

## Re-establishment of the sediment continuum at an alpine reservoir – influence on river morphology, ecology and flood prevention



Albul River (Photo: M. Facchini, VAW)

Sediment continuum in rivers is often interrupted by the presence of dams, which trap bed load and suspended sediments inside the reservoirs. In the light of the new water protection law in Switzerland, bypass tunnels are an effective countermeasure to this effect. They are used with a twofold aim: on the one side they convey the sediments downstream to the dam diverting parts of the most relevant floods and on the other side they recover the sediment river continuum.

This project focuses on this latter aspect for which is important to analyze and study the dynamics of sediments in the reach downstream of the dam. It is particularly relevant to detect the time and spatial scales over which the sediments propagate and predict the development of the new morphology. It will be also of paramount importance to understand if it is possible to manage (e.g. by controlled flood release) this extra load of sediments in order to improve the ecological conditions of the downstream reach.

This project will be conducted with the use of numerical models and with the fundamental help of field observations that are necessary to produce reliable results.

Keywords:	Sediment Bypass Tunnel (SBT), Reservoir aggradation, river morphodynamics, Sediment pulses, sorting waves, advection and dispersion, numerical methods
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