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# Drought in Europe's water reservoir

The summer of 2018 was Switzerland's hottest since 1864. It was not only hotter than the previous record summer of 2003, but also exceptionally dry. There are long-term consequences.

THEODORA PETER

This summer, the roar of army helicopters could often be heard in the Swiss mountains. Superpuma helicopters transported water to remote alpine farms more than 500 times - a total of over 1,300 tonnes. A dairy cow drinks 40 to 80 litres of water a day. The water reservoirs in the Alps of western, eastern and central Switzerland were dried up. Where access was possible, water tankers transported water to higher altitudes. Otherwise it would have been necessary to bring the farm animals down into the valley at an earlier date. But even in these areas the drought gave the farmers a hard time. Hardly any grass grew on the pastures, so the cows had either to be fed hay from winter stocks or farmers had to buy additional fodder. This became too expensive for many farmers. They brought their animals to the slaughterhouse prematurely or sold off more cattle than had been planned resulting in low prices. Proceeds from cattle for slaughter also came under pressure because the industry organisation Proviande had approved the import of 800 tonnes of beef at the end of June. This caused discontent among farmers. In order to relieve the burden on the meat market, Proviande ultimately extended the import period, which normally lasts four weeks, until the end of September.

The drought also had an impact on the grain harvest. Swiss Granum expects a significant decline in the quantities of wheat, barley and rapeseed for 2018. As for fruit growers, they were forced to harvest early after fruit growth came to a standstill. At least the slightly smaller apples are of excellent quality - good news compared to the

record low 2017 harvest, where frost in spring caused major losses.

Fish die-off despite "cooling zones"

The lack of precipitation caused the water levels of rivers and lakes to drop and the heat led to rising water temperatures. Near Schaffhausen, the Rhine crossed the 27 degree mark once again this summer. What may please swimmers is life-threatening for aquatic organisms. For example, cryophilic fish species such as the grayling show initial stress symptoms at 23 degrees. After almost 95 percent of the graylings had died during the heatwave of 2003, "cooling zones" were created this year along several streams leading to the Rhine, where the fish could find refuge in the deeper and cooler water. Nevertheless, there was a great fish die-off in the Rhine during August. In addition to graylings, many trout also died. In other regions, fish were removed from streams and rivers that were drying out and placed into larger bodies of water.

Due to the drought, several cantons called upon the population to use less water. However, there was no acute and widespread water shortage during the summer. As "Europe's water reservoir", Switzerland has large water reserves. According to the Federal Office for the Environment, 80 percent of the drinking water in Switzerland is extracted from the groundwater. The groundwater has a delayed reaction to drought, which is normally visible after several months.

## Retreat of glaciers continues

The high temperatures of 2018 also caused the glaciers of the Alps to retreat further, while the drought amplified the process. This is because precipitation, which falls in the form of snow at high altitudes, helps protect the glaciers from melting by adding a layer of snow. But according to researchers, it is impossible to stop the smaller glaciers at lower altitudes from disappearing. Due to global warming, 80 percent of the mass of ice will have disappeared by the year 2100. Climate protection could at least save the large glaciers from completely retreating.

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A common sight during the summer of 2018: Army helicopters deliver water to cows in the mountains, in this case to the Oberbätruns mountain pasture in Schänis. Photo: Keystone