



Dam management on the Bocq river at Purnode



Straightened river (Leignon) where meanders have been restored



The scientific monitoring includes the fish populations analysis

What is the “Walphy” project ?

Design of a decision tool for hydromorphological restoration of water bodies in Walloon Region

The project WALPHY (LIFE07 ENV/B/000038) is co-financed by the European Union through the LIFE + Environment programme. This 5-years project started in January 2009. The Direction of Non Navigable Watercourses (DCENN) of Wallonia (Belgium) is responsible for coordinating the project, in collaboration with two academic partners, the Laboratory of Fluvial Geomorphology and Hydrography (LHGF) from the University of Liege and the Research Unit in Organismal Biology (URBO) of the University of Namur.

In this pilot project we develop a structured approach aiming at improving hydromorphological quality of the upstream Meuse basin in order to reach the “good ecological status” required by the DCE. River’s biological recovery needs river’s structure and physical dynamics recovery. Returning to “good ecological status” inevitably involves physical restoration of affected rivers. Physical component of aquatic environment acts as a limiting factor for their functioning. Three types of alterations are key obstacles for river good ecological status: The alterations of the flow (discharge, sedimentation...), of the forms (uniform facies...) and of the biotope access (lateral connections breaks, modification of the continuity upstream / downstream...).

Therefore, hydromorphology is needed to implement the Water Framework Directive (WFD) as well as the “Flood directive” (2007/60). Currently, stakeholders have to improve hydromorphological rivers quality with no means to predict any quantitative effect of their actions. What is the impact

of dam removal or water course section remeandering for example? They usually get only little feedbacks based on short term monitoring. Modifying or “manipulating” ecosystems requires expert knowledge of watercourse dynamic mechanisms. Hydromorphological quality improvements can be measured by changes in physical or chemical parameters of the environment but also by changes in the composition and the structure of plant and animal communities depending on the aquatic environment. We need to identify and act on the natural processes that would ensure sustainability of the improvements. Nevertheless, we have to take into account the effects of climate change such as the announced increase in the flood frequency and intensity.

Five specific objectives lead this project: (I) the development of a methodology for assessing the river hydromorphological quality restoration projects ; (II) the realization of restoration works on a significant scale on some risk water bodies in the studied basin based on two axes: longitudinal continuity and transverse continuity (area of freedom) ; (III) the monitoring of the restored river system and its ecological status evolution at the local level (site of intervention) and the global level (the water body) ; (IV) the refining of the methodology for the development of a technical guide (decision-making tools) for river stakeholders in the context of the implementation of the DCE ; (V) the dissemination of these tools and recommendations to the authorities, stakeholders and the public.

This project will firstly develop a unique, useful and suitable methodology to determine and schedule river physical quality restoration works. Secondly, experimental and demonstrative river restoration works will be realized, considering the river typology. These works concern the longitudinal continuity (obstacles management) and transversal continuity (enhancing straightened river channels). The scientific monitoring will improve several ecological quality indicators. The project will finally inform, aware and motive all actors to enhance good practice in planning, management and respect of rivers.

contacts and further information on: <http://www.walphy.be>

