

# Tahoe shoreline troubles a mystery to scientists

By Kathryn Reed

It doesn't take science for people to know Lake Tahoe's shoreline is growing as the drought persists. But it does take science to determine the health of those waters.

The annual "Tahoe: State of the Lake Report 2014" was released today by the Tahoe Environmental Research Center at UC Davis.

"While this year's data shows that progress is being made on many fronts, the biggest concern is what is not able to be shown," TERC Director Geoff Schladow said in a statement Aug. 14. "This really applies to the near shore where most people experience the lake. Even with the planned increase in monitoring, why it is continuing to degrade is poorly understood. I'm hoping the near shore network will start to fill that void."



Emerald Bay and Lake Tahoe in April 2013. Photo/LTN file

The Near Shore Agency Working Group is tasked with figuring out why there is so much muck near the shore line. Algae and

other plant life have been steadily growing, and the once clear waters are often brown. Periphyton is the algae found on rocks.

It wasn't until this year that scientists in the respective agencies that regulate and study Lake Tahoe decided to make a concerted effort to find out why the degradation is occurring and what can be done about it. The first six of 20 near shore monitoring stations will be installed this month. This will give researchers real-time data about water quality. They will be installed on private and public property.

Most of the studies that have been conducted at Lake Tahoe since 1968 involve monitoring the clarity in the middle of the lake with a disc that looks like a white dinner plate. While some of that data will help with near shore issues, most of it won't.

The good thing about a drought is that it means less sediment reaching the lake from runoff. It's fine sediment that scientists say is the leading cause of the decline of lake clarity.

The current State of the Lake Report explains how drought, climate change, and other natural and human factors are driving changes at Lake Tahoe.

2013 was the second consecutive year Lake Tahoe did not mix to its full depth. The lack of mixing was because surface temperatures were higher.

July 2013's surface temp of 65.6 degrees was the highest recorded in five years. This was 1.8 degrees more than 2012.

The loss of near shore clarity and rising temperatures creates a breeding ground for invasive species.

Alan Heyvaert, an associate research professor and director of the Center for Watersheds and Environmental Sustainability at

the Desert Research Institute, is leading a group of researchers studying the near shore.

UNR and DRI researchers have installed cameras on mountaintops that in part are being used to study the near shore. They have documented a 90 percent decline in small species that live in the sand at the bottom of the lake – stoneflies, worms and bottom shrimp. Those species are important to the lake’s food chain.

But also alarming is the discovery of new species.

“Changes in the length of seasons will alter the way in which water moves in the lake, leading to the possible loss of dissolved oxygen at the bottom of the lake,” the State of the Lake Report says.

This in turn will also change the ecosystem because the chemical balance in the lake will be altered. This, too, will affect aquatic life.

Researchers are predicting that by the end of this century, summer may be two months longer than it was in the 1960s, and maximum temperatures may have risen by 8 degrees.

“With regard to climate change, we have really only scratched the surface,” Schladow said. “We have little understanding of how extreme events will play out and impact the Tahoe basin and the Sierra.”

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**Notes:**

- Tahoe Environmental Research Center Director Geoff Schladow will present highlights from “Tahoe: State of the Lake 2014” on Aug. 14 from 5:30-7:30pm at TERC, 291 Country Club Drive, Incline Village.
- Here is the full report.