Association of Salmon Fishery Boards

RAFTS

Advice to Boards/Trusts on engaging with the planning process for marine renewable developments

March 2012

Background

This briefing was drawn together following meetings with Marine Scotland Science. The information below is largely based on generic advice produced by the Freshwater Laboratory (Marine Scotland Science). This document is an attempt to clarify the process for inputting to the consideration of applications for marine renewable developments and will be subject to on-going review as new information becomes available and subject to feedback from Boards/Trusts. It is appropriate for Boards to adopt a presumption against a development until they are reassured that appropriate risk assessments, robust monitoring programmes (with appropriate feedbacks to site management) and a suitable mitigation strategy are in place. Fishery trusts may wish to adopt a similar presumption or retain a position determined by individual local policies, information or circumstances.

ASFB and RAFTS Roles

Currently, the ASFB acts as a convenient central point for Scottish Government and developers to seek views on local developments. Similar to ASFB, but generally less frequently, RAFTS may receive copies of development proposals and scoping statements from developers although there is no statutory basis for this provision. As neither ASFB nor RAFTS have any local knowledge, nor technical expertise to respond to specific projects, we are only able to provide a very generic response in terms of areas of potential risk to fish and fisheries. In replying to Scottish Government and developers, we provide contact details of the relevant DSFB and Trust to ensure that both organisations are involved in the consultative process, and at the same time we copy the relevant DSFB/Trust into the correspondence. Clearly, under the current arrangements, ASFB and RAFTS ability to formulate any meaningful influence is limited, due to the local nature of sites. It is essentially acting as a 'postbox' and alerting the DSFB/Trust to any proposal.

Assessment of risk

Offshore renewable developments have the potential to directly and indirectly impact diadromous fish including Atlantic salmon, sea trout and European eel. These species use the coastal areas around Scotland for feeding and migration and are of high economic and conservation value. This high value should be highlighted to ensure that these species are considered during the EIA process. It should also be made clear to developers that offshore renewable projects have the potential to impact on fish populations at substantial distances from the development site.

In the case of Atlantic salmon, developers will need to provide information to allow the assessment of whether there is likely to be any significant effect on rivers which are classified as Special Areas of Conservation (SAC's) for Atlantic salmon under the Habitats Directive. Where there is the potential for significant impact, sufficient information will be required to allow Marine Scotland to carry out an Appropriate Assessment.

In order that Boards/Trusts are able to assess the potential impacts of marine renewable devices on migratory fish the developer must provide clear details of the site location (including proximity to sensitive areas), type of device, and the design of any array (including installation methodology) and clear information on the potential for these factors to impact upon migratory fish. Clearly the size of the proposed project should be taken into account, as the potential impacts of a development may be a function of the size of that development.

The following factors should be considered in evaluating the risk of a development to fisheries:

- Identify use of the proposed development by diadromous fish. This should include an assessment of which species use the area; the type of use (e.g. feeding or migration); the time of year that the site is used; and the origin/destination of fish using the area. Given the lack of information on the migration routes for both juvenile and adult migratory fish it is important that developers, at the very least, work on the basis that migratory fish ***are*** present in all sites and undertake all assessment based on this assumption. However, if such an assumption is to be made, any subsequent assessment of the potential risks of the development will inevitably have to be made under the assumption that ***all*** salmon and sea trout from the river in question will use the site for migration and/or feeding. A less precautionary approach may be adopted where additional monitoring information is available.
- Identify the behaviour of fish in the area. This should include an assessment of swimming depths that the fish use; and whether fish tend to swim in nearshore or offshore waters. It may not be possible for an individual developer to provide such information, but this emphasises the need for developers and Government to work together to ensure that such information can be provided.
- Assess the potential impacts of deployed devices on diadromous fish during deployment, operation and decommissioning phases. Potential impacts could include: Physical damage from the device; avoidance (including exclusion from particular rivers and subsequent impacts on local populations); disorientation effects that could potentially affect behaviour, susceptibility to predation or by-catch, or ability to locate normal feeding grounds or river of origin; and delayed migration
- Consider the potential for cumulative impacts if there are multiple deployments in an area.

To ensure that relevant information and the project's potential impacts on wild salmon/sea trout are considered in the Environmental Impact Assessment and ultimately the consenting process, Boards and Trusts should ensure they are involved early on in the project development process, ideally at the Screening and/or Scoping phases of the Environmental Impact Assessment process. ASFB and RAFTS will work with developers and industry trade bodies to ensure that such approaches are made at an early stage in the process. During such consultation and in evaluating an Environmental Statement, careful consideration should be given to the following activities which can have an impact on diadromous fish:

1. *Subsea noise during construction*

   Subsea noise during construction will depend on the construction methods utilised by the developer. Unfortunately, these methods may not be clear, even at the point of application. The reason for this is that the construction phase will take several years, and it is likely that technology will advance during that time. Therefore Environmental Statements will be likely to assess effects on a 'worst case scenario' basis or provide a range of possible effects. Such effects are based on models which use the best available data for salmon. A recent review commissioned by SNH[1] states that 'Marine renewable energy devices that require pile driving during construction appear to be the most relevant to

[1] Literature review on the potential effects of electromagnetic fields and subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. Available at: http://www.asfb.org.uk/wp-content/uploads/2011/06/SNH-EMF-Report1.pdf

consider, in addition to the time scale over which pile driving is carried out, for the species under investigation'.

2. *Subsea noise during operation*
   This is most likely to be an issue for 'wet' renewables, such as wave and tidal. Again, predicted effects will be based on the results of modelling.
3. *Electromagnetic fields (EMFs) arising from cabling*
   The SNH-commissioned review (cited above) has shown that EMFs from subsea cables have the potential to interact with European eels and possibly salmonids if their migration or movement routes take them over the cables, particularly in shallow waters (<20m). As stated below MSS are currently undertaking a research programme which aims to investigate electro-magnetic force impacts on salmonids. We would hope to have some results from this work later in 2012. In assessing Environmental Statements and applications, particular attention should be given to the proposed procedure for cable laying. In some cases, due to the make-up of the substrate, burial to an adequate depth to mitigate EMF effects may not be possible. It is vital therefore that such cables are shielded in some other manner to ensure that EMF effects are below any threshold of effect for eels/salmonids. It may also be more difficult for operators to adequately bury intra-array cabling, due to the shorter runs of cabling between devices. It is important to ensure that cables close to the devices are buried at an appropriate depth and/or further shielded to ensure that there are no negative effects on salmonid fish.
4. *EMFs arising from operation of devices*
   It is important to ensure that such effects are quantified and assessed in the Environmental Statement.
5. *Disturbance or degradation of the benthic environment (including secondary effects on prey species)*
   It is important to ensure that such effects are quantified and assessed in the Environmental Statement.
6. *Aggregation effects (whilst the aggregation of prey items around physical structures might be seen as a positive effect, possible negative effects might include the associated aggregation of predators)*
   It is important to ensure that such effects are quantified and assessed in the Environmental Statement.
7. *Strike or cavitation effects*
   In the specific case of 'wet renewables' Boards/Trusts should seek assurance that there is no risk of strike/cavitation effects from undersea turbines. Parallels should be drawn to data gathered from the hydro electricity industry on such effects.

Marine Scotland Science has set out a Research Implementation Strategy for Offshore Renewables. This document sets out the proposed research required to inform the further development of offshore renewable energy in Scotland's seas in 2011/12 and sets out the further research required in subsequent years. Of particular relevance to migratory fish, the research programme aims to:

- Construct a coil system to investigate electro-magnetic force impacts on salmonids
- Evaluate generic methods for assigning fish caught in coastal zones to river of origin
- Evaluate options for establishing the migration routes of Atlantic Salmon in coastal areas
- Draft plans for assessing impacts of EMF on salmon and sea trout, and migratory routes of salmon

However, prior to the completion of this research programme, the Scottish Government will continue to receive and process applications for offshore renewable developments and therefore decisions will continue to be taken with a lack of scientific understanding of the potential effects of such developments.

Survey, Deploy and Monitor

Given the paucity of information on coastal migration routes for Atlantic salmon and European eel and inshore habitats for sea trout, and the uncertainty surrounding the potential negative effects of marine renewable devices, it is important that the developer and/or Marine Scotland should recommend a scientifically robust monitoring strategy to assess any impacts either on stocks as a whole, or on particular rivers as necessary.

Due to the uncertainties surrounding the potential negative effects of novel marine renewable devices, the renewables industry and Scottish Government have adopted a strategy of survey, deploy and monitor. In order to assess the potential impact of developments the developer should provide information on all species and abundance of fish within the development area. The onus is on the developer to provide adequate information on which to base an assessment of risk. Where there is a potential risk to salmonid populations, baseline survey data should be collected for a minimum of 2 years prior to construction to establish pre-construction characteristics. Following construction, there should be 3-5 years post development monitoring, with scope to extend this period if impacts are detected.

Monitoring throughout the development phase should be carried out to identify impacts and allow remediation at the earliest opportunity for sites where there are thought to be risks to fish populations. The experimental design of the monitoring programme should focus on the risks presented by the development and be clearly justified. Methods of analysis, reporting mechanisms and links to site management should also be clearly identified. These methods must be statistically robust to detect change and any monitoring must feed back into site management to trigger remedial action/restoration.

Due to inadequacies in the monitoring regime for the Robin Rigg windfarm, Marine Scotland Science are currently looking at the available data to ensure all future monitoring in Scotland is adequate. Cefas have produced a report[2] which collates pre and post construction fish survey data for operational wind farms. This report is largely aimed at commercial sea fish species and is limited in its treatment of migratory fish, but some of the issues raised may be appropriate to Boards/Trusts in responding to applications. Given the paucity of information, it is advised that the Board/Trust should recommend that the developer carry out a full monitoring survey in addition to appropriate mitigation plans. In addition to monitoring at the development site itself the following aspects might also be considered:

- Adequate monitoring may require the installation of fish counters (where appropriate) and the provision by the developer of adequate resources to ensure that the operation of the fish counter can be resourced throughout the pre-construction, construction, and post-construction phases.
- Additional juvenile monitoring may also be required. This monitoring should be funded by the developer.

Maintenance and Decommissioning

It is vital to stress that the standards outlined above are equally important for any routine site maintenance and ultimately the decommissioning of the development.

[2] CEFAS 2009, Strategic Review of Offshore Wind Farm Monitoring Data Associated with FEPA License Conditions: Fish. Available at: http://www.cefas.defra.gov.uk/media/393525/annex-2-fish.pdf

Conclusion

Whilst there is considerable uncertainty surrounding the potential negative effects of marine renewable developments on migratory fish, it should be recognised that these developments are an extremely important aspect of the Scottish Government strategy on climate change and energy security. Unfortunately, the information arising from the Robin Rigg offshore wind farm has proved disappointing and has not been useful in informing future developments. It is therefore vital that robust, survey and monitoring programmes are put in place in any new developments. If designed and located properly and if proper care and attention is taken during construction marine renewable developments need not be incompatible with the needs of migratory fish. However, it is appropriate for Boards to adopt a presumption against a development until they are reassured that appropriate risk assessments, robust monitoring programmes (with appropriate feedbacks to site management) and a suitable mitigation strategy are in place. It is advised that each DSFB/Trust responding to planning applications focuses their contributions to the environment, fish, fisheries and habitat in question. It is not appropriate to extend representations to other subject areas e.g. landscape and visual impact.

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