



**HABITAT ADVISORY VISIT TO THE RIVER
BARLE , WITHYPOOL, SOMERSET**

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RIVER BARLE FISHING CLUB**

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1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC Ltd to River Barle, Withypool, Somerset on behalf of the River Barle Fishing Club (RBFC) on 15 March 2006. The club has 24 members, owning the fishing rights on some 11.4 kilometres of the river, of which 2.5km was double bank fishing. The fishery was divided into 5 beats.

Comments in the report are based on observations on the day of the site visit, and discussions with members of the club. Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left Bank (LB) or Right Bank (RB) whilst looking downstream.

2.0 Habitat Assessment

The club's section of River Barle was typical of an Exmoor river. Beat 5, at the downstream limit of the fishery, was located at Hinam Farm, near Dulverton. The river had a steep gradient, with a mix of steep cascades, riffles, shallow glides and deeper pools providing potentially excellent habitat for salmonids. The channel was extensively tree fringed, with a wetted width in the lowest beats varying between 12m–20+m.



Typical length of Beat 5

Substrate in the lower river was largely comprised of cobbles and boulders. The relatively large size of this material and the high water velocity generally flowing over the shallow riffles, made these sections of the river more suitable for Atlantic salmon *Salmo salar* spawning and juveniles, rather than brown trout *Salmo trutta*. There were some small pockets of gravel of a size suitable for spawning trout.

In beat 4, the percentage occurrence of trout sized spawning gravel increased, with pockets of suitably sized gravel, particularly in marginal areas. The gravel was moderately imbedded with light to moderate loading with fine sediment.



Large Woody Debris in the Barle

The club had removed some Large Woody Debris (LWD) from the river in order to facilitate access for angling. Some localised trimming of overhanging branches had also been carried out for angling access.

Water clarity throughout the river was excellent. Stone turning in the river revealed numbers of cased caddis and Baetid nymphs, both indicative of good water quality. A small number of large dark olive *Baetis rhodani* were hatching during the advisory visit. The presence of dipper *Cinclus cinclus* tended to confirm this conclusion. There were some small stands of hemlock water dropwort *Oenanthe* Spp. present in the river. Towards the top of Beat 4, there was some light to moderate sheep grazing on the LB. Although this had resulted in some loss of marginal habitat, there was little evidence of damaging erosion of fine sediment.



Sheep grazed field on LB of the river

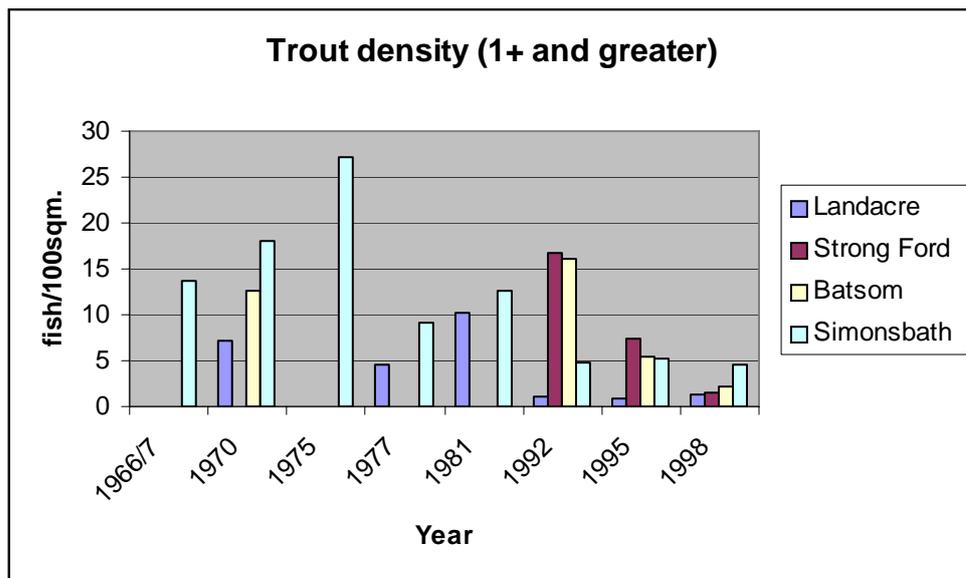
Downstream of Bradley Farm on Beat 2, the gradient of the river was reduced, with an increased abundance of trout sized spawning gravel. The gravel was very mobile, with moderate amounts of entrained fine sediment.

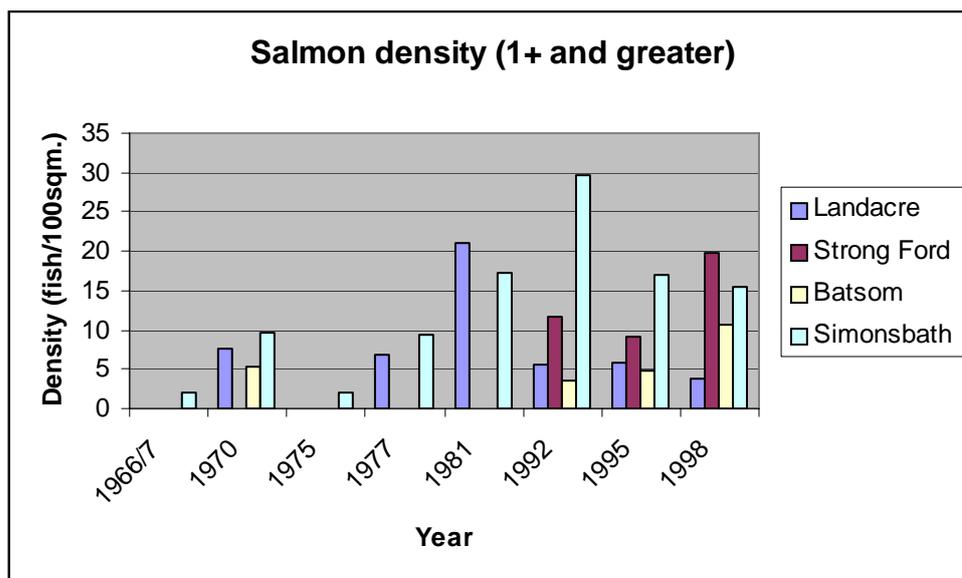
3.0 Fish stocks

The Barle contained stocks of both brown trout and Atlantic salmon.

Members of the club who have fished the river for a long period (30 years in some cases) have noted a significant decline in catches of brown trout. Recent recorded catches from the river have been poor with 31,16, 16, 36 brown trout caught in 2002, 2003, 2004 and 2005 respectively (rod effort 68,19, 96 visits and 79 visits respectively).

The Environment Agency (and previously South West Water and the Environment Agency) have undertaken routine electrofishing of the Barle catchment. Data were provided from a number of sites on the river between Marsh Bridge and Landacre. The quantitative data set was incomplete for several of these sites, with only the presence/absence of trout and salmon recorded post 1981. However, complete data sets were available for the period 1977 to 1998 for the site at Landacre, with data for the period 1992-98 also available for Strong Ford and Batsom. Data for the site at Simonsbath (upstream of the club's holding) are also included for comparison.





No quantitative analysis of these data has been undertaken as part of this report. However, observation by eye does suggest a reduction in the density of trout (1+ and greater) since 1981 at all sites surveyed. This apparent trend is not reflected in the density of salmon, which has increased at two sites and been maintained at another during this period.

These results strongly indicate that gross water quality is not a significant factor in any decline in the density of trout populations. It does however suggest that some more subtle change in habitat, perhaps including the flow regime, may have taken place in the Barle since around 1981 that has favoured the recruitment and survival of juvenile salmon in greater numbers than trout.

Goosander *Mergus merganser* were noted in the river. This species has become more abundant in the west of England over the past 40 years, imposing increased predation pressure on fish stocks.

4.0 Recommendations.

- Club members expressed considerable concern regarding a noticeable reduction in brown trout numbers. The poor rod catches during the past 4 seasons support their contention that fish numbers are low. EA electrofishing data also tends to suggest a reduction in density over the past 20 years. However, the reasons for any decline in the number of trout present were not instantly obvious. The continued abundance of salmon parr is strongly indicative of a change in habitat conditions that favours this species. Possible mechanisms could include changes in peak flows, perhaps as a result of climate changes and/or changes in land management within the catchment. Higher flows could physically displace trout, or could reduce the abundance of smaller, suitably sized spawning gravel; the large diameter of substrate in the lower reaches, coupled with the high water velocities encountered made these sections of the river more suitable for salmon. Any increased sediment loading of the river might be expected to impact more severely on the smaller gravels used by spawning trout, with the more open matrix of larger cobbles perhaps able to accommodate slightly increased percentages of fine materials without detriment to salmon spawning.

- It is quite likely that significant recruitment of trout takes place in tributary streams such as Pennycombe Water and Sherdon Water. These streams enter on the LB and RB of the river respectively, in or above the village of Withypool. It is important that land use and instream habitat quality in these catchments are monitored in order to optimise salmonid production.
- It would be of interest to obtain copies of monthly catchment rainfall and the discharge figures for the river for say, the last 30 years. Analysis of these data might suggest changes that could have affected trout stocks via habitat alteration.
- Where possible Large Woody Debris (LWD) should be retained in the channel. LWD is an integral component of stream ecology. The benefits for retaining it are clearly laid out in the recent Environment Agency R&D document, “Large Woody Debris in British Headwater Rivers”. Key conclusions of the report include:
 - An increase in both mean flow depth and velocity and variability of both parameters.
 - The development of high physical habitat diversity both in-channel and in the floodplain. Removal of LWD reduces both habitat quality and availability for juvenile and adult brown trout.
 - Although active LWD dams may impair upstream migration of fish at low flows, they rarely do so at high flows.
 - LWD have significant benefits to the control of run-off at the catchment scale.
 - River and riparian management has important effects on the distribution and character of dead wood accumulation within the river system.

The report also provides recommendations for the management of LWD, the most important of which is “although there are certain situations that may require wood removal to eliminate stream blockage, the wisest management is no management”.

Building on this simple truism, it is recommended that before any future work to remove LWD from river channels is undertaken, the wider implications of the proposal on the whole river system are considered, rather than just the potential (in many cases unproven) benefits to salmonid populations. In addition, the impact of planned riparian tree work on the supply of LWD to the river should be considered. In some circumstances, it may be beneficial to allow trees to fall into the channel. Provided that the tree can be stabilised in the river channel, there appeared to be little risk of increased local flooding. Stable LWD of this sort is of particular long term value, allowing the build up of weed/debris rafts and associated beneficial macroinvertebrates that are vital components of the energy cycle of river systems.

There is no problem with continued cutting of small overhanging branches for angling access, provided that any necessary consents are obtained from the national park authority.

- It is important that the EA is made aware of any adopted policy to retain LWD in the channel, both in order to prevent its removal during routine management operations undertaken by the Agency and to gain assurance that this policy does not compromise the Agency’s flood management of the river.

- The club should support any catchment wide land use initiatives promoted by the national park authority or the Environment Agency. These will provide a mechanism whereby any damaging land use changes can be highlighted and addressed.
- Club members have suggested that some stocking with brown trout would be of benefit to the fishery. Such a policy might increase catches in the short term. However, given the importance of the Barle as a salmon river and the likely genetic importance of the wild trout stocks found in the river, the long-term impacts of stocking are not likely to be beneficial to the fishery. Indeed any proposed stocking would be unlikely to be granted the necessary consent by the Environment Agency under the terms of their newly adopted Trout and Grayling strategy. For these reasons, it is recommended that no stocking should be undertaken by the club.
- 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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