



Mr. Graham Cadogan
Executive Officer, Foreshore Unit
Department of Housing, Local Government
and Heritage
Newtown Road,
Wexford,
Y35 AP90

RWE Renewables Ireland Ltd

Your ref. FS007188 RWE

Our ref.
Contact
Phone
Email

[Redacted]
@rwe.com

30/08/2022

FS007188 RWE_Response to Public Submissions 13, 16 - 19

Dear Graham,

Thank you for providing the submissions from the public in response to the consultation on Foreshore Licence Application, FS007188 associated with the Stage 2 Appropriate Assessment under the European Communities (Birds and Natural Habitats) Regulations 2011.

The Foreshore Licence application is solely for the purposes of the completion of site investigation and environmental surveys. The application is not for permission to construct or operate a wind farm. Public submissions were invited for the purposes of conducting the Appropriate Assessment in accordance with Regulation 42(13) of the 2011 Regulations. Some of the issues raised in the public submissions are outside of the scope of the licence application and/or the purpose of the consultation and therefore the responses provided are focussed on the relevant issues

Please find attached our response to the matters raised to public submissions 13 and 16 to 19, which are pertinent to the licence application and Stage 2 Appropriate Assessment consultation. The main observations made in each submission have been reproduced in the attachment, in italicised text, to indicate the specific points the response by RWE relates to.

Yours sincerely

[Redacted signature]

Enc: Applicant's response to public submissions 13 and 16 -19.

RWE Renewables Ireland Limited

Unit 5 • Desart House • Lower New Street Co. • Kilkenny • Ireland

Registered Office: RWE Renewables Ireland Limited • Unit 5 • Desart House • Lower New Street • Kilkenny • Ireland

Registered in Ireland no. 589120

Directors: [Redacted]

Contents

Applicant's Response to Public Submission 13.....	2
Applicant's Response to Public Submission 16, Coastal Concern Alliance	5
Applicant's Response to Public Submission 17, People Before Profit	19
Applicant's Response to Public Submission 18.....	20
Applicant's Response to Public Submission 19, South East Coastal Protection Alliance DAC	60
References	63

Applicant's Response to Public Submission 13

Further to the invitation for Public Submissions for Purposes of Conducting Stage 2 Appropriate Assessment I wish to make the following submission. I strongly object to the granting of a Foreshore Licence to undertake geotechnical and geophysical site investigations and ecological, wind, wave and current monitoring to provide further data to refine wind farm design, cable routing, landfall design and associated installation methodologies for the proposed Dublin Array offshore wind farm.

Today 29/7/2022 it is reported that Minister Ryan, reflecting on the recently announced emissions targets, has vowed "I have every faith that we will, together, reduce our overall economy-wide carbon emissions, year by year". This is absolutely crucial but just as crucial as the need to reduce carbon emissions is the need to protect the greatest natural carbon sink we have.

Efforts to decarbonise must also focus on protection of what is working for us. The sea is an absolutely crucial carbon sink. A damaged marine environment will not function effectively in this regard. We must know exactly what we are doing when we select sites for off shore wind. The primary consideration for the selection of sites for wind farms must be based on where windfarms will do least damage to ecosystems. We must first do the least environmental harm possible. Site selection therefore must be science led. To date site selection on the East Coast has been developer led without adequate independent environmental assessment. Blindly chasing targets without safeguarding biodiversity is counterproductive. We must start with a clear scientific analysis of where we need to protect our carbon sink, in other words we must start with effective Marine Planning. While new Marine Planning legislation has gone some way towards this, legacy projects advanced under the hopelessly inadequate 1933 legislation continue to hold special status and too much power to grant or refuse licences lies within the sole remit of one Minister.

The proposed windfarm will be the subject of an application for development consent in due course under the Maritime Area Planning Act, 2021 as amended, and its associated consent framework. An assessment of the alternatives and reasons for site selection will be provided as part of the application documentation.

Flawed Marine Planning

Even for ordinary citizens without scientific expertise, it is not hard to see from the work done by voluntary groups and Community Councils, that there has been a long history of systemic flaws in Irish Marine planning. Relative to other jurisdictions, Ireland to date has designated an unacceptably tiny portion of its

marine environment for protection. In this planning vacuum, Legacy Projects that made applications under outdated 1933 legislation have been afforded special status going forward.

The Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any site preparation nor permanent installations. In accordance with the Maritime Area Planning Act, 2021 as amended, a 'Relevant Project' will be required to obtain a Maritime Area Consent prior to submitting a development consent application to An Bord Pleanála. This development consent application will be subject to independent environmental impact assessment by An Bord Pleanála under *inter alia* the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process.

Information emerging from Voluntary Groups

Emerging evidence unearthed by voluntary groups, community councils and concerned citizens indicates that decisions not to designate the Kish/Bray Sandbanks for protection in the past were based on dubious studies, inadequate assessments and concerns other than scientific ones. This is deeply worrying. We must be able to have confidence that the Government on our behalf, will engage bodies who have appropriate expertise to assess these complex environmental issues.

The matters raised in this submission are related to the actions of the State rather than RWE. It is a matter for the State to identify and designate Natura 2000 sites (SACs and SPAs). The Kish Bank is not designated as an SAC or SPA. Nevertheless the proposed techniques and measures intended to be employed as part of the site investigation and environmental monitoring proposed have been selected to ensure that environmental effects from the proposed activities are not significant.

Decisions must be based on science

Until we have sufficient designation of MPAs based on best independent scientific expertise we simply can not stand over the selection of sites for near shore wind farms or their investigative work.

Before we allow intrusive investigations for such industrial development we must know what areas need protection. Granting licences in advance of this is premature.

I fully support the Submissions made in relation to this Foreshore Licence Application by Coastal Concern Alliance and In their submissions, in my opinion, they have provided evidence that far outweighs the evidence provided to date by RWE Renewables regarding the impact of wind farm investigation work and windfarm development on vulnerable marine habitats, and on areas vulnerable to coastal erosion in the context of increased adverse weather events. I completely share their concerns and call on the Government to carefully consider the volumes of scientific information they have provided to inform all current and future decision making regarding granting of foreshore licences.

The designation of Marine Protected Areas is an active workstream being progressed by the State currently (gov.ie - [Marine Protected Areas \(www.gov.ie\)](http://www.gov.ie)). This process is outside of the control of RWE. The application documentation demonstrates that with the committed

techniques proposed to be employed, the limited scale and temporal extent of the proposed site investigations, they will not have any significant effects on the environment, including marine habitats and coastal erosion.

It is irresponsible to leave EIA to developers. FOI/AIE investigation has revealed that in 2006 the Marine Licence Vetting Committee reported that EIS relating to Kish and Bray Bank Wind Farms was found to have “serious shortcomings” leaving it “deficient in its content” and was not satisfied that it complied “with relevant EU and national EIA legislative requirements”. The Government must commission independent investigations to collect and analyse data based on up to date methodologies.

— A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The development consent application for the proposed wind farm will be subject to an independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process.

Inadequate Public Information and Consultation

The issues involved in these Foreshore Licence Applications are extremely complex. To date the Government has failed to provide user friendly information, that ordinary citizens such as myself can relate to. It is not acceptable that voluntary groups and concerned citizens are left with the onerous task of challenging the submissions made by Wind Farm developers in the absence of meaningful unbiased public information and consultation. The NPWS has been chronically under resourced for years and because it has only had a very recent injection of funds it is now having to play catchup in gathering data relating to these matters. Voluntary groups have had to step into the breach, gather information, wade through the licensing history, make FOI/AIE requests, make complaints to the EU, organise public information meetings, analyse the data and generally act as watchdog. Pitched against the resources of massive wind farm developers backed by Government this feels less than democratic.

An Independent Environmental Consultant (IEC), appointed by the Department of Housing, Local Government and Heritage, have undertaken a Screening for Appropriate Assessment (AA) (stage 1 screening for the likelihood of significant effects on Natura 2000 sites), which has concluded that a Stage 2 Appropriate Assessment under the European Communities (Birds and Natural Habitats) Regulations 2011 is required in respect of the following sites:

- Rockabill to Dalkey SAC
- South Dublin Bay SAC
- Lambay Island SAC
- North Bull Island SPA
- South Dublin Bay and River Tolka Estuary SPA

The IEC will take account of the submissions to this current consultation received from the public, along with observations from the Prescribed Bodies, when preparing a Natura Impact

Statement for the Minister for Housing, Local Government and Heritage to inform the Minister's decision regarding the Stage 2 Appropriate Assessment.

Applicant's Response to Public Submission 16, Coastal Concern Alliance

Introduction

Coastal Concern Alliance welcome the acknowledgement by the Department that Likely Significant Effect on a number of Natura 2000 habitats and species could arise as a result of the proposed development activity for which consent is sought in this Foreshore Licence application.

We assume that all of the pertinent information included in our submission in response to the Foreshore Licence Application (2021) will be considered in the current additional Stage 2 Appropriate Assessment required by the Department.

Stage 2 Appropriate Assessment

Full details of the Plan or Project are not considered.

The current Appropriate Assessment is being carried out for the stated purpose of obtaining 'authorisation to undertake a geotechnical and geophysical site investigation for the proposed Dublin Array offshore wind farm development...'. Therefore, the full details of the project are not considered in the screening for this Appropriate Assessment.

In addition, Annex III of the EIA Directive as amended refers to 'the size and design of the whole project'. Clearly, this is not what is addressed.

The grant of a foreshore licence which gives permission to undertake surveys and site investigations to inform the design of the wind farm or to collect data for monitoring purposes is made on terms which are expressly without prejudice to the subsequent mandatory development consent application to be made to An Bord Pleanála under the Maritime Area Planning Act, 2021 and its associated consent framework. The site investigation works carried out at a preliminary stage of a project design are not inextricably linked to the construction and operation of the project itself, as the former can occur without the latter, therefore the development and operation of a wind farm is not a probable or likely consequence of granting a foreshore licence application for site investigations.

*With reference to the **Preliminary Examination for EIA**, we take issue with the conclusions drawn.*

In fact, we find them extraordinary, given the invasive nature of the proposed investigation (boreholes, sound, sonar, etc) and potential impacts on protected habitats and species.

We suggest:

1. The nature of the proposed development is exceptional in the context of the existing environment with endless invasive surveys spanning decades.

The investigations proposed have the potential to cause likely significant effect to sandbanks, protected birds (notably terns, a qualifying interest in Rockabill SPA) and cetaceans (harbour porpoise, a qualifying interest in the Rockabill to Dalkey Island SAC, and others).

The investigations proposed, include the drilling of up to 61 boreholes in the area of the array on the Kish and Bray Banks, an Annexe 1 sandbank habitat, along the cable route and in the vicinity of proposed landfall sites. (Further details below)

Annex C, EIA Screening and Environmental Report concluded that due to the nature, scale and location of the proposed site investigation and ecological monitoring that no foreseeable significant effects on the environment will arise. The Environmental Screening Stage Report and Preliminary Examination for EIA was prepared by the Marine Advisor to the Department of Housing, Local Government and Heritage and agrees with this conclusion.

Only a proportion of the proposed site investigation and ecological monitoring activities are planned to take place on the Kish and Bray Banks, however even assuming that all activities occurred on the banks, the footprint would amount to 0.013% of the total area of the banks¹. The fine sand and gravel sediments which cover the banks are highly mobile and regularly disturbed by natural processes. Any additional sediment disturbed by the works will fall out of suspension almost immediately. No significant effect on the potential Annex 1 habitat are therefore predicted.

2. Significant areas of Ireland's East coast have been subject to ongoing surveys for decades; the current licence application area overlaps the proposed Codling Bank site investigation area. The cumulative environmental impacts from these have not been considered.

The likely significant effects arising from the proposed monitoring and site investigation activities, in combination with other plans and projects are screened in Section 7.4 of the Report to Inform Appropriate Assessment and assessed in Section 4.3 of Annex F, the Applicant's NIS. The latter includes an assessment of likely significant effects in-combination with Codling Wind Park's proposed site investigations on the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC and Rockabill to Dalkey Island SAC. The in-combination assessment considers the effects should the works occur simultaneously or sequentially and concludes that in neither scenario adverse effects upon the European Site's integrity will occur as a result of the in-combination proposed works.

3. The size of the area included in this application is exceptional and together with additional large sites under investigation for the Codling wind farm and others, effectively the whole of the East coast of Ireland is subject to invasive surveys.

The geophysical and geotechnical survey boundaries are shown in Drawings 2 and 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable precautionary monitoring across the wider receiving environment and therefore the

¹ The total area of the Kish and Bray Banks has been taken to be the area within the than 20m contour and is calculated to be 35km².

Foreshore Licence area extends beyond the proposed development area to the north, south and east as shown in Drawing 6, Annex B.

4. The investigation is proposed in an ecologically sensitive location, the Kish and Bray Banks, and encompasses numerous SACs and SPAs e.g., the Rockabill to Dalkey Island SAC.

Annex E, Report to Inform Appropriate Assessment has adopted a precautionary approach to identifying Natura 2000 sites within the geographical zone of influence of the proposed works. A significant number of these sites were subsequently screened out on the basis that likely significant effects will not occur as not all of the three required elements, source, pathway and receptor are present.

The Report to Inform Appropriate Assessment takes a precautionary approach and concludes that potential effect pathways for five sites cannot be ruled out and should be carried forward to a Stage 2 Appropriate Assessment. These sites are:

- Rockabill to Dalkey Island SAC [003000];
- South Dublin Bay SAC [000210];
- Lambay Island SAC [000204];
- South Dublin Bay and River Tolka Estuary SPA [004024]; and
- North Bull Island SPA [004006].

The Screening for Appropriate Assessment conducted by the Independent Environmental Consultant (IEC) appointed by the Department of Housing, Local Government and Heritage (DHLGH) agrees with the conclusions presented in Annex E. The Stage 2 Appropriate Assessment will be undertaken by the Minister of Housing, Local Government and Heritage on completion of this consultation.

5. The investigations have the potential to affect other environmental sensitivities in the area, notably protected bird species from Rockabill SPA and other locations around Dublin Bay.

Annex E, Report to Inform Appropriate Assessment has adopted a precautionary approach to identifying Natura 2000 sites within the geographical zone of influence of the proposed works. A significant number of these sites were subsequently screened out on the basis that likely significant effects will not occur as not all of the three required elements, source, pathway and receptor are present. Rockabill SPA lies outside of the Foreshore License area. No impacts on the qualifying interests of this SPA are predicted due to the limited nature of the works in terms of both spatial and temporal extent. All operations will be a minimum of 13.9 km from the SPA boundary in an area that has existing regular levels of vessel traffic. Any disturbance effects upon supporting habitats of the qualifying features resulting from the proposed site investigation and ecological monitoring will be negligible and there is no potential for likely significant effects to occur.

The Report to Inform Appropriate Assessment takes a precautionary approach and concludes that potential effect pathways for five sites cannot be ruled out and should be carried forward to a Stage 2 Appropriate Assessment. These sites are:

- Rockabill to Dalkey Island SAC [003000];
- South Dublin Bay SAC [000210];
- Lambay Island SAC [000204];
- South Dublin Bay and River Tolka Estuary SPA [004024]; and
- North Bull Island SPA [004006].

The IEC Screening for Appropriate Assessment agreed with the screening conclusions presented in Annex E, Report to Inform Appropriate Assessment Screening. Please refer to section 3.8 of the IEC's report.

Ireland has failed to meet requirements of the Habitats Directive

Ireland have publicly committed to designating 10% of our marine area for protection by 2020 and the target for 2030 is 30%. Currently, just 2.1% is listed for protection and adequate management measures are yet to be put in place.

The Department of Housing, Local Government and Heritage is charged with the responsibility for assessing applications for developments in the marine AND complying with Ireland's obligation to designate marine and terrestrial sites for designation.

Environmental NGOs have incessantly called on the government to urgently address this deficit in Natura 2000 designations BEFORE vast proposals for extensive wind farm developments are progressed. CCA have, for many years drawn attention to the totally inadequate marine planning legislation that has pertained in Ireland since 1933. The Maritime Area Planning Act 2021 encompasses some of the most undemocratic aspects of the Foreshore Act 1933, embodied in the progression of 'relevant' projects, including the proposed Dublin Array development.

A new report, prepared by Fair Seas and based on robust scientific methodology, has proposed Areas of Interest for designation to meet Ireland's obligation under the EU Habitats Directive. Large areas of the East coast are included in these Areas because of their high conservation value.

It is incumbent on the government department charged with protecting our marine environment, to set the highest possible standards of environmental assessment with regard to proposed projects that have potential to have very serious environmental impacts. Far from doing this, it appears that there is an enormous drive to advance vast coastal wind farm developments, such as the Dublin Array, BEFORE marine sites are allocated for protection.

Recent reports highlight that the loss of biodiversity is an even greater threat to our survival than climate change. Nature Conservation is the key to addressing both the climate and biodiversity crises. A 2019 UN Report states 'In a blow to human progress, damage to ecosystems undermines 35 of 44 UN sustainable development targets for poverty, hunger, health, water, cities, climate, oceans and land, the authors found.'

The designation of Marine Protected Areas is an active workstream being progressed by the State currently (gov.ie - [Marine Protected Areas \(www.gov.ie\)](http://www.gov.ie)). This process is outside of the

control of RWE. The application documentation demonstrates that with the committed techniques proposed to be employed, the limited scale and temporal extent of the proposed site investigations, they will not have any significant effects on the environment.

Kish/Bray Bank deselected for designation as Special Area of Conservation (2012)

Since CCA made our submission (December 2021) in response to the Application by RWE for a Foreshore Licence to carry out additional surveys in relation to the proposed development of a wind farm on the Kish and Bray Banks, we have continued to carry out an investigation into the manner in which, in 2012, the Kish and Bray Banks were selected by National Parks and Wildlife Service (NPWS) for designation as a SAC, but subsequently removed. We made a preliminary reference to this in our December 2021 submission.

Querying the integrity of the SAC designation process

*Additional findings from this investigation are very relevant to the public consultation on Stage 2 Appropriate Assessment. **We contend that, had proper procedures, in compliance with the Habitats Directive, been followed in 2012, the Kish/Bray Banks, the Annex 1 sandbank habitat on which it is proposed to construct an offshore windfarm, WOULD have been designated SAC with the qualifying interest ‘sandbanks slightly covered by seawater all the time’.** As such, the area of the Bank itself would constitute a European Natura 2000 site and would be scoped in to the Stage 2 Appropriate Assessment, the subject matter of this consultation.*

The designation of Natura 2000 sites in Ireland is a matter for the Irish State. RWE have not engaged with any Government Agency or Department concerning the designation of sites.

Natura 2000 Habitats should be selected based on science.

The reason for the removal of the Kish/Bray Bank habitat was stated in Records released to CCA to be that Hempton’s Turbot Bank and the Blackwater Bank ‘are in almost pristine condition, with good representation of the species typical for Irish sand banks, the location and area of habitat within the network would comply with guidance received from the European Commission, and current indications are that there are no operant or expected pressures at either site that would compromise the long-term sustainability of the habitat feature. (This is not true for Kish/Bray Bank as there is an option on a Foreshore Lease in relation to the Dublin Array Wind Park).’

Coastal Concern Alliance are unaware what the term ‘option for a Foreshore Lease’ means. One hypothesis is that there is a system, of which the public are unaware, by which the Department gives assurances of ‘an option for a Foreshore Lease’ to prospective developers of offshore wind farms (or other proposed developments). If this is the case this information should be in the public domain.

The Habitats Directive requires that only scientific criteria be used in the selection of Natura 2000 sites. Clearly, whether or not the site has been targeted for industrialisation is not a scientific consideration. Therefore, we believe that the removal of the Kish/Bray Banks from designation as a SAC is in breach of the EU Habitats Directive.

Relevance in Current Stage 2 Appropriate Assessment Consultation

The removal in 2012 of the site selected as a SAC by the NPWS, the Kish/Bray sandbanks, is especially pertinent given the current consultation which, it appears, is being carried out to determine impacts on Natura 2000 habitats and species that could result from the undertaking of the investigative surveys (and the subsequent construction of a wind farm) that RWE and the Department deem necessary even at this point, ten years after it was stated in a Departmental Record, dated 2012, 'Justification for the designation of sandbanks', that a lease option on this site was already in place. It is not possible, then, to separate the environmental impacts of the investigation works from the impacts that would result from construction of the windfarm.

Ongoing investigations at National and EU level

A complaint has been lodged with the European Commission in relation to the removal of the Kish/Bray Bank from SAC designation and in relation to other findings from our investigation. Given the very serious nature of the findings, aspects of the material have been appealed to the Information Commissioner and the Commissioner for Environmental Information.

The designation of Natura 2000 sites in Ireland is a matter for the Irish State. RWE have not engaged with any Government Agency or Department concerning the designation of sites

The Foreshore Licence application, which is the subject of this consultation, is for site investigation and ecological monitoring only. It does not include permission for any site preparation nor permanent installations. Subject to award of a Maritime Area Consent (MAC) the proposed Dublin Array wind farm will be required to apply for development consent to An Bord Pleanála similar to other strategic infrastructure projects developed (and under development). This development consent application will be subject to public consultation and independent environmental impact assessment by An Bord Pleanála under *inter alia* the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process.

Sandbank Habitat – SAC or not

Damage to the integrity of the sandbank

The importance of sandbank habitat has been highlighted in a recent report (2021) from IUCN, the prestigious global nature conservation body, entitled 'Mitigating the Biodiversity Impacts Associated with Solar and Wind Development' which states (p95)

Offshore wind farms could impact a variety of offshore and coastal habitat types, such as sandbanks, coral reefs, seagrasses, mangroves, salt marshes, oyster beds and wetlands. These habitats may also provide important ecosystem services such as fisheries and coastal protection.

Such habitat types are sensitive to loss, fragmentation and degradation, and restoration can be complex and variable by life stage. Careful planning and site selection are key to avoiding sensitive habitats (Section 3), for example to minimise impacts of the export cable landfall.

The complete absence of site selection oversight and the developer-led planning that still pertains in Ireland is far from the 'careful planning and site selection' described by the IUCN.

The UN Convention on Biological Diversity, to which Ireland is a party, aims to halt the loss of biodiversity by 2020, i.e. conservation of ecosystems, habitats and species, both inside and outside protected areas. Under the Treaty on the Functioning of the European Union, environmental protection is an integral part of all EU policies.

Irrespective of whether or not the Kish and Bray Banks are inside or outside protected area, it is clear that these sandbanks are an important habitat both as an Annex 1 sandbank and as a foraging and feeding ground for numerous endangered bird species (see below).

*It is also clear that **the construction of wind farms on sandbanks will damage the habitat and that the current continued investigation cannot be separated from the construction of the proposed windfarm.***

In response to queries submitted by CCA to NPWS (2020), it was stated:

CCA Question. *Is it the view of NPWS that development of extensive windfarms on 'sandbanks covered by sea water all of the time' does remain a threat to the integrity of the banks, as stated in Conservation Assessment reports and in the NIS of the NMPF?*

NPWS Answer: *The installation of windfarms on Sandbanks can be expected to:*

- result in a loss of the Annex I habitat area,
- introduce a different habitat to the site in the form of artificial reef and
- changes the hydrodynamics over the sandbank.

It may also indirectly affect the habitat's structure and functions by introducing either or both invasive alien species and opportunistic species.

The extent to which the current proposed surveys will damage the sandbank habitat itself has not been considered.

The Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any site preparation nor permanent installations. The footprint of the proposed geotechnical survey of the Kish and Bray Banks will be very small, estimated to be less than 0.013% of the bank area. The fine sand and gravel sediments which cover the banks are highly mobile and regularly disturbed by natural processes. Any additional sediment disturbed by the works will fall out of suspension almost immediately. No significant effect on the potential Annex 1 habitat are therefore predicted.

The limited scale and nature of the proposed works will not have an effect on the form or function of the sandbanks or the coastline. The potential impact upon marine geology, oceanography and physical processes of the wind farm development, alone and cumulatively with other proposed wind farm projects, will be assessed and the results reported in the Environmental Impact Assessment Report (EIAR) which will accompany the development consent application under the Maritime Area Planning Act, 2021 as amended, and its

associated consent framework in due course. The EIAR will address physical, biological and human receptors.

Dredging damages sandbank habitat

The Status of EU Protected Habitats and Species in Ireland, 2019 (Section 7.3) refers to the potential threat to sandbanks from dredging (fisheries).

Dredging, which is required to clear accumulated sand from the bases of the seven small wind turbines on the Arklow Bank, was permitted in 2017. Consent was given to dredge and dump 99,999 tonnes of sand material on the bank over a period of eight years, so one can assume that this activity is continuing. Clearly this constitutes a very significant impact on the sandbank and the species that live there.

The Dumping at Sea permit was awarded by the EPA without any Environmental Impact Assessment (EIA). The Marine Planning Foreshore Section of the Department of the Environment, Community and Local Government had confirmed that an Environmental Impact Assessment was not required. Given that dredging is known to be an activity that damages the seabed, the failure to carry out an EIA is clearly out of line with best environmental practice, as stated by the Irish Whale and Dolphin Group.

It can be assumed that the sandbank habitat on the Kish/Bray Bank is likely to react in precisely the same manner as the sand on the Arklow Bank and that similar remedial action would be required to clear sand. If dredging is a damaging process flagged by NPWS with regard to fishing, then dredging to remove sand from the bases of wind turbines is equally damaging.

The Foreshore Licence application is for site investigation and ecological monitoring only. The proposed windfarm will in due course be the subject of further consultation through the development consent process under Maritime Area Planning Act, 2021 as amended, and the associated consent framework. If works associated with the proposed wind farm include activities which will require a Dumping at Sea Permit an application will be made in due course to the Environmental Protection Agency under the Dumping at Sea Act 1996, as amended.

Birds – Kish Bank SPA for Birds?

National Parks and Wildlife Service

The National Parks and Wildlife Service, with reference to ‘sandbanks slightly covered by seawater all the time’ (e.g., The Kish and Bray Banks) state on their website (29/7/2022):

*‘Shallow sandy sediments are often important nursery areas for fish and consequently can provide feeding grounds for seabirds (especially puffins (*Fratercula arctica*), guillemots (*Uria aalge*) and razorbills (*Alca torda*)) and sea-duck (e.g., common scoter (*Melanitta nigra*)). A survey undertaken upon the habitat of terns in the Irish Sea showed that the Kish Bank had significant numbers of auks (guillemots, razorbills etc.) and terns in the area. Roseate, Common and Arctic Terns were recorded roosting on the Kish Lighthouse and peaked in numbers during late August and early September. The presence of these bird species is indicative of feeding resources in the area.’*

Record showing that Kish/Bray Bank would be designated as SPA for Birds (2012)

Reference has already been made in CCA's submission (2021) to this consultation (p 9) to the fact that in an official 2012 document received from the Department, it was stated that the Kish/Bray Bank would be likely to be designated as a Special Protection Area for Birds. This is unsurprising, given the extensive evidence that these banks are important feeding and foraging grounds for many species. Rockabill Special Protection Area has as its conservation objectives Purple Sandpiper plus the three tern species - Roseate Tern, Common Tern and Arctic Tern.

The designation of Natura 2000 sites in Ireland is a matter for the Irish State. RWE have not engaged with any Government Agency or Department concerning the designation of sites

The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities including effects due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are predicted.

Birdwatch Ireland

We can see no submission from Birdwatch Ireland in relation to this Appropriate Assessment Consultation. However, we assume that Birdwatch Ireland is a statutory consultee. Can you confirm this? Lack of resources for these critically important NGOs is likely to be a factor contributing to their inability to contribute. While we appreciate that this is not the purpose of this consultation, it is imperative that adequate funding is provided so that NGOs, such as Birdwatch, can express the views of the public with regard to the need for environmental protection. We welcome the increased funding provided to NPWS and hope that this initiative will extend to improving funding for environmental NGOs.

S.I. No. 353/2011 - Foreshore Regulations 2011 prescribes the bodies for consultation and submission of observations to the Minister for Housing, Local Government and Heritage in respect of an application for a foreshore lease, licence or permission as may be issued under the Foreshore Act.

Tern Conservation on Rockabill

Ireland plays host to the largest European breeding colony of Roseate Terns on Rockabill Island. Considerable conservation work has been undertaken over the years by Birdwatch Ireland, whose efforts have been extremely effective.

Their website states that efforts on Rockabill now make this one of the most successful conservation projects in Ireland. If development was to be consented on the Kish/Bray Banks, the impacts on these protected bird species could not be mitigated and years of conservation work would be at risk of being wasted.

Given that determined efforts and vast resources have been invested to conserve and enhance the

habitat for Roseate Terns on Rockabill and that it is known that the Kish and Bray Banks are important foraging and feeding grounds for these birds during the breeding season (and pre & post breeding) it seems extraordinary that these sandbanks have not been designated as a Special Protection Area (SPA) for birds, as it was anticipated, in 2012, they would be.

Below we list some of the sources of information relating to the Kish & Bray Banks as important areas for birds, although given that this is already acknowledged at official departmental level, this should not be necessary.

Environmental Impact Bird Survey – Dublin Array, 2013

A document entitled ‘Progress Report No. 2 on Seabird Surveys Sept 2001- Sept 2002’ provided information on a year long survey of birds on the Kish / Bray Banks. This survey was commissioned by the developer, Saorgas Energy. It is of note that in spite of the fact that this was a developer-commissioned survey, the results as presented raise serious questions about the suitability of the site for windfarm development. What is extraordinary is that this appears to have been totally ignored by the Department.

The Report stated:

The existing information identified during the desk study shows that the Kish Bank supports important bird populations. A further year-long survey followed.

Results of the year-long survey

The survey results showed that the main Kish Bank study area held a range of important bird populations, including (based on the peak counts recorded) internationally important numbers of roseate terns, nationally important numbers of Manx shearwaters, shags, kittiwakes, common terns, guillemots and razorbills, and regionally important numbers of gannets, cormorants, and arctic skuas.

Birds displaced by windfarm

The other potential impact highlighted in the report was the possible displacement of foraging seabirds from the Kish Bank by the presence of the wind farm. This was identified as a potentially significant impact for ‘more species of national importance’. As stated in the report, shallower sea areas such as the Kish Bank are relatively scarce in this region, the Kish itself constitutes quite a large proportion of the available resource. Therefore, any effective loss of habitat would be more likely to result in significant ecological consequences, such as reduced breeding success and increased mortality.

The report states: ‘Alternative feeding areas with similar characteristics may well be limited. Similarly, for birds outside the breeding season, loss of feeding resources could be significant. Again, if a disturbance effect occurs, its ecological consequence would be dependent on the availability of alternative feeding areas. If such alternative areas were not available and then birds were unable to reach adequate body condition before migration, this could result, for example, in increased mortality rates.’

CCA Note: Since this result was published, razorbills, puffin and kittiwake have been added to the Endangered list of species threatened with extinction. Kittiwakes feed almost exclusively on sandeels. Given that it is clearly stated that shallow sea areas like the Kish/Bray Banks are scarce, damage or disturbance of any kind in the area could not be mitigated.

Tern Feeding and Foraging Habits

Table 1 compiled from a JNCC Literature review of tern (*Sterna & Sternula spp.*) foraging ecology provides information on the feeding and foraging range of all tern species that occur in Ireland.

Table 1. Tern Feeding Habits and the importance of sandeels

Species	Primary Food Source	
	Adults	Chicks
Little Tern	Sandeel	Sandeel, Herring, Gobies
Sandwich Tern	Sandeel, Gobies	Sandeel, Spratt, Herring
Common Tern	Sandeel, Cluepids	Sandeel, Cluepids, Gadoids
Arctic Tern	Sandeel	Sandeel, Spratt
Roaseate Tern	Sandeel Cluepids	Sandeel, Cluepids, Gadoids

This Table shows that the Kish/Bray Banks, a sandeel habitat, is a significant feeding and foraging area for these important Red Listed protected species.

Sandeels – What The Wildlife Trusts say

Sandeels are small eel-like fish which grow up to 30 cm in length and can often be found in vast shoals. They feed primarily on plankton of variable size, ranging from small plankton eggs up to larger energy rich copepods found in great abundance in Scotland’s seas. Some species of sandeel can live for as long as 10 years, reaching maturity at around 2 years of age.

Sandeels have a close association with the sandy substrates into which they bury to protect themselves from predators. Once settled, studies have shown that sandeels are mostly resident, rarely travelling over 20 miles from the areas they call home. In fact, they rarely emerge from the sea bed between September and March, except to spawn. Between April and September, they swim in large shoals close to the seabed and will burrow into the sand to escape predators. In the winter months, they bury themselves up to 50cm in the sand.

Given that it is clear that the Kish and Bray Banks are the habitat that provides the food source for a range of critically endangered bird species listed as qualifying interests in nearby SPAs, no invasive drilling / boreholes should be permitted on these banks. The presence of a large sandeel population highlights the wealth of biodiversity in this area of Ireland’s coast, a known hot-spot for the plankton that are the food source for the sandeels. Reduction in the food source for protected bird species could not be mitigated.

Newton & Crowe Survey, 1999.

This survey states:

'A total of 3,015 birds of 26 species was recorded around the north end of the Kish Bank in August and September 1999. Of these 25 were true seabird species and one (Dunlin) was a wader species. Common Guillemots, Black-legged Kittiwakes and Common Terns were the most commonly recorded species while Roseate Terns, Kittiwakes and Common Terns were the predominant species seen roosting on the Kish Lighthouse. Over 1,000 terns were estimated to be roosting here on 3rd September 1999. A high number of Common Guillemots (1,482 on 3rd September) was also recorded in the area.'

Ringsend Wastewater Treatment: Appropriate Assessment of Spoil Disposal

An Appropriate Assessment was carried out in relation to the Ringsend Spoil Disposal. In the conclusions it is stated:

'A total of nine species of seabirds, which are qualifying interests for a number of Natura 2000 sites on the Dublin coast, are likely to occur regularly in the proposed spoil disposal area to the west of the Burford Bank. The northern part of the Kish Bank (6 nautical miles or 11 kilometres east) is known to be an important foraging area for these seabirds in August and September.'

This consultation and the Appropriate Assessment screening process to which it relates is for permission to conduct monitoring surveys and site investigations. The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities including effects due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are predicted.

A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended and the associated consent framework. A detailed assessment of the potential impact upon bird species, from the project alone and in combination with other projects, using up to date modelling and assessment methods and informed by monitoring data from operational wind farm sites will be undertaken and will form part of the development consent documentation.

Cetaceans

The Irish Whale and Dolphin Group, in their submission on the Appropriate Assessment for the Ringsend Wastewater Treatment Plant, with reference to Kish Lighthouse, Howth Head and Dalkey, give a summary of recent sightings at each location. They stated 'harbour porpoises are frequently recorded at all sites (up to 24 sightings in one year in 2011 at Howth Head). Minke Whales are also regularly recorded at Kish Lighthouse and occasionally at the other locations. Bottlenose Dolphin are being recorded with increasing frequency, especially at Dalkey. The 1999 surveys of seabirds also recorded cetaceans on the Kish

Bank in August and September. The main species recorded was the Harbour Porpoise with a single dead specimen of Risso's Dolphin (Newton and Crowe 1999).

Their submission goes on to refer to a targeted survey of Harbour Porpoise in the Dublin Bay area in July-September 2008 that found that 'The mean group size was quite consistent ranging from 1.08 to 1.50. The overall density estimate was 1.19 per km² which gave an estimated abundance of 138±33 porpoises. This represents one of the highest densities of the species recorded in Ireland to date (Berrow et al. 2008).

The likely significant effects of the proposed site investigation and ecological monitoring activities on harbour porpoise, which are qualifying interests of Rockabill to Dalkey SAC are assessed in the Sections 4.2 and 4.3 of the Applicant's NIS, Annex F to the application documents. No likely significant effects on the Conservation Objectives of the SAC are predicted either from the surveys alone or in-combination with other plans or projects.

All cetaceans are European Protected Species (EPS) listed under Annex IV of the Habitats Directive, which means that they are protected wherever they occur and it is an offence to deliberately capture, kill, injure or disturb animals classed as EPS. An Article 12 Assessment of potential effects on Annex IV species is provided in Section 5 of Annex F which concludes that due to the short duration and temporary nature of the survey works, which will be conducted in accordance with best practice and Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014), that no impact upon Annex IV species will occur.

Impacts at landfall site

Shanganagh

There has been no outline of how an actual route for cables in this area would proceed in order to access the electricity grid. Whatever direction is taken will have an impact on shoreline habitats in a zone with small but integrated eco-systems. The shingle shore is anchored by vegetation which helps withstand high tides and protects against coastal erosion, a known risk for Ireland's East coast.

Project Splitting

The cable that it is proposed to bring ashore at Shanganagh has to have a proposed route by which power is taken ashore. No consideration has been given to the potential environmental impacts of this, which suggests project splitting. Project splitting is contrary to EU law. It is clear that in order to avoid misuse of the European Union rules by splitting projects which, taken together, are likely to have significant effects on the environment, it is necessary to take into account the cumulative effect of such projects which have an objective and chronological link between them.

Sandmartin birds return every year to the soft cliff faces of the Shanganagh to Corbawn Shoreline and at stretches further south along the Bay. This breeding pattern has been long established. Was this considered in the Screening Report? Are sandmartins a Protected species in Ireland? In the UK it is clear that they are. The RSPB website states 'Sand martins and their active nests are

fully protected by the Wildlife and Countryside Act 1981. Sand martin nests are protected from the moment birds begin tunnelling. Penalties can include fines and imprisonment.'

Clearly the creation of a cable route through a cliff face that annually houses a breeding colony of sandmartins would have a devastating impact on the birds. These effects cannot be mitigated.

The above comments relate to the construction of the wind farm and associated infrastructure. This consultation and the Appropriate Assessment screening process to which it relates is for permission to conduct monitoring surveys and site investigations in the Foreshore only. The site investigation works carried out at a preliminary stage of a project design are not inextricably linked to the construction and operation of the project itself, as the former can occur without the latter, therefore the development and operation of a wind farm is not a probable or likely consequence of granting a foreshore licence application for site investigations.

Support for other submissions

CCA are supportive of submissions from other concerned citizens who have expressed reservations about various aspects of this proposed Foreshore Licence Application. This includes, but is not limited to:

- Residents in the area close to the Shanganagh Cliffs proposed landfall site, as referenced above.*
- More detailed submissions relating to the impacts of noise on cetaceans, notably Harbour Porpoise*
- Detailed submissions in relation to impacts on Birds.*
- Submissions expressing concern about the archaeology of the area surrounding the Kish/Bray Banks*
- Killiney Bay Community Council.*

Discussion

Coastal Concern Alliance have, since our formation in 2006, appealed to government to put in place proper planning and environmental assessment procedures for offshore development. It is absolutely evident to us at this stage, after 16 years of endless campaigning, that this has not happened, but it could have. Consecutive administrations have failed to bite the bullet and legislate effectively for proper marine planning and biodiversity protection in our seas.

What will they do now?

What we have come to expect is that they will ignore, deny, defend or justify their long-held determination to support an untenable position. The system is broken. Recent investigations show that there are major flaws in the current marine management process. The NPWS Review, carried out by the Department of Housing, Local Government and Heritage under the guidance of Minister Malcolm Noonan revealed that with regard to the Marine, NPWS was not equipped to meet their statutory responsibilities. A recent investigation, commissioned by SWAN confirmed that the 2021 National Marine Planning Framework is not ecosystem based and does not fulfil the requirements of the Marine Spatial Planning Directive. Recent revelations regarding systemic issues in An Bord Pleánála have been aired in the media and raise very significant questions about the reliability of that critical agency.

And it is in this environment that citizens are left to respond to consultations such as the one in question here. A new approach is needed. Our elected (and unelected) representatives must stop and re-think. Biodiversity protection must be brought centre stage and given the consideration it needs.

Conclusions

In the context of the current Government discussions on new emissions targets, Minister for Environment Eamon Ryan has stated (29 July 2022) that the Government priority in land use must be “to restore Nature”. This must also be our priority with regard to use of Ireland’s vulnerable coastal waters already under threat from a variety of human influences. Climate protection and biodiversity protection must go hand in hand.

— The comments set out above are addressed to the State rather than RWE it would be inappropriate to comment on same.

Applicant’s Response to Public Submission 17, People Before Profit

We would like to state in advance of this submission that we are 100% in favour of advancing renewable energy infrastructure as a matter of urgency. We believe this should be state funded and state led to ensure the maximum benefit for people and to prevent profiteering and speculation by private companies.

We believe that renewable energy cannot and should not come at the expense of local habitats, biodiversity and the greater environment.

We look to the case of Derrybrien where the siting of a wind farm at the top of a mountain caused untold damage when the weight of the windmills and the subsequent changes to the ecology, caused the mountain to collapse.

We need to learn from this disaster.

We also need to learn from the desperate mistakes that have been made in planning on land in Ireland when developers were allowed to select their own sites and direct planning decisions.

Our Marine area is not only our biggest carbon sink it is an enormously valuable natural resource. Planning for renewable energy at sea must be done with the utmost care and must use the precautionary principal.

Our marine area must be analysed and audited in advance of choosing sites for renewables to ensure the best protection of sensitive habitats and species.

The state must then, and only then, designate areas for development and after that the planning and siting of renewable energy farms should be progressed

All this must be directed and decided by the state in conjunction with the environmental experts not the developers.

We, in People Before Profit, welcome that the Minister has decided that an appropriate assessment is required.

This assessment is an absolute necessity because the area in question is mainly around the Kish and Bray SandBanks.

Sand banks are an important habitat and are listed under Annex 1 of the Habitats directive.

According to the National Parks and Wildlife Service (NPWS), they contain unique communities of invertebrates while the sandy substrate is home to sand eels, a small sliver of a fish that gathers in shoals and w

Like sand dunes on land, sandbanks are dynamic systems, constantly shifting with the waves and currents. In this way the sand on the sandbanks is connected to the sand on the shore and the dunes behind the shore. The wind and water are constantly moving this sand around, blowing particles inland, dumping sand from the sea onto the shore and washing sand from the shore back out to sea are an important food source for sea birds such as terns.

So, sandbanks are important for wildlife but also serve a very practical purpose in protecting our coastal infrastructure. The vast majority of sand banks around the Irish coast are located in the Irish Sea and this is perhaps not surprising given the expanses of sandy beaches that can be seen to stretch from County Wexford in the south to County Down in the north.

When the Habitats Directive became law in Ireland in the late 1990s, Ireland had an obligation to designate a representative sample of our sandbanks within Special Areas of Conservation (SAC).

The importance of the above cannot be understated and that is why not only do we welcome an Appropriate Assessment but crucially we also request that there is an immediate analysis of all of the areas along these sand banks and to advance the protection of our Marine Area in advance of any new developments along these banks.

The points made in this submission appear to be addressed to the State rather than RWE.

The limited scale and nature of the proposed site investigation and ecological monitoring, which are the subject of this Foreshore Licence application will not have an effect on the form or function of the sandbanks or the coastline. The potential impact upon marine geology, oceanography and physical processes of the wind farm development, alone and cumulatively with other proposed wind farm projects, will be assessed and the results reported in the Environmental Impact Assessment Report (EIAR) which will accompany the development consent application under the Maritime Area Planning Act, 2021 as amended, and its associated consent framework, in due course.

Applicant's Response to Public Submission 18

*Please find attached a resubmission for submission #11 of the original submission.
Please find three files attached to this email:*

1) An amended version of the original submission, which still stands (amendments

based on clarification of Applicant's comments)

2) A response to the Applicant's comments on my original submission.

3) Additional Comments on Marine life

Dublin Array license application FS007188 Observations

1. Remaining Risks/Lack of Robust Scientific Data:

Granting of this license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works.

- Fish (particularly non-commercial variety), bird species and cetaceans in and around the site location and impact on the same has not been adequately assessed. This may result in a contravention of the Birds Directive (Directive 2009/147/EC) as well as the habitats directive (92/43/EEC).*

Annex E, Report to Inform Appropriate Assessment has adopted a precautionary approach to identifying Natura 2000 sites within the geographical zone of influence of the proposed works and designated sites for all relevant species, including fish, birds and cetaceans are identified for the purpose of the screening assessment.

The Report to Inform Appropriate Assessment takes a precautionary approach and concludes that potential effect pathways for five sites cannot be ruled out and should be carried forward to a Stage 2 Appropriate Assessment. These sites are:

- Rockabill to Dalkey Island SAC [003000];
- South Dublin Bay SAC [000210];
- Lambay Island SAC [000204];
- South Dublin Bay and River Tolka Estuary SPA [004024]; and
- North Bull Island SPA [004006].

The Applicant's NIS, Annex F contains an assessment of the impact of the proposed site investigation and ecological monitoring on the relevant qualifying interests of these sites and concludes with the mitigation set out in section 4.4 that no likely significant effects will occur.

- *Annex E, Paragraph 6.2.6 states:*

"For the equipment used within the proposed works, SSS and MBES surveys, the frequency ranges vary between 190 and 420 kHz (MBES) and 300/900 kHz (SSS). All these systems fall outside the hearing threshold of all species (harbour porpoise has the highest frequency range of 200 Hz to 180 kHz (Southall et al., 2007)). Magnetometer surveys are passive systems and do not emit a signal or generate underwater noise. Therefore, it is considered that there would be no potential for injury or disturbance to any cetacean or fish species from these equipment."

However, though the specific SSS and MBES used in this license may not effect marine mammals, Sub bottom profiler (boomer, SBP) and UHR operate at a frequencies within the range of harbour porpoises,

which may be performed over a 24 hour period. Additionally DP Vessels noise range is within the audible range of the Harbour Porpoise and no assessment of the risk, nor any mitigation measures are provided. Therefore there is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on any European Site/s subject to specific mitigation measures.

The sub bottom profiler intended to be used is a parametric SBP (pinger) with the Innomar Medium SES-2000 used as an indicative model which has source level 225 dB and 85-115 kHz. The screening assessment presented in Annex E of the application documents was based on the use of a sparker system, which had the greatest impact ranges of the types of SBP then under consideration. The assessment concluded that animals may be disturbed within a few hundred metres of the sound source. Whilst the source level of the parametric pinger system is higher than that of the sparker systems, the narrow beamwidth of the former results in significantly smaller impact ranges, with sound levels reducing to 120 dB SPL_{rms} within a few metres of the sound source (CSA, 2020).

The noise associated with large shipping vessels is widely considered unlikely to cause physical trauma to marine mammals, but could make preferred habitats less attractive as a result of disturbance (Erbe *et al.*, 2019). A study by Beck *et al.* (2013) notes that marine mammals frequenting the Dublin Port shipping channel will be well accustomed to shipping noise. Ambient underwater noise in Dublin Bay has been estimated at around 113 db by Beck *et al.* (2013) and by McKeown (2014). Given the existing vessel levels within the site and that the noise associated with the survey vessels will be short term, temporary and intermittent and that the proposed works will not result in a significant increase in vessel traffic in the area no significant disturbance or displacement effects are expected for any marine mammal species.

- *Paragraph 6.2.15, Annex E presents an unacceptable argument for the use of SPL assessment of noise levels over the use of the current gold standards, SEL. The recent license application on Arklow Bank successfully calculated noise levels using SEL technique and there is no technical reason why this could not also be adopted by this developer. The availability of 'easy calculate figures' in the literature does not represent a reasonable excuse for not developing figures where they are lacking. This does not represent an appropriate assessment.*

The submission contends that the use of SEL is a 'gold standard' and therefore is necessary for the assessment of noise levels. Nowhere in the Southall *et al.* (2019) guidance do the authors of that paper suggest that conversions are necessary or appropriate to be undertaken between different metrics to inform noise impact assessment. RWE is unaware of any "up-to-date international best practice" associated with this conversion.

Whilst it is possible to convert SPL_{rms} (the average amplitude of the variations in pressure over a specific time window) to SEL_{cum} (weighted sound exposure level over 24 hours) the conversion relies on numerous overlapping assumptions, each with significant conservatism and therefore does not present an accurate figure on which to base an assessment. ,

To reiterate, RWE has used SPL_{rms} as this is the independent metric quantifying drilling sound source levels which are in the public domain. There are no monitored source levels reported

using SEL and therefore any calculations using this metric would require conversions with the associated scientific limitations as discussed above.

RWE notes that the assumptions inherent in the conversion are all stated within the Arklow Bank noise modelling report, which the submission refers to. It should be clearly noted that the SPL(rms) figure has been used for the assessment of noise impacts in that report. Specifically Section 4.4 presents estimated disturbance values based on exceeding the 120 dB re 1 µPa (rms) threshold applicable for all marine mammals for continuous sound and the 140/160 dB re 1 µPa (rms) thresholds for impulsive sound which are the same thresholds used in Annex E Report to Inform Appropriate Assessment and Annex F the Applicant's NIS.

RWE have based our assessment on similar project modelling such as East Anglia Two² and remain confident in the conclusions drawn and stated within the report. The East Anglia Two study is publicly available (<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/ENO10078/ENO10078-001487-6.3.11.4%20EA2%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf>). The study assesses drilling associated with the installation of monopiles, which are a more intensive noise source than the small diameter bores which are the subject of this Foreshore Licence application. A further level of precaution arises from the water depths modelled for the East Anglia works which are greater than those in the proposed Foreshore Licence area, as sound propagates further in deeper water. This provides a very conservative and transparent basis for identification of predicted noise levels and their associated impact assessment.

RWE contends that due to the conservative assumptions used in the assessment included in the application, that irrespective of whether modelling is undertaken or otherwise, it is beyond reasonable scientific doubt that the risk to harbour porpoise from the proposed site investigation and monitoring surveys is low and the activities will not lead to an adverse effect on the integrity of the SAC.

- Paragraph 6.2.15 Annex E states that:

“While the sound levels from drilling may result in some degree of localised disturbance to marine mammals any disturbance would be expected to be small-scale and short-term with surveys lasting approximately 2 -3 months, with no effects lasting beyond the period of the works.”

Even if not permanently deafening these creatures, the prolonged noise created by the proposed license, over the license period, will inevitably force them to avoid the wider area (250 km considered as a buffer for cetaceans, as stated 3.3.6 Annex E) and reduce their feeding grounds. Given that much of this

² <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/ENO10078/ENO10078-001487-6.3.11.4%20EA2%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf>.

work is occurring both in and around Rockabill to Dalkey Island SAC, this will have a knock-on effect on their populations and, as a result, the status of their SAC. Combining this with other adjacent projects along the coast, this could have a really large effect on local populations.

As noted in Annex E (paragraphs 6.2.15 *et seq*), there is no risk of hearing damage to marine mammals from the proposed Dublin Array site investigation works and any disturbance will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few hours as the survey vessel undertakes work in that area, with impacts from the works not occurring within the full licensed area for the full duration of the works, The 250 km buffer represents the area of search for SACs for which cetaceans are qualifying interests and is defined considering the scale of movement of individuals, i.e. an individual of an SAC population within the buffer zone could potentially move to within the area of the survey works. Mitigation measures specified in DAHG, 2014 will be followed at all times, with monitoring by a qualified and experienced Marine Mammal Observer prior to start-up of noise sources, followed by the use of the 'soft-start' procedure which will ensure that no marine mammal is in close proximity to the vessel when the noise commences.

- *Paragraph 6.2.16 of Annex E states that:*

"Modelling for sound levels from drilling works for offshore wind farms (e.g. East Anglia Two Offshore Wind Farm) identified that the threshold for PTS and TTS onset for all marine mammal hearing groups would be less than 100 m from a drilling vessel."

Yet no reference to the proposed modelling is provided and it appears that much of the assessment is based on this figure, the basis on which it was calculated remains unknown. The recent license application on Arklow Bank (FS007339) indicated a TTS for high frequency cetaceans (incl. phocoena phocoena aka Harbour porpoise) of 757m for vessels using DP (as is proposed in this license application) and 607m for vibro-coring. Therefore, given the lack of evidence presented in this application fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works and granting of this license would contravene article 6(3) of Directive 92/43/EEC.

As noted above conversion between SPL_{rms} and SEL_{cum} results in impact ranges which are so extremely conservative as to not provide anything meaningful for assessment purposes. RWE have therefore, based our assessment on similar project modelling such as East Anglia Two³ and remain confident in the conclusions drawn and stated within the application. It should be noted that the Article 12 Assessment presented in Appendix 4 of Arklow Bank's NIS concludes that the risk of injury or disturbance to all marine mammal species would be negligible from the geotechnical survey activities and that, in this respect, mitigation is not considered necessary. Despite this conclusion Arklow Bank, like Dublin Array, have committed to implementing the DAHG, 2014 guidelines.

2. Insufficient Evidence or Mitigation Measures:

³ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-001487-6.3.11.4%20EA2%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf>.

There is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on any European Site/s subject to specific mitigation measures.

- *AA screening information in relation to matters including the bird species studied, the impact of underwater noise on bird species, a lack of clarity in relation to the proximity criteria and zone of influence used in screening sites and a failure to present evidence to support conclusions in relation to in combination effects.*

Section 3.3 of Annex E, Report to Inform Appropriate Assessment Screening defines the geographical scale over which possible effects from the proposed works may arise, the “zone of influence”. For bird species, the zone of influence was identified through consideration of the species most likely to be present (Table 3, Annex E) (identified through third party data sets and site specific surveys undertaken in support of the Dublin Array EIA) and connectivity to breeding colonies within foraging ranges of breeding seabirds as defined by Woodward *et al.* (2019).

The impacts of underwater noise on birds are assessed in Section 6.2 of the Report to Inform Appropriate Assessment Screening, Annex E. Any impacts associated with site investigation and ecological monitoring activities will be limited in terms of duration and spatial extent. The foraging ranges provided by Woodward *et al.* (2019) indicate there is a significant amount of alternative foraging habitat within each species-specific range which seabirds can exploit if they are disturbed temporarily from an area. Based on the above, there is no likelihood that a likely significant effect would result from the impact to the seabird species present at the time of surveys.

The South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA were screened in and considered with in the Applicant's NIS, Annex F. Both sites are in close proximity to a high amenity area, therefore qualifying species would be accustomed to a high level of noise and visual disturbance. The nature of the proposed survey activities will be short term, temporary and localised. As a precautionary measure the inter-tidal survey at the Poolbeg landfall is proposed to be carried out outside the over-wintering period (Sept – Mar inclusive). Impacts arising from the sub-tidal site investigations and surveys are *de minimis*. With the mitigation set out in Section 4.4 of the Applicant's NIS in relation to inter-tidal activities no likely significant effect on the qualifying features of South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA are predicted.

In-combination effects are considered in Section 7.4 of the Report to Inform Appropriate Assessment Screening, Annex E and Section 4.3 of the Applicant's NIS, Annex F.

- *Likely significant effects in combination with other plans or projects were not assessed, including combined effects of past investigations in the area.*

In-combination effects are considered in Section 7.4 of the Report to Inform Appropriate Assessment Screening, Annex E and Section 4.3 of the Applicant's NIS, Annex F.

- *The license application indicate that 'The exact locations will be determined prior to undertaking the site investigation works' however, no detailed grounds on which these determinations will be made has been outlined, therefore no appropriate determination can be made on whether this will adversely affect the integrity of local sites*

Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling locations will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. This will provide a robust and informed sampling array which will avoid damage to sensitive habitats in line with current guidance and best practice for undertaking surveys.

- *Granting of benthic grabs/trawls, without preceding drop down camera, ROV or SCUBA dives of the site is poor international practice and may result in the damage to sensitive habitats*

As stated in Section 4.1 of the Report to Inform Appropriate Assessment Screening, Annex E and elsewhere throughout the application documents benthic grab sampling will be preceded by video and camera stills imagery.

- *The additional mitigation measures "proposed to allow for the presence of harbour porpoise calves during the months of May to September" of "sound producing activities shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO" is totally inadequate and as such a likely significant risk remains in place and approval of this license would constitute a contravention to the habitats directive.*

RWE have committed to mitigation proposed for marine mammals in accordance with the relevant Irish guidance (DAHG, 2014), as agreed with NPWS. The extended pre-watch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FSO07029. If calves have been spotted in the monitored zone the sound producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the area of possible disturbance. RWE are confident that these mitigation measures are robust and will be sufficient to confidently conclude no adverse effect on the integrity of the SAC.

- *"SAM deployment will take approximately two weeks during mid 2022" (I assume during the geophysical survey), "independent of other surveys, the equipment will remain on site for the duration of the Foreshore Licence to provide a long term data set of pre construction monitoring of marine mammals;" Why not deploy the SAM in advance of the other surveys to ensure that Harbour Porpoise and other marine mammals are not in the Zone of Influence (250 km considered as a buffer for cetaceans, as stated 3.3.6 Annex E) prior to starting the geophysical and geotechnical works. This could not only act as a further mitigation measure but also provide scientific data (which should*

be published open access) on the effects of acoustic disturbance in and on sensitive SACs whose qualifying interests are Harbour Porpoises.

The 250 km buffer referred to in this submission represents the area of search for SACs for which cetaceans are qualifying interests for the purposes of the Report to Inform Appropriate Assessment Screening, Annex E. It is not representative of the area in which marine mammal species will experience effects from the proposed works, as impacts are limited to only a small area.

Without mitigation in place, the Report to Inform Appropriate Assessment screening concludes that there is a possibility of marine mammals in close proximity to survey locations experiencing disturbance effects. RWE have committed to implementing mitigation as advised in DAHG, 2014. The Applicant's NIS, Annex F, concludes that with mitigation in place, there will be no significant effects on any cetacean species nor adverse effects on the integrity of any European site. No further mitigation or monitoring is therefore required.

The Foreshore Licence application is seeking permission to deploy up to 10 Static Acoustic Monitoring stations in operation for up to 5 years, to collect data pre- during and post-construction phases of the windfarm. These data can provide broadscale information on diel and seasonal changes in cetacean occurrence in the area during this period and are typically included in monitoring surveys. Similar approaches have been taken for monitoring cetaceans at windfarm sites on the east coast of Scotland, for example.

- *With regard to mitigation measures in place to inhibit PTS in marine mammals, no mention of the use of passive acoustic monitoring (PAM) has been mentioned, which would be required for the 'qualified observer' to ensure that no marine mammals were present within the zone of inhibition prior to initiating noise creating works. An observer, no matter how qualified will likely miss sensitive marine mammals in the vicinity without the use of this apparatus and as such a likely significant risk remains in place.*

RWE have committed to mitigation proposed for marine mammals in accordance with the appropriate Irish guidance (DAHG, 2014). DAHG (2014) states that while the use of PAM in Ireland is encouraged as a helpful and beneficial tool for detecting and monitoring certain cetacean species, the Department does not believe it is sufficiently developed to be regarded as the primary or sole monitoring approach for risk management purposes. Therefore whilst PAM is likely to be used by the survey company appointed to undertake the works, in addition to marine mammal observers, conservatively the assessments as documented in the NIS submitted with the application have not relied on the use of PAM as mitigation. The applicant is confident in the conclusion of no adverse effect on the basis of no PAM being utilised. If they are deployed during the works, this will provide mitigation above and beyond that required to be confident of no adverse effect.

The applicant notes that the modelling undertaken for Arklow Bank identified that PTS effects for any and all equipment listed would at most reach 15m from the source. Due to the uncertainties associated with underwater noise modelling and the nearfield behaviour of sound waves, it is considered likely that this equates to an effective PTS range of zero. As the

respondent highlights elsewhere, the Marine Mammal Observers will provide sufficient confidence of the absence of harbour porpoise within this area to conclude no potential for an adverse effect on the SAC.

• *According to the Natura 2000 statement, “the Conservation Objectives to maintain the favourable conservation condition of Harbour Porpoise (*Phocoena phocoena*) [1351] within the Rockabill to Dalkey Island SAC, are defined by the following list of attributes and targets:*

o Species range within the site should not be restricted by artificial barriers to site use; and

o Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site.”

Both as a result of noise disturbance and physical destruction of reefs, there is admittedly by phase 1 assessment in the Natura 2000 Statement presented, a “potential for adverse effects” on the qualifying interests (QIs) of the SAC.

As stated in the supporting marine information for the Rockabill to Dalkey Island SAC⁴, artificial barriers (Target 1) refer to “proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range”. As noted in the Report to Inform Appropriate Assessment, Annex E (paragraphs 6.2.15 *et seq*), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be injured by the surveys.

No reef features of conservation importance are noted at the location of the proposed sampling sites. However, it cannot be discounted that this feature may exist elsewhere within the survey area and has not yet been mapped. Therefore, under the precautionary principle, without the use of mitigation measures, reef features of the Rockabill to Dalkey SAC were screened in for Stage 2 Appropriate Assessment Screening. Annex F, Applicant’s NIS concludes that with the proposed mitigation in place no likely significant effect on reef features will occur.

RWE maintains the conclusion that there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the mitigation measures in place as set out in section 4.4 of Annex F, the Applicant’s NIS.

As outlined in the Natura 2000 statement presented:

⁴ https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

“With regards the harbour porpoise feature and the temporary overlap with the calving period of harbour porpoise (May to August) within Rockabill to Dalkey SAC, the noise associated with the proposed works described in Section 6.2 and 6.3 of Annex E: Report to Inform AA Screening have the potential for localised disturbance and have potential to disturb and/or displace fish prey items of all cetacean and pinniped species resulting in localised indirect effects”

Section 4.2.6 (p. 60) of the Natura 2000 statement states that “given that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent.... potential for disturbance to the species will be minimised and no impacts on the Conservation Objectives of the SAC are predicted.” I do not accept this statement and would present that the noise disturbance and inhibition of QI species and their food source represents a “restriction by artificial barrier” and is contraindicated by the conservation objectives of the SAC.

As noted above it is stated in the supporting marine information for the Rockabill to Dalkey Island SAC⁵, artificial barriers (Target 1) refer to “proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range”. As noted in the Report to Inform Appropriate Assessment, Annex E (paragraphs 6.2.15 *et seq*), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be injured by the surveys.

3. Unregulated Development Environment:

Granting of this license would contravene article 6(3) of the Habitats Directive by granting a consent to a project which leaves the developer free to determine subsequently certain parameters without first having made certain that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site.

- *The development consent, if granted, should establish conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site. This is not evident from this application*
- *The number and type of benthic grabs and trawls is unclear,*
 - o in some instances only grabs are mentioned,*
 - o in some instances biological trawls are mentioned.*
 - o In some areas of the application 30 grabs are mentioned,*
 - o in other areas 90 grab samples are mentioned,*
 - o yet other areas (Annex E, p.19) states annual sampling for 3 years,*
 - including 90 grabs and 90 epibenthic trawls are mentioned*
 - o yet other areas (license application) 1-2 weeks/year for up to 3 years is*

⁵ https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

mentioned, which if only a single grab per period was carried out would result in 78 grabs. The license in this regard is unclear and as such the department cannot effectively ascertain if there is a likely significant impact on Natura 2000 sites and as such, represents a contravention of the habitats directive.

RWE has included method statements within Section 2 of the Supporting Information Report and Section 4.2 of the Report to Inform Appropriate Assessment Screening, Annex E which provide a description of the proposed survey works. In all cases the maximum number of samples required have been stated to ensure a robust assessment is undertaken; subtidal benthic monitoring will involve video and camera stills imagery and grab sampling using a Van Veen or Day grab at 90 locations, together with up to 90 epibenthic trawls. Monitoring is proposed to be undertaken annually for two to three years prior to commencement of the construction of the wind farm and would comprise up to 90 grab samples and 90 epibenthic trawls in each annual campaign. The reference to grab sampling at 30 locations within the Supporting Information Section 1.5 relates to the previous Foreshore Licence Application (FS007029) and is included for information only.

- *The license application area is large relative to the size of the area wherein specifically described activities and monitoring are to take place, particularly to the south. It is unclear from the application why the proposed area is so large and if unspecified activities such as benthic grabs/trawls are to be carried out in the greater license area. If this is the case then further cumulative impacts should be assessed, as the area has recently undergone multiple benthic grab surveys. As this cannot be ascertained for the enclosed documents the department cannot effectively ascertain if there is a likely significant impact on Natura.*

The geophysical and geotechnical survey boundaries are shown in Drawings 2 and 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable precautionary monitoring across the wider receiving environment and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east as shown in Drawing 6, Annex B.

- *The license application states*
“The inter-tidal and sub-tidal geotechnical sampling locations will be selected after review of the geophysical and environmental data collected during the 2020 Site Investigation campaign. The data will be reviewed for the presence of potential ecological features such as subtidal geogenic reef. Sampling locations will then be micro-sited where necessary to avoid ecological (as well as archaeological) impacts.”

This represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer to decide what constitutes an ecological feature, such as subtidal geogenic or subtidal biogenic reef. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC (‘the Habitats Directive’).

Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling locations will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. This will provide a robust and informed sampling array which will avoid damage to sensitive habitats in line with current guidance and best practice for undertaking surveys.

- *The license application states*

“To prevent damage to saltmarsh and sand dune habitat all access to the Poolbeg intertidal by track machine will be supervised by an ecologist to ensure these sensitive areas are avoided.”

This represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes a ‘sensitive area’. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC (‘the Habitats Directive’).

In accordance with the application as submitted, a grant of Licence will commit RWE to appointing an ecologist to supervise the works within the intertidal areas. The ecologist will undertake a pre-commencement walk-over survey to identify sensitive habitats. Access points and sampling locations will be micro-sited to avoid impacts on sensitive habitats. Reinstatement of the intertidal habitat will be carried out to pre-survey condition using standard practice. Pre application consultation with NPWS confirmed the appropriateness of mitigation measures proposed.

- *The license application states that in carrying out intertidal works at South Dublin Bay and River Tolka Estuary SPA that “an ecologist will be employed to ensure that disturbance is minimised”. Not alone is this an admission of disturbance but it represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes damage to site integrity.*

- *The license states that:*

“If roosting birds are present on the shore during intertidal works, the nearby sample stations will be postponed until the birds depart, without provocation.”

It is not clearly defined, at what stage resumption of work will proceed, e.g. after the roosting birds have departed, after the chicks have departed. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC (‘the Habitats Directive’).

There is a potential for localised disturbance of roosting birds within the intertidal areas should the works overlap temporally with their presence. Whilst the level of disturbance is not

likely to lead to a significant effect on the conservation objectives of the South Dublin Bay and River Tolka SPA, such disturbance is to be avoided under the Birds Directive and the Wildlife Act 1976, as amended. Accordingly, and in accordance with the application as submitted, a Licence will be granted subject to conditions requiring the following avoidance measures:

- The site investigation at Poolbeg will take place outside the period 1st Sept – 31st Mar) to avoid disturbance to over-wintering bird Qualifying Interests of SPA;
- Activities will not be undertaken in close proximity to drift lines which represent an important food source for bird species;
- An ecologist will be employed to identify whether roosting birds are present on the shore, and if roosting birds are present during intertidal works, the nearby sample stations shall be postponed until all the birds have departed, without provocation;
- The ecologist will undertake a pre-commencement walk-over survey to identify any sensitive habitats, such as *Zostera noltii*, marram grass and annual vegetation drift lines, and to advise RWE on any potential access points to the intertidal area for plant and machinery which would avoid any such sensitive habitats;
- If no such access route can be identified alternative options include lowering of equipment by crane from the Shelly Banks Road, construction of temporary bridges which span the sensitive habitat without making contact with it or the use of a barge to bring the equipment to the location by sea.

Pre application consultation with NPWS confirmed the appropriateness of these avoidance measures in achieving the necessary scientific certainty as to the absence of significant effects on the European site, and in excluding significant disturbance of any of the bird species concerned.

- *The license states that:*

“If for any reason access by sea to the near-shore or intertidal sample locations is not possible, any temporary access arrangements or structures that are put in place to allow machinery access to the beach area will be prepared in consultation with an ecologist and the site should be fully reinstated post works.”

It is not clearly defined. Though this may seem like a minor point, access risks should be examined and outlined in the license application and should be appropriately assessed. No such examination appears to be included in the application. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC (‘the Habitats Directive’).

- *The license states that:*

“Reinstatement of the intertidal habitat will be carried out to pre-survey conditions. Spoil from boreholes would be contained and removed off site.”

RWE have committed to appointing an ecologist to supervise the works, including access arrangements to the intertidal area at Poolbeg. The ecologist will undertake a pre-commencement walk-over survey to identify sensitive habitats and access points will be selected to avoid impacts on sensitive habitats. If no access route can be identified which

avoids these areas, alternative arrangements include lowering equipment by crane from the Shelly Banks Road, construction of temporary bridges which span the sensitive habitat without making contact with it or the use of a barge to bring the equipment to the location by sea.

It is not clearly defined, exactly how boreholes will be reinstated to their pre-survey condition, while spoils are being removed off site. I assume that material removed from bore holes will be mixed, containing both surface material and deeper sediments. Deeper sediments can contain heavy metals hydrocarbons, nutrients and other potential contaminants. The developer does not appear to have defined how exactly they plan to deal with this issue to avoid contamination of local areas and species. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive').

A borehole is a method of drilling into the ground or seabed to recover samples and enable downhole geotechnical testing to be complete. Samples will be removed from within the drill string for detailed offsite analysis. All the proposed geotechnical survey techniques are of small diameter and sampling locations are within a highly dynamic area with strong sea currents. The voids created by the borehole drill and vibrocorers (254mm and 150mm diameter respectively) will fill naturally immediately following the removal of the equipment, leaving only a minor impression on the seafloor, which will fully over subsequent tidal cycles. CPTs do not remove any material and the hole created by the penetration of the cone (up to 40mm diameter), will infill almost instantly upon removal of the equipment.

- *Annex E: Report to inform Appropriate Assessment Screening (4.1.3) states that: "The indicative locations of the survey areas which form the scope of the proposed works are shown in Figure 3 to Figure 7. The final geotechnical and ecological sampling locations and buoy deployment positions will be selected after a review of the most up to date geophysical data available in advance of selection of the sampling stations. The data will be reviewed for the presence of anomalies of potential anthropological origin and potential for ecological features such as subtidal reef. Locations will be micro-sited where necessary to avoid archaeological or ecological impacts. As such, no figure is provided for the benthic sampling locations, but taking a precautionary approach it has been assumed that samples could be taken anywhere across the Foreshore Licence application area."*

The license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive').

The approach to selection of sampling locations using best available information at the time of survey provides a robust and informed sampling strategy in line with relevant guidance and best practice for surveys intended to avoid targeting habitats or features which would be sensitive to the effects of the survey.

- *Choice of benthic grab methods is not clear and is of utmost importance in attaining correct data for the next stage of the appropriate assessment of the proposed wind park. Biological trawls are considerably more beneficial in some instances and a clear indication of what will and will not be discovered by these methods should be outlined.*

The ecological monitoring surveys which are proposed under this Foreshore Licence application are for the purposes of pre-construction monitoring against which to measure any change during the construction of the wind farm. The maximum scope of the ecological monitoring survey has been defined within the Supporting Information Report Section 2 and within the Report to Inform AA screening, Section 4.1. The scope of monitoring surveys has been defined in accordance with Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects (DCCAE, 2018). A broad suite of activities is included within the application and the final scope of ecological monitoring will be agreed in consultation with the appropriate statutory agency.

4. Cumulative Impact:

The current license application appropriate assessment fails to take into account properly or at all the cumulation of the impact of the project with the impact of other existing and/or approved projects contrary to Directive 2011/92/EU article 4(3) and Annex III. Granting of this license would be a breach of Directive 2011/92/EU article 4(4) by failing to ensure that the project was properly described in terms of cumulation of impacts.

- *The cumulative impact of the granting of multiple licenses in the area for surveys such as these will have a cumulative impact which has not been appropriately assessed. As such, granting of this license would constitute a breach of the habitats directive.*
- *No cumulative assessment has been made of the very real possibility that two developers could be conducting similar site survey work including boreholes and cone penetration tests in the same area at the same time.*
- *In combination effects the applicant only considers synchronous events and synchronous licenses/leases and do not give any consideration to prolonged repetitive surveying, dredging and noise in the area, impacted by past licenses/surveys, such as their own previous surveys as recently as 2019. In fact, it is not made clear in the application why repeated benthic grabs/trawls is required and may cause significant impact to benthic communities.*

Section 7.4 of the Report to Inform Appropriate Assessment Screening provides a screening of projects and plans within a 30 km buffer of the Foreshore Licence area. Section 4.3 of the RWE's NIS provides the assessment for those projects screened in for in-combination assessment. Using the precautionary approach projects were screened in for further assessment where there was, in the absence of definitive timings, potential for overlap both temporally and spatially with the surveys subject to this application. Consideration was given to the likelihood for all projects to be undertaken sequentially or simultaneously. Further to these assessments, it was concluded that there will be no potential for adverse impacts on the integrity of the European sites concerned as a result of the project alone or in combination with other plans or projects.

The Natura Impact Assessment of the surveys which were the subject of an earlier Foreshore Licence, FS007029 concluded that there was no potential for adverse effects on the integrity

of the concerned European Sites to arise as a result of the proposed survey activities. The surveys which have been undertaken in 2021 under Foreshore Licence FS007029 include geophysical surveys, ecological grab sampling and the deployment of buoys for the collection of wind, wave and current data. No further works under FS007029 will be undertaken and therefore there is no potential for temporal overlap with the surveys proposed under this current licence application, nor residual effects which need to be assessed.

The observations raised regarding “Article 4(3) and Annex III” and an alleged breach of “Article 4(4)” are not fully understood as those references do not appear to be to the Habitats Directive. Insofar as the reference is to the EIA Directive, the site investigations are not a project type to which that Directive applies.

Comments on Applicant’s Responses to Public Submission – Public Submission # 11

Remaining Risks/Lack of Robust Scientific Data:

In response to the lack of data regarding fish, particularly non-commercial variety, the Applicant states that the closest SAC for fish species are located 50km to the North of the proposed site. However, effects on non-commercial fish species (e.g. sprat, herring and sand eel), as well as commercial fish species, potentially have an indirect impact on bird SPAs, as well as cetaceans SACs. As the proposed development is within the foraging range of QI of SPAs (birds) SACs (cetaceans) this impact has not been adequately addressed.

The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. The area of direct habitat disturbance i.e. the footprint of the proposed activities, 0.004km². Temporary, localised increases in suspended sediment will result from some of the proposed activities, but will drop out of suspension rapidly and the effect will be negligible in the context of the highly dynamic baseline environment. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are therefore predicted.

The Applicant states that “with the proposed mitigations in place, as specified in Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014) the Article 12 Assessment concludes that no marine mammals whose range may overlap the survey area will be impacted by the proposed marine survey”. I disagree with this statement and propose on the following basis (PTS and TTS calculations below) that Harbour Porpoises (possibly among other cetaceans/ Pinnipeds) will be harmed during the proposed works and that this will have a likely significant effect on the QI of the Rockabill to Dalkey Island SAC.

Please see Applicant’s response below pages 29 - 32 to the Permanent Threshold Shift and Temporary Threshold Shift calculations provided in this submission.

The applicant states (Section 5.2.4) that:

“The Southall et al 2007 guidance and thresholds for non-impulsive sounds have been used for this assessment as the more recent Southall et al, 2019 report does not include SPL peak for non-impulsive sounds, instead they detail SELcum thresholds and it is not possible to make comparisons of different metrics. The use of Southall et al, 2007 in line with the DAHG, 2014 guidance.”

This statement is misleading as the noise sources within the auditory range of the marine mammals (e.g. harbour porpoises), i.e sub-bottom profiler (pinger) is considered as an impulsive noise source, not a non-impulsive noise source. Therefore, the Applicant should be using the most up to date methods (i.e. Southall et al. 2019) and SEL values.

— A parametric SBP (pinger) is intended to be used during the geophysical survey, the Innomar Medium SES-2000 is indicative of this type of SBP, this is classed as non-impulsive parametric sound source in CSA (2020).

Effectiveness of Mitigation Measure (Monitored zone):

The NPWS (2014) guidelines “Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters” is, as stated, a guidance document and in this case an outdated one. Regardless of the guidelines followed, it is on the onus of the Notice Party to carry out an Appropriate Assessment in compliance with the Habitats Directive and ensure that where a likely significant effect exists due to the proposed operations, that mitigation measures are put in place to eliminate that likely significant effect. If, after the application of mitigation measures a likely significant effect remains, as in this case, then the competent authority must reject the application.

“Where reasonable scientific doubt remains as to the absence of adverse effects on the integrity of the site linked to the plan or project being considered, the competent authority must reject the application for authorisation.” (Commission notice 7730, EC, 2020).

The mitigation measures put in place to limit the effect on the harbour porpoise community (application of a Monitoring Zone) are inadequate to inhibit a LSE on the harbour porpoise community in the application area.

The Report to Inform Appropriate Assessment, Annex E and the Applicant’s NIS, Annex F follow the most recent available guidance (DAHG 2014) whilst also including updated thresholds in scientific literature e.g. Southall et al. (2019). RWE have committed to applying the mitigation as required under DAHG 2014. RWE maintains the conclusion that there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the outlined mitigation in place.

In an NPWS report (Berrow et al. 2007), the authors state that:

“The ability to detect harbour porpoise visually at sea and thus the accuracy of density and abundance estimates is extremely dependent on sea-state.” “Palka (1996) found that the sighting rates of this species decreased by 20% from Beaufort 0 to 1 and by 75% from Beaufort 0 to 2-3. We have shown the differences in abundance estimates with sea-state can vary as much as 100% between sea-state 0-1 and sea-state 2.” (Berrow, et al. 2007).

Even with the use of Passive Acoustic Monitoring (PAM), it cannot detect silent animals and may miss animals whose vocalisations are highly directional (Verfuss et al. 2018). PAM efficacy can also be affected by factors such as rain and background noise, fog and surface sea state. The PAM mean effective detection radius (EDR) for harbour porpoise click sequences is 72m, beyond which detection probability drops significantly. At 500m, as is outlined by the Notice Party as the monitored zone, the detection probability using PAM at the edge of that zone is zero (Nuuttila et al. 2018). As the effective range of visual detection of Harbour Porpoise is limited to 266m the effectiveness of visual detection at 500m is also zero (Schartmann, 2019). Therefore, according to the scientific literature, in a sea of Beaufort scale 2-3, as is common in the license area throughout the year, the detection rate by visual and PAM would be ~25% (Berrow, et al. 2007) up to 266m and zero beyond that point.

Therefore, there remains a likely significant effect of the onset of Permanent Threshold Shift (PTS) to a porpoise population in the area, which, given that the harbour porpoise uses sound to navigate, feed and breed, would result in a likely significant loss of the Rockabill to Dalkey Island SAC qualifying interest.

RWE have committed to mitigation proposed for marine mammals in accordance with the appropriate Irish guidance (DAHG, 2014). DAHG, 2014 states that while the use of PAM in Ireland is encouraged as a helpful and beneficial tool for detecting and monitoring certain cetacean species, the Department does not believe it is sufficiently developed to be regarded as the primary or sole monitoring approach for risk management purposes. Therefore whilst PAM is likely to be used by the survey company appointed to undertake the works in addition to marine mammal observers, conservatively the assessments as documented in the Applicant's NIS Annex F have not relied on the use of PAM as mitigation.

The Nuuttila et al (2018) reference is for CPODs, these are static PAM devices used in monitoring, not mitigation. PAM for mitigation would use different equipment and a different approach (e.g. towed hydrophone arrays). Therefore, the effective detection radius quoted in this submission is not applicable to this situation (i.e. PAM used in mitigation).

RWE maintains that there is no risk of injury (physical or auditory) as a result of the proposed works (as presented within previous consultation responses and in line with other foreshore licence applications for similar works). Notwithstanding the lack of any injurious effects the applicant has implemented the best available mitigation measures in the industry to provide further certainty that there will be no adverse effects on the conservation objectives of the SAC.

PTS Quantitative Assessment:

If we consider the worst-case scenario at shallow depths (5m) within the Rockabill to Dalkey Island SAC of noise sources 225dB (based on maximum amplitude of sub-bottom profiler - pinger) and 15kHz (lower typical range of frequency of sub-bottom profilers), then we can relatively easily estimate the Transmission Loss (TL) around the noise source (making a few assumptions; temperature 10°C, salinity 35ppt, acidity 8pH), using the equation for cylindrical spreading (due to shallow depth and location of source on seabed):

$$\text{Transmission Loss (TL)} = 10 \log_{10}(r) + \alpha r [\text{dB}]$$

Where;

r = distance from source (assuming reference at 1m)

α = absorption coefficient

Though 15kHz is used in this calculation the applicant states that the operating frequency of the Sub-bottom Profiler can go down to 2kHz (Table 5 of Annex E), which would result in lower transmission losses and sound signals travelling longer distances.

The absorption can be calculated as 1.496-2.03 dB/km, equating to a worst-case scenario (precautionary principle) of 1.496dB/km or 0.001496 dB/m (Fisher & Simmons, 1977).

At 75 meters radius from the noise source, which is the effective threshold for PAM, the TL would calculate as 18.86dB, indicating an overall noise source presence at 75m from the source of 206.14dB, which is still greater than the PTS of 202dB (Southall et al. 2019). In non-ideal sea state conditions, beyond 75m from the noise source, where PAM is effective, the effectiveness of visual detection would drop to 25%. The effective range of visual detection of Harbour Porpoise is limited to 266m (Schartmann, 2019). Assuming a harbour porpoise presence of 1.87 animals per Km² (O'Brien & Berrow, 2016), the likely number of undetected harbour porpoises within the 500m Monitored Zone, assuming 100% detection within the 75m PAM zone⁶ would be:

$$(0.20433 * 0.75 * 1.87) + (0.563398 * 1.87) = 1.34 \text{ porpoises.}$$

Therefore, there is a likely significant effect on the porpoise population in the Rockabill to Dalkey Island SAC. Please note that in terms of statistical significance a value of 1.34 porpoises represents a 100% probability ($p \geq 1.00$), as a general rule statistical significance is considered for $p \geq 0.05$ (5% probability) or $p \geq 0.01$ (1% probability). As this is the case for every situation whereby this audible emission takes place, it seems likely, given the applicant's indicated number of noise sources planned that this number will be significantly higher (multiple times). Please note that this is not intended to be a full analysis but rather to highlight the remaining Risks/Lack of Robust Scientific Data. Please also note that these calculations assume the use of Passive Acoustic Monitoring (PAM) Devices, however, there is no indication by the applicant that PAM will be used to detect the presence of harbour porpoises prior to initiating a sound source, regardless of the sea state.

The sub bottom profiler intended to be used is a parametric SBP (pinger) with the Innomar Medium SES-2000 used as an indicative model which has source level 225 dB and 85-115 kHz. The parametric SBPs generate short, narrow-beam sound pulses (beamwidth 1 to 3.5°) at high frequencies and therefore are subject to high transmission loss and attenuation in sea water (Crocker & Frantantonio 2016 and Crocker et al. 2019) resulting in reduced impact range. Simple spherical spreading laws are therefore unlikely to be representative of how this sound source propagates at sea.

It is unclear where the 75 m effective threshold from PAM mentioned in the submission has come from, as there is no reference cited. However, if this is based on e.g. Nuuttila et al (2018),

⁶ Detection probability within this zone depends on several factors but is unlikely to be 100%.

the threshold would not be appropriate, as the PAM (CPOD) used in that study was for monitoring purposes, not mitigation. PAM used for monitoring purposes are very different from those used as mitigation measures (i.e. click detectors vs. broadband hydrophones) used in a different manner (e.g. static vs. towed) and for different purposes (i.e. monitoring vs. mitigation). Given the points above, the calculation is unlikely to be appropriate.

The calculation of significance is fundamentally incorrect. 1.34 porpoise would not have a significance of $p = 1$. The hypothetical impact scenario outlined, at the very least, would need to be assessed against the impact at the population level, i.e. a number of animals representing the population / using the SAC. The hypothetical case presented here has simply and incorrectly concluded that, more than 1 porpoise disturbed is equal to a probability of (statistical significance of) 1.

RWE maintains the conclusion that there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the mitigation measures in place as set out in section 4.4 of Annex F, the Applicant's NIS.

TTS Quantitative and Collision Risk Assessment:

Regarding the Temporary threshold shift (TTS), the Applicant indicates a TTS radius of 100m, which is completely out of sync with general consensus and values typically adopted by other renewable energy developers in the Irish Sea (e.g. Codling Wind Park (FS007045) and Arklow Bank 2 (FS007339), which are similar investigations. Codling Wind Park (license FS007045) use a 5km radius based on studies of mammal response to noise by Thompson et al. (2013). The Applicant in this case uses 100m based on the 'East Anglia modelling' study, which is neither relevant nor accurate to the license in question. This is addressed later in more detail in this document. The variance of this effective area of TTS across various license applicants in the Irish Sea (a variance of 50 to 100 times) highlights the lack of guidelines for developers and the unscientific basis for such predictions.

*For TTS Quantitative and Collision Risk Assessment I will use a 5km radius, being the more accurate prediction and based on observed species behaviour. A 5 km radius is accepted by the Applicant, which would encompass an area of 78.54 km². Assuming a worst-case scenario of a sound source within the Rockabill to Dalkey Island SAC, we would expect a porpoise presence of 1.87 animals per Km². As a result, a TTS effect on up to 146.87 porpoises could be expected. Temporary threshold shift (temporary auditory deafness) in porpoise can cause severe disorientation and disable navigation, feeding and communication potential (porpoises use echolocation to navigate and find prey) (Miller & Wahlberg, 2013). This is akin to a 'flashbang grenade' to humans (Madhavan et al. 2018). Due to the busy shipping lane (Dublin Port) within the Rockabill to Dalkey Island SAC and the overlap with this 5km radius (worst case scenario), this could result in up to **146.87 porpoise collisions** with vessels that are normally present in the shipping lane. This is likely an overestimation but would require more detailed shipping data to elucidate further probability data. Please note that this is not intended to be a full analysis but rather to highlight the remaining Risks/Lack of Robust Scientific Data.*

Regardless, it appears clear that a likely significant effect remains after the proposed mitigation measures are considered. This simple analytical quantitative analysis is beyond what was carried

out by the Applicants in assessing the likely significant effect upon the European Protected Species and qualifying interest of Rockabill to Dalkey Island SAC, indicating that there Remains a Risks/Lack of Robust Scientific Data and Granting of this license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works.

Whilst Codling have used a 5 km radius in their European Protected Species risk assessment document (March 2020), in line with Thompsen *et al.* (2013), this range informs the behavioural response ranges and not the TTS ranges, therefore the simple assessment presented in the response regarding TTS effect is incorrect in its assumptions. Codling present that the risk of TTS from geophysical and geotechnical as negligible and therefore no assessment of individuals is presented in their EPS document. As such, it can be seen that the assessment as presented for Dublin Array is consistent with other projects, and that the number of individuals at risk of TTS would be substantially below 1 from these works. With the implementation of the mitigation as outlined in Annex F. the Applicant's NIS, this risk will be further reduced to negligible.

TTS only affects a small notch of an individual's hearing and consequently will not alter the ability of the animal to hear and avoid vessels. It is important to note that this change in hearing occurs within the relevant frequency range, therefore the individual is not entirely deaf, which is a common misunderstanding.

Notwithstanding the confirmation above that the risk of TTS is negligible, the applicant is unsure where the author of this submission has determined the statement of TTS resulting in "severe disorientation and disable navigation...". It appears that the statement is based on the reference of Miller and Walhberg (2013), however, this paper is a factual description of echolocation within harbour porpoise rather than having any discussion or study of the impacts from TTS. Were TTS to result in such severe impacts on harbour porpoise, studies on the onset of TTS would not be permitted for ethical reasons (for the same reason that no studies are permitted on PTS onset in marine mammals). Consequently, the further inference that TTS development is akin to a "flashbang" in humans is an extreme exaggeration of the potential consequences of TTS.

RWE maintains the conclusion that there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the mitigation measures in place as set out in section 4.4 of Annex F, the Applicant's NIS.

Effect of Activities on SAC Conservation Objectives:

Harbour porpoise is the primary qualifying feature of the Rockabill to Dalkey Island SAC, 0km distance from the application area. Under Article 12 of Habitats Directive, Annex IV species are afforded strict protections throughout their range both inside and outside of their designated protected areas. Proposed developments must also examine the likely significant effect in light of the conservation objectives of the Natura 2000 site. We contend that the license in question poses a likely significant effect in view of the Natura 2000 site objectives of the SAC and, therefore, contravenes Article 6(3) of the Habitats Directive. (Waddensee ruling C-127/02, paragraph 39-44).

Conservation objectives for Rockabill to Dalkey Island SAC include:

“Target 1 - Species range within the site should not be restricted by artificial barriers to site use”.

Any barrier, including those of an audible nature, would contravene the site objectives. Though assessment of PTS for marine mammals is an important criterion, assessment of Temporary Threshold Shift (TTS) onset (i.e. the amplitude which temporary loss of hearing is induced) can also have a LSE effect on marine mammals and consequently on site conservation objectives.

The TTS radius around the noise source will not only increase the probability of collision risk for harbour porpoises with vessels (see TTS Quantitative and Collision Risk Assessment, above) but also act as an artificial barrier to site use. Even beyond the range of the TTS the noise disturbance will likely inhibit the use of the area for harbour porpoises, which could have a LSE, particularly during calving and mating seasons, for which the Applicant did not include any mitigation measures.

“Target 2 - Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site”.

The proposed activities are clearly in breach of this site objective and will “adversely effect” the harbour porpoise community at the site. Please note that this target does not state “will not kill or injur” but rather will not “adversely affect”. Exclusion of the harbour porpoise by produced sound levels in and around the SAC, particularly during calving and mating season will have an adverse effect on the harbour porpoise community at the site.

The Applicant does not discuss these conservation objectives or provide any contrary argument to those outlined here and, as such, does not provide sufficient scientific evidence that it does not contravene these Natura 2000 site objectives.

As stated in the supporting marine information for the Rockabill to Dalkey Island SAC⁷, artificial barriers (Target 1) refer to “proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range”. As noted in the Report to Inform Appropriate Assessment, Annex E (paragraphs 6.2.15 *et seq*), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be injured by the surveys.

⁷ https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

Impacts arising from potential disturbance effects have also been considered and assessed within Annex E and Annex F, the Applicant's NIS, alongside consideration of potential hearing impacts.

As stated in the Applicant's NIS, Annex F, the survey vessels will be operated at slow speeds and will be stationary for a large portion of the time, the proposed works will not result in a significant increase in vessel traffic and therefore will not result in significant change to the existing level of collision risk to marine mammals.

TTS results in a small "notch" in the hearing sensitivity of an individual covering a limited frequency range. TTS does not result in a broadscale change in the sensitivity of an individual's hearing capabilities. With noise from vessels having a broad frequency range, even if an animal is subject to TTS, this does not mean that the individual would no longer be able to detect vessels. Therefore, a potential TTS impact does not lead to any meaningful change in the collision risk for that individual.

Furthermore, it is well documented that porpoise avoid vessels (e.g. Culloch *et al.* 2016, Benhemma-Le Gall *et al.* 2021). Considering the small impact zones predicted for TTS, as well as the relatively short-term (spatial and temporal) disturbance and the wider area available to harbour porpoise, there is no likely significant effect on harbour porpoise as qualifying interests of the Rockabill to Dalkey SAC.

RWE maintains the conclusion that, beyond reasonable scientific doubt, there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the mitigation measures in place as set out in section 4.4 of Annex F, the Applicant's NIS.

Given that a number of these activities relating to various renewable energy proposals could be undertaken within the Rockabill to Dalkey Island SAC and that a number of investigations have been permitted in the area since, and prior to, this application, the cumulative effects of this and other projects (not considered here), are likely to have a significant effect on the number of Harbour Porpoise in the area.

Cumulative effects on the Rockabill to Dalkey Island SAC have been assessed with section 4.3 of the Applicant's NIS, Annex F, with no adverse effects predicted.

The Applicant claims that "noise associated with the proposed activities... will not result in a significant increase in vessel traffic normally active in the area", however, no source or quantification, either in terms of amplitude or frequency band of the proposed background noise is provided. Therefore, this represents, once again, a Risks/Lack of Robust Scientific Data. Regardless, the background anthropogenic noise should be considered as a cumulative impact, for which the proposed development is adding to. This has not been considered, either qualitatively or quantitatively and therefore, once again represents a Risks/Lack of Robust Scientific Data.

The Applicant claims that the findings of their Annex F (the Applicant's NIS) indicate that "any noise impacts on cetaceans and their prey would be short term, temporary and intermittent". I disagree and propose that the above calculations (see 'Effectiveness of Mitigation Measure (Monitored zone)', 'PTS Quantitative Assessment' and 'TTS Quantitative and Collision Risk Assessment') indicate

that there remains a LSE of a permanent impact on the QI of the Rockabill to Dalkey Island SAC. As the applicant provides no such detailed or quantitative assessment refuting these claims, the competent authority must reject the application for authorisation.

The noise associated with large shipping vessels is widely considered unlikely to cause physical trauma but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance) (Erbe *et al.*, 2019). A study by Beck *et al.* (2013) notes that marine mammals frequenting the Dublin Port shipping channel will be well accustomed to shipping noise. Ambient underwater noise in Dublin Bay has been estimated at around 113 dB by Beck *et al.* (2013) and by McKeown (2014). Given the existing vessel levels within the area the proposed site investigation will not result in a significant increase in vessel traffic and therefore no significant increase in vessel noise. The vessel noise associated with the proposed site investigation and monitoring activities will be short term, temporary and intermittent and no significant disturbance or displacement effects are expected for any of the marine mammal species identified within the baseline, no amendments are required to the conclusions of the Applicant's NIS.

The Applicant claims that "it is theoretically possible to convert between SPLrms and SELcum, however the conversion is based on a series of assumptions, which results in impact ranges which are so extremely conservative as to not provide anything meaningfully relevant to biological organisms". As there is no reference to this statement provided, I will assume that this is just the opinion of the Applicant and maintain that this does not represent up-to-date international best practice. The currently provided calculations do not take a precautionary approach to species exposure levels.

The Applicant states that "Additionally, studies (Au, 1993) have demonstrated that animals not directly facing the sound of source can be exposed to significantly quieter received sounds (3 – 10dB lower for an animal moving away compared to moving towards a noise source)". This may indeed be the case and yet I suggest that using SEL calculations (best practice) and detracting 10dB from those calculations would be a more appropriate approach and would still likely result in a more precautionary approach than that taken. However, the assumption that all species are fleeing during the initiation of sound exposure may not be justified either. I reiterate that granting of this license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works.

For the reasons stated previously (see response to this point on pages 22-23), RWE considers that it would be scientifically invalid to undertake an assessment of the impact of noise effects from geotechnical sampling the basis of modelling predicated on the conversion between SPL_{rms} to SEL_{cum} . In light of the values presented elsewhere (e.g. Arklow Bank and East Anglia Two), the applicant considers that irrespective of whether modelling is undertaken or otherwise, it is beyond reasonable scientific doubt that the risk to harbour porpoise from the proposed site investigation and ecological monitoring is low and the activities will not lead to an adverse effect on the integrity of the SAC.

To reiterate, the applicant has used SPL_{rms} as this is the metric used for drilling sound source levels which are in the public domain. There are no monitored source levels reported in SEL

and therefore any calculations using this metric would require conversions with the associated scientific limitations as discussed above.

The applicant has noted the conclusions of the paper by Au (1993) to contextualise the precautionary values presented within the assessment and the associated risk to marine mammals. It would not be scientifically valid to assume a reduction in the source level based on this data however.

The Applicant refers to “East Anglia Two which modelled drilling for monopiles” in their response to my observations. As this data was not provided, fully referenced nor freely available during the original consultation phase the basis for this argument does not allow for public participation in the process and as such contravenes the Aarhus Convention (Article 6(1)(b)), it should therefore be stricken from the considerations in the license application. The fact that the Applicant provides the report at this stage (stage 2) when public submissions are closed (to the general public) and the reference is embedded in a response to a single applicant does not ameliorate this issue. This “East Anglia study” is a modelling study for a different sound source, of different frequency and amplitude output, in a different location and depth and so is not relevant to this license application and relying on this data to justify the granting of current license application is invalid (this is further outlined overleaf). Therefore, given the lack of evidence presented in this application fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works and granting of this license would contravene article 6(3) of Directive 92/43/EEC.

The Applicant states that:

“As noted in Annex E (paragraphs 6.2.15 et seq), there is no risk of hearing damage to marine mammals from the proposed Dublin Array site investigation works and any disturbance will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few hours as the survey vessel undertakes work in that area, with impacts from the works not occurring within the full licensed area for the full duration of the works”

I believe that considering the arguments made above (particularly see ‘Effectiveness of Mitigation Measure (Monitored zone)’, ‘PTS Quantitative Assessment’ and ‘TTS Quantitative and Collision Risk Assessment’), this statement is not true and there remains a LSE on the QI of the Rockabill to Dalkey Island SAC and that the proposed license contravenes the site objectives of the Rockabill to Dalkey Island SAC.

With regard to the ‘East Anglia modelling’ study; this is a modelling study for a different sound source, of different frequency and amplitude output, in a different location and depth and so is not relevant to this license application and relying on this data to justify the granting of current license application is invalid. For example, the ‘East Anglia modelling’ study states that “the water depths for the modelling locations considered for this study are all in excess of 45 m”, whereas in most locations of sound sources in the proposed license application area are considerably less, which would have a significant impact on the spread and modelling method of the sound loss. I would welcome a more detailed study for the license area, wherein the sound loss is accurately modelled for the proposed area but relying on data from the East Anglia modelling is flawed.

The East Anglia Two study is publicly available (<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010078/EN010078-001487-6.3.11.4%20EA2%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf>). The study assesses drilling associated with the installation of monopiles, which are a more intensive noise source than the small diameter bores which are the subject of this Foreshore Licence application. A further level of precaution arises from the water depths modelled for the East Anglia works which are greater than those in the proposed Foreshore Licence area, as sound propagates further in deeper water. The ranges for PTS and TTS predicted by the modelling for East Anglia Two were <100m. The geotechnical sampling which are the subject of this licence application will have a lesser impact. RWE maintain that, beyond reasonable scientific doubt, there is no risk of auditory injury as presented in Annex E, Report to Inform Appropriate Assessment and Annex F, the Applicant's NIS.

The Applicant states that:

“the Article 12 Assessment presented in Appendix 4 of Arklow Bank’s NIS concludes that the risk of injury or disturbance to all marine mammal species would be negligible from the geotechnical survey activities and that, in this respect, mitigation is not considered necessary.”

*It should be noted that **Arklow Bank’s license application is not located in an SAC whose QI is a sound sensitive cetacean**. In addition, if one superimposed Arklow Bank’s license application data/methods on this license application the outcome would be considerably different. This highlights not only **the lack of consistency in approach but the lack of guidelines from the competent authority** to provide a basis for best practice for developments in the foreshore.*

The reference to Appendix 4 of Arklow Bank’s NIS made in this submission relates to 220322 RWE Response to Public Consultation Final Issue, p37 and not to the assessments presented in Annex E, report to Inform Appropriate Assessment Screening nor Annex F, the Applicant’s NIS. It relates to Arklow Bank’s Article 12 Assessment of potential effects on European Protected Species, in which proximity of the proposed works to an SAC are of no direct relevance.

Insufficient Evidence or Mitigation Measures:

The Applicant states that “The effects of underwater noise on bird species are assessed within Section 6.2 and Section 6.3 of the Report to Inform Appropriate Assessment Screening. In-combination effects are assessed in Section 7.4 of the same.”

Section 6.2.38 of the ‘Report to Inform Appropriate Assessment Screening’ fails to present evidence and quantification of likely impact on protected diving bird species or the likely knock-on effect on SPAs in the foraging range of the license activities. How many birds and what species are likely to be foraging underwater in the vicinity of the license area for the period of which the license is active? How will this impact on the Conservation Objectives and QI of SPAs in the vicinity?

The impacts of underwater noise on birds is presented in Section 6.2 of the Report to Inform Appropriate Assessment Screening, Annex E. Any impacts associated with site investigation and ecological monitoring activities will be limited in terms of duration and spatial extent. The

foraging ranges provided by Woodward *et al* (2019) indicate there is a significant amount of alternative foraging habitat within each species-specific range which seabirds can exploit if they are disturbed temporarily from an area. Based on the above, there is no likelihood that a likely significant effect would result from the impact to the seabird species present at the time of surveys.

Birds species which are likely to be most sensitive to underwater noise are those which forage underwater for extended periods of time. Other seabirds that may shallow dive, dip, dive or surface feed are less sensitive to underwater noise, due to the brevity of exposure time and sensitivity to disturbance (Furness *et al.*, 2012, Fleissbach *et al.*, 2019). Based on what is known about the physiology of hearing in birds it is suggested that they do not hear well underwater and, therefore, are unlikely to be impacted when diving. Anatomical studies of ear structure in diving birds suggests that there are adaptations for protection against the large pressure changes that may occur while diving, which may protect the ear from acoustic exposure (Dooling and Therrien, 2012).

Given the comments in Section 6.3.2 and Section 6.3.3 ('Report to Inform Appropriate Assessment Screening') regarding the impact on diving duck and tern populations can we have a guarantee that the survey will only be undertaken during the summer months? If not, then there remains an unassessed risk to the diving duck and tern populations.

The potential for impacts from the surveys for bird species, which are qualifying interests of designated SPAs within the precautionary zone of influence of the proposed site investigation and ecological monitoring activities, were assessed within the Report to Inform Appropriate Assessment Screening, Annex E. The evidence presented there suggests that underwater noise is not likely to cause significant effects to bird species as disturbance would be short-term, intermittent and transient.

The South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA were screened in to Stage 2 Appropriate Assessment and are considered within the Applicant's NIS, Annex F. Both sites are in close proximity to a high amenity area, therefore qualifying species would be accustomed to a high level of noise and visual disturbance. The nature of the proposed survey activities will be short term, temporary and localised. As a precautionary measure the inter-tidal survey at the Poolbeg landfall is proposed to be carried out outside the over-wintering period (Sept – Mar inclusive). Impacts arising from the sub-tidal site investigations and surveys are *de minimis*. With the mitigation set out in Section 4.4 of the Applicant's NIS in relation to inter-tidal activities no likely significant effect on the qualifying features of South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA are predicted.

In section 7.4 the Applicant assesses the spatial in combination effects but provides no consideration to the temporal in combination effects. This is important as many of the conclusions of the AA are based on short duration of the studies. These in combination effects are not adequately addressed in the Applicant's NIS either.

The Applicant states in relation to projects that may have in-combination effects "The projects considered include those applications but not yet determined and existing licences which have been granted but the

associated activities not yet completed.” However, no licences that have been completed were considered. The temporal in-combination effects of multiple projects over a long duration in the licence area negate “localised and temporary nature” of the proposed project. Such temporal in-combination effects as such fail to be considered.

Section 7.4 of Annex E, Report to Inform Appropriate Assessment Screening provides a screening of projects and plans within a precautionary 30 km buffer of the Foreshore Licence area. Section 4.3 of Annex F, Applicant's NIS provides the assessment for those projects screened in for combination assessment. Using the precautionary approach projects were screened in for further assessment where there was potential for overlap both temporally and/or spatially with the surveys subject to this application. The in-combination assessment considers the effects should the works occur simultaneously or sequentially and concludes that in neither scenario adverse effects upon the European Site's integrity will occur as a result of the in-combination proposed works.

The projects considered include those applications submitted but not yet determined and existing licences which have been granted but the associated activities not yet completed. The Minister has access to the plans and projects of relevance to the in-combination assessment of this application to inform his Stage 2 Appropriate Assessment, including applications such as FS007134, ESB Wind Development Limited, Site Investigations at Sea Stacks Offshore Wind off Dublin and Wicklow, which have been submitted since the FS007188 application was made.

The Natura Impact Assessment of the surveys which were the subject of an earlier Foreshore Licence, FS007029 concluded that there was no potential for adverse effects on the integrity of the concerned European Sites to arise as a result if the proposed survey activities. The surveys which have been undertaken in 2021 under Foreshore Licence FS007029 include geophysical surveys, ecological grab sampling and the deployment of buoys for the collection of wind, wave and current data. No further works under FS007029 will be undertaken and therefore there is no potential for temporal overlap with the surveys proposed under this current licence application, nor residual effects to be assessed.

The Applicant states that “A comprehensive analysis of the potential impacts of the survey which could affect the integrity of sites has been undertaken as documented in Section 6 of Annex E, Report to Inform Appropriate Assessment Screening and Section 4 of Annex F, The Applicant's NIS. Whilst the exact sampling locations have not been determined at this time, their final locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling sites will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro-sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives.”

This is indicative of an Unregulated Development Environment; wherein insufficient oversight is being provided by the competent authority to protect subtidal and intertidal reefs and other features of public interest.

Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling locations will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. This will provide a robust and informed sampling array which will avoid damage to sensitive habitats in line with current guidance and best practice for undertaking surveys.

The Applicant states that “RWE have committed to mitigation proposed for marine mammals in accordance with the relevant Irish guidance (DAHG, 2014), as agreed with NPWS. A qualified and experienced Marine Mammal Observer will monitor for the presence of marine mammals before the commencement of sound producing activities (pre-watch), during ramp up procedures and following breaks in sound output, as defined in DAHG, 2014. Sound producing activities will not commence until the monitored zone, as defined has been clear for the period required under the guidelines. The purpose of the pre-watch is to monitor for the presence of marine mammals within an area of 1,000m radial distance from the location of the sound source prior to commencement of sound producing activity. DAHG, 2014 guidance requires a prewatch period of at least 30 minutes. The extended pre-watch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been spotted in the monitored zone the sound producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the area of possible disturbance.” As outlined previously in this response the presence of MMO is inadequate to ensure no LSE on the QI of the Rockabill to Dalkey Island SAC and the DAHG, 2014 as an inadequate and outdated set of guidelines do not exempt the Applicant from carrying out an adequate and quantitative assessment of the impact on Annex IV species or QIs, as is the case here.

RWE have committed to mitigation proposed for marine mammals in accordance with the relevant Irish guidance (DAHG, 2014), as agreed with NPWS. The extended pre-watch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been spotted in the monitored zone the sound producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the area of possible disturbance. RWE are confident that these mitigation measures are robust and will be sufficient to confidently conclude no adverse effect on the integrity of the SAC.

Unregulated Development Environment:

The Applicant refers to “Specific Conditions’ which will be assessed by or on behalf of the Minister prior to the determination to grant the Licence”, however, the public are not privy to those ‘Specific Conditions’ and do not have a participatory role in said ‘Specific Conditions’ nor can we determine from these ‘Specific Conditions’ if these ‘Specific Conditions’ are valid and provide a robust protection of these sites. As such this represents not only the possibility of an Unregulated Development Environment but also an inhibition to Public Participation and a contravention of the

Aarhus Convention.

This comment appears to be addressed to the Minister's assessment, determination and identification of conditions which may be considered for inclusion in any Foreshore Licence granted arising from this application. It is not appropriate for RWE to comment on the decision-making process undertaken by the Minister.

The Applicant states that "Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment". However, the public have no visibility as to what the Applicant considers constitutes a suitable buffer distance from these hypothetical reefs, as such we are to rely on the applicant's potentially biased decision making to determine what is and what is not acceptable, with, it seems no oversight from the competent authority. This represents and Unregulated Development Environment.

Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling locations will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. This will provide a robust and informed sampling array which will avoid damage to sensitive habitats in line with current guidance and best practice for undertaking surveys.

The Applicant states that:

"As stated in the supporting marine information for the Rockabill to Dalkey Island SAC12, artificial barriers refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range". As noted in Annex E, Section 6.2 any disturbance associated with the proposed works which are the subject of this application will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC."

However, there is no apparent valid scientific reason for inclusion of the reference to a permanent barrier as a site Conservation Target. I put to you that an ongoing temporary barrier in the form of multiple sequential site investigations within the area of the Rockabill to Dalkey Island SAC will likely result in a risk to the site objectives, i.e.

"To maintain the favourable conservation condition of Rockabill to Dalkey Island SAC harbour porpoise" and contravenes Target 2, i.e.

"Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site."

This target also specifically calls out underwater noise.

As stated in the supporting marine information for the Rockabill to Dalkey Island SAC⁸, artificial barriers (Target 1) refer to “proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range”.

RWE are confident there will be no permanent exclusion of harbour porpoise from the site. The conservation objectives are very clear in only referring to permanent exclusion and not short term, temporary impacts which is the worst case impact for this survey.

As noted in the Report to Inform Appropriate Assessment, Annex E (paragraphs 6.2.15 *et seq*), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC and with the mitigation proposed in Section 4.4. of the Applicant’s NIS, no adverse effect on the harbour porpoise community at the site.

Further to this, the development of a wind farm on this site (Kish/Bray Banks) would result in a permanent barrier to Harbour porpoises from sites within the Rockabill to Dalkey Island SAC, as studies have shown that, during construction “For harbour porpoises and harbour seals, the zone of audibility for pile-driving will most certainly extend well beyond 80 km, perhaps hundreds of kilometres from the source” and “Operational noise....may have the potential to disrupt behaviors over distances of several hundred meters from the pile” (Thomsen et al., 2006). Given the proximity of the Rockabill to Dalkey Island SAC to the proposed wind farm this should be of utmost concern.

The deficiencies recently highlighted by Prof. Jane Stout in the “Reflect and Renew –A Review of the National Parks and Wildlife Service” should also be taken into account regarding the adequacies and independence of the Rockabill to Dalkey Island SAC site objectives. In addition there appears to be no site management plan present for this SAC, which should be in place before these large scale projects are approved for the area.

A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The development consent application for the proposed wind farm will be subject to an independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process.

⁸ https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

Despite not being relevant to this Foreshore Licence Application for site investigation and ecological monitoring, it should be clearly noted that the values presented in the submission for disturbance to harbour porpoise from piling activity i.e. “beyond 80km” is based on old data and fails to consider the extensive recent data sources demonstrating that pile driving only affects porpoise distribution at ranges to 15 - 26km (e.g. Brandt *et al.* 2011; JNCC, NE & DAERA, 2020).

With regard to SAM deployment, and the timing and data acquisition of the same; it would provide poor quality, skewed scientific data to use SAM data following multiple noise producing investigations to indicate the presence or absence of cetacean numbers as an indication of mammal density at the site. If this were the case, this data would not be suitable for any future submission in assessing environmental impact of the area.

The Foreshore Licence application requests permission for the deployment of up to 10 Static Acoustic Monitoring stations in operation for up to 5 years, to collect data pre- during and post-construction phases of the windfarm. These data can provide broadscale information on diel and seasonal changes in cetacean occurrence in the area during this period and are typically included in monitoring strategies. Similar approaches have been taken for monitoring cetaceans at windfarm sites on the east coast of Scotland, for example.

“Article 4(3) and Annex III” and “Article 4(4)” refers to Directive 2011/92/EU. The submission has now been amended to reflect this.

All previous submission statements stand and lack of further response in this document does not constitute an acceptance of the Applicant’s responses to concerns raised.

References:

DAHG (2014), Department of Heritage & Local Government, ‘Code of Practice for the Protection of Marine Mammals during Acoustic Seafloor Surveys in Irish Waters’, Available at:

<https://www.npws.ie/marine/best-practice-guidelines>

Southall, B.L. et al. (2007) Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations, Aquatic Mammals, Volume 33, Number 4, 2007 ISSN 0167-5427.

Southall, B.L. et al. (2019), Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects, Aquatic Mammals 2019, 45(2), 125-232, DOI 10.1578/AM.45.2.2019.125

O’ Brien, J. & Berrow, S. (2016), Harbour porpoise surveys in Rockabill to Dalkey Island SAC, Report to the National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Irish Whale and Dolphin Group.

Verfuss et al. (2018), Comparing methods suitable for monitoring marine mammals in low visibility conditions during seismic surveys, Marine Pollution Bulletin 126:1-18, DOI:

10.1016/j.marpolbul.2017.10.034

Nuutila et al. (2018), Estimating effective detection area of static passive acoustic data loggers from playback experiments with cetacean vocalisations, Ecology & Evolution, Volume 9, Issue 12, pp. 2362-2371, <https://doi.org/10.1111/2041-210X.13097>

*Schartmann (2019), Activity pattern of the harbour porpoise *Phocoena phocoena* in the coastal waters of Fyn (Denmark), Universitat Rostock, available at:*

https://www.thuenen.de/media/institute/of/Aktuelles_und_Service/Lehre-Abschlussarbeiten/Schartmann_2019_Master_Activity_pattern_of_the_harbour_porpoise.pdf
Fisher, F. H. & Simmons, V. P. (1977), Sound absorption in sea water, *The Journal of the Acoustical Society of America* 62, 558; <https://doi.org/10.1121/1.381574>
Thompson, P.M., Brookes, K.L., Graham, I.M., Barton, T.R., Needham, K., Bradbury, G. and Merchant, N.D. (2013). Short-term disturbance by a commercial two-dimensional seismic survey does not lead to long-term displacement of harbour porpoises. *Proceedings of the Royal Society B* 280: 20132001.
Miller, L. A., Wahlberg, M. (2013), Echolocation by the harbor porpoise: Life in coastal waters, *Front. Physiol.* Vol 4, Art.52, <https://doi.org/10.3389/fphys.2013.00052>
Madhavan, P., Srinivansan, R., *Analysis of the Startle Response to Flashbang Grenades*, US Institute for Defense Analyses, IDA Document D-8945, Available at: <https://www.ida.org/-/media/feature/publications/a/an/analysis-of-the-startle-response-to-flashbang-grenades/d-8945.ashx>
Thomsen et al. (2006), *Effects of offshore wind farm noise on marine mammals and fish*, Copies available from: www.offshorewind.co.uk

The AA does not adequately assess or quantify the effect of the proposed development on the Annex IV family of Phocidae (Grey seals) at Lambay Island SAC, using figures and seal populations relevant to the SAC.

As reported in Annex E of the application documents, Report to Inform Appropriate Assessment Screening, paragraph 3.3.6 designated sites, where seals are qualifying interests, which are within foraging range of the Foreshore Licence area for these species were scoped into the screening assessment. Foraging ranges for harbour seal 120 km (SMRU, 2011) and for grey seal 145 km (Thompson et al. 1996). This resulted in two grey seal SACs within foraging range: Lambay Island SAC and the Saltee Islands SAC and two harbour seal SACs, Lambay Island SAC and the Slaney River Valley SAC. Both species as qualifying features of Lambay Island SAC were screened in for Stage 2, Appropriate Assessment. The potential for disturbance to the seal species is limited to the presence of vessels for the proposed ecological monitoring and underwater noise generated by acoustic surveys.

The geotechnical and geophysical survey activities will not overlap with the breeding and haul out sites within Lambay Island SAC and no pathway exists to disturb seals on land or prevent access to breeding, resting or moulting sites. Disturbance effects will be short term, temporary and intermittent and will not lead to significant effects on the Conservation Objectives for grey seal and harbour seal at Lambay Island SAC.

- *The AA does not adequately assess or quantify the effect of the proposed development on Risso's dolphin or leatherback turtle, which have been recorded in the area (Arklow Bank Dumping at Sea EPA License). These European cetacean species are listed on Annex IV of the EU Habitats Directive (92/43) as species requiring strict protection.*

Risso's dolphin or leatherback turtle are not considered within the Stage one screening or stage two AA as they are not designated features of any sites and therefore are not considered within the AA process. Both species were considered as part of the Article 12 assessment for relevant Annex IV species, Section 5 of Annex F, the Applicant's NIS.

- *The AA does not adequately assess or quantify the effect of the proposed development on Tope shark (Galeorhinus galeus), which is of particular importance as the proposed development area is a known Tope shark nursery area (Ellis et al. (2012). Their long-life span and low birth rate make them particularly susceptible to species decline. Threats to the tope shark include habitat degradation in nursery areas, which makes the proposed license particularly precarious to them. Tope shark is listed under the IUCN Red List status as “vulnerable” and is protected under the Northern Ireland Priority Species List. The tope shark’s range is large and are known to migrate to Strangford and Carlingford Loughs.*

— Tope Shark is not a feature of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore is not considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report.

- *The AA does not adequately assess or quantify the effect of the proposed development on how seabed vibrations affect bottom dwelling fish or the hearing capabilities of sharks, rays and skates and invertebrates. Disturbance to the seabed equates to habitat loss for the angel shark (Squatina squatina) is a bottom-dwelling shark that spends most of the day buried in the sand. The angel shark has been declared extinct in the North Sea and locally extinct over part of its former range in the Irish Sea. Threats to the angel shark include being killed as bycatch and habitat degradation. The angel shark’s long life span and low birth rate make it particularly susceptible to species decline. The angel shark is protected by the Northern Ireland Priority Species List, is listed on the Irish Red Data Book as critically endangered. The angel shark is also recognized by the IUCN and OSPAR in Ireland.*

Angel Shark is not a feature of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore is not considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report.

- *The AA does not adequately assess or quantify the effect of the proposed development on the undulate ray (Raja undulata), which is a member of the skate and ray family. The flat, bottom dwelling fish is found throughout the Irish Sea. The undulate ray is listed on the IUCN Red List as endangered, recognised by the IUCN in Ireland, listed as UK Priority Species and protected under the Northern Ireland Priority Species List. The undulate ray is particularly sensitive to habitat degradation from human activity.*
- *The application area is a nursery ground for spotted ray, thornback ray and the AA does not adequately assess or quantify the effect of the proposed development.*

Undulate ray, spotted ray and thornback ray are not features of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore are not considered within the Appropriate Assessment process. The appraisal of

environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report.

• *The AA does not adequately assess or quantify the effect of the proposed development on the Sandeel. Sandeel are an exceptionally important source of nutrition for local seabird colonies. Though it is accepted that many areas of the proposed license area the sediment is coarse (not all areas) and sediment will not remain suspended for long, the proposed activities will result in significant depth of local smothering of sandeel and other benthic communities. No assessment or quantification of this aspect of the plan has been presented in the appropriate assessment. A development of the proposed size, combined with the cumulative impacts of previous and current developments, would result in a prolonged recovery period for the sandeel, as the license area is a known spawning ground for sandeel (Ellis et al. 2012). Sandeels live on the seabed in this area and the proposed development represents a real threat to the sandeel and their predators. Sandeels are keystone species and sandeel abundance have been shown to have direct effect on some seabird population and the breeding success of kittiwakes (red listed), terns (amber), fulmars (amber listed) and shags (amber listed). Sandeels are part of many food webs for other fish species and seabirds. No assessment of the indirect effects of this smothering on Annex I habitats within SACs or birds from local SPAs has been carried out by the developer. Sandeel are listed on the IUCN red list as a threatened species, it is on the UK BAP priority species list and the Northern Ireland priority species list.*

Sandeel is not a designated feature of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore is not considered within the Appropriate Assessment process. Annex E, Report to Inform Appropriate Assessment concludes that any disturbance to prey species will be short term, temporary and over a negligible footprint and that therefore no potential exists for consequent significant effects to habitats or species, including marine mammals and seabirds which are features of Natura 2000 sites.

• *The AA does not adequately assess or quantify the effect of the proposed development on the European eel (Anguilla Anguilla). It is expected that the proposed activities will result in significant depth of local smothering of European eel and other benthic communities. No assessment or quantification of this aspect of the plan has been presented in the appropriate assessment. A development of the proposed size, combined with the cumulative impacts of previous and current developments, would result in a prolonged recovery period for the European eel, as the license area is a known spawning ground for European eels. European eels live and spawn on the seabed in this area and the proposed development represents a real threat to the European eels and their predators. European eels feed off molluscs and crustaceans which will be in decline as the seabed will have been disturbed. European eel is critically endangered and the numbers of juvenile eels reaching the coast have declined in recent years due to barriers to migration and habitat loss. This proposed development will add to the habitat loss and migration barriers of this endangered species and prevent them from reproducing. They are sensitive to sound and vibration. They also have swim bladders and underwater sound pollution significantly affects the behaviour of juvenile eels in as they become disorientated and fall subject to prey, thus reducing the number of their population. European eels are listed on the Irish Red Data Book listed as critically endangered and recognised by the IUCN and OSPAR in Ireland.*

No SACs for migratory fish species lie within the Zone of Influence of the proposed site investigation or ecological monitoring activities. Annex E, Report to Inform Appropriate Assessment Screening considers potential for impact on migratory fish species which may be present within the licence area on migration. The screening assessment reported in Annex E includes an assessment of effects on fish groups both with and without swim bladders and concludes that even for the most sensitive fish species (those with swim bladders involved in hearing) there is no risk of mortality from underwater noise effects. Some localised, temporary and intermittent disturbance and displacement of fish (prey species and migratory species on passage) is possible in the locality of the works, however this is not expected to result in significant effects.

- *The AA does not adequately assess or quantify the effect of the proposed development on the Basking Sharks (*Cetorhinus maximus*). Sightings data collected by the Marine Conservation Society (Bloomfield and Solandt, 2008) suggests that the waters in the vicinity of Kish Bank is an area of regular sightings and activity for Basking Sharks. Basking Sharks are endangered and recognised by the IUCN and OSPAR in Ireland. Their slow growth and reproductive rates make them particularly vulnerable to population decline and threats include collision with boats and habitat disturbance.*

Basking Shark is not a designated feature of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore is not considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report.

- *The AA does not adequately assess or quantify the effect of the proposed development on Herring (*clupeiformes*) are listed in the Habitats Directive Annex II. In Kish sprat were the most abundant fish in terms of numbers caught followed by herring and poor cod. Annex II Herring are hearing specialist species of highly sensitive with mechanisms that couple the swim bladder in inner ear. Seabed removal and suspended sediment would lead to loss of habitat preventing the development of juveniles. Noise vibration can affect juveniles, particularly noise sensitive species such as herring and noise generalists such as cod and cause physiological stress. The current application area is a nursery and a spawning ground for cod. The proposed development would have a negative impact on the development of juveniles of co*

The only *clupeiformes* listed in Annex II of the Habitats Directive are the shad genus, *Alosa spp.* Herring is not included in any of the Annexes within the Habitats Directive and therefore has not been considered within the Appropriate Assessment process.

The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report.

- *Nursery grounds are sites where juveniles occur at higher densities, have reduced rates of predation and have faster growth rates than in other habitats. Seabed disturbance is anticipated to have a potential impact on the nursery grounds where seabed removal and the suspended sediment*

plume can potentially lead to a loss of habitat, preventing the development of juveniles. Noise and vibration caused by seabed disturbance can also potentially affect juveniles within the localised area, particularly noise sensitive species such as cod (vulnerable), potentially causing physiological stress.

Section 4.8 of Annex C, EIA Screening and Environmental Report includes consideration of the effects of the proposed site investigation and ecological monitoring on fish and shellfish species, including spawning and nursery grounds in the vicinity of the proposed works. The environmental appraisal concludes that any sediment mobilised during the site investigation and surveys will settle quickly in the immediate vicinity of the sampling location. As there will be no significant impact on the seabed from the proposed works there is no likely consequent impact on fish or shellfish populations, including those species that use the area as spawning or nursery grounds.

- *cod which are hearing generalists where the proposed development is the cod (*Gadus morhua*) is a member of the gadoid fish family. The cod is protected under the Northern Ireland Priority Species List because it meets the following criteria: IUCN Red List status is “vulnerable;”*
- *o Listed as a UK priority species;*
- *o Declining population.*
- *o The cod is also recognized by OSPAR in Ireland.*

Cod is not included in any of the Annexes within the Habitats Directive and therefore has not been considered within the Appropriate Assessment process.

The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report.

- *• The AA does not adequately assess or quantify the effect of the proposed development Spawning grounds which are recorded within the vicinity of the application area for the key commercial species; spawning grounds are located for the following species: i. Cod; ii. Sandeel; iii. Whiting; iv. Plaice; v. Sole; vi. Ling; and vii. Mackerel.*

Cod, sandeel, whiting, plaice, sole, ling and mackerel are not included in any of the Annexes within the Habitats Directive and therefore has not been considered within the Appropriate Assessment process.

The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report.

- *The AA does not adequately assess or quantify the effect of the proposed development nursery grounds which are located within the application area for species such as cod, anglerfish, tope shark, spotted ray and whiting.*

Section 4.8 of Annex C, EIA Screening and Environmental Report includes consideration of the effects of the proposed site investigation and ecological monitoring on fish and shellfish species, including spawning and nursery grounds in the vicinity of the proposed works. The

environmental appraisal concludes that any sediment mobilised during the sit investigation and surveys will settle quickly in the immediate vicinity of the sampling location. As there will be no significant impact on the seabed from the proposed works there is no likely consequent impact on fish or shellfish populations, including those species that use the area as spawning or nursery grounds.

- *The AA does not adequately assess or quantify the effect of the proposed development on Annex IV Animals and plant species of community interest in need of strict protection (from Habitat Directive) Sturgeons Annex IV of Habitat Directive (sturgeons are bony fish) and the last sturgeon was identified in the application area and the marlin mapped it in the application area also (here).*

Annex E, Report to Inform Appropriate Assessment Screening considers those species which are listed in Annex I or II of the Habitats Directive which are qualifying interests of designated sites within the zone of influence of the proposed site investigation and monitoring surveys.

An appraisal of environmental effects on fish and shellfish species, including those not listed within Annex I or II of the Habitats Directive, is presented in Annex C of the application documents, EIA Screening and Environmental Report.

- *AA does not adequately assess or quantify the effect of the proposed development as a spawning ground for plaice sole; ling; mackerel all which are will be affected.*

Plaice, sole, ling and mackerel are not included in any of the Annexes within the Habitats Directive and therefore has not been considered within the Appropriate Assessment process.

Annex C of the application documents, EIA Screening and Environmental Report identifies seven species of fish which are known to spawn in the vicinity of the proposed Foreshore Licence area, namely lemon sole, sprat, plaice, sole, whiting, cod and the Norwegian lobster. The environmental appraisal concludes there is unlikely to be significant effects on these species.

- *A number of migratory fish are also known to utilise the rivers and the coastal waters of the east coast of Ireland and hence have the potential to migrate through the general area of the application. These species include Atlantic salmon (*Salmo salar*), trout (*Salmo trutta*), European eel (*Anguilla anguilla*), sea lamprey (*Petromyzon marinus*), European sturgeon (*Acipenser sturio*), twaite shad (*Alosa fallax*) and allis shad (*Alosa alosa*). AA does not adequately assess or quantify the effect of the proposed development on the Atlantic salmon (*Salmon salar*), which is a member of the Salmonidae family. Threats to the Atlantic salmon are habitat degradation and the creation of barriers to migration which will most likely result from this proposed development. The Atlantic salmon is protected under the Northern Ireland Priority Species List because it meets the following criteria:*
 - *o Declining population;*
 - *o Listed in Annexes II and V of the Habitats Directive*

Migratory fish have been subject to screening assessment the results of which are presented in Annex E, Report to Inform Appropriate Assessment Screening, specifically within sections

5.3, and 6.2. Atlantic Salmon (*Salmo salar*) have been identified as a designated feature at two sites, the River Boyne and River Blackwater SAC (50km north of the geophysical survey boundary), and the Slaney River Valley SAC (95 km to the south of the geophysical survey boundary). Assessments have been carried out in full with relevance to these designated sites and have concluded that there will be no significant effects on migratory species on passage.

- *The potential effects of the proposed disturbance to the seabed are likely to interact with spawning grounds to generate a significant impact due to suspended sediment and seabed disturbance. Therefore, the potential effects of the proposed seabed disturbance are likely to interact with nursery grounds to generate a significant impact.*

Annex C of the application documents, EIA Screening and Environmental Report identifies seven species of fish which are known to spawn in the vicinity of the proposed Foreshore Licence area, namely lemon sole, sprat, plaice, sole, whiting, cod and the Norwegian lobster. Spawning grounds for all seven species are widely found within local and regional areas. Due to the limited spatial extent of disturbance associated with the proposed surveys there will be no discernible loss of spawning area for these species. The environmental appraisal therefore concludes there is unlikely to be significant effects on these species.

- *AA does not adequately assess or quantify the effect of the proposed development potential impacts associated with fisheries relate to habitat removal caused by seabed disturbance and the associated release of the suspended sediment plume, potentially leading to displacement of fish in the vicinity of the sediment plume area. Noise and vibration caused by seabed levelling is also anticipated to impact upon fish species in the localised area, particularly noise specialists such as cod and herring, which are relatively sensitive to sound.*

Effects on relevant fish species, which are qualifying features of designated sites within the zone of influence of the proposed site investigation and ecological surveys are presented in Annex E, Report to Inform Appropriate Assessment Screening. The potential effects on fish species which are considered in the screening assessment include habitat disturbance, including effects of increased suspended sediments, and underwater noise, see Table 4 of Annex E. Seabed levelling is not proposed and is not the subject of this Foreshore Licence application.

- *AA does not adequately assess or quantify the effect of the proposed development the food chain.*

Effects on the prey species are discussed throughout the screening assessment presented in Annex E, Report to Inform Appropriate Assessment Screening. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat or prey species are predicted.

- *Benthic flora and fauna are anticipated to be directly impacted by seabed disturbance. Habitat removal will result in the loss of benthic communities within the application area including the removal of both infauna and epifauna. Potential impacts on benthic communities will also have secondary impacts on species which prey upon benthic invertebrates further up the food chain such*

as eels. Sandeels are keystone species found on codling sand bank and sandeel abundance have been shown to have direct effect on some seabird population and the breeding success of kittiwakes (red listed), terns (amber), fulmars (amber listed) and shags (amber listed). Sandeels are part of many food webs for other fish species and seabird

The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. The area of direct habitat disturbance i.e. the footprint of the proposed activities, 0.004km². Temporary, localised increases in suspended sediment will result from some of the proposed activities, but will drop out of suspension rapidly and the effect will be negligible in the context of the highly dynamic baseline environment. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are therefore predicted.

- *AA does not adequately assess or quantify the effect of the proposed development on the Annex IV atheriniformes Ray finned fish atherina presbyter sand smelt (bony fish) listed in the Habitat Directive and goby fish listed in Annex II of habitats directive.*

No SACs for goby species lie within the Zone of Influence of the proposed site investigation or ecological monitoring activities. Annex E, Report to Inform Appropriate Assessment Screening considers potential for impact on migratory fish species which may be present within the licence area on migration. No likely significant effects are predicted due to the limited scale and duration of the proposed activities. Section 4.8 of Annex C, EIA Screening and Environmental Report includes consideration of the effects of the proposed site investigation and ecological monitoring on fish and shellfish species. The environmental appraisal concludes that any sediment mobilised during the site investigation and surveys will settle quickly in the immediate vicinity of the sampling location. As there will be no significant impact on the seabed from the proposed works there is no likely consequent impact on fish or shellfish populations.

- *AA does not adequately assess or quantify the effect of the proposed development the emission of methane gas as a result of working or being in the vicinity of the application area due to the known kish bank reserves in the application area.*

The methane-derived seep mounds associated with the Kish Bank Basin are located some distance to the north and east of the Kish Bank, well outside the area where geotechnical investigations are proposed. Geophysical data collected by the project in 2021 does not identify the presence of “methane reserves” on the Kish Bank.

- *The Habitats Directive and OSPAR are intended to protect species that are at risk of Extinction; they protect the habitat in which they exist. The application area is the habitat of threatened, endangered and critically endangered species and the AA does not adequately assess this. This proposed development should be prevented under the Wildlife (Ireland) Acts, 1976 & 2000 as “wilful interferences with the breeding place of a protected species.” In order to*

fulfil Ireland's obligations under the Habitats Directive, OSPAR, and its own laws, the proposed development should be declined as it's AA does not adequately assess or quantify the effect of the proposed development.

The Report to Inform Appropriate Assessment Screening, Annex E, considers all SACs and SPAs within a precautionary zone of influence of the proposed site investigation and monitoring surveys. The likelihood of significant effects on those sites screened in for Appropriate Assessment is reported in Annex F, the Applicants NIS, section 5 of which includes an assessment for relevant Annex IV species.

• *The AA does not adequately assess or quantify the effect of the proposed development on the Allis shad (Alosa alosa) is a member of the herring family. The fish lives in coastal waters and estuaries for most of its life but migrates into rivers to spawn. Threats to the Allis shad include the construction in their migratory paths, habitat degradation and water pollution, all of which will result from this proposed development. The Allis shad is listed under the Northern Ireland Priority List because it meets the following criteria:*

o Listed as a UK priority species;

o Irish Red Data Book classified as vulnerable

o The Allis shad is also recognized by the Habitats Directive and OSPAR.

o The twaite shad (scientific name: Alosa fallax) is a member of the herring family, o similar in appearance to the Allis shad. Spending most of its life in coastal waters, the o fish migrates upstream in the spring to spawn. Like the Allis shad, threats to the twaite o shad include disruption to the seabed and other migratory route obstructions, habitat degradation,

o pollution all of which will result from the proposed development.

o because it meets the following criteria:

o Listed as a UK priority species

o Irish Red Data Book classified as vulnerable

The twaite shad is also recognized by the Habitats Directive and IUCN in Ireland. The twaite shad is protected under the Northern Ireland Priority Species List

The Report to Inform Appropriate Assessment Screening, Annex E, considers potential for impact on migratory fish species on passage, there are no SACs designated for migratory fish species within the zone of influence of the site investigation and monitoring activities. Localised, temporary and intermittent disturbance and displacement of fish (prey species and migratory species on passage) is possible in the immediate vicinity of the activities, however due to the scale and limited duration of the surveys this is not expected to result in significant effects.

Applicant's Response to Public Submission 19, South East Coastal Protection Alliance DAC

This submission is on behalf of South East Coastal Protection Alliance (SECPA) to express our concern regarding the development of the Dublin Array Wind Farm on sand banks off the east coast of Ireland. We

believe that the development of this wind farm on the sand banks will have an entirely negative effect on the sand bank itself and the proximate coastline.

While we support the concept of wind energy and the opportunities it may bring, We believe that the proposal dating from the mid-1990s to develop offshore wind arrays on Ireland's near shore sandbank habitats is outdated in view of more recent engineering developments in floating turbine technology and the ongoing recognition of the importance of the sandbank habitat for marine life and as a feeding ground for birds and also their contribution to the natural supply of replacement sand for beaches and sand dunes and the habitats and species they support.

Our concern is that if wind turbines are erected on these sandbanks, it will seriously interfere with natural process and lead to the decimation of beaches and sand dunes.

We believe that it is inappropriate for this large-scale industrial development to be developed.

- *Sandbanks are conservation sites and are an important habitat which are listed under Annex I of the EU Habitats Directive.*
- *an industrial complex of this size should not be located so close to the shore.*
- *this is environmentally unsafe development and poses a threat to the existence of the sandbank itself.*
- *there is insufficient knowledge of the impact that developments of this nature will have on the sandbank and the proximate shoreline.*
- *this development poses a threat to the natural habitats that exists on the sandbank.*
- *this development is premature as grid connections will not be available.*
- *this important sandbank habitat should be preserved. These sandbanks are natural formations and a recognised marine habitat; two of these sand banks (Longbank & Blackwater) are designated as a Marine Special Area of Conservation.*
- *Sandbanks should be designated as a Marine Protected area and be free from industrial development.*
- *no research has been carried out on the impact that the existing 7 turbines have had on the Arklow sandbank.*
- *The engineering and or other difficulties encountered by the existing 7 turbines on the Arklow Bank which led to the granting by the Environmental Protection Agency of a Dumping at Sea Permit to Arklow Energy Limited on 20 October 2017 for a period up to 31 May 2025 for the purpose of moving up to 99,999 tonnes of sand from the vicinity of those turbines, has not been adequately explained in this application and there has been inadequate assessment of the in-combination effects of the activities permitted under the Dumping at Sea Permit.*
- *Sandbanks are a habitat for Phytoplankton and consequently are a significant carbon store.*

The vast scale of this development is totally inappropriate to the sensitive near shore site selected. Indeed, based on current permitting practice in EU, a development of this scale in such a sensitive location would be highly unlikely to be even proposed in any other country in Western Europe. The Dublin Array project is too big and too close to shore and located off one of the highest amenity unspoilt coastlines in Ireland. The average distance from shore of offshore wind farms under construction in the EU last year was 59km.

We support the need for changing to renewable energy instead of using fossil fuels but are concerned about the environmental impact of this development in its current form.

South East Coastal Protection (SECPA) is a voluntary group composed of local residents and concerned individuals who are worried about the possible devastating impact that developing a wind farm on sandbanks, including its grid connection, will have on the environment. The primary objectives of our organisation are to ensure protection of all ecosystems along the shorelines including all sand dunes,, fens and SAC/SPA areas, to ensure protection of offshore and estuarine habitats including sandbanks, natural flora and fauna, marine habitats including all fish species, birds, seals and dolphins and to prevent further coastal erosion and degradation of the environment.

This Foreshore Licence application is for permission to undertake site investigation and ecological monitoring, not for consent to build a wind farm. No significant effects on local hydrography or seabed/coastal morphology will arise as a result of the survey activities which are the subject matter of the Foreshore Licence application.

A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The development consent application for the proposed wind farm will be subject to an independent environmental impact assessment by An Bord Pleanála under *inter alia* the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process.

References

ABPmer,(2020). Draft Offshore Wind Plan, Technical Note: Updated Bird Foraging Ranges, ABPmer Report No. R.3379/TN. A report produced by ABPmer for Marine Scotland March 2020

Beck, S., O'Connor, I., Berrow, S.D. and O'Brien. J. (2013) Assessment and Monitoring of Ocean Noise in Irish Waters. STRIVE Report, Environmental Protection Agency, Johnstown Castle Estate, Wexford, Ireland (2011-W-MS 6), pp 1-86.

Benhemma-Le Gall, A., Graham, I.M., Merchant, N. & Thompson, P.M (2021). Broad-scale responses of harbor porpoises to pile-driving and vessel activities during offshore windfarm construction. *Frontiers in Marine Science*: 8, 664724

Brandt, M, Diederichs, A, Betke, K, Matuschek, R, Responses of harbour porpoises to pile driving at the Horns Rev II offshore wind farm in the Danish North Sea January 2011 *Marine Ecology Progress Series* 421:205-216 DOI:10.3354/meps08888

Codling Wind Park Ltd FS007045 <https://assets.gov.ie/79880/2f4d3487-a3ea-4682-96d5-b703871bbd11.pdf>

Crocker, S.E. & Fratantonio, F.D. (2016). Characteristics of high-frequency sounds emitted during high-resolution geophysical surveys. OCS Study, BOEM 2016-44, NUWC-NPT Technical Report 12, 203pp.

Crocker, S.E., Fratantonio, F.D., Hart, P.E., Foster, D.S., O'Brien, T.F. & Labak, S. (2019). Measurement of Sounds Emitted by Certain High-Resolution Geophysical Survey Systems. *IEEE Journal of Oceanic Engineering*, 44: 796-813, doi.org/10.1109/JOE.2018.2829958

CSA Ocean Sciences Inc. (2020). Application for Incidental Harassment Authorization for the Non-lethal Taking of Marine Mammals: Site Characterization Surveys Lease OCS-A 0486, 0517, 0487, 0500 and Associated Export Cable Routes.

Culloch, R.M., Anderwald, P., Brandecker, A., Haberlin, D., McGovern, B., Pinfield, R., Visser, F., Jessopp, M. and Cronin, M., (2016). Effect of construction-related activities and vessel traffic on marine mammals. *Marine Ecology Progress Series*, 549, pp.231-242.

Department of Arts, Heritage and the Gaelacht (DAHG). (2014). Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters.

Dooling, R, Therrien, S, Hearing in Birds: What Changes From Air to Water January 2012 *Advances in Experimental Medicine and Biology* 730:77-82 DOI:10.1007/978-1-4419-7311-5_17

East Anglia Two: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010078/EN010078-001487-6.3.11.4%20EA%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf>.

Erbe, C., C, Marley, S., Schoeman, R., Smith, J., Trigg, L., Embling, C., (2019). The Effects of Ship Noise on Marine Mammals—A Review. [Online] URL: <https://www.frontiersin.org/article/10.3389/fmars.2019.00606> [Accessed July 2020]

Fliessbach, K.L., Borkenhagen, K., Guse, N., Markones, N., Schwemmer, P. and Garthe, S., (2019). A ship traffic disturbance vulnerability index for Northwest European seabirds as a tool for marine spatial planning. *Frontiers in Marine Science*, 6, p.192.

Furness, R.W., Wade, H.M. and Masden, E.A., (2013). Assessing vulnerability of marine bird populations to offshore wind farms. *Journal of environmental management*, 119, pp.56-66.

— JNCC, NE and DAERA, 2020, Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland). JNCC Report No. 654, JNCC, Peterborough, ISSN 0963-8091.

Nuuttila et al. (2018), Estimating effective detection area of static passive acoustic data loggers from playback experiments with cetacean vocalisations, *Ecology & Evolution*, Volume 9, Issue 12, pp. 2362-2371, <https://doi.org/10.1111/2041-210X.13097>

Southall, B., Finneran, J., Reichmuth, C., Nachtigall, P., Ketten, D., Bowles, A., Ellison, W., Nowacek, D., and Tyack, P., (2019) Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals*, Volume 45, Number 2, 2019.

Sure Partners Ltd, FS007339. <https://assets.gov.ie/133082/d8f16a91-2583-4d91-aebe-08da0072f691.pdf>

Thompson, P, Brookes, K, Graham, I, Barton, T, Needham, K, Bradbury, G and Merchant, N: Short-term disturbance by a commercial two-dimensional seismic survey does not lead to long-term displacement of harbour porpoises <https://doi.org/10.1098/rspb.2013.2001>