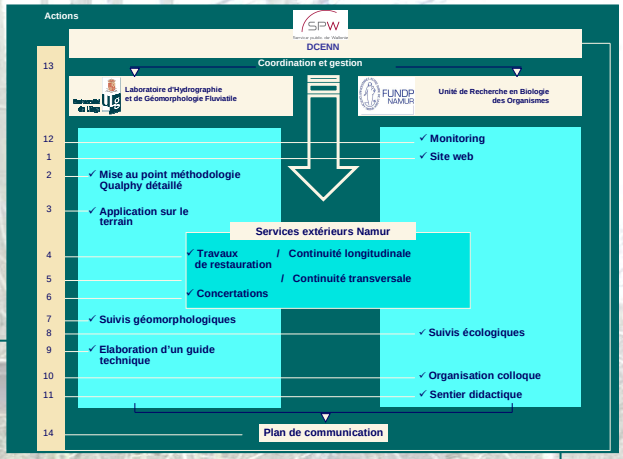
Design of a decision tool for hydromorphological restoration of water bodies in Walloon Region

WALPHY - LIFE07 ENV/B/000038

The **specific objectives** of the project are the following :

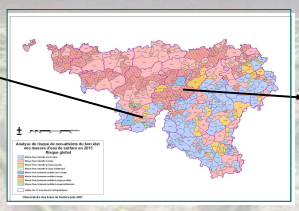
- development of a unique, usefull and suitable methodology in Walloon Region to determine and schedule river physical quality restoration works.
- realisation of experimental and demonstrative river restoration works on some risk water bodies in the studied basin based on two axes : longitudinal continuity and transverse continuity (area of freedom) ;
- monitoring of the restored river system and its ecological status evolution with a geomorphological and an ecological monitoring



Water bodies studied

Eau Blanche downstream = natural risk water bodie

Were strongly straightened in the past, therefore it offers several possibilities to work on the transversal continuity.



Bocq upstream and Bocq downstream = non natural and risk water bodies

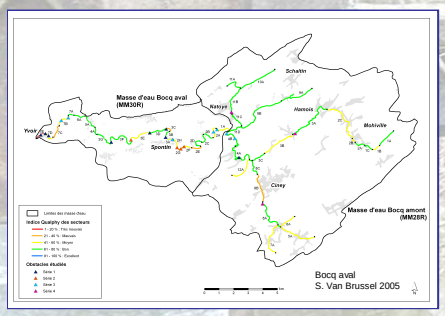
Seemed to be convenient for the restoration works which concern the longitudinal continuity due to the presence of obstacles and little dams

Physical quality assesment


2 B Bocq amont


11 B Bocq amont

In order to determinate intervention sectors for actions 4 and 5 in the pilot water bodies, we applied a physical quality evaluation, called Qualphy. This French method has been improved through the incorporation of sediment parameters and ripisylve quality assessment.




4 B Bocq amont

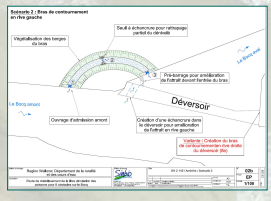

8 B Bocq amont

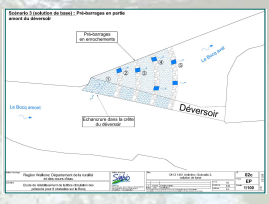
According to this physical quality evaluation, every sector of the river has a global physical quality score, which is calculated from 40 parameters. Each score can be decomposed in 3 compartments: flood plain, stream channel and banks.

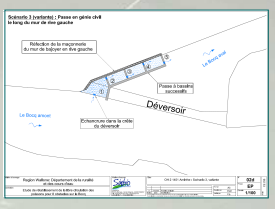
First restoration study about the eight most important obstacles of Bocq downstream

- Phase 1 : inventory + 3 scenarios / obstacle
- Phase 2 : multicriteria comparative scenarios analysis (cost of the work, socio-economic aspect, microhabitat, sediment transport and flooding impacts…)
- Phase 3 : detailed preliminary draft (5 obstacles)

Example for obstacle 1451 in Aminthe





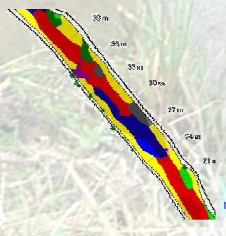


3 different scenarios

Scientific monitoring

Geomorphological monitoring will consist of physical and sedimentologic parameters analysis.

pit tag methodology



micro-habitat cartography based on substrat and velocity

Ecological monitoring based on analysis between micro-habitat and biodiversity evaluated on 3 indicators : macrophytes, macroinvertebrates and fishes.

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