

## River monitoring at the Töss-river

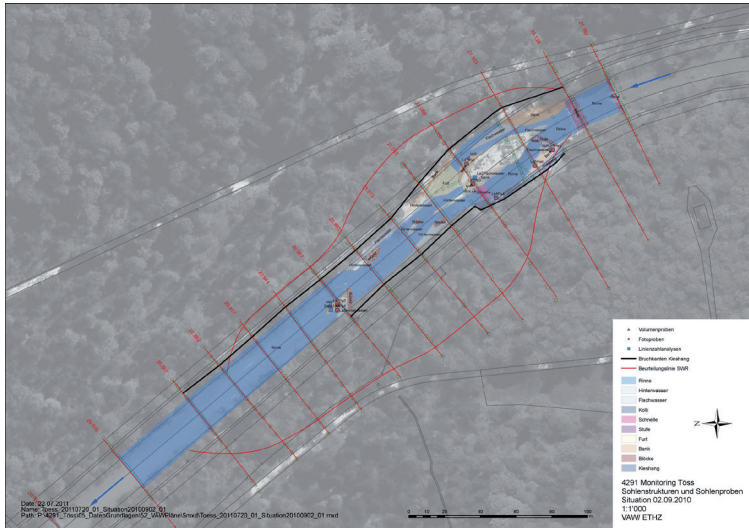


Figure 1: Bed structures and sediment sampling locations before re-initialisation in 2010

The objective of this study is to analyze the development from a constructed channel towards a nature-oriented river-bed as initialized by small scale interventions. This work will be done on the basis of a short reach of the River Töss near Winterthur (CH). The River Töss that has been corrected to a channel mainly with respect to flood protection purposes since the 1880s. Due to this 'correction' the river developed a deficit in bed load, and thus emerging erosion processes were stopped by installing sill beams. In 2001, a first measure were started to re-initialize the self dynamisation of the river bed. Bank protections and water management structures were removed on a length of about 300 m, and an artificial island was installed in the middle of the river to lead the flow to the banks (fig. 1). However, this attempt failed as the banks stayed stable.

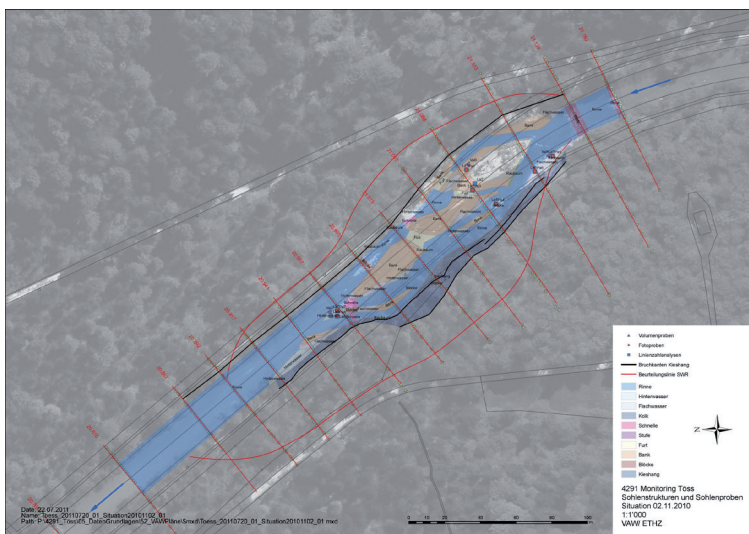


Figure 2: Bed structures and sediment sampling locations shortly after re-initialisation in 2010

In 2010, an advanced change was done to initialize this self dynamization more effectively (fig. 2). This project has a pilot character for initiate self dynamization of rivers by a small scale intervention – in opposite to so far performed fluvial revitalizations realized by intensive mechanical operations to reform a whole river reach. Therefore, the VAW supervises this project scientifically and monitors the development of bed material composition, hydraulics, sediment transport and bed morphology. Special focus is given to grain size analyzing by image processing and the use of hydro-numerical means for predicting morphodynamic aspects. In the end, guidelines to initiate the self dynamization of rivers will be given to increase the effectiveness in design and performance of comparable river vitalization projects.

The monitoring is conducted since summer 2009 up to the end of 2015

Keywords: river monitoring, bed morphology, sediment transport, river vitalisation, grain size distribution  
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