



Advisory Visit to the Heron Line
Angling Club fishery, River Stort,
Essex.

Undertaken on behalf of the Wild Trout
Trust, by Vaughan Lewis, Windrush
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1.0 Introduction

This report forms the output of a site visit undertaken to the Heron Line fishery on the River Stort, Essex, on 27 March 2004. Information for the report was gathered during the site visit. Additional information was provided by John Green, club secretary and Phil Bellfield of the Environment Agency (EA). Throughout the report, normal convention is followed, with banks identified as RB (right bank) and LB (left bank) when facing downstream.

2.0 Description of fishery

Heron Line fishery ran from TL503239 to TL496231, a distance of some 2 km. The syndicate has between 7-10 members at any time.

The river upstream of Blythwood Farm road bridge was relatively deep and slow flowing. It provided adequate holding water for adult trout but had no benefit for juvenile or spawning fish.

Below the road bridge, the river was approximately 6m wide, with gravel dominated, shallow riffle habitat suitable for juvenile/spawning trout. The channel was moderately incised, with undercut banks providing cover for trout. Some limited beds of water crowfoot *Ranunculus spp.* were present. Downstream of this section, the river became deeper, with shallow and deep glide habitat predominating. Signal crayfish *Pacifastacus leniusculus* burrows were present in the bank. A number of trash dams, formed from large woody debris (LWD) were present.

Sections of emergent vegetation including reed mace *Typha latifolia* and branched bur-reed *Sparganium erectum* were present in the deeper water. The bed material was less well sorted, with a considerable accumulation of fine sediment overlying the gravel. The presence of starwort *Callitriche spp.*, and milfoil *Myriophyllum spp.* was indicative of the increased abundance of fine sediment. Whilst of less benefit to juvenile trout, this habitat type was excellent for adult brown trout. The impact of Signal crayfish *Pacifastacus leniusculus* was apparent in the deeper water sections, with large numbers of burrows noted in the banks.

Sections of channel were subject to extensive cattle poaching, with increased channel width resulting. Some fencing had been recently erected by the farmer, although this left only a narrow buffer strip of <3m. The bankside alders *Alnus glutinosa* were infected with *Phytophthora* with numbers of individual trees apparently dead. Some areas of collapsed bank had been repaired by the club using deadwood faggots.

Through the 'Sanctuary', there was clear evidence of past dredging activity, with an extensive flood berm formed from the excavated material along the LB of the channel. The channel was also heavily incised. Shading increased significantly, with the reduced light penetration resulting in limited growth of marginal vegetation. As a consequence the channel remained overwide with a very uniform bed profile. A small stone dam impounded the water by about 0.6m at the downstream limit of the 'Sanctuary', resulting in lower flow velocity upstream and an associated deposition of fine sediment.

Below the dam, the river was shallower with a section of moderately well-sorted gravel and stands of lesser water-parsnip *Berula erecta*. Upstream of the flyover bridge, a small carrier entered on the RB. There was a good flow velocity in this channel. Below its confluence, the main channel had a generally shallow free flowing form, ideal for juvenile brown trout.

The downstream stretch of the fishery was of a deeper nature, impounded by a small weir (0.3m high) at the lower limit. Stands of broad-leaved pondweed *Potamogeton natans*, branched bur-reed and common reed *Phragmites communis* were present.

3.0 Fish Stocks

The club stocks with 125 6"-11" brown trout annually. There is some recruitment of wild brown trout to the fishery, although the availability of spawning habitat is limited. The club members largely practise catch and release on the fishery, with few fish killed.

The River Stort also contained numbers of coarse fish in including perch *Perca fluviatilis*, chub *Leuciscus cephalus* and dace *Leuciscus leuciscus*.

4.0 Recommendations

There is a number of key recommendations for development of the fishery:

- The relative lack of instream cover means that it is important to retain as much Large Woody Debris (LWD) as possible, within the constraints of flood defence requirements. LWD provides additional cover for fish, is vital in the trapping of fine sediment, aids sorting of bed substrate, and helps control run-off on the catchment scale. A more detailed appraisal of the benefits for retaining it are clearly laid out in the EA R&D document, "Large Woody Debris in British Headwater Rivers".
- Some sections of the river are overwide as a result of past dredging activity. The creation of low level marginal shelves using fallen timber and/or faggot bundles can be used to decrease channel cross section, thus aiding sorting of the bed substrate, whilst increasing valuable vegetation cover and protecting the toe of the river bank from erosion. Small faggot islands could also be created, narrowing the channel from the centre of the river. Illustrations of the use of faggot bundles can be found in the WTT's Guide to Improving Trout Streams.
- There was a general lack of suitable gravel substrate within the fishery for spawning of brown trout. In order to increase the availability of spawning gravel, riffles can be constructed from imported gravel and stone. This is a very effective but relatively expensive operation. Typically, a 15m riffle would cost in the region of £2,000 to construct. Work of this nature requires significant planning and should not be entertained without further detailed advice.
- Large stands of emergent vegetation occlude the river channel over long sections. Whilst it is not desirable to totally remove this valuable vegetation, some control may be necessary to allow access for angling and as part of any programme to increase the availability of spawning gravel. Clear, narrow channels can be created either by

cutting/pulling or by the selective use of the herbicide glyphosate. This product is cleared for use in and by watercourses, and can be applied by suitable qualified (NPTC) operators provided that the written consent of the Environment Agency is first obtained. It is recommended that EA fishery staff are involved in the selection of suitable sites for any such treatment.

- The adoption of a policy of wading, where practical and safe, will reduce the need to control bankside trees for angler access. This will allow the club to plant more trees at strategic locations, increasing shading of section with excessive growth of emergent vegetation.
- The 'Sanctuary' is over-shaded, resulting in loss of habitat diversity and an over-wide channel cross-section. In order to address this issue, rotationally coppicing should be undertaken in order to create an overall dappled shade over the river. Cutting on the south side of the channel is particularly beneficial, as light incidence is greatest from this direction. 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. A felling licence is required from the Forestry Authority for all significant tree felling, including coppicing. Timber arisings from the coppicing could be utilised to create faggot bundles for use elsewhere on the fishery.
- The dam at the downstream end of the 'Sanctuary' could in theory be removed, reducing the impoundment and lowering the upstream water level. However, the club regard the dam as a significant feature and expressed a desire for it to remain. Given this, it is recommended that consideration should be given to the installation of deep-substrate incubation box at the site. Basically, these are gravel filled boxes, approximately 0.6m in each dimension, that are filled with suitably sized gravel and seeded with 10,000 - 20,000 trout eggs. A water feed at the bottom of the box allows the eggs to incubate and hatch. Once they reach the swim-up fry stage, they leave the box via the overspill pipes, stocking themselves into the river. In effect, they are naturally reared fish without the unhelpful behavioural modifications associated with hatcheries. Such a system could be established using the existing impoundment at the upper end of the fishery, provided that the co-operation of the upstream riparian owner could be gained. More details on incubation boxes can be found on the Wild Trout Trust web site www.wildtrout.org or in Volume 2 of the Trust's magazine, *Salmo trutta*.
- The small tributary stream joining on the LB of the river upstream of the flyover could usefully be improved as a brown trout nursery area. The introduction of gravel (approximately 20 tonnes) in order to recreate shallow riffle areas would improve the habitat significantly. If this enhancement was undertaken, a percentage of the fry from the incubation box could be collected and transported into the side stream. Detailed advice on this opportunity should be sought from the EA.
- The abundant signal crayfish stocks in the river are causing significant physical damage. There is also clear and emerging evidence of their impact on populations of certain invertebrates. For these reasons, it would be prudent for the club to attempt some form of control. The best approach would be to operate a series of traps within the fishery. These can be purchased from Moore and Moore Carp (01189 882844) or from sites on the internet. The traps are baited with fish and left overnight.

Typically, each standard trap might be expected to catch 1kg of crayfish during peak summer months. The catch can be sold for culinary purposes, with a price of between £4/kg - £7/kg likely. Consent for the use of crayfish traps is required from the Environment Agency.

- Sections of the river are heavily cattle poached, resulting in the loss of marginal vegetation, damage to river banks and the mobilisation of damaging fine sediment. It is important that this process is stopped by the simple expedient of providing a fence parallel to the river. Ideally, this should be >10m from the river bank. However, a small fenced buffer strip of say 3m is of great value.
- Mink are present on the fishery, with 2 individuals noted on the day of the site visit. It is recommended that a trapping programme should be instigated, ideally making use of the new 'tracking' rafts designed by the Game Conservancy. Details can be found on their web-site www.gct.org.uk
- Note that all works to bed or banks of the river or within 8m of its banks require the written consent from the Environment Agency under the Land Drainage legislation.