Wind main culprit in keeping Lake Tahoe chilly

By Brant Allen

Does this year's snowpack and cool spring rains mean swimmers will have to delay their summer Tahoe adventures? Not necessarily.

Interestingly, Lake Tahoe's surface water warms at about the same rate each year regardless of the winter snowpack. As solar radiation increases during the longer days of spring, the surface water begins to warm. It may not be inviting enough for a swim in April but the shallow water will already be several degrees warmer than the water just a few meters below.

When the winter snowpack begins to melt and join the nearest stream, water in that stream becomes very cold—maybe just a few degrees above freezing. As the cold, dense stream water enters the lake, it "plunges" below the warmer surface water, to a depth where the lake water is the same temperature and density.

Though this happens all the time at stream mouths, we rarely get to see it. This spring, UC Davis researchers observed a thin layer of dark brown water suspended midway between the bottom and the surface of the lake while working on a nearshore water quality station. The water was stained with tannins (from fallen leaves), making it visible in Tahoe's clear water.

Back to swimming and what can cause the lake to warm more slowly. Spring storms and especially the strength and duration of the wind, not the associated precipitation, is what keeps the lake cool. Wind adds energy to the lake, mixing cold water from depth back to the surface. It is not uncommon for the

lake surface temperature to drop several degrees following a strong spring wind event.

So, if you are one of those Tahoe summer people who long for days in the water, don’t curse the big winters and extended snowpack. That keeps the lake level high. It is the wind that will prolong cold surface temperatures.

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