



Advisory Visit

River Dove

Birdsgrove Fly Fishing Club

October 2016



1.0 Introduction

This report is the output of a site visit undertaken by Tim Jacklin of the Wild Trout Trust to the River Dove near Ashbourne, Derbyshire, on 6th October, 2016. Comments in this report are based on observations on the day of the site visit and discussions with David Milburn, Robert Harris, Gary Anderson and Peter Hilliard of Birdsgrove Fly Fishing Club.

Normal convention is applied throughout the report with respect to bank identification, i.e. the banks are designated left hand bank (LHB) or right hand bank (RHB) whilst looking downstream. Specific locations are identified using the names on the BFFC fishery map provided on the visit, or with an Ordnance Survey National Grid Reference, for example, Hanging Bridge (SK 15812 45822).

2.0 Catchment / Fishery Overview

Birdsgrove Fly Fishing Club (BFFC) control the fishing on approximately 5 km of the River Dove near Ashbourne, Derbyshire. The river here contains brown trout and grayling, along with smaller fish species such as bullhead and brook lamprey. The club has a long history, having been established in the latter half of the C19th and currently has XX members.

The advisory visit was requested to assess the habitat quality for wild brown trout and grayling to inform the debate within the club regarding stocking. In the past, the club introduced a total of around 900 adult brown trout in two batches. By 2000, this had reduced to 750, with 500 put in in early April and 250 in late June. Stocking remained at this level until 2005, since when stocking has taken place only once at the beginning of each season and in 2016, the total introduced was 200 (Guthrie Pickering, pers. comm.).

This report looks with a critical eye at the habitat quality of BFFC waters and hence identifies deficiencies and areas for improvement. It is however important to start by emphasising the very positive aspects which exist. The river here supports a high quality fishery for wild brown trout and grayling and has numerous beneficial characteristics, including:

- Good flows. Consumptive abstraction throughout the Dove is minimal, limited by the licence for potable supply at Egginton, just upstream from the Trent confluence.
- Generally good water quality (despite the Water Framework Classification, see below). There is never room for complacency and challenges remain with diffuse water pollution from agriculture and septic tanks, but invertebrate sampling scores and fly hatches are broadly good.
- Good trout production in the headwaters and tributaries. The River Dove upstream of BFFC has good trout spawning habitat, for example Dovedale which lies within the protection of a Special Area of Conservation (SAC). The Bentley Brook has abundant trout and grayling populations. These areas and production within BFFC boundaries will provide wild fish production capable of populating available habitat.

The Birdsgrove fishery on the River Dove was the subject of a previous Wild Trout Trust Advisory Visit in 2005 carried out by Vaughan Lewis, which is available at www.wildtrout.org/avs. Much of the information in that report remains relevant, apart from the recommendation to introduce instream brushwood islands (the flood flow of the Dove is too energetic for such structures to be retained).

The table below summarises data available from the Environment Agency regarding the status of this section of the River Dove under the Water Framework Directive. It is currently in poor status because the results of fishery surveys do not reach the standards expected; poor water quality (ammonia) is cited as a reason, and correspondence with the EA indicates this is thought to be from diffuse sources (agriculture, septic tanks) rather than sewage works effluent. Clarification is being sought.

	River Dove, Birdsgrove Fly Fishing Club
River	River Dove
Waterbody Name	Dove - conf R Manifold to conf R Churnet
Waterbody ID	GB104028052670
Management Catchment	Dove
River Basin District	Humber
Current Ecological Quality	Overall status of Poor ecological status sustained through two assessment cycles from 2009 - 2015
U/S Grid Ref inspected	SK1622746862
D/S Grid Ref inspected	SK1335442742
Length of river inspected	~4.6 km

3.0 Habitat Assessment

The lifecycle of the brown trout can be broadly divided into three periods: spawning/eggs/alevins, juvenile and adult (Figure 1), each with specific habitat requirements.

For the spawning-to-alevin period, gravel of approximately 10 – 40mm diameter is required, located in areas of good flow, often where there is a steepening of the river bed, such as at the tail of pools and head of riffles. These areas ensure a flow of water through the gravel, keeping the eggs and alevins supplied with oxygen during the 3 or 4 months until they emerge as fry.



The Brown Trout Life Cycle

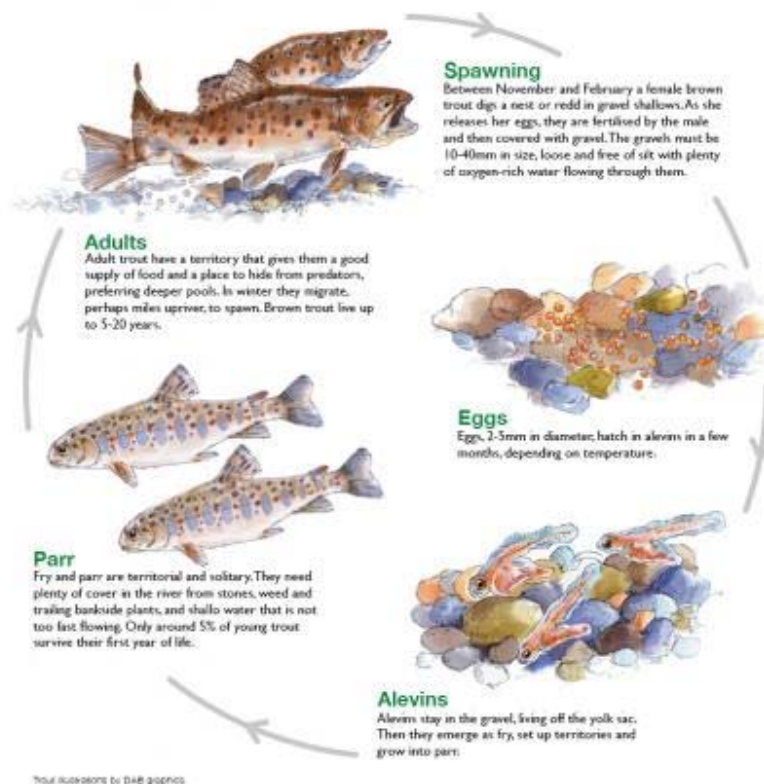


Figure 1

Juvenile trout tend to occupy shallower areas of the river, or remain in the tributary streams where they were born, migrating to the main river as they mature. Cover is very important for juvenile trout, in the form of rocks, boulders, submerged tree roots and branches, trailing vegetation and aquatic plants. Even in good habitat, mortality rates can be very high during this stage, with 95% losses during the first year not being uncommon.

Adult trout occupy deeper pools and areas with plenty of cover. They have a home range within which are several lies: positions where fish can hold station with minimal effort, yet easily intercept food items borne on the

current. Such lies often occur at boundaries between faster and slower currents, such as creases, back eddies, alongside objects such as boulders or trailing branches or very close to the bank where friction slows the current. The home ranges of adult trout often overlap, but there is a pecking order in which dominant individuals (usually the largest) secure the best lies for the prevalent food supply. Trout leave their home range in autumn/winter to find spawning areas and will often migrate long distances to find suitable sites in the main river or in tributaries, if they have free access.

The various habitats required for the trout to complete its lifecycle may occur on a geographical scale greater than an individual fishery; for example, adult trout in the main river may migrate several miles upstream into headwaters or tributaries for spawning, then they and their offspring have to make the return journey. Ensuring good connectivity between these habitats, for both upstream and downstream fish movement, is therefore critically important.

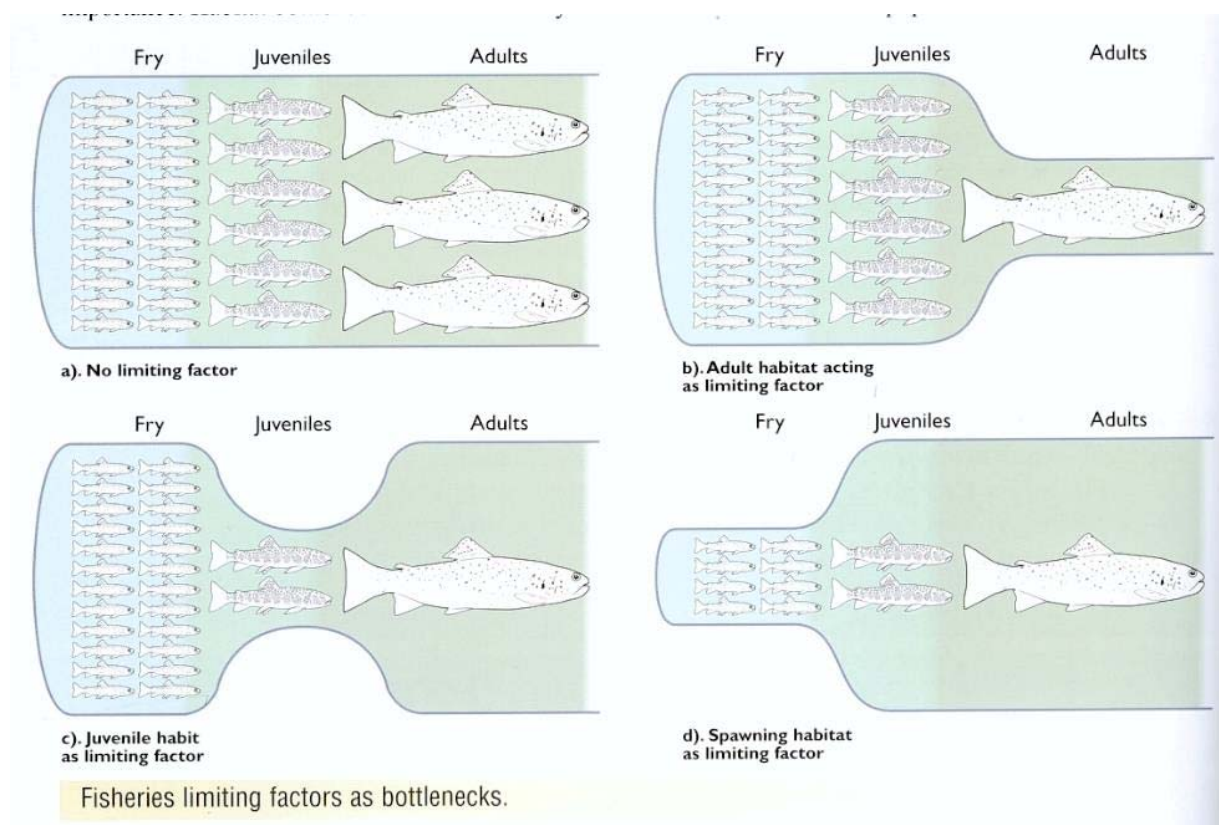


Figure 2

The absence or scarcity of a particular type of habitat leads to a bottleneck in the trout population, restricting the numbers of fish that reach adulthood (Figure 2).

3.1 Birdsgrove Fishery - South

Two sections of the river were inspected, the first between the downstream limit of the fishing (old railway bridge pillars, Temple beat) and Upper Horseshoe.

The plan-form of the river on the lower section is relatively meandering, as a river of this size and gradient should be naturally. This is a positive influence on habitat quality because meanders promote the formation of a pool-riffle sequence (Figure 3).

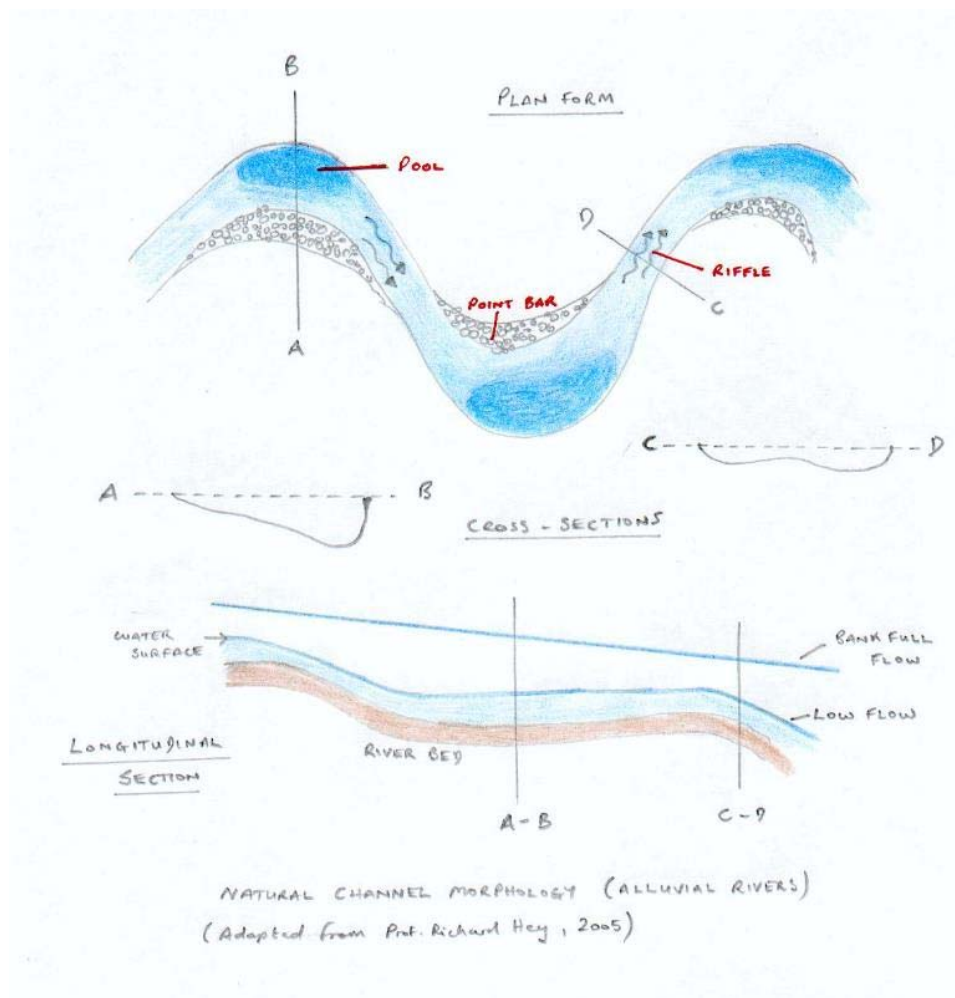


Figure 3

The pool-riffle sequence is intrinsically linked with habitat quality as it provides deeper pool areas on bends (adult habitat) and shallow gravel riffles in between (spawning and juvenile habitat), along with the variety of flow and grading of river bed material integral to habitat diversity.

Unfortunately, there are three weirs on the lower waters of the Birdsgrove fishery (Calwich, Gothard and Sidesmill). Weirs have a deleterious effect on trout habitat (Figures 4 and 5) by interrupting the natural movement of sediments (including gravels suitable for spawning) and drowning out habitat diversity upstream. This can impact upon long reaches of water, greatly degrading the impounded reach for flow-loving plant and invertebrate species, many of which form staples of the fly fisherman's sport. Weirs are also obstacles to fish migration, in both directions. Adult trout can be seen struggling to surmount weirs on the Dove during the spawning migration in October/November. There is also growing evidence of heavy mortality of juvenile fish which accumulate above weirs during downstream migrations, a potential explanation being concentrated piscivorous bird predation in these areas.

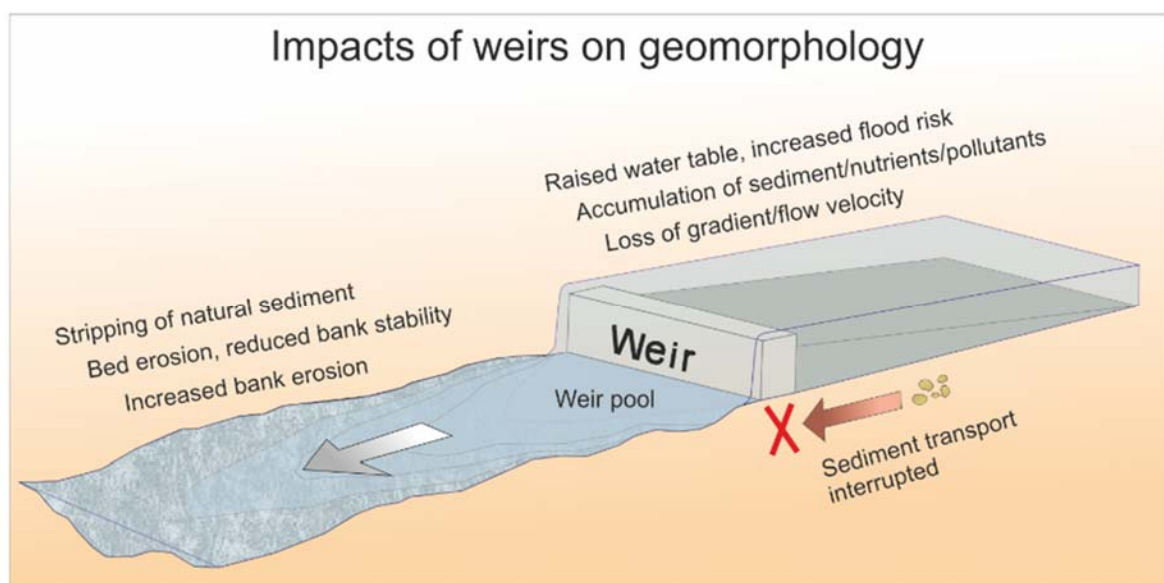


Figure 4 Weirs interrupt sediment transport, trapping it upstream whilst it continues to be transported away downstream of the weir, leading to a net loss of smaller particles (gravels) there.

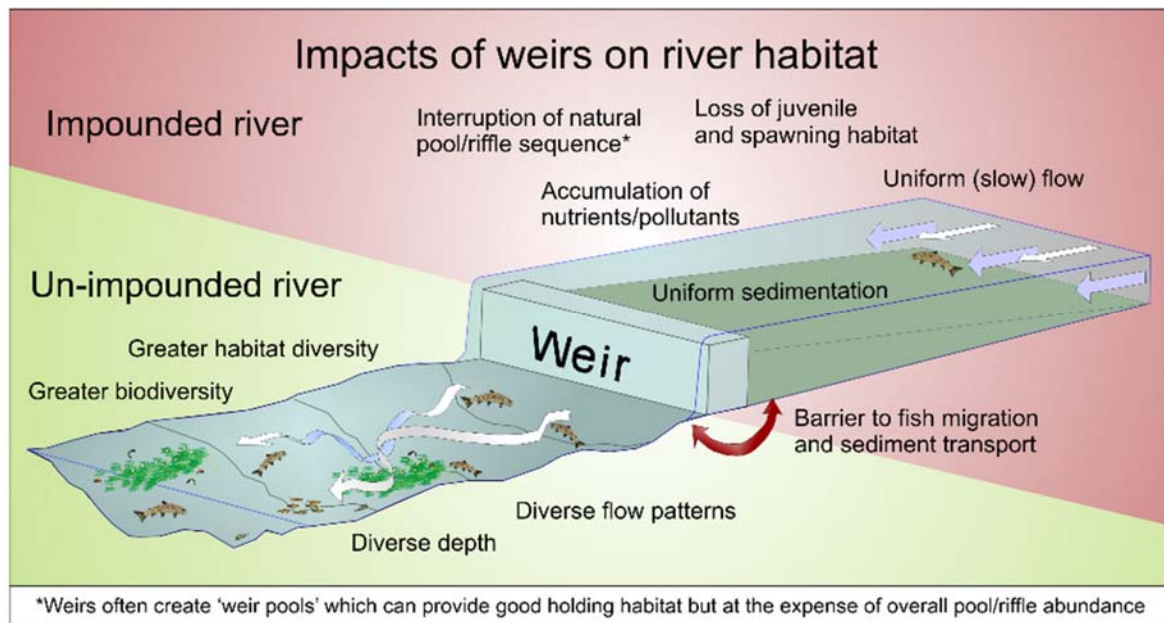


Figure 5: An illustration showing the impact of weirs on river habitat

There are a number of other weirs upstream and downstream of those mentioned above. Norbury Weir, downstream of Birdsgrove waters, is currently the subject of a hydropower development which unfortunately precludes weir removal or lowering for the foreseeable future, but will incorporate a fish pass. Tatton's Weir, Corn Mill Weir and Alrewas Weir are located close to each other near Mayfield.

To maximise the benefits for river habitat and trout populations, weirs should ideally always be removed. This could be relatively straightforward for structures like Gothard Weir (previously installed by the club) or complex for other structures (such as those with different ownerships, dependent abstractions or integral to other structures). However, tackling the easy wins first will reduce the cumulative effect of multiple weirs on fish migration (Figure 6) and improve habitat in the immediate vicinity.

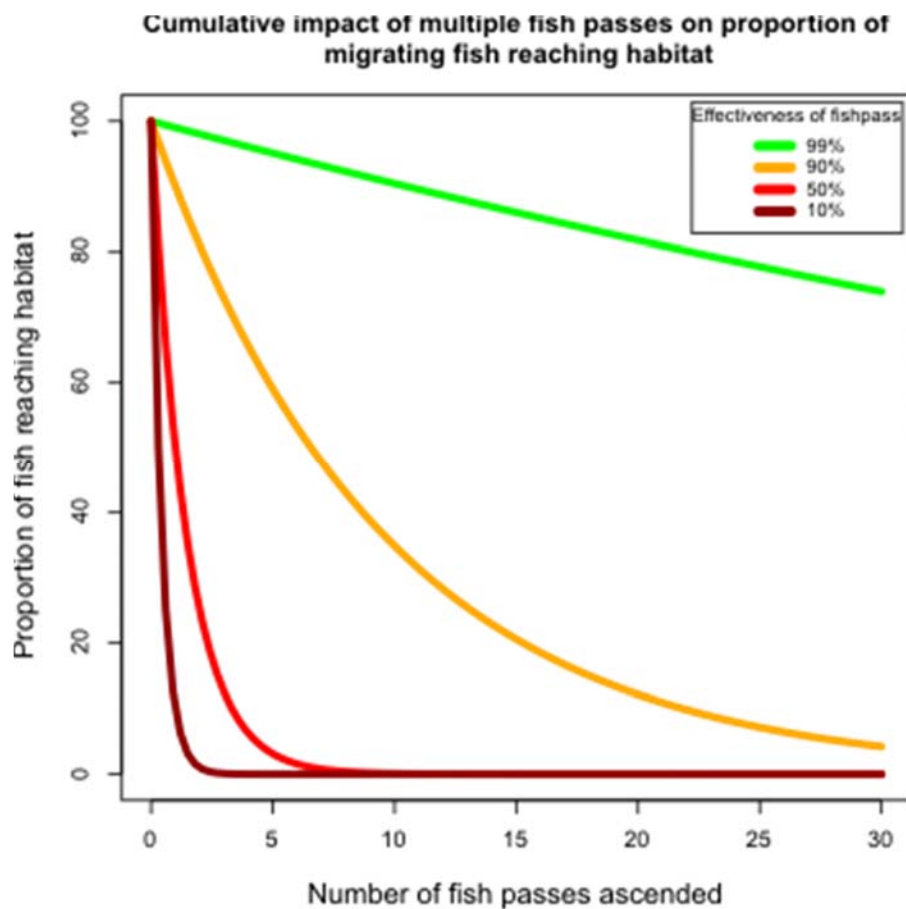


Figure 6: Graph showing the cumulative effect of multiple obstacles to fish passage on upstream migration (courtesy of Dr E Shaw, Catchment Science Centre, University of Sheffield).

Away from the influence of the weirs, the habitat on the lower section of the river is reasonably good and capable of supporting adult and juvenile trout; spawning habitat appears to be more limited, with only a small number of areas where suitable conditions were observed. The lack of spawning habitat here may not be a problem, given the better conditions for spawning found further upstream and in tributaries (within and beyond BFFC boundaries); it does however emphasise the need for good connectivity between these areas and the benefit of weir removal.

Large numbers of cormorants have been observed on the lower BFFC waters and circumstantial evidence suggests these are having a negative impact on fish stocks and hence catch rates:

- Annual catch returns from the Grayling Society fishing days on the middle Dove (BFFC and Norbury FC) have shown a significant drop in catch per unit effort in recent years compared with a decade or two ago.
- BFFC report lower catches from downstream beats, although the number of visits to each beat is not currently recorded so no comparison of catch per unit effort can be made between beats.
- Fish with injuries consistent with damage caused by fish-eating birds have been caught by the author during past electric fishing surveys in this area (Photo 1).



Photo 1 Wild brown trout of approximately 40cm found dead on BFFC waters with wounds consistent with bird predation, September 2003.

The downstream beats of BFFC waters are relatively remote and there is little human footfall to scare away fish-eating birds. Experience elsewhere on the Dove has shown the effectiveness of shooting birds under licence to be limited, helping as a deterrent but not having a noticeable effect on fish stocks/catches (especially of grayling). It appears that concentrated periods

of predation, for example when icing over of lakes forces large flocks of birds onto rivers, can have large impacts on fish stocks in a short time frame.

Increasing habitat complexity does reduce the impact of bird predation. Studies on stillwater fisheries have demonstrated that submerged refuge structures are utilised by fish, reduce the efficiency of bird predation and lead to more fish surviving over time. Introducing stable structures into a river, particularly one as energetic as the Dove, is challenging but there are several courses of action:

- Leave naturally occurring structures in place. Large fallen trees often find a stable position within the river channel, maybe not where they first fall, but often after being moved by higher water. These are incredibly valuable habitat and virtually impossible to mimic artificially. Even if they come to rest in a known fishing spot, it is better (and easier) to change the access and embrace the improved habitat rather than haul it out.
- Remove the impounding effects of weirs. Poned reaches of water upstream of weirs make it easy for cormorants to hunt efficiently, compared to reaches with varied depths, current speeds and aquatic weed growth.
- Maintain and develop tree growth along both banks of the river. Cormorants prefer an open aspect for approaching and leaving a river and are deterred by tree cover. The submerged roots of riparian trees also provide good refuge areas for fish.
- Introduce submerged cover to the river by partially cutting and laying suitably sized trees into the river, and by making "tree kickers" (see Recommendations). Note the need to do this without denuding tree cover (see previous point).

On the downstream beats, riparian habitat is generally good, with reasonable tree cover providing shade, cover and bank stability. The river channel has been modified in the past, as evidenced by the stone reinforcement of the toe of the bank in many areas, and the unnatural straightness of some areas (e.g. Alders Bank, Grove Flats). Observations on specific areas are made below along with photographs. The direction of travel is upstream from the BFFC downstream boundary.



Photo 2 Temple beat. Good tree cover on the true LHB (far bank) contrasts with the grazed RHB, which provides easy angling access but no fish-holding features. Establishing some trees and bushes on the open bank would increase the fish-holding capacity of this reach. To achieve this, fencing and control of balsam would be required in the short to medium term.



Photo 3 Temple beat. There are opportunities to lay some trees over into the margins on the far bank, improving low cover and creating refuge areas from fish-eating birds.



Photo 4 Overflow from leat close to the Temple. Submerged tree roots provide excellent cover but, unfortunately, a history of tree maintenance has denuded the area of lower branches and important, fish-holding cover. Areas like this may be candidates for reinstatement of low cover through selective coppicing.



Photo 5 Upstream of the Temple, a gravel bar indicates some natural sediment transport is occurring, creating potential spawning areas.



Photo 6 The straight reach downstream of Pastoral Pool has few trees along the LHB and they are prevented from establishing by grazing. Fencing and balsam control is required to establish trees here.



Photo 7 As above. Sickly alders might be saved here by coppicing. Protection from grazing would be required to allow regrowth from the base (note current browse level).



Photo 8 Good habitat at Pastoral Pool.



Photo 9 Straight channel lacking cover at Alders Bank, which would benefit from fencing and tree planting.



Photo 10 Grove Flats, as above.



Photo 11 Calwich Weir, a detrimental impact on habitat for several hundred metres upstream and an obstacle to fish migration and sediment transport.



Photo 12 Ponded reach above Calwich Weir, the influence of which reaches as far upstream as Toadhole Pool.



Photo 13 Flow control structure at the head of the leat leading to Calwich Abbey lake. There are at least two weirs along this leat, suggesting a reasonable fall in level along its length and the possibility of removing the leat weirs and reducing the height of Calwich Weir without compromising the flow of water to the lake. Further investigation including a levels survey is recommended.



Photo 14 A fallen tree that has come to rest and stabilised in the river channel, creating a valuable refuge area for fish from predation. Features like this should be left in place (Medlock Flat).



Photo 15 The stone toe of the bank provides stability, but there is limited fish holding cover. Partially cutting and laying trees along the far bank margin would improve the cover here (Stoat's Tail).



Photo 16 Good juvenile trout habitat is provided by the shallow, gravel run with plentiful water crowfoot in Middle Meadow. Water crowfoot cannot thrive within slow, impounded river sections.



Photo 17 Gothard Weir has a negative impact on river habitat, impounding a reach upstream and promoting bank erosion downstream. Removal of this structure would greatly improve instream habitat and be relatively straightforward. The structure was originally installed by the club and there are no dependent abstractions upstream.



Photo 18 Downstream of Gothard Weir, the left bank erosion has stabilised following willow spiling and fencing works carried out in 2005 (see below).



Photo 19 Same area as Photo 18, with newly installed willow spiling work, 28/04/2005.



Photo 20 Impounded reach upstream of Gothard Weir



Photo 21 There is little room between the river and adjacent arable land near Gothard Weir. A buffer strip with tree planting would increase bank stability.



Photo 22 Anomalous bank erosion occurring on the inside of a bend (Lower Horseshoe). This area had willow spiling installed in 2005 (see below), but none is now evident; it is unclear why, although grazing seems most probable.



Photo 23 Same area as Photo 22, willow spiling being installed 28/04/2005



Photo 24 Same area as Photos 22 and 23, 13/07/2005.



Photo 25 The downstream end of the mill leat which starts at Sidesmill Weir. The slow flow and flat gradient of this channel makes it poor habitat for trout and grayling.

3.2 Birdsgrove Fishery – North

The section of river from Hanging Bridge upstream to the top boundary of BFFC waters was inspected. This section of river is artificial in character compared with BFFC's southern beats, the dominant influences being the impounding effect of Alrewas Weir and the straightened, walled channel. Inspection of images produced by LIDAR (Light Detection And Ranging – a technique which reveals relative ground levels at fine resolution) show the river course was more meandering here in the past, although it has been in its present course since at least 1836, the earliest map seen by the author (www.bl.uk/onlinegallery/onlineex/ordsurvdraw/a/002osd000000014u00317000.html). The effect of the straightening is the loss of the pool-riffle sequence, leading to a simplification of instream habitat: long glides with relatively uniform depth and poorly sorted river bed material. The straightening also shortens the river channel, making it steeper and more energetic and less able to retain smaller gravel sizes, reducing the availability of good quality spawning areas.

Hanging Bridge (carrying the A523 Ashbourne – Leek road) is sandwiched between two weirs, Corn Mill Weir downstream and Alrewas Weir upstream, with a mill leat running along the left bank. Alrewas Weir is a long-crested diagonal structure (Photo 26) which impounds the river upstream to approximately the confluence with the Bentley Brook, creating a wide, slow-flowing, ponded section (Photo 27). The negative aspects of weirs described above also apply here, but removal of these structures would be challenging given their proximity to the road bridge. Improving fish migration across the structures is however achievable and would improve connectivity between habitats, for example the southern beats and the spawning habitat available in the Bentley Brook (Photo 28).

Upstream of the Bentley Brook confluence, the instream habitat consists of long glides up to the Iron Bridge. The bankside habitat is good, with mature trees providing valuable cover and shade in the form of tree roots and low branches (Photo 29). The temptation to trim low hanging branches for ease of casting should be resisted, as these are the features that retain fish. Above Iron Bridge is a fan of coarse sediment (Photo 30) deposited just downstream of the right-angled bend (Birdsgrove Farm Pool); this has been transported through the straight reach above and deposited where the energy of the river lessens (wider channel, inside of bend).

Upstream of Birdsgrove Farm Pool, the channel is artificially straight and of uniform width, the banks consisting of stone walls topped by trees (Photo 31). As noted above, the straightened (steepened) channel has more energy than a natural meandering channel; during high flows it will therefore tend to transport smaller gravels through the reach and have fewer areas of slack water where fish can shelter. There is a right-angled bend at Poacher's End where the energy of the river during high water is sufficiently low to allow gravel to be deposited on the inside of the bend, forming a riffle (Photo 32). Apart from this, glide habitat dominates this section.

There are a couple of areas where the walled banks have failed, creating backwaters that connect to the main channel during higher flows (Photo 33). These provide some valuable diversity and refuge areas for smaller fish (particularly grayling fry) during floods. These areas should be retained.

Both banks of this reach are tree-lined, shading much of the channel. The trees are providing valuable cover in the margins in the form of submerged roots which will be helping to retain fish in the otherwise uniform channel. There are lots of opportunities to partially cut and lay trees into the margins here to increase cover and fish holding areas. Laid trees will also promote the retention of smaller gravel particles in the lee of the structure. It is important to note however, the tunnel effect created by the trees is a deterrent to cormorants, so it is important to retain the overall effect.

There is a low weir at Rivett's Pool which is impounding sediment upstream and impeding fish migration (Photos 34, 35). Given the artificial nature of this reach and its increased capacity for transporting coarser sediment, it may be better to just partially remove or notch this weir with the aim of reducing the impounding effect, but retaining enough flow diversity to retain smaller gravels for improved spawning opportunities.



Photo 26 Alrewas Weir, just upstream of Hanging Bridge.



Photo 27 Impounded reach upstream of Alrewas Weir.



Photo 28 Bentley Brook confluence. Improving fish passage on the main river weirs would improve access to the spawning habitat available in this tributary.



Photo 29 View downstream from Iron Bridge: a long, steady glide with good tree cover in the margins.



Photo 30 Upstream of Iron Bridge. Note the fan of coarse sediment which has been transported through the straight section upstream and deposited on the inside of the bend.



Photo 31 Upstream of Birdsgrove Farm Pool, a typical straightened, walled section of channel lined by trees. Plenty of opportunity to partially cut and lay some trees into the margins, taking care not to improve access for cormorants. Laying is recommended on the outside of the main flow for cover (not necessarily into the channel) and laying down to the bed on the inside of the main flow to improve channel morphology (retain substrate).



Photo 32 Looking downstream from Poacher's End, a rare riffle formed where gravel has been deposited on the inside of the bend.



Photo 33 Where the bankside wall has crumbled, some valuable habitat diversity is created.



Photo 34 Weir near Rivett's Pool



Photo 35 Shallow, impounded section above weir in Photo 34.

4.0 Recommendations

- The largest single issue affecting the quality of river habitat on BFFC waters is the presence of the weirs. Removal of the weirs is the best option to improve habitat. The complexity involved in removing a weir will vary with individual structures. Experience of weir removal in Dovedale (under the Letting the Dove Flow project) has produced a checklist of considerations which is reproduced in Appendix 1 (bear in mind that not everything will apply to each structure).

Early observations indicate that the small weir at Rivett's Pool and Gothard Weir would be the most straightforward to remove (noting the comments above about partial removal of the former). These projects are within the capabilities of the club with the support of WTT and it is recommended that these are taken forward. The experience gained could then be used in future to address the larger structures, with the help of suitable partner organisations.

- Management of the riparian habitat to create as wide a buffer as possible between adjacent land use and the river is recommended. Creating new areas of riverside trees and protecting existing stands promotes bank stability, cover, shade and protection from fish-eating birds. Fencing out livestock, balsam control and maintaining access all need to be considered in relation to this.
- Leave fallen trees in the river to find their own stable position. Create access around these valuable habitat structures, rather than removing them to maintain existing access.
- Retain overhanging branches. Resist the temptation to "side up" trees for easy casting, as this removes the very feature that is holding the fish. Low, overhanging cover is often the only fish-holding feature in uniform long glides.
- Coppice sickly alders. Alders displaying the characteristic signs of *Phytophthora* disease (e.g. Photo 7) should be coppiced to retain the root ball within the bank and promote re-growth from the base (which should be protected from grazing).

- Introduce cover to the river by partially cutting and laying suitable trees into the margins (in the manner of hedge laying), or by felling and cabling larger trees to their stumps ("tree kickers"). Ensure that this is not denuding the river bank of tree cover and easing access for fish-eating birds (Photos 36 – 38).



Photo 36 Willow limbs laid into a river margin to provide cover and in-channel structure.



Photo 37 A tree kicker installed on the Afon Ceiriog, Wales, provides a good refuge area for fish from predatory birds..



Photo 38 An example of finer sediment deposition in the lee of a tree kicker with channel deepening beyond.

5.0 Making it Happen

Further assistance is available from the Wild Trout Trust to develop a specific project proposal, incorporating the necessary plans and documentation to obtain the relevant permissions to undertake a project, for example the recommended weir removals.

The WTT could also help with a Practical Visit (PV) to demonstrate tree laying and installation of tree kickers . PV's typically comprise a visit where WTT Conservation Officers will complete a demonstration plot on the site to be restored. This enables recipients to obtain on the ground training regarding the appropriate use of conservation techniques and materials, including Health & Safety, equipment and requirements. This will then give projects the strongest possible start leading to successful completion of aims and objectives.

Recipients will be expected to cover travel and accommodation (if required) expenses of the WTT attendees.

We have 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 stocks and managing invasive species.

The DVD is available to buy for £10.00 from our website shop www.wildtrout.org/product/rivers-working-wild-trout-dvd-0 or by calling the WTT office on 02392 570985.

The WTT website library has a wide range of materials in video and PDF format on habitat management and improvement www.wildtrout.org/content/library .

6.0 Acknowledgement

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programme in England, through a partnership funded using rod licence income.

7.0 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.

Appendix

Check list produced for Letting the Dove Flow project in Dovedale. Note not all considerations will be relevant to BFFC waters (for example, those relating to the SSSI).



“Letting the Dove Flow” Weir Management Proposals

Project Assessment Sheet for the river Dove SSSI

This Assessment Sheet has been compiled by the Trent Rivers Trust in partnership with Natural England, the Environment Agency and the National Trust, as part of the River Dove Restoration Strategy “Letting the Dove Flow” project. The key purposes of this Project Assessment Sheet are:

- ✓ To help you to know who you need to talk to
- ✓ To form an initial assessment of the risks and benefits of removing any particular weir
- ✓ To collate information that you will need in order to get relevant consents (which in turn will require submission of consent application forms to the relevant statutory authorities)

Links are provided to help you to find the relevant information, although where possible this has been completed for the river Dove. They were correct at the time of writing.

PART A

This serves as a checklist to help you gather the information necessary for obtaining any permissions or consents, and a reminder as to who you might need to talk to before starting work

1. Basic Information for proposals within the Dove Valley and Biggin Dale SSSI

River/stream	Dove	WFD Water Body no. and name environment.data.gov.uk/catchment-planning/ManagementCatchment/21	GB104028057780
River Reach number - refer to “Letting the Dove Flow”, at JP013 - River Dove Restoration Plan			
Weir name / ref number (see relevant river reach map)			

Your name		National Grid ref (6 digits)	
Your email		Nearest gauging station http://apps.environment-agency.gov.uk/river-and-sea-levels/120751.aspx	Site name: Izaak Walton Site id: 2119
Your phone			
Your organisation and role			

2. Ownership, Rights and Responsibilities (who to talk to)

It is important to make sure that anyone else who has a legal interest in the river or its structures is approached for their views, or permission (where appropriate).

	Name of other owner or party with responsible or legal interest (eg fishery, land manager)	Discussed? (Y/N)	Their view
Weir structure			
Left bank*			
Right bank *			
Downstream (how far)			
Upstream (how far)			
Fishing Rights: Left bank			

	Name of other owner or party with responsible or legal interest (eg fishery, land manager)	Discussed? (Y/N)	Their view
Fishing Rights: Right bank			
Access – can you get the access you will need to carry out the proposed work?			

* By convention, left and right bank are when looking downstream

3. Statutory considerations (preparing for consent applications)

It is important to remember that all necessary consents must be in place before any work begins on the ground.

	Name/notes	Organisation to contact	Done (Y/N)	Comments or further actions needed
Protected area eg SSSI, SAC. www.magic.gov.uk	Dove Valley and Biggin Dale SSSI	Natural England		
	Peak District Dales SAC	Natural England		
Protected structure www.magic.gov.uk		Peak District National Park Authority		

	Name/notes	Organisation to contact	Done (Y/N)	Comments or further actions needed
		Historic England		
Planning Authority Area	Peak District National Park	Peak District National Park Authority		
Flood Defence (EA) or Ordinary Watercourse (Local Flood Authority) Consent	The SSSI sections of the Dove are not Main River, therefore Local Flood Authority must be contacted for Ordinary Watercourse Consent	Derbyshire County Council Staffordshire County Council		
Abstraction licences?		Ask the Environment Agency for their views		

PART B

The following sections will help you plan the work in the context of your river reach, and will provide a guide as to how best to consider the likely impacts of the work upon wider river habitat features as well as other users.

4. River corridor features (understanding the local context)

Thinking about if and how nearby features within the river corridor up or downstream could be affected by the changes to the river which will result from any weir removal or modification is an important part of the planning process.

Please provide a sketch in the box below, or append an electronic or printed map or aerial photograph, of the weir(s) which are proposed for works together with other features or structures in the vicinity which could be affected, highlighting:

- The weir which is the subject of this proposal
- neighbouring weirs
- buildings
- roads or footpaths
- pipes and utilities (if known)
- any other features which could be affected by the weir removal
- surrounding land use eg farmland, housing etc.
- relevant boundaries for land ownership and fishing rights.

Please label your map to highlight the features above.

5. Consideration of benefits, impacts, consequences for the river channel

Removing a weir will have both positive and negative impacts on different attributes. Sometimes there are negative short term impacts and positive long term ones. Features of the weirs and their local context which need to be considered in evaluating likely impacts of weir removal include the following:

- channel width at the weir (taken from weir inventory data)
- channel width at representative places upstream u/sW and downstream d/sW
- direction of flow
- bank materials, including any reinforcements
- current condition of the weir and adjacent banks (ie well maintained, or beginning to break down)
- signs of erosion or deposition
- the length of the impoundment behind the weir
- amount/type of sediment behind weir
- associated features such as woody material, scour pools, in channel habitats etc.

Are there opportunities to create more benefits through your work? This could be an opportunity to bring in more funding for your work.

There is considerable research about weir removal. Here is a Conceptual model to show positive and negative impacts of weir removal www.wiser.eu/results/conceptual-models . It also has models for buffer strips and for other in-channel activities such as adding large woody material.

You can search the River Wiki for case studies https://restorerivers.eu/wiki/index.php?title=Main_Page and are encouraged to add your projects to it. Also the Caba website has much useful information www.catchmentbasedapproach.org

Please use the table below to consider these impacts, based upon the information already available in the weir inventory as well as your own consideration of the specifics of your own project and its location.

Attribute	Impact				Notes
	Positive	Negative	Neutral	Unknown	
Heritage					
Fish					
Other wildlife					
Protected species					
Spawning gravel					
Flow					
Farming					
Movement of sediment – erosion and deposition					
Fine sediment					
Coarse sediment					
Flooding					
Public amenity					

Landscape					
-----------	--	--	--	--	--

6. Monitoring

What are your main aims? You need to spell these out clearly before deciding how you will know if you have achieved them. Think about monitoring well before you start to carry out your project, so you have time to do a 'before and after' comparison. Rivers take time to adjust to changes and it is usually useful to continue to monitor for 10 years or more.

The River Restoration Centre has produced very useful detailed guidance explaining various techniques and their application <http://www.therrc.co.uk/guidance> . There is also a shorter form produced for the Catchment Partnership Action Fund.

Sources of existing data:

The Dove has been researched extensively and you may be able to use some of the following data:

- Everall (2009). NECR046 contains Spring and Autumn ecological data for some 30 sites on the River Dove. Consult Dr Nick Everall at Aquascience Consultancy who is a member of the River Dove Catchment Partnership.
- EA long term GQA Biodata Shed (1989-2015) at Dovedale, Milldale, Beresford Dale, Spink and Glutton Bridge
- EA routine fishery survey data – available from EA
- Aerial photography – available through EA or publicly available
- The Temperature Network <http://www.mattjohnson.org.uk/research/temperature> Contact Dr Matt Johnson at Nottingham University who is a member of the RDCP.

7. Carrying out the work

How would you carry out the work?

The CDM or Construction (Design and Management Regulations, 2007) probably apply.

How would you gain access for any machinery?

Are there materials you would need to dispose of? Will you need a waste licence?

How would you manage the negative impacts?

Some things you may need to spend time/money on are:

- Baseline surveys so you can monitor 'before and after'
- Assessments and feasibility studies (especially if it is a big or complex structure)
- Consents – Landowner negotiations, Flood Defence Consent, Planning permission etc.
- CDM from design stage onwards
- Contractors or volunteers (if a small structure)
- Supervising the project
- Ongoing monitoring
- Contingency – any of the above could cost more or take longer than planned.

8. Conclusion

By working through this form you have consulted several people and gathered a large amount of very useful information to help you to implement your project smoothly. You will have started to analyse the impacts of your proposal and to plan how it can be monitored and carried out. This can be a complicated process. As well as talking to organisations who will need to give consents, you can talk to others on the Dove Catchment Partnership and contact Trent Rivers Trust on projects@trentriverstrust.org for further discussion.