Tributaries influence the reaction of lakes to the climate

February 19, 2018 | Irene Bättig
Topics: Ecosystems | Climate Change & Energy

If the climate heats up, the temperature in the uppermost layer of lakes will increase, the thermic layering will become more stable and last longer, and less oxygen will reach the depths – this is the present theory on the effect of climate change on lakes.

What effects tributaries have on these processes is being investigated by Eawag researchers with mathematical models. These show that the outflow is shifting from summer to winter. In both of these periods, the lakes warm up to a lesser degree, because the rivers contribute significant volumes of water in mid-summer and in winter. In Lake Geneva this cooling effect is less pronounced, because the water remains in the lake for much longer than in Lake Biel. A surprising result is shown by the model for Lake Geneva: due to shrinking glaciers and greater outflow in the winter, the Rhone carries with it more suspended particles. The resulting heavier water sinks in the lake and thus transports oxygen into the deeper layers.

Original publication (open access)

Råman Vinnå, L., Wüest, A., Zappa, M., Fink, G., and Bouffard, D.: Tributaries affect the thermal response of lakes to climate change, Hydrol. Earth Syst. Sci., 22, 31-51, https://doi.org/10.5194/hess-22-31-2018.

Contact

Überlandstrasse 133
CH-8600 Dübendorf

T +41 58 765 55 11
F +41 58 765 50 28

info@eawag.ch
www.eawag.ch

Alfred Johny Wüest

Tel. +41 58 765 2181

alfred.wueest@eawag.ch

Andri Bryner

Media officer

Tel. +41 58 765 5104

andri.bryner@eawag.ch

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