Dee District Salmon Fishery Board

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Dear Ms. Ferguson,

Aberdeen Harbour expansion project - Ministerial approval of CEMD

The Dee District Salmon Fishery Board (Dee DSFB) welcomes the opportunity to comment upon the Construction Environmental Management Document (CEMD) for the construction phase of the Aberdeen Harbour Expansion Project (AHEP).

Background

The (AHEP) is located adjacent to the main stem of the River Dee and is on a direct migration pathway for Atlantic salmon. The Dee has been designated as a Special Area of Conservation under the EC Habitats Directive 92/43 EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna, for Atlantic salmon, Freshwater Pearl Mussels and Otters.

Sea trout, the migratory form of *Salmo trutta*, are present within the proposed development area and utilize the habitat as both a migratory pathway and feeding area. Sea trout are currently designated as a priority species under the UK Biodiversity Action Plan.

Atlantic salmon enter the Dee each month of the year and are therefore likely to be present on the adjacent coast throughout the year. Adult salmon and sea trout are known to travel north through the coastal zone in preparation for entering North East Scottish rivers when conditions are suitable (Potter & Swain 1982), with many of those captured along the coast at Altens destined for the River Dee (Pyefinch & Shearer 1952). Shore-based netting stations for salmon and sea trout operated in Nigg Bay until the 1980s. These nets intercepted adult salmon and sea trout in Nigg Bay, highlighting that fish follow the shoreline and use the bay.

As salmon will be migrating through the development site there is potential to disturb their migration and entry to the River Dee. The disturbance may come about through noise, the re-suspension of very low levels of poly-aromatic hydrocarbons (Klaprat et al, 1992) or heavy metals, or through the increase

in suspended solids. Any disruption to the fish may delay or reduce the fish's ability to "home" to its natal river, which would have an impact on their survival.

Environmental Plan

2.3.3 There is no mention of salmon being protected under the EU Habitats Directive and being one of the three species for which the River Dee is designated as an SAC. The boundary for the SAC is less than 1.5 km from Nigg Bay. The environment plan should fully consider the impact on salmon in the context of the River Dee SAC and highlight mitigation measures to monitor, check and reduce impacts. There is also no mention of the economic value of the salmon and sea trout fisheries to Deeside.

Chapter 3 Construction Method Statement

Dredging, drilling and blasting is due to start during favourable weather from May to September 2017. Monitoring of adult fish should be in place to coincide with high-impact marine works of dredging, drilling, blasting and construction of breakwaters.

Monitoring should again be in place prior to the second phase of marine activities planned for early 2018 to July 2018.

Note: Dredging and Marine Placement for Breakwater construction proposed for 24hr 7 days a week working.

Chapter 5 Construction Lighting Plan

No comment

Chapter 7 Dredging and Dredge Spoil Disposal Management and Monitoring Plan

7.4.4 Water quality management.
According to the model in the ES, the turbidity plume generated by the dredging works reaches the entrance of Aberdeen Harbour and outer coastal area. The peak increases in SSC north of Girdle Ness are predicted to be no higher than 100mg/l to 200mg/l above background levels, and generally around 10-50mg/l in front of the mouth of the River Dee, which is well within natural background variation. Therefore, the ES states that "the expected increases in SSC as a result of dredging in the areas surrounding Nigg Bay will be within natural range." It should be born in mind that this assumption is based on modelling and cannot necessarily predict the levels of turbidity or its effect on the behaviour of salmon and sea trout. Newcomb and Jensen (1996) noted that more than six days of exposure to TSS greater than 10 mg/l is a moderate stress for juvenile and adult salmonids. A single day of exposure to TSS, in excess of 50 mg/l, is also a moderate stress. Sigler et al (1984) found that turbidity of 25 nephlometric turbidity units (ntu) or greater caused a reduction in juvenile salmonid growth. The longer the duration of high turbidity, the more damage is likely to fish and other aquatic organisms (Newcombe and MacDonald, 1991). Even moderate turbidity may affect a fish's ability to find food (Arter 2004).

The planned dredging duration for 2017 is over 40 weeks with total volume of dredge calculated to be at least 1,785,000 m^3. Monitoring of adult salmon migration along the coast past Nigg Bay and into the River Dee will be essential to determine any real impacts on salmon migration. The importance of this was recognised by Condition 3.2.7 of the Dredging Marine Licence which requires a monitoring programme to be developed to track salmon.

Chapter 8 Fish Species Protection Plan

The FSPP should recognise the economic importance of salmon and sea trout to the local area; the salmon fishery on the Dee alone provides 500 full time equivalent jobs and £15 million annually to the Deeside economy. (Radcliffe et al 2004: *The Economic Impact of Game and Coarse Angling in Scotland*). Salmon, sea trout and other migratory species also have high conservation value and are known to use the Nigg Bay area during their migrations. The importance of migratory fish should be included in site inductions/tool box talks for contractors. There is a lack of detail in the mitigation measures proposed within the FSPP, particularly regarding the Salmon Monitoring (8.4.5).

The Dee DSFB would disagree with the statement "as baseline data is poor, any variations observed in salmon numbers or behaviour during the construction of AHEP could be attributable to a wide range of factors. As such, this data will not be used to inform adaptive management decisions." A properly designed tracking programme will show whether fish navigate past the development to the river, or exhibit uncharacteristic delays in migration. As such, tracking should be carried out during the construction periods in 2017 and 2018. A 'control' period of tracking should also be undertaken in 2019, given that there is no longer time to undertake control monitoring prior to the start of works, despite being highlighted by Dee DSFB in 2015. By comparing fish movements during periods of construction works, and with the control period, there should be evidence for whether the following impacts occur:

1. A change in the number of fish entering the river
2. A change in the length of time that fish take to enter the river, after being tagged
3. A change in the migration pathway of fish as they approach the river.

The monitoring programme should be available for the Dee DSFB to review prior to works commencing, and should include:

1. Numbers of fish to be tagged and tracked per year
2. Period for undertaking fish tagging
3. Capture location for tagged fish
4. Location of monitoring receivers
5. Data analysis plan

Receivers should be located to demonstrate whether fish alter their migration route as they approach Nigg bay, and confirm whether fish subsequently enter the River Dee (or indeed, other North East rivers).

Coinciding with the tracking study, measurements of noise and sediment levels should be taken, which can then be compared to movement patterns and behaviour of the tracked fish.

It is suggested that telemetry equipment be compatible with that being used by Marine Scotland Science in the same location (which includes an array of 34 receivers), to create efficiency in study design.

Chapter 11 Marine Mammal Mitigation Plan

11.9 Bubble Curtain. The Dee DSFB note and welcome the use of bubble curtains and would like to see more information with regard to data on the effectiveness of this method under a range of environmental conditions such as tides, wave action and wind speed.

A properly designed tracking programme should be used to show that fish navigate past the development during rotary piling and enter the Dee (or other rivers), or whether there are uncharacteristic delays in migration or even failure to enter the river.

Chapter 13 Noise and Vibration Management Plan

Refers to residential properties only, does not refer to noise and vibration in water, this is covered in other documents.

Chapter 14 Piling Management Plan

The Dee DSFB welcomes that impact piling is not currently proposed. AHEP piling operations will be carried out with rotary piling and noise produced by marine piling will be monitored. The Dee DSFB would like to see details with regard to the predicted sound and vibration levels expected from rotary piling.

A properly designed tracking program should be used to show that fish navigate past the development and enter the Dee (or other rivers), or whether there are uncharacteristic delays in migration or even failure to enter the river. As in the response to Ch. 8, 'control' monitoring in 2019 would be useful to define 'normal' migratory behaviour.

Chapter 16 Pollution Prevention Management Plan

Nothing in the PPMP about measures to reduce/control sediment plume caused by dredging. This is covered in Dredging and dredge spoil Disposal Management and Monitoring Plan.

Conclusion

1. Unlike marine mammals, the movements of migratory fish in and around the development site during marine activities cannot be observed through visual observation. However a properly designed and run tracking programme will allow monitoring of fish movements during this development. Without tracking it will be impossible to monitor fish movements, identify impacts on migration and find solutions to reduce disruption.
2. The monitoring programme must be established quickly as marine works are planned to commence in late spring 2017.
3. The CEMD's do not highlight the importance of migratory fish both in terms of conservation status or economic value.

As this development is on the path of returning Atlantic salmon the key issue to understand is the impact that this development will have on migration patterns of returning Atlantic salmon. The developers need to develop a meaningful monitoring programme that can be used to assess migration, check assumptions made in the modelling used to inform the Environmental Statement and amend methods accordingly during construction.

The Dee DSFB wishes to fully co-operate with the resolution of these issues and will provide support where appropriate to do so.

In the meantime, if you require further information then please do not hesitate to contact Mark Bilsby or myself.

Yours sincerely

[redacted]

Edwin Third
River Operations Manager
For and on behalf of the Dee District Salmon Fishery Board.

References

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