

# Explaining what can be done about Tahoe's clarity

By Harold Singer

In the late 1960s the average depth of clarity at Lake Tahoe was measured at more than 100 feet. Lake clarity, like a person's temperature, is a sign of the health of the lake. A change in a person's temperature signals a health problem, but it does not tell you what is causing the problem. Similarly, a decline in lake clarity is a sign of a problem, but does not tell us what is causing the problem.

Since that time in the late '60s, lake clarity has declined about 30 feet. Also, in the last decade the amount of algae along the lake's shoreline appears to have increased significantly – another sign of a problem.



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During the previous few decades, scientists believed the primary cause of clarity loss was increasing algae growth in the lake. This algae growth was due to increased nitrogen and phosphorus entering the lake from stormwater runoff and atmospheric deposits into the lake. Phosphorus was primarily associated with soil particles. So, restoration and water quality improvement projects focused on controlling erosion, capturing and trapping stormwater runoff before it reaches streams or the lake, and reducing fertilizer use. These efforts appear to have contributed to the slowing of the loss

of clarity that has occurred over the last few years.

However, more recent studies have determined that reductions in clarity are influenced more by the presence and persistence of very fine sediment particles remaining in suspension in the lake, rather than algae. More than two-thirds of these fine sediments are generated in the developed areas around the lake and mostly from the roads. The remainder comes from locally generated air pollution that is deposited onto the lake surface (16 percent), runoff from forested lands – specifically dirt roads and trails (10 percent), and from stream channel erosion (4 percent).

In order to make real strides in addressing lake clarity, we all must focus our efforts on significantly reducing the amount of these very fine sediment particles along with nitrogen and phosphorus that get into Lake Tahoe.

The California Lahontan Water Board and the Nevada Division of Environmental Protection have drafted a plan – The Lake Tahoe Total Maximum Daily Load for Sediment, Nitrogen and Phosphorus – to reduce fine sediment, nitrogen and phosphorus inputs to Lake Tahoe. This draft plan incorporates current efforts to reduce the amount of nutrients (nitrogen and phosphorus) reaching the lake while placing additional emphasis on reducing fine sediment generated from the developed areas (local and state roads and developed commercial and residential parcels). In California, this plan would require the city of South Lake Tahoe, El Dorado and Placer counties, and Caltrans to take actions to reduce their contribution of fine sediment by 32 percent over 15 years.

In Nevada, the Nevada Division of Environmental Protection will track similar reductions from Nevada road departments. Currently, these entities are required to treat all stormwater discharged to the lake to meet specified standards. The draft plan would give these entities flexibility to focus their efforts in areas that generate the greatest amount of

pollutants, thereby providing cost-effective opportunities as compared to current requirements.

Now that we know what is causing the decline in lake clarity, we all have a role in helping the lake recover. All of us living and recreating in the Tahoe basin can do our part to assist state and local governments in this effort. Runoff from private parcels typically drains to roadways. Minimizing this runoff reduces the potential cost for the public agencies. Native soils provide natural infiltration; however, when soils are compacted due to frequent vehicle use or disturbance, more runoff is generated. Paving and providing infiltration systems for legal parking areas combined with restricting vehicle use on dirt surfaces also limits runoff to roadways or storm drainage systems.

The Lahontan Water Board will conduct a hearing Sept. 8 beginning at 9am at the Lake Tahoe Community College, with anticipation of an additional hearing on Nov. 10 where the Water Board will consider adoption of the plan. The Lahontan Water Board website (<http://www.waterboards.ca.gov/lahontan/>) contains a recently released film on the plan along with the proposed plan and supporting science.

*Harold Singer is executive director of the Lahontan Regional Water Quality Control Board.*