

Wild Trout Trust Advisory Visit
West Allen, River Tyne
For the Tyne Rivers Trust



Sponsored by



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On behalf of Windrush AEC Ltd, May 2006

Introduction

The newly formed Tyne Rivers Trust requested an advisory visit from the Wild Trout Trust on the West Allen due to the presence of a large man-made barrier to fish migration. The purpose of this visit was to look at the potential to allow fish passage, the quality of habitats upstream and the benefit of carrying out such works. The visit was sponsored by English Nature.

The section of river in question is owned and managed by the Whitfield Estate. The water is fished very lightly and not commercially, although the rest of the estate is managed principally for commercial shooting. Sea trout and salmon have been caught below the barriers and have been observed jumping at the weir in recent times. The estate would be interested in exploiting the fishery so long as this does not conflict with the shooting business.

The man-made barriers

The first man-made structure that causes a problem for fish passage is underneath the road bridge in Whitfield itself. The structure consists of a double step of concrete followed by a length of flat concrete apron. The step itself does not appear to be too high, but the extensive length of concrete apron is a significant barrier.

It would appear from local observation that migratory fish do get over this barrier in some flow conditions. At most flows, however, it will be very difficult with flows far too low and/or fast over the concrete apron. This will be a particular issue for the smaller migrating brown trout.

The remedy for this barrier could be relatively cheap, and would be necessary if the upstream barrier is to be tackled. Flow should be concentrated in one part of the concrete apron, either through a baffle style fish pass, or by cutting an artificial channel through the concrete.



The concrete apron is a significant barrier to migrating fish at this site.

The second weir is a complete barrier to fish migration. The history and ownership are not clear from estate records but it remains in poor repair. An old fish pass was thought to exist on the right bank side of the weir, but further investigation suggests that this is a simple bypass sluice and not built for fish passage.

There are several potential solutions for fish passage across this weir, including complete removal, which would need to be investigated by an engineer.

The weir has also acted as a trap to prevent much coarse substrate from moving downstream. This could explain the excessive erosion in the reach immediately downstream of the weir. The predominance of bedrock in the downstream gorge has prevented what could otherwise have been more significant erosion. The free movement of substrate should be a major consideration in determining the appropriate course of action for the weir.

The poor repair of parts of the weir suggest that a 'do nothing' option may result in its future failure. It is recommended that the risk of catastrophic failure should be properly evaluated by a structural engineer in the near future. Migratory fish have been observed jumping at the weir and it is very likely that upstream areas were once accessible.



The second weir no longer serves any purpose and does not appear to incorporate an historic fish pass.



The weir is in poor repair with reinforced concrete starting to erode away, and steel reinforcement exposed.

Upstream habitat

The West Allen was walked up to the bridge just below Ninebanks. Trout were observed in favourable habitat throughout the reach indicating that there is a population present, albeit in relatively low numbers. A natural barrier exists approximately 1.5km from the weir, which will be impassable to salmonids in all but a few flow conditions. There is anecdotal evidence that fish have passed over the falls in the past, but this is unsubstantiated. The plunge pool below the falls is certainly deep enough to facilitate jumping and the falls are no higher than Stainforth force on the Ribble, which is passable at times. It will be very interesting to see if fish can make it.

There are two significant tributaries between the weir and waterfall. Blaeberry burn and Carr's burn. The two burns and the main river between the obstacles provide at least 10,000m² of salmonid habitat that is not being utilised optimally. Optimal use could see perhaps another 200 returning migratory fish to the river (representing only perhaps 10 rod caught fish), which may explain why removal of the barrier has never been raised as a significant issue for migratory fish in the catchment (based on salmon data). Removal of the barrier is, however, likely to dramatically improve the trout population over the reach in question, and downstream. Blaeberry and Carr's burn were once very significant trout spawning tributaries that would have contributed locally and probably to the sea trout population. If the natural falls are passable, a fish pass would dramatically enhance contribution to migratory and non-migratory populations. Otherwise the falls prevent migrating fish from mixing with trout upstream, making this population both distinctive and fragile, at risk from extinction should something happen to kill fish.

The West Allen itself has excellent instream habitat, dominated by coarse substrate, it provides ideal habitat for salmonids. There are a number of constraints on this habitat that may be addressed.

The river is very wide and open in parts with fish only observed in those locations where it is narrowed by the gorge, or where trees provide cover and habitat. Tree planting in these open areas will increase survival of trout produced in this section of fragmented habitat.



The falls may be passable in certain flow conditions thanks to the deep incisions in the bedrock and deep plunge pool.

Whereas tributary streams appeared clean and clear with strong invertebrate communities, the West Allen itself appeared far too eutrophic for an upland river, dominated by filamentous algae, and with far fewer invertebrates than the tributaries. The cause of eutrophication and excessive nutrient input needs to be assessed by surveying upstream for possible causes.

Parts of the West Allen do show some signs of erosion caused by agricultural stock but this is not considered severe and will recover easily with suitable fencing and tree planting. The exception is just below the bridge at Ninebanks. This is caused by the flow around the gravel built up below the bridge and is unlikely to recover by fencing alone. Willow planting may slow the erosion to an acceptable degree and is really the only option for a Trust to recommend in this instance.



Filamentous algae dominates the West Allen in this area and is a sign of water quality problems.



Moderate bank erosion that will recover by fencing. Tree planting will also help conditions for trout.

The tributaries

Both tributaries run straight up on to moorland and appear to have excellent water quality with plenty of invertebrates present. Both are ideal salmonid juvenile habitat but whether they are operating well or not can only be assessed by electrofishing survey. A pool well up Carr's burn was like an aquarium, stuffed with juvenile brown trout. This was where trees had formed a pool, and extending areas of habitat up this valley, would be beneficial for juvenile trout and probably boost the population.

A small stand of Japanese Knotweed was observed at the bottom of Carr's burn near the confluence with the West Allen. It would be simple to walk this system and ensure eradication of this exotic invasive plant down to the confluence with the West Allen and perhaps further, as a start to clearing it from feasible parts of the Tyne catchment.

The entrance of Blaeberry burn is partially obstructed by a concrete sill associated with the road bridge. Trout can probably pass up the left hand side in certain flows but passage could certainly be eased quite cheaply by concentrating flow in one part of the sill. The Tyne Trust should be aware of small obstructions like this, as well as concrete culverts and pipes, which can restrict movement within many of the smaller spawning tributaries of a catchment.

The very top of Blaeberry burn was not visited but some commercial forestry was visible. This should be investigated by the Trust if improvement work is to be taken forward. The valley is very steep and there may be issues from the forestry such as run-off from drainage, silt from future harvesting works, or chronic overshading, that might need mitigation to boost fish populations.



Japanese Knotweed is highly invasive and a risk to the whole catchment. A source this high up allows for strategic control measures to be implemented.



A long concrete culvert can restrict access for fish but may be easily rectified by concentrating the flow.



The top of Carr's burn is open with little bankside habitat. The 'aquarium' is on the left of the picture, associated with the trees. Some patches of tree planting would be beneficial.

Recommendations

1. Contract a suitable engineer to assess options for improving fish passage at the two man-made barriers. This should include plans suitable for tendering to civil engineering companies and outline costs for budgetary purposes. Assess cost against benefit in terms of the objectives of the Trust. Plans should allow for passage by smaller salmonids as well as salmon.
2. Explore options for improving stewardship of the river upstream of the weir by generating an income from letting the fishing.
3. Investigate source of apparent eutrophication of the main West Allen upstream of the weirs.
4. Survey for and treat Japanese Knotweed in the sub-catchment.
5. Check brown trout access into the Blaeberry burn.
6. Recommend landowner carries out some habitat improvement works along the main river and tributaries.
7. The Trust should consider its own electrofishing programme for smaller tributaries in the Tyne catchment not covered by the statutory programme.

8. Consider habitat improvement works on Carr's burn to increase tree cover further up the valley.
9. Check Blaeberry burn for impact from commercial forestry.

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