CASE STUDY

Remove structures that are no longer needed

Project Summary

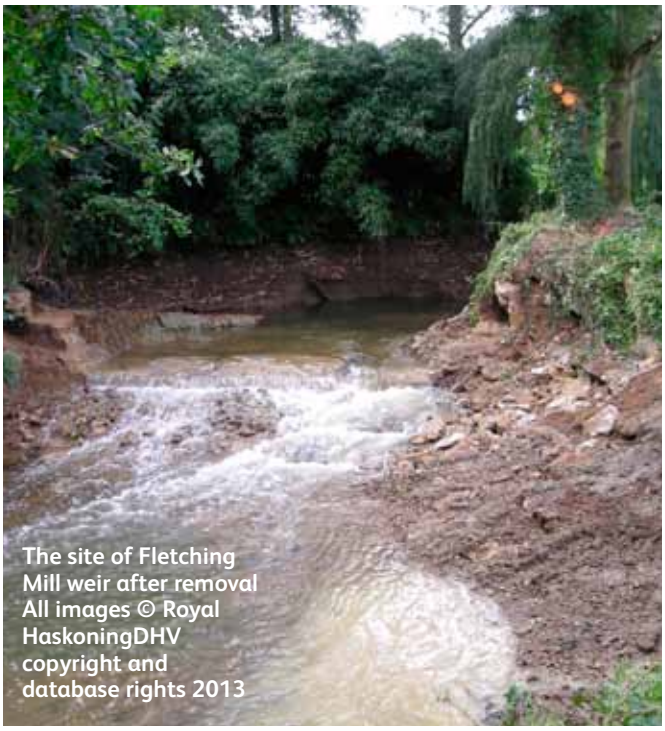
Title: Fletching Mill Weir Removal, Middle Ouse Restoration of Physical Habitats (MORPH) project
Location: River Ouse, East Sussex, England
Technique: Weir removal
Cost of technique: ~~£~~£
Overall cost of scheme: ~~£~~£
Benefits: ~~£~~£~~£~~
Dates: 2010

Mitigation Measure(s)

Remove structures that are no longer needed

How it was delivered

Delivered by: Environment Agency (Defra Catchment Restoration Fund)
Partners: Ouse and Adur Rivers Trust, Royal HaskoningDHV



The site of Fletching Mill weir after removal

Background / Issues

At Fletching in East Sussex, the River Ouse was impounded by a fixed crest weir on the main channel and a fixed gate on the adjacent lock channel. This weir complex restricted fish passage along the River Ouse. Despite the installation of a fish pass, fish were only able to migrate over the weir during periods of high flow. As such, removal of the weir and restoration of the channel were planned by the Environment Agency as part of the MORPH project. An options appraisal for the site was undertaken and a rock ramp scheme recommended in order to achieve optimal flow apportionment between the main channel and the lock channel.

However in August 2010, before the restoration plan was implemented, the weir partially failed and markedly reduced the height of the impoundment, creating a similar environment to one which would have been achieved through restoration. As a consequence emergency removal works were planned for the weir instead.

Step-by-step

Weir collapse
In August 2010 the weir failed, markedly reducing the height of the crest (see image overleaf).

Weir removal
In September 2010 the remainder of the weir was removed with a long reach excavator. No further remedial works were undertaken.

As a result, the large impounded section upstream of the weir complex was naturally transformed. Silt deposits upstream of the weir were regraded by fluvial scour without adversely affecting channel morphology or habitats downstream. Increased flow velocities upstream of the former weir markedly increased in-channel morphological diversity, creating a more natural series of riffles and pools which support a greater range of in-channel habitats.

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Benefits

- The density and diversity of fish species, including brown trout and eel, were greatly increased upstream of the weir.
- Improvement in all aspects of aquatic ecology, including habitat quality for invertebrates, macrophytes and fish upstream of the weir. Consequently, the upstream stretch now passes the WFD classification.
- The removal of the structure has led to a reduction in Environment Agency maintenance costs.

Lessons Learnt

- Significant results can be achieved from structure removal, and this scheme is an example of how quick and wider ranging the positive outcomes for aquatic ecology can be.
- Minimal intervention was required to restore morphology and habitats at the site. This reflects the low suspended sediment volume of the clay-dominated river and the availability of a riparian corridor upstream of the structure in which adaptation can occur without adversely affecting existing land use.

Project contact: Fisheries and Biodiversity Team, Solent and South Downs Area, South East Region, Environment Agency