

Significant improvement to Lake Tahoe's clarity confounds scientists

By Kathryn Reed

Another year of data about Lake Tahoe's clarity provides more confusion for scientists.

"This last year has defied conventional wisdom in many ways," Geoffrey Schladow, director of the UC Davis Tahoe Environmental Research Center, said in a statement. "In the past, very wet years have led to decreases in lake clarity, whereas we are now seeing the opposite. This only reinforces the fact that the underlying, driving forces are themselves starting to change."

The "Tahoe: State of the Lake Report 2012" was released Aug. 9 by the Tahoe Environmental Research Center at UC Davis.

Summer clarity of 51.5 feet in 2011 was the second worst on record. Winter clarity of 84.9 feet was an improvement of 11.9 feet. Overall, the 2011 average lake clarity improved 4.5 feet from 2010.

Scientists speculate the winter improvement was from efforts to reduce fine sediment from reaching Lake Tahoe. However, they also stressed that monitoring is the only way to prove that statement.

A Secchi disc, which looks like a white dinner plate, has been used since 1968 to figure out how clear Lake Tahoe is. Researchers drop the disc overboard and use their naked eye to see how far down the disc goes.

For most of those years the clarity has been decreasing. Throughout these 44 years the reasons why keep changing. The

latest thinking is fine sediment is the main culprit. That is why every project that is proposed in the basin must have an environmental component that would reduce the amount of sediment reaching the lake from that particular parcel.

That is why close to \$2 billion has been pumped into what is called the environmental improvement program. The EIP was established after President Bill Clinton and Vice President Al Gore came to Tahoe for the first Lake Tahoe Environmental Summit. (The next one is Aug. 13, 10am at Edgewood Tahoe, Stateline.) Much of that money came through the Lake Tahoe Restoration Act. Reauthorization of it is not expected any time soon. Other money has come from the Southern Nevada Public Lands Management Act.

With the tap dry on both those sources, local jurisdictions and regulatory agencies are scratching their heads as to how future projects will be get paid. And with the Lahontan Regional Water Quality Control Board and Nevada Department of Environmental Protection Agency implementing the total maximum daily load protocols, the gauntlet has been laid down for the five counties, one city, U.S. Forest Service and two state transportation agencies.

Clarity readings since 2000



Lake Tahoe's clarity improved in 2011, but why remains unknown. Photo/LTN

file

- 2011: 68.9 feet
- 2010: 64.4 feet
- 2009: 68.1 feet
- 2008: 69.6 feet
- 2007: 70.1 feet
- 2006: 67.7 feet
- 2005: 72.4 feet
- 2004: 73.6 feet
- 2003: 71 feet
- 2002: 78 feet
- 2001: 73.6 feet
- 2000: 67.3 feet

Source: UC Davis

Other data from the latest clarity report:

- Despite the cold winter and a cool July, the annual average surface water temperatures rose by 0.6 degrees.
- The length of time a summerlike stratification – where layers of water form with different temperatures – persists has increased by almost 20 days, a likely outcome of climate change. Researchers fear if this trend continues, oxygen replenishment to the bottom of the lake will become less frequent.
- A potential culprit to reduced summer clarity is a microscopic algae cell called *Cyclotella*. The tiny cells have grown exponentially in the past five years, scattering light and reducing clarity. Research shows that times of the highest concentrations of *Cyclotella* coincide with the lowest summer clarity levels.
- The 2007 Angora Fire, which burned 9 percent of the Upper Truckee River drainage, had almost no effect on lake water quality.

- An experiment using rubber mats on a half-acre site in the southeast portion of Lake Tahoe to control the spread of Asian clams appears to be effective.