



**HABITAT ADVISORY VISIT TO THE ABBOT'S
HALL FISHERY, RIVER BURE, NORFOLK**

**UNDERTAKEN BY VAUGHAN LEWIS,
WINDRUSH AEC LTD ON BEHALF OF ABBOT'S
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1.0 Introduction

This report forms the output of a site visit to the Abbot's Hall fishery, River Bure, Norfolk on 9th March 2006 on behalf of the Abbot's Hall Fishery. Information in the report is based on observations on the day of the visit and additional comments provided by Vic Purdy, River Keeper of the club. This visit was funded by the Environment Agency (EA), as part of the Cinderella chalkstreams initiative.

Abbot's Hall fishery has 40 members, with some day tickets available by arrangement. Their fishery boundaries on the River Bure are from Holly Grove Wood upstream to Ingworth Bridge, a distance of around 1.5km

Throughout the report, normal convention is followed, with right bank (RB) and left bank (LB) identified when looking downstream.

2.0 Habitat Assessment

Water levels in the river are controlled by sluices at Aylsham Mill approximately 1km downstream of Holly Grove. Recent failures in the automated operating system of these gates have resulted in dramatic changes in retained water level over a very short time span. These changes are likely to be detrimental, not only to recreational angling but also to the ecology of the river. There are also suspicions that numbers of recently introduced stock fish have been washed out of the fishery during sudden drops in water level.



Downstream reach of the river

The river had been significantly modified by past drainage works, with the channel over-widened (to a width of 6m-10m) and over-deepened. Although poor water clarity resulting from recent rainfall prevented detailed observation of the substrate, it was apparent that sections of shallow, gravel-dominated riffles were limited throughout the fishery. Large banks of excavated gravel were present along the banks over the length of much of the fishery, evidence of past dredging.

The channel was moderately meandering, with a width of 6m-10m. The majority of the river was either shallow or deep glide habitat, with the bed generally comprising fine sediment, and sand. Fishery records kept since 1981 refer on a number of occasions to the application of Siltex and Nautex (proprietary preparations of powdered chalk) to the river bed. The application of powdered chalk is an old established and in some cases, effective, treatment for the removal of dense layers of organic sediment overlying the hard substrate in rivers and stillwaters. The aspirations for removal of sediment from the river are a recognition of the heavy sediment accumulation, in part a consequence of the damaging past dredging.

Land use was dominated by heavily grassed wet grassland on the RB, with a mix of woodland and more lightly grazed reed bed and wet grassland on the LB. The more intensive grazing pressure on the RB had caused noticeable damage, with the reduction in stands of coarse vegetation increasing the vulnerability of the very friable bank to erosion. The loss of overhanging vegetation resulting from grazing of the RB in some sections had reduced habitat quality for juvenile brown trout *Salmo trutta*. In addition, grazing pressure had resulted in virtually no trees on the RB.



Heavily grazed RB and tree fringed LB. Note absence of trees on RB

A number of groynes have been introduced into the fishery at a variety of locations over the past 25 years, for instance on the outside of a sweeping bend upstream of Holy Grove. These had been constructed from a variety of materials, including wood, metal mesh and, more latterly by the Environment Agency, from stone. Some of these groynes were installed facing upstream, encouraging erosion of the banks. Others had become detached from the bank, allowing the flow to erode around the bank end of groynes, further isolating them. Large Woody Debris (LWD) had accumulated against some of the groynes.



Metal groyne with accumulated LWD on its upstream face

There was very little LWD present elsewhere in the fishery, largely due to the club's continued policy of removal. This policy was in part predicated on the EA's apparent requirement for free access for their weed-cutting boats. These have been used up to three times annually to cut back submerged weed in the fishery.

On the LB downstream of Goff's Bridge there was a line of trees adjacent to the bank that were planted within the past 30 years. These included horse chestnut *Aesculus hippocastanum*, alder *Alnus glutinosa*, crack willow *Salix fragilis* and goat willow *Salix caprea*. These were shading this section of the bank, restricting the growth of emergent vegetation.



Line of trees on RB below Goff's Bridge

Water quality in the river was assumed to be good, with hatches of upwinged flies including mayfly common during the fishing season.

In the upper reach of the fishery the EA had installed two sets of stone groynes/riffles. These were functioning well, increasing diversity in flow, encouraging bed scour and sorting of the substrate.



Stone groyne installed by EA fisheries team

3.0 Fish Stocks

The club stocks up to 800 brown trout in excess of 30cm annually. These are introduced in 4 batches during the fishing season. There is also a number of wild brown present in the river. Club members return approximately 50% of all fish caught.

Other fish species present include roach *Rutilus rutilus*, dace *Leuciscus leuciscus* and eel *Anguilla anguilla* and pike *Esox lucius*. Eel and pike have been removed from the river in past years.

4.0 Recommendations for enhancement

- The mill at Aylsham is a very significant control on the habitat quality in the Abbot's Hall fishery. Ideally, an operating regime should be agreed that reduces the retained head within the fishery, encouraging the development of shallower, more flow dependent habitat. The rapid changes in water level sometimes experienced are not beneficial to the fishery or its general ecological well-being. It is understood that the automatic gates at the mill have recently suffered a significant failure. Given this, it may be sensible to approach the EA and the mill owners with a view to agreeing a new long-term operating regime.
- Uncontrolled access by grazing stock to the riverbank, largely on the RB, had a significant damaging impact on the fishery. It is important that either the banks are fenced to prevent access to stock or that the agricultural stock density is reduced. Fencing could be permanent post and wire, or temporary electric if more acceptable.

It may be necessary to provide dedicated fenced cattle drinking areas within the fenced areas of river. The access slope and bed of these should be covered in 50-75mm crushed stone to help further reduce sediment mobilisation.

- The lack of any LWD in the fishery reduced the habitat quality significantly. In low energy lowland streams, the presence of LWD is one of the few habitat features that can increase local flow velocity enough to cause scouring and sorting of the bed. Without LWD in the channel, instream habitat will remain relatively homogeneous, with a uniform layer of fine sediment present over much of the bed.



Stabilised tree root system causing localised scour in a river

Practical management options to increase LWD include making use of fallen timber in order to create simple flow deflectors by wiring/staking these to the bank. These can be used to scour relatively homogeneous riffle areas in order to create deeper pools used by adult fish. These small pools can provide shelter areas adjacent to riffles during spawning periods, increasing the numbers of spawning fish. Provided that the LWD is adequately secured in the channel there is very little risk of it posing an unacceptable local flood risk, particularly as land use either side of the fishery is managed as wet grassland.

LWD is a simpler, cheaper and more ‘natural’ way to achieve the same objectives as the introduction of the gravel groynes by the EA.

It is important that the EA is made aware of any adopted policy to retain LWD in the channel, in order to prevent its removal during routine management operations undertaken by the Agency. It is understood that one of the drivers for removal of LWD in the past has been to allow access for the EA weed cutting boat (see below). Whilst there may be some need from time to time to undertake weed cutting in the river, access for the weed cutting boat should not be used as justification for removal of such an important ecological component as LWD from the fishery.



An example of LWD in the fishery

- The introduction of further gravel groynes and riffles into the river would be a welcome and positive management option. There is little doubt that past dredging of the river has significantly damaged instream habitat quality, with few shallow gravel riffles areas remaining. The lack of these areas is likely to be restricting spawning of brown trout and survival of juvenile trout. Gravel for the creation of riffles could either be imported to site from nearby mineral extraction sites, or more productively, obtained by the excavation and screening of the dredged piles of spoil deposited on the bank. There is likely to be a substantial volume of riverbed gravel within these piles. Cutting and screening of the spoil would not only potentially help create more gravel riffles, but would also increase flooding of the valuable wet grassland either side of the river, promoting not only the wildlife interest of the site, but also providing a limited but valuable amount of flood attenuation.
- Assuming that the fishery become adequately protected against agricultural stock grazing, it would be of great value to plant trees along both banks of the river. Suitable trees including goat willow, hawthorn, ash *Fraxinus excelsior* and hazel *Corylus avellana* could be planted in small blocks.
- The existing tree stock should be managed by the establishment of a regime of limited, rotational coppicing. This would increase light penetration into some river sections and would be of benefit to instream vegetation and valuable fringing marginal vegetation. The conservation value of the existing trees should not be under-estimated and great care should be exercised in the selection of trees to be cut. Timber arising from coppicing/pollarding could be added to the river as LWD, with brush wood converted into fagots and used to consolidate areas where sediment was already depositing, for instance on the inside of bends. A felling licence may be required from the Forestry Authority for significant felling.
- The need for the present annual (or more frequent) weed cut by the EA should be questioned. Whilst there may be a need from time to time to undertake selective weed cutting, heavy cutting over the whole of the fishery using a weed cutting boat must have a significant and damaging ecological impact. The requirement to remove all

LWD from the fishery to allow access to the weed cutting boat is another potentially ecologically damaging aspect of the present regime.

- The number of brown trout stocked annually (800 fish) is quite high for a relatively short stretch of river. It may be possible to reduce this number by, say 100 initially, while still retaining the current level of catch returns. A reduction in stocking would reduce club expenditure significantly, freeing up funds for other river management. It may also be beneficial to wild brown trout stocks and the wider ecology of the river. If a reduction in stocking is planned, the club should still make a Section 30 consent application to the EA for 800 fish, thus safeguarding its stocking level for the future under the terms of the Agency's Trout and Grayling strategy.
- It is recommended that removal of pike and eels should cease. The justification for removal of pike from a trout fishery is tenuous. It has never been adequately proven to be beneficial, and may, in some cases, result in an explosion of small pike that prey selectively on juvenile fish including trout. Eel stocks in Europe are under significant threat with real concern regarding the long-term status of the species. Given this, it is not good policy to continue to commercially exploit what may be a stock of fish with significant conservation value.
- Any works to the bed or banks within 8m of a river require the previous written consent of the Environment Agency. In addition, the Agency's consent is required under Section 30 of the Salmon and Freshwater Fisheries Act 1975, for the introduction of any fish or eggs to any inland water.
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