

Featured case: Restoration and environmental drainage of Ritobäcken brook, Finland



The excavated flood terrace of the Ritobäcken brook and the bed which could be preserved untouched (J.Jormola)

The aim of the environmental drainage project of the Ritobäcken Brook was to maintain and enhance the habitat diversity of the brook for migratory fish while decreasing flooding of the fields.

Ritobäcken brook, a small tributary of Sipoonjoki River near to the city of Helsinki, is 2.5 kilometers long with a catchment area of 12 km². The lower part of the brook runs through a nature reserve in the Sipoonkorpi National Park. The brook is a reproduction area for the vulnerable sea run brown trout (*Salmo trutta*) of the Baltic Sea.

The project of environmentally sound drainage was carried out in winter 2010. To prevent the digging of the stream bed, a section of 800 meters was excavated with a flood terrace, leaving the original brook as low flow channel untouched on one side of the terrace. 2,500 m³ soil was removed and located to the nearby fields.

The flood terrace has so far been large enough to prevent flooding to the arable areas. The excavation required a bit more space than traditional dredging, but erosion, turbidity of water and loss of habitats could be prevented.

The project was a good cooperation between the landowner, environmental authorities and the hydraulic research. Aalto University has made research of the efficiency of the flood terrace with different vegetation sections for discharges and erosion-sedimentation balance of the brook. Flooding of the fields is prevented and sediment is accumulating on the terrace. Spawning brown trout have been monitored downstream in autumn 2010 and 2011, showing that no harm for fish was done by the excavation. The increase of trout habitat to the excavated section upstream can also be expected, with help of further restoration.