

AGENDA ITEM 9

APPENDIX 3

HABITATS REGULATION APPRAISAL

HABITATS REGULATIONS APPRAISAL PROFORMA

Cairngorms National Park Authority have undertaken this HRA as the competent authority.

APPRAISAL IN RELATION TO REGULATION 48 OF THE CONSERVATION (NATURAL HABITATS, &C.) REGULATIONS 1994 AS AMENDED¹ (HABITATS REGULATIONS APPRAISAL)

NATURA SITE DETAILS

Name of Natura site(s) potentially affected:

River Dee SAC

Name of component SSSI if relevant:

Natura qualifying interest(s) & whether priority/non-priority:

Atlantic Salmon, Otter and Freshwater Pearl Mussel

Conservation objectives for qualifying interests:

- ⌚ Population of the species, including range of genetic types for salmon, as a viable component of the site
- ⌚ Distribution of the species within site
- ⌚ Distribution and extent of habitats supporting the species
- ⌚ Structure, function and supporting processes of habitats supporting the species
- ⌚ No significant disturbance of the species
- ⌚ Distribution and viability of freshwater pearl mussel host species
- ⌚ Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species

STAGE 1: WHAT IS THE PLAN OR PROJECT?

Proposal title:

2MW run of river hydroelectric scheme ,
Glen Muick, Balmoral Estate

Name of consultee:

Balmoral Estates

Name of competent authority:

Cairngorms National Park Authority

Details of proposal (inc. location, timing, methods):

The run of river hydroscheme will be constructed on the River Muick a tributary of the River Dee and part of the SAC. The scheme involves construction of a weir in the River Muick to allow water abstraction down a penstock pipe of approx.. 2km to a turbine house and tailrace outflow back into the River Muick .Installation of the pipe will involve excavation of a trench along the pipeline route– the working corridor will range between 4-30m and will largely follow the route of an existing track which runs very close to and within the Dee SAC. Weir construction will take place within the Dee SAC and will involve re-routing the river for a period, in-channel working and cement pouring and altering riverbanks. The duration of works is 24 months.

¹ Or, where relevant, under regulation 61 of The Conservation of Habitats and Species Regulations 2010 as amended, or regulation 25 of The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 as amended.

STAGE 2: IS THE PLAN OR PROJECT DIRECTLY CONNECTED WITH OR NECESSARY TO SITE MANAGEMENT FOR NATURE CONSERVATION?

The following points should be considered:

- i) Has the effect on all qualifying interests been considered?
- ii) Is the proposal part of a fully assessed and agreed management plan?
- iii) Is there a clear rationale to justify the connection with the conservation objectives?
- iv) If there is a clear connection with the conservation objectives will any benefits arising from the proposal outweigh any negative effects?
- v) Have any alternative methods of implementing the proposal been explored to demonstrate that this is the least damaging option?
- vi) Give a YES/NO conclusion in terms of whether the plan or project is considered directly connected with or necessary to site management for nature conservation.
 - If **YES** for all elements of a plan or project, for all the Natura qualifying interests (preferably as part of a fully assessed and agreed management plan), then consent can be issued. The rationale should be detailed below and no further appraisal is required (no need to proceed to stage 3 or 4).
 - If **No** for all Natura qualifying interests then proceed to stage 3.
 - **If a plan has multiple elements (e.g. a range of policies or management objectives)**, elements of the plan considered directly connected with or necessary to site management for nature conservation should be discussed below and a rationale given for this conclusion. No further appraisal is then required for those elements. All other elements of the plan must proceed to stage 3.

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| <ol style="list-style-type: none">i. Yesii. Noiii. Noiv. Nov. Yesvi. No |
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STAGE 3: IS THE PLAN OR PROJECT (EITHER ALONE OR IN COMBINATION WITH OTHER PLANS OR PROJECTS) LIKELY TO HAVE A SIGNIFICANT EFFECT ON THE SITE?

Each qualifying interest should be considered in relation to their conservation objectives. The following points should be considered:

- i) Briefly indicate which qualifying interest could be affected by the proposal and how; if none, provide a brief justification for this decision, and then proceed to v), otherwise continue:
- ii) refer to other plans/projects with similar effects/other relevant evidence;
- iii) consider the nature, scale, location, longevity, and reversibility of effects;
- iv) consider whether the proposal contributes to cumulative or incremental impacts in combination with other plans or projects completed, underway or proposed;
- v) Where the impacts of a proposal are the same for different qualifying interests these can be considered together however a clear conclusion should be given for each interest
- vi) give Yes/No conclusion for each interest.
 - **If yes, or in cases of doubt**, continue to stage 4.
 - **If potential significant effects can easily be avoided**, record modifications required below.
 - **If no** for **all** features, a consent or non-objection response can be given and recorded below (although if there are other features of national interest only, the effect on these should be considered separately). There is no need to then proceed to stage 4.

Conservation Objectives

- ⌚ Population of the species, including range of genetic types for salmon, as a viable component of the site
- ⌚ Distribution of the species within site
- ⌚ Distribution and extent of habitats supporting the species
- ⌚ Structure, function and supporting processes of habitats supporting the species
- ⌚ No significant disturbance of the species
- ⌚ Distribution and viability of freshwater pearl mussel host species
- ⌚ Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species

Freshwater Pearl Mussel

The proposal could cause direct harm to freshwater pearl mussels from the impacts of the weir construction on FWPM present in the vicinity of the works and/or downstream of the weir. Construction of the pipeline route can cause the release of sediments into the watercourse which can smother FWPM colonies in the vicinity of the scheme and downstream.

- FWPM survey undertaken 2017 along survey route, and additional 100m upstream and 500m downstream. No dead or alive individuals were found.

Conclusion: Fresh water pearl mussel not considered to be present within the affected part of the river or within 500m downstream of the affected part of the river. Therefore, *No Likely Significant Effect*

Atlantic Salmon

The construction of a weir across the River Muick could be a barrier to fish passage and limit sediment transfer to downstream reaches reducing available habitat. The reduction in river flow during scheme operation could limit fish mobility upstream, this is a particular concern at the current Linn of Muick Fish Pass which is not working as well as it could due to reduced flows. Thus the proposal could cause a direct effect on fish mobility and an in-combination effect if it exacerbates low flow issues at the existing fish pass. The proposal could cause direct harm to salmon spawning sites from release of sediments during construction works or in river works.

Conclusion: *Likely Significant Effect Alone and in Combination*

Otter

The proposal could cause direct harm to otters if there are holts along the pipeline route or intake/off-take zones. The nature of the works has the possibility to entrap otters within construction trenches and pipeworks. Project construction activities could cause disturbance to otter and operation of the scheme has the potential to cause on-going disturbance. Sediment release into the watercourse could reduce territory available for feeding.

- Otter survey undertaken 2017, no holts or rest sites identified but signs of foraging otter along the proposed scheme length which shows they are active in the area and may be disturbed by works or become trapped within pipes or pipe trench workings. Otters may also try to travel up the intake once the scheme is operational resulting in harm or death. There is a likely significant effect from this proposal which could result in otter disturbance, harm or death.

Conclusion: *Likely Significant Effect from construction and operation of the scheme*

Mitigation or modifications required to avoid a likely significant effect & reasons for these:

<i>Mitigation:</i>	<i>Reason:</i>
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STAGE 4: UNDERTAKE AN APPROPRIATE ASSESSMENT OF THE IMPLICATIONS FOR THE SITE IN VIEW OF ITS CONSERVATION OBJECTIVES

(It is the responsibility of the competent authority to carry out the appropriate assessment. The competent authority must consult SNH for the purposes of carrying out the appropriate assessment. SNH can provide advice on what issues should be considered in the appropriate assessment, what information is required to carry out the assessment, in some circumstances carry out an appraisal to inform an appropriate assessment and/or provide comments on an assessment carried out. Where we are providing advice to a competent authority our appraisal of the proposal should be recorded here.)

The following points should be considered:

- i) Describe for each qualifying interest the potential impacts of the proposal detailing which aspects or effects of the proposal could impact upon them and their conservation objectives.*
- ii) Evaluate the potential impacts, e.g. whether short/long term, reversible or irreversible, and in relation to the proportion/importance of the interest affected, and the overall effect on the site's conservation objectives. This should be in sufficient detail to ensure all impacts have been considered and sufficiently appraised. Record if additional survey information or specialist advice has been obtained.*
- iii) Each conservation objective should be considered and a decision reached as to whether the proposal will affect achievement of this objective i.e. whether the conservation objective will still be met if the proposal is consented to.*

Atlantic Salmon

Conservation Objectives

- Population of the species, including range of genetic types for salmon, as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

1. Population & Distribution of the species within site

- Reduction in flow could exacerbate existing conditions at Linn of Muick fish pass.
- The new weir will act as barrier to fish migration
- Fish could swim up the new outflow tailrace into the powerhouse.

Proposed Mitigation

- Flows at existing Linn of Muick fish pass will be mitigated by July-October period of reduced abstraction stipulated within CAR licence.
- An Alaskan 'A' fish pass will be used to allow fish to migrate upstream. They can be installed at steeper angles than other fish passes and therefore require less space. A Coanda 2mm screen weir followed by a 0.57m collecting trough the entire width of the weir, will be used to protect fish during downstream migration.
- It is important that the tailrace does not act as an attractant for upstream migrating fish. It has been designed so that during typical flows when upstream salmonid migration occurs on the Muick flow in the main channel will be 2.5-3 times greater than the discharge through the tailrace structure. The structure design is for the outflow to be 20m wide, the river channel at this point is 15m. So the river channel will be the greater attractant for migrating fish in terms of water volume and velocity. In addition the tailrace will be screened with a bar spacing of 20mm physically acting as a barrier to migrating adult salmon and trout.

Conclusion: No likely significant effect on population and distribution of Atlantic Salmon within the site.

2. Distribution and extent of habitats supporting species

- The proposal will result in a depleted reach between the intake weir and powerhouse outflow 2km downstream.

Proposed Mitigation

- The scheme would operate with the default HOF in flow conditions below the threshold suitable for salmon migration, assessed in APEM's fisheries report as 1.59m³/s. Above this threshold this a 40/60 split flow regime would prevail for the first 12 hours (or less if the flow dropped more quickly) in any 48 hr period in the month that the flows exceed 1.59m³/s. This is assessed as sufficient time for any fish to move through the reach. The proposed level measurement devices and control system for the hydro scheme would have the facility to ensure that this flow regime could be delivered and recorded automatically.

Conclusion: No likely significant effect on distribution and extent of habitats supporting Atlantic Salmon within the site.

3. Structure, function and supporting processes of habitats supporting the species

- The intake weir will form a physical barrier to the movement of material downstream and also a reduction in the flow of water in the river between the weir and powerhouse outfall which will affect the movement of material. A range of material sizes are required for fish habitat.

Proposed Mitigation

- The intake weir will have a 2m wide scour by-pass channel which can be opened to flush sands and gravels past the weir.
- If the intake head pond fills up to high levels eg after a flood there will access for an excavator to mechanically move materials from above the weir to below.
- It is expected that larger sediments, cobbles and boulders will settle out above the intake weir for a distance of up to 80m, it is proposed to construct a track to allow access for an excavator to mechanically move these downstream of the weir.
- Sediment depths will be monitored twice yearly and after high flow events. The volume of material moved will be recorded.
- Liason with SEPA, The River Dee Trust and the Dee District Salmon Fisheries Board will take place.
- Once sediment is moved/passes over the weir a SEPA hydrogeomorphological assessment surmises there will be a very small/negligible impact on sediment transport in the depleted reach. The abstraction is predicted to reduce Qmed to 14% meaning most of the high flow will still pass over the intake. In addition the Allt-an-Sneachda tributary approx.400m downstream from the weir contributes additional flow and sediment transport.

Conclusion: No likely significant effect on Structure, function and supporting processes of habitats supporting Atlantic Salmon within the site.

4. No significant disturbance of the species

- The proposal has the potential to cause disturbance from in-stream working and working on the banks close to the river including release of silt and sediments and pollution from vehicles which can smother gravels used for spawning.

Proposed Mitigation

- A Pollution Prevention Plan has been produced and included within the Construction Environmental Management Plan which details method including installation of silt traps, inspection of vehicles and timing of working to avoid sensitive periods.

Conclusion: No likely significant disturbance of Atlantic Salmon.

Otter

Conservation Objectives

- Population & distribution of the species
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

1. Population and distribution of otter within the site

- Potential for the proposal to cause entrapment and harm to otter during construction and also during operation.

Proposed mitigation

- A pre-construction survey to take place before works start
- An ECoW will be on call if any resting sites are detected, all personnel to be made aware otters are active in the area
- Construction will avoid night works and will only be operational between 7.00 and 19.00 or one hour before or after dusk whichever is soonest
- All open excavations will be ramped to allow otter and other species to escape or closed over
- All exposed pipes with a diameter greater than 3" will be capped before left unattended to avoid otter entrapment
- No construction materials with sharp ends which could cause harm to otters will be left overnight
- Turbines will have an otter-proof enclosure to prevent entanglement during operation

Conclusion: No Likely Significant Effect on otter population and distribution within the site

2. Distribution and extent of habitats supporting otter

- Water pollution could impact on otter ability to find food by clouding up the water or reducing prey item availability if impacted on by a pollution event.

Proposed mitigation

- Temporary silt traps and water diversions in place during construction to prevent silts and sediments entering water
- Chemicals, oils and hazardous substances stored away from the water and Pollution Spill Kit kept on site
- All cement poured in accordance with SEPA PP guidelines
- All measures within the Species Protection Plan incorporated into the Construction Method Statement

Conclusion: No Likely Significant Effect on distribution and extent of habitats supporting otter

3. Structure, function and supporting processes of habitats supporting otter

- *Water pollution could impact on the river habitat by clouding up water from silts, reducing prey item availability if all invertebrates and fish destroyed by a pollution event*

Proposed mitigation

- Temporary silt traps and water diversions in place during construction to prevent silts and sediments entering water
- Chemicals, oils and hazardous substances stored away from the water and Pollution Spill Kit kept on site
- All cement poured in accordance with SEPA PP guidelines

- All measures within the Species Protection Plan incorporated into the Construction Method Statement

Conclusion: No Likely Significant Effect on Structure, function and supporting processes of habitats supporting otter

4. No significant disturbance of otter

The mitigation described above will ensure there is no disturbance to otter during construction

Conclusion: No Likely Significant disturbance of otter

Overall Conclusion: There will be No Likely Significant Effect on otter arising from this proposal

STAGE 5: CAN IT BE ASCERTAINED THAT THE PROPOSAL WILL NOT ADVERSELY AFFECT THE INTEGRITY OF THE SITE?

In the light of the appraisal, ascertain whether the proposal will not adversely affect the integrity of the site for the qualifying interests. Conclusions should be reached beyond reasonable scientific doubt. If more than one SAC and/or SPA is involved, give separate conclusions. If mitigation or modifications are required, detail these below.

It can be concluded that there will be no adverse effect on site integrity resulting from this proposal.

Mitigation or modifications required to ensure adverse effects are avoided, & reasons for these.

Mitigation: See above

Reason:

ADVICE SOUGHT

SNH Advice 23/3/18
 SEPA advice 19/4/18
 Dee District Salmon Fishery Board response 19/4/18
 Construction Method Statement, (Grant Ltd, 2018)
 Otter Species Protection Plan , May 2018
 Muick Hydro Scheme – Environmental Statement Appendix 3-A - Fish Pass Advice for Proposed New Intake Weir (APEM, 2018)
 Muick Hydro Scheme Environmental Statement Appendix 3-D – Tailrace Fisheries Technical Note (APEM, 2018)
 Muick Hydro Scheme – Draft Sediment Management Plan, April, 2018.
 Cairney Hill response to fisheries email dated 18/4/18
SNH provided further advice on the fish passage- there will now be four passes in the scheme (8/06/18) they conclude no LSE on Atlantic salmon.