BY KELSEY PENROSE

Fertilizers and sediment runoff and invasive plants and animals all contribute to loss of water clarity at Lake Tahoe.
PHOTO/KELSEY PENROSE

Humans being

Lake clarity

For decades, scientists have been aware of issues facing Lake Tahoe and have been actively trying to determine how the famous blue waters can be protected.

One thing is certain: the issues are human-caused, but might also be human-corrected with enough data and hands-on efforts.

Mark Twain once famously wrote about how beautiful Tahoe's waters were, describing them as the "fairest picture the whole earth affords."

However, since Twain's time at the lake in the 1870s, water clarity has plummeted.

Regularly scheduled scientific measurements of water clarity began in 1968. At the time, water clarity was at 100 feet, meaning you could see a white disk from the surface of the water 100 feet below. According to the League to Save Lake Tahoe, the measurement reached an all time low of 60.4 feet in 2016, which means over one foot of clarity was being lost per year.

Among the reasons for the clarity loss are fine sediments entering the water through drainage pipes and excessive algae growth caused by the introduction of new nutrients to the water. Those nutrients are phosphorous and nitrogen, which are found in car emissions and fertilizers.

"Invasive plants, animal waste, fertilizer runoff and sediment are also concerns," said the League. "And, sadly, old drainage pipes still spew urban runoff directly onto Tahoe's beaches."

Another cause behind the sediment could be the "thousands of tons of road sand" applied during the winter season in an effort to make the roads more safe to drive. When the cars drive over the sand, they grind it up into finer particles, which then are carried by runoff into the lake.

In December of 2016, President Obama signed legislation that included the Lake Tahoe Restoration Act, which authorized $415 million for research, restoration and the prevention of invasive species and wildfire.

The average temperature of the lake has been slowly increasing thanks to climate change since the '60s, with an average of 53.3 degrees, up from 50.3 in 1968. This warming trend could have significant impact on algae blooms and invasive species by providing hospitable environments and killing off native species.

"In 2017, the lake was slightly warmer than the previous two years, making it the warmest ever," said scientists of UC Davis in their annual State of the Lake report. "The absence of deep mixing for the sixth year in a row contributed to the storage of heat. The July surface water temperature was the warmest ever recorded at 68.4 °F."

However, this doesn't necessarily mean that Tahoe is doomed. Organizations such as the League and UC Davis have been instrumental in slowing the decline in clarity, and plans have been enacted to combat the main issues of invasive species, runoff and algae blooms.

Humans are without a doubt linked to Tahoe's issues, from intentional introduction of species such as the Mysis shrimp ("Clear view, RN&R, Tahoe, Aug. 8) to the unintentional introduction of species like the Asian clam, which has been hitching rides on boats for decades. People choosing fertilizer-heavy grass lawns over natural landscapes, or driving instead of riding a bike have an effect, as do companies opening fertilizer-happy golf courses and destroying sediment-filtering wetlands.

Now that researchers are aware and actively advocating for change, however, hope is tentatively restored for Tahoe's clear waters to return. □