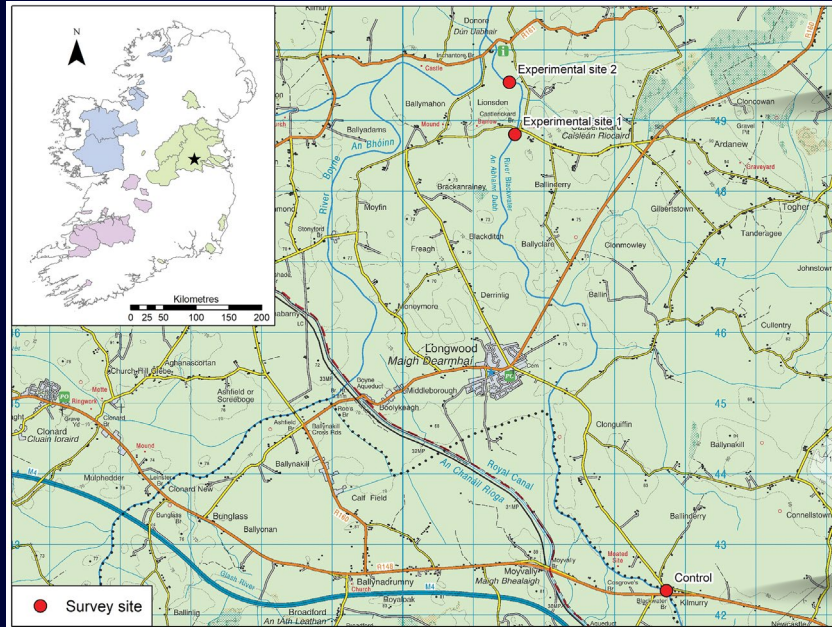




1. Capital Works: Enfield Blackwater, Boyne catchment



Location of survey sites. Inset: location within OPW catchments.
CYAL50346939 © National Mapping Division of Tailte Éireann

The purpose of the instream works was to:

1. Introduce diversity and channel form and flow by installing instream enhancements to combat the negative effects of the simplified channel shape.
2. Constrict the flow locally using paired deflectors and increase velocity into the downstream pool
3. Guide the channel into scouring a line of deep flow using alternating deflectors
4. Use rubble mats (gravel shoal/pool complexes) to provide spawning habitat for salmon, trout and lamprey

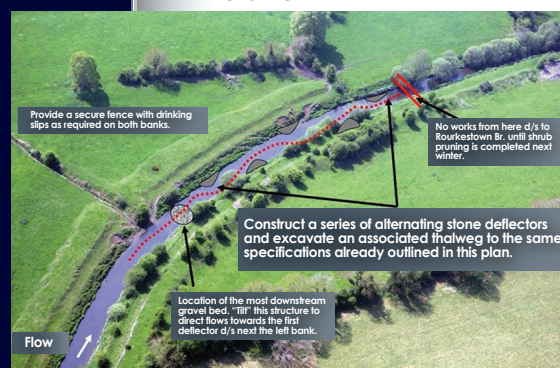
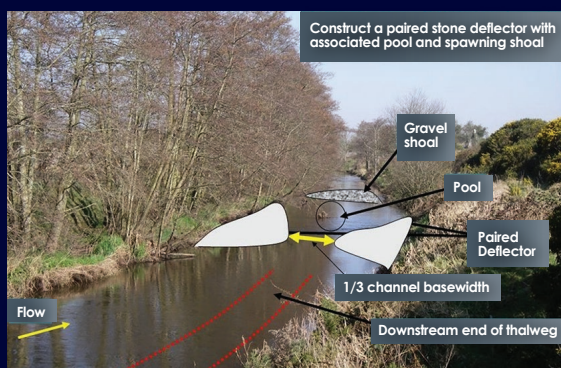
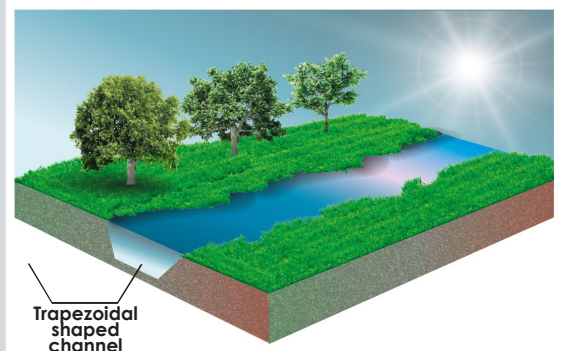
Gravel shoals are necessary in rivers to provide habitat for salmonids and lamprey to spawn, an important part of keeping fish stocks sustainable. Shallow patches of gravel have faster flowing water and this helps to keep the gravels oxygenated and clean. Pools provide important refuge habitat for older, larger fish.

What is the aim of the Project?

The aim of this project is to improve aquatic biodiversity. The project outcome will interact positively with the flows in the river to bring about long-term diversity in the channel flow and form. This environmental sustainable drainage maintenance practice is designed to restore natural river processes in arterially drained channels and minimise the level of active maintenance required.

What was constructed and why?

Two enhancement sites were selected for instream works along a stretch of the Enfield Blackwater in 2009/10. Prior to works, the channel had typical characteristics of a drained river. It had a trapezoidal shaped cross-section which was artificially created, and homogenous flows. This created a stretch of river with a simplified shape which results in a channel with low ecological value.



Extracts from the original Capital Works Plans for experimental site (left) and (right).

What was the result?



Single deflector being surveyed. The stone deflector has re-naturalised and the river flows diversified.



Looking downstream at paired deflectors. This pair of deflectors narrows the flow and speeds it up, introducing diversity.

This project was a success from a habitat enhancement perspective. The instream enhancements have stayed intact and are still functioning ten years later.

Structures have locally improved the flow types and channel form on this stretch of the Enfield Blackwater. They have naturalised over the ten-year survey period, with vegetation colonising the deflectors and are now incorporated into the channel form.

The habitat diversity of this stretch of the Enfield Blackwater has been enhanced by the environmental drainage maintenance measures implemented as part of this project. This diverse section of river now supports different stages in the life cycle of fish with improved spawning and refuge habitat.

Natural processes have been re-introduced into a section of river channel which had previously been a simplified stretch with limited ecological potential.

There is a reduced need for maintenance activities such as silt management as the river in this section is now self-cleansing.



Further information:

Project website: <https://www.fisheriesireland.ie/what-we-do/research/environmental-drainage-maintenance-research-programme-edmrp>
IFI publications: <https://www.fisheriesireland.ie/publications> search for EREP Annual Report 2019
OPW Environmental Management: <https://www.gov.ie/en/policy-information/5fc871-environmental-activities/>