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. 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 region is also unique in that waters do not drain to coastal areas, but instead drain to internal sinks, playas, or inland surface waters.

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).

Regional Facts

- Almost 32,800 square miles in size
- 356 square miles of lakes, ponds, and reservoirs
- More than 28,900 miles of rivers and streams
- Annual rainfall ranges from less than 2 inches to more than 70 inches within the region
- Home to highest and lowest points in the contiguous US: Mount Whitney at 14,505 feet above sea level and Badwater in Death Valley at 282 feet below sea level

CALIFORNIA Water Boards

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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 statewide SWAMP mission of providing resource managers, decision makers, and the public with timely, high-quality information to evaluate the condition of all waters throughout California

The primary objectives of SWAMP monitoring at the Lahontan Region are:

- Collect ambient water quality data to assess chemical integrity of water bodies per standards contained in the Water Quality Control Plan for the Lahontan Region (Basin Plan), drinking water standards or health advisories, California Toxics Rule criteria, and national recommended water quality criteria.

- Utilize instream assemblages of benthic macroinvertebrates, algae and physical habitat measurements to assess the biological and physical integrity of the Region's streams and rivers.

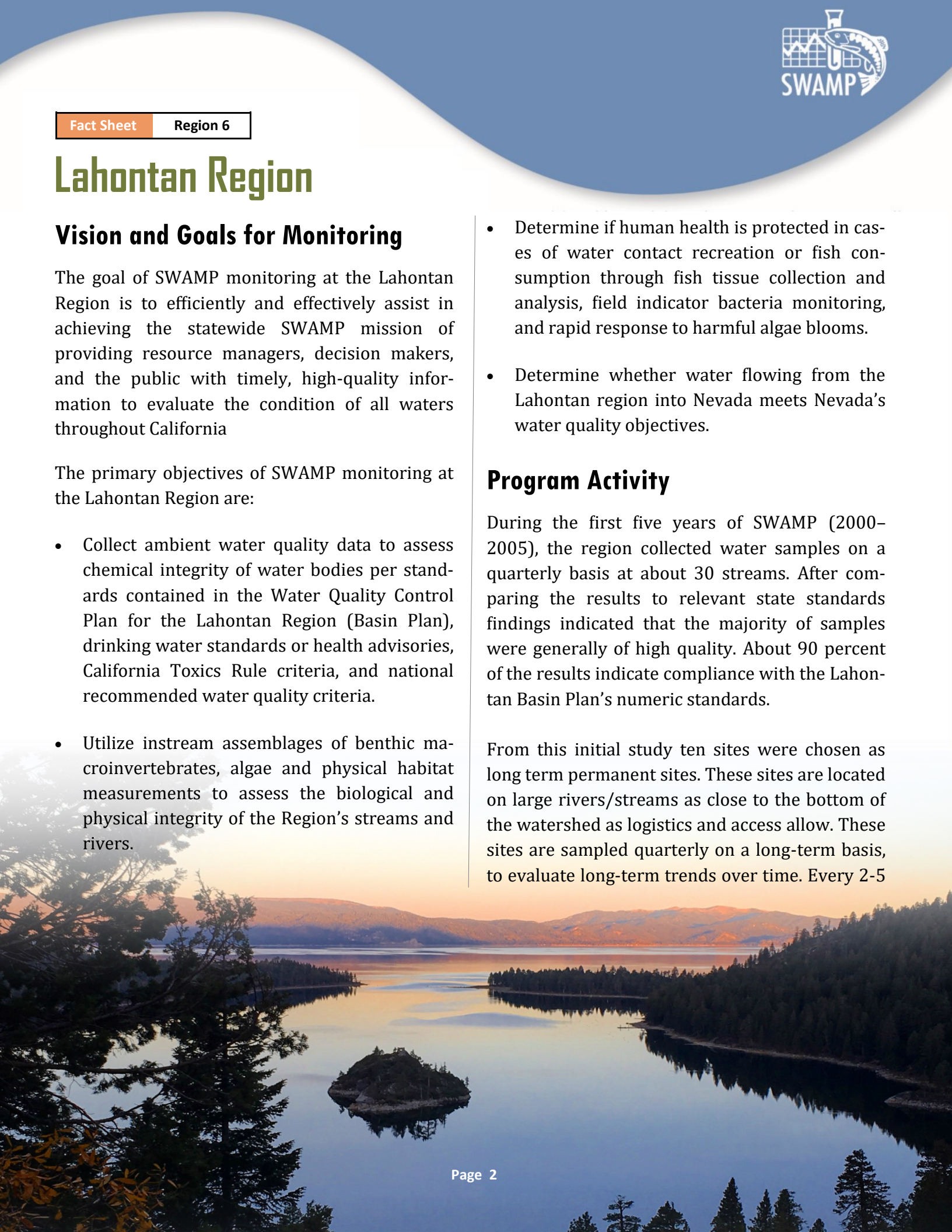
- Determine if human health is protected in cases of water contact recreation or fish consumption through fish tissue collection and analysis, field indicator bacteria monitoring, and rapid response to harmful algae blooms.

- Determine whether water flowing from the Lahontan region into Nevada meets Nevada's water quality objectives.

Program Activity

During the first five years of SWAMP (2000–2005), the region collected water samples on a quarterly basis at about 30 streams. After comparing the results to relevant state standards findings indicated that the majority of samples were generally of high quality. About 90 percent of the results indicate compliance with the Lahontan Basin Plan's numeric standards.

From this initial study ten sites were chosen as long term permanent sites. These sites are located on large rivers/streams as close to the bottom of the watershed as logistics and access allow. These sites are sampled quarterly on a long-term basis, to evaluate long-term trends over time. Every 2-5



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years approximately 25-30 screening sites are rotated to "screen" for compliance with the Basin Plan's site specific objectives, usually sampled quarterly. Diagnostic sampling is performed if data from permanent or screening sites indicate potential impairment(s). Diagnostic sampling is designed to characterize the magnitude and/or extent of a potential impairment and therefore water bodies are sampled more regularly, usually 10-12 times per year.

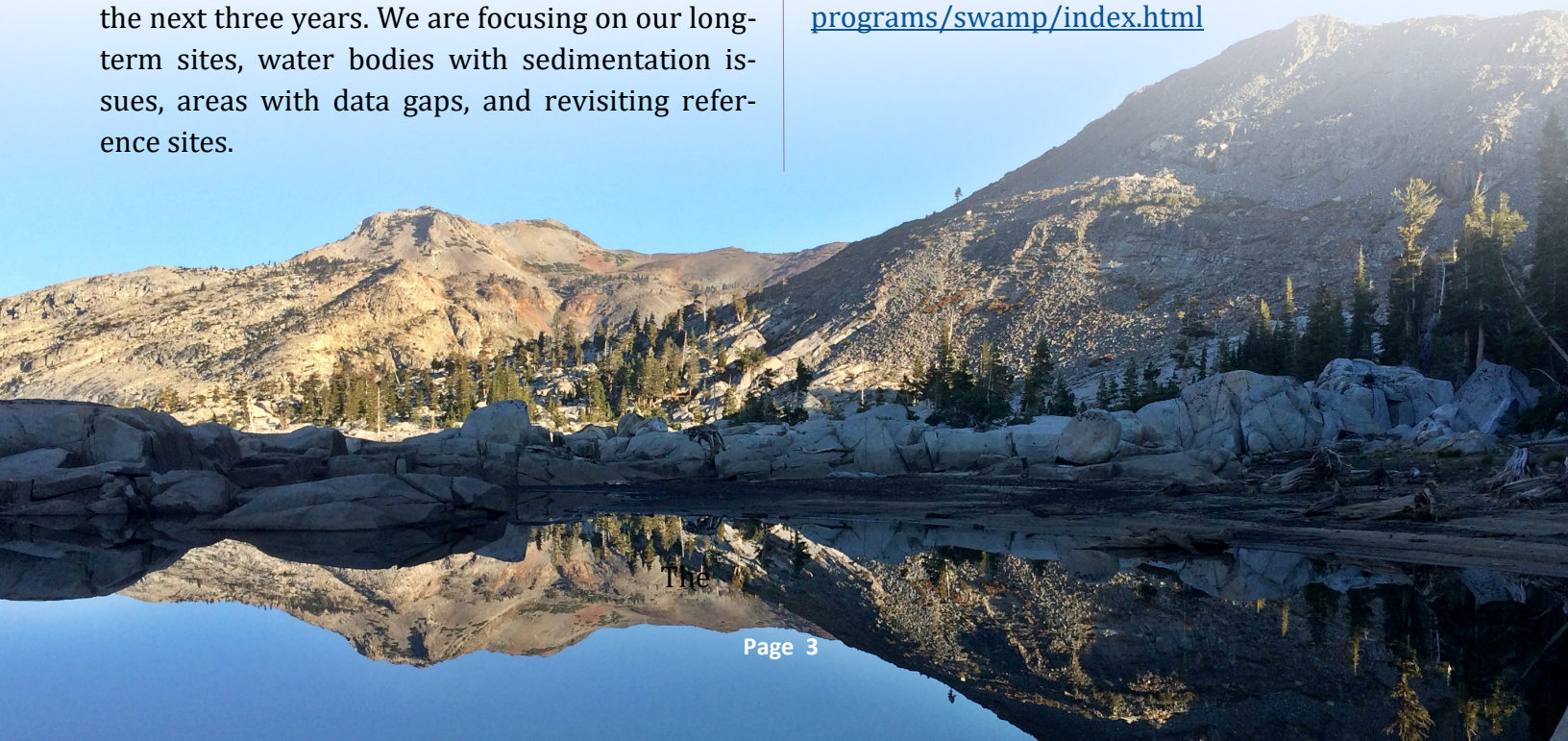
Bioassessment is another substantial component of the region's SWAMP program. It relies on surveys of instream biota (macroinvertebrates, algae, diatoms) to assess stream health. The region has conducted 495 bioassessment sampling events since 1996. Since its inception, the Lahontan Region's SWAMP program has been a leader in the development and implementation of bioassessment methods for freshwater streams and rivers. In 2017 our regional program initiated its first in house sampling team. With the assistance of contractors we will sample close to sixty sites over the next three years. We are focusing on our long-term sites, water bodies with sedimentation issues, areas with data gaps, and revisiting reference sites.

Lahontan Region also conducted special studies, including:

- follow-up toxicity sampling in the Susan River watershed (Spring 2016);
- extensive bacteria and microbial source tracking monitoring in the eastern Sierra Nevada mountains (2012-2015),
- and fish tissue collection to provide data for OEHHA fish consumption advisories for Lake Gregory, Little Rock Reservoir, Silverwood Lake and Donner Lake.

In 2017 the regional SWAMP funded sampling for fish tissue collection at Fallen Leaf Lake, Big Pine Creek, Independence Creek and Bishop Creek. All were successful in collecting enough data to develop a fish tissue advisory. The region has produced numerous reports; finalized reports are currently available at its web site:

https://www.waterboards.ca.gov/lahontan/water_issues/programs/swamp/index.html



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Collaborative Efforts

The Lahontan Region has coordinated its SWAMP program with numerous local, state and federal agencies. Responding to Harmful Algal Blooms (HABs) has been a recent large effort for the region. SWAMP has worked closely with waterbody managers to help identify potential HABs, supply necessary tools, fund analysis, interpret results and advise on protective management practices at water bodies suspected of HABs. In 2017, this included Lake Gregory, Lake Diaz, Rim Rock Lake and the Tahoe Keys Lagoon. SWAMP's ability to respond quickly and provide resources was crucial in quickly identifying possible threats and posting warnings to protect public health. SWAMP has also been available to data collectors in the region to ensure all relevant data is being uploaded into the California Environmental Data Exchange Network (CEDEN). The Lahontan Region has done outreach, assisted with data formatting and provided training for entities interested in uploading data. SWAMP recently funded a training hosted by The Marine Pollution Studies Laboratory that instructs data managers through the data submittal process. The training was recorded and can be found at our web site: https://www.waterboards.ca.gov/lahontan/water_issues/programs/swamp/index.html#data_management.

For More Information on SWAMP in the Lahotan Region, Please Contact:

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***The methods used to obtain the "Regional Facts" statistics can be found at: Calculations for Regional Facts**