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Our Ref: 20026727

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 8: Comments on Deadline 7 Submission - 9.89 Draft Fish Monitoring Plan - Revision 1.0

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

For Deadline 8 (24th September) the Examining Authority (ExA) have requested comments on additional reports submitted by NNBSGenCo (SzC) Ltd at Deadline 7. We wish to provide comments on the following report [REP7-077] Deadline 7 Submission - 9.89 Draft Fish Monitoring Plan - Revision 1.0

Our detailed comments are contained in Annex A of this response. In summary, we have significant concerns with the Draft Fish Monitoring Plan as proposed. These concerns relate to the duration of monitoring, proposed methodologies used to consider impacts and how agreement is reached in deciding to provide further mitigation and/or compensation for impacts to fish.

These comments should be read in conjunction with our separate response at Deadline 8 to [REP7-007] Draft Development Consent Order – Revision 8 and [REP7-040] 8.17 Draft Deed of Obligation - Revision 7.0. We consider there is insufficient certainty that we will receive the compensation funds identified to meet this condition.

In addition we consider a Marine Technical Forum (MTF) terms of reference needs to be included in the Deed of Obligation and that the 2015 MTF terms of reference is not currently fit for purpose. Currently there is no agreement to the estimated numbers of fish and other biota predicted to be impinged at SZC, or the degree of mitigation offered by the proposed SZC intake design, or agreement on the significance of those losses. Given these issues there needs to be a process to mediate or resolve disputes with in MTF.

Yours sincerely



Simon Barlow
Project Manager
Sizewell C Nuclear New Build
Environment Agency



OFFICIAL

Appendix A: Environment Agency comments on [REP7-077] 9.89 Draft Fish Monitoring Plan - Revision 1.0

Document Title	Paragraph number	Issue	Comment	Suggested solution
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	1 Introduction	Condition 50 of the draft Development Consent Order states that the plan will set out 'the monitoring arrangements for assessing the efficacy of the intake head...'	The intake head is a novel design and there is disagreement between the Applicant and consultees as to how it will work to reduce impingement, and whether the intake structures will be attractive to fish by acting as reefs.	Options for conducting direct observations of fish behaviour around the intake head need to be examined (for example sonar, acoustic telemetry, acoustic cameras)
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.2.2	"Monitoring experience at SZB has demonstrated that 28 samples per annum, with 7 samples per quarter provides robust data."	No reference for this statement is provided so we cannot evaluate it. A clear justification for going against the BEEMS SAR006 recommendation is needed.	Please provide a reference to the analysis that supports this statement.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.2.2	There is no clear valid reason why the level of monitoring cannot be at the recommended minimum provided in SAR 005 and SAR 006. Logistically impractical and operationally challenging are the reasons given, with outages that last for 'weeks to months' provided as a particular case	Information the applicant has provided for SZC states: Typically, outages will last about 2 weeks and are expected to occur every 18 to 22 months...It is assumed that that both EPRs will not be offline simultaneously. No explanation is given as to why a say 4 week outage period in 1.5 years would not enable continued sampling in some form with the operational EPR as a minimum.	Reconsider the potential for data collection at a greater frequency (see also comment 1 above).

SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.2.2	A sampling intensity equivalent to 40 x 24-hour periods per annum has previously been suggested for impingement sampling, with the effort distributed in quarterly blocks of 10 dates, randomly selected within each quarter (BEEMS Scientific Advisory Report SAR006).	In addition to randomly selected sampling, consideration needs to be given to specific monitoring of migratory periods for species of conservation concern.	Include specific monitoring of migratory periods for species of conservation concern.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.2.3	<p>The plan is to adopt a similar approach to the SZB CIMP data. While mention is made of the problem of overflowing bulk samples. The only resolution mentioned is to undertake overnight sampling "if feasible" at both SZC and SZB power stations.</p> <p>The text goes on to mention overflowing samples during the summer due to high impingement of ctenophores but does not acknowledge that overflowing samples happened in winter as well when they were not caused by ctenophores.</p>	No other solution to the overflowing samples is suggested if the power station operators decide that it is not feasible to allow overnight sampling.	<p>Consideration needs to be provided on how the problem of overflowing bulk samples will be addressed if overnight sampling is not allowed.</p> <p>Overflowing bulk samples is not only a summer problem but is also a problem during the winter when sprat and herring impingement is highest.</p>
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.2.4	Each sample will be sorted into fish, invertebrates and weed to the lowest taxonomic level possible.	Identification to lowest taxonomic level possible will not necessarily distinguish populations of species being impacted	Where doubt exists over populations being impacted, and populations are distinguishable, sampling should seek to identify the proportion of impinged fish originating from each population (e.g. spring-spawning herring from discrete local stocks should be distinguished from autumn-spawning herring)

SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.2.6	Section 2.2.6 Reporting and data availability mentions annual reporting of impingement estimates to the MTF. But does not actual specify the availability of the impingement data for members of the MTF.	Impingement data and estimates are complicated and to truly understand the estimates and any potential changes over time and between SZB and SZC, it would be easier if the data was available for examination.	We request that impingement data, raw data and scaled up estimates, are made available as excel spreadsheets that are publically available.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.3	Results are to be reviewed, and discussed with the MTF with action or additional monitoring considered necessary to be agreed with the MTF. However, the governing principles of the MTF are not specified in the monitoring plan.	It is unclear the extent to which the Applicant will be obliged to act upon the advice of delegates to the MTF. For example, if EDF do not agree with a course of action recommended by the MTF, how will the difference of opinion be resolved?	Terms of reference for the MTF should be included with the monitoring plan, including how/whether decisions are made by the group and the role of the various organisations attending (which typically include statutory bodies, the applicant, and the applicant's consultants)
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.3	Once monitoring has been shown to satisfactorily demonstrate impingement predictions in the ES were appropriate, impingement monitoring will cease.	It may be appropriate to stop monitoring at SZB after 3 years if no significant difference has been observed from predicted and actual entrapment losses. For SZC monitoring may be required for a longer period than 3 years in order to determine the impact to some species. The decision to extend monitoring or not at SZB and SZC should be reached in agreement with the MTF at the end of a given review period.	Monitoring at SZC should continue for longer than 3 years. A decision to extend monitoring or not at SZB and SZC should be reached in agreement with the MTF at the end of a given review period.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.3	If monitoring demonstrates that impingement predictions are statistically significantly higher than predicted in the ES, when compared with the reciprocal impingement numbers at SZB, annual entrapment estimates (as equivalent adults) will be compared with a	Agreement must be reached on what EAV method is deemed as appropriate for this assessment. Full details of methodology need to be shared as part of this process including whether the intention is to compare to SSB in the year of	Agree appropriate EAV method with MTF.

		population comparator such as spawning stock biomass (SSB) once the relevant data for a given year are available	entrapment, to use some other reference year, or to calculate an average SSB.	
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.3	If monitoring shows that impingement is statistically significantly higher than predicted (when compared with SZB) leading to an increase in total entrapment above the precautionary 1% stock threshold, an explanation must be submitted to the MTF for discussion. Any action or additional monitoring considered necessary in response to the results will be agreed with the MTF	Agreement must be reached on what the appropriate stock comparator is for each species.	Agree appropriate stock comparator for each species with MTF
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	2.3	If monitoring shows that impingement is statistically significantly higher than predicted (when compared with SZB) leading to an increase in total entrapment above the precautionary 1% stock threshold, an explanation must be submitted to the MTF for discussion. Any action or additional monitoring considered necessary in response to the results will be agreed with the MTF	The reliability of entrapment predictions underpins assessments of the potential impact of entrapment on the environment. It is therefore crucial that statistically significant deviations from predictions are investigated and explained. This is the case whether predictions are underestimates, or overestimates, or whether the 1% stock threshold is reached. The 1% stock threshold itself is open to question, as assessment of environmental impacts needs to take into account the status of the population - 1% of a small, geographically-restricted, declining population of fish that only spawn once in their lifetime may have a different significance than 1% loss to a widespread, numerous,	Change to 'If monitoring shows that impingement is statistically significantly higher <u>or lower</u> than predicted (when compared with SZB) leading to an increase <u>or decrease</u> in total entrapment, an explanation must be submitted to the MTF for discussion. Any action or additional monitoring considered necessary in response to the results will be agreed with the MTF'

			repeat spawning fish with an increasing population size.	
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	3.1.2	"If monitoring objectives requires sampling over a period of 2 or more years, it is recommended that the sampling intensity is reduced accordingly." (this is from the BEEMS SAR005 recommended 40 samples per year.	<p>BEEMS SAR005 does not recommend the target sampling of 40 samples per annum <u>if</u> the monitoring is only completed for 1 year.</p> <p>This section is misleading and seems to suggest that the recommended reduced sampling if monitoring is undertaken over more than 1 year is due to a recommendation in SAR005. It is not and needs to be clarified.</p>	<p>We recommend following SAR005 more completely when designing the surveys. Section 2 provides a set of key questions that can be used to help design the entrainment monitoring requirements.</p> <p>Section B.3.1 recommends that sampling on 40 dates per year is retained as a minimum. It also recommends using existing UK power station entrainment data to assess the adequacy of this sampling intensity against specific project objectives. The sampling design should take into account the area, species composition, and survey objectives. Some periods will require better resolution and shorter intervals between samples. Conversely, less active periods such as winter months could be efficiently and effectively covered with fewer samples.</p>
SZC_Bk9_9.89_Draft_Fish_Monitoring_Plan	3.1.2	Entrainment sampling will either be targeted at determining entrainment rates during specific periods of seasonal abundance of ichthyoplankton or invertebrate larvae or be designed to determine seasonal and interannual variability.	Both seasonal and interannual variability need to be considered further, both have the potential to affect the predicted entrainment numbers significantly.	Include both seasonal and interannual variability.

SZC_Bk9.89_Draft_Fish_Monitoring_Plan	3.1.5	See comments on 2.2.6 above.	See comments on 2.2.6 above.	See comments on 2.2.6 above. As for the impingement monitoring data, we think that the entrainment monitoring data should be made publically available.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	3.2	Comments on 2.3 above regarding the role of the MTF and responsibilities of its attendees are also relevant to Section 3.2, as is the comment on 2.3 above regarding the need for statistically significant differences from predictions to be explained, regardless of whether they represent increases, decreases, or whether they represent >1% of the population comparator.	Comments on 2.3 above regarding the role of the MTF and responsibilities of its attendees are also relevant to Section 3.2, as is the comment on 2.3 above regarding the need for statistically significant differences from predictions to be explained, regardless of whether they represent increases, decreases, or whether they represent >1% of the population comparator. Differences from predicted levels of entrapment may also affect water quality via the FRR discharge - a factor not connected to the proportion of the population being impinged.	Comments on 2.3 above regarding the role of the MTF and responsibilities of its attendees are also relevant to Section 3.2, as is the comment on 2.3 above regarding the need for statistically significant differences from predictions to be explained, regardless of whether they represent increases, decreases, or whether they represent >1% of the population comparator.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	3.2	The summary is confusing. It refers to impingement but is about entrainment. Seems like an editorial error as the monitoring frequency reflects that of impingement.	We believe the sections in 3.1 prior to be correct and the summary is wrong	Correct the summary to reflect the text in the wider section 3.1
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	Section 3 and 4	Several References through document to a 3 year programme, and within the summary, a review after 3 years against predictions. There is the suggestion in the summary that the monitoring could continue, but this is not explicit, not is it reflected in the	3 years may not be enough to account for variability due to differences in survey timings between SZC and SZB, large annual recruitment differences or other occasional biota inundations that could effect mortality predictions for	The plan must include the option to continue the monitoring particularly if other variables may have confounded the data comparison between the 2 sites.

		wider text. We agree a 3 year review of the data is appropriate, but that a longer period of monitoring may be required and this should be more clearly provided as an option in the plan	SZC. Such variables could confound any comparison between data from the 2 sites.	
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	Section 4	As the FRR system output of moribund biomass is being considered for potential WQ impacts within the permit, additional WQ monitoring will be needed near the FRR system outfall to verify the conclusions and ensure that the moribund biomass is not having an impact on WQ in Sizewell Bay.	The monitoring plan will need to consider WQ monitoring for potential impacts from the FRR system discharge.	Please either amend this report to consider the potential WQ impacts from the FRR system discharge of moribund biomass or highlight where this monitoring requirement will be considered.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	4.1	A proportion of fish that were live on collection would be transferred straight to experimental tanks and maintained for a period of 24 hours.	How was the period of 24 hours decided upon as the length of time for monitoring delayed mortality? Why not 48 hours, 72 hours, or longer?	The plan needs to justify the choice of 24 hours as a time period over which to study delayed mortality, or alter this to a longer time period if found necessary.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	4.3	Adaptive measure to the FRR are mentioned. But the applicant does not include wider measures to limit biota intake during periods of coelenterate (jellyfish etc) inundation. These are mentioned as a risk with possible mitigation option in BEEMS Technical Report, Jellyfish and ctenophores in relation to Sizewell (TR325, Rev.2)	Inundations due to jellies are mentioned as a risk with possible mitigation option in TR325, Rev.2. The implications of these for overwhelming the buckets on the screens and increasing the mortality in the buckets is possible. Adaptive measure are not limited to the FRR alone.	The options for reducing jellyfish intake should be considered within the adaptive measures.
SZC_Bk9.89_Draft_Fish_Monitoring_Plan	5.1	States: "when compared with impingement and entrainment numbers at SZB at the same time". But there is no mention in the text of section 2 that SZC impingement monitoring at SZC is planned to occur concurrently with that at SZB.	Monitoring concurrently for entrainment is envisaged, but the same statement is not made for impingement. This would be highly desirable.	Include a sentence to state this is planned within section 2.0

SZC_Bk9.89_Draft_Fish_Monitoring_Plan	5.1	States: Should impacts from SZC be above the 1% of stock precautionary trigger threshold, a report will be provided to the MTF with an analysis and explanation of the results. Reporting needs to be provided irrespective of the results.	It is indicated that a report is only to be provided if there appears to be an issue. This should not be the case.	Amend to remove reference to 1% threshold and to state simply that "a report will be provided to the MTF with an analysis and explanation of the results.".
SZC_Bk9_9.89_Draft_Fish_Monitoring_Plan	5.1	As explained in this draft plan, in the case that monitoring demonstrated that impingement and/or entrainment is statistically significantly greater than predicted in the ES, when compared with impingement and entrainment numbers at SZB at the same time, comparisons would be made with the baseline to determine whether the losses caused by Sizewell C were having a significant effect on fish populations. This assessment would be made by converting the impinged and entrained organism into Equivalent Adults and comparing them with the relevant baseline comparator (e.g. Spawning Stock Biomass) for the relevant year.	Agreement would be needed on the appropriate stock comparator for each species, and on the EAV method to be used.	Agree appropriate stock comparator for each species and appropriate EAV method with MTF
SZC_Bk9_9.89_Draft_Fish_Monitoring_Plan	5.1	For species such as sea bass: habitat creation or a managed realignment scheme (such as Steart Marshes at the mouth of the River Parrett). Saltmarsh and other shallow sub-tidal/intertidal habitats are used as nursery grounds by a number of fish species. • For other marine species (e.g. cod), however, there are no identified means to offset any significant adverse effects	Greater emphasis should be placed on the potential for habitat creation or enhancement to benefit fish species, including marine species such as cod. For example, eelgrass <i>Zostera marina</i> meadows may be of significant importance to cod.	Include a wider consideration of the benefits to fish species of a variety of habitat restoration enhancement schemes, such as eelgrass meadow restoration, or the restoration of oyster beds.

		demonstrated by the impingement and entrainment monitoring.		
SZC_Bk9_9.89_Draft_Fish_Monitoring_Plan	5.1	<p>As explained in this draft plan, in the case that monitoring demonstrated that impingement and/or entrainment is statistically significantly greater than predicted in the ES, when compared with impingement and entrainment numbers at SZB at the same time, comparisons would be made with the baseline to determine whether the losses caused by Sizewell C were having a significant effect on fish populations. This assessment would be made by converting the impinged and entrained organism into Equivalent Adults and comparing them with the relevant baseline comparator (e.g. Spawning Stock Biomass) for the relevant year.</p> <p>Should impacts from SZC be above the 1% of stock precautionary trigger threshold, a report will be provided to the MTF with an analysis and explanation of the results. Any further monitoring and action in response to the report will be discussed with the MTF. The appropriate response to the report will depend on the results and explanation of the monitoring but may include:</p>	<p>In addition to this assessment, should a deterioration under The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (WFD Regulations) Transitional Fish Classification Index (TFCI), be observed in in the Ore & Alde transitional waterbody, which can be attributed to impacts as a result of the operation of SZC, then compensation funds would be released for fish habitat improvement or fish habitat creation schemes.</p>	<p>Include deterioration to the fish element under the WFD in the Ore & Alde transitional waterbody as a trigger for the release of the habitat creation fund.</p>
SZC_Bk9_9.89_Draft_Fish_Monitoring_Plan	5.2	<p>Similar sampling methods have been used at the River Blyth. That sampling indicated that the lack of suitable spawning habitat, a barrier to upstream</p>	<p>We request monitoring for smelt is also undertaken in the Blyth. Too limited an amount of sampling has been conducted to draw conclusions</p>	<p>Include smelt monitoring on the River Blyth.</p>

		<p>migration and the lack of evidence of spawning fish or eggs indicates the River Blyth does not support a spawning population (BEEMS Technical Report TR382). In agreement with the Environment Agency, smelt monitoring in the River Alde will act as a surrogate for the River Blyth also.</p>	<p>on whether a breeding population is present in this waterbody. The Environment Agency caught smelt in the Blyth in 2016 and has provided this information to the applicant, but this has not been acknowledged. Please note our comment on TR406 (SZC-SZ0200-XX-000-REP-1000XX, Revision 01), dated 19 July 2019: 'The River Blyth has had a very small amount of fish sampling undertaken on it to come to the conclusion that a smelt population does not exist. The Environment Agency undertook 2 x 1.5m beam trawls, 200m in length on the Blyth estuary in May 2016 and recorded smelt. The details of this were provided to CEFAS along with photographic evidence. It would appear this has been incorrectly recorded in BEEMS Technical Report TR382 and this should be amended'. Smelt monitoring in the Blyth is required for 2 reasons (1.) To provide further information on the presence of a breeding population in this waterbody prior to the removal of the barrier to fish movement at Blythford Bridge. (2.) To provide information on the establishment of a smelt population from a wider stock, once fish passage has been improved (If it is established from sampling prior to the removal, that a</p>	
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			breeding population is not already present).	
SZC_Bk9_9.89_Draft_Fish_Monitoring_Plan	5.2	Sampling will occur prior to implementation of the proposed fish passage enhancement schemes so that beneficial gains from the installation of fish passes can be determined.	How long will monitoring continue after the fish passage schemes have been delivered?	Provide information on how long monitoring will be conducted for.