



# Weirs dams and other river structures

WTT INFORMATION SHEET

The WTT is a conservation charity that focuses on practical work to improve habitat for trout across the UK and Ireland. We work with grass roots organisations and landowners to improve and maintain habitat of trout and all wildlife.

## What are the impacts?

Obstacles are as great a problem for trout as they are for salmon. The impacts of weirs, dams, culverts and other impoundments can be divided, broadly, into two: main categories:

|          | Obstructing fish movement  | Habitat impacts  |
|----------|--|--|
| Examples | <ul style="list-style-type: none"> <li>Reduce access to diverse habitats that are suitable for different life history stages of trout</li> <li>Increase mortality rates of migrating fish</li> <li>Reduce the effective breeding population in river systems by cutting off valuable spawning habitat</li> <li>Increase long term extinction risks in trout populations by genetically isolating individual populations</li> </ul> | <ul style="list-style-type: none"> <li>Reduce the supply of downstream gravels</li> <li>Reduce diversity of flows and instream habitat</li> <li>Sediment accumulation upstream of weir structures</li> <li>Less habitat for flow loving fish in impounded sections.</li> </ul> |

Weirs, dams, etc. split trout populations into isolated units (habitat fragmentation) and reduce the quality of river habitat (habitat degradation). Along with genetic impacts (through stocking), these effects reduce the **resilience** or ability of brown trout to

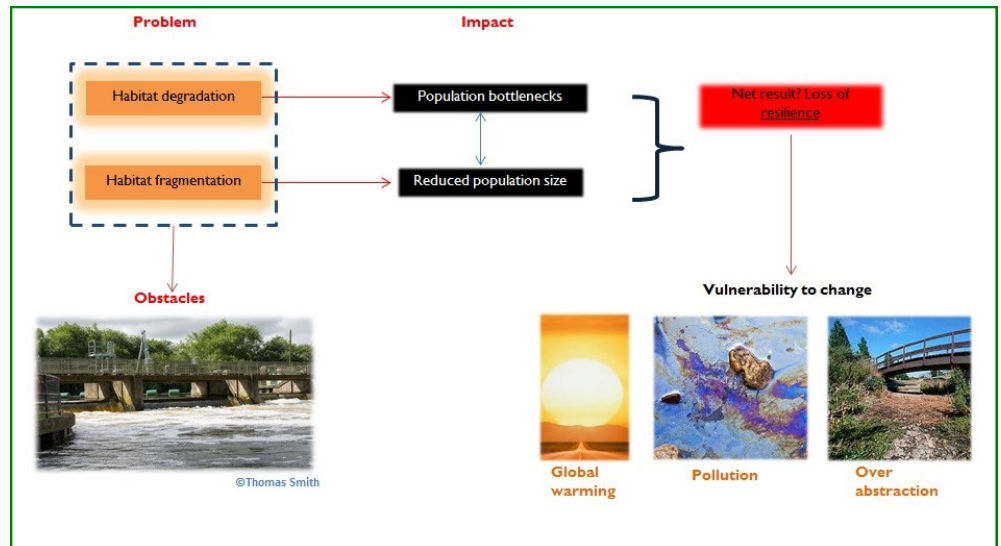


Figure 1: 3 significant threats facing brown trout today and the role of obstacles in reducing 'resilience'

Because impoundments impact on habitat and fish movement, the removing man long term maintenance. On situations like this that angling made barriers to create a smaller streams however, clubs, rivers trusts and the naturally connected river hab- numerous barriers to migra- WTT can fill the void and itat is preferable to installing tion exist which the authori- make a real difference.

# WTT advice

WTT can provide guidance on improving fish passage along with other habitat improvements such as constructing bypass channels (Figure 3). Advice on easements is available in the **WTT Information**

**paper Obstructions & Wild Brown Trout, WTT's Wild Trout Survival Guide & the WTT Upland Rivers Habitat Manual CD.** Any easement or removal

works should be accompanied by appropriate instream habitat management and aftercare as the river bed re-profiles after an obstruction is removed/eased.



Figure 2: Sussex Ouse showing ponded, homogenous habitat before (a) and after (b) weir removal and riffle installation ©WTT



Figure 3: Bypass channel on the River Cam, Cambridge which creates extra trout habitat ©Thomas Smith

## WTT do's and don'ts

- DON'T** assume that weirs are providing good holding habitat for fish. A properly functioning river system with sufficient flows will produce a much greater diversity & density of deeper pool areas without the negatives associated with weirs.
- DO** maintain access for trout, even in **small un-fished streams**; these are often breeding and nursery areas and can produce the majority of juvenile trout in many river systems.
- DO** continue to improve **instream habitat** on your river, in spite of the presence of weirs and their overarching impact on habitat connectivity & quality in a river. It is still important that reach scale problems are addressed whilst long term objectives (free fish passage) are addressed. In this way, when they are resolved, the benefits associated with habitat improvements will be maximised.
- DO** liaise with the relevant regulatory agency personnel who will establish (and potentially influence) the sequence of fish passage solutions. There are many different designs of fish passes suitable for different locations and species and will require specialist input to ensure their effectiveness. In these cases, angling clubs are usually the catalyst & driver for getting the process underway.
- DO** involve landowners from the outset and educate them on what you are trying to achieve.
- DO** 'encourage' gradual weir removal. On high energy, spate rivers, weirs can erode away over time. Removing a few choice pieces of the upper structure provides the spate flows something to work with to 'naturally' remove the weir.
- DO** encourage the controlled removal of weirs or create notches in weirs which will allow the upstream river bed to re-align itself gradually.
- DO** prioritize removal over fish pass provision where possible. Fish passes should be as a last resort as they do not adequately address the problems of habitat connectivity and degradation.

### **Further reading & resources**

- *Environment Agency Fish Pass Manual. Click [here](#) to view*
- *Cong Burn, River Wear, Co. Durham – removal of redundant weir and installation of baffles in road culverts (Chester le Street & District Angling Club & WTT). Click [here](#) to view*
- *River Don: Improving Fish access to a spawning tributary of the Don (Ribble Rivers Trust & WTT). Click [here](#) to view.*



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