

Section Sciences et Ingénierie de l'environnement Design Project 2014 (semestre de printemps)

Proposition n°13

Development and planning of concrete river revitalisation projects in the region of Oberhasli

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Descriptif du projet

For the extension of their power plants the Kraftwerke Oberhasli AG (KWO) needs ecological compensation measures, e.g. river revitalisations.

The river Aarebinnenkanal flows between the city of Meiringen and the Lake of Brienz. It is channelised on almost its whole length. Additionally, a gravel deficit exists, since the sediment of the two main confluents gets removed every year. Finally, the nearby military airport uses chemicals to defrost the runways.

Because of these deficits various ecological improvements / measures are principally possible. Different ecological studies have already been conducted : e.g. Eawag Master Thesis on fish and on riverbed clogging ; a design project in 2012 (P. Perona).

All possible measures are sampled in a report. However, the projects are currently not very detailed developed. In 2011, the planning of ecological measures has started. From the beginning of the planning phase, the KWO has been in contact with the corresponding Schwellenkorporation – this corporation consists of all landusers at the riverside and is responsible for all measures on the river Aarebinnenkanal. In November 2013, the

Schwellenkorporation asked the KWO to develop concrete ecological measures to reduce the costs of maintaining the riverform and to improve the ecological state of the river.

Objectif

To learn about aquatic ecology and hydraulic construction with respect to river revitalisations.
To continue the development of ecological measures (improve the actual planning state).
The number of ecological measures which will be investigated is principally open (1-6 measures are realistic), depending on the time effort for each measure.

Descriptif tâches

- Introduction into the topic and region
- Field measurements (width, velocity, depth, field mapping, ...). 3-5 field measures are required.
- Concrete hydraulic simulations are desired
- Estimation of required area for the measures
- Representation of the results in a report
- Several meetings with the project leader (roughly every 3 weeks are desired)

Divers

- Several meetings with the project leader and 3-5 field visits are required.
- For the correspondance email is favoured.
- Language for the report and for the collaboration can be English or German.
- River revitalisation is an important topic for aquatic ecology and general water constructions within the next 80 years (Revision of the Swiss Law for Protection of Water Bodies).