

Lake Tahoe Clarity Improved Slightly in 2004

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The waters of Lake Tahoe were clear to an average depth of 73.6 feet in 2004, according to UC Davis scientists who have monitored the lake since 1968. That is a slight improvement from 2003, when the lake's waters were clear to 71 feet.

The clarity measurement for 2004 was the same as it was in 2001 and 1991. In those years, a white disk lowered into the lake was visible at an average depth of 73.6 feet. That keeps the clarity measurement in the range where it has been for the past four years -- and where it was for other multi-year periods in the 1980s and 1990s.

But it's a significant change from 1968, when the disk could be seen at an average depth of 102.4 feet. Experts believe fine sediment and nutrients that fuel algae growth, which enter the lake in erosion and runoff, are causing the clarity loss in Lake Tahoe. Clarity is directly affected by the scattering of light by fine particles and by the absorption of light by algae.

At the same time, clarity varies from year to year because the amount of precipitation varies, influencing the levels of erosion and runoff, said John Reuter, associate director of the UC Davis Tahoe Environmental Research Center (TERC, formerly Tahoe Research Group). That makes it difficult to use data from any single year or even a small number of years to draw conclusions about whether the lake is improving overall or getting murkier.

In calendar year 2004, at Tahoe City, Calif., on the north shore, total precipitation from rainfall and snowfall totaled 22.72 inches, compared with 32.06 inches in 2003. A published TERC mathematical model used to analyze year-to-year changes in Tahoe clarity indicates that this 30 percent reduction is the reason why the lake was slightly clearer last year, Reuter said.

Reuter emphasized that restoration efforts by scientists and public agencies in the Tahoe Basin are focused on the long term. "We can say why the clarity changed for a particular year," he said, "but we should not confuse that with the trend over many years, which is that there is a decline in the clarity of the lake."

UC Davis researchers measure the lake's clarity every seven to 10 days by lowering a white, dinner-plate-sized disk (called a Secchi disk) into the water at fixed locations and noting the depth at which the disk disappears from sight.

UC Davis and many other academic institutions and public agencies are working together to restore and preserve the Tahoe Basin ecosystem. Led by the Tahoe Regional Planning Agency, all are currently engaged in producing an unprecedented set of environmental management plans for the basin, called Pathway 2007.

"While this year's clarity number is encouraging, the annual measurements remind us how crucial it is to stay the course in our efforts to restore Lake Tahoe and to preserve it for future generations," said Julie Regan, communications director of the Tahoe Regional Planning Agency.

The annual average Secchi measurements for the past several years were:

2004: 73.6 feet (22.4 meters)

2003: 71 feet (21.6 meters)
2002: 78 feet (23.8 meters)
2001: 73.6 feet (22.4 meters)
2000: 67.3 feet (20.5 meters)
1999: 69 feet (21 meters)
1998: 66 feet (20.1 meters)
1997: 64 feet (19.5 meters)

Source: UC Davis

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