

**The Eridge Stream**

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A river running through a body of water

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**Project Proposal February 2020**

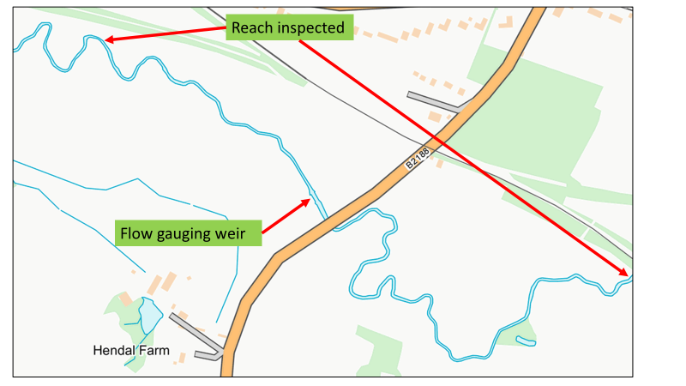
1. **Introduction**

This report is the output of a site visit undertaken by Andy Thomas ([athomas@wildtrout.org](mailto:athomas@wildtrout.org), tel. 07876 525499) of the Wild Trout Trust to a reach of the Eridge Stream, near Groombridge on the East Sussex / Kent borders.

The report covers a 1.0km stretch of the Eridge Stream, which is a major tributary of the River Medway. The request for the visit came from Andrew Brough, Fisheries Technical Officer with the Environment Agency (EA). Currently the stream is failing to meet Water Framework Directive (WFD) targets (table 1). The stream meets good chemical status but a combination of land use issues and in-channel structures are restricting fish communities from reaching their full potential.

The EA is keen to identify local bottlenecks in habitat quality, with a view to delivering enhancements designed to provide improved opportunities for fish populations. A much longer reach of the Eridge was inspected on the day to provide a better feel for typical local habitat quality but this report will focus on the section identified in Map 1 below, which appeared to have the most scope for enhancement.

During the site visit, the author was accompanied by Andrew Brough and Ben Lord, the local Catchment Coordinator with the EA. Normal convention is applied with respect to bank identification, i.e. left bank (LB) or right bank (RB) whilst looking downstream. Upstream and downstream references are abbreviated to u/s and d/s, respectively, for convenience. The Ordnance Survey National Grid Reference system is used for identifying specific locations.



Map 1. Eridge Stream © Streetmap

|  |  |
| --- | --- |
| **River** | Eridge Stream |
| **Waterbody Name** | Upper Medway |
| **Waterbody ID** | GB106040018390 |
| **Management Catchment** | Medway |
| **River Basin District** | Thames |
| **Current Ecological Quality** | Bad status |
| **U/S Grid Ref inspected** | TQ 52635 36415 |
| **D/S Grid Ref inspected** | TQ 51757 36837 |
| **Length of river inspected** | 1.0km |

**Table 1. Overview of the waterbody. Information sourced from:** **[https://environment.data.gov.uk/catchment-planning/WaterBody/GB 106040018390](https://environment.data.gov.uk/catchment-planning/WaterBody/GB 106040018390107042016640)**

**2.0 Catchment Overview**

The Eridge Stream is derived from several small headwater streams that rise from spring sources to the north and east of Crowborough, in the heart of the High Weald. These small streams coalesce to form approximately 5km of the main Eridge Stream which eventually joins the River Medway, approximately 1km west of Groombridge. The principle characteristics of the Eridge Stream would be defined as a small lowland spate stream, with a wide range of flow characteristics.

The River Medway is a heavily modified river and has been extensively altered for milling, navigation and flood defence purposes. The local geology comprises Hastings Beds (a nutrient poor mixture of clays) and local sandstone.

**3.0 Fishery overview**

The Eridge Stream is managed and fished by two local angling clubs, Crowborough AC and Dorset Arms AC, both of whom control approximately 1.5km each. Both clubs report catches of wild brown trout, as well as occasional grayling and mixed coarse fish species, including chub, dace, and occasional pike. The record “brown” trout for the Crowborough club is listed as weighing over 5lb, which suggests that perhaps this particular fish may well have been a migratory sea-run trout, which are known to penetrate into the Medway system and perhaps also the Eridge under certain high flow conditions.

The presence of several significant water level control structures located both on the main river Medway and the Eridge Stream will be restricting access for anadromous trout, other than perhaps under exceptionally high flow conditions. Even though access for sea trout is likely to be extremely difficult and sporadic, it is highly likely that a proportion of the local trout population will be predisposed to downstream migration as smolts. This despite the likelihood that following a series of average, or low-flow years, sea trout smolts may be entirely derived from the offspring of resident brown trout.

**4.0. Habitat Assessment.**

**4.1 Downstream reach below the gauging weir**

Land use adjacent to the stream appeared to be a mixture of permanent pasture and extensive arable fields (photo 1). Issues associated with bank erosion, nutrient enrichment and fine sediment input can be linked to adjacent land use and the bank tops have no significant natural buffer zones between the stream and the land.

A close up of a dry grass field

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Photo 1. A view adjacent to the LB highlighting the friable nature of the local soils and the extensive farmland beyond, with no discernible buffer zone between the top of the bank and the land under arable production.

The walk-over commenced approximately 500m d/s of the flow gauging weir. Here the stream has a mainly meandering planform set well-down within a deeply incised channel (photo 2).

A close up of a hillside next to a river

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Photo 2. Typical meandering section of the Eridge below the flow gauging weir. Note the eroding toe to the inside of the opposite bend. This would normally be an area for sediment deposition.

The riverbanks were generally considered to be unstable, with lots of evidence of bank-toe erosion of the soft, friable soils. It is highly likely that this section of river has increased instability due to a combination of factors, including local land use and also as a direct result of a lack of coarse sediment supply due to the bed barrier created by the upstream gauging weir (photo 8). Although not confirmed on the day of the visit, it is highly likely that bank instability is also exacerbated by the presence of the non-native Himalayan balsam. Despite the mobile unstable nature of the channel, there was very little evidence of any seams of eroding gravels forming into bars or gravel-lined riffles, leaving this whole reach devoid of any suitable spawning habitat for flow-loving, gravel-spawning fish species.

Notwithstanding the lack of spawning opportunities, the meandering planform combined with fallen woody material (photo 3) was promoting a diverse bed topography and varied cover, creating valuable holding pools for the adult life stages of fish species such as trout and chub.

A river with grass and trees

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Photo 3. The combination of a meandering channel and fallen woody material helps to provide good quality habitat, particularly for adult fish.

In several locations, small tree root systems have slipped into the channel (photo 4 & 5) creating valuable refuge habitat for fish and food for invertebrates. Unless these trees form a full channel-width dam then they should be left in situ as critically important habitats. Only when debris dams become completely occluded, potentially leading to excessive water impoundment and deposition of fine sediments should intervention be contemplated. Free fish migration through these debris dams is generally not an issue of concern.

In streams like the Eridge, where submerged aquatic plants are comparatively sparse, fallen woody material and fibrous root systems are critically important as a potential spawning medium for certain coarse fish species and should therefore be retained whenever possible.

A close up of a dry grass field

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Photo 4. Whole trees complete with root wads that slip into the channel can provide critically important habitat and help to promote valuable diversity in the shape of the stream bed.

A close up of a dry grass field

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Photo 5. Another good example of a stable debris dam providing valuable habitat.

In the short, straight sections between meander bends (photo 6 & 7) the habitat consists of mainly shallow glides running over a fine sediment laden bed. Opportunities for fish here are extremely limited, with insufficient depth or cover to make these reaches valuable for adult fish and they are too deep and potentially hostile, especially under elevated flow conditions, for juvenile fish, particularly coarse fish species.

For many streams and rivers, these short, straight sections immediately below a bend or pool will support deposited gravels, potentially creating spawning opportunities. On the day of the site visit, is was not possible to view the stream bed composition but gravels suitable for spawning were not evident. With the flow gauging weir located a few hundred metres upstream, there is little scope for easy access to upstream sites that might prove suitable for spawning. It is likely therefore that any gravel spawning species present within this reach have either been displaced from upstream, often as juveniles under high flow conditions, or have migrated from further downstream.

A river running through a body of water

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Photo 6. A typical short straight section of channel in between meander bends. These sections currently only support very limited habitat and offer no opportunities to boost the local fish population via the provision of suitable spawning habitat.

A river running through a field

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Photo 7. Another typical shallow straight that provides no spawning opportunities, or refuge areas for juvenile coarse fish under high flow conditions.

A close up of a wire fence

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Photo 8. The flow gauging weir located at the upstream end of the reach will intercept coarse sediment and adversely impact upstream fish migrations.

A river running through a pool of water

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Photo 9. The crest of the flat V gauge weir may facilitate the movement of adult salmonids in certain flows, but will be a major issue for both coarse fish and eel migration.

**4.2 Upstream of the gauging weir.**

The section of stream running up above the gauging weir and the B2188 road bridge is heavily impounded by the weir and possibly also by the bridge invert. Consequently, the banks are not as steep and appear to be relatively stable compared to those found further downstream below the weir. For the most part, the stream still has a gently meandering planform (photo 10) but tends to lack tree shading, which is mainly restricted to the odd clump of alder and hazel (photo 11).

No obvious potential spawning sites were seen in this section, apart from one very small patch of gravel, this severely restricts fish recruitment potential. Fish residing within this reach may have access to suitable spawning sites located further upstream of the railway bridge, which lies at the head of the main reach inspected. Outcrops of naturally eroded gravels were evident as high-quality riffles in sections that were visited further upstream (photo 14 & 15). As good quality spawning sites, these will be producing fish and some will be dropping downstream to populate favourable holding areas, even where gravels are currently absent.

Adjacent land-use along this upper section was slightly more river-friendly, with land adjacent to the stream mainly set aside for permanent pasture. There was, however, significant evidence of intensive grazing pressure, which is undoubtedly restricting any tree regeneration and the development of more favourable riparian habitats.

Occasional pieces of large woody material have fallen and are safely lodged, creating some favourable holding habitat (photo 12). As with the section below, there were a few straight shallow glides that currently support only limited habitat (photo 13).

A body of water

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Photo 10. Impounded meandering section upstream of the road bridge.

A tree next to a body of water

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Photo 11. Only occasional clumps of overhanging cover were evident.

A body of water

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Photo 12. Limited holding habitat provided by the fallen tree trunk.

A river running through a body of water

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Photo 13. Shallow straight glide, ripe for improvement as spawning habitat.

A body of water

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Photo 14. A section River Eridge bank approximately 2km upstream, where rich seams of eroding gravels have formed into valuable spawning glides and riffles.

A picture containing outdoor, grass, snow, covered

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Photo 15. A high-quality spawning site found further upstream. Fish recruitment here may well be populating some of the target reaches below.

**5.0 Conclusion and enhancement recommendations**

The flow gauging weir is adversely impacting on habitat quality upstream and downstream of the structure. Impoundment by the weir is drowning out any favourable habitat in the reach upstream of the road bridge and the structure is also starving the downstream reach of coarse sediment. The net result is that spawning opportunities for fish species such as trout, chub and dace are virtually non-existent.

It is recommended that new spawning opportunities are created by importing suitable locally-sourced angular gravels in the 10-40mm size range, to create four new 30m long spawning glides, each to be located on straight sections between existing meander bends. The sites selected for the upstream section will be towards the top end of the reach, where the influence of the gauging weir is much less pronounced and water depths and flow velocities will be more conducive for creating favourable habitat.

Large woody tree sections (trunk and bough) should be pinned to the bed to create a series of woody groynes prior to blinding over with approximately 300mm of gravel (depending on local riverbed topography at each site). The woody groynes may need to be imported if sufficient woody material cannot be harvested on site. Each riffle will require approximately 80 tonnes of imported gravels.

Early meetings with the riparian owners and tenants to secure support and permissions to deliver the enhancements are recommended.

Access for tracked plant machinery to both reaches is good and it is recommended to identify a single tipping location just inside one of the field gates and re-handle gravels via a second smaller excavator to feed a large dumper for transport to each individual site. Work should be programmed in consultation with the landowners but ideally should be undertaken in the August to early October window when ground and river conditions are likely to be at their most favourable.

The WTT is able to design the scheme and draw up the plans for submission to the EA for the necessary Environmental Permit. If deemed appropriate, the WTT is also able to project manage the proposed enhancements from planning, to permissions and permits, through to project delivery.

Opportunities for further enhancement are available via WTT training workshops for the fishing club and local volunteers. Techniques to manage woody materials and maintenance of newly created spawning sites can be demonstrated to ensure the whole reach is being managed sympathetically.

The establishment of fenced buffer zones would be of enormous value in helping to reduce bank erosion and increase resilience to climate change. A consultation with the landowners is required to establish if there is an appetite for potentially fencing off at least the headland meander bends to create areas of valuable tree cover.

Improvements should also be considered for improving fish passage at the gauging weir. It might be possible to reduce the head loss at the weir without adversely impacting on gauging performance via the installation of a new spawning riffle immediately downstream of the structure. Any plan will require a detailed consultation with the EA Hydrometric Team. At the very least, bristle brush or studded eel mats should be installed to each margin to facilitate improved eel access.

A likely phase 1 budget requirement is set out in the table below, excluding the installation of eel mats to the gauging weir, or any subsequent buffer fencing (~£8/metre).

|  |  |
| --- | --- |
| Undertake landowner/tenant consultation | £500 |
| Prepare and submit applications for Bespoke Permit, CDM, Method Statement & H&S plan etc. | £500 |
| Procure and install woody gravel checks | £1500 |
| Plant machinery | £2000 inc VAT |
| Imported gravels for ford/drinking bays (400tonne) | £14000 inc VAT |
| WTT on-site training workshop | £500 |
| WTT to contribute contingency estimate @ £2000 |  |
| Estimated EA budget required | £ 19000 inc VAT |

A phase 2 project could involve fencing and tree planting once spawning sites have been constructed.

1. **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.

1. **Disclaimer**

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