Howsham fish passage

Consultation document

Report – ENVIMNE000903

Final version 30 June 2016

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Foreword

Background

To improve the environmental quality of the River Derwent, we are looking at what changes are needed at our weirs and other structures on the river. As part of this project, we are aiming to improve fish passage at Howsham Weir.

The River Derwent from Ryemouth to Barmby-on-the-Marsh, where it joins the River Ouse, is designated as nationally and internationally important, reflecting the special characteristics of this unique lowland river. However, its condition is classed as unfavourable due to diffuse pollution from agricultural run-off, siltation, historic flood defences and structures in the channel, such as weirs constructed for navigation and mills.

We are working together with Natural England to address problems at five weirs we own.

Howsham Weir

What is happening at Howsham?

Howsham Weir is one of the structures identified for improvement. It is an obstacle to migrating fish, eel and lamprey. Improving fish passage at Howsham Weir will have a number of benefits including:

– improving fish populations, especially eel and lamprey, by allowing them to move freely between the river and coastal waters to access breeding, nursery or feeding grounds
– helping species naturally re-colonise the river upstream after floods, droughts or pollution
– contributing to meeting legal fish passage obligations and environmental targets.

How will it affect you?

This stretch of river and the weir are popular with canoeists and anglers. Installing fish passage may affect these activities. The length of the weir makes it difficult to find a solution to accommodate all the existing uses of the river.

Executive summary

In this document we set out planned changes to Howsham Weir to enable fish to reach spawning grounds and help improve the health of the river and its tributaries upstream. We welcome your views and information particularly on problems with providing fish passage at the northern end of the weir, which is likely to affect other interests, such as canoeing. This consultation will help us decide how best to provide fish passage at this complex site.

Why we need to improve fish passage at Howsham Weir

The upstream reaches of the River Derwent and the Rye have extremely low numbers of lamprey, eels and salmon. Obstacles to migration are a significant problem for all these species. The Environment Agency has duties under national and international legislation to protect them:

– To help eels and lamprey pass the weir, we plan to install eel and lamprey tiles: these are flat tiles which attach to the face of the weir. We do not anticipate that this will affect any other interests.
– Salmon and sea trout will take two routes across the weir. Around half will be attracted naturally to the most upstream (northern) end of the weir, and to the flow from the canoe chute. The rest will swim towards the hydropower facility near the mill. To enable all these fish to ascend the weir, fish passes are needed at both ends of the weir. Each pass needs enough flow to attract fish away from trying to ascend the other structures. See Figure 1 in Section 2.1.
– The planned pass next to the turbines will allow coarse fish to move between the reaches upstream and downstream of Howsham. This will make the population more resilient to problems in either reach.

In this consultation we outline a number of difficulties in providing fish passage at the northern end of the weir, such as limited space, access and water available for different uses.

The effect of changes to the northern end of the weir on canoeing and fish passage depends on how water can be shared among the different uses at the Howsham Weir, and what sort of structures are appropriate for canoe use.

We are seeking views and information through this consultation to help us decide on the best solution.

Discussions so far with external groups:

- We are working with Natural England to deliver the River Derwent Restoration Plan. To deliver this we are working together on the Doing More for the Derwent project to improve fish passage on our structures.
- We have met British Canoeing and some canoeists who use the site, to try to understand their needs.
- We have been in discussion with the Renewable Heritage Trust who own Howsham Mill regarding links between our fish pass project and their plans to install a second hydropower turbine.

Contents

1. About this consultation

This document explains why we are consulting and what we are consulting you on. It is designed to help you understand and comment on fish passage at Howsham Weir.

1.1 What we're consulting on

We are consulting on our plans to provide fish passage on Howsham Weir, and particularly on options to enable fish to pass upstream over the northern end of Howsham Weir.

As our decision may affect people who use the site, we want to consult to gather information and views.

We will discuss the results of the consultation with representatives of different interest groups by setting up an engagement panel (see question 4 in Section 3). We will use information and views from both the consultation and the panel to help us decide on the best solution.

1.2 What we're not consulting on

This consultation is not about other structures on the River Derwent. We are working to restore the Derwent to favourable condition under the 'Doing More for the Derwent' programme, which includes work at Kirkham, Howsham, Stamford Bridge, Elvington and Barmby. This work will help fish to migrate across the structures on the lower Derwent, to reach spawning grounds upstream. The distance between the structures means that changes at any one weir will not affect water levels at the next. Where appropriate we will consult separately on what is happening at the other sites.

1.3 We want your views

We think that this consultation will be of particular interest to:

- anyone who is interested in fish populations and the environment upstream of Howsham on the Rivers Derwent and Rye
- anyone who use the canoe chute at Howsham Weir
- owners and users of Howsham Mill
- visitors to the mill or the opposite bank of the river
- local landowners.

After the consultation we want to work with representatives from key interest groups (for example local residents, canoeists, anglers, other recreational users, environmental interests, the council, landowners and the catchment partnership) to develop the plans further. We intend to set up an engagement panel to do this.

If you know Howsham well, have the support of your peers to represent the full range of their views, and are interested in joining the panel then please get in touch using the details in Section 4.

1.4 Structure of this consultation

Section 2 provides more information on what we are trying to do, the constraints we have to work within and the options we are considering. You will find the consultation questions in Section 3 of this document and information on how to respond in Section 4.

2. Consultation

2.1 Existing uses of Howsham Weir

Hydropower

The weir has a mill at one end. A waterwheel operates inside the mill, with water flowing out into a mill channel which joins the river some distance downstream. The rest of the river flow crosses the weir by three routes: through a canoe chute, through a single hydropower turbine, and over the top of the weir itself.

The licence for the hydropower entitles the mill owner to install a second hydropower turbine next to the existing one. The licence requires a certain amount of flow to be left in the river at all times. This means that flows through the canoe chute and over the weir will never drop below a minimum rate, even when the second turbine is installed.

Canoeing

Canoeists have a slalom course in this stretch of river. This takes place in the mill channel, downstream of the waterwheel, and in the main river up and downstream of the weir. The canoe chute enables the canoeists to pass from upstream to downstream. The high water velocity, width of the chute and standing wave at the bottom enable canoeists to practise particular canoe slalom skills.

Figure 1 The canoe chute at Howsham Weir

The weir

There always needs to be some water flowing over the weir, to keep it wet and prevent it breaking down due to frost or plant growth.

The environment and wildlife

At Howsham there are otters, water crowfoot beds (downstream of the weir), lamprey and bullheads. These are all part of the River Derwent Special Area of Conservation and Site of Special Scientific Interest designations. When we carry out work on the weir to provide fish passage we have a duty to make sure these species are also protected.

Fishing

Anglers fish upstream and downstream of the weir.

Other uses

The site is used by walkers and visitors to the mill. The mill holds educational and other events.

Figure 2 shows the weir, the mill and the planned locations for fish passage.

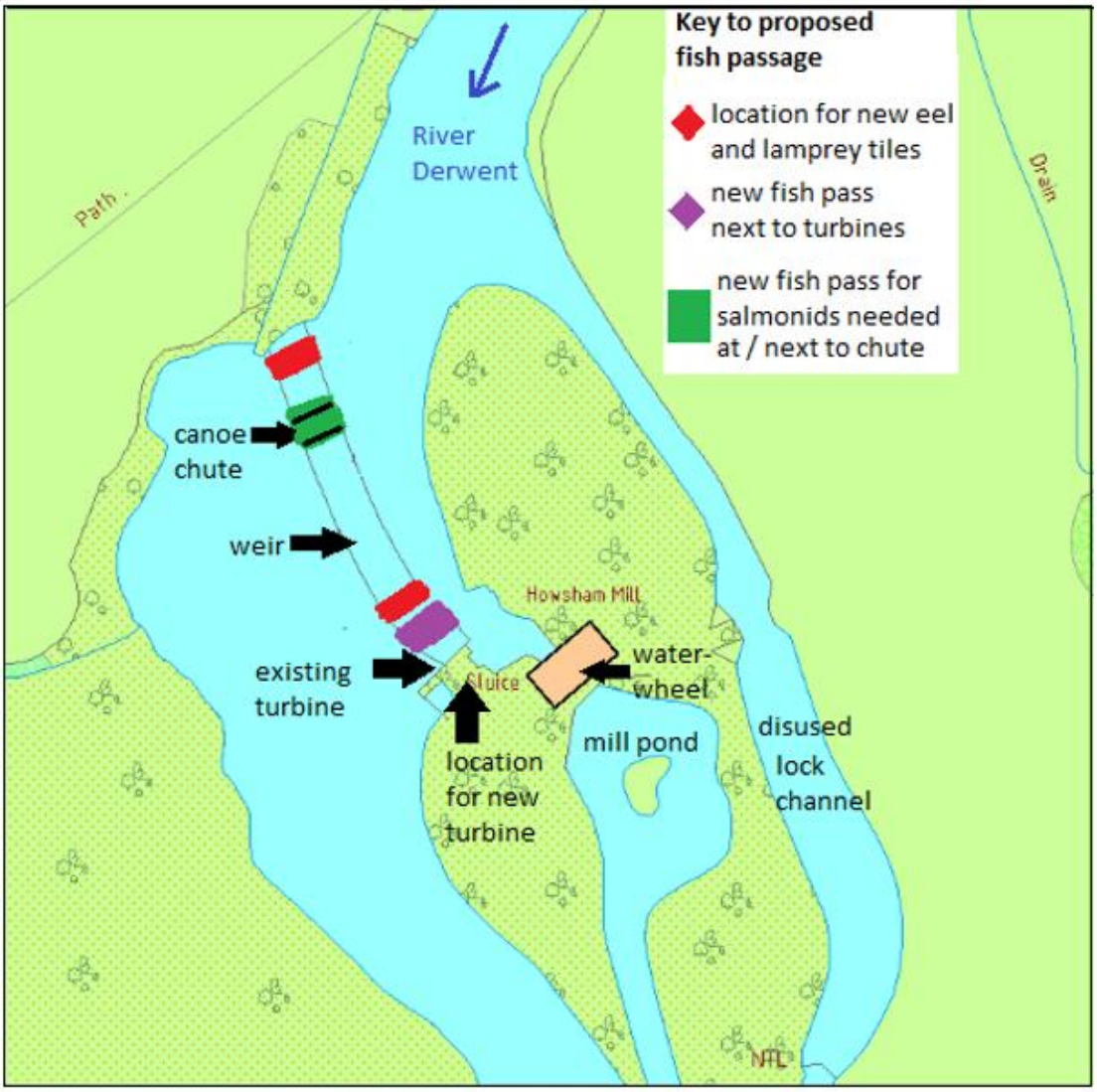

Figure 2 Plan of Howsham weir, Howsham mill and planned locations for fish passage

2.2 Why we need to improve fish passage at Howsham Weir

River and sea lamprey, which are nationally and internationally designated, are in unfavourable condition in the River Derwent. A significant reason for this is likely to be their inability to reach spawning grounds upstream. The river is designated for river and sea lamprey under the Habitats Directive as a Special Area of Conservation *, and nationally as a Site of Special Scientific Interest.

The upstream reaches of the River Derwent and the Rye have extremely low numbers of salmon and eels compared to what would be expected in these types of rivers. This is due to barriers lower down the catchment which prevent them from reaching spawning areas. Eels are a critically endangered species, and the Eel Regulations require us to provide eel passage. The Salmon and Freshwater Fisheries Act requires us to provide passage for migratory salmonids (salmon and sea trout).

Passage for all species will help improve the health of the river and its status under the Water Framework Directive *. New regulations on fish passage for multiple species will be introduced in the UK in 2017.

The Environment Agency's Doing More for the Derwent programme is addressing these problems at barriers which we own in the lower catchment, such as Howsham Weir.

* Note: the Water Framework Directive and Habitats Directive are part of European law, but these requirements are also written in UK law. Details of the legislation are in the references at the back of this document

2.3 How we plan to improve fish passage

To help eels and lamprey pass the weir, we plan to install eel and lamprey tiles: these are flat tiles which attach to the face of the weir. They will be placed near the turbines and near the opposite bank.

Figure 3 Lamprey tiles attached to a weir

Figure 4 Example of a Larinier fish pass, planned to be placed next to the turbines at Howsham Weir

To help migratory salmonids (salmon and sea trout) pass the weir, we plan to install a fish pass on the river side of the existing hydropower turbine. Around half of migratory salmonids are likely to use this fish pass. This will also help coarse fish to move between reaches of the river. It will need enough flow to attract fish away from the hydropower facility.

The rest of the migratory salmonids will naturally swim to the northern end of the weir, as this is the most upstream point. They will also be attracted by the flow from the canoe chute. This means that a fish pass is also necessary in this area. It will need enough flow to attract fish away from trying to ascend the canoe chute.

2.4 Options for fish passage at the northern end of the weir

2.4.1 Options

Table 1 below sets out the possible options to deliver fish passage at the northern end of the weir.

The options in table 1 have been taken from our experts and design consultants, as well as from discussions with users of the site. The table sets out how each option would affect fish and canoeing. The effect on canoeing is uncertain, as it depends on how individual canoeists use the chute, and whether any different kind of canoe structure can be used to reduce the amount of water needed.

The table sets out the advantages and disadvantages of the options. It also indicates how the costs compare. Note that the medium or high cost options may require funding from third party sources.

We want to hear from you if you have any other information to add about advantages and disadvantages of each option, so that we can make sure we consider everything before making a decision.

Option	Advantages	Disadvantages	Relative cost
No fish passage at north end of weir	Canoe slalom unaffected	Does not meet requirements of fish pass manual (see Section 2.4.3)	Low
Put baffles in the canoe chute	Slows down water, so good for fish passage	Canoe slalom requires a greater water velocity	Low
Divide the canoe chute lengthways: • **one side with baffles to reduce velocity for fish** • **the other side with high velocity for canoe slalom**	Good for fish passage High velocity for canoe passage	Less width available for canoe slalom	Low- Medium
New combined fish/canoe pass, to replace existing chute	Designing a new structure could give flexibility to make better use of available flow	Low velocity required for fish is unlikely to be compatible with high velocity wanted for canoe slalom	Medium-high depending on structure

Option	Advantages	Disadvantages	Relative cost
New fish pass next to canoe chute	Good flow conditions for fish passage Good width for canoe slalom	Flow through canoe chute needs to be shared with fish pass ** With no change in canoe chute width and less flow available, the velocity would be lower	Medium
Put baffles in the canoe chute to create fish passage **build new canoe facility alongside*** **	Good for fish passage. Designing a new structure for canoe slalom may give flexibility to make better use of available flow.	Flow through canoe facility needs to be shared with fish pass **	Medium-high depending on design of canoe facility

** The fish pass will need to have slightly more flow than the canoe facility alongside, to make sure it attracts fish away from the high velocity canoe chute.

***The new canoe facility would have to be alongside the pass, so that the pass can attract fish away from it

2.4.2 Information about the options

Exactly how each of these options affects canoeing and fish passage depends on how the water is shared amongst the different uses at the Howsham Weir and what sort of canoeing structures are suitable.

None of the options increases the risk of flooding.

The options listed above are all those that we have assessed as being feasible, based on the evidence available. Information on options which we consider to be infeasible due to cost or practicality is in a separate table: if you wish to see this please request it by email or in hard copy using the contact details at the end of this document.

We have only provided an indication of relative costs. This is because there may be different ways to deliver each option, and estimating cost is in itself an expensive and time consuming piece of work. We plan to do this after the consultation when we have narrowed down the list of options and have information on any external funding available.

2.4.3 Constraints

When planning how to provide fish passage at Howsham we have to take account of a number of issues which determine how we can achieve this:

1. We cannot choose any option which is unsafe to operate.

2. The solution has to meet our guidance on fish passage (see References - Environment Agency Fish Pass Manual 2010). This guidance describes what requirements fish passes have to meet to make sure they are effective in allowing fish to cross obstacles. If you wish to see our fish pass manual then please visit the web page listed in the references at the end of this document, or write us using the contact details at the end of this document to request a copy. The guidance describes the location of fish passes, flows needed, and what types are suitable.

3. Howsham Weir is some distance from the road and there is no hard track to the site. This means that options requiring very heavy machinery are not possible.

4. The chosen option for the north end of the weir must be straightforward to maintain. This is because the weir here is difficult to access and we need to ensure maintenance (such as removal of debris) can be carried out safely.

5. There is limited space at the site - land on the opposite bank and the lock are not owned by the Environment Agency, so we are not likely to be able to use additional land to create large fish or canoe passes which bypass the weir.

6. We have to work with the amount of flow available in the river, taking into account how much water the hydropower generation is permitted to use. Water needs to flow over the weir itself, through the waterwheel and turbines for hydropower generation, through both fish passes, and through the canoe chute. Except in wet periods, there will not be enough water available in the river for the hydropower to generate at its permitted rate, for the fish passes to work properly and for the flow through the canoe chute to be the same as it is now.

7. The weir cannot be removed because it is used for hydropower generation.

8. While we have a duty to promote recreation, the funding for this project is principally for improving fish, eel and lamprey passage. Our legal obligations to provide fish passage are explained above, in Section 2.2

3. Consultation questions

We welcome your comments on the Howsham fish passage consultation in general and in particular would value your views on the questions listed below:

General plans for fish passage across Howsham Weir

1. Please tell us if there is any other information we need to take into account in planning to install fish passage.

Options for fish passage across the northern end of the weir

2a. Have we identified all the advantages of each option?

2b. Have we identified all the disadvantages of each option?

2c. Please tell us if you have any ideas or suggestions for how the disadvantages could be managed or reduced. (Please clearly state which disadvantage you are referring to.)

2d. Is there any other information we should consider when choosing an option?

3. Please tell us if you have any further comments on our options.

4. After the consultation we would like to work with representatives from key interest groups (for example local residents, canoeists, anglers, other recreational users, environmental interests, the Council, landowners and the catchment partnership) to develop the plans further before we make a decision. We are looking for representatives who:

- know the site well
- can communicate with others who are interested in Howsham for a similar purpose
- will put forward the information and the range of different views of their group in a balanced way.

If you feel you can represent your interest group on an engagement panel after the end of the consultation, please email or write to us before 20 July with your name, email address and contact telephone number.

4. Responding to this consultation

4.1 Important dates

The consultation started on 30 June 2016, and will last 10 weeks. The last date we accept responses will be 8 September 2016. However, we will work with our engagement panel after the consultation has closed to refine options and request further information or views where needed before we make our decision.

If you want to meet us during the consultation period please use the contact details below.

We will hold a public drop-in at Welburn Village Hall on Monday 18th July from 4pm to 7pm, where you can ask questions or discuss particular concerns.

4.2 How to respond

You can view the consultation documents and questions online at https://www.gov.uk/government/consultations/howsham-weir-fish-passage-consultation . Please submit your comments to the consultation by using the response form provided online and return it by email to howshamfishpass@environment-agency.gov.uk.

If you would like to ask for a printed version of the document to be posted to you, please contact 03708 506506, or email enquiries@environment-agency.gov.uk. If you would like to send your response by post, please send your completed response form by 8 September 2016 to:

Customer and Engagement Team

Environment Agency

Lateral

8 City Walk

Leeds LS11 9AT

4.3 What the responses will be used for

We will use the responses from this consultation to help us decide how to provide fish passage at Howsham Weir. Environment Agency staff dealing with this consultation will see all responses in full.

We will use the engagement panel to seek views on how we take the options forward and request any additional information we need to reach our decision.

We will provide a full summary of the responses on our website by 1 December 2016.

4.4 How we will use your information

Throughout the consultation we will look to make all comments (excluding personal information) publicly available on the Environment Agency's online consultation portal. This includes comments received online, by email, post and by fax, unless you have specifically requested that we keep your response confidential. We will not publish names of individuals who respond, but we will publish the name of the organisation for those responses made on behalf of organisations.

If you provide us with an email address, we will acknowledge your response. After the consultation has closed a summary of the responses will be published on our website. We will contact you to let

you know when this is available. We will also notify you of any forthcoming consultations unless you tell us otherwise.

Responses to the consultation may be shared with consultants who are working with us on this project but any personal information you provide in response to this consultation will only be used by the Environment Agency's Howsham Fish Pass project team and not for any other purpose.

In accordance with the Freedom of Information Act 2000, we may be required to publish your response to this consultation, but will not include any personal information. If you have requested your response to be kept confidential, we may still be required to provide a summary of it.

4.5 Consultation principles

Government is improving the way it consults by adopting a more proportionate and targeted approach. We are running this consultation in accordance with their Consultation Principles.

If you have any queries or complaints about the way this consultation has been carried out, please contact:

Emma Hammonds, Consultation Coordinator

Environment Agency

Horizon House

Deanery Road

Bristol BS1 5AH

Email: emma.hammonds@environment-agency.gov.uk

References

Author	Reference
Environment Agency	(Nov 2010) Environment Agency Fish Pass Manual (GEHO 0910 BTBP-E-E v2.2) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/298053/geho0910btbp-e-e.pdf
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