

# Finance and Resources Committee

10.00am, Thursday, 23 March 2017

## Removing Barriers to Fish Passage on the River Almond

Item number	7.16
Report number	
Executive/routine	
Wards	Almond

### Executive summary

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The River Forth Fisheries Trust and the City of Edinburgh Council are looking to deliver improvements to the River Almond at a catchment scale. The work will consist of in-channel and new channel changes to the river and structures within the river to improve the status of the reaches to 'good' under EU Water Framework Directive categorisation as well as improving the setting, access and interpretation of the River Almond. The work is likely to deliver significant benefits in terms of enjoyment, learning and promoting the cultural life of the river environment.

### The Key Objectives

1. Improving the river morphology and removing barriers to fish passage to improve the overall status of the river for compliance with the EU Water Framework Directive;
2. Undertake works directly on City of Edinburgh owned assets to make the required improvements;
3. Raise awareness and engage with local communities on the value and benefit of the works and the consequential benefits to wildlife and communities in the River Almond catchment.

### Links

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Coalition pledges	<a href="#">P31</a>
Council outcomes	<a href="#">CP9</a>
Single Outcome Agreement	<a href="#">SO4</a>

## Removing Barriers to Fish Passage on the River Almond

### 1. Recommendations

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- 1.1 It is recommended that the Finance and Resources Committee:
- 1.1.1 notes the findings of the technical optioneering process and detailed designs and costings for a new fish pass at Fair-A-Far weir on the River Almond and supports the physical changes to the weir outlined therein.
  - 1.1.2 notes the findings of the technical optioneering process for both removal and easement options at Dowies Mill weir and supports the production of detailed designs and costings for these.
  - 1.1.3 Approves the procurement of the delivery of the new fish pass at Fair-A-Far weir at a maximum cost of £0.435m excluding VAT.

### 2. Background

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- 2.1 The Water Framework Directive (WFD) (Directive 2000/60/EC) commits member states to achieve good qualitative and quantitative status of all water bodies. The Directive was transposed into Scots law by the Water Environment and Water Services (Scotland) Act 2003.
- 2.2 The Scottish Environment Protection Agency (SEPA) has identified that physical barriers in particular are preventing fish from navigating long reaches of some water bodies in Scotland, which is ultimately preventing a number reaching good status. Easing or removing these barriers is therefore a priority to improve their status and meet statutory WFD requirements. Voluntary measures are being sought from owners of redundant and historic barriers to improve fish migration to support achieving good status by 2027.
- 2.3 The River Almond Barriers Project identifies ways of improving fish passage throughout the River Almond by easing fish passage at known barriers to fish migration. The project encompasses seven barriers which have a negative cumulative impact on fish populations in the Almond catchment. Two of the seven barriers (Fair-a-Far and Dowies Mill) are situated within City of Edinburgh Council boundaries and are wholly owned by the Council. The project is being managed by the Rivers and Fisheries Trusts of Scotland (RAFTS) in partnership with the River Forth Fisheries Trust (RFFT) supported by the Scottish

Government's Water Environment Fund and the Heritage Lottery Fund. Officers represent the Council on the project steering group

- 2.4 Although the River Almond weirs at Fair-a-Far and Dowies Mill have become part of the local landscape of Cramond and the River Almond walkway, they are no longer required for abstraction and could potentially be removed or modified to improve fish passage and extend the distribution of migratory fish throughout the Almond catchment, which would greatly enhance the wildlife and biodiversity of the catchment in general.
- 2.5 An optioneering exercise was completed in September 2015, which identified those options considered most technically suitable for easing fish passage at each of the sites: a fish pass and repair of the weir crest for Fair-a-Far and removal of Dowies Mill weir. Fair-a-Far has now been taken forward to detailed design. Dowies Mill detailed design is due to be completed in March 2017.
- 2.6 A public consultation exercise organised by RAFTS in partnership with SEPA and the RFFT was carried out in 2015. This included a presentation from consultant river engineers Atkins. Community meetings have also taken place in 2016 and 2017 providing updates on the weirs project. Having considered the detailed designs, the Council and SEPA (which administers the Water Environment Fund) will determine if these options will go forward to the construction works phase of the project.

### **3. Main report**

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#### **Fair-a-Far Weir**

- 3.1 Fair-a-Far is a 30m wide masonry horseshoe weir with a vertical downstream face of approximately four metres height above the river bed level. There is an existing fish pass structure situated at the left bank. However, this is insufficient for fish passage due to the turbulent and confused flow, which results in limited usage. The weir is no longer used for any industrial purposes but is a B listed structure and a focal point for local residents enjoying the adjacent River Almond walkway.
- 3.2 The weir at Fair-a-Far presents a significant barrier to upstream fish migration. The descent over the weir face is hazardous for downstream migrants since in places the water drops onto shallow bedrock. Fish ecology assessments have classified the weir face as impassable for all species and therefore a significant impact on fish migration. Due to its location near the tidal limit, optimising fish passage at Fair- a-Far weir is particularly essential for salmon, sea trout and other migratory fish species.

3.3 The result of the options appraisal process suggests that, on the balance of benefits and risk, the best option to overcome the barrier to fish passage is installation of a Larinier fish pass, using the footprint of the existing fish pass as much as possible, and repair of the weir crest. This type of fish pass will provide significant improvements in fish passage whilst minimising the visual and physical impact on the weir and its environs. Removal is not considered viable due to the considerable heritage and amenity value placed on the structure and its surroundings. Removal would also require re-grading of a significant length of river due to the large size of this structure.

### **Dowies Mill Weir**

3.4 Dowies Mill weir is a 70 metre wide predominantly concrete weir, with sections of concrete capping boulders and a variety of downstream face gradients. There are several points along the crest of the weir where concrete sections are missing or fragmented, showing the boulders below. The weir is in a noticeably poor state of repair and would appear likely to further degrade in the future. This is likely to alter passage for fish in unpredictable ways, and could be a risk to the long term success of future improvement works unless it is stabilised.

3.5 Due to its poor condition, which presents significant engineering challenges, the options appraisal process suggests that, on the balance of technical benefits and risks, the best option is removal. However, Cramond Brig is situated approximately 180 metre upstream of the weir and a structural survey identifies the bridge as currently having a 'low' scour risk rating. Removal of the weir would cause lowering of the river bed level, which is likely to affect the structural integrity of the bridge apron at Cramond Brig and could lead to its failure and exposure of the bridge foundations. The scour risk rating for Cramond Brig following any removal of the weir at Dowies Mill is therefore predicted to increase to 'high'.

3.6 The detailed designs for removal of Dowies Mill weir will include consideration of the likely degree of bed lowering at Cramond Brig as well as options for improved scour protection of Cramond Brig and riverbed stabilisation. Consideration will also be given as part of the detailed design works on the potential required ongoing maintenance and liability requirements for the Council (for both Cramond Brig and Dowies Mill Weir) should Dowies Mill weir not be removed.

3.7 Hydraulic assessment will be used as part of the detailed design works to inform geomorphological assessment, and to examine the impact of removal on sediment mobilisation and changes to erosion and deposition patterns, including bed and bank erosion risk upstream and deposition risk downstream. A contamination assessment will assess the likelihood of sediment mobilisation, contaminant release and silt smothering of habitat downstream.

- 3.8 The River Almond walkway runs along the east bank of the river and allows direct views of both weirs, which are key landmarks along the route. The walkway is well-used and highly regarded, allowing easy access to picturesque riverside views. The river and walkway are an Area of Outstanding Landscape Quality and a Special Landscape Area within the Edinburgh Local Development Plan. The site is also within the Green Belt and the Cramond Conservation Area. As part of the detailed design process a Landscape and Visual Appraisal to assess the impacts of the proposed works on these policy designations, alongside key receptors such as the Core Path CEC 11, roads and local residential properties will be undertaken.
- 3.9 Fair-a-Far weir is Category B listed and the removal of Dowies Mill weir will affect Category A listed Cramond Brig. Dowies Mill weir formed part of a historic mill complex, now represented by Category B and C listed mill cottages, and so forms part of the historic setting of these Listed buildings. Listed building consent will therefore be required for the replacement fish pass and crest repairs at Fair-a-Far weir, as well as any scour protection at Cramond Brig. Furthermore, both weirs are situated within the Cramond Conservation Area. As a result, the works should conserve or enhance the historic fabric and avoid adverse impacts on setting. A heritage assessment will be undertaken as part of the detailed design process to set out the heritage significance of the weirs and their setting, and to establish the likely impact of the proposed work on that significance. This will include consideration of both designated and non-designated heritage assets.

## **4. Measures of success**

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- 4.1 Success of the proposed fish easement options at Fair-A-Far and Dowies Mill will be measured by improvements to migratory fish numbers in the River Almond and the extension of the distribution of migratory fish throughout the Almond catchment. There is also the potential to greatly enhance the wildlife and biodiversity of the catchment in general.
- 4.2 Success of the proposed fish easement options will also be measured by improvements in the Water Framework Directive status of the River Almond from its current poor status to good status by 2027.

## **5. Financial impact**

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- 5.1 The Council currently undertakes very little maintenance work at either structure.
- 5.2 The Almond Barriers Project provides financial support to help owners of redundant river barriers to achieve fish passage. Under Water Framework Directive legislation in Scotland there is an obligation on all weir and dam owners to ensure fish passage over their structures. The Cramond weirs are currently eligible for financial support from SEPA's Water Environment Fund

because of their redundant and non-commercial nature. However, if the design solution chosen does not enable the required levels of fish passage, or funding rules change in the future, structure owners will be obliged to improve fish passage at their own cost. Moreover, if work is not undertaken and either of the weirs were to fail there would be a need for the Council to resolve the scouring risk to Cramond Brig.

- 5.3 The work to date has been entirely funded through the Scottish Government's Water Environment Fund (WEF) and administered by SEPA and the Heritage Lottery Fund. As the project moves towards its construction stage, SEPA will require a contribution towards any investment it makes in infrastructure owned by the Council. SEPA has approved that the Council's entitlement to the recovery of 20% VAT on the gross project costs may be used as the Council's contribution, making the project cost neutral for the City of Edinburgh Council.
- 5.4 The works at Fair-a-Far weir are estimated to cost £0.522m inclusive of VAT. The Council has received an offer of grant from Scottish Government of £0.435m, and the City of Edinburgh Council's contribution of £0.087m will be met via VAT-recovery. The works at Dowies Mill weir can only be estimated once a favoured option is determined.

## **6. Risk, policy, compliance and governance impact**

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- 6.1 The Flood Risk Management (Scotland) Act 2009 requires local authorities to exercise their powers with a view to reducing overall flood risk.
- 6.2 The Water Environment and Water Services Act 2003 requires local authorities to carry out their statutory functions and duties in a way which adheres to the principles of the European Water Framework Directive.
- 6.3 Currently the Council does not have a Controlled Activities Regulation (CAR) licence for either structure. However, under the Water Environment and Water Services Act 2003, all qualifying impoundments should be licenced. It would be expected that any licence would include conditions requiring maintenance and fish passage at each of the structures.
- 6.4 The Nature Conservation (Scotland) Act 2004 places a duty on officials and public bodies to further biodiversity.
- 6.5 The Scottish Biodiversity Strategy identifies the role of local authorities in meeting national species and habitat priorities.

## **7. Equalities impact**

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- 7.1 There is no relationship between the matters described in this report and the public sector general equality duty. There is no direct equalities impact arising

from this report.

## **8. Sustainability impact**

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- 8.1 The repairs and alterations to both Fair-A-Far and Dowies Mill weirs will improve fish passage along the River Almond and make the Council compliant with the Water Framework Directive 2003. It will enhance the wildlife and biodiversity of the river corridor and raise the river's current status from poor to good by 2027.

## **9. Consultation and engagement**

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- 9.1 The opinions of local communities and other interested parties were canvassed as part of the feasibility and optioneering phase of the Almond Barriers project. Four public information meetings were held. Two initial meetings took place during the project data collection phase to discuss the project to date, the overall aims and objectives and to hear the views of local people. At these meetings the potential engineering options were outlined to attendees and people given the opportunity to give their views on suitable options to ease fish passage at each of the sites.
- 9.2 Questionnaires were made available to those attending the meetings to provide an opportunity for comments and views to be submitted and recorded. The questionnaire was also made available online and the web address circulated to email contacts as well as being promoted on the Rivers and Fisheries Trusts of Scotland and River Forth Fisheries Trust websites and social media. Following completion of the Options Appraisal Report, two further public information meetings were held to present the results of the technical optioneering process, including visualisations of the preferred options for each site.
- 9.3 Responding to a request from the local community in Cramond, display boards outlining the project aims and containing visualisations of the preferred options for Fair-A-Far and Dowies Mill were erected in Cramond Kirk Hall during October 2015.
- 9.4 The questionnaire was completed by 126 respondents. For the Fair-a-Far weir, 53% prefer modification to current fish passage, 18% favour fish pass easement and 29% preferred full or partial removal of the weir. For Dowies Mill weir, 51% prefer modification to current fish passage, 19% favour fish pass easement. and 30% preferred full or partial removal of the weir.

## 10. Background reading/external references

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- 10.1 SEPA consultation on developing the second river basin management plan for the Scotland River Basin District:  
[http://www.sepa.org.uk/water/river\\_basin\\_planning/scotland.aspx](http://www.sepa.org.uk/water/river_basin_planning/scotland.aspx)
- 10.2 A number of studies relating to the barriers and fish passage on the River Almond have been undertaken for RAFTS or SEPA since 2010. The previous reports produced and used to support the current study are as follows:
- Assessment of Instream Barriers, River Almond, Atkins, 2011
  - River Almond Structural Examination and Silt Survey Summary Report, Mott MacDonald, 2014
  - River Almond Geo-Environmental Desk Study, Mott MacDonald 2013
  - Flood Risk Assessment: Cramond Weirs, Mott MacDonald 2014
  - Flood Risk Assessment: Howden Bridge Weir, Mott MacDonald 2014
  - Structural and Silt Survey Reports (one for each of the seven barriers), Mott MacDonald 2014
- 10.3 River Almond Feasibility and Optioneering Study to Improve Fish Passage – Atkins September 2015: <http://www.rafts.org.uk/wp-content/uploads/2015/10/River-Almond-Feasibility-and-Optioneering-Study-to-Improve-Fish-Passage-2-2.pdf>

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## 11. Links

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<b>Coalition pledges</b>	P31 – Maintain our City’s reputation as the cultural capital of the world by continuing to support and invest in our cultural infrastructure.
<b>Council outcomes</b>	CP9 – An attractive city.
<b>Single Outcome Agreement</b>	SO4 – Edinburgh’s communities and safer and have improved physical and social fabric.
<b>Appendices</b>	None