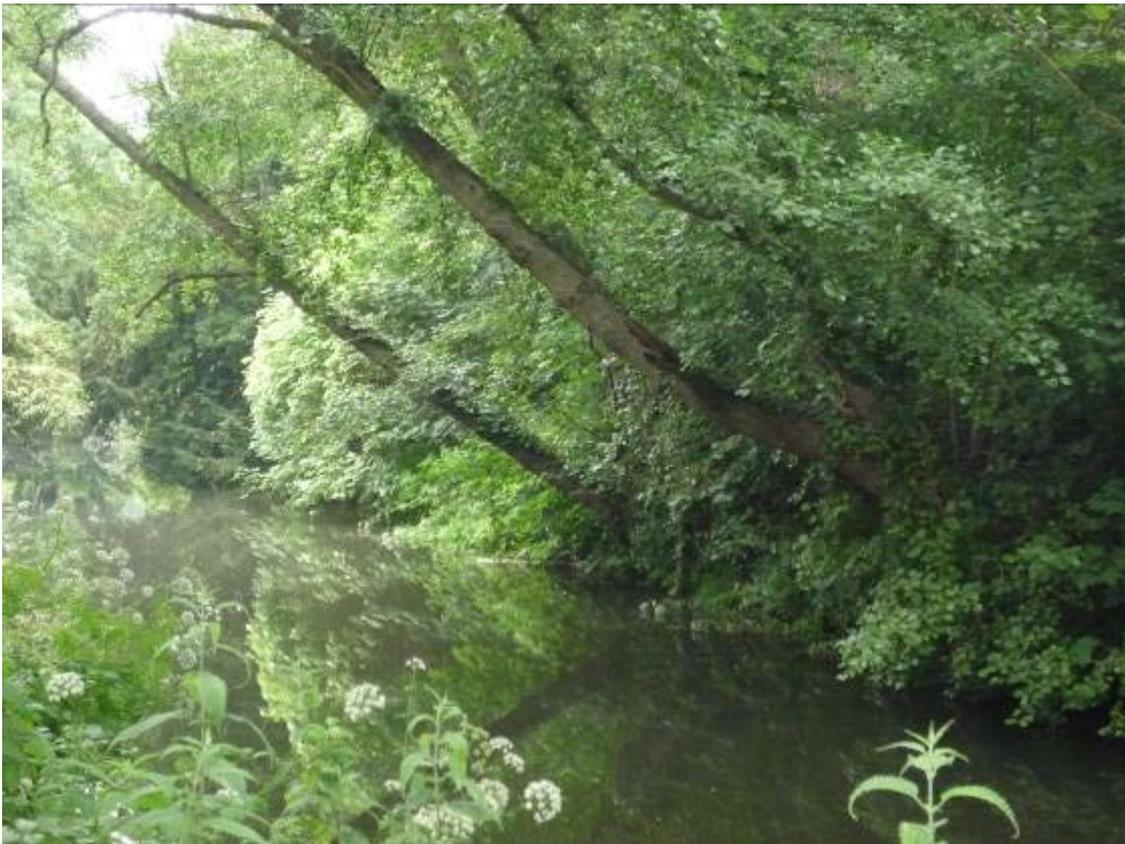




River Wey – Frensham Mill



An advisory visit carried out by the Wild Trout Trust – June 2009

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on the River Wey at Frensham Mill on the Surrey Hampshire borders.

This report was carried out at the request of the fishery owner, Mr Roger Holmes. Mr Holmes is determined to make sure the river is being maintained in a sensitive manner and is keen to explore any opportunities to enhance his section of the River Wey for brown trout (*Salmon trutta*) stocks.

The comments and recommendations made in this report are based on the observations of the Trust's Conservation Officer, Andy Thomas and the Trusts Fundraising and Communications Officer, Denise Ashton in discussion with Mr Holmes.

Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left Bank (LB) or Right Bank (RB) whilst looking downstream.

2. Catchment Overview.

The River Wey at Frensham lies on the southern branch of the Wey approximately three miles upstream of its confluence with the Northern branch at Tilford in Surrey. The South Wey rises from deep greensand springs in the Haslemere area. From here the river flows initially south west through Liphook and then northwest through Bordon and Headley before swinging northeast through Frensham.

The South Wey supports a remarkably strong wild brown trout *Salmon trutta* population in its upper reaches. A combination of good water quality associated with a lack of any significant intensive agriculture and naturally unimpacted channel morphology has enabled trout to flourish. A general lack of active use and low levels of channel maintenance has also contributed towards wild populations flourishing.

Trout populations in the upper south Wey tend to be characterised by high densities of small fish when compared to other southern rivers. These two characteristics are almost certainly linked. Growth rates improve as the densities decrease the further down the system you travel. The river at Headley is right on the cusp of where trout stocks tend to give way to conditions more favourable to coarse fish populations. Here the river undoubtedly benefits from downstream drift of juvenile trout displaced from those sections upstream of Bordon where the habitat is excellent and densities are high.

From Headley down to Frensham the Wey supports a mixed population of wild trout and coarse fish. From Frensham Mill down to Eashing the river is primarily managed as a stocked trout fishery, with some sections also let for coarse fishing.

The river has on occasions suffered from a number of significant pollution events, which has resulted in fish deaths, and/or the loss of aquatic

invertebrates. Water quality in the last few years has improved and fish populations and invertebrate communities have recovered significantly.

3. Fishery Overview

The section of river controlled by Mr Holmes extends to approximately 150m of double bank and a further 100m of LB at the top end of the beat. The entire section of river is dominated by the influence of the old milling impoundment situated on the bottom boundary of the fishery.



The Wey looking down to the old milling impoundment on the bottom boundary

Frensham Mill is an extremely old structure. The weir creates a significant hydraulic step in the river which appeared to be in excess of two metres. This structure is currently a complete barrier to any upstream migration of coarse or salmonid fish species. It is possible that the weir also acts as a barrier to eel (*Anguilla anguilla*) migration although, it is believed that other large impoundments further down the Wey system also act as a barrier and prevent any significant upstream eel migrations. The low number of eels that are currently present in the upper reaches are probably the result of an eel stocking programme undertaken approximately twenty years ago. (This reads a bit like the eel stocking programme has caused the low number of eels!)

Currently the river is very lightly managed and fished. Mr Holmes has introduced a very modest number of hatchery derived brown trout but is keen to maximise any potential the river may have for holding both wild and introduced trout.

4. Habitat Assessment

The lower half of the beat forms part of the curtalidge to the main house and mill and as such resides in a formal garden setting. The channel is a classic upstream mill channel and has been perched above the adjacent flood plain in order to maximise milling power. In order to maintain the integrity of the channel, the margins have been reveted with a combination of brick and bag work and the remnants of some old timber piling. As with most milling channels, the water velocities under normal conditions are slow and have resulted in deposition of soft sand and sediments over the upstream bed. The soft, shifting nature of the bed material is a comparatively hostile environment for rooted plants, although there were some beds of ribbon or strap weed (*Sparganium sp*), as well as several species of *Potamogeton*, a plant normally associated with still water habitats.

At the very bottom of the reach there is a by-wash channel leaving the LB. Any water flowing into this channel is regulated with an automated undershot hatch gate. The main flow is also regulated by a series of hatch gates across the main channel. Plans are currently being made to use the structure for local low-head hydro-power. Mr Holmes is considering installing an Archimedes screw type turbine that will generate electricity but hopefully enable fish to pass through without being macerated.



Entrance to the hatches. Note the presence of ribbon weed in mid channel.

The by-wash channel may provide some scope for creating a fish pass provided the headloss on the downstream outlet can be reduced and water velocities controlled with a series of baffles. Securing free passage for both coarse and game fish both up and down through this structure would be a huge enhancement for this whole reach of the River Wey. The Environment Agency may well have already identified this structure as one requiring modification under the Water Framework Directive. Currently the EA is drawing up River Basin District plans aimed at getting rivers back into favourable ecological condition. Addressing problems associated with species fragmentation and reconnecting isolated river reaches is a key target in most plans. We would therefore suggest exploring the possibility of a partnership with the EA to resolve fish passage issues at the same time as considering modifications to the structure to facilitate power generation.

Towards the upper end of the reach the formal nature of the banks gives way to a comparatively wild and unmanaged section. Mr Holmes has already undertaken some light coppicing of alder (*Alnus glutinosa*) to allow a little more light to reach the channel. Some alder trees growing out from the RB are leaning over at a precarious angle (cover photo) and would also benefit from some coppice work.

We discussed the benefits of allowing some fallen trees to remain in the channel to promote river bed scour and create improved habitats for trout. We also discussed the implications for placing large woody debris (LWD) deflectors into the channel and the associated risks of pieces breaking away in a spate and blocking the hatches a short distance downstream. One of the main benefits of using LWD deflectors is to promote bed scour to promote enhanced spawning. The raised and impounded nature of the whole reach negates any chances of creating shallow spawning habitat using these methods and given the concerns over flooding on the site it is recommended that efforts instead are focused on improving lies for adult trout through improved management of the margins.



Goat willow or sallow providing excellent marginal habitat on the Western Rother

There is no doubt that some trout will drop back into this reach and with low fishing pressure some of these fish may well cause the odd surprise by growing to a substantial size. Promoting low scrubby marginal cover will encourage fish to lie up and improve the overall holding capacity of the reach.

Alder, when coppiced, can improve the habitat. Root systems provide a valuable defence against erosion and also provide good habitat for a range of fish and invertebrate species. To promote cover at water level, consider planting the occasional goat willow or sallow (*Salix caprea*) whip which will not grow very tall but can spill over to touch the water surface and create a great residence for an adult trout (see photo above). This species is much more valuable to the river ecosystem than, for instance, an ornamental weeping variety. Are any other marginal plants a possibility here e.g. sedge or will they just be washed out?

During the visit it was noted that Himalayan balsam (*Impatiens glandulifera*) was present throughout this reach at moderate levels. This non-native plant is undesirable because of its suppression of other ground vegetation, which, coupled with its winter die back, combine to leave extensive areas of bare bank, contributing to excessive erosion.

The control of Himalayan balsam can be achieved by physical or chemical means:

Physical Control

The main method of control, and usually the most appropriate, is pulling or cutting plants before they flower and set seed (usually in June or July). Working parties are the best means of doing this.

Limited grazing access appears to be controlling balsam in some sections of the fishery. This could be continued, but needs to be carefully controlled and balanced with preventing overgrazing of desirable species, damage to coppice re-growth or damage to river banks. Access in late spring or early summer before the balsam has flowered would be ideal. In areas inaccessible to livestock, physical or chemical control is recommended.

Chemical Control

Before using weedkillers alongside waterways it is necessary to contact the Environment Agency and obtain their written consent via form WQM1 (www.environment-agency.gov.uk/subjects/conservation/840870/840941/). It can also advise on suitably qualified contractors.

Himalayan balsam can be controlled with a weedkiller based on glyphosate, such as Roundup. Glyphosate is a non-selective, systemic weedkiller that is applied to the foliage. It is inactivated on contact with the soil, so there is no risk of damage to the roots of nearby plants, but care must be taken that the spray doesn't drift onto their foliage. Glyphosate is most effective when weed growth is vigorous. This usually occurs at flowering stage but before die-back begins; with most weeds, this is not earlier than mid-summer.

It may take a couple of seasons to obtain good control due to the germination of more weed seedlings.



Himalayan balsam (Impatiens glandulifera). A non native plant that can leave banks vulnerable to erosion

5. Fish Stocking

Some discussion took place relating to trout stocking and in particular the potential impact on wild brown stocks. It is understood that Mr. Holmes has only stocked a modest numbers of trout into the reach. The very limited length of the stretch, combined with the modest habitat quality means that in reality the stretch can only support a handful of stocked trout. Increasing the density of stocked fish will result in existing residents competing for space with the net result that some fish will drop downstream.

There is mounting evidence that interbreeding between domesticated farmed trout and wild fish can lead to lower fitness and survival amongst the offspring, reducing the numbers of river-bred fish in the population. Recent changes to the Environment Agency's National Trout & Grayling Strategy reflect this concern, and by 2015 all farmed trout stocked to rivers will be required to be sterile all-female triploids, or derived from local broodstock. More information on this subject can be found at:

3. Conclusions

The River Wey above Frensham Mill is heavily impacted by the large milling impoundment and has only limited scope for wild brown trout. There is no possibility of creating any spawning or nursery habitat due to the perched nature of the channel. Some wild fish will inevitably drop down from above and it is possible to improve the number of fish taking up residence by creating better quality lies for adult fish, particularly in the margins, through a programme of coppicing high level alder and promotion of low level scrub.

A huge contribution towards improving the overall ecology of the River Wey could be achieved with the addition of a bypass channel and fish pass capable of reconnecting fish populations. If further modifications to the milling structure are to be made then it would seem sensible to open up a dialogue with the Environment Agency over the possibility of installing a pass.

Before installing any turbine it is recommended that the utmost care should be taken to firstly check the cost versus benefit of progressing such a scheme, as huge improvements to habitat quality could be achieved simply by reducing the head loss and increasing upstream water velocities. As a minimum, any turbine should be screened or allow fish to pass through undamaged.

It is a legal requirement that some works to the river may require written Environment Agency consent prior to undertaking any works, either in-channel or within 8 metres of the bank. Any modifications to hard defences will require a land drainage consent on any river designated as "main river". Advice can be obtained from the Development Control Officer.

4. Recommendations

- Explore options with the EA for creating a by-pass channel to reconnect fragmented fish populations
- Maintain upstream water levels as low as possible, given the landscape and hydro-power constraints. Reducing the head by a few inches will improve habitats a long way upstream.
- Embark on a programme of tree management and tree planting. Remove some of the high alders that potentially block out light to the channel and margins. Promote low cover through the planting of goat

willow which will improve the productivity and holding capacity of the reach as a whole.

- Encourage a thick fringe of marginal native emergent plants through the formal garden area. Native plants such as sedge, iris and reed canary grass will protect the bank from erosion and provide habitat for fish, birds and invertebrates.
- Maintain as much in-channel weed as possible to promote surface disturbance and up welling. This will improve the holding capacity of the reach.
- Make progress in eradicating Himalayan balsam from the reach.

5. Making it happen

The Trust may be able to help in the development of possible project plans for the creation or improvement of habitats. Alternatively it may be possible to make a modest contribution to any project which looks to improve fish passage. The Trust also has access to contacts who may be able to assist with fish pass or by-pass channel design.

Acknowledgement

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programmes.

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