SWAMP
Surface Water Ambient Monitoring Program

Fact Sheet | Region 6

Lahontan
Regional Water Quality Control Board

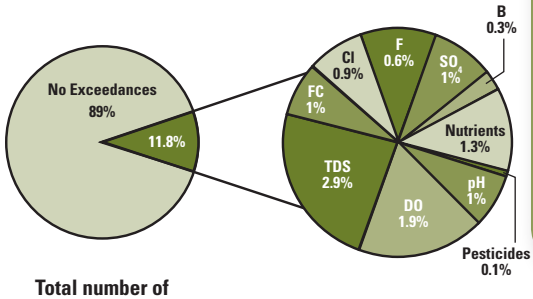
Overview

The Lahontan Region is the second largest region in California, spanning 33,000 square miles of eastern California from the Oregon border in the north to the Mojave Desert, San Bernardino mountains and eastern Los Angeles County in the south.[1] The region is nearly 600 miles long and includes the highest and lowest points in the contiguous United States (Mount Whitney at 14,494 feet and Badwater, Death Valley at -282 feet, respectively).

The Lahontan Region has more than 3,000 miles of streams and more than 700 lakes, including two designated Outstanding National Resource Waters—Lake Tahoe and Mono Lake—and numerous other high-quality water bodies that are eligible for the same status. Due to the enormity of the region's north-south span and its variety of elevations, the region contains diverse habitats, ranging from alpine mountain environments that receive heavy snowpack each year, to low-elevation, dry deserts. A great range of habitats, precipitation regimes and ecosystem types exist between the two elevation extremes. In addition, topography, glaciation and climatic changes led to the existence of "ecological islands" and the evolution of species, subspecies and genetic strains of plants and animals in the region that are found nowhere else. Particularly notable are fish such as the Eagle Lake trout, Lahontan and Paiute cutthroat trout, Mojave tui chub and several kinds of desert pupfish.

The region's economy is based largely on recreation and tourism. Other major economic sectors include agriculture (livestock grazing, silviculture, dairies), resource extraction (mining, energy production) and defense-related activities (military bases).

Figure 1:
Lahontan Region
Preliminary SWAMP Results 2000-2005
Basin Plan Criteria



Total number of data points = 2,579

Potential Exceedances = 11%

F = fluoride
B = boron
TDS = total dissolved solids
Cl = chloride
SO_4 = sulfate
DO = dissolved oxygen
FC = fecal coliform bacteria

Water Facts

Home to both the highest and lowest points in the contiguous U.S.: Mount Whitney at 14,505 feet (4,421 meters) and Badwater in Death Vallley @ 282 feet (86 meters) below sea level

Covers eastern side of the Sierra from the Oregon border to the Mojave Desert: temperature ranges from -45°F to 145°F, and precipitation regimes range from less than 2 inches to more than 70 inches

More than 700 lakes

More than 3,100 miles of streams

1,581 square miles of groundwater basins

CALIFORNIA Water Boards

1. To view a map of the region, see: http://www.waterboards.ca.gov/lahontan/docs/lahontan_maps.pdf

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Vision and Goals for Monitoring

The goal of SWAMP monitoring at the Lahontan Region is to efficiently and effectively assist in achieving the overall monitoring goal contained in the State Water Board's Strategic Plan, which states, "Water quality is comprehensively measured to evaluate protection and restoration efforts."

To the extent to which funding is available, the primary objectives of SWAMP monitoring at the Lahontan Region have been:

- To determine whether ambient water quality at selected sites is in compliance with the chemical and physical water quality objectives contained in the Lahontan Basin Plan and the California Toxics Rule.
- To determine whether water flowing from California into the State of Nevada meets Nevada's water quality objectives.
- To develop "indices of biological integrity" (IBIs) for streams and rivers based on instream benthic macroinvertebrate and periphyton assemblages.

Program Activity

During the first five years of SWAMP (2000–2005), the region collected water samples on a quarterly basis at about 30 streams and is now comparing the results to relevant state standards. Preliminary findings indicate that the sampled waters are generally of high quality. About 90 percent of the results indicate compliance with the Lahontan Basin Plan's numeric standards. (Refer to Figure 1 on the front side.) The remainder of the results do not necessarily indicate significant problems, but warrant a closer look. As funding allows, the region will perform additional testing at stream sites where SWAMP sampling has indicated a potential exceedance of water quality standards.

The waters sampled to date represent only a small fraction of the region's waters. If funding allows, future plans will include testing more streams and beginning to sample some of the region's lakes, reservoirs and wetlands.

Bioassessment is another substantial component of the region's SWAMP program. It relies on surveys of instream biota (macroinvertebrates, algae, diatoms) to assess stream health. The region has conducted bioassessment sampling at more than 80 stream sites and has developed draft indices of biological integrity for the eastern Sierra from the Truckee River Watershed through the upper Owens River Watershed, which can now be used as a yardstick to measure the health of streams in that area.

The Lahontan Region also conducted other special studies, including studies on turbidity at Lake Tahoe, poly-aromatic hydrocarbons due to boat exhaust in mountain lakes and a comparison of various bioassessment methods to determine which method would be most cost-effective. The region has produced numerous reports, all of which are currently available at its Web site, www.waterboards.ca.gov/lahontan/monitoring.html.

Collaboration with Other Organizations

The Lahontan Region has coordinated its SWAMP program with numerous local, state and federal agencies. For example, after the New Year's flood of 1997, the U.S. Forest Service (USFS) received funds to conduct the Bagley Valley Watershed Restoration Project in Alpine County where the stream channel had been down-cut by floodwaters. Because the USFS could not spend the flood money until all planning and environmental documents were completed, the region's SWAMP team rapidly mobilized to collect two seasons of pre-project baseline data. This facilitated a rigorous "before-after" monitoring design and allowed the USFS to demonstrate the many beneficial effects of the project. A final monitoring report for this project is available at our website.

Bagley Valley Creek Restoration Project

Before

After

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For more information on SWAMP in the Lahontan Region, please contact:
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