

Invasive species destroying tiny critters in Lake Tahoe

By Stephen Ward

INCLINE VILLAGE – Bugs. They are missing from Lake Tahoe.

While most people might think it's a good thing not to swim or kayak with these seemingly invisible critters, the fact is their disappearance is contributing to the changing ecosystem of this massive body of water.

Their demise is being blamed on invasive species.



Dozens of people learn about life below the surface of Lake Tahoe. Photos/Stephen Ward

After watching videos showing various species of bugs inhabiting the bottom of Lake Tahoe, coupled with information detailing their assistance in keeping the lake clean, the audience sat in silence as the presenter showed a graph demonstrating how light transmittance and plant life are plummeting in unison.

This was the overarching tone Tuesday at the Tahoe Environmental Research Center, where Annie Caires gave an hourlong presentation about the impact on endemic species found in Lake Tahoe.

Caires is a researcher from UNR's Aquatic Ecosystems Analysis Laboratory and has studied benthic invertebrate since 2004. She has been studying Lake Tahoe since 2008 and believes the bugs, or the lack thereof, has a dramatic affect on the lake.

"When we look at Lake Tahoe, we don't think about what's in the depths of the lake," Caires said. "The point is these bugs perform important ecological processes."

The evidence Caires cited for a fleeting critter population was clear – 25,400 bugs were collected from 389 samples in a two-year study in 1963. When a similar experiment was conducted with 394 samples less than 50 years later, only 7,400 bugs were unearthed.

One species discussed was the blind amphipod, a white, many-legged creature found hundreds of feet below sea level on the sea floor. Caires noted the amphipod's reputation for being aggressive just before showing a video of them fighting viciously over territory.

When an audience member asked about the size of the amphipod, Caires scattered a jar of 3,500 grains of rice across a table to show the relative size of the bugs.



Rice
represents the

size of bugs
in Lake Tahoe.

“Yeah, I know, I’m dedicated,” Caires added after the example.

But now, after being the most populous creature in the 1963 study, no trace of the amphipods remains today.

Caires said species such as the blind amphipod are gone because of invasive species and eutrophication, or the addition of natural and artificial substances through sewage and other substances.

Caires also said the decrease in water clarity has reduced the ability for plant beds to grow. She linked the introduction of mysid shrimp and other invasive species with the fisheries of the 1930s. The introduction of invasive species was meant to enhance the productivity of the fisheries. The mysid shrimp, that were not supposed to compete with the blind amphipods, ended up overpowering their frumpy counterparts.

Another invasive species attributed to harming the lake is crayfish; opportunistic feeders that hinder plant growth. They are another invasive species introduced to Tahoe 80 years ago when the fisheries started.

Caires added that preliminary research has suggested that the crayfish are eating the amphipods in the lake.

To Caires, the lack of bugs at the bottom of Lake Tahoe is not just the process of evolution.

“These things can be great indicators of lake health,” she said.

As for what can be done, Caires said public support for agencies such as the Tahoe Regional Planning Agency and California Tahoe Conservancy is crucial to reverse eutrophication because both agencies are helping fight

invasive species.

“We’re seeing huge declines in native species, but I think we can reverse the trends if we continue to focus on cleaning up,” Caires said.

The public support Caires described seemed to be gaining momentum shortly after the presentation. Steve Hale, a retired forest worker who worked in the South Lake Tahoe area for 20 years, called the information sobering.

“This is why it’s so important people come to lectures so they can learn from scientists,” Hale said. “To hear silence from the audience and see their reaction was remarkable.”