

WILD TROUT TRUST

River Went

(Upstream of Ackworth School Phase 1 Works)

12/10/2020

River	Went
Waterbody Name	Went from Source to Hoyle Mill Stream
Waterbody ID	GB104027063380
Management Catchment	Don and Rother
River Basin District	Humber
Current Ecological Quality	Poor
U/S Grid Ref inspected	SE4397417553
D/S Grid Ref inspected	SE4386217360
Length of river inspected	250m

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1. Introduction

The Wild Trout Trust were invited by Yorkshire Wildlife Trust for a follow up advisory visit to the River Went, upstream of previous works carried out in the grounds of Ackworth School. This report gives supporting information to applications being made.

Normal convention is applied throughout this report with respect to bank identification, i.e. the banks are designated left bank (LB) or right bank (RB) whilst looking downstream. The Ordnance Survey National Grid Reference system is used to identify specific locations.

2. Background

Improvements on the River Went are being undertaken by partnership works hosted by Yorkshire Wildlife Trust identified as The Living Went project. Currently the waterbody is classed as "Poor" under the Water Framework Directive assessments made by the Environment Agency. A legacy of open-cast mining has inverted the surface geology such that clay-rich subsoils are now uppermost – and this causes significant ecological impacts to surface watercourses in this area.

Cycle 2 classifications [Download as CSV](#)

Classification Item	2013	2014	2015	2016	2019
▼ Overall Water Body	Poor	Poor	Poor	Poor	Poor
▼ Ecological	Poor	Poor	Poor	Poor	Poor
▶ Biological quality elements	Poor	Poor	Poor	Poor	Poor
▶ Hydromorphological Supporting Elements	Supports Good				
▶ Physico-chemical quality elements	Moderate	Good	Good	Good	Good
▶ Specific pollutants	High	High	-	-	
▶ Chemical	Good	Good	Good	Good	Fail

Figure 1: Overall summary of Water Body assessments under the Water Framework Directive for the River Went from Source to Hoyle Mill Stream

It is proposed to extend the use of comparable techniques to those used immediately downstream of the site visited for this report.

3. Habitat Assessment Notes

Approximately 250m of channel was walked with a view to identifying habitat improvement opportunities. Additionally, the degree to which spawning salmonid fish may be impacted by any activity within/around the stream was also investigated.

The legacy of mining activities means that potential spawning gravel substrate is in extremely short supply within the Went – and this section is no exception to that pattern (Figs. 2 and 3)



Figure 2: Typical example of muddy/clay dominated stream bed – with no spawning habitat available



Figure 3: Another example of the lack of spawning gravels available for salmonid fish

Viewed in the most positive terms, there is a clear opportunity to improve the potential for full lifecycles of gravel-spawning species via appropriate introduction of gravels. Furthermore, there will be fewer restrictions upon the timing of such works – due to an absence of breeding fish to disturb during what would, typically, be breeding season for UK native trout.

In the event that any small pockets of cobbles and gravels are observed within the proposed limits of the reach to be included in this phase of works, simple avoidance of these areas – along with an assessment for evidence

of redd-cutting – are appropriate mitigation measures. There is a significant opportunity cost (by preventing the creation of better breeding conditions for future generations) to not allowing habitat works to take place during the required timescale for this part of the project.

As well as gravel introductions (in line with previous, successful works just below the downstream limit of the reach considered in this report; Fig. 4); introduction and secure anchoring of natural woody material will be beneficial (e.g. Figs. 5 and 6 from the phase 1 works at Ackworth School)



Figure 4: Previous spawning gravel introduction at Ackworth School



Figure 5: Steel cable anchoring a tree crown in the Went next to Ackworth School



Figure 6: Anchored tree crown – sometimes called a “tree kicker” installation

In terms of secure anchoring, cost-effectiveness and natural appearance and function, cabled tree crowns are a very good option. This will also enable some very light-touch restructuring of the riparian tree canopy. That will create greater diversity in the light/shade regime. At the same time, existing substantial natural cover (e.g. Fig. 6) should be retained.



Figure 7: Retaining the portions of this fallen tree that do not compromise the stock-exclusion fence is a positive contribution to habitat quality

At the same time, tree limbs that damage (or prevent the reinstatement) of fencing should be removed. The re-instatement of stock-exclusion fencing would be a positive benefit to the riparian vegetation and in-stream habitat throughout the visited reach.

4. Recommendations

The following short summary of recommendations made in this report are intended to support project permissions applications by Yorkshire Wildlife Trust.

N.B. *Any and all works will be subject to a variety of legal permissions that include, but not limited to, landowners, regulatory authorities for the watercourse (which could be local council, Environment Agency or even drainage boards) and other stakeholders such as bodies responsible for underground services that may be affected by works.*

For context, the following short illustrations (Figs. 8 – 11) indicate how diversifying habitat structure helps to avoid bottlenecks for wild fish populations. There are three main types of habitat that trout require in order to complete their lifecycles (spawning, nursery/juvenile and adult). By providing for these key lifecycle stages, a wide structural diversity in habitat that can support a wide range of flora and fauna is also created.

Ideally, by ensuring that there are no barriers between the various habitats utilised throughout a complete lifecycle, access for the widest diversity of fauna is also ensured. It is also critically important to maintain as much structural and biological diversity in the surrounding terrestrial habitat of the river corridor. There is no biological separation between the aquatic and terrestrial components of the river corridor.

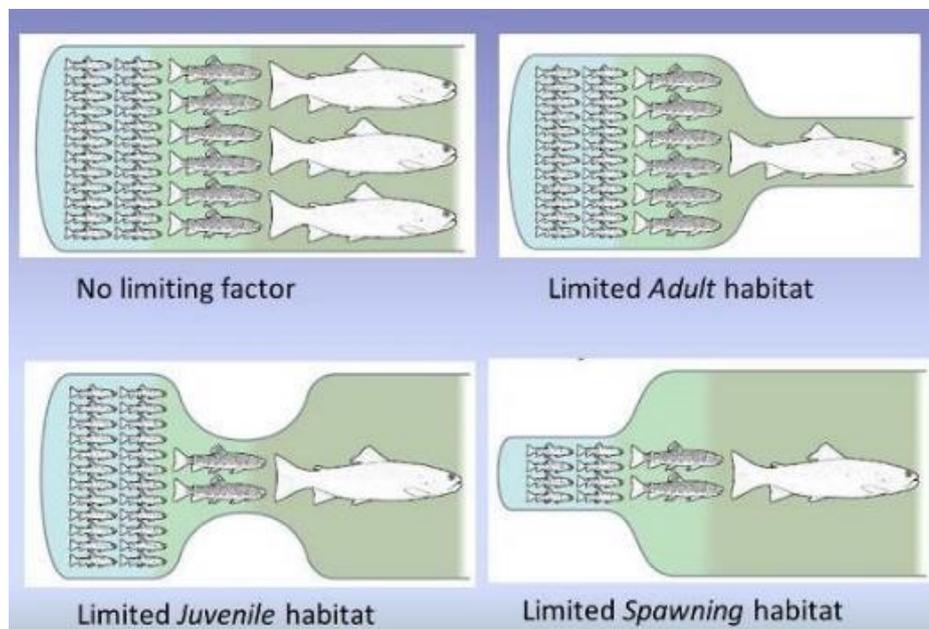


Figure 8: The impacts on trout populations lacking adequate habitat for key lifecycle stages. Spawning trout require loose mounds of gravel with a good flow of oxygenated water between gravel grains. Juvenile trout need shallow water with plenty of dense submerged/tangled structure for protection against predators and wash-out during spates. Adult trout need deeper pools (usually > 30cm depth) with nearby structural cover such as undercut boulders, sunken trees/tree limbs and/or low overhanging cover (ideally trailing on, or at least within 30cm of, the water's surface). Excellent quality in one or two out of the three crucial habitats cannot make up for a "weak link" in the remaining critical habitat.

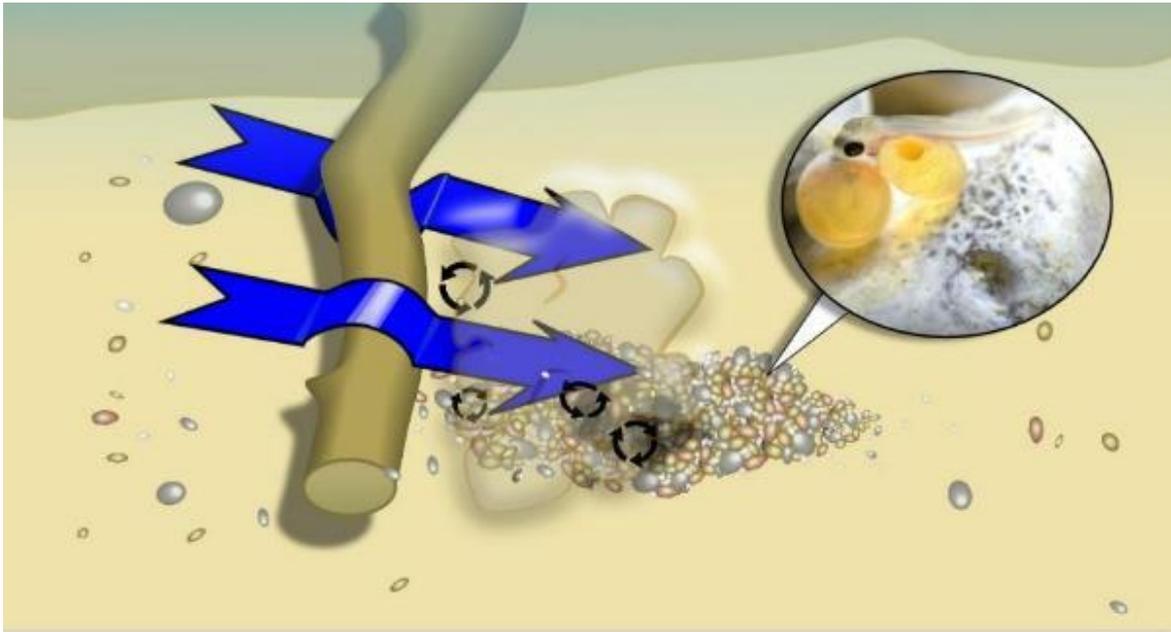


Figure 9: Features associated with successful trout spawning habitat include the presence of silt-free gravels. Here the action of fallen tree limb is focusing the flows (both under and over the limb as indicated by the blue arrows) on a small area of river-bed that results in silt being mobilised from between gravel grains. A small mound of gravel is deposited just downstream of the hollow dug by focused flows. In these silt-free gaps between the grains of gravel it is possible for sufficient oxygen-rich water to flow over the developing eggs and newly-hatched "alevins" to keep them alive within the gravel mound (inset) until emerging in spring.



Figure 10: Larger cobbles and submerged "brashy" cover and/or exposed fronds of tree roots provide vital cover from predation and spate flows to tiny juvenile fish in shallower water (<30cm deep). Trailing, overhanging vegetation also provides a similar function and diverse bank-side vegetation has many benefits for invertebrate populations (some of which will provide a ready food supply for the juvenile fish).



Figure 11: The availability of deeper water bolt holes (>30cm to several metres), low overhanging cover and/or larger submerged structures such as boulders, fallen trees, large root-wads etc. close to a good food supply (e.g. below a riffle and with prey likely to fall from overhanging tree canopy in this case) are all strong components of adult trout habitat requirements.

With these core habitat features in mind – a summary of recommended actions are as follows:

- Creating/repairing grazing exclusion from the riparian zone of the Went in this section
- Retaining (and modifying where necessary to accommodate fencing) existing, valuable cover habitat
- Light-touch coppicing of some riparian trees in order to diversify the canopy density and height (and associated light/shade regime and opportunities for understory species)
- Gravel introductions along with appropriate woody material introductions to create hydrological roughness and aid retention of gravels – installing “point-bars” of gravel can also help to create a more meandering flow within the constraints of the channel
- Stable large woody material introductions to diversify flow and deposition/erosion processes within the channel (primarily by cabling tree crowns securely in place)

5. Further information

The WTT may be able to offer further assistance such as:

- WTT Practical Visit

- Where recipients require assistance to carry out the improvements highlighted in an advisory report, there is the possibility of WTT staff conducting a practical visit. This would consist of 1-3 days' work, with a WTT Conservation Officer(s) teaming up with interested parties to demonstrate habitat enhancement methods (e.g. tree kickers and willow laying etc.).
- WTT presentation/Q&A session
 - Where recipients are unsure about the issues raised in the AV report, it is possible that your local conservation officer may be able to attend a meeting to explain the concepts in more detail.

In these examples, the recipient would be asked to contribute to the reasonable travel and subsistence costs of the WTT Officer.

The WTT website library has a wide range of free materials in video and PDF format on habitat management and improvement:

www.wildtrout.org/content/wtt-publications

We have also produced a 70 minute DVD called 'Rivers: Working for Wild Trout' which graphically illustrates the challenges of managing river habitat for wild trout, with examples of good and poor habitat and practical demonstrations of habitat improvement. Additional sections of film cover key topics in greater depth, such as woody debris, enhancing fish populations and managing invasive species.

The DVD is available to buy for £10.00 from our website shop www.wildtrout.org/shop/products/rivers-working-for-wild-trout-dvd or by calling the WTT office on 02392 570985.

Acknowledgements

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Disclaimer

This report is produced for guidance; 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 guidance made in this report.