

# AUDIO\_SizewellC\_ISH10\_Session2\_2708202

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00:05

Welcome back, everybody, this is the resumed. ISC 10 on biodiversity. And we are going to look now at marine ecology. The agenda item is about several areas spin your laser in general and progress with a Savile area mitigation and monitoring plan which is awaited from the applicants major attention to natural England's position as set out in their post ishs seven submission. My questions are Firstly, and I'm going to ask the applicant to respond on this. Good morning Mr. chairman's Morning, sir. So, report three questions to and you can deal with them all together, and then I will go to interested parties, and then come back to you. The MMA obviously are not here and nor are natural England. So we'll have to wait and see what they say, at deadlines seven, you've also got the benefit of what they put in yesterday, if you're able to assimilate that and and take that in, I've read what they what they have said. So my three questions of this are Firstly, where is the mitigation and monitoring plan please add is natural England content with it. And likewise the MMO you obviously can't speak on their behalf. But if you do have information, then which you're in position to share, then please do so. So the second question is this natural English, speak about three locations for cooling water intakes. of I thought there are only two intakes and the northern most intake and Boyd's several areas Spinoza as it's not on the reef, the southern most as I understand it, from the application documentation has to be on the reef or very, very close to it. So my question is, what is the third about which natural England is speaking? And I think I recall seeing another document which actually had a number of candidate sites, so maybe it was the third candidate site, which was, which was rejected. But if you could help me with that, Mr. tremens, I'd be grateful. And the third of my three questions, is this. Are you proposing a condition in the dean marine licence requiring mitigation of any effects on several areas? Spinoza? And also, will it be an in principle monitoring and mitigation plan to be submitted to the examination as the MMO suggested? And if so, when are we going to see that please?

02:59

Thank you, sir. Stephen tremens, Queen's counsel for the applicants, I can deal with the first and the third points. I've got with me, Dr. Steven roast from the applicant and Dr. Mark rekkles from CFR so I'll get one of them to deal with point two probably Dr. Roast, but if I can deal first with points one and three. So, a draft sub area management and monitoring plan has been prepared will be submitted for deadlines seven in terms of natural England and the MMOs contentment or otherwise, with it. A meeting took place on the 18th of August. So I think that is referred to in natural England's submission from the applicants perspective as any rate that was a positive meeting. The the points, I think the points that actually England would want to want to make were they here, as we understand it from that meeting is that the plan really should be focusing on avoidance and mitigation. So the first priority should be to avoid locating so as to impinge upon sublet area, if that's not possible. Then there was some discussion about meeting in terms of mitigation. So there could be steps taken to reduce current anthropogenic pressures on several area things like ghost nets from fishing. So those are issues that can be explored. So that's where we are on the on the plan in terms of the draft marine licence de

marine licence condition 45. deals with cooling water intake and out for heads, shafts and tunnels and 45 one currently provides that the work rather workshop commence until a suitable area monitoring plan has fallen consultation with natural England being approved by the MMO goes on to list what the plan must include. Now, that's not satisfactory in terms of wording so far as natural England and the MMO are concerned at present because its focus is on monitoring and doesn't include mitigation. So we accept that that needs to be reworded to reflect more accurately the scope of the plan, not just dealing with monitoring of sub malaria, but also mitigation. That will be done in time for deadline. Seven. So I think that may have addressed points on and three, perhaps Dr. Rose can help you in relation. My understanding was there were two locations, but Dr. Rose perhaps can help in relation to the third location mentioned. Thank you very much. Someone gusta raised.

05:56

Good morning, sir. Steven roast on behalf of the applicant? Yes, you're both quite right, there were two, there were two intakes of sort of, there's an intake total for unit one and an intake unit for intake panel for Unit Two. Each of those tunnels will have two intake heads. However, for the detailed engineering phase, we look at three potential options from which to choose those two head locations, so on so on each tunnel at the moment for the design, there were three potential locations, two of which would be chosen. For the two intake heads, we have two intake heads per tunnel for redundancy should something happened to one of the intake heads this week, you can still withdraw water for or abstract or divide the other head. So you're quite right, there's two separate tanks for intakes. And but there's three potential locations on each from which we choose to.

06:49

Have you chosen your tool already or you still keeping your options open? I

06:54

don't know we're still keeping our options open, although on the southern one. There were obviously where the sub area is the the to the preferred options are from geotechnical perspective. That's why we choose the three options. We look at the geotechnical and the underlying geology. But the two preferred ones from that from those three are the two which avoid the the area where that where the seven area is most concentrated. So it's fortuitous in in that sense that from both from from an engineering perspective, and from an environmental perspective, the two which are likely to be carried forward to avoid the bulk of the southern area. Do you need to keep three in that case? At this stage, I think we need to take that one away. Because I know that I know that the engineers are obviously still looking at that we have a preference, I don't know that we can necessarily make a decision on that at

07:58

this site. So I have to work on the basis that one of the two tunnel or the two inlet heads is going to be on on Savile area.

08:15

Yes, so all three locations do impact seven area that there is a particular outcrop of the Carolinas. But what

08:22

but to obviously better than the other one. Yes, I need to work on the basis that one of the two that you finally end up with is going to be the the least good option?

08:36

No, the two the two sort of side. Perhaps I wasn't clear then. So of the three. And the one area where the most suitable area is is the one which has the least preference and preferable from an engineering perspective as well. So so we would be choosing the preferences to use the two that that avoid that that the second area, concentrated area? Why Why don't you just ditch the other one? It's a fair question we can we take that one away? I would need to confirm that with the engineers and say that's that's a preference preferred option.

09:13

I think you ought to take away anything because otherwise, if you're if you are if you're giving me three, and you say you haven't yet chosen between between them, and one of them has more impact on Sabbath ROI than the other the micro basis, that's the one that's going to beat and be chosen.

09:34

Okay, that's it. That's a fair question, but we'll take that one away, I would very much hope that we would be able to confirm based on both of those supposition from geology and ecology that we could confirm those two. So that Southern intake.

09:47

Thank you. Once I've got you there, I hadn't realised that I knew had to intake heads per tunnel. I hadn't realised it was for done. Didn't see purposes. So do they? So in normal circumstances, would you just be working on one of the heads for each title? Or do you operate to as it were at half speed.

10:13

So the Well, there's two elements to it really well, one is purely redundancy. Such obviously, if we only have one intake head, withdrawing the water, and we lose that intake head, there's no cooling water stream coming into that to that station, there is a link actually at the forebay for for safety purposes. But obviously, we would lose that lose the operational clearly. The other issue, of course, is that is that these API's are much bigger than the existing stations and use a much larger volume of cooling water in the first place. And by separating the flow into two separate intakes, we thereby reduce the current speed etc, again, with this with these specially designed heads, so we can't we don't adjust between the heads, it just draws in front to two locations, and therefore just kind of spreads that spreads the load. Obviously, if we had just a one intake, water, we would even be need to be much, much larger, or it'd be drawing water in at a much faster rate.

11:18

Okay, so so in normal circumstances, you're operating both intake heads, yes, per reactor. That's right. And what you were saying about redundancy? I mean, if let's say one of your intake heads is out of action. Do you double the rate of water drawing on the other intake head? Or do you just have to happen? Lower the reaction?

11:52

If we were if we were continuing operating, abstracting at the same rate, then then yes, clearly, if we lost one head, then that are they in take care would be taken in all of the taking in that combined flow. But to lose an entire head would be so we would obviously clearly be a significant issue and the station itself, that unit itself would be down rated. I suspect that such that we weren't needing to withdraw so much cooling water in the first place. That would be a really extreme situation, of course, it includes an entire intake head unlikely to be going into it as I say, into down writing of the of the reactor at that stage.

12:39

In your written submission, could you address then or ratio me or otherwise, that the redundancy and the saw the redundancy event and the effect which you would have on the speed and rate of abstraction by the other head has been fully assessed in your environmental statement?

13:07

Yes, okay. Clearly, we'll take that and take that away. And it's been it's a yes, no answer, I think,

13:16

yes. It hasn't been addressed within within the environmental statement, because it is, it is we wouldn't be that that isn't normal operating, dilutes and anti hate wouldn't be normal operating procedure. We get in a little bit out of my area of expertise, because that's why i biome is to take it to others. But I comment on that. Yeah, it would be it would be helpful and obliged to you. Very good. You can do anything else you wanted to say you can? That's all I had to say on anything. In that case, too. I would turn to the naturally on the on the MMO stage. Are there any other IPS? Who would like to comment on this? agenda item, Mr. Wilson?

14:03

Thank you, Mr. Brock, Chris Wilson on behalf of together events, as we'll see. And as I understand it, several is a protected species. And listening to Dr. Ross, then I get the understand from what he was saying that several error is actually present at all three options of the these heads of the socket. All three options for the southern tunnel first, sorry for the southern tunnel, and they will choose the well possibly choose the least worst option in terms of impact on Submariner. And he said, obviously, they can move in away from the area with the greatest concentration. And he didn't actually say what the difference was. Because if there's a there's a lot of both locations, and one is to squat slightly less. Obviously, there's still a great impact on a protected species. And I just wonder if that Could be quantified in terms of their choice. In terms of maybe I can I can help I can my recollection, from what I read the documentation is there is assessment made of the of the three, whether in sufficient detail for what you think is is needed? I don't I don't know. And I have an open mind about whether it's sufficient, as well. But you might want to have a look at that. And before you put in your deal, your D seven comment. Thank you. Thank you. I saw another hand up. Mr. Wilkinson.

15:40

It's Thank you very much, Chairman. I'm just adding to what, excuse me, my name is Pete Wilkinson. I'm a member of together against size, we'll see just adding to what Chris Wilson has just said. I wonder if the applicant can tell us what level of impact on the species is permitted. If they are protected, I assume that no level of impact is permitted. So I think we need to know what level is permitted or what's their understanding of the permitted level of impact. And I think going along with what Chris Wilson said, what level of impact is associated with each tunnel, that will be very useful information.

16:19

You mean each inlet, don't you? Not each each inlet Excuse me? Yes, indeed. Thank you. Oh, actually, you mean each of the candidate sites for exactly what I mean? Thank you for straightened me up on that.

16:31

That's okay. Thank you. Mr. Wilkinson. Are there any other IPS who wants to comment on this? As to we'll continue to pop your hand down now. Thank you. Mr. tremens. Do you want to reply?

16:52

No, sir, I think we can take away the the points that have just been made. and deal with them in our representations perhaps in relation to Mr. Wilson. And we've seen anything he wants to say. Deadlines seven, I don't need to reply reply orally, I don't think

17:08

okay, fine. But I'm biased to you okay. I think you're the man to stay on the screen now, actually, because the next agenda item is Hinkley Point C water discharge permit acoustic fish deterrent appeal. So from what I understand, understood, you were saying to me is he say a firm that announced the there are common issues in relation to how you count fish. That is put in sorry, very emphasised terms on my on my but perhaps slightly colloquial terms. I think I ought to be told and to know what the issues are, I think the point which are also issues here, and obviously I'm only talking about the ones which which are in dispute. And also if you can tell me which are the relevant parties?

18:03

Yes, I'm very happy to do that. Obviously, the points been made by the Environment Agency that we're dealing with different locations and different fish species at the two sites. That's That's obvious. I think the the probably the, the important distinction to bring bring out before I get onto the points that issue are that the the Hinkley Point appeal turned entirely on habitats regulation, assessment and adverse effect on integrity. The the only point or relevance of impingement was that the Environment Agency that Hinkley Point said that it meant that an adverse effect on integrity of the relevant European sites couldn't be excluded beyond reasonable scientific doubt and the Environment Agency didn't at Hinkley Point tried to defend the requirement for an acoustic fish deterrent system to instal on any other other ground. At Hinkley Point the issues related to some species of migratory fish. And also, those were qualifying interest features of the relevant European sites which were the seven estrie. Soc. The why river why SOC and the river are scarce a C. And the environment agency's case was that impingement would directly impact the spawning populations of those rivers. Now, there's an important obviously is an important distinction here because there is no the location of of sizewell does not have that direct

impact could not have that direct impact on any river use by spawning migratory fish the morning migratory fish an issue spawn on the other side of the North Sea and the the North Sea. river systems. So it doesn't really arise in the same stock way. As at Hinkley Point also at Hinkley Point at issue was some species forming part of the fish assemblage, which was a feature of the seven estuary runs off site. And that the Enron agency's case was that on HRA assessment, the impingement of those species would threaten the relevant populations and hence affect integrity of the ramsau site. And again, that doesn't arise in the same stock in in this case. So the implications of fish numbers, species like Spratt, and herring and so on, are not really relevant for HRA purposes for their own sake, as they were at Hinckley. They're relevant really as prey form marine mammals or probably more acutely for a bird species such as little turn which foraging for greater sizewell Bay. So it's important, I think, to make that distinction, first of all, but then taking the issues that could be regarded as being common to both sites and which are, are to some extent in dispute. First of all, the effectiveness of the low velocity side entry heads as mitigation. That was certainly an issue at Hinkley. However, I think it's important to hear the issues probably being rendered academic by the applicant agreeing to adopt for the purposes of the application, a factor of 1.0. So that means that there is no comparative advantage for sizewell C. versus sizewell B, in terms of the number of fish abstracted together with a cooling water, we don't claim that the sizewell c intake heads will have any advantage, oversize will be for the purpose of calculating the impinged fish plainly in reality, they will. But we're not we're not claiming that. So I think that the argument of the LBC heads, probably false falls away.

22:37

I can't my I interrupt you there and I hope I didn't mess up your float. So, yes, so, you have done your environmental assessment. Assuming no benefit from lvnc heads.

22:57

For the purposes of calculation, we can get get into the detail of the impingement calculations with Doctor records if necessary, but for the purposes of scaling impingement from what we know if the records that Hinkley Point B we have not assumed any advantage for Hinkley Point C's intake head design, do you

23:19

mean employee or sidewalk? Sorry, sidewalk right. On Point you're taking taking the impingement figure we obviously got data from sizable B Yes. Then you had not assumed any assistance from lvnc. In lb se in calculating impingement for assets

23:43

in skating across to us do impingement at kink at sizewell sizewell c. So we did the data, that comprehensive impingement monitoring programmes cimp data that we have from sites will be we've simply drawn that across without making any assumption that less visual being pinched, I say

24:10

and we use every year or a factor of one if you haven't half that you haven't doubled that you just said it is what it is. Yeah. Okay. I'm sorry. I interrupted you. He's going on.

24:19

Yes. Okay. So it's worth noting the MMO contactually. Here today, but the MMO. I will refer one or two points to the MMOs comments, I think it's important to note where they stand on this. So in relation to the Itsc point, the MMO have dealt with this in response to the examining authorities question bio 1.245. Their response being read to 140 They say that whilst it's feasible that the LTS c design will provide some benefit in terms of reductions in fish impingement, even if the benefit was zero. The MMO doesn't believe this would materially change the conclusions of the overall fish and treatment assessment so that they are saying, well, it's quite feasible, suppose there will be an advantage from the design to be used at size We'll see. But we don't think that will that will change the conclusion. So that's the that's the L LD sc 10.0. The second of the three points relates to population sizes. So in other words, you have your impingement assessment, you know, how many fish of a particular species will be impinged? What do you compare that against? That was very acutely an issue at Hinkley because the the Environment Agency there put forward much smaller baseline fish populations of different species for the impingement to be compared against the, the the applicant here, the appellant had Hinkley relied upon a century stock areas formulated by the International Council on expiration of the C ICS. And took their their stock areas essentially, it may or may be noted again in relation to the MN O. Who adult that is also in the deadline to submission at rec two 140. They they also like us conclude that the use of ICT stock areas represents the best scientific evidence available. And there's currently no robust information to support use of more local stock areas. Now, having said that, in relation to the food web, it sets so the the effects on birds of depletion fish, we have, as you will be aware, undertaken a local assessment that in the context of prey species of fish. So there we've looked at local level impacts in size well Bay to satisfy ourselves that there won't be an adverse impact on the bird species such as the little turn, or the marine mammals which use those fish prey. So, in fact, those arguments over population size aren't relevant. Now in relation to that local, that local assessment. There is still an argument over population size in relation to a migratory species trait shad and what size population should be assumed in the rivers in Belgium, and in Germany, scheldt and the elber we've got an item dealing with HRA migratory fish under item five. The third point of issue is both sprouts and sprout hearing sprat really all those little species which the little turns would would forage for sun goby, I think and also the the assessment was extended to cover the entrainment of very, very small fish and larvae, which might be used by a little turn for feeding their their young. So we've we've addressed not only the impingement fish, but also the entrainment of smaller organisms in that regard. The third, and last point, I think central dispute is equivalent adult values. And this is a dispute over over principle. I think, again, we come back to it under the HRA item right at the end, but this was explored exhaustively in evidence at Hinkley Point C. And indeed, I've noted that much of the written material put in by both sides quite closely reflects the evidence put in at Hinkley Point including the various diagrams which shurkin graphics which the Environment Agency have have used. But I think the point two points just to make on this first is that in relation to the local effects, the food web effects game EA v isn't a relevant factor for that. He he doesn't figure in those those calculations as to The impact on

30:02

so those fish because we're assuming they're their little fish, which get eaten by the birds, the issue isn't will they grow up into big fish that will spawn one day? The question is will they survive to get eaten now by the by the birds or the marine mammals. And the final point to make just on the EA v. Point is, again in relation to the MMOs approach. Again, they're not here, but they could confirm this if

they were that they are relevant representation. rr 744 agree with with us, the applicant, that the sefa Civ method is better than the method proposed by the Environment Agency. In that the it's more it's more realistic, more reflective of reality in the context of fish seas. And the extension method has conceptual challenges, in particular, comparing it to a spawning stock, biomass. So that's where we stand, I think. I think the points for the reasons I've given are probably not such acute points, at least in relation to HRA, they may be in relation to other other fish matters, but not the the HRA as they were at Hinkley, point C. If there are any more detailed questions on any of this, and I've got Dr. Brockholes here from CFS, who can, I'm sure fill in where I've not been sufficiently clear or comprehensive.

31:41

Let me let me see if I if I've got it and I guess doing in reverse order for three common issues are. So common issues of dispute? ea these are against what do you make the comparison? I see stock errors or something else. And the first of your three was the effectiveness of the lbs he heads. But you said that's not relevant because you use the factor of one and we just disregard it. Yeah. Okay. That's it, sir. Yes. Thank you very much. I'm going to turn to the Environment Agency now in that case, and ask please for your submissions on that. Hello, Mr. scared.

32:33

Hello, sir. Cameron scared Environment Agency. Where to start? I think following issue specific hearing seven, we provided a summary really on on our opinion of the Hinkley Point C water discharge activity appeal. I think it really is worth saying that that appeal relates to an environmental permit variation rather than a decio. So it's very much apples and oranges perhaps. I think not with notwithstanding that. I think it's really important to understand that the appropriateness of the cooling water system will vary very much depending on the site and the receiving environment. This is a sort of developing field and there's there's sort of new methods and designs that are being developed. In terms of considering the the assessments. In terms of quantifying impact,

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perhaps I can help you what I'm interested in seeing is where what issues in dispute HPC and issues in dispute between you and the applicant here

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are

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what what are the what are the factors which are common both to the Hinkley Point C water discharge permit and the FFC application?

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Indeed, so So my understanding the list of that was summarised there about the IVs. The scale of assessment, and the effectiveness of the tlvs. He had with repulsive technologies were were common between both of them. I could potentially bring in my colleague, Kirk Marcum, who could discuss some of those technical aspects in in details. That'd be helpful.

34:55

Yeah, just hesitating. Yes, Mr. Mark. Nice to see you again. Thank you. Good to see you current market Environment Agency. Let me just say I'm trying to seem to understand what is what is common to both because obviously, you're all interested in the result of the HPC water discharge permit appeal.

35:18

Yeah, I mean, I can I can try and expand a bit on the information my colleague Cameron Scott has already given with the with the AAV subject, refilled that it's unlikely that a decision at Hinkley Point C would determine the appropriateness of one e ba v method over another. There are several methods of calculating and EAP which are currently in use methods differ in the biological data they make use of and in the way in which they define an adult fish is therefore important to ensure that the EAP methods selected for an individual assessment and the corresponding definition of adult fish are appropriate for the task and the site in hand. Furthermore, Hinkley Point C is a different location and the assemblage of fish and trapped at that site will be different to that of size. We'll see as already stated by my colleague. It was mentioned that a lot of the concern at Hinkley Point C was around impacts to fish that have been cited as features of the HRA sites. Whereas sizewell c our concerns as well as being for prey species under HRA are for impact the species are controlled under EIA and wF de compliance. So, we are looking at it through a slightly different angle, but it is still just as relevant. It should be noted that the Lv SC factor was of one that has been applied by the applicant as a precautionary figure. It may not be as precautionary as they, as they highlight, there is a chance that the structures that they are looking to instal for the intake heads could act as a reef and attract fish, and therefore could have a factor of above one and impinge more fish than that of size will be. But the possibility of that has not really been adequately explored. Yet, as far as raise questions about that with the applicant, we have an another thing that should be noted when we've been discussing the appropriateness of stock sizes, there are several stock sizes applied by the applicant that we do not agree with. And it's probably worth noting that during their recent discussion of of local impacts and whether a stock size is appropriate, they have recently changed the impact to cod stocks. Because ICS has just issued advice that this is now should be viewed as three separate stocks. This highlights how a stock comparative deemed as appropriate by the applicant can with very little notice change for given species which in turn can change the predicted level of impact from the operation of size. Well see, this emphasises the importance of using precautionary stock comparatives, particularly for species of conservation concern or species below safe biological limits. We do not think so, who made the change to the cod ICS, which is the people that the organisation that they're using the stock stock units from. So it just demonstrates that a stock that is deemed appropriate at the moment can very quickly change based on new information. And for that reason, we do not think that the stock units supplied by the applicant are precautionary, for several species.

38:57

What's been I don't want to get too much into the nitty gritty of this, but I need Yeah, I mean, we've already highlighted your you weren't precautionary stop choice. What are you suggesting instead?

39:11

We've made those sort of recommendations. Tell me? Yeah, I mean, fourth, we don't think that the stock comparative for bat is appropriate. We don't think that this comparative for smelt is appropriate, is

appropriate. So if we use smoke, for example, this is a species that we've covered in quite a lot of detail. We know that there's a breeding population in the over the old. We're aware that there likely is some immigration from a wider stock to that population. But the level of immigration is not known from the wider stock. And it's not known whether that that immigration from the wider stock could exceed the exploitation, protected exploitation from size We'll see. So we are not in a position To confirm that the order in the old smelt population is not at risk from being exploited to a point that could cause it to collapse. So, for a long time, we've requested further information over what the immigration from that wider stock could be. But it is not known. So it's difficult to confirm whether they're that stock is at risk of collapsing. That breeding population is at risk of collapsing in that water body.

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us as I understood what you were saying to me, you prefer using the selection preserved a chord is not good enough and you want to move cautionary selection that was just using example. Okay, what would that precautionary selection be

40:49

with several papers, numerous papers for most of the species that we're concerned about have been been produced, which highlight the possibility of smaller sub populations of those species existing and we would prefer to see the use of a smaller sub population in the area more appropriate to understand the risk of impacts from sizewell C. Okay,

41:21

those papers have been submitted to the examination.

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I think they've been referenced before in our correspondence, but I'm not sure whether they've been submitted at the moment, but we'll have to go away and have a look at that. But certainly be something that we've been discussing with the applicant for a long time.

41:39

Okay, I'm sorry, I interrupted you and your flow. Was there anything?

41:43

You know, I think, I think that's, that's covered. Most of the things that we we probably had to discuss over the Hinkley Point C and sizable c comparison topic.

41:55

Thank you. I'm obliged to please make sure that that's dealt with succinctly but not fully, in your written pasteis stage submission. Thank you. Thank you, sir. Thank you. Are there any other interested parties who would like to contribute on this agenda item? Mr. Wilkinson? Yes, thank you, Mr. Rock.

42:21

I've been trying to follow the conversation from the applicant and from the Environment Agency. I'm not an expert in this area, far from it. And unfortunately, our expert Peter Henderson is on holiday, which is

obviously quite tough to do. So it's very difficult to annoy Mr. Wilkinson in what is going to say the point I was trying to make is it's very unfortunate, we got to have this inquiry in the holiday season. However, when I was listening to the conversation on EA V's I'd like to know if the EA vive herrings is based on the stock in the southern North Sea, or in the Blackwater stock with herrings because I think that's more appropriate is a smaller stock that, I believe is a source of herring in the sizable Bay Area. So I think it is very relevant what stock you're looking at what stock we're using. I understand also, from what I heard, the the entrainment of small fish has been addressed. I didn't quite understand how it's been addressed. That would be very useful to know. I also understand that there's no benefit from the use of low velocity side entry heads. And I wonder On what basis that assumption has been made. So there are a few things that I didn't quite understand and clarity would be appreciated. Thank you.

43:54

I think Mr. Wilkinson the the reason that the effectiveness of the lb SC heads has been disregarded is to say take an extreme precautionary approach to saying Yes, we'll put them in but when it from the point of view of this party assessment, we're not taking them into account. Mr. trogons can answer better than I can in relation to that? Thank you. I see Jackie Miller.

44:21

Hello is Jackie Miller. I'm from the RSPB representing RSPB and Suffolk Wildlife Trust today, and I just wanted to check whether it would be best to cover our points now or later on. So I do have some points around the local effects assessment and aavs which may be more relevant to 5g on the agenda, or I can cover them now. They are relevant to those particular points but not directly to Hinkley. So I just wanted to check.

44:49

My my focus on this agenda item is what is in common between the Hinkley dispute and the SSC distant dispute. So I think Unless your submission really relates to that then please say before we get to item five, thank you. Thank you. Mr. trogons. Back to you.

45:12

Thanks. So I'm going to give Dr. Roast and Dr. beckles the opportunity just to come back concisely on those points. Dr. Rose can deal with the the issue about the intake heads potentially acting as an attractive reef to fish. And then Dr. Breck holds the points that are made about the changing theory of cod, and lack of precaution for bass, sea bass and, and smelt. It also still concerns point about the herring stock in the north in the Blackwater estuary, and the entrainment of small fish that they'll I'm sure they'll keep in brief and deal with as soon in writing. But I think before we be helpful, while we have to hear from them. I agree. That's the point of a hearing is to hear from people so yep.

46:06

Hello, again, sir. Stick and roast on behalf of the applicant. So yeah, I'll keep this brief. And we'll put a written response in but in terms of the question around whether the intake heads could actually be worse due to the formation of a vaccine as a as a temporary rate. We don't see any any justification for that we compare our we base our impingement assessments on the impingement that comes into the size will be station from the size will be intake head. And there's no suggestion that that acts as a as a

separate reef either. I think one of the bases for the comment from the Environment Agency opposite acting as a reef is based around the low velocity element of it, given that the calmer water will provide a more beneficial area for a reef. But I think this is a misinterpretation, that the low velocity element is only at the very intake face. So the two long sides of the intake, it has a very limited impact in terms of the velocity there, it just is very, very localised to the intake phase, that we don't see that that can possibly act as a reef, you only need to go a few metres beyond that, and you're back into the normal tidal flows, etc. So as I say, we will provide a written response on that, but we see rarely do see no justification at all.

47:35

The point is, presumably, if you're not sucking in water very, very quickly, the fish are less likely to get pulled in.

47:42

Yes, that's that's right, which is that which is the mitigate, which is the point of that of that particular piece of mitigation. Just to go back to Mr. I think Mr. Wilkinson's comment as to the effectiveness of that the reason for not taking account of any benefit of it is that the, the argument is that the fish needed behavioural cue also to tell them to swim away from the intake cave and the low velocity allows them that opportunity. But that low velocity area, as I say, only runs along the very sides of the of the intake head itself and can't possibly, in our opinion, accelerate. Once the water is dense within the intake gate, it ramps up very quickly to the 2.3 metres per second as it's drawn along the tunnel. And it's a very localised effect is the low velocity element. And although it's a low velocity, it's higher than the velocity of the rest of the water. It within the system, the time outside the system, outside the system that the main tidal flow is can reach up to one more than one metre per second. And we're looking at being take velocities that are less than or around 30 centimetres per second at the very face of it. So those velocities are lower than the tidal flows that only end up in it's not a stillbirth. Is it like that and we don't see as I say which size will be doesn't have that low velocity but it does it certainly does have a you know a comparatively large intake kid and that's what we're comparing that's what we're basing our impact assessments on anyway because it's fish drawn into size will be that we then scale up the size we'll see and we see no evidence of sizable bees in take care of acting as a reef either

49:25

because the size will be intake velocity also lower than the title of velocity

49:37

by the synthesiser so the site is that is that that's a difficult question to answer because the the intake head at that site will be also faces into the tide on some stages of the tides you have that tidal force in which is moved by having the the longer intake placed parallel with the tide, but it will be on certain stages at the tight but they're not so on others is not allowed. Velocity design though no.

50:03

Sir does that make a difference to the likelihood of reef formation?

50:09

Not really as I say, because the low velocity element is very localised just to the face which is an open water part there anyway the obviously one associate structures with reefs as well. And within the structure itself the velocity is much much greater. So it is just that area of the water column which runs along the the intake phase very locally, where the low velocity draw is created. It doesn't it doesn't affect the tidal flow

50:36

as such. Okay. Just Just help me this is probably very, very stupid question. But formation of reefs, I'm getting the impression the formation of resources assisted by low velocity water. Yes, yes. Thank you. Thank you very much.

51:00

I think Mark records now from see fast can answer those other questions for you, sir.

51:05

Very good. Thank you. It was burgled lawbreakers on behalf of the of the applicant. I just wanted to try and cover off some of those some of those issues that were raised there. Just briefly, if I may. Start off with with Mr. Scott's comments about the apples and oranges are really sad at a fundamental level. Principles of fish biology whilst we're dealing with very different sides are ultimately the same. So we can take some of the issues that are are known between the two sides, such as the ABS and stock areas. And we'll be working with sort of similar types of evidence. But if I can run through the species that were were described, which were smelt called sea bass, and herring, by the interested parties, and Mr. Mr. Mark, I think Firstly, we were we were told that the recent change in this in the position icees position on cod was was a negative thing. And, and something that reflects how quickly these assessments can change. Well, national facts, I would flip that on its head, sir, and say that the fact that ICS as regular benchmarks and assesses all the available evidence suggests just how powerful it is as a scientific organisation. So it's quite right that in response to comments from from natural England, we've had another look at the most recent evidence from ICS. And the natural England comments, our attendance piece of rep five 120. Again, it's appendix p, of rep five 120. And we deal with with Cod, herring, Whiting, and some other species of concern from the from natural England within that document. The current status on cod is that it is believed that the wide North Sea stock may now be made up of two populations. Now there's the northern Viking card, and the southern dog a population. Of course, any impingement from the sizewell c would be on the southern dog population. Now ISIS is working with all the data available at the moment to come up with a spawning stock biomass to determine the population size. But in lieu of that, we've used very precautionary estimates from landing. So this isn't the spawning stock biomass. This is simply the landings, which are a small proportion of that. Now, the predicted effect of sizewell C, against the precautionary landings is 0.14%. So I think we can say that in the case of cod, we're using the most up to date evidence, and the percentage effects are very, very small. And that's detailed in both of these old welcome, blow by blow in rap 6016. Okay, if I may now turn to smelt. Mr. Martin raises concerns about local populations smelt, particularly in the in the old at all? Well, I know there's ongoing discussions about about potential enhancement smells and I know that's one of the next agenda items so I won't venture into that area. But just to say that the genetics of smells from the Thames all the way up to the US was set has been assessed, so homogenous. So homogenous genetic population. Now There's immigration between the different

estuaries and the different rivers within that system. But at the agency have concerns over our population estimate, which is, I find that quite strange given that our population estimate is based on Environment Agency landings, the environment, agency managers, smelt land landings. So in the uncertainty analysis is rat six, zero 28. We provide a full uncertainty analysis, including smelt. And we have to have the numbers there at this very precautionary estimate of the spawning stock biomass based on Environment Agency landing data is the effect the main effect is bad point 5%. seabass Sorry, I know I'm rattling through these. But I appreciate there's a lot on the agenda today. And I have no doubt that no, it's fine. I'm following you. Perfect. Thank you, sir. So sea bass was one of the one of the key species the entry point, water discharge permit inquiry. sea bass is obviously a commercially highly important species. And it is the one species or one of the few species where the stock area at Hinkley Point is in fact the same as the stock area that size well. So that is a species whether whether the biology and the data is very well studied. There's a lot of work on tracking of C bus. I we have again provided that in ref 6016. So you can see the the trajectories, the spawning migratory movements of C bus

56:47

stock area, but HPC is the same as the stock here of the size. We'll see. That's exactly right. That's a very large stock area.

56:57

It's incredible. It is large, sir. But one of the one of the points that I would make, you can see the maps in rep six or one six, is it all the evidence from ISIS suggests that that stock error may actually be too small. They're looking at the fact that sea bass within those areas actually intermingle with the Bay of Biscay. I wasn't making criticism. It's just a comment in passing. Oh, no. Absolutely, I know, I can understand that. It does seem like a large area. But the species biology of these species is the adults made large spawning migrations to offshore spawning sites, where spawning takes place, and the progeny, the eggs and the larvae drift with the oceanic currents and come to ensure nursery areas where they've raised. Now one of the concerns the Environment Agency had at Hinkley is there's some evidence and quite rightly, there's some evidence of sort of site fidelity during part of the lifecycle of adult sea bass where they feed in particular areas during summer. The issue of course with that is, if you're looking at individual stages of the lifecycle of fish, you're becoming disjointed, from the purpose of the assessment, which is looking at equivalent adult dates. So we have to consider the full life history of the species to be able to understand what the stock area should be. And that is exactly the consistent with the icees approach. They don't just look at the Summer Feeding behaviour of a particular life stage. They look at what are the eggs day one to the larvae do? What do the juveniles do? What the adults do from that they can determine what the most appropriate stock areas. And that is why we believe that the ICS system that we have used, the sea bass is entirely appropriate. So

58:50

if you can tell me in two sentences, what is the when I see set up the stock areas, and I assume they go around the world? also a lot of the world what is the purpose often?

59:02

With primarily This is northeast Atlantic, sir. Primarily, it's for the sustainable management of fish for commercial fisheries. There are other other roles for ISIS,

59:14

primary stable management, commercial fish stocks. Okay. Thank you very much. I hope I didn't interrupt you there. I didn't interrupt you. But had you got to the end?

59:27

No, there was there's one final point which was about in trends of small fish. We have started to look into this in rep 6002. In response to Dr. Hanson's comments the last issue specific here and I hope that resolves the comments. I hope that resolves the comments from from Mr. Williams. I think it was

59:52

okay, so what was the examination Library Reference you gave me? It's rep six zero There are two reps this year. There are two or Mr. Williams. Okay.

1:00:08

I think so there was also the point about the Blackwater. estria in the herring. Yeah, indeed, the was

1:00:15

reckless wants to do. Yes, I think, I think when we start to talk about the EDS, that's very, that's a very technical point, and we can discuss that in writing. But, as I said, previously, we have responded to similar concerns from natural England and appendix P. Rep. Five 120. On this on this one, I can talk to it in more detail, but we start to get into sort of the technicalities of calculating universe. Is the Blackwater point about EBS, or is it about stock areas? I think it was a mixture of two, maybe Mr. Wilkins can determine what I will, I can look back at the transcript and see what Shawn both both has dealt with in in appendix and experience rep five 120. But the Blackwater is a is a separately managed small stop, which spawns during a period where we see the highest impingement rates of sizewell C. So it's it's unlikely that the herring are often Blackwater. This has been assessed in detail, and it's it's commented that you have a may have picked up on and agreed on a pro rata basis, the probability of effects on the blackboard is minimal.

1:01:40

Thank you. He said. Thank you very much. So strevens is that aceon? On your response? Yes, sir. I think it is. I'm obliged to you. Thank you very much. Can we now move on to the eels regulations, please?

1:02:05

Just a skirt, I think you're going to be first off on this one. I'm trying to understand the positions of both the agency and the applicant in relation to compliance and in treatment monitoring. And you've had some exchanges about this in the Marine sections of our first questions. So I did have your document. Your response or the agency's response, Mr. Scared is that the applicant will be in breach of the eel regulations. And I'm going to give you three very basic on this. Can you please explain to me what the

relevant regulation says and how there will be a breach? And then can you also explain to me what is achieved by entrainment monitoring? Let's start with regulations. But

1:03:06

I may well pass up to Kirk mark, and if that's okay, that's fine. Thank you.

1:03:13

Hello, again, sir quick mark of Environment Agency. So I think what we've stated in our in our representations is that the applicant will not be compliant with your wigs 2009 because they cannot prevent the entrainment of glass eels, as they cannot put a two millimetre screen on the intakes to prevent the entrainment of that species at that life stage. Now, we understand why they can't do that for nuclear safety reasons that it could cause blockages, and they couldn't risk not getting the cooling water into the power station. So that is accepted. In summary, following a comprehensive review of the information presented by the applicant, we're unable to determine how many glasses will be in trained at size. We'll see once the station becomes operational.

1:04:03

Hang on, hang on, Mr. Mark. So how are Byron's standards? I mean, I haven't, I'm afraid I have not pulled out a copy of the eels regulations. I want to know what the regulations why that says less than two millimetre mesh has got to be what is the bridge.

1:04:19

So the rules state that that abstraction has to prevent the entrainment of glass eels by having on a screen that will prevent that life stage from being sucked in. And as they can't be compliant with that bit of the legislation. We then have to work out whether we can offer an exemption or whether they need to take alternative measures in order to reach compliance. We can provide a more detailed version of that if that's required,

1:04:52

if you would, if you could submit me the text of the relevant regulation. That'd be great. But carry on I interrupted you.

1:04:58

That's okay. So I think I've got To how we're in a position where we're unable to determine how many glass deals will be in trained. And the second point is that of those deals that are in trained were not in a position to accurately describe how many will survive, although we are in a slightly more firm position over it not being 100% survival in it being less than 80% as the applicant first put forward. Due to constraints with the station design and available space for the required a treatment equipment, the applicant has indicated that they may not be able to undertake in treatment monitoring once the station becomes operational. We're concerned that in treatment monitoring will not be undertaken as this is the only accurate way to assess the actual level of impact to this species at this life stage. Once it becomes operational. We have been working with the applicant to identify mitigation measures to help offset the potential impact of the species which is positive. But without knowing what the actual impact will be, it's very difficult to determine if an acceptable level of mitigation has been secured. We are awaiting

proposals by the applicant at deadline seven of how they can provide mitigation, which we've been working with them. And we're also awaiting confirmation of whether they can or cannot undertake in treatment monitoring for glass eels once it becomes operational.

1:06:28

Okay, I see the problem. But this can't be the only place was the problem.

1:06:34

No. We're disappointed that a station has been designed the current undertaking treatment monitoring, given the requirement to undertake monitoring of impacts, they monitor it size will be historically they have that it has been difficult for them, but they have had a monitoring programme for in training at size will be okay. So that's where we find ourselves. And if it isn't possible to undertake in treatment monitoring, then we will work with the applicant to take forward the proposed mitigation of improving fish passage in the adjacent water bodies to improve migration success for eels in those water bodies. But as discussed without knowing what the impact is, it's difficult to determine if we've agreed an acceptable level of mitigation.

1:07:34

Okay, okay. Stay there, because I think you can probably help myself with my next question. So I was that what he wants to say on that one, or? Yep, that's it for us. Thank you. So my next my next question for the agency. And if his view then do it and if not given to Mr. scared. The agency says that the song playing which was did take place in which feeds into the environmental assessment. You said the sampling was flawed because the receptacles overflowed. And is the meaning of that it was the significance of that, that therefore not all the entrained fish were

1:08:20

caught. So we have a few concerns over the entrainment programme that was put forward. that's being used as one of the methods to identify the level of glass eels present in the area. I think CFS and the applicant have confirmed that in their own opinion, insufficient sampling was undertaken to be able to detect glass eels in the size well area. In addition, we feel that some of the samples overflowed, and that the presence of grass heels may have been missed in those samples. And following the representation given by Dr. Henderson at the previous issue specific hearing, he stated that slim long fish of which glass eels fall into that category would not be adequately sampled through the pumps that they had installed in that enjoyment sampling system.

1:09:23

So it's not a question of putting a basket there and seeing who comes in? Or is it what's going on the receptacles overflows, or so. So that sucked out I didn't know.

1:09:34

So I mean, I'll probably let the applicant describe their system in more detail but basically they subsample a small percentage of the water coming through the four bays in the in the in the power plant through a pump which is then put through next which has small plankton nets which is suspended over tanks and then some of those samples for a set period of hours during the day, and some are

overnight, the overnight ones sometimes became clogged and overflowed. And that could have been that class he was not being recorded.

1:10:16

So I get it all I need to know is that if receptacle is full, that not everything gets counted.

1:10:21

Yeah, I don't think the applicant agrees with us that that could happen. But that was one of our opinions of that programme. But I think given Dr. Henderson's representation at the previous hearing that he didn't think that the method use, which would be a very good system for recording, glass eels is there as a type of fish that wouldn't be taken to the pump very effectively, then that is another concern of it under representing glass eels. But our main concerns are not with that, that particular sample sampling method. It was with the glass ale specific surveys which they undertook in the location of the size, we'll see intakes, which we feel missed the peak migration for the year that they were undertaken, that they didn't sample at night, they only sampled in daytime, and there's a lot of evidence of grass eels migrating. At night, in estuaries and rivers, there's a bit of a gap of knowledge about what they're doing in coastal areas. And the other issue that we had with that grassy or specific surveys is that when we looked at the data sampling was only undertaken for about between eight and nine hours over 11 days in a single year. So a total of around nine hours worth of sampling, which we felt was too small amount of sampling to accurately predict what the level of enjoyment could be from size. We'll see. Okay, so you say wrong time of year? Not enough. long enough period? Yep. I mean, not all the variables, so not sampling at night or in a range of tidal conditions.

1:11:59

Hang on. Okay, thank you make sure that's in your post is ah, submission, please, clearly, that's my hope. I'm going to turn to the applicant now. Thank you very much. Mr. trogons. So can you deal with all these points about the ear regulations, please? When are you in breach? To what do you achieve by entrainment monitoring and the problem that you can't do it? And the sampling flaw?

1:12:44

Yes, I'll deal with that by I deal with the point about breach myself now. I'll then turn to Dr. Roast to deal with the question of the the ability within the proposed station to monitor and train glass seals and why that that isn't possible. And then I think that doctrine breakers is going to be the appropriate person to deal with the sampling the overflowing buckets and the the offshore sampling for migrating glass seals but the youngest

1:13:17

just to give Dr. brittles a heads up whilst he's once you're talking. And I think that all I need to know is that because the receptacles that overflowed, there will have been glass eels, which didn't get counted. So I think that's the the issue for him to concentrate on. And before you come back to me, Mr. Jones, Mr. Mr. Markham, you're frozen on my screen. And I can't see Mr. tremens.

1:13:52

my camera's off so I'll try turning it on and off again to see if that clears the issue. Okay.

1:14:03

Okay, what now? I'm getting messages from friends who say that others can't see you, Mr. Markham. Assume that they can you see Mr. trogons. Okay, Miss Trevor's, carry on please. We're coming up to one o'clock. I really would like to get marine issues dealt with before we break for lunch. Yes, well, see you let's let's carry on. If I lose contact, which I think thing is going to happen. Then one of my colleagues will just have to take over for a short time.

1:14:41

Yes. I will just say that discussions are ongoing in relation to mitigation by way of email passes to remedy the situation where currently, heels are obstructed. At Snape Maltings hand If that is agreed, then the applicant would contribute funding to the Environment Agency to implement those schemes to benefit eels, which will ultimately find its way into the deed of obligation. And currently work is ongoing to draft a proposal to submit to the Environment Agency to record those schemes. So that's that in practical terms where we're at, on the use regulation so that there are structures from 2009 3344 the eels England and Wales regulations 2009. And just to give you chapter and verse, its regulations 17, which deals with iOS screens, and regulation 17 for places an obligation on a responsible person, which in this case would be the applicant to ensure an iOS screen is placed in a diversion structure. The intake would be a diversion structure for purpose, not to do so is a criminal offence, but the agency may by service of a notice exempts the responsible person from that requirement. I think the agency does understand the reasons why we can't fit the two millimetres screen they're explained in the in the eels, regulations compliance assessment, which for your note is a pp 322. Appendix 22 Oh, but essentially, it's to prevent what would otherwise be a dangerous situation of the Intex getting clogged up by Sega speers. And by jellyfish it be can't can't do that. So I think on that basis, I can probably hand over first to Dr. Roast to deal with the monitoring, and then Dr. Breakfast to deal with the offshore sampling and the flowing buckets. Very good.

1:17:03

Thank you, how do I go so stinking roast on behalf of the applicant? I can be very brief. We have looked at the possibility of doing entrainment monitoring, I believe that we can now do that. In fact, at deadline seven, we are submitting a in principle fish monitoring plan for sizewell c, this will be in response to condition 50 on the deemed marine licence. And within that there will be details of of entrainment monitoring as as well that there are significant logistical issues in terms of doing entrainment monitoring at these EPR sites. However, we don't believe that's the that's insurmountable so so we are looking hard at that, but but do not believe that we can do so. But as I say, deadline seven we'll be putting in that in principle monitoring plan. Thank you, Dr. Rose. Okay, I'll pass over to Dr. grackles. Thank you.

1:18:14

Good afternoon again, sir, to practice. On behalf of the African agenda. Just I suppose there are two primary questions here. There was one about the entrainment monitoring. And then there's one about the wider monitoring, you asked about the possibility for for eels to to escape the entrainment or clogging. So the entrainment monitoring was completed at sizewell B for over a year between 2010 and 2011, excuse me, and it was completed by Pisces, for which Dr. Henson was was directly involved. So

he is fully familiar with the process. There were I believe, out of 240 samples, there were two occasions when the sample there are a number of occasions when the samples clogged up with mud. And this has all been documented in the in training report. So it's not it's not your information that I do not agree with Mr. Mica. When he suggests that see first things that the sampling is is is not sufficient to to run through the type of sampling that has occurred at that size. Well, we between April and May 2015. There were 105 valid Los Altos. Now yes, they weren't completed at night. But we know from other sites that that's an acceptable method and catches them during the day, including the Bristol Channel where we've deployed the same equipment and had incredibly high capture rates. Now in 105 glossier surveys, one fish one glass sale was recorded. It's Similar sample intensities in the Bristol Channel, we catch hundreds of fish. And that's all documented. It's all part of the Hinkley Point inquiry. And sorry, all part of the Hinkley Point decio process. And those those surveys at Hinkley were were undertaken in collaboration with the Environment Agency. So we know the methods work. We know that during the day, you have to catch Eagles if they're in there in appreciable numbers. The agency has suggested we missed the peak of the of the class seal run that particular year. And it's possible that that wasn't during the peak periods. The agency contest that we were to earlier in the season, based on migratory movements algorithm. It's equally true excuse me, it's equally possible that it was a month beforehand in in March, April rather than we sampled it in April in May 2015. But the key point here is if there were eels in appreciable numbers survey would have caught them we want Secondly, we have completed over the course of 2008 to 2017 620 plants and trills. Now this isn't a specific method targeted at glass eels, it's not very effective at targeting glass eels, but in 620 plankton toes if they are there in appreciable numbers, we would have caught them we have cotton done. So we know that there are glossy holes in the area there are there are glass eels and alvers in the in the estuaries, but they're just simply not that an appreciable numbers and that is that is the point that we will try to make. In terms of in terms of the following treatment assessment, we have completed a worst case class sales assessment that is SPP 104. Part of the documents that have been submitted under a s 238. We did have worst case colossal and treatment assessment. There is also in the same document in SPP or 406. A detailed consideration of each of those points. Mr. Markey was raised in Section 6.6. Okay, I thought it was better off. Unless you have further questions, sir.

1:22:41

No, that's fine. Thank you very much. Okay, I am going to take a we have a precaution on the slightly early lunch break. And I thought, precautionary in that I didn't want my teams to fall over, I'd be able to hear everything which people say but sometimes it's a precursor to other things. So it's now three minutes past one, we do still have quite a lot to get through on the agenda. So I am going to say let us just take half an hour for lunch. And we will start again at 135 and we will start with smelts items D and E. So we're now adjourned until 135