

IMPACT

CA&ES DEAN'S OFFICE • UNIVERSITY OF CALIFORNIA • ONE SHIELDS AVENUE • DAVIS • CA • 95616 • FAX (530) 752-9369

IMPACT is a series of publications highlighting how UC Davis' College of Agricultural and Environmental Sciences makes a difference in the lives of Californians. Through research, teaching and outreach programs, UC Davis research touches almost all aspects of Californian life. Today, millions of people eat safer foods, breathe cleaner air and drink healthier water with the help of our researchers. We're making discovery work -- for California and the world.

PROTECTING LAKE TAHOE

THE ISSUE

Lake Tahoe's pristine mountain beauty has amazed people for centuries. One of the largest and deepest lakes in the nation, Tahoe is known for its crystalline clarity and brilliant surroundings where it straddles California and Nevada at the edge of the Sierra Nevada. On a typical summer weekend, the lake attracts up to 200,000 visitors from all over the world.

Lake Tahoe, however, is in a state of environmental emergency. Today, sediment and algae-causing phosphorus and nitrogen cloud the water. This pollution has reduced the lake's clarity – how far you can see into the depths of the lake. Before 1960, 100 feet of clarity was common in Lake Tahoe. In 2001, the lake's clarity was 73.6 feet.

Scientists also have discovered that the destruction of nearby wetlands and watersheds has compromised the lake's ability to cleanse itself of pollutants and challenged the basin's ecosystem itself.

WHAT WE'RE DOING

In 1967, the College of Agricultural and Environmental Sciences established the Tahoe Research Group headed by Professor Charles Goldman. The group was the first to alert the public of the damage to the lake. Early on, researchers conducted a sediment core study that reconstructed the lake's history. After the devastating logging activities in the late 1800s, the lake showed signs of a significant



recovery from the turn of the 20th century until 1960 when Tahoe's population and tourism boomed. This finding gives hope that science and public policy can work toward restoring Lake Tahoe. Indeed, in 2001 the lake was the clearest it had been in five years.

A Team Approach to Managing Tahoe

The Tahoe Research Group has played a major role in the banning of dumped sewage into the lake, strict building controls, installation of major erosion-control projects, establishment of water-quality thresholds and better pollution control. In a broad-based scientific and public awareness campaign to save the lake, the Tahoe Research Group has worked with faculty from departments across the UC Davis campus, the University of Nevada at Reno, the U.S. Forest Service, the U.S. Geological Survey and the Nevada Desert Research Institute.

Goldman and fellow UC Davis researchers have published more than 300 scientific reports and advocated a number of practical measures. The 1,200-page Lake Tahoe Watershed Assessment report is a compilation of 20 years of research to guide future scientific work on the Lake Tahoe restoration. Goldman believes that the situation must be addressed in the next 10 to 12 years “before the lake reaches a point of no return.”

To restore the lake, UC Davis researchers have examined plant-growth nutrients for their role in eroding the lake’s clarity, begun developing a water-quality model for Lake Tahoe and documented a serious decline in dissolved oxygen in the lake, another indicator that restoration must begin in earnest.

From Science to Policy

Several years ago, UC Davis conducted research to support the elimination of highly polluting two-stroke boat engines in Lake Tahoe. Summertime recreational boating was found to be the primary source of MTBE in the lake’s water. The banning of such engines since 1999 has reduced both MTBE and toluene concentrations in the Sierra Nevada lake by 90 percent or more.

Since 1998, UC Davis has played a key role in drawing attention to Lake Tahoe’s health. Annual summits have included the White House, EPA, U.S. Forest Service Bureau of Reclamation and the U.S. Fish and Wildlife Service. In the wake of these summits, the U.S. Congress enacted the Tahoe Restoration Act, a \$300 million, 10-year restoration program for the Tahoe Basin.

UC Davis has raised more than \$13 million to create a new 15,000-square foot research and education center to study environmental problems in the Tahoe Basin. The Lake Tahoe Center for Environmental Research will support multidisciplinary research on the basin ecosystem, enable greater collaboration among scientists, increase educational opportunities and provide information and awareness programs for the public. The center is funded by a grant from the David and Lucile Packard Foundation.

“If we are going to reverse the deterioration of this unique natural resource, researchers must help policy-makers and resource managers make the best science-based decisions,” said Goldman.

Building a Consensus

After years of conflict, economic and environmental groups have realized the benefit of working together to protect Lake Tahoe. The issues involved reflect the ecological pressures between urbanized and wild landscapes in the rapidly growing western United States. What is happening at Tahoe may happen 10 to 20 years later elsewhere in the Sierra Nevada Mountains, and already is beginning in other remote lakes, such as Crater Lake in Oregon.

Through programs such as the Tahoe Research Group, the College of Agricultural and Environmental Sciences at UC Davis is shaping the scientific dialogue on decisions critical to California and the region. That’s impact – science and policy at work together.

CONTACTS

Tahoe Research Group

Charles Goldman, Professor
Department of Environmental Science and Policy
lab (530) 583-3279
office (530) 752-1557
crgoldman@ucdavis.edu

College of Agricultural and Environmental Sciences

Neal Van Alfen, Dean
(530) 752-1605
nkvanalfen@ucdavis.edu

College of Agricultural and Environmental Sciences

Clifton Parker, Senior Writer
(530) 752-2120
cparker@ucdavis.edu

<http://caes.ucdavis.edu>