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Institute of Fisheries Management
Dedicated to professional and sustainable fisheries management

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29 February 2024

Dear Sirs,

Material Change to Hinkley Point C's Development Consent Order: IFM Response to consultation February 2024

We refer to your consultation on this matter available at Hinkley Point C Development Consent Order Public Consultation | EDF (edfenergy.com).

The Institute of Fisheries Management (www.ifm.org.uk) is the professional membership body for fisheries managers. We promote, for the benefit of biodiversity and society, sustainable fisheries management and the conservation of aquatic ecosystems. We welcome the opportunity to comment on this consultation.

Summary

The Institute of Fisheries Management rejects and strongly opposes the proposals on the following grounds:

1. HPC is the largest and most advanced nuclear new build in western Europe. It is seeking to abstract colossal amounts of water from a rich, diverse and highly protected estuarine environment which is home or a migration pathway for millions of fish, including important and protected species. In this environment, a state-of-the-art development requires state-of-the-art mitigation in the form of an acoustic fish deterrent.
2. In that respect, you are not applying Best Available Technology, contrary to planning and environmental law.
3. You have not demonstrated, as is required by environmental and planning law, that the development will have no net impact on the environment.
4. The package of environmental compensation measures proposed is welcome, however:
   a) When you are not monitoring the impact on fish populations and other wildlife, the impact cannot be known and therefore the extent of compensation cannot be assessed, or whether it is sufficient;
   b) The 'compensation' package should be considered instead as your contribution to environmental net gain, as is required by law. It should be provided as well as the AFD
5. You have not applied the Precautionary Principle.

We have had a longstanding interest in the proposed development of Hinkley Point C New Build Nuclear Power Station (HPC). In recent times we provided written representation to the WDA Permit Variation Public Inquiry in June 2021, objecting in the strongest terms to the proposed removal of the requirement to fit an Acoustic Fish Deterrent (AFD). This measure had been part of an integrated suite of mitigations, designed to work together. It had been determined by the regulator at the time of DCO in 2013, that direct cooling could only be considered to meet BAT standards for sustainable development of such power stations, if this suite was fully implemented and operated in conjunction.

IFM also had engagement at the 2021 Inquiry through the representations made in court by a third Part, the Severn Estuary Interests Group (SEI).

In the recent past, we have been working closely with a reconstituted form of SEI and have established a common position on some issues relevant to the current consultation. This common position forms an integral part of our response and appears below. We fully endorse all the statements made. We make some specific points first which are specific to our particular background and expertise. Some of our comments also appear in the common position below.

Acoustic Fish Deterrent

The detailed case put forward by the developer for excluding the AFD on Health & Safety and technical development grounds appeared weak to the SEI in the 2021 Inquiry and in our view, that case has not been made any more convincingly in the current application. Against that background, Fish Guidance Systems (FGS), one of the largest international suppliers of AFD equipment and with great expertise, made a case in 2021 that the arguments for excluding AFD put forward by the developer were incorrect. Technical evolution had reached the point where such equipment could be installed satisfactorily at HPC, and was being, installed and fully maintained by other developers across the world. Crucially, they had not been consulted by the developer at the time of the decision made in 2017 or since. FGS recently published documentation which continues to support their position. Not being technical experts in this field, given the importance of the outcome and its implications, how are any of us able to judge? IFM believes that this remains a fundamental question at the heart of this development and has not been answered to the satisfaction of all those with a vested interest. Furthermore, this case should not become a precedent to exclude the use of AFDs in other future applications, such as Sizewell C. You seem able to construct and maintain a substantial intake 3.3km into the challenging waters of the Bristol Channel, but not to do the same with an AFD.

At the 2021 Inquiry, the Environment Agency (EA) was able to present new data on the tracked movements of twaite shad in the lower Severn estuary. This new work demonstrated a heightened vulnerability since fish had been observed not to simply transit through the area but spend time feeding in Bridgwater Bay. New information in the DCO Material Change Application: Shadow Habitats Regulations Assessment Evidence Report – Pre Application Consultation Version (Shadow HRA) notes that receivers placed on the HPC buoys in 2023 had demonstrated further that some of these shad had moved at depth adjacent to the proposed new intake. Twaite shad are very sensitive to sound. An AFD would therefore provide effective deterrence. In the 2021 Inquiry, the Inspector found that the then new information on shad was sufficiently concerning to contribute to his decision. This new tracking information from 2023 heightens the concern over the vulnerability of twaite shad to entrapment in the absence of an AFD.

Given that this is a unique application with an intake sited some 3.3km offshore (no international precedents), together with a Low Velocity Side Intake (LVSE) which has never been tried before and all this in a highly protected area, how was the DCO granted without the developer having fully addressed the feasibility of AFD installation in advance? Without an AFD, how can we be confident

that the novel LVSE will perform as predicted? All of the information provided on the LSVE comes from modelling. Where is the precautionary principle here?

In the 2021 Inquiry, SEI noted an over-reliance on modelled rather than actual field data. Virtually all of the real data presented arose from impingement studies at the older station, HPB. That was then used to form baseline estimates for pre-mitigation at HPC. There was a view taken, without any supporting data, and opposed by SEI, that the fish communities were essentially similar. The new data from tracking of shad around HPC suggests that this argument is a very flawed assumption. The Shadow HRA describes some basic views on the impacts of climate change on fish. What it fails to note is some the sensitivities of species at risk here. For example, the twaite shad is a Lusitanian or warm water species. It is highly likely that shad populations will increase significantly over the operational life of the station, risking much higher mortalities than have been predicted to date. Other Lusitanian species include the sea lamprey and European sea bass.

Furthermore, the HPC intake will abstract significantly more seawater than that for HPB. It will suck in a huge amount of water – the equivalent of more than the dry weather flow of all the rivers that flow into the Bristol Channel.

So, IFM fully supports and requires the inclusion of the AFD.

Habitat Creation and Easement of Passage

SEI introduced the arguments in favour of both habitat creation and easement of fish passage at the 2021 Inquiry, in a separate note to court. That position was developed to stimulate some recognition of the significant uncertainties it perceived to be evident in the development, even with inclusion of the AFD. That position was never developed to compensate for the removal of the AFD.

Apart from the issues around the AFD, IFM welcomes the habitat creation and fish easement in the manner in which it was originally intended, now supported by the principle of environmental net gain. Members of the IFM are recognised international experts in the creation of saltmarsh to stimulate new fish production and we would be very happy to help in this process. Through monitoring of the actual fish mortalities in cooling water operations, some scale of what is needed as offsetting might be established. Work in Western Europe in the field of new intertidal habitat creation is still very new. We can demonstrate that new areas of saltmarsh style habitat (managed realignments) will be colonised extensively and quickly by juvenile flounder, European sea bass, common and sand goby, sand smelt, grey mullets, herring, sprat and probably twaite shad. We can even demonstrate that saltmarshes provide the optimum habitat for the early life stages of species like the bass. However, these systems are so dynamic that it might take 30 years of data to develop robust production figures, as they have in the USA. This then has to be a question of sufficient scale of the compensatory habitat creation. As noted in the Shadow HRA, fish densities and diversity in new managed realignment habitats are lower than those associated with mature saltmarshes, which provide the optimum conditions. In our direct experience, it will take some years to optimise fish production as the new marsh matures. This is partly about site design, but there will still be a time lag. We recommend that new habitat creation begins before operation, if at all possible. See SEI comments later.

Sturgeon

The last of our specific point concerns the sturgeon. SEI raised this issue in the 2021 Inquiry. As has happened with twaite shad and tracking, the situation has moved on since then. By 2021, the UK Sturgeon Alliance had gathered over 5,400 historical records of sturgeon in UK waters, with the vast majority between 1750 and 1940. 1,440 of the records have come from rivers and 270 of those from the Severn catchment, the largest set nationally. Most of those fish were taken incidentally by salmon netsmen. Patterns in the data show small groups of fish moving upstream at the expected

spawning time. Some fish were dissected and found to be full of roe. Fish were penetrating to Shrewsbury on the Severn (before the 1840 navigation works at Diglis and above) and as far as Hay-on-Wye on the Wye. A report on that data went to Defra, Natural England & EA in mid-2021. The Alliance has since been commissioned to develop a draft document to envisage what Favourable Condition Status might look like in the future for sturgeon in English waters. OSPAR views the new British data set as very important, demonstrating that some English rivers, notably the Severn, Ouse and Trent as being important sturgeon rivers (not necessarily spawning rivers, but important areas for feeding for the wider pan-European population). Adolescents from French, German and Baltic restoration schemes have been reported from the south coast since the late 1990s and numbers are rising. The preferred feeding habitats for all life stages are the soft muds found in lower estuaries and coastal bays where they feed selectively on tube dwelling polychaetes and crustacea.

Even if no active restoration takes place in the UK, it is highly probable that numbers of highly protected sturgeon will begin to feed in the Severn Estuary well within the lifetime of the station. Climate change is only likely to enhance the numbers. The predictability of their behaviours is already leading to early discussions with marine regulators about future protection as Essential Fish Habitat as numbers build. This would logically apply in the lower Severn at some point.

Sturgeon are powerful swimmers, but poor leapers. When easement is considered, bypass channels would provide the best options, permitting all species of fish to ascend. Given the work already undertaken at Diglis and upstream, we would suggest the lower options at Maisemoor and Upper Lode provide the optimum access for all species.

The HPC development and compensation measures have taken no account of the return of this important species.

Severn Estuary Interests Common Position

As a member of the Severn Estuary Interests, IFM includes the following common points in its response:

1. Para 6.2.1: SEI are concerned that there is no alternative technology available to mitigate the risk at source, and significantly reduce abstraction and discharge into this vulnerable and depleted ecosystem.
2. SEI are of the view that the Development Consent Order will need to consider the impact of the entire HPC cooling system on the affected SACs and Ramsar sites, rather than just the removal of the acoustic fish deterrent. This seems to be in contrast to the HRA that does not make it clear if the considered impacts relate to just the six changes and the compensatory measures or the total impact of the water cooling system. If the HRA has not considered the total impact of the water cooling system it will need to be considered further.
3. SEI are of the view that the DCO will also need to consider the impact of the cooling system via the lens of marine planning. Marine Plan Policies SW-BIO-1,SW-BIO-2 & SW BIO-3 are of particular relevance as these too require the implementation of compensatory mechanisms. It is important to note that the tests under marine planning are different and potentially more far-reaching than those under the Habitats Regulations, and these tests will need to be articulated, agreed and met before an application can be properly decided under the DCO and marine licence.
4. EDF has not provided (at this stage) sufficient robust and referenced evidence for projections for the loss of fish (and other species) in the operational water intakes to HPC, in particular but not exclusively there are concerns in relation to:
    - The relationship between the abstraction of marine species between HPB and HPC is a geometric rather than arithmetic progression, thus the HPB data are misleading;

- HPB's CIMP data are from a very different location to the HPC abstraction which is much further out to sea and of a very different design and sits in the tidal stream at a location and height in constant use by many passing marine and migratory fish species.
- Barotrauma impacting fish entering the cooling water system has not been properly considered.
- The Low Velocity Side Inlets are likely to attract rather than deter marine and migratory fish species, particularly if there is no acoustic deterrent to hearing species;
- EDF (and CEFAS) have not consulted a number of expert bodies in the development of the current evidence.
- The SEI have not yet had sight of Natural England's detailed advice on the effectiveness of the proposed compensation;

5. The SEI are supportive of the AMMP, but question why the consultation arrangement, with the independent chair and range of stakeholders, has not been incorporated into this process at this stage. We are of the firm view that setting up the AMMP now to validate and review the choices made by EDF will create a much more robust process, save time and costs, and lead to better conservation outcomes.
6. While there is strong evidence of the significant value of the compensatory habitats for recruitment of some fish species, and that they offer wider ecological and nature-based solution benefits, the current detailed evidence relating fish recruitment to hectares created, or per weirs removed, is currently lacking in the UK. The SEI recognise that the compensation will never be like for like in relation to the species assemblage impacted, but we cannot comment further until we have seen Natural England's assessment of the compensatory package and assessment of the basis of equivalence.
7. The SEI believe that given uncertainty in the evidence, and based on other comparators, EDF must review the case for additional compensatory or other measures based on the precautionary principle. Fish kills by direct cooling are a known issue, and generally it is more practical and good practice to over-compensate. There are USA comparators where baseline modelling of fish impacts were increased in a ratio of 1:4 in determining the area of compensatory saltmarsh.
8. The SEI are concerned that the compensatory package of measures will not be functional by 2027 (7.2.125 HRA) and, therefore, further degradation of the estuary and its marine species will continue until the compensatory measures become effective. This will need to be addressed by EDF.
9. The SEI are concerned that we have not been fully consulted on the options for compensatory packages or engaged in their choice (as would happen under the AMMP process). SEI members have individual concerns over the effectiveness of the chosen sites:
   a) Oyster, seagrass and kelp restoration are difficult to undertake in practice
   b) Saltmarsh restoration is an excellent option with proven multiple benefits, but
      i. The SEI are concerned at this stage that significantly more work needs to be undertaken on the proposed site and design to maximise benefits, as well as quantify and compensate for potential ecological and hydrodynamic impacts.
      ii. The premature use of a CPO could be extremely costly and become very unpopular, having potential repercussions on other saltmarsh restoration projects in the area.
   c) Weir removal too has a proven track record, but there are other sites in the Severn estuary catchment which should have been considered and put to consultation.
   d) The SEI are concerned that in being so specific over the compensatory package at this stage of the process, EDF risk running into significant legal and public relations obstacles.

10. Para 6.8.4 of the Consultation refers to the AMMP resulting from an engagement with SNCBs and regulators. The Shadow HRA documents and the accompanying presentation go further and states that the AMMP will be independently chaired and comprise: NNB; Natural England; Natural Resources Wales; Marine Management Organisation; Environment Agency; Devon and Severn Inshore Fisheries Conservation Authority Somerset Council; and representatives from appropriate and relevant conservation groups, as well has having the support of an independent group of scientists (the compensation expert panel). The SEI welcome the development of the AMMP as described.
11. The SEI also welcome the commitment at 6.8.1 of the Consultation to providing a framework for additional compensation. We note though that affected marine and migratory fish species mortality associated with the water-cooling system will not just be as a result of impingement rates, and compensation should reflect the total adverse impact of the operation of the system.
12. The SEI propose that recommendations and implemented future measures via the AMMP must consider additional habitat compensation works and measures to reduce losses in the water intakes, as and when viable technological solutions become available, or a reduction in intake water volumes.
13. The SEI would like to see a clear commitment to the long-term protection and management of compensatory habitats by relevant and competent bodies.

We look forward to further engagement, together with other SEI interests, including engagement in the AMMP.

Yours sincerely,

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