



Habitat Advisory visit to the River Ounavarra, Co.  
Wexford, Eire.

Undertaken on behalf of the Ounavarra Angling  
Association (OAA) by Vaughan Lewis, Windrush AEC  
Ltd  
May 2013

## **1.0 Introduction**

This report forms the output of a site visit to the River Ounavarra, near Gorey, Co. Wexford on 30 May 2013 on behalf of the Ounavarra Angling Association (OAA). Information in the report is based on observations on the day of the visit and additional comments provided by club members.

The club is in the process of negotiating fishing rights on more than 5km of the River Ounavarra near to the town of Gorey. The club has some 40-50 members.

Throughout the report, normal convention is followed, with right bank (RB) and left bank (LB) of the river identified when looking downstream.

## **2.0 Habitat assessment**

The Ounavarra runs over a predominantly sandstone catchment. The river was heavily dredged in the 1960's with evidence of excavated material still clearly visible on the banks. Land use in the river valley is dominated by agriculture, particularly dairy and cattle farming, with most of the surrounding fields down to permanent pasture or grass leys.

The Ounavarra is largely a spate river. The spring of 2013 has been very dry in the south east of Ireland, with river levels very low on the day of the advisory visit. All comments made in the report should therefore be viewed against this background.

The upper reach of the fishery was moderately incised as a result of past dredging. It had a moderately well-developed riffle and (generally shallow) pool sequence, with some sections of good gravel and an associated growth of water crowfoot (Figure 1).

Further downstream, sections of the river were over-wide and over-deep as a result of dredging and the presence of a gauge weir (Figure 2). Flows are measured here regularly by the Office of Public Works. During an exceptional spate in the recent past, the hut adjoining the gauge weir was close to being submerged indicating how peaky the river flows can be.



**Figure 1**  
**Riffle and shallow pool/deep glide habitat. Note stands of water crowfoot present**



**Figure 2**  
**Over-wide section of channel upstream of OPW gauge weir**

The extent of the past dredging could be gauged by the presence of large banks of spoil arranged along the LB of the river. Visual observation showed the high percentage of hard bed material (gravel, cobble and boulder) present within these piles (Figure 3).

In an effort to compensate for the damage caused by the dredging, the club had previously installed a series of small deflectors/weirs with associated gravel riffles/rubble ramps. These had affected the local habitat in a variety of ways. The most successful structures were those that had tended to concentrate flow onto the gravel, causing downstream scour, without impounding the upstream water level(Figure 4).

Those that had caused impoundment were less successful, with some loss of upstream habitat quality.



**Figure 3.**  
**Ounavarra Angling Association members. They provide a scale to the large bank of dredged spoil deposited behind them**

Most of the pasture land adjoining the river is well-fenced, with only two small sections of excess erosion due to stock access identified in the reach. These were at the location of poorly constructed cattle drinking areas. Less positively was the drainage of the surrounding fields in progress during the advisory visit. The loss of infiltration will lead to an increase in spate peaks and a reduction in infiltration of water, leading to lower flows during dry periods.



**Figure 4**  
**Effective use of boulder and gravel to constrain flow and create scour without upstream impoundment**



**Figure 5**  
**Drainage taking place in the RB fields**



**Figure 7**  
**Small area of erosion due to poorly designed cattle drinker**

The upper section of the reach was moderately well shaded by riparian trees. There were also significant sections of Large Woody Debris (LWD) in the channel providing excellent cover for all life stages of fish. Further downstream, the river ran between an area of mixed woodland, which cast heavy shade over much of the river.

Partly as a consequence of the over-shading, the downstream section of the river was very over-wide and shallow, especially through well-named 'Flats' area, where there was little variation in depth and little instream or marginal cover.



**Figure 8**  
**Heavily shaded lower section of the river**



**Figure 9**  
**The Flats**

The very lowest section of the river was affected by the backwater effect of a larger impoundment created to feed water into a timber mill. Despite this, habitat quality

above the impoundment was moderate due to the presence of a large number of large boulders that created local pockets of faster water velocity. Downstream of the impoundment was a section of faster, gravel and cobble dominated water suitable for all salmonid lifestages.

#### **4.0 Fish stocks**

The River Ounavarra was badly polluted by a spillage of molasses in 2004, resulting in an almost total kill of fish over a length of some 10km. The loss of fish prompted OAA to stock with fingerling trout in all years up to 2007, when introductions were ceased. No stocking has taken place since this date.

The river contains moderate to good stocks of brown trout. The number of fish present is believed to have declined, although there has been a strong run of sea trout recorded, perhaps suggesting something of a move towards a migratory lifestyle by the resident trout.

Inland Fisheries Ireland (IFI) surveyed the Ounavarra catchment and found that the majority of salmonid recruitment took place in small tributary stream, the Banogue.

In addition to the brown and sea trout, the river has a small run of Atlantic salmon with IFI currently permitting fishing for the species on a catch and release basis. Other species in the river include minnow and eel. Although any rod can kill up to 3 brown/sea trout in excess of 25 cm per day, the club strongly encourages a policy of catch and release which is adhered to by most members. Poaching was a significant problem on the river but this has been gradually reduced.

#### **5.0 Water quality**

The river had good hatches of mixed olive and caddis species, indicating moderate to good water quality. There was some evidence of enrichment with diatomaceous/benthic algal growth present on the bed.



**Figure 10**  
**Catch and release only for salmon**

## **6.0 Recommendations**

Habitat quality in the River Ounavarra was generally good, with some sections of excellent habitat for all lifestages of brown trout and salmon, there were some sections of rather featureless water only offering moderate habitat. A number of simple recommendations are made below that if adopted should help to improve the instream habitat quality for brown trout:

- Fencing should be maintained to exclude stock from the river banks. The maximum width possible (ideally in excess of 5m) should be isolated from the cattle, forming an un-grazed buffer strip of coarse vegetation that will reduce run-off of sediment from surrounding land, and allow the growth of fringing vegetation, valuable for the protection of juvenile fish. Where fencing is presently located very close to the bank top, it should ideally be moved back to create a wider buffer strip, helping to reduce bank erosion. There were two short sections where cattle had access directly to the river bank. Erosion of the bank was very evident at these locations. The construction of suitably designed cattle drink areas would reduce the input of sediment considerably and allow the banks to regenerate naturally



**Well-designed cattle drinking areas prevent damage to river banks and reduce silt input to the river**

- Large Woody Debris introduced to the channel is an excellent way of not only providing additional cover, but also of increasing bed scour, creating deeper pools and helping to sort the substrate. This is important as it will create short sections of silt free gravel at the tail of pools that is ideal for trout and salmon spawning. Ideally, LWD can be introduced by the partial cutting and hinging of bankside trees into the water. This has the advantage of maintaining a secure fixing to the bank and also keeping the hinged trunk alive. The LWD can be further secured using either wooden stakes driven into the bed and wired to the trunk, or by drilling the trunk and driving rebar through it into the riverbed (beware hidden utility service cables and pipes)



**Hinged timber .....**



.... And additional fixing using stakes and wire

- Simple mid-stream deflectors can also be constructed using paired upstream facing timber limbs fixed in places with stakes or rebar. Arranged in this pattern, the LWD concentrates flow into the centre of the channel, scouring a small pool and downstream spawning riffle.



**Paired LWD limbs used to create a 'v' shaped deflector. Note rebar and steel washer fixing**

- Wherever LWD is used, increased fixing security can be obtained by the use of a cable laid wire 'break away' passed through a pre-drilled hole in the timber and attached to the root bole of a tree or a buried ground anchor. In the event of a failure of the fixings, the cable prevents the LWD being washed away
- Brushwood bundles can usefully be introduced along the margins of the channel, creating excellent refuge areas for fry. The bundles should be around

2-3m long and can be fixed with wire or twine to well-driven un-treated wooden stakes. Bundles can be used to narrow the channel by fixing them parallel to the bank in overwide sections of the river. They will gather sediment around them, allowing the bankline to extend further into the channel

- Subject to a suitable assessment of the flood risk, the stone previously dredged from the river and now stored on the LB, could be re-introduced to create series of pinch points, deflectors and rubble mats/riffles along the length of the fishery. By careful design, flow rates can be increased locally, without an associated large rise in water level. This would be of particular benefit in the Flats area where instream habitat was very uniform. Increasing the amount of gravel and stone in the river will provide more habitat for spawning and juvenile trout and salmon. The ideal size for trout spawning gravel is between 10mm-40mm diameter (optimum 20mm), with salmon and sea trout preferring larger gravel and cobbles up to the size of a small apple. There will also be a small but beneficial improvement in water quality caused by increased oxygenation of the water
- Cleaning sediment from gravel riffle areas prior to the spawning season can be beneficial. Not only does this maintenance reduce the silt burden within the gravel, it can also loosen concreted sections of the bed, making it easier for fish to excavate redds and deposit their eggs. Cleaning can be carried out manually using a fork, or mechanically with a high volume water pump, leaf blower and even the bucket of tracked excavator (take great care not to damage the bed structure). Whichever method is selected, work in a downstream direction during September or early October, and only clear relatively small sections of riffle at a time (the technique is temporarily damaging to invertebrate life)



**Cleaning spawning gravel using a mechanical leaf blower.....**



**..... and a water pump**

- Whilst the previously installed boulder weirs/deflectors and rubble mats are generally working well, improvement could be made to those that are impounding water level upstream. Careful re-arrangement of the central boulders should take place to ensure that the structures constrain flow and increase downstream water velocity, but do not raised upstream water levels.

Care should be taken to direct flow into the centre of the channel, reducing the erosion risk to the banks. These simple changes have the potential to improve more than a hundred metres of habitat long the length of the fishery



**Boulder deflector ‘pinch points’ with rubble mats installed by IFI on the River Robe**



**A ‘D’ shaped deflector in a small limestone stream**

- A mix of native deciduous trees should be planted along the more open sections of the reach to increase shading of the channel as they grow. There are increasing concerns that average water temperature is rising in small streams in the face of climate change, with maximum temperatures attained near to lethal levels for salmonids. Towards the bottom of the reach, sections of the channel were rather heavily shaded. Some coppicing and pollarding could be undertaken to reduce shading. Felling would also produce timber that could be utilised elsewhere as LWD in the channel
- It is important to develop a robust set of data regarding the invertebrate populations in the River Robe and hence its water quality. A system known as Small Stream Risk Score (SSRS) is used in Ireland to monitor water quality of rivers by monitoring macroinvertebrates. A training manual for SSRS can be found at [http://www.westernrbd.ie/PDF/SSRS-Training-manual\\_11\\_01\\_06.pdf](http://www.westernrbd.ie/PDF/SSRS-Training-manual_11_01_06.pdf). A perhaps simpler and more angler friendly alternative for members of the fishing club who are interested in the water quality and fly life of the river, would be to contact the Riverfly Partnership <http://www.riverflies.org/> who are able to provide information on monitoring invertebrate populations in rivers. If there are one or two enthusiastic volunteers in the co-operative, it would be worth contacting the partnership for further advice and information. It is possible that the Riverfly Partnership may be able to assist co-operative members to become familiar with the requirements of SSRS
- Members of the club expressed an interest in the introduction of mayfly to the river. This is a slightly controversial topic, with views polarised as to its effectiveness and biological correctness. It is likely that such an introduction could be carried out successfully using eggs 'milked' from female mayfly and deposited onto glass slides. This is not a simple process and members should be under no illusions of the commitment required for a successful project. There are also concerns relating to the introduction of a new species to an area in which it did not previously occur. Evidence will need to be produced showing that mayfly were originally present in the river before any organisation will even consider a re-introduction programme. Details of the 'Mayfly in the Classroom' project for schools can be found at [http://www.wildtrout.org/sites/default/files/projects/teachers\\_introduction\\_to\\_mayfly\\_in\\_the\\_classroom.pdf](http://www.wildtrout.org/sites/default/files/projects/teachers_introduction_to_mayfly_in_the_classroom.pdf)



### **Riverfly monitoring undertaken by anglers**

- LWD provides excellent habitat for riverflies to deposit eggs on. Further habitat for egg laying flies can be provided by using fly boards. These are simply pieces of wood cut into a rough boat shape that are attached by a rope to a tree or other fixed point and then floated on the water. Flies land on them, crawl underneath and deposit eggs that are then safe from most predators. A few of these dotted about on the river would make valuable additional nursery sites for river fly eggs
- The club's policy of no stocking and the promotion of catch and release for all fish is very sound and should be continued
- It is vital that any works planned are done in conjunction with both the Inland Fisheries Ireland (IFI) and the local council. The Wild Trout Trust may be able provide a number of ways of helping club with their fund raising for projects. These include the 'Rods for Conservation' scheme where a top quality rod could be provided at cost to the River Robe Angling Club. This can then be raffled to raise funds. Advisory visit bursaries may also be available from the Trust up to a value of £1,500 (or Euro equivalent); these are aimed at helping clubs secure matched funding for project work. For more information contact Ben Tyser [projects@wildtrout.org](mailto:projects@wildtrout.org)
- Further guidance on all the habitat improvement techniques mentioned in the document can be found in the Wild Trout Trust habitat manuals which are available on the website [www.wildtrout.org](http://www.wildtrout.org) under the Library tab
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