



**HABITAT ADVISORY VISIT, TEISE
ANGLERS' AND OWNERS
ASSOCIATION, RIVER TEISE,
KENT.**

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1.0 Introduction

This report is the output of a site visit undertaken by Vaughan Lewis, Windrush AEC to the Teise Anglers' and Owners' Association (TAOA) water on the River Teise, Kent. The club has some 100 members who fish along approximately 11km of the river.

The River Teise is a tributary of the River Medway. It rises near Royal Tunbridge Wells, and flows in an easterly/north easterly direction before splitting into two arms above Sheephurst Bridge (TQ725418). The easterly arm joins the River Beult (TQ5482) and subsequently the River Medway (TQ3683), whilst the more westerly arm flows directly into the Medway near Congelow (TQ683491).

The geology of the catchment is dominated by sandstone and clay, with overlying alluvial gravel.

Surface water run-off forms a large component of river flow, although water discharged from Bewl Water reservoir has become more important to flows in recent years. This water enters the Teise from the River Bewl near Little Scotney Farm (TQ 698368). Agricultural drainage work has reduced the attenuation of run-off from farm land within the catchment, increasing the 'flashiness' of the River Teise.

Comments in the report are based on observations on the day of the site visit and discussions with the club's officers. Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left Hand Bank (LHB) or Right Hand Bank (RHB) whilst looking downstream.

2.0 Habitat Assessment

General:

There are two major factors influencing habitat quality and availability in the River Teise. Of primary concern is the extensive modification of the River Teise, particularly during the last 60 years, largely as a result of agricultural drainage activity. As a result, the channel is heavily incised, being more than 4m from water surface to effective bank top in some locations. As a result of this dredging, there is a paucity of gravel/stone bedded riffles, vital for recruitment of brown trout, grayling and rheophilic fish species such as chub and dace. The incised nature of the channel has also resulted in exposed sheer sandstone banks in places. This has inevitably resulted in significant erosion at these locations. Where tree shading is not excessive, some of the fallen bank material has been colonised by marginal aquatic plants, resulting in stable, low level shelves.



Erosion in the heavily incised channel

An additional problem resulting from the drainage activity, is that effective hydrological connectivity between the river and its flood plain is now low, with the river apparently only coming out of banks during extreme flow events. As a result, the natural geomorphological processes of the river have been compromised.

In addition to the damage caused by agricultural drainage, the impact of water discharged from Bewl Water is very significant. Bewl Water has been used as a

pump store reservoir facility for potable supply since its construction, with the River Teise utilised as a conduit for water. However, the construction of larger diameter pipeline some 5-10 years ago has resulted in a change of policy. Water from Bewl is now discharged along the River Teise and abstracted from the River Medway. A minimum acceptable flow is believed to form part of the operating agreement. However, the actual flow along the Teise can vary by (an estimated) 8 fold during a 24 hour period. The released water can increase turbidity in the river. A combination of the periodic high flow and increased turbidity can make wading dangerous in the river.

Land use adjacent to the River Teise is mainly arable, with a mix of arable fields and grass ley/permanent pasture. Previously, much of the land was cultivated for hop growing. There is a belief in the club that the significant decline in hop growing has reduced the run-off of sediment and pesticides to the benefit of the river's macroinvertebrate population. The absence of seasonal workers employed in hop picking has also lead to a reduction in poaching of trout from the river.

At some locations, substantial wooded buffer strips of >10m are present, whilst at other locations, virtually no buffer exists between the river and the cultivated land. The invasive and toxic Giant Hogweed *Heracleum mantegazzianum* is present along the river's margin throughout the length of the club's fishery. The wooded fringe to the river creates heavy shade in the channel in places.

The river has virtually no instream weed, possibly due to a combination of shading, the mobile nature of the bed and the very variable summer flow regime. As a result of this and a general paucity of large woody debris (LWD) in the channel, cover for fish is restricted to deeper pools, undercut banks and tree roots.

Specific locations:

Above Small Bridge, the river is not stocked, managed or heavily fished by members. It thus forms something of a sanctuary area for wild brown trout.

The river here is very heavily incised with significant shading in places. Short lengths of riffle habitat are present where outcrops of harder sandstone remain. A number of small stable point bars have formed on the inside of meanders. A few stands of unbranched bur-reed *Sparganium emersum* are present. The remainder of the channel is rather barren, with no other instream weed and little cover from woody debris.



Vegetated point bar

A long line of *Leylandii* are present towards the upper end of this reach. These trees totally shade the channel and banks, leaving virtually no riparian growth. As a consequence, there is a significant amount of erosion beneath the trees. It seems likely that this erosion will result in the trees falling into the river in the next few years, with a significant reduction in local shade.

The Old Horsmonden Stream enters the river on the LHB (TQ708378). This is a heavily incised, totally shaded stream, with a good gradient. The bed of the stream has areas of gravel that could be used by trout for spawning. Some 400m upstream of the confluence, the stream passes through 2 culvert pipes with a fall of some 1.0m. This effectively stops upstream migration of fish, but does provide a potential site for the installation of deep substrate incubation box.

A second small tributary stream with a good gradient and more open aspect enters from the RHB of the Teise near the upstream end of the reach. This appears to offer some opportunities for brown trout recruitment.

A small tributary stream enters the river (TQ725408) on the RHB at Harper's Farm. The stream is less incised than the Horsmonden Stream, but is again heavily shaded by riparian tree growth. The channel has a reasonably developed pool and riffle sequence, with moderate amounts of gravel substrate present. Large stands of the very poisonous hemlock water dropwort *Oenanthe crocata* are present along the bank. The recent loss of a tree has broken down an old impoundment, leaving a natural flume with a fall of $>0.75\text{m}$ that could be used to run a deep substrate incubation box.

Sea trout have been seen in this stream in October/November and are presumed to have attempted to spawn here.

The river adjacent to Sheephurst Bridge was heavily dredged by the Environment Agency approximately 5 years ago. This work removed many valuable habitat features from the river and reduced cover for adult fish significantly. The angling club were not contacted regarding this work or the more recent bank regrading undertaken at Harper's Farm by the Agency. Agricultural practice is poor adjacent to the river at Sheephurst Bridge, with arable crops planted right up to the river margins and no buffer strips provided.

The Rams Hill Stream enters the LHB of the river (TQ724429) at Jenner's (above Gaffords Bridge). The Stream is heavily incised, some 2-3m wide, with an average depth of 1m+. It has a good gradient, a meandering plan form and short areas of hard substrate along its length. It is heavily shaded over most of its length.

3.0 Fish stocks

The club presently stocks an annual total of 3,500 brown trout and rainbow trout up to a weight of 1 kg into the central section of its fishery, a length of some 6km. Fish are introduced regularly throughout the trout fishing season.

No recent survey has been carried out of the river's fish stocks. However, it is known that numbers of wild brown trout are present, along with chub, dace, roach and grayling. The latter species has been introduced on a number of occasions during the past 15 years. As a result, a self supporting stock of grayling has become established. In addition, a small but apparently increasing number of sea trout has been seen and caught in the Teise. A 4.5kg fish was recently found dead in a tributary stream. The planned construction of fish passes around obstructions in the Medway may increase numbers of migratory trout entering the Teise.

The river has historically been electro fished in order to remove coarse fish, including pike. This practice ceased some 4 years ago and a small but thriving winter coarse fishery established on some sections of the club's water.

4.0 Discussions and Recommendations

- A key objective for the club must be to re-establish a good working relationship with the Environment Agency. It is clear that there is currently no consultation regarding flood defence maintenance operations in the river. This is unacceptable as it prejudices not only the long term quality of riverine habitat but also the chances of success of any habitat enhancement schemes undertaken. Details of all proposed flood defence work to be undertaken on the club's waters should be obtained from the EA at least 6 months in advance of any such work and discussions held to minimise the impact of these works on the fishery. In addition, written agreement should be obtained to protect agreed and consented enhancements from future work.
- The club appears to have little data on its fishery. As a minimum, details of the following should be obtained from the EA:

- Results of electrofishing surveys. If contemporaneous data are not available, a survey should be undertaken either by the EA or by a fisheries contractor
- Results of macroinvertebrate monitoring
- Water quality data for the river
- A copy of the operating agreement for the discharge from Bewl Water. This should include details of legally binding discharge volumes along with the agreed periodicity of such discharges. The present ‘hydro peaking’ (i.e. variable discharge over a short time) of the Bewl water discharge is damaging to the ecological value of the River Teise. The lack of stability inherent in such a regime results in well documented damage to a range of species and their habitat. This issue should be addressed as a matter of urgency with the EA.

- Some of the issues raised in this report will require high level input to the EA in order to progress them. It is therefore recommended that contact is made with the local fisheries consultative or the local representative on the EA’s REFERAC committee that represents angling interests at a regional level.

- With regard to the management of physical habitat in the river, a number of issues need to be addressed:

- The incised nature of the river has a controlling influence on habitat quality. Shading is increased, whilst the reduction in out of bank flows damages both the ecology of the floodplain and also increases bed/bank erosion within the river channel. This issue cannot be addressed by the club alone. A major partnership project would be required that not only tackled the issue of bed raising but examined changes to floodplain ecology, and opportunities for alleviation of peak flows in vulnerable flood locations in the Medway. It is inevitable that such a project would require the input and support of both DEFRA and the EA.

- Long lengths of the main river and the tributary streams are overshadowed. It would be of great benefit if a regime of rotational coppicing/pollarding could be established alongside the Teise. The aim of this should be to decrease shading, allowing the growth of vegetation on the banks, whilst retaining valuable tree root systems. Arisings from the tree cutting could be utilised to create faggot bundles that could be used to protect eroding sections of the riverbank or for the creation of stick pile otter holts. Details of the use of faggots are provided in the Wild Trout Trust’s (WTT) Guide to Improving Trout Streams provided to the club.

- Where possible Large Woody Debris (LWD) should be retained in the channel. Large woody debris (LWD) is an integral component of stream ecology. The benefits for retaining it are clearly laid out in the recent EA R&D document, “Large Woody Debris in British Headwater Rivers”. Key conclusions of the report include:

- ❖ An increase in both mean flow depth and velocity and variability of both parameters.
- ❖ The development of high physical habitat diversity both in-channel and in the floodplain. Removal of LWD reduces both habitat quality and availability for juvenile and adult brown trout.
- ❖ Although active LWD dams may impair upstream migration of fish at low flows, they rarely do so at high flows.

- ❖ LWD have significant benefits to the control of run-off at the catchment scale.
- ❖ River and riparian management has important effects on the distribution and character of dead wood accumulation within the river system.

The report also provides recommendations for the management of LWD, the most important of which is “although there are certain situations that may require wood removal to eliminate stream blockage, the wisest management is no management”. Building on this simple truism, it is recommended that before any future work to remove LWD from river channels is undertaken, the wider implications of the proposal on the whole river system are considered, rather than just the potential (in many cases unproven) benefits to salmonid populations. In addition, the impact of planned riparian tree work on the supply of LWD to the river should be considered. In some circumstances, it may be beneficial to allow trees to fall into the channel, provided the risk of increased flooding is acceptable. The implications of this change in management strategy should be discussed and agreed with the EA’s Flood Defence team in order to minimise risks to local flooding.

- The creation of low level marginal shelves using fallen timber and/or faggot bundles can be used to both increase valuable vegetation cover and also to protect the toe of the river bank from erosion.
- In order to increase the availability of spawning gravel, riffles can be constructed from imported gravel and stone. This is a very effective but relatively expensive operation. Typically, a 15m riffle would cost in the region of £1,500 to construct. Work of this nature requires significant planning and should not be entertained without further detailed advice.
- The success of brown trout egg hatching can be enhanced by establishing a regime of cleaning spawning gravels each September. This can be achieved by either manual raking, or by the use of high-pressure water jets. Care must be taken to clean riffles rotationally, with only short sections being treated annually. It is important that the EA are contacted prior to any cleaning of gravel, due to the possible discoloration of water in the river resulting from the operation. The same concerns dictate that downstream neighbours should also be forewarned of the operation.
- The abundance of giant hogweed is an issue that should be addressed on a catchment wide basis with the EA. Treatment can be undertaken in a co-ordinated manner by qualified operators utilising glyphosate herbicide with consent from the Agency.
- Buffer strips should be created along both banks of all the fishery and tributary streams. These should be a minimum of 5m wide, extending to >10m if agricultural considerations permit and should be included as part of an agri-environment scheme (e.g. Countryside Stewardship). The advice of the Farming and Wildlife Advisory Group (FWAG) for Kent should be sought in order to assess agri-environmental options currently available.
- Prior to the preparation of any detailed habitat enhancement plans, it is recommended that they are discussed in principle with the EA, particularly the fisheries, development control and flood defence departments. This will ensure that

any 'show stoppers' are identified at an early stage. It is then recommended that a small scale project probably on either the Ramshill Stream or Harper's Stream should be undertaken. Suitable before and after monitoring of key measures (e.g. fish stocks, macroinvertebrates) should be undertaken as part of any such scheme in order to assess its efficacy.

- With respect to fish stock management, the 100 members of the club place such a recreational angling pressure on the river that it is inevitable that stocking will need to continue. Notwithstanding this, the club can adopt some principles that will enhance stocks of wild brown trout and may allow a reduction in stocking over time:

- Adoption of a policy of catch and release for all fish <12" will provide a level of protection for wild trout. A log book system for angler catches should be implemented, particularly with respect to wild fish caught

- Coppicing and provision of spawning gravel in the tributary streams will increase the probability of successful natural recruitment. It will also promote the development of a self-sustaining run of sea trout

- Another potential source of semi-natural fish would be the use of a deep substrate incubation box. Basically, these are gravel filled boxes, approximately 0.6m in each dimension, that are filled with suitably sized gravel and seeded with 10,000 - 20,000 trout eggs. A water feed at the bottom of the box allows the eggs to incubate and hatch. Once they reach the swim-up fry stage, they leave the box via the overspill pipes, stocking themselves into the river. In effect, they are naturally reared fish without the unhelpful behavioural modifications associated with hatcheries. Such a system could be established on the Horsmonden Stream, using the fall created by the culvert pipe and on the Harper's stream using the fall created by the natural 'flume'. More details on incubation boxes can be found on the Wild Trout Trust web site www.wildtrout.org or in Volume 2 of the Trust's magazine, *Salmo trutta*.

- No removal of coarse fish from the river should be sanctioned in the future. There is no clear evidence of benefits to trout fisheries from such operations. Coarse fish stocks can be exploited sustainably by the further development of the winter rod and line fishery generating valuable additional income for the club.

- All instances of pollution including, discoloured water, should be reported to the EA via the Freephone hotline 0800807060. This number should be printed on membership cards.