

# Climate change affecting Lake Tahoe

By Susan Wood

INCLINE VILLAGE – If a tree grows submerged in a lake, will anyone notice?

That's the prevailing question posed during a lecture at Sierra Nevada College last week by Benjamin Hatchett, who studies climate models for the Nevada State Climate Office of UNR.

The talk, which brought out almost 100 people who were interested in the topic, covered changes to the landscape of what's considered the Great Basin. Its series of lakes provide a picture of the past and perhaps the present and future of the climate's effects on Walker, Convict, June and Mono lakes, as well as Emerald Bay and other areas of Lake Tahoe.

From tufa and tree stumps to shorelines and slow-moving glacial movements, Hatchett's slide show demonstrated a much different-looking western front surrounding Tahoe.



Benjamin Hatchett gives a talk Dec. 4 at Sierra Nevada College. Photo/Susan Wood

And as much science as there was, Hatchett made the subject

somewhat light with his reference to Bonneville Lake being more known now for giant desert parties and speed races.

Scientists like Hatchett are now able to make the connection between moisture availability with outgoing evaporation and incoming precipitation – a subject near and dear to California and Nevada residents enduring one of the worst droughts in a century.

Tahoe-area researchers have been able to discover 200-year-old trees submerged in Walker Lake, just like those they've found in Fallen Leaf. And Mono Lake's high shorelines that make the tufa rock formations so unusual are "an indicator of how dry it can be here," Hatchett pointed out.

How do these dry spells affect the web of life?

Walker Lake's low level has already jeopardized Hawthorne's famed Loon Festival, a mainstay for the small Western town. When the lake drops, the food chain is disrupted and therefore the birds reduce their visitation.

The best scientists can hope for is moisture because we're all at the mercy of Mother Nature. Beyond using historical maps, they can also count on solving equations upon geographic grid cells on charts using components such as snowpack, snowmelt, temperature, precipitation, evaporation and water storage.

So at least we'll have a heads up if we face a "modern mega drought," which is the worrisome equation at work here.

From 2012 to 2014, the Great Basin experienced the similar level of precipitation to other mega droughts based on the models.

"We could end up with lakes drier than the time when we had trees growing in them," Hatchett said, adding that the scenario could lead to "massive socioeconomic and ecological implications."

As it is, Hatchett cited a \$2 billion expense reported by UC Davis of the three-year drought. It's difficult to imagine a long-lasting mega drought.

So, Hatchett put up pictures that showed Emerald Bay and Fallen Leaf Lake as a series of moraines during the Ice Age more than 14,000 years ago. These extreme climate conditions result from large-scale swings in hydrologic history.

The ice flowed down Eagle Creek into Emerald Bay "leading to a nice place to go have tea," he said, referring to Fanette Island situated in the middle of the bay. The resident of Vikingsholm, Helen Knight, took her guests out there for the English staple.

"Desolation Wilderness is one of the best examples of the Ice Age," he said.

So the next time you walk in the wilderness and notice a few rock formations that either seem thrown there or out of place in terms of other nearby rocks – think ice movement.

"We can blame glaciers for a lot of weird geologic finds," he said. What's the big picture? "Natural or manmade (climate conditions) – if it gets drier, we're all in big trouble," he clarified.

And with that, the audience was hushed with keen interest.

Bob Richards, Tahoe researcher Charles Goldman's understudy for years, was on hand for the talk. Afterward, he told *Lake Tahoe News* that he wanted to know if Hatchett could say how the 5,000-year-old submerged trees out from Taylor Creek on the South Shore fit into the climate picture of other submerged forests such as the Walker Lake drainage.

After the talk, Hatchett confirmed it's all a part of the same dry picture. All the studying was food for thought for those wanting to "appreciate a lot of the features around us and how

they're a product of a long-term state of our climate," Hatchett said. "This can be helpful in what we would do now for the 'what if' we're three years into a 10-year drought."

More observing is on the horizon. This includes studying the submerged forest off shore from Kings Beach next.