Workshop – “River management in a climate change context: challenges and opportunities”

Following the efficiency of hydromorphological river restoration works (HRRW)
Focus on two yards in the Artois Picardie water basin
The Hem river’s « lab » and the Course river

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Crédit photographique: FDAAPPMA 62 (2020)
Workshop on rivers restauration—October, 18th

http://aeap.maps.arcgis.com/apps/View/index.html?appid=1ec73bb2a5864ae5a4ceb8e0a3f39648

Dam removal on the Hem river (Tournehem-sur-la-Hem)

Fears for floods after dam removal
LE RÉTABLISSEMENT DE LA CONTINUITÉ ÉCOLOGIQUE DE LA HEM AU MOULIN DE LEULENNE

Effacement de l’ouvrage du Moulin de la Leuleune et restauration hydromorphologique sur la Hem

- L’opérateur
  - Office de l’Eau de la Flandre
  - Ministère de l’Environnement
  - Office de l’Eau de la Flandre

- L’assistance
  - Collectivité territoriale de Flandre
  - Collectivité territoriale de Flandre

- Les objectifs du chantier d’ouvrage
  - Rétablir la continuité écologique
  - Réduire le risque d’inondation
  - Le débit de l’ouvrage

- Les missions des organismes
  - Le ministère de l’environnement
  - Le conseil régional de Flandre
Dam removal on the Course river (Montcavrel)
MSM of the Hem river
Hem river (62), a weir removal for migratory fishes and flood control

« BACI » design

Location map

Unaltered control

Upstream restored (Impact 1)

Downstream restored (Impact 2)

Additional station (physico-chemical monitoring downstream the village)

Crédits : © IGN - 2015

Légende
Moulin de la Leulenne
Ouvrage de la Leulenne
Nouveau tracé

Film

Workshop on rivers restoration– October, 18th
Landscape monitoring
Monitoring the efficiency

Biology

Morphology

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Temperature

Temperature measurement probe
On the Course River
Following fish reproduction efficiency on riffles (on the field and along the banks, with the help of drones)
Workshop on rivers restauration—October, 18th

MSM on the Hem River

1. Sites existants

Effacement du moulin de la Leulene sur la Hem – 1er résultats avant / après

Suivi végétation - CBNB

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→ Apparition d’une station de Potamot dense (Groenlandia dense) ; espèce aquatique d’intérêt patrimonial à l’échelle des Hauts-de-France
→ Recommandation de gestion : fauche ou pâturage extensif (sinon boisement nitrophile mésophytophyte de faible intérêt)

Mauvais état à bon état écologique → proche TNA

Augmentation du nombre de nids

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GS

Moyenne 10 nids

LPF

Moyenne 60 nids

LPM

Moyenne 155 nids

3 X plus de nids depuis le rétablissement de la continuité

Indicateur Morphologique Global :
HEM ET MEULESTROM À TOURNHEM SUR LA HEM (62)

IMG = 5.8

Station n° 01002289; Opération n° 3014
Date de réalisation : 2017-05-21
Modèle de référence = HER TABLES CALCARES

Rapport largeur/prolongeur à plein bord

Pente de la ligne d’eau

Indicateur Morphologique Global :
HEM ET MEULESTROM À TOURNHEM SUR LA HEM (62)

IMG = 3.67

Station n° 01002289; Opération n° 3526
Date de réalisation : 2019-07-21
Modèle de référence = HER TABLES CALCARES

Rapport largeur/prolongeur à plein bord

Pente de la ligne d’eau
Aquatic flora and fauna (2017-2019-2020-2021-2022)
What were we expecting before the yards began?

The MSM is the tool for the survey of hydromorphological river restoration works.

Yes, it is demonstrated in the nearly neighborhood of the yard but eutrophisation of the water basin increases unhappily during the survey, at a larger scale (grasslands reversal). It mitigates the results on the water quality and on the flora surveys, but good results demonstrated thanks to BACI.

The water supply mainly comes from a stream side channel, with water temperatures which are not strongly affected by the “mill reach” effect, especially in summer.

- Target reached
- Target uncertain
- Target not reached
To conclude

- Efficiency of HRRW always needs to be demonstrated because of adverse stakes – MMS is a good tool for practitioner for this purpose
- Strong and scientific protocol to follow the efficiency of the works
- Long time scale follow – up to 12-15 years forecast (n+5 on the Hem river, n+1 on the Course river)
- For practitioner
  - Contractual obligation of success, but
  - Need to keep the possibility to intervene on the site again, taking into account the efficient flood for river morphology (and biology): works led on the riparian forest in 2022-2023
  - Demonstrate the efficiency could be long and / or uncertain
  - HRRW powerlessness about some impacts, as the effects of climate change and the effects of new impacts as grasslands reversal
• We would like also to thank all the partners involved in these HRRW and SSM
  – Of the design offices, Pierre-François Goujard (Bief-CARICAIE), Damien Delafollye (AQUATEC), Arnaud Moreira Da Silva (SCE) and Agnès Le Hen (Aquascop) and their teams
  – From the Angling Federation of Pas-de-Calais, especially Benoit Rigault and Laetitia Munch for their strong support
  – Elodie Maurice and Julie Robillard from The Natural Park « Caps and Marais d’Opale »
  – Arnaud Rousselle, Emilie Delattre and Valérie Chérigé from the SYMCEA, tying the owner mastery of projects on the Canche (Course) river
  – William Gelez and Remi François, from Bailleul National Botanical Conservatory
  – Our colleagues of the Water Agency also involved in the surveys, Sandrine Traisnel and Hubert Verhaeghe, Dorothée Bolzan, Christophe Lesniak, Amélie Vlandas...
  – Our colleagues of the French Biodiversity Agency, Gaëlle Jardin and Paul-Emilien Toucryn
  – and all people I could have forgotten, involved in the projects...