

Habitat Advisory visit to the Darley Dale
Fly Fishing Club's water on the River Wye
and Derwent, Derbyshire.
Undertaken by Vaughan Lewis, Windrush
AEC

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1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC to the Darley Dale Fly Fishing Club's fishery on the Rivers Wye and Derwent, Derbyshire on 27 September 2001. The visit was sponsored by Orvis, as part of its commitment to support habitat enhancement schemes through the offices of the Wild Trout Trust.

Comments in the report are based on observations on the day of the site visit, discussions with the club's officials and the river keeper, Lee Rimmer, and additional information provided by the club. Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left hand Bank (LHB) or Right Hand Bank (RHB) whilst looking downstream.

2.0 The fishery

Darley Dale Flyfishing Club controls fishing on the Rivers Wye and Derwent near Rowsley, Derbyshire.

The club's holding on the River Wye is short, covering some 600m downstream of the Mill weir to the river's confluence with the Derwent.

The Derwent fishery is more extensive, running from the Primrose Plantation downstream to Hillcarr Farm, a distance of approximately 5km.

2.1 Instream habitat

The opportunities for instream habitat enhancement on the Wye and Derwent are very limited. The channel morphology of the Wye is dominated by the presence of the two impoundments constructed for the operation of Rowsley Mill. Given the historic associations and landscape value of the Mill, it is unlikely that any significant modifications to improve habitat could easily be made. However, the weir delineating the top boundary of the club's fishery may pose a significant barrier to migrating trout over a range of river flows. The provision of a fish pass at the weir would improve access around for migrating fish. It would be beneficial to discuss the possible installation and funding of a pass with the Environment Agency's (EA) fishery section.

Habitat quality in the River Derwent was generally excellent, with adequate provision of suitable habitat for all trout lifestages. The physical dimensions of the Derwent effectively limit habitat enhancement opportunities. On such a large and dynamic channel, the resources required to significantly change the existing channel would be prohibitively expensive for even a large body such as the EA. No in-channel habitat enhancements are therefore recommended.

2.2 Riparian habitat

Land use in the fields adjacent to the Derwent is dominated by extensive sheep grazing. Stocking levels appeared reasonable, although short sections of overgrazed and eroding bank were noted, particularly upstream of the Peacock Hotel. If opportunities exist, the club should lobby farm tenants to enter riverside fields into an agri-environment scheme such as Countryside Stewardship. These provide farmers with payments to manage land for general environmental benefit. The recent Foot and Mouth disease outbreak will result in a significant change in both farming practice and the availability of agri-environment grants.

The banks of the Derwent are relatively well treed, with a good mix of shaded and open areas. There is no obvious need for any work to the riparian trees in the immediate future. However, there did appear to be a number of alder trees exhibiting signs of *Phytophthora* infection. This is a fungal disease, spread by water borne spores that is affecting an increasing number of alders in the UK. There is no cure currently available, nor any recommended management prescriptions to reduce its impact. Given this, it is likely that a large number of the riparian alders will die in the next 10-15 years. I would strongly recommend that the club give serious consideration to undertaking a tree planting programme to compensate for the likely loss of alders. Small groups/individual trees of species other than alder should be planted along the banks of the Derwent. I would suggest that ash would be an excellent substitute. All trees planted will require fencing to protect them from stock damage. Grants may be available for planting from the Department of the Environment, Farming and Rural Affairs (DEFRA) via an agri-environment scheme or through your district council.

2.3 Water Quality and water resources

Club officials noted that the Derwent appeared to have more fine sediment and filamentous algae on its bed than in the past. In addition, there was a general feeling that flows in the river had declined over time.

Fine sediment levels and algal growth are strongly influenced by diffuse and point source discharges. Origins of the former include soil and fertiliser run-off from agricultural fields, and surface water run-off from paved urban areas and roads. There is little the club can do to directly control this source, although lobbying of local authorities and the EA to adopt the Sustainable Urban Drainage Strategy (SUDS) may reduce the impact of future developments. SUDS promotes the use of techniques such as grass swales, permeable paving, detention ponds and balancing lagoons to reduce the impact of diffuse run-off to river systems.

The club is however in a position to monitor the quality of point source discharges into the Derwent. Major discharges will be from sewage treatment works and industrial premises. Each will have a statutory discharge consent standard agreed with the EA. Compliance with these standards is regularly monitored by the EA. Results are published on a public register, available for inspection at the EA's office or by post. It is important that the club finds out the major discharges into its fishery and in the reaches of the Wye and Derwent for around 5km upstream. Compliance with statutory consent standard can then be checked on a regular (annual?) basis. Failure to comply with the standards allows the club to mount a prosecution or to claim civil damages via the Angler's Conservation Association. The EA should enforce this legislation, but have from time to time not been as rigorous in this matter as would be expected.

Water resources of the rivers can be viewed in a similar way; changes to climatic patterns have affected precipitation, whilst agricultural drainage has modified surface water run-off significantly. Again, the only practical route open to the club to influence drainage patterns is via the adoption of agri-environment schemes by landowners. The club should obtain details from the EA of all licensed abstractions affecting the Derwent and Wye; clearly abstractions for a considerable distance upstream will affect river flows. The impact of groundwater abstractions should not be overlooked. These will have a significant impact on the Derwent/Wye catchments.

The club should establish a good working relationship with the EA's fishery section, asking to be kept informed of any future significant applications for abstraction or discharge consents.

2.4 Fish stocks

The Wye and Derwent are particularly interesting rivers due to the presence of a self-sustaining stock of rainbow trout. Whilst these are an introduced species, they do have a significant historic interest.

The club rears its own brown trout at a small hatchery on the River Sough. 1600 fish were stocked in the 2001 season. Brown trout catches have shown an upward trend since the early 1970's, with an annual catch of more than 1500 the norm since 1993. Catches of grayling appear to have declined over the same period, with rainbow trout catches showing no discernible trend by eye. The club, system of recording catches is excellent and should be continued, allowing the monitoring of any trends.

Brown trout Catch per Unit Effort (CPUE) on the Derwent was 4.7/rod day (period 1999-2000) and 1.65/rod day on the Wye over the same period. Catch and release is practised regularly by the rods. Rods seem generally happy with the numbers of fish caught, although complaints have been received regarding poor fly hatches on the river

Future stocking may need to be modified in the light of the forthcoming EA National Trout and Grayling Fisheries Strategy. The consultation draft divides rivers into 3 categories for stocking purposes namely wild, supported, and put and take. It is likely that the Wye and Derwent will fall into the supported category. The draft policy envisages that stocking will be acceptable for such fisheries, but only with all female sterile triploids or given an appropriate rearing regime, offspring of local, wild broodstock. Given the general desire of the club to move away from stocking and to improve the numbers of "wild" trout in its fisheries, the EA Trout Strategy may provide the stimulus to change current stocking practice.

A wealth of research has highlighted the poor over-wintering success of hatchery reared trout. It seems likely that this may be largely a result of behavioural modification that takes place in the hatchery and renders the stock fish less able to cope energetically with the rigours of river life. One rearing system that aims to minimise these behavioural changes is the deep substrate incubation box. 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 present spring feed to the hatchery. Swim up fry could be stocked immediately to the River Sough, which would make an ideal nursery stream. Fish could be allowed to naturally restock the main river from the Sough, or with EA consent (and assistance) could be electrofished and stocked at strategic location. If the club established a pool of "wild-caught" brood stock fish, then it would meet the likely requirements of the EA trout strategy, whilst producing more "natural" fish stock for the river. More details can be found on the Wild Trout Trust web site www.wildtrout.org or in Volume 2 of the Trust's magazine, *Salmo trutta*.

Angler's expectations of the average size of trout that they can expect to catch may need to be modified. A return to natural grown fish will mean that this drops, with the mean fish length likely to be around 25cm -30cm, significantly smaller than the average size now encountered.

Notwithstanding the recommended change in rearing techniques, the overwintering success of stocked brown trout may be improved by supplementary feeding during the winter. Trout pellets can be fed at key areas in the fishery. Trout will become rapidly accustomed to the feed, which will help them to over winter successfully. Feed should be gradually withdrawn during the early spring. A trial of this feeding regime is recommended for winter 2001-2002.

4.0 Summary of key points

- The in-channel habitat of the Wye and Derwent is generally good. Given the restrictions of the Mill on the Wye and the size of the Derwent, little in-channel enhancement is possible.
- Riparian habitat is generally good, although some overgrazing and erosion is visible. Entry of adjacent agricultural land into an agri-environment scheme is recommended.
- Alder trees show signs of *Phytophthora* infection. A programme of replacement using alternative species is recommended.
- The club should obtain details and monitor compliance of all major discharges and abstractions affecting its fishery.
- Good working contact with the EA should be established.
- The present system of stocking provides good catches of hatchery reared fish for anglers. It may need to be modified if the EA's draft trout strategy is adopted. The use of deep-substrate trout incubation boxes in conjunction with the River Sough is recommended.
- The club policy of encouraging "catch and release" should continue to be promoted.

5.0 Useful contacts

Environment Agency, Area Fisheries Office @ Nottingham. Contact Karen Miller or Tim Jacklin 0115 9455722

Wild Trout Trust, 92-104 Carnwath Road, London, SW6 3HW