

## Fletching Mill Weir Removal: Fisheries Summary

### Background

In order to thrive, riverine fish need a diverse environment (shallow riffles, deep pools, areas of fast and slow flow, shallow margins, glides and lots of refuges such as undercut banks, tree roots and log jams). Weirs hold water back artificially and create pond-like habitat where a river ought to be. Ponding results in a silted up and uniform environment where only a few species of river fish can be successful.

The Ouse looking wide, deep and with little flow. The river bed is covered in silt and the water is warm with little oxygen. The fish survey results overleaf show that it supports few fish.



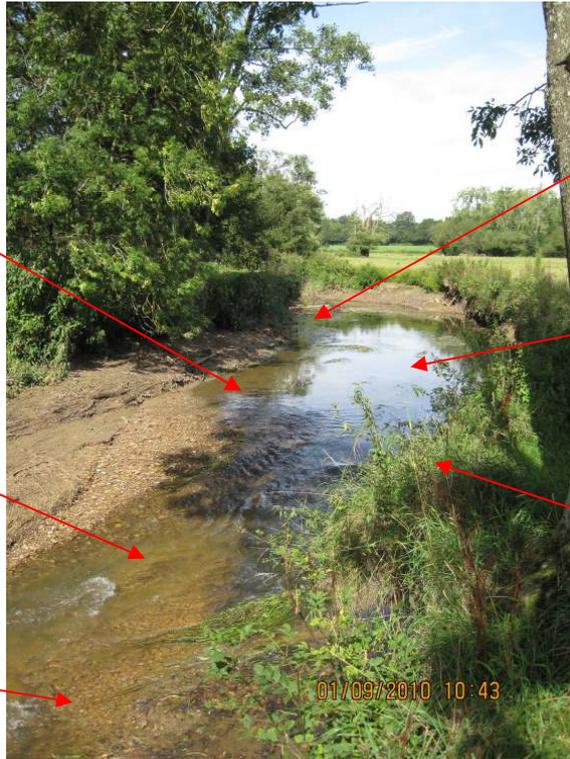
Lilies are a pond plant. In rivers they are indicative of a degraded, overly wide channel with little flow and heavy silt deposits.

**Figure 1.** Photograph of the Ouse immediately upstream of Fletching Mill weir in 2009.

Shallow margins with slow flow for fry. Eels find refuge by burrowing in the silt which accumulates there.

Fast flow producing well oxygenated water.

Fast flow keeps the gravel clean of silt. Clean gravel is an important spawning substrate for trout, barbel, dace and chub.



Log jam for fish to find refuge from predators (other fish, birds or mammals).

Deep pool. Habitat for shoaling fish and refuge in floods.

Submerged tree roots and overhanging marginal vegetation. Shelter for fry and cover for ambush predator such as pike and perch.

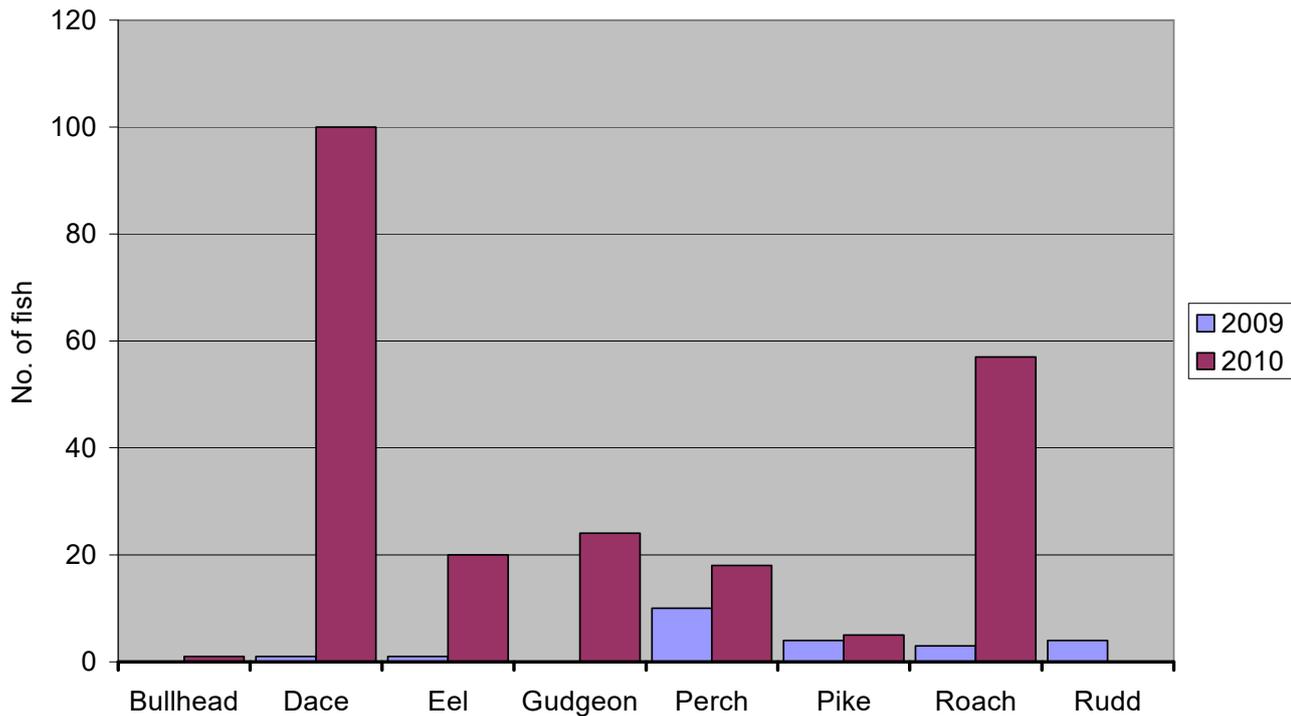
**Figure 2.** Photograph of the Ouse immediately upstream of Fletching Mill weir in 2010 after the weir was removed.

## Fish survey results

Figure 3 shows the results of the electric fishing surveys which the Environment Agency carried out before and after the removal of Fletching Mill weir. Exactly the same 100 metres of river just upstream of the weir were surveyed in both visits in 2009 and 2010.

**The removal of the weir restored the morphological diversity of the river (compare Figures 1 and 2) which in turn has led to a fantastic increase in the fish populations (Figure 3).**

- Two new fish species (bullhead and gudgeon) were caught after the weir was removed. The fish population now is more diverse and characteristic of a fast flowing lowland river. Rudd (a lake fish) were no longer present in 2010.
- The survey after the weir was removed revealed that very large numbers of fish had moved into the restored section (in Figure 3 compare blue and red bars). In 2009 only 23 individual fish were caught, compared to 224 in 2010!
- The weir is no longer an obstruction to fish movements. Fish need to migrate to different section of the river for feeding, shelter and reproduction. The fish pass at Fletching Mill was designed to assist mainly sea trout in their upstream migration. Now, with the weir removed all fish species will be able to migrate past Fletching Mill.
- The restored habitat, especially the silt free gravels will become a spawning substrate for many fish species and help support a healthy fish population in the Ouse for years to come.



**Figure 3.** Numbers of fish upstream of Fletching Mill weir caught in 2009 (blue bars) and in 2010 (red bars) after the removal of the weir.

### Further information

The Environment Agency would like to continue monitoring the fish populations at this restored section of the Ouse and we hope to see more species (trout and chub) as well as larger individuals moving into this newly created habitat. Additional environmental data is available for river form (geomorphology), plants and invertebrates.