An Taisce
The National Trust for Ireland

The Aquaculture Licences Appeals Board (ALAB),

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sent by email to: info@alab.ie

16th November 2020

Re: Shot Head Appropriate Assessment AP2/1-14/2015

A Chara,

Thank you for referring the Appropriate Assessment documentation for Shot Head to An Taisce. We gratefully acknowledge the attention the Board has paid to its submissions at the oral hearing, and to the appropriate assessment (AA) procedure which it has adopted. An Taisce would request that the same procedure (independent scoping / screening report, natura impact statement (NIS) from the Developer, and independent AA report) be adopted as a model for future cases.

An Taisce nonetheless continues to have a number of concerns about the AA screening and conclusions. These concerns are set out below.

1. Screening

The AA Screening Report of 5 February 2018 indicates a likelihood of both positive and negative impacts for storm petrel from aquaculture sites. Positive effects include increased nutrient availability. Negative impacts include bioaccumulation of antibiotics, pollutants and heavy metals. An Taisce has previously highlighted the bioaccumulation of the lice treatment product, emamectin benzoate (EmBz), as an issue. Though this item was cited in the screening document, it does not appear in the AA Report. It is crucial.

To summarise An Taisce's argument, it is that EmBz will be discharged from the site when lice fall from treated salmon. It will fall to the seabed where it will be taken up by the benthic community there. These creatures will be preyed upon by sprat and other small fish which will in turn be preyed upon by seabirds. EmBz will bioaccumulate in the seabirds with unknown effects on them. This impact is not confined to the site, because sprat will move throughout Bantry Bay and may be preyed upon wherever they travel.

2. Lacunae in AA report

The Appropriate Assessment report by MERC ('AA report') reaches overarching conclusions which we believe are unsubstantiated in the body of the text, and the evidence provided.

On page 16 the AA report authored by MERC, it is outlined that:

> *"there is a stark shortage of information in relation to the nature and scale of interactions with marine cage aquaculture and associated potential impacts. In this regard, the NIS notes that "whilst apparently all other classes of impacts on seabirds are extensively and deeply considered and reported upon ... there is a contrasting dearth of scientific and referenced information on the spatial and disturbance impacts of both finfish and longline marine farming systems on seabirds". Furthermore, it is pointed out that what information is available in relation to interactions of seabirds with marine fish farms is quite old and mostly based on outdated production practices and technologie*s."

and again, in Section 7.1.1:

> *"Little evidence has been available to the NIS and consequently this assessment that will substantiate the actual level of mortality related to entanglement on marine fish farms in Ireland."*

As such, there is a clear indication that there is a lack of data as to likely effects of this proposed development. Despite this, the report argues that even if these effects occurred, they would be unlikely or highly unlikely to lead to a significant decline in breeding populations, productivity rates or breeding colonies. Accordingly, it concludes at the end of the AA report that there are lacunae in the data, but they are not significant lacunae, and therefore, there would be no adverse effect on the integrity of sites.

> *"This assessment concludes that there are no significant lacunae and that risks to SCI species have been identified and appraised. The reasoned conclusion of this process is that the proposed Shot Head farm development will not impact adversely on SCI species or conservation objectives for connected SPA sites.*

An Taisce would highlight that given the clearly outlined lack of data this conclusion lacks credibility and scientific rigour. Furthermore, this is not the legal test which the Board has to apply. It must be satisfied on the basis of objective scientific information, without gaps or lacunae, that there will not be an adverse effect on the integrity of protected sites.

In Kelly v An Bord Pleanála & Ors. [2013 No 802 J.R.] with reference to Commission v Spain c-404/09 the High Court held in para 36 that the competent authority must carry out an AA for a plan or project in light of the best scientific knowledge in the field and that the final determination of the competent authority must include complete, precise and definitive findings. The case repeated the conclusion of CJEU at para. 44 in Case C-258/11, namely that an AA:

> "*cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt*."

The lacunae which exist involve inadequate data from which conclusions cannot be drawn. Very small changes may tip a protected site from expansion into contraction: Gittings (2018) (p40, 7.2.2) highlighted that the loss of 1.7 gannets per year from an SPA would be significant. The identified impacts are sufficiently serious that they must be studied and quantified.

The legal test for absence of adverse effects, as established via extensive case law, involves the following elements:

- Where there are lacunae, the AA is incomplete.
- Where an effect is considered to be unlikely, or highly unlikely, this cannot be the basis for a finding that it will not occur. Proof is required beyond reasonable scientific doubt.

- Where there is no evidence that a particular potential impact occurs, this cannot be taken as evidence that it does not occur.

The AA report quite simply fails to set an accurate factual basis for the conclusion arrived at on page 46, and as such it does not stand up to scientific or legal rigour.

3. Entanglement-Absence of Evidence, Admission and Lacuna

Gannets dive to fish, and are opportunistic, generalist predators. The AA report identifies them as at particular risk of entanglement in the protective netting around the salmon pens, as they are known to predate on these. Further, they fish by means of plunge diving, thus increasing entanglement risk, which may lead to a risk of injury or death:

> *"Given the plunge diving behaviour of Gannets and the use of top nets to prevent predation, entanglement causing mortality is an ongoing risk where Gannets predate at salmon cages.* "

At page 30-31 (6.3) the AA report found that entanglement of seabirds in protective netting was a concern, but said:

> *"There is no evidence that entanglement causing mortality occurs routinely, however data in relation to entanglement related mortality of salmon farms using modern husbandry techniques and farming technology is lacking.* "

The fact that there is no evidence does not mean it does not happen. The fact that it may not happen *routinely* is an admission that it does happen. The fact that it is *mortality* that may not happen routinely means there is no consideration of *injury*. As such, similar to section 2 above, there is a lack of evidence which is all the more concerning as there is an admission of possible impact, with non-routine mortality and injury.

The overall assessment for Gannet in the AA report relies on 2 points to discount the potential impact. The first is that other farms have not reported mortality as a result of entanglement. However, it is highlighted that the requirement at other sites to monitor mortality, and the absence of any recorded deaths, could not be independently verified, but did support the understanding that the risks were low. No such inference can be drawn. Diving is a problem at dawn and dusk, before staff arrive, according to the EIS. During the breeding season, daylight hours can be from 4am to 10pm, and as such workers would not be on site to detect such attacks. Further to that, there is no guarantee that they would see a bird that had got caught in the netting, exhausted itself, and drowned. They would have no way of knowing if a bird had dived, injured itself on the netting, and got away before dying. As such, we would

highlight that absence of evidence is not evidence of absence, and this is not definitive, precise or conclusive, it is little more than anecdotal evidence.

The second thing they rely on is that the Gannet population at SACs has been increasing, even in proximity to salmon farms. However, at page 41, the AA report notes that while the gannet population is increasing but will not continue to increase indefinitely. It therefore concludes that information on "*the likely annual gannet harvest or mortality rate*" will be required when that happens. This is a chilling conclusion, and clearly accepts that there is a likelihood of mortality. Despite Gittings (2018) highlighting that a rate of 1.7 gannets lost per SPA would be significant, this AA report proposes to wait until numbers begin to fall in order to obtain any hard data. This is an AA, and as such it is required to be based on science, requiring hard verifiable data. The Habitats Directive requires protection based on the principles of prevention and precaution: figures must be established before loss occurs, not after.

In summary, the inference of lack of effect cannot be drawn on the facts. At its height, the inference is only that the risk is low; but the AA report finds that the loss of 1.7 gannets per year from any SPA site would be significant, so even a small risk constitutes a potential adverse effect for the integrity of the site.

This is not a preventive or protective approach. It is reactive. It does not meet the standard to establish absence of adverse effects, because it will only require collection of data after species decline has begun.

4. Moderate Disturbance

At page 27 (6.1) the AA report found there would be moderate disturbance of foraging guillemots and low disturbance of foraging gannets. It found that this was likely to result in displacement to other areas, and would be most likely to affect guillemots. A finding of disturbance is evidence pointing towards adverse effect.

5. Significant Declines – Favourable Conservation Status

Section 7.1 of the AA report outlines that direct and indirect impacts on SCI species is assessed with a view to the NPWS conservation objectives for the Saltee Islands SPA which aim for "no significant decline" in breeding population abundance, productivity rate, or distribution.

These criteria do not meet the requirements of the Habitats Directive, which are that there is an adverse effect on the integrity of the site if the conservation status is unfavourable, which

is the case if numbers are falling – not merely 'significantly', but at all. As such, the AA report is using a standard of decline that allows for reduction in conservation status and does not meet the requirements for eliminating the risk of adverse effect on the integrity of the site.

6. Conclusion Contradicted by the Evidence

In Section 7.2.1 the AA report references the impact of removal of sprat, herring, mackerel and other forage fish, and the cumulative impact this may have. The AA report concludes that, though the proposed development will reduce the available foraging area in Bantry Bay by 2%, it does not reduce the actual amount of forage fish available. This is not accepted. At a major level, aquaculture activities consume 4kg of forage fish to produce 1kg of salmon. Primarily this is a matter to be considered in an EIA; but there is a local element to it. The presence of a fish farm at Shot Head will increase local demand for sprat fishing at Castletown Bere, and will place increased pressure on fish stocks that are available to foraging birds.

We submit that this statement from the AA report is illogical:

> "*While reducing the available foraging area in Bantry Bay by less than 2%, proposed and existing aquaculture in no way reduces the actual amount of forage fish available*"

This proposed finfish aquaculture would clearly reduce "the actual amount of forage fish available", forage fish being the very food source for the farmed salmon. Further, the feed that is supplied to salmon farms typically originate from pair trawling which targets sprat but also may catch significant amounts of juvenile herring. Sprat and/or herring are identified by BirdWatch Ireland[1] as being a primary food source for but not limited to the following protected seabird species: Manx Shearwater, Northern Gannet, European Shag, Atlantic Puffin, Razorbill, Common Guillemot, Little Tern, Sandwich Tern, Common Tern, Roseate Tern, Arctic Tern, Kittiwake, Mediterranean Gull, Common Gull, Lesser Black-backed Gull, Great Black-backed Gull.

Hence, it is our considered opinion that the AA Report conclusion is contrary to the evidence relied upon. The AA has failed to properly assess the functional connectivity between the salmon farm and the salmon farm feed. The AA's conclusions therefore do not cover the indirect and cumulative impacts of the operation of the salmon farm on the broader marine ecosystem and its constituent species which are under the protection of the Habitats and Birds Directives. This is a significant lacuna in regard to the completeness of the AA.

[1] Cummins, S., Lewis, L.J. & Egan, S. (2016) Life on the Edge - Seabird and Fisheries in Irish Waters. A BirdWatch Ireland Report

7. Kelp – In Combination Effects Discounted

At page 43 reference is made to potential in combination effects from kelp harvesting in Bantry Bay:

> *"Possible in-combination effects from aquaculture and kelp harvesting have not been accounted under in-combination effects on connected SCI's and SPA's as it is not clear whether previously proposed kelp harvesting activity will in the future be licensed.*"

This is a significant issue. There is at least one appeal pending and one licence granted in relation to kelp harvesting since this appeal was lodged. Loss of mature kelp takes away feeding and concealment habitat for sprat and other juvenile forage fish. This will create a temporary bonanza for feeding birds (as fish feed on smaller species that can no longer hide in the kelp), followed by a collapse of feedstocks in the bay (when those smaller species are consumed or driven off.) This needs to be factored into the "in combination" and "cumulative" effects, as well as into potential knock on effects in the food chain.

8. Absence of Evidence of "Lethal Interaction"

In the concluding statement at page 44 the AA report concludes that numbers of gannet, fulmar and guillemot have been increasing at SPAs, and says that data in relation to neighbouring aquaculture activities has been available for years and shows "*no lethal interaction with seabirds in recent years.*" Here again is the fallacy of absence of evidence being equated with evidence of absence: there is no data because the operatives either have not seen or have not reported. This does not mean that mortality does not occur. No conclusion can be drawn from the absence of evidence to establish that the test laid down in the Habitats Directive is met.

At page 46 the Report concludes that the proposed activity "*will not impact adversely on SCI species or conservation objectives for connected SPA sites*." This conclusion is based entirely on underlying estimates of likelihood, unlikelihood and significance, all of which are arrived at on the basis of absence of data, incomplete data, and lack of hard numbers. This underlying material cannot form the basis for such a sweeping conclusion. As the Report itself notes at page 45:

> *"regular collection of scientifically robust data would quantify impacts, and would allow detailed specific assessments to be made of interactions and impacts."*

Though the AA report makes this comment in relation to other (non-SCI) species, it is equally applicable to the Gannet, Fulmar and Guillemot addressed in the AA report. In the absence of such data, it was not open to the AA report to conclude, as it did, that the evidence was "*in this instance, adequate to support the assessment of population risks*." That simply is not the test that has to be met to justify grant of a licence.

9. Wild Salmon Considerations

There are some local salmon rivers, and coastal streams which are of significance for wild salmon in the vicinity of the salmon farm, such as the Trafrask/Dromagowlane Stream. As such we raise the following issues.

9.1 Sea Lice

One negative impact of salmon farms on wild salmon and seatrout populations is the spread of sea lice from salmon farms to wild fish populations. Thorstad & Finstad (2018)[2] researched the impacts of salmon lice from salmon farms on wild Atlantic salmon and sea trout, and summarised the results as thus:

> *"Considerable evidence exists that there is a link between farm-intensive areas and the spread of salmon lice to wild Atlantic salmon and sea trout. Several studies have shown that the effects of salmon lice from fish farms on wild salmon and sea trout populations can be severe; ultimately reducing the number of adult fish due to salmon lice induced mortality, resulting in reduced stocks and reduced opportunities for fisheries. Depending on the population size, elevated salmon lice levels can also result in too few spawners to reach conservation limits."*

Recent research from Ireland[3] has shown declines in abundance of wild salmon associated with reduced survival during marine life stages. A 26-year record from the Erriff River (Western Ireland) was used to evaluate the contribution of sea lice from salmon aquaculture to declining returns of wild salmon. Statistical models suggested that returns were >50% lower in years following high lice levels on nearby salmon farms during the smolt out-migration.

[2] Thorstad, E. B., & Finstad, B. (2018). Impacts of salmon lice emanating from salmon farms on wild Atlantic salmon and sea trout.

[3] Shephard, S., & Gargan, P. (2017). Quantifying the contribution of sea lice from aquaculture to declining annual returns in a wild Atlantic salmon population. Aquaculture Environment Interactions, 9, 181-192.

This is supported by more recent research[4] which suggests that sea lice infestation emanating from salmon farms compromises smolt growth and body condition, and thus response to environmental conditions. Annual counts of returning wild salmon from ten rivers in Ireland, including five "control" systems without salmon aquaculture, showed a downward trend, consistent with declines in Atlantic salmon populations. Rivers with aquaculture showed lesser returns (mean 33%, range 19–46%) in years following high lice levels on nearby salmon farms.

Another potential problem is the increasing resistance of sea lice to current treatments, which results in fish farmers using higher doses of chemicals to treat for sea lice. Data released by SEPA showed that there was a 110% increase in the amounts of chemicals used to treat sea lice due to increasing resistance. However, there was only a 22% increase in the level of salmon production in the same period. The chemicals used can be highly toxic to marine crustaceans which are an important corner stone of marine productivity and marine food webs as well as being important to the Irish inshore fishing sector (80% of the Irish fishing sector) which are heavily dependent on lobsters, crabs and prawns.

9.2 Amoebic Gill Disease

Amoebic gill disease (AGD) is an increasing problem in farmed salmon across Northern Europe and Ireland. Infestations may cause a risk to wild salmon populations. The treatment of infected farmed salmon with freshwater in Ireland has been associated with the unregulated abstraction of large volumes of freshwater. Something that is rarely if ever assessed at the application stage.

9.3 Escapees

Another issue with salmon farms is the well-documented risk that farmed salmon can escape in sometimes extensive numbers. The impact of escaped farmed salmon on the genetic integrity of wild stocks poses a potential threat. A 37-year study of the influence of farmed fish on wild populations in the Burrishoole River catchment in Co. Mayo found that 'hybrid' Atlantic salmon showed significantly reduced survival capacity compared with wild fish.

10. Otter and Seal considerations

Lutra lutra (Otter) and *Phoca vitulina* (Harbour Seal) are both qualifying interests of the Glengarriff Harbour and Woodland SAC, Site code 000090. While separate reports are

[4] Shephard, S., & Gargan, P. (2020). Wild Atlantic salmon exposed to sea lice from aquaculture show reduced marine survival and modified response to ocean climate. ICES Journal of Marine Science.

provided for both otter and seal on the ALAB website, it is unclear if or how these reports fed into the screening assessment. While the AA report does mention the seals in regard to potential disturbance impacts associated with the proposed development it does not address the indirect impacts of the salmon farm on both species, or the potential negative impacts on the wild salmon and sea trout population living and migrating through Bantry Bay. Both Otter and Harbour Seal are known to predate on mature salmonids. Any negative impacts on the wild salmonid population should have been assessed in the context of salmon themselves being Annex II species and secondly in respect of the potential knock on impacts on the protected Otter and Seal populations.

The most recent Article 17 report[5] on the conservation status of species protected by the Habitats Directive in Ireland identified the overall conservation status has been assessed as Inadequate. Aquaculture was identified as a high threat and pressure of High Importance to Ireland's Atlantic salmon population (G19 Other impacts from marine aquaculture, including infrastructure (H)).

We should be grateful if you would take account of these concerns in considering this additional information, and request that you provide to us in due course: an acknowledgement of this submission; the nature of the decision; the date of the decision; in the case of a decision to grant an approval, any conditions attached thereto, and the main reasons and considerations on which the decision is based; and, where conditions are imposed in relation to any grant of approval, the main reasons for the imposition of any such conditions.

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[5] NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill

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