River Wensum

Restoration Strategy Issue 8 December 2011

Welcome to our winter newsletter

Ryburgh End River Restoration Scheme

Works are progressing well with our third major restoration scheme as part of the implementation of the River Wensum Restoration Strategy. Located downstream of Great Ryburgh Mill, we are reinstating over 1km of meandering channel, returning form and function to enable the river to sustain the wildlife and fisheries characteristic of a Norfolk chalk river. Our own workforce team are undertaking the project. We have found that large sections of the original river channel, which was cut off sometime in the 19th century, have a hard gravel / chalk bed, which is extremely good news. Not only does this type of natural river bed provide excellent habitat potential but also means that we do not have to import such large quantities of gravel to recreate these features.

Water entering the new connecting channel at the Ryburgh End scheme for the first time.

Newly constructed section of meandering channel at Ryburgh End

Hellesdon Mill Trial

At the beginning of September we completed a trial at Hellesdon Mill which involved lowering the retained water level behind the mill to enable us to measure the response upstream. The presence of water level control structures has a significant effect, causing sections of river upstream to resemble linear lakes rather than free-flowing river channels. This is one of the reasons why the river is in unfavourable ecological condition. A reduction in water levels would help improve the ecology of the channel, and contribute to the target of achieving Good Ecological Potential under the Water Framework Directive. For more information on the Water Framework Directive please visit: http://www.environment-agency.gov.uk/research/planning/33362.aspx The retained water level was lowered in a staged approach over a three day period and the effect upstream closely monitored. The outcome was significant, with large sections of the river becoming free flowing upstream of the mill.

The trial also identified several issues which will need to be addressed if the lowering were to be made permanent. These include the large amount of silt which became exposed behind Hellesdon Mill. Besides benefiting the local ecology, the permanent lowering of the water level would also provide a substantial increase in the available flood water storage capacity. We are considering undertaking a longer trial which will enable us to monitor the effect on the terrestrial Site of Special Scientific Interest units which are hydrologically linked to the Wensum. We will ensure all riparian landowners and interest groups are kept informed of specific details.

Great Ryburgh Common meander loop

It has been a year since we completed the works to reinstate the meander loop at Great Ryburgh Common. In this time the vegetation has re-established and the scheme resembles a typical Norfolk chalk river. As well as fitting into the local landscape, a key aim of the project is to increase the ecological and physical habitat potential. It is essential for us to monitor the response of the river on all our restoration projects.

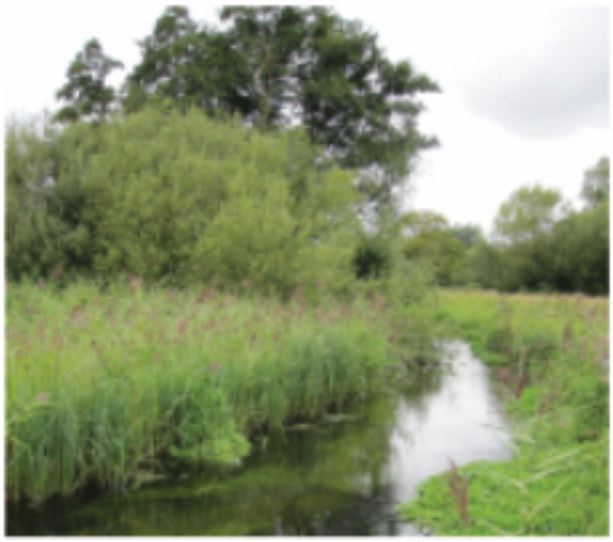
In August and September of this year ecological monitoring was undertaken at Ryburgh, including surveys in the newly created meander loop to assess colonisation by river flora and fauna. Electric-fishing surveys in the meander loop channel produced excellent results, with nearly 400 fish being captured and thirteen species recorded in total. Compare this to the previous year's electric-fishing results from the old straightened channel, which yielded only 31 fish, and you can begin to see how river restoration has acted to improve local habitat quality for a wide range of fish. These included good numbers of native brown trout and target species such as bullhead and brook lamprey.

As well as monitoring fish, the responses of other important biological communities of the river ecosystem have been assessed in the new meander loop and original channel reaches. Again, results after one year are very promising, with a number of typical chalk stream plant species for which the river is designated having colonised the new channel.

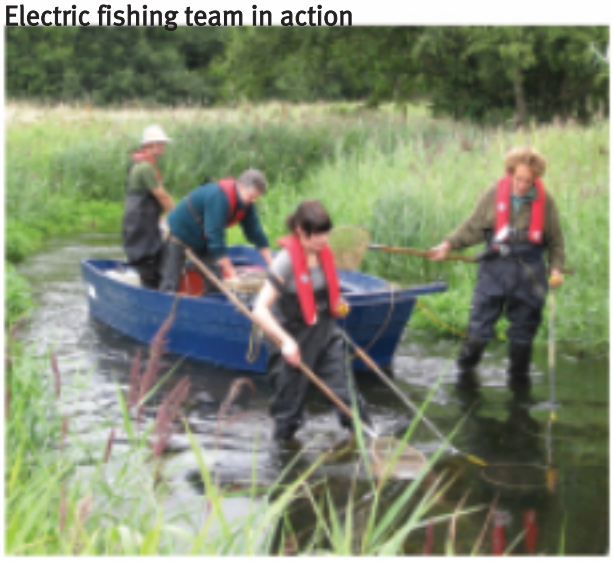
These include water starwort, lesser water-parsnip and whorl-grass. Colonisation by aquatic invertebrates of the habitats in the new meander loop was almost immediate. The communities which have developed on the gravels installed as part of the scheme are species rich and typical of "natural" free flowing gravel bed sections which are rare at a local scale.

The invertebrate communities contain the aquatic life stages of over fifteen species of mayfly, caddisfly and stonefly, indicating a healthy system, good water quality and, importantly, good habitat variability as a result of the restoration works.

Reinstated meander loop at Great Ryburgh



Electric fishing team in action



Feasibility reports

We have uploaded the feasibility reports for Unit 46 (River Tat) and Unit 49 (Great Ryburgh Mill to Bintree Mill) to our website. These reports are vital tools to restoration. By combining technical expertise with local knowledge gathered from our public drop-in days, together with information passed to us by interested organisations and groups, we are able to prepare conceptual designs which are consistent with the big picture for whole river restoration.

Low flows in the Wensum

Many of you will have noticed the low flows in the Wensum. This year we have experienced two intensely dry periods, between March and May and between September and November, and for Norfolk as a whole rainfall to the end of November totalled 404mm, just 69% of the long term average. This equates to a return period of 1 in 30 years. The low rainfall has contributed to low flows in the river.

During November, flows in both the upper and lower river were classified as “exceptionally low” for the time of year, a flow rate that equates to a return period of greater than 1 in 20 years.

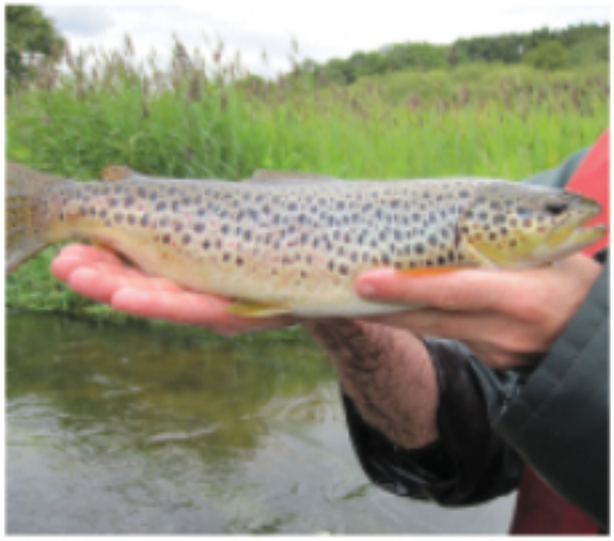
Soil moisture deficits remain close to a record high for the time of year, and so significant rainfall will be needed before there is an increase in surface water run-off and any improvement in river flows. More importantly, the lack of rainfall has resulted in a protracted loss of storage from the chalk aquifer which supplies much of the river baseflow. Rainfall over the coming winter will be vitally important to recharge this aquifer and avoid drought conditions next year.

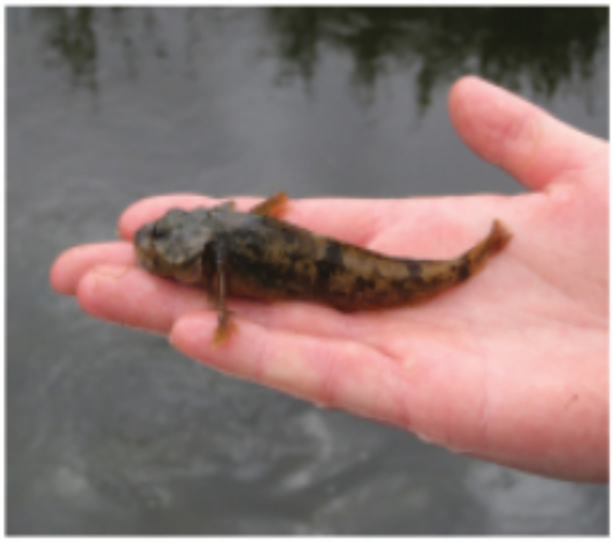
Looking ahead

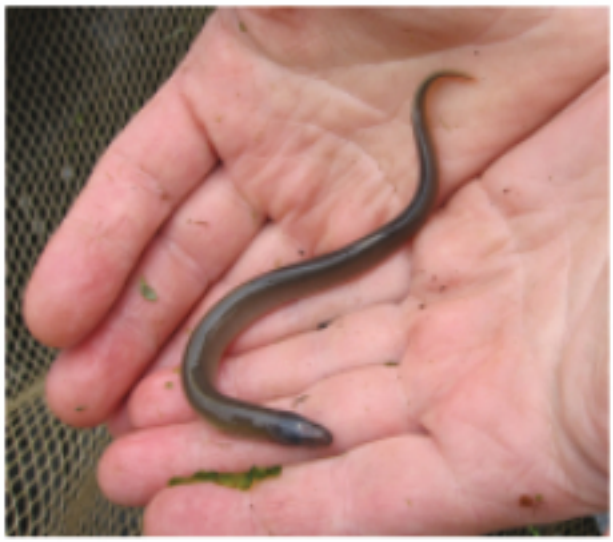
We are always investigating potential river restoration schemes which we can implement in the future. If you are interested in partnership working or would like further information, please contact us at the following email address: river.restoration@environment-agency.gov.uk or contact us by post: River Wensum Project Team, Environment Agency, Dragonfly House, 2 Gilders Way, Norwich, NR3 1UB.

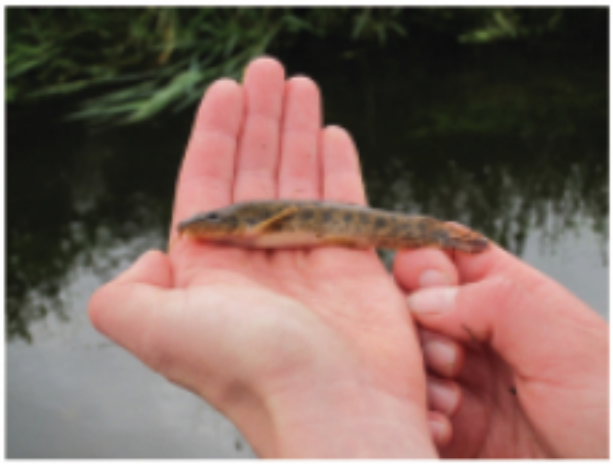
To save resources we would very much like to keep as many people informed by email as possible. Please email us at the address above to be updated this way. Please add your name and postal address in the body of the email so we can identify you. Thank you.

NATURAL ENGLAND









Top left -Brown trout, top right - bullhead, bottom left - brook lamprey and bottom right - stone loach recorded during the survey at Great Ryburgh Common

Please pass this newsletter on to a friend or neighbour and encourage them to sign up to the e-mailed version.