efforts. Estimated contract needs for FY 03-04 are as follows:

Amount	Topic	Objective(s)
\$735,000	surface water sampling	document physical and chemical water quality at selected sites throughout the Region
\$160,000	macroinvertebrate bioassessment	document benthic macroinvertebrate assemblages and develop an index of biological integrity
\$50,000	periphyton	document periphyton assemblages and develop

	bioassessment	an index of biological integrity
\$75,000	Lake Tahoe turbidity	refine & utilize new technologies for measuring turbidity at Lake Tahoe
\$35,000	MTBE-BTEX	document MTBE-BTEX concentrations in Lake Tahoe
\$200,000	poly-aromatic hydrocarbons (PAHs)	document PAH concentrations in areas of heavy motorboat use, and conduct ecotoxicity studies
\$100,000	amphibian/fish ecotoxicity	provide matching funds for USGS long-term study to establish environ. Indicators in region
\$150,000	bacteria	refine & utilize new technologies (e.g., DNA fingerprinting) for determining bacteria sources
\$100,000	miscellaneous	other studies (i.e., hormones, protozoans, viruses, other env. indicators & emerging issues)
\$1,605,000	TOTAL	

FY 04-05

Summary of needs for FY 04-05 =

- 2.0 PYs
- \$15,000 equipment/supplies
- \$1,567,000 in contracts

The need for 2 positions will remain constant throughout the 5-year planning horizon. Estimated contract needs for FY 04-05 are as follows:

Amount	Topic	Objective(s)
\$772,000	surface water sampling	document physical and chemical water quality at selected sites throughout the Region
\$170,000	macroinvertebrate bioassessment	document benthic macroinvertebrate assemblages and develop an index of biological integrity
\$50,000	periphyton bioassessment	document periphyton assemblages and develop an index of biological integrity
\$75,000	Lake Tahoe turbidity	monitor ambient turbidity at locations throughout CA on Lake Tahoe
\$200,000	poly-aromatic hydrocarbons (PAHs)	document PAH concentrations in areas of heavy motorboat use
\$100,000	amphibian/fish ecotoxicity	provide matching funds for USGS long-term study to establish environ. Indicators in region
\$100,000	bacteria	utilize new technologies (e.g., DNA fingerprinting) for determining bacteria sources
\$100,000	miscellaneous	other studies (i.e., hormones, protozoans, viruses, other env. indicators & emerging issues)
\$1,567,000	TOTAL	

FY 05-06

Summary of needs for FY 05-06 =

- 2.0 PYs
- \$15,000 equipment/supplies
- \$1,288,000 in contracts

The need for 2 positions will remain constant throughout the 5-year planning horizon. Estimated contract needs for FY 05-06 are as follows:

Amount	Topic	Objective(s)
\$810,000	surface water sampling	document physical and chemical water quality at selected sites throughout the Region
\$178,000	macroinvertebrate bioassessment	document benthic macroinvertebrate assemblages and develop an index of biological integrity
\$50,000	periphyton bioassessment	document periphyton assemblages and develop an index of biological integrity
\$50,000	bacteria	refine & utilize new technologies (e.g., DNA fingerprinting) for determining bacteria sources
\$200,000	miscellaneous	other studies (i.e., PAHs, hormones, protozoans, viruses, other env. indicators & emerging issues)
\$1,288,000	TOTAL	

FY 06-07

Summary of needs for FY 06-07 =

- 2.0 PYs
- \$15,000 equipment/supplies
- \$1,297,000 in contracts

The need for 2 positions will remain constant throughout the 5-year planning horizon. Estimated contract needs for FY 06-07 are as follows:

Amount	Topic	Objective(s)
\$850,000	surface water sampling	document physical and chemical water quality at selected sites throughout the Region
\$187,000	macroinvertebrate bioassessment	document benthic macroinvertebrate assemblages and develop an index of biological integrity
\$60,000	periphyton bioassessment	document periphyton assemblages and develop an index of biological integrity
\$200,000	miscellaneous	other studies (i.e., PAHs, hormones, protozoans, viruses, other env. indicators & emerging issues)
\$1,297,000	TOTAL	