



Advisory Visit

River Wear, on behalf of Bishop Auckland District Angling Club

16th June, 2008



1.0 Introduction

This report is the output of a site visit undertaken by Tim Jacklin of the Wild Trout Trust on the River Wear on 16th June 2008. Comments in this report are based on observations on the day of the site visit and discussions with Cliff Johnston, Alan Ornsby and Geoff Thompson of Bishop Auckland District Angling Club (BADAC) and Gareth Pedley and Paul Frear, Fisheries Technical Officers with the Environment Agency (EA), North East Region.

Normal convention is applied throughout the report with respect to bank identification: the banks are designated left hand bank (LHB) or right hand bank (RHB) whilst looking downstream.

Bishop Auckland District Angling Club Ltd have around 350 members paying £110 per annum (£60 concessionary) and own or control some 20 miles of fishing on the River Wear. Coverage of the extensive length of river is clearly beyond the scope of a one day site visit. Therefore The AV focused on five stretches of the river that the club control:

- 1) Downstream of Witton Park viaduct (NZ170308)
- 2) Upstream of Wadsworth Get Hooked on Fishing Centre (centred on NZ176305)
- 3) Downstream of Wadsworth Get Hooked on Fishing Centre (centred on NZ183308)
- 4) Newfield Dam - Buttress Pool area (NZ207330)
- 5) River Gaunless confluence (NZ214307)

The river contains good populations of trout, grayling, and coarse fish (chub and barbel), and there are good runs of sea trout and salmon. The Wear is thought to be the second most prolific river for migratory salmonids in England after the Tyne, and data from the EA fish counter at Framwellgate, Durham, show annual upstream movements of salmon and sea trout combined of between 13,543 (1995) and 27,658 (1999) since the counter began operation in 1994 (<http://www.environment-agency.gov.uk/regions/northeast/411697/411974/302541/305119/>)

The EA classify the river as a Native Trout Water under the National Trout & Grayling Fisheries Strategy, and consent the annual stocking of some 600 farmed brown trout each year, 200 of which are diploid and 400 triploid. This level of stocking has been carried out for the last two seasons; prior to

that there was no stocking for five years, and prior to that fingerling trout were introduced.

Stocked trout were marked this year and last to distinguish between diploids and triploids, and anglers asked to report their catches. Unfortunately there was some confusion with the supplier over the marks in 2007 so it was only possible to record marked fish in total; 85 were reported captured from 400 marked fish stocked. In 2008 the marking has been resolved so it will be possible to distinguish between diploid and triploid captures.

The club keep catch records although feel that these do not give a full picture of fish caught. The records for trout and grayling are split into fish retained and fish returned (undersize) or returned (catch & release). Unfortunately no record is made of angling effort (for example number or trips, or hours fished) so no estimate of fishery performance based on catch per unit effort can be made.

Fly, bait (no maggots) and spinner are permitted methods of fishing club waters on the Wear, and there is a bag limit of two non-migratory fish per day. Only trout and grayling over 12" may be retained.

Goosanders and cormorants are known to feed on the river, and the club has a licence to shoot cormorants as an aid to scaring on their trout lake (but not on the river).

2.0 Site Descriptions and Assessments

2.1 Downstream of Witton Park viaduct

Just downstream of the viaduct there is a long diagonal weir across the river creating a ford, and just downstream of this a weir made from large blocks of stone (possibly a pre-barrage to increase water levels below the ford weir, easing passage for migratory fish). Immediately below the block stone weir on the LHB there is an area of bank erosion where stone bank revetment has failed; the erosion is probably due to back-eddies from the weir at high flows. Below these structures the river has a gentle gradient and there is a long glide with bankside vegetation overhanging the river on both banks providing excellent cover for adult trout and sea trout. The vegetation is



Photo 1 Weir and ford (background) and block stone pre-barrage downstream of Witton Park viaduct



Photo 2 River downstream of the weirs in Photo 1 showing good bankside cover

mainly young willow trees and herbaceous plants on the LHB and mature deciduous trees on the RHB.

The bankside vegetation limits access to the water for angling, and the club have cut a number of access points along the river.

Upstream of the Witton Park viaduct, 1.6 km of the LHB of the river forms the boundary of Witton-le-Wear SSSI (http://www.english-nature.org.uk/citation/citation_photo/1001310.pdf), a 37-hectare site managed by Durham County Conservation Trust as Low Barns Nature Reserve. The main feature of interest is the open water of Marston Lake and its fringing tall fen vegetation.

2.2 Upstream of Wadsworth Get Hooked on Fishing centre

At Wadsworth (Map 2, area 12 in the club book) the river has steep banks with difficult access to the water's edge. The banks are covered with a mixture of young trees (up to 20ft high) including willow, sallow, sycamore and ash, and there is a good understorey of herbaceous vegetation. The riparian trees overhang the river margin and provide excellent cover for fish. The river is shallow and streamy with a substrate of boulder, cobble and gravel providing good habitat for juvenile salmonids. The banks here are owned by the club, and were formerly waste land following the cessation of heavy industry (iron works, gravel excavation and British Rail tip).

Further upstream is another block stone weir which impounds a long section of water known as Long Pool (Map 2, area 10). Here there was evidence of recent unauthorised fishing in the form of discarded nylon line, sweetcorn tins and folding chairs. The club reported regular incidents of unauthorised fishing and has 20 bailiffs to enforce club rules.

The origin of the block stone weirs is not certain and it was suggested they could have been installed by previous club committees, the river authority or the Army. According to Alan Ornsby this structure was installed 10 years ago to lift upstream water levels below the next weir upstream. Inspection of satellite photographs (Google maps) suggests there are three or four such structures in this part of the river.



Photo 3 Riparian trees providing good marginal cover

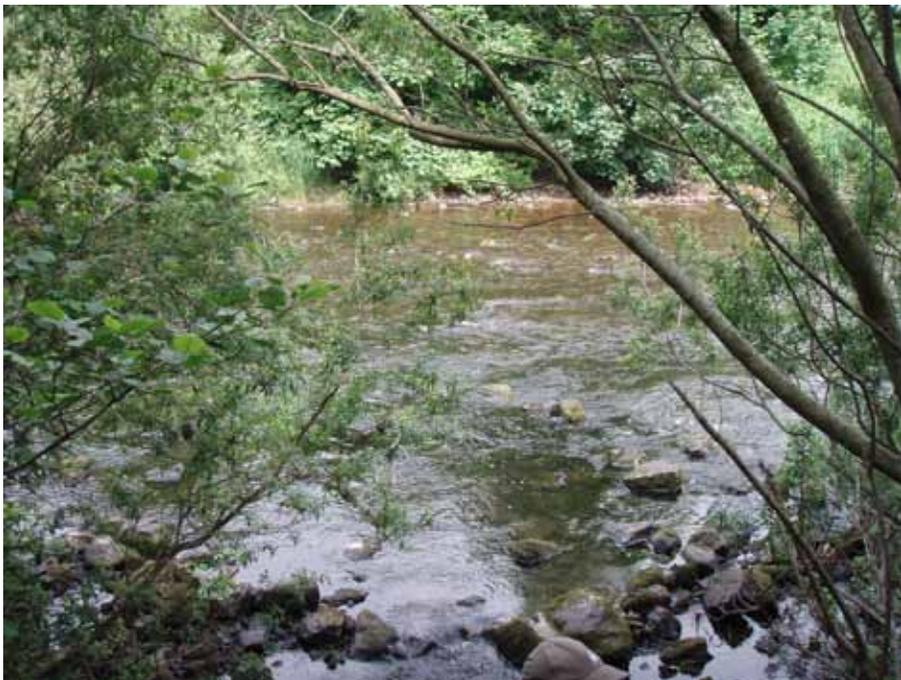


Photo 4 Good juvenile salmonid habitat at Wadsworth



Photo 5 Block stone weir at the downstream end of Long Pool

2.3 Downstream of Wadsworth Get Hooked on Fishing centre

There is a good variety of habitat here with shallow glides, riffles and boulders (area 13-14, Map 2). The LHB is wooded with mature ash, alder, sycamore and willow and there is limited access to the water on this bank. The club own both the fishing rights and the land on the RHB, and lease the rights on the LHB from Northumbria Water.

A brief hand search for invertebrates under stones in the water margin revealed caseless caddis (*Hydropsyche* sp. and *Rhyacophila* sp.), stone-clinging mayfly (Heptageniidae) and various cased caddis. Yellow sally stoneflies (*Isoperla grammatica*) were reported and medium-sized mayfly imagos (spinners) were observed over the water (possibly Yellow May *Heptagenia sulphurea*). All these are indicative of good water quality.

Water quality on the Wear has improved greatly since the days of heavy industry and mining when the river was virtually fishless below Bishop Auckland pre-1960. The river has a history of mine water pollution and

although this is reported to have been resolved, the club stated that a discoloration to the water was often noted following floods, as the water was falling, and that fishing was not as good as would be expected in these post-spate conditions.

Apart from a fallen willow which had remained rooted to the far bank, there was little in the way of Large Woody Debris (LWD) in the river channel. A kingfisher was observed using a branch of the fallen willow as a feeding perch. The club tend to remove fallen trees from the river where they are causing the flow to erode the bank and, using contractors, recently removed a large debris dam from another section of river. The EA had declined to remove the debris dam as it was not perceived as a flood risk.

A flow deflector had been installed in the river consisting of a log pointing upstream at about 45° to the bank and anchored with post and wire. The log had accumulated gravel around it and was consolidated into the river bed. The deflector is well-positioned in terms of its angle, and is deflecting flows into the centre of the river channel (rather than towards the bank) scouring deeper areas and sorting gravel. However the deflector is too short to be having a significant effect and should extend at least a third of the way across the river channel.

Downstream of the deflector was another similarly positioned structure and gravel bar demonstrating the deflection of water perpendicular to these structures (Photo 9).



Photo 6 View downstream at The Willows, downstream of Get Hooked centre



Photo 7 Good example of Large Woody Debris - a fallen willow rooted to the bank



Photo 8 Upstream pointing log deflector



Photo 9 Showing the flow deflected to the centre (arrows) of the river by upstream pointing structures

2.4 Newfield Dam - Buttress Pool area

At this site aquatic plants were noted for the first time on the visit (*Ranunculus* sp.). A grey tinge to the water was evident and there was a coating of algae on the rocks; this is probably because of the discharge from a sewage treatment works (STW) about 1.5 miles upstream of this site.

The pool known as the Glide (area 37, Map 6) is a popular area for sea trout fishing, but anglers have been complaining that it is 'dead water' following the washout of an instream structure that provided flow variation. The river channel does appear over-wide at this point, and the flow relatively sluggish. The LHB is sandy and there is a lot of Himalayan balsam present which may have resulted in increased erosion of exposed banks during the winter, widening the river channel. Also there is a lack of LWD which would encourage the deposition of bed material in this very mobile river.

Himalayan balsam (*Impatiens glandulifera*) is a relative of the busy Lizzie and is known by a wide variety of common names, including Indian balsam, jumping jack and policeman's helmet. It is a tall, robust, annual producing clusters of purplish pink (or rarely white) helmet-shaped flowers. These are followed by seed pods that open explosively when ripe, shooting their seeds up to 7m (22ft) away. Each plant can produce up to 800 seeds.

Introduced to the UK in 1839, it is now naturalised, especially on riverbanks and increasingly on waste ground and has become a problematical weed. Himalayan balsam tolerates low light levels and, in turn, tends to shade out other vegetation, impoverishing habitats. In the autumn, the plants die back, leaving the banks bare of vegetation and vulnerable to erosion.

The RHB here is controlled by Ferry Hill AC and is well wooded with mature trees. There are the remains of some old bridge footings in the river at this point. In contrast to the reaches seen previously on this visit there is a lack of low, overhanging cover at the edges of the river channel. It was

suggested this had been trimmed back by anglers to facilitate night fishing for sea trout.

2.5 River Gaunless confluence

The final site visited was the confluence of the Wear and the River Gaunless at Jock's Bridge. The Gaunless drains through Bishop Auckland and there was clearly a water quality problem evident at the time of the visit. The Gaunless was running a milky-grey colour and the contrast with the clear waters of the Wear was stark. There was no smell or foam associated with the river and fish were witnessed in the Wear where it was affected by the discoloration. The problem was reported to the appropriate Environment Management team of the EA who were already investigating the incident.

Just upstream of the confluence on the Gaunless was a weir which would prevent upstream access of fish from the Wear.

3.0 Recommendations

- It is recommended that low cover in the form of overhanging tree branches and bushes is retained wherever possible; this is valuable habitat for adult trout, sea trout salmon and other species. Tree cover can also provide valuable temperature refuges, something that may become more important as summer temperatures increase due the predicted effects of climate change. Members should be discouraged from removing overhanging trees and bushes for the sake of easier fishing. The club has already created some access points to the river, and anglers should be encouraged to use these and wade between them.
- The club should continue to collect catch returns and should work with Paul Frear (EA Fisheries Technical Officer) to develop these according to best practice. The returns should include a component recording angler effort so fishery performance can be compared over time and with other fisheries.
- The EA has recently reviewed its policies of brown trout stocking in rivers in its National Trout & Grayling Strategy. From 2015 the EA will only

permit river fisheries to stock infertile (female triploid) brown trout or the progeny of local brood-stock reared under a suitable regime. This is because inter-breeding between farmed and wild brown trout is likely to lower the ability of the offspring to survive in the wild, and could have serious implications for the long term future of wild brown trout (and sea trout). The EA are also setting targets to encourage a progressive switch to using infertile triploid trout from now until 2015; see <http://www.environment-agency.gov.uk/subjects/fish/165773/1791055/1800027/> for further details.

About two-thirds of the stock trout currently introduced by BADAC are triploid. The club should continue to mark the stock fish and use the information from catch returns to objectively review their stocking policy. The Wear has considerable potential to be developed and managed as a wild trout fishery, and given the length of river available the club could consider creating a 'wild fish only' section, and restricting stocking to certain reaches. In the wild fish section it is recommended that catch-and-release, barbless hooks and method restrictions (fly only) are used to protect stocks.

- The club should adopt a policy of leaving Large Woody Debris in the river unless it is causing significant problems. As a guide the following simple check list has been developed by the West Country Rivers Trust:

1. Is the debris fixed, if yes then continue to 2, if not continue to 5.
2. Is the debris causing excess erosion by redirecting the current into a vulnerable bank? If yes then go to 5 if not then go to 3.
3. Would fish be able to migrate past it (take into account high river flows). If yes go to 4, if no go to 5.

4. Retain the woody debris in the river.

5. Extract the debris.

Note: If the debris dam needs to be removed but there is still a significant amount of the root system attached to the bank then it is recommended that the stump be retained for its wildlife habitat value and its stabilising effect on the bank.

In the short-term the club should introduce LWD. Willows can be 'trained' to hang over the channel by nicking the trunks and pushing them over.

The introduction of upstream facing submerged log deflectors (single or paired) is recommended to create localised scour pools in the margins and mid-channel. LWD will need to be securely 'keyed' into the bank and possibly the river bed using posts or rebar and wire (in a similar way to the existing deflector – Photo 8) to avoid problems of washout. Another option would be to 'hinge' trees, leaving them still connected to stumps; again for added security these can be secured to the bed of the river using posts and wire.



Photo 10 Example of hinged LWD on River Derwent (Co Durham)

The introduction of LWD also has benefits in providing refuges for fish hence reducing the foraging efficiency of piscivorous birds.

Before tree works are undertaken it is recommended that protected species surveys are carried out. These surveys should assess impacts of any proposed tree management on breeding birds, otters, water voles and bats.

EA Biodiversity Team officers will be able to advise on this. Note that Land Drainage consent will be required from the EA for the introduction of LWD.

- On the Newfield section of the river there are a number of opportunities for introducing LWD to improve flow and depth variation. There are some large willow trees on the RHB that would lend themselves well to hinging into the river. LWD could be securely anchored in this area by fixing it to the remains of the bridge footings (Photo 11).

The lack of low overhanging cover at Newfield should be addressed by planting willow (e.g. goat willow) along the toe of the bank. This can be done easily and cheaply by taking whips from trees in other parts of the fishery; these could be managed to encourage low growth over the water margin in areas where depth and flow suit adult trout.

- The club should follow up the water quality issues noted from the STW above Newfield and on the River Gaunless. Both are thought to be the result of a discharge of effluent from a single point and therefore will be the subject of a discharge consent administered by the EA. The conditions of these consents and the compliance record of the consent holders are on public record and can be inspected at the local EA office.

- Himalayan balsam has colonised some banks of the Wear. Control measures are required to prevent flowering and if this is achieved before seeds are set, eradication is possible in two to three years. Options for control include:

- **Chemical control:** can use glyphosate or 2,4-D amine. Need to be used whilst plant is actively growing in early spring for best effect.
- **Cutting/mowing/strimming:** cut at ground level, before the flowering stage in June. Do not cut earlier as this promotes greater seed production in any plants that regrow. Cutting should be repeated annually until no more growth occurs.



Willow trees suitable for hinging on the RHB at Newfield





Photo 11 Old bridge footings at Newfield

- **Pulling:** shallow-rooted plants can be pulled up very easily and disposed of by burning or composting, unless seeds are present.
- **Grazing:** Grazing by cattle and sheep is effective from April throughout the growing season. It should be continued until no new growth occurs.

The Food and Environment Protection Act 1985 (Control of Pesticides Regulations 1986, as amended), sets out the rules on the use of pesticides to control weeds growing in water or on land. *'Pesticides' includes herbicides as well as insecticides and fungicides.*

Under the Regulations, anyone who wants to use herbicides to control aquatic or bankside weeds must have written agreement to their proposals from the Environment Agency. They must notify the Agency of their proposed programme, including details of the site to be treated, who will be applying the herbicide, and which herbicides they will use. See:

http://www.environment-agency.gov.uk/commondata/acrobat/wqm1_notes201_1797478.pdf

- Understanding Riverflies

Lastly, it is vital that angling clubs understand what is happening to populations of riverflies in their streams and rivers as these are valuable indicators of water quality. To this end WTT recommends that fisheries register their interest in taking part in the Riverfly Partnership monitoring and training initiative. The initiative aims to support fishing clubs to monitor and help conserve the environment. More details can be found on www.riverflies.org

It is a legal requirement that all the works to the river require written Environment Agency (EA) consent prior to undertaking any works, either in-channel or within 8 metres of the bank.

4.0 Making it Happen

This report makes a series of recommendations that will improve biodiversity and the status of the wild trout and grayling populations in the Wear.

Physical enhancement works could be kick-started with the assistance of a WTT 'Practical Visit' (PV).

PV's typically comprise a 1-3 day visit where an approved WTT 'Wet-Work' experts will complete a demonstration plot on the site to be restored. This will enable project leaders and teams to obtain on the ground training regarding the appropriate use of conservation techniques and materials, including Health & Safety equipment and requirements. This will then give projects the strongest possible start leading to successful completion of aims and objectives.

The WTT can fund the cost of labour (two-man team) and materials to a maximum of £1800. Recipients will be expected to cover travel and accommodation expenses of the contractor. The use of specialist plant will be by separate negotiation.

Wet-work experts will demonstrate one or more of the following techniques that are appropriate to the site.

- Tree management (coppice, pollard, sky-lighting)
- Tree Planting
- Fencing (Installation & Repair)
- Stream Narrowing (Faggots, Coir Rolls, Spilling)
- Flow Deflectors
- Introduction of spawning substrate
- Gravel Jetting
- Introduction / Management of Woody Debris

Further assistance with project funding can be provided through the WTT's 'Rods for Conservation Scheme'. The WTT can provide at cost a high quality rod (Sage or Hardy) for the club to raffle to raise funds for habitat conservation work. Clubs typically raise £750-1500 from these initiatives.

Note: Recipients should have received a WTT AV and have obtained the appropriate consents from the relevant authorities, prior to arrangements being made to undertake the PV. WTT can advise on this.

Applications for all the above and the Rods for Conservation initiative should be made via projects@wildtrout.org

Lastly, BADAC should discuss this report with local EA Fisheries Officers Gareth Pedley and Paul Frear who were present at the AV. The EA will be able to provide further technical advice and possibly assistance with project funding. BADAC are reminded that all works within rivers and within 8m of the bank will require written permission from the Environment Agency.

5.0 Disclaimer

This report is produced for guidance only and should not be used as a substitute for full professional advice. Accordingly, no liability or responsibility for any loss or damage can be accepted by the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon comments made in this report.