

Gauging the health of Lake Tahoe tributaries

By Tom Lotshaw

Wading in the Upper Truckee River in South Lake Tahoe, Sean Tevlin and Tiffanee Hutton run fine mesh nets through the water to collect benthic macroinvertebrates, insects that live on the bottom of streams and require clean water and good habitat.

Populations are poor, even in shallow riffles where they should be thriving. Instead of stoneflies, mayflies, caddisflies, and other indicators of healthy Sierra streams, they find mostly blackfly larvae, a species more tolerant of pollution and degraded stream conditions.

Assistant environmental specialists for TRPA, Tevlin and Hutton wade 150 meters of the Upper Truckee River, Lake Tahoe's largest tributary, and one of its largest contributors of clarity-robbing fine sediment.

They assess the river's habitat conditions and aquatic life, measure water temperature, flow, and depth, and make extensive notes about its physical attributes, such as riparian vegetation and substrate size.



Stream channels restored or enhanced

2010: 2,780 feet

2011: 8,207 feet

2012: 13,117 feet

2013: 1,570 feet

2014: 1,000 feet

2015: 1,601 feet

Source: *Lake Tahoe Environmental Improvement Program Project Tracker*
Photo/LTN: *Trout Creek in March 2016*

This span of river in the meadows near Highway 50 is in marginal condition. There's heavy channelization, bank erosion, and a layer of fine sediment carpeting the bottom. Water temperatures are high. Similar to the insect life, fish habitat and populations are lacking.

Lingering impacts from cattle grazing and logging decades ago are partly to blame for degrading the stream. But urban stormwater runoff from the highway and the nearby Sierra Tract neighborhood also discharges directly into the river, something the city of South Lake Tahoe and Caltrans are working to address with water quality improvement projects.

Downstream, the California Tahoe Conservancy is planning a broader project to restore the Upper Truckee Marsh. It's the

largest remaining marsh in the Tahoe basin and its restoration would greatly benefit the Upper Truckee River's water quality and habitat.

"It's sad to see poor-quality sections of streams in a beautiful environment like Tahoe, but it shows just how far we have to go to get where we want to be in terms of stream health," Tevlin said.

Lake Tahoe's mid-lake water clarity measurements get lots of attention as a key indicator of water quality and environmental health. But regular monitoring of the 63 streams that flow into Lake Tahoe also provides important information about water and habitat quality, plant and animal populations, and overall watershed health.

Tevlin leads TRPA's stream bio-assessment program. Each year from June through September, Tevlin and his assistant assess the health of randomly selected sections of Tahoe's tributaries. They range from remote, rugged streams with raging whitewater to small backcountry trickles and streams through golf courses and urban areas.

Information from the assessments helps measure the success of stream restoration projects, water quality improvement projects, and conservation measures. It also helps determine whether Tahoe is meeting the mandate to attain and improve threshold standards for things such as water quality and fish habitat.

Tevlin estimates about one-quarter of Tahoe's tributaries are in marginal condition. The rest are in good or excellent condition.

Streams in the Tahoe basin can face many challenges. During the last four years of drought, many streams have seen low water levels and high water temperatures lethal to fish. Other common issues include erosion, sedimentation, stormwater pollution, invasive species, and culverts that block fish

passage. In a 2010-11 survey of 218 stream structures on public land in the Lake Tahoe Basin, including old culverts and dams, the U.S. Forest Service found 64 percent are impassable to fish.

“Compared to the rest of California and Nevada, our streams are pretty good. But for the relatively pristine environment we have, there are a lot of issues,” Tevlin said.

Tevlin hopes to see overall stream health improve because of the stream restoration projects that agencies have completed and other projects in planning. “A lot of sites are falling in areas that have been restored or are going to be restored, so we should see the trend line improving. But it will take time,” Tevlin said.

And as the health of Tahoe’s tributaries improves, the water quality, clarity, and health of Lake Tahoe will benefit as well.

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