

# Behind the Alpine Scenery

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Bernhard Wehrli,  
Head of the department  
"Surface Waters"

The solitude of mountain lakes and wild glacial streams adorns many postcards and travel brochures. The fact that human activity changes the character of these alpine habitats often does not fit into this idyllic picture. For at least 4000 years, alpine forests have been cleared and the open areas used for pastures. Pollen of flowering plants, embedded in sediments of alpine lakes, can document this fact. In light of the current transformation of Alpine valleys into European transportation corridors, the protection of these routes and of the villages from floods and landslides is becoming ever more urgent. Steps, weirs and levies keep our wild alpine streams in bounds. For over 100 years, we have used hydropower – the white gold of the Alps. Relative to its surface area, Switzerland today is the world leader in the production of hydroelectric power. Many streams are diverted via pipes and tunnels at an elevation of 2000 m into reservoirs. Down in the valley, warning signs alert the hiker to the possibility of sudden water surges, in case the power plants bring their turbines on-line. In addition, the use of fossil fuels also impacts alpine streams: global climate change causes not only accelerated recession of our glaciers, but also changes precipitation and discharge regimes.

The UN declared 2002 to be the "Year of the Mountains". On this occasion, EAWAG held its Info Day under the heading of "Alpine Streams – Fragile Diversity in Peril". Presentations summarized the most recent findings on the functioning of alpine streams and their inhabitants and presented information about the effects of anthropogenic change. In order to apply scientific results to everyday life, we need close cooperation between institutions at home and across national borders. Exactly because the Alps

are a major obstacle for North-South transit, intense cultural exchange between different Alpine regions has taken place for a long time. An outgrowth of this cooperation on the political level is the Convention for the Protection of the Alps. Its primary goal is the sustainable development of this sensitive region in the heart of Europe. With regard to alpine streams, we are charged with the duty to shape power generation, flood protection and tourist development such that the ecological viability of these sensitive ecosystems is guaranteed in the long term. This is why about one year ago, EAWAG joined efforts with the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), the Federal Office for Water and Geology (BWG, FOWG) and various institutes of ETH Zurich and Lausanne in developing the "Rhone-Thur" project. Its goal is to develop methods and criteria to assess the success of revitalization projects.

This issue of the EAWAG news complements the previous issue, which had an emphasis on the ecology of alpine streams. Both issues are intended as summaries of the current state-of-the-art rather than final reports. As environmental changes are rapidly sweeping through the region of the Alps, so too is research on Alpine streams rapidly discovering new scientific perspectives.



<sup>1</sup> A summary of the presentation by Michael Monaghan can be found in EAWAG news 54.

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