



Mr S Smith
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18th August 2015

Dear Mr Smith,

Further to your letter of 9th June, please accept our apologies for not responding sooner. I regret that on this occasion, it seems your letter was scanned but then mislaid in our email system and we only realised our error when we received the follow up letter dated 7th August from Chris Davies MP. We have copied this response to Chris Davies MP and Kirsty Williams AM and apologise to you all for our mistake. Thank you for bringing your concerns back to our attention and I trust that the following response helps to allay your concerns.

As you mention in your letter, we very much recognise the importance of the Severn Estuary as a migratory route for fish. Any planning application we make for tidal lagoons will require a detailed and robust assessment of any potential impact on migratory fish (as well as other non-migratory species). This information will also be used to inform the Habitats Regulations Assessment for the project which as you correctly state will need to be to a very high standard.

With regard to specific questions about the assessment for Swansea Bay Tidal Lagoon, the basis of our assessment for migratory salmonids is set out in the Tidal Lagoon Swansea Bay (TLSB) Environmental Statement (ES) which accompanied the DCO application. Field surveys for fish in general making use of the Bay were characterised over a two-year period through seasonal (quarterly) netting surveys. These were carried out using best practice methods and protocols agreed with Natural Resources Wales (NRW) at the start of the programme, and generally in accordance Environment Agency/NRW Water Framework Directive methods for transitional waters. For your information, more complete details of these and the other extensive surveys undertaken can be found in our Document Library on our website:

<http://www.tidallagoonswanseabay.com/document-library/document-library/87/>

With regard to your points concerning salmonid movement patterns within the Bay, the TLSB Environmental Statement (with supporting Appendices) reviewed previous fish tracking work carried out in Swansea Bay, including studies by Mee *et al.* (1996), Russell *et al.* (1998) and Moore *et al.* (1997). The assessment also sets out our approach using Individual-Based Models (IBMs) of fish behaviour.

The IBM modelling approach has been recognised by regulators as being the most (probably the only) appropriate method for predicting likely fish encounter rates with tidal lagoon turbines. This mirrors the more recent advice to Crown Estates by Guerin *et al.* (2014) in connection with predicting salmon encounters with offshore renewable schemes. In order to calibrate the model, a comprehensive review of available published and 'grey' literature was undertaken, including that cited above, along with data from other tracking studies carried out in Southampton Water (salmon smolts: Moore *et al.*, 1997), on the NE coast of England (adult salmon: Potter, 1995) and in Norway (adult salmon, Davidsen *et al.*, 2013). The Norwegian studies merit inclusion on account of the high quality of the data; also, owing to lower water temperatures, the effect within the model is to overestimate entrainment risk, so they contribute to an over-pessimistic assessment.

The model also predicts migratory delays associated with fish being trapped in the lagoon. Since only a minority of fish are predicted to enter the lagoon and the volume turnover in the lagoon on each tide is very large, the probability of fish missing a spate is likely to be very small.

Whilst TLSB is confident in the assessments provided with respect to potential impacts on migratory salmonid, we recognise the value of providing more detailed monitoring of salmonid behaviour with regard to emigrating smolts and inward-migrating adults to reinforce regulator and stakeholder confidence in the IBM models. To this end, earlier this year TLSB commissioned acoustic tracking studies of salmonid smolts, and more recently similar studies for adults which are currently under way. All such studies are used to inform any monitoring and mitigation required throughout the lifetime of the project through an Adaptive Environmental Management Plan, approved by the regulators and shared with stakeholders.

In conclusion I would like to assure you that we remain committed to working constructively with all parties to ensure any decisions on future lagoon developments are informed by the most detailed and robust assessments possible. However, we also believe that the Severn Estuary environment (among others) will suffer irreparable damage if urgent action is not taken to reduce our carbon emissions, and we remain confident that sensitively designed tidal lagoons such as those we're proposing will have a net positive effect on the environment we're seeking to protect.

Yours sincerely



Graham Hillier
Managing Director of Development Services

CC: Chris Davies MP, Kirsty Williams AM

References

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