

Toxic legacy seeps from melting Alpine glaciers: study

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Swiss researchers have found that Alpine glaciers melting under the impact of climate change are releasing highly toxic pollutants that had been absorbed by the ice for decades.

They warned in a study abstract published in the journal [Environmental Science and Technology](#) that it could have a "dire environmental impact" on "pristine mountain areas" as global warming accelerates.

Much of the pollution was dumped on Europe's biggest mountain range by atmospheric currents from further afield, according to the researchers at three Swiss scientific institutes.

Their study of layers of sediment from an Alpine lake formed by a hydroelectric dam built in central Switzerland in 1953 revealed "sharp" build-ups of now banned chemical compounds from industry and farming, including dioxins and pesticides like DDT.

"We can confirm with the help of these layers that, in the 1960s and 1970s, POPs (Persistent Organic Pollutants) were produced in great quantities and were also deposited in this Alpine lake," said one of the authors, Christian Bogdal, of the Swiss Federal Laboratory for Materials Testing and Research.

But while the concentration of POPs fell after the 1970s as many of those compounds were banned, the scientists found an unusual resurgence in more recent sediment from the past 10 to 15 years.

They concluded that the lake, the Oberaarsee, was largely fed by water from a nearby melting glacier that was releasing pollutants at a level comparable to when the compounds were still in use.

"At this stage our study indicates that accelerated glacier melting due to global warming may also account for enhanced release of legacy organic pollutants at historically high levels," according to the full study.

One of the scientists, Peter Schmid, told AFP on Wednesday that their findings were replicated at two other glacial lakes in the Swiss Alps.

But another lake that was not fed by glaciers did not show any increase in the compounds.

The authors said that that it was the first time that glaciers were demonstrated to be a secondary source of such pollution.

Production and use of POPs was banned or restricted under an international treaty in 2001, although several major industrialised nations such as the United States had started to outlaw them in preceding decades.

They are regarded as very durable and carcinogenic, and in some instances can be absorbed through the skin.

Their release in an Alpine setting could lead to "short but intense pulses" of pollution in spring and summer, the scientists concluded.

That could affect drinking water in Alpine huts, the food chain through fish from nearby lakes, irrigation facilities and even artificial snow on ski slopes.

The Alps are commonly known as the water tower of Europe, as the

source of major rivers such as the Rhine and Rhone.

Schmid cautioned that more research was needed to determine the pathways of the POPs in the Alps and how much they retained their toxicity.

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