Turning climate change data into policy not an easy task

By Capital Public Radio

Data suggest climate change is bringing an increased risk of more severe forest fires, but warming temperatures may cause other complex ecosystem changes. Local agencies are already planning ways to mitigate and adapt, but making policy based on models that show global trends over the next century is not an easy task.

On a recent brisk sunny morning at Lake Tahoe, the waters sparkling their iconic blue. Scientists from UC Davis's Tahoe Environmental Research Center take the boat out to Tahoe Buoy Three, a floating concrete island about 10-feet in diameter with scientific instruments bolted to its tripod structure.

"When you have a long-term record, especially going back more than 40 years , you can start to see these long-term trends," said Geoff Schladow, the director of the Tahoe Environmental Research Center. "So now springtime defined by the peak of the spring runoff, is occurring two weeks sooner than it did 40 years ago."

Lake Tahoe is an outdoor labratory that could help predict the future. Photo/LTN file

Data from these buoys show that the lake has warmed about 1 degree Fahrenheit on average over the last four decades.

But it’s not the average that’s worrisome. The concern is that the surface has warmed much more than the depths. So that makes the surface water much lighter.

“We’re finding on average that density difference is getting larger, meaning more energy is needed to mix that water,” Schladow said.

Historically Lake Tahoe mixes all the way from top to bottom about once every three or four years. The mixing helps move oxygen throughout the lake’s water.

“What the model suggests is that in the coming decades, it’s going mix to that depth less often,” Schladow said. “And possibly in the second half of the century, that mixing may cease altogether.”

Less water mixing could bring a cascade of changes to the ecosystem. There have already been some periodic increases in surface algae. This could reduce zooplankton, which are a critical food source for fish. And reduced mixing could cloud Tahoe’s famous water clarity.

That’s the tricky thing about climate change. Science can point to some concrete trends – water and air temperature warming; or more precipitation falling as rain, not snow – but scientific models can’t tell what will happen next year. Or exactly how climate changes might affect the ecosystem.

Andy Wirth, CEO of Squaw Valley, says they can’t base their business plan on suggestions that snowpack might be reduced by half in the next 50 years.

“Those are horizons that are very difficult to manage to. And I would really make effort to have everyone understand how seriously we take this,” Wirth said.

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