

INTRODUCTION

The University of California, Davis has conducted continuous monitoring of Lake Tahoe and its watershed since 1968, amassing a unique record of change for one of the world's most beautiful and vulnerable lakes.

In the UC Davis Tahoe: State of the Lake Report, we summarize how natural processes and human activity in the watershed and beyond are affecting the lake's clarity, physics, chemistry, and biology. We also present a portion of the data collected in 2022 — presenting all of it would be overwhelming. While Lake Tahoe is unique, the forces and processes that shape it are similar to those acting in most natural ecosystems. As such, Lake Tahoe is an indicator for other systems both in the western United States and worldwide.

Our goal is to understand the lake's complexity and to use that knowledge to provide the scientific underpinnings for ecosystem restoration and management actions. Choosing among those options and implementing them is the role of management agencies that also need to account for and balance a host of other considerations.

This annual report is intended to inform non-scientists about the factors that affect lake health. One indicator of Lake Tahoe's health status, the annual clarity, is reported earlier each year. In this report, we publish many other environmental and water quality factors that serve as other indicators of the lake's condition and help explain the lake's changing clarity. This report sets the context for understanding the year-to-year changes as well as those that are observed over many decades.

Part of this report describes research and education taking place independently of the long-term monitoring. These updates highlight some of the most exciting and promising findings of work that is still in progress. The insights being gained through this research will help keep Lake Tahoe at the cutting edge of science for years to come. Many of the sections explore new ideas and approaches to address the ever-evolving challenges at Lake Tahoe.

The data we present are the result of efforts by a great many scientists, engineers, students, technicians, and educators who have worked at Lake Tahoe throughout the decades since monitoring commenced. I would, however, like to acknowledge (in alphabetical order) the contributions to this year's report by Brant Allen, Carmen Bedke, Brandon Berry, Fabian Bombardelli, Mike Bruno, Tom Burt, Luciana Cardoso, Bob Coats, Troy Corliss, Alicia Cortés, Randy Dahlgren, MJ Farruggia, Helen Fillmore, Alex Forrest, Drew Friedrichs, Fatima Garcia, Jenessa Gjeltema, Wyatt Grognet, Scott Hackley, Tina Hammell, Simon Hook, Camille Jensen, Jessica Landesman, Jackelyn Lang, Kenneth Larrieu, Anne Liston, Patricia Maloney, Keeley Martinez, Claire McHenry, Jasmin McInerney, Antonina Myshyakova, Holly Oldroyd, Kanarat (Job) Pinkanjananavee, Gerardo Rivera, Steven Sadro, Heather Segale, Katie Senft, Oscar Sepulveda, Steven Sesma, Noah Shapiro, Samantha Sharp, Roland Shaw, David Smith, Adrienne Smits, Micah Swann, Lidia Tanaka, Misa Terrell, Ruth Thirkill, Raph Townsend,

Alison Toy, Sean Trommer, Sergio Valbuena, Aaron Vanderpool, Lindsay Vaughan, Shohei Watanabe, and Erik Young to this year's report. In particular, Shohei Watanabe was responsible for the majority of the data analysis and Alison Toy led the compilation and layout of the final report.

Funding for the actual data collection and analysis has come from many sources over the decades. While many additional water quality variables could be tracked, funding ultimately limits what we measure and report on. Current funding for the long-term monitoring and analysis is provided by the Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, U.S. Geological Survey, and UC Davis.

Funders for current projects include the following: CalFire, California Delta Stewardship Council, California Natural Resources Agency, California Tahoe Conservancy, Incline Village General Improvement District, NASA Jet Propulsion Laboratory, the National Science Foundation, Nevada Department of Tourism and Cultural Affairs, Nevada Division of Environmental Protection, Nevada Division of State Lands, Parasol Tahoe Community Foundation, Santa Clara Valley Water District, the Tahoe Resource Conservation District, the Tahoe Truckee Community Foundation, the Tahoe Water Suppliers Association, the U.S. Bureau of Reclamation, and the U.S. Embassy, Chile.

Our monitoring is frequently done in collaboration with other research institutions and agencies. In particular, we would like to acknowledge our

collaborators at UC Davis, the Desert Research Institute (DRI), the National Aeronautics and Space Administration (NASA), the National Oceanographic and Atmospheric Administration (NOAA), the Tahoe Resource Conservation District (TRCD), the U.S. Forest Service, (USFS), the U.S. Geological Survey, the University of Miami at Ohio, and the University of Nevada, Reno (UNR).

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Sincerely,



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