

Wendy McKay

Our Ref: 20026727

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Your Ref: EN010012

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By email only

Dear Ms McKay

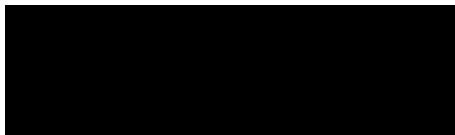
Planning Act 2008 – Section 88 and the Infrastructure Planning (Examination Procedure) Rules 2010 – Deadline 7: Comments on Deadline 6 Submission - 6.14 Environmental Statement Addendum - Volume 3: Environmental Statement Addendum Appendices - Chapter 2 - Main Development Site - Appendix 2.17.A - Marine Ecology and Fisheries –Revision 2.0 - Report no. SPP103 (rev 5).

Application by NNB Generation Company (SZC) Limited for an Order Granting Development Consent for the Sizewell C Project


For Deadline 7 (3rd September) the Examining Authority (ExA) have requested comments on additional reports submitted by NNBGenCo (SzC) Ltd at Deadline 6. We wish to provide feedback on the following report [REP6-016] Deadline 6 Submission - 6.14 Environmental Statement Addendum - Volume 3: Environmental Statement Addendum Appendices - Chapter 2 - Main Development Site - Appendix 2.17.A - Marine Ecology and Fisheries – Revision 2.0 - Report no. SPP103 (rev 5)

In summary this revised document has not addressed our concerns. We do not agree with some of the stock comparators being used. Whilst some corrections have been incorporated in the local effects assessment, such as the removal of the LVSE factor. We cannot agree the appropriateness of the exchange rates applied in the local effects model, or if this offers a precautionary assessment of the potential local depletion of fish populations in the Greater Sizewell Bay. – detailed comments found in Appendix A

Yours sincerely



Simon Barlow
Project Manager
Sizewell C Nuclear New Build
Environment Agency



OFFICIAL

Appendix A: Environment Agency comments on [REP6-016] SPP103 Revision 2.0

Below are the issues raised in the EA 2021 written representation response [REP2-135]

We have provided comments in the final box to note whether the issue is resolved / outstanding and why.

Document Title	Paragraph number	Issue	Comment	Suggested solution	August 2021 Review
					Issue resolved / outstanding & why?
SPP103 (rev 3)					
BEEMS Scientific Position Paper SPP103 Consideration of potential effects on selected fish stocks at Sizewell version 3.		<p>The effort to consider localise impacts is welcomed.</p> <p>But the applicant has submitted a new approach to assessing localised stock, which we have not seen in submissions up to now. It appears to follow approaches used in other fish movement box models, but the model attributes are not provided in detail.</p> <p>The report highlights this is a conceptual model and gives a number of broad assumptions used in its application for fish. These assumptions will give a degree of uncertainty to the results, which is recognised but the level of which is not known.</p> <p>The assessment is also based on impingement/intake data that we have questioned, so that may not be the correct input data to</p>	<p>The assumptions that fish will not move out of the 4c area is perhaps not conservative for sprat given that there is a question over the localised nature of outer Thames stock.</p> <p>The exclusion of behavioural traits of fish and their more mobile nature will mean the model could be wrong.</p> <p>There is no tag recapture data to support the model, as has been used in movement models performing a similar purpose.</p> <p>The results may be accepted as a possible solution to help understand the scale of localised effects for some species, but the uncertainty in the outputs could be considerable and make it difficult to use this in more than a broad indication.</p> <p>The model includes the ‘LVSE factor’ of 0.357 as calculated in SPP099. . The Environment Agency considers that there is significant doubt on the degree of mitigation (LVSE reduction factor) that is offered by the LVSE. Use of a different LVSE factor would affect the results of the Local Area Effect model. . The consequence of this is that the predicted impingement at SZC may have been underestimated and the impacts to species of relevance under the EIA and WFD may be found to be unacceptable.</p>	<p>A precautionary LVSE factor should be applied to the Local Area Effect model.</p> <p>We welcomed the Report SPP103 to explore the local effects of SZB and SZC impingement on certain fish species. The model is noted to require a number of assumptions and there is inherent uncertainty in the outputs, but it is helpful as a broad relative indication of local impacts to use alongside other evidence</p> <p>We still raise the original issue over scales of assessment for a reduced number of fish species (which we refer to in Table 2 and in our comments in our the Marine Ecology section)</p>	<p>The LVSE factor issue has been resolved.</p> <p>There have been steps to refine the model further which should reduce some of the uncertainty in the results and may reduce some of the assumptions where this is based on scientific evidence, although it is not clear to what extent, and it still needs to be considered a broad relative indication of local impacts.</p> <p>The local area effect model has been altered. No effect of LVSE is now assumed (LVSE factor = 1), ranges are placed around FRR survival for SZC, vertical distribution is non-uniform for gadoids and epi-benthic species. Clupeid larvae are now considered, whereas they weren't previously.</p> <p>This has led to notably increased impacts for seabass, cod, whiting and epi-benthic species. Impacts on adult pelagics (sprat/herring) are similar to before, but an additional pressure is acknowledged on the juveniles. The scale of the increase between this and previous versions is not really acknowledged in the report.</p>

BEEMS Scientific Position Paper SPP103 Consideration of potential effects on selected fish stocks at Sizewell version 3.	Table 1 (pg19)	Shows the changes to the scales of assessment for the stocks taken from TR406 version 6. Dab areas have reduced, thornback ray have altered and increased further north of Norway. We expect a further revision (v7) of TR406. However, the table appears to have errors as a result possibly of taking it from an another report – references are not correct in the reference list and the sprat area is a mismatch	We are not sure of the references being used. We continue to question the sprat scale of assessment as the text in table 1 contradict the references and subsequent text (section 2.6, p22). The sprat scale in table 1 states subarea 4 which is smaller than that given in other parts of the text (4 plus 3a).	We still require confirmation that the scale in table is incorrect as the continued text and underlying WKSPRAT 2018 report suggest it is 4 plus 3a that has been used in the assessment.	Issue resolved. Text in Table 1 now says Subarea 4 and Division 3.a for sprat
BEEMS Scientific Position Paper SPP103 Consideration of potential effects on selected fish stocks at Sizewell version 3.	2.7 Sea bass	We asked for more information on how the applicant had decided on the scale of assessment for seabass and extra information has been provided.	The extra information is useful but seems to not yet be conclusive as to whether bass in the North Sea should be considered part of a separate sub-population to the Irish Sea (or elsewhere) due to small sample sizes of tagged fish – something the applicant acknowledges, but argues that this as a reason for not splitting the stock. Splitting the stock into smaller scales of assessment would increase the proportion of fish in that stock impacted by entrapment in the cooling water intake	A more conservative approach using a smaller scale of assessment is required.	Not resolved to our satisfaction- additional information on sea bass is insufficient to change our views given some data illustrating alternative view has not been used. Evidence provided to HPC inquiry showed modelled seabass recruitment from different parts of the ICES area. Contribution of major western spawning grounds to North Sea was relatively small, which supports ‘splitting’ the stock in terms of assessing impacts. See evidence provided in Figure 6 in Beraud, C., van der Molen, J., Armstrong, M., Hunter, E., Fonseca, L., and Hyder, K. The influence of oceanographic conditions and larval behaviour on settlement success—the European sea bass <i>Dicentrarchus labrax</i> (L.). – ICES Journal of Marine Science, 75: 455–470 Additional information on seabass population is presented but this doesn’t include all the information presented at HPC inquiry (larval drift modelling, which showed little contribution of western areas to North Sea seabass doesn’t seem to be referenced). Selected tracks show two seabass tagged off SZC going to English Channel, but also shows two tagged in channel/Irish Sea never going to North Sea.

BEEMS Scientific Position Paper SPP103 Consideration of potential effects on selected fish stocks at Sizewell version 3.	2.6 Sprat	<p>Considered the latest and therefore best advice on the stock from ICES, and we agree it supersedes the 2013 advice for this reason. But it does still leave untouched the original points provided in the 2013 ICES advice which highlights that there are potentially localised stocks of sprat in the outer Thames estuary (Section 4.5) which includes the GSB. Stating in relation to this area that “<i>there are several peripheral areas of the North Sea where there may be populations of sprats that behave as separate stocks from the main North Sea stock. Local depletion of sprats in such areas is an issue of ecological concern</i>”. This raised concerns over stocks in ICES expert group over the stock structure given the further action needed on “...<i>, Moray Firth and English channel probably not well resolved, coastal sprat also an issue.</i>” (WKsprat 2018)</p>	<p>WKSPRAT does not answer this issue but focuses on the difference or not between 4 and 3a more generally. It does create doubt over whether the sprat along the Sizewell coast stock can be as confidently aligned with the area 4 scale of assessment given ICES own doubts for coastal stocks and the possibility they are “separate stocks”. Overall the 2018 ICES report provides new evidence that they used as part of a wider WoE (genetics, physical measures, etc.) to determine the merging of 4 and 3a. But did not look to resolve the questions over localised stocks.</p>	<p>No information is provided to resolve the question over localised stock, but the approach to use the local model in SPP103 for estimating sprat losses has perhaps superseded this approach in relation to HRA and impact on sprat as a prey species. As such we would draw attention to the comment on the local effect model in SPP103 above and the need to ensure the model uses an agreed LVSE reduction factor.</p>	<p>Issue indirectly resolved through use of amended local effects model with LVSE factor agreed and applied as 1.</p> <p>The local area effect model has been altered:</p> <ul style="list-style-type: none"> • No effect of LVSE is now assumed (LVSE factor = 1), • ranges are placed around FRR survival for SZC, • Clupeid larvae are now considered, whereas they weren't previously. <p>Impacts on adult pelagics (sprat/herring) are similar to before, but an additional pressure is acknowledged on the juveniles.</p> <p>Pelagics was 2.7% now 2.9%</p> <p>Larval pelagics now between 8% (with 10% exchange) and 3.9% (with 20% exchange).</p>
BEEMS Scientific Position Paper SPP103 Consideration of potential effects on selected fish stocks at Sizewell version 3.	Section 2.1, Allis shad, p13	<p>The applicant proposes that the Garonne stock is the likeliest source for the occasional fish that are caught in summer feeding grounds that are present in the North Sea, although they acknowledge that there are smaller populations nearby. No evidence is presented as to why the North Sea fish would come from a more distant, larger, population as opposed to a closer, smaller, population. No population estimates are provided for rivers other than the Garonne. Self-sustaining populations in Brittany and Normandy are</p>	<p>Predicted annual impingement of allis shad is small (mean = 2, L95 = 0, U95 = 13) and if shad come from a mixture of populations, then the chance of an impact on any one population is correspondingly reduced. However, comparing losses to the largest European population is potentially misleading.</p>	<p>Within EIA, consideration should be given to potential impacts on populations other than that of the Garonne. We acknowledge that in SPP103 (Rev 3) the Applicant says they will assess the potential impacts on population in the Tamar for the HRA, but we would want to see more evidence associated with the Brittany and Normandy Allis shad population to complete a more balanced assessment. See comments for SPP100.</p>	<p>We had a number of issues in relation to the more detailed shad report SPP100, which may not have been addressed, but in relation to this main comment:</p> <p>There is reference to population on the Scheldt and Elbe.</p> <p>“Primary assessment is based on conservative UK</p>

		mentioned but no references/population estimates cited.			<p>landings and SSB. Not defined but includes the East Anglian coast and rivers on the European coast from the Elbe to the Scheldt</p> <p>.In relation to the wider area of the French coast A simple statement may acknowledge this.</p> <p>“Mean annual landings of allis shad increased from zero (North Sea TR 406 v.7) to 6.6t (ICES subareas 4,7, and 8 combined) <u>to reflect the uncertainty of the origin of the fish impinged and to account for the possibility of it coming from either the Garonne or a wider area.</u>”</p>
<p>BEEMS Scientific Position Paper SPP103 Consideration of potential effects on selected fish stocks at Sizewell version 3.</p>	3.4.1.2	<p>Cannot assess what % replenishment rate would be appropriate to apply to smelt as no information has been provided on immigration rates to the GSB from stocks outside of the area. Biological studies are needed to produce the information required, in the absence of this information we assume immigration to be limited, this is supported by the fact that smelt populations have previously been exploited to a point causing the collapse and loss of the species from some water bodies on the east coast, recovery from this collapse has taken a long time and has still not happened in some water bodies.</p>	<p>The issue is based on these statements: In the case of mobile pelagic species, a 10% per day replenishment rate applied in the original assessment appears suitably precautionary for most species. To simulate the case of species that spend longer periods in the coastal waters off Sizewell, for example smelt, the sensitivity to exchange rates following 253 days was assessed. With Sizewell C operating in combination with Sizewell B, exchange rates of just 1% of fish between adjoining assessment cells resulted in localised fish depletion of 13.3% after 253 days. At 5% daily exchange across the boundaries, effects within the GSB + tidal excursion are reduced to 3.1% compared to 1.5% local depletion with a 10% exchange (Figure 12). Local depletion is therefore modest at 3% or below if there is greater than a 5% exchange rate of smelt within the GSB + tidal excursion each day from the wider area.</p>	<p>A precautionary LVSE factor should be applied to the Local Area Effect model. The appropriateness of applying this model will vary depending on the species, this limitation and the species this model will be less appropriate for should be highlighted more clearly.</p>	<p>Not resolved to our satisfaction</p> <p>The local area effect model has been altered:</p> <ul style="list-style-type: none"> No effect of LVSE is now assumed (LVSE factor = 1), ranges are placed around FRR survival for SZC, <p>The applicant has used an Anglian region SSB to account for concerns that the smelt stock may be more localised than previously acknowledged. Referenced in this report is the uncertainty analysis in SPP116 (Doc Ref. 9.67) which determined that ‘the station is anticipated to result in losses of 0.51% of the estimated Anglian Region SSB with an upper 95% percentile estimate of 0.82%. Such losses would not be significant relative to the conservatively estimated Anglian Region SSB’.</p> <p>We acknowledge the efforts made to consider the potential effects on smelt populations of relevance to Sizewell. We note that with a predicted exchange rate of 1% of fish per day, local depletion in the Greater Sizewell Bay (GSB) and tidal excursion reaches 23% in this revised (rev 5) report. We note the applicant’s comments on the caution required when applying a range of values to a conceptual model. We highlight the uncertainty that exists over what smelt movements are in this area and over the uncertainty as to what the level of immigration to the GSB from a wider stock (including a stock from The Thames to the Great Ouse) is. We therefore consider the use</p>

					of the 10% exchange rate applied to smelt in table 7, which predicts a local depletion of 2.9% in the GSB + tidal excursion, as not appropriate or precautionary.
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SPP103 Consideration of potential effects on selected fish stocks (rev. 5) Below are new issues that have arisen in reviewing the updated report.

Document Title	Paragraph number	Issue	Comment	Suggested solution
SPP103 Consideration of potential effects on selected fish stocks (rev. 5)				
SPP103 Consideration of potential effects on selected fish stocks (rev. 5)	2.1	Acknowledges uncertainty in population estimates for mainland European rivers' twaite shad populations and suggests a further update will be coming for these estimates ('The concerns raised will be considered in further detail and the request for confidence intervals in the populations size is acknowledged.')	It was not clear if that was "considered" in the document itself or would be at a future date. If so, when will this be updated?	Please provide clarification on this point
SPP103 Consideration of potential effects on selected fish stocks (rev. 5)	2.10	Bass stock size: Cefas sees no justification to reduce or deviate from the ICES stock unit for bass, which is described as a "conservative and [the] correct measure.	We note that in the Swansea Bay Tidal Lagoon (SBTL) proposed power plant. In the fish impact assessment (CD 9.118) produced for this project CEFAS used much smaller population sizes than that of the ICES stock unit. For bass the Bristol Channel was identified and used as the smallest discrete population for this species.	Please provide information why a population size of the Bristol channel and not that of the current ICES stock unit was considered appropriate by CEFAS for bass for the fish impact assessment of the SBTL proposed power station but CEFAS sees no justification to deviate from the ICES stock unit in the case of the SZC proposed power station?
SPP103 Consideration of potential effects on selected fish stocks (rev. 5)	Table 1	SSB and fishery catch information has been updated for many species. e.g. For sprat estimated SSB decreased by 12.6%, for bass SSB decreased by 6.0%,SSB for plaice increased by 40%.	Will TR406 be updated with these revised figures	Provide update to incorporate this revision.
SPP103 Consideration of potential effects on selected fish stocks (rev. 5)	Table 7	% depletion in the text does not always seem to match those given in Table 7 (p63).	Confusion over the correct value.	Check and correct as necessary
SPP103 Consideration of potential effects on selected fish stocks (rev. 5)		The seabass local depletion assumes a replenishment rate of 10% but what evidence is there that seabass are moving around at this rate?	Evidence is needed to support the use of this figure	Provide evidence that supports the use of this figure.
SPP103 Consideration of potential effects on selected fish stocks (rev. 5)	3.6.2.1 and Table 7	Local depletion assumes a replenishment rate of 10% for smelt. No evidence has been provided that supports this figure. This is not considered precautionary	We acknowledge the efforts made to consider the potential effects on smelt populations of relevance to Sizewell. We note that with a predicted exchange rate of 1% of fish per day, local depletion in the Greater Sizewell Bay (GSB) and tidal excursion reaches 23% in this revised (rev 5) report. We note the applicant's comments on the caution required when applying a range of values to a conceptual model. The applicant has used an Anglian region SSB to account for concerns that the smelt stock may be more localised than previously acknowledged. Referenced in this report is the uncertainty analysis in	Provide evidence to support the use of these figures. In the absence of any supporting evidence we require the application of a more precautionary exchange rate.

			<p>SPP116 (Doc Ref. 9.67) which determined that the station is anticipated to result in losses of 0.51% of the estimated Anglian Region SSB with an upper 95% percentile estimate of 0.82%. We highlight the uncertainty that exists over what smelt movements are in this area and over the uncertainty as to what the level of immigration to the GSB from a wider stock (including a stock from The Thames to the Great Ouse) is. We therefore consider the use of the 10% exchange rate applied to smelt in table 7, which predicts a local depletion of 2.9% in the GSB + tidal excursion, as not appropriate or precautionary.</p>	
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