



Comments on the Ecological sensitivity analysis of the western Irish Sea to inform future designation of Marine Protected Areas (MPAs) Report

Summary

The analyses in the “*Ecological sensitivity analysis of the western Irish Sea to inform future designation of Marine Protected Areas (MPAs)*” Report, which was published on the 19th June 2023, cannot be considered to meet the aims of the project as set out by the Department of Housing, Local Government and Heritage (DHLGH), which were to:

- i. identify areas of comparatively higher and lower ecological sensitivity within the western Irish Sea based on the best available evidence;
- ii. inform planning decisions to be taken about the potential siting of Offshore Renewable Energy (ORE) infrastructure, taking account of stakeholder views, conservation requirements and other sectoral activity;
- iii. establish methods and collate and characterise the evidence base that could be applied to the process of identifying, designating and managing MPAs under the forthcoming legislation.

The analyses in the report can be considered a good starting point, covering some of the ecological issues but has not addressed, and recognised that it has not addressed, some key issues including, species or habitats already listed in the EU Birds and Habitats Directives, species individually managed under the EU Common Fisheries Policy (CFP) and socio-economic impacts. Until these additional issues are considered the report should not be used for informing the ORE planning process or for identifying areas suitable for MPAs. Given the importance of these issues and their dependence on the output of the ecological sensitivity analysis it is essential to establish a transparent review and revision process through which issues may be highlighted and addressed. There is no official consultation process on the report and the current informal approach whereby stakeholders may submit observations is far from robust or transparent.

The Killybegs Fishermen’s Organisation (KFO) and the Irish South and East Fish Producer Organisation (IS&EFPO) have performed an initial review of the report and have identified a number of issues, questions and recommendations, that are outlined below. These issues call into question the validity of the output of the current analyses for ORE planning and MPA identification and highlight the urgent need for a more comprehensive approach and report.

Report Synopsis

Forty biological and environmental features were identified that were recommended for spatial protection in the western Irish Sea, including species and habitats classified as threatened or declining on national and/or international lists, species and habitats of recognised ecological importance, areas of high biodiversity and a feature with high potential for restoration. However, species or habitats already listed in the EU Birds and Habitats Directives or individually managed under the EU Common Fisheries Policy (CFP) were not included in the project, as legal provisions for their conservation and sustainability are already in place.

Collated data for each selected feature were analysed to estimate the sensitivity of the feature to ORE development, shipping and fishing. A conservation prioritization analysis was then conducted to identify areas of high and low priority for protection, considering current and proposed future sectoral activities. The results for the potentially ecologically sensitive areas, existing fishing activities and proposed ORE developments were summarised as maps, which illustrated the overlap between these different activities. It is envisaged that the outputs of these analyses will be used during the

assessment of planning applications of the Phase 1 ORE developments in the western Irish Sea and in the future selection of MPAs after the MPA Bill has been published.

Initial Feedback

The report presents a methodology by which some ecological sensitivity issues may be analysed but which cannot be considered sufficient to address the three aims of the study. We recognise that the report clearly represents the limitations of the study as we have set out above. The report states “*it was time constrained, based only on available evidence and had limited opportunities for stakeholder engagement within its narrow timeframe*”. The uncertainties associated with the outputs and the need for **further work** were also emphasised. The report also explicitly states that the areas identified are areas from within which an effective network of MPAs may be selected, though the MPAs need not encompass the full extent of the areas. It is also important to note that not all activities would need to be restricted in the MPAs. It also states that “*further work under the forthcoming MPA legislation will enable potential MPA network solutions to be refined on the basis of national policy, analyses involving new additional evidence and the participation and input of stakeholders*” and that “*sectoral overlaps would be further reduced during this process, while establishing a coherent effective network for the conservation of the selected species, habitats and other features*”.

The analyses in the current report can be considered a good starting point covering some of the ecological issues but has not addressed, and recognised that it has not addressed, some key issues including, species or habitats already listed in the EU Birds and Habitats Directives or individually managed under the EU Common Fisheries Policy (CFP) and socio-economic impacts. Until these additional issues are considered the report should not be used for informing the ORE planning process or for identifying areas suitable for MPAs.

The KFO and IS&EFPO have performed an initial review of the report and have identified a number of issues, questions and recommendations, that are outlined below. These issues call into question the validity of the output of the current analysis for ORE planning and MPA identification and highlight the urgent need for a more comprehensive approach and report.

Issues, Questions and Recommendations

1. Lack of involvement of key stakeholders in the “Level 2: Involve” stakeholder engagement stage

A key recommendation of the 2020 MPA Advisory Group Report (1) was that ‘*Early and sustained stakeholder engagement should be integral to the selection and management processes for MPAs. Engagement should be inclusive and equitable and the process should be designed to ensure that it is transparent, meaningful and facilitating.*’

In the ecological sensitivity analysis process four levels of stakeholder engagement were defined in the report; *Inform, Involve, Engage* and *Disseminate*. The seafood industry were involved in the first, third and fourth levels, whereby they were informed via email of the project and offered an opportunity to submit feedback, invited to an in-person information session where a broad overview but no specific details of the analytical method was presented and discussed and finally invited to an online presentation of the final report and results where questions could be asked. All of these engagement levels essentially concerned informing stakeholders. **No specific details of the analyses were presented in the Level 1 and Level 3 sessions therefore it was not possible for seafood industry stakeholders to make a meaningful input into the process. For example, the key features chosen for the sensitivity analysis and the underlying data were not known to the seafood industry prior to the presentation of the final report.**

Arguably the most important level of engagement was Level 2, the “*Involve*” stage as it appears from the report that this is the stage where data and feature selection were discussed in detail. However, this level was restricted to involving only key government and agencies stakeholders and the seafood

industry were excluded from this level despite their extensive knowledge of the area and features within. The reasoning behind this exclusion as highlighted in the report was the limited time available for the study. The KFO and IS&EFPO understand that this was not the choice of the report authors. Therefore, this issue and recommendation is directed to the DHLGH.

All future processes for identifying potential areas for MPAs or for assessing potential sites for ORE developments should involve all stakeholders early at every step and level of the process. Active involvement in the entire process from data collection to analysis and to dissemination will ensure the process is completely transparent and understood by all stakeholders. This type of cooperative decision making and ultimately co-management is the only way to ensure a successful outcome. Had this basic requirement been fulfilled then many of the following issues and questions would have been resolved during the process rather than having to be highlighted after the final report had been published.

2. Exclusion of Habitats and Species

The exclusion of habitats and species that are listed in the EU Birds and Habitats Directives was part of the Terms of Reference set for the expert group. The justification for this in the report was that *“these are already subject to ongoing analyses and site identification processes led by NPWS in accordance with national requirements under those Directives”* and that *“legal provisions for their conservation and sustainability are already in place”*. The KFO and IS&EFPO believe that this was a flawed decision that resulted in a significant data gap in the sensitivity analysis and led to the incorrect interpretation of the areas that were not deemed to be potentially sensitive. We reiterate again that as a result the output of the report should not be used for informing the ORE planning process or for identifying areas suitable for MPAs.

This situation is particularly notable in the case of sandbanks, which are defined in Annex I of the Habitats Directive as *“Sandbanks which are slightly covered by sea water all the time”*. According to the National Parks and Wildlife Service (NPWS), the greatest resource of sandbanks in Irish waters is found in the Irish Sea, with the banks from north to south listed as the Bennet, Burford, Kish, Frazer, Bray, Codling, India, Arklow, Seven Fathom Bank, Glassgorman, Rusk, Blackwater/Moneyweights, Lucifer, Long and Holdens Banks (2). To date only the Long Bank and the Blackwater Bank, both located off Wexford, have been designated as SACs in the western Irish Sea. **Some of the largest sandbanks including the Kish, Arklow and Codling remain undesignated and have also been highlighted as areas for ORE developments with monopile based wind turbines.**

One would assume that as sandbanks are listed in Annex I of the Habitats Directive then they would be considered sensitive habitats regardless of whether they were legally designated as SACs or not and any analysis of sensitive habitats in the western Irish Sea would highlight these areas for protection. Neither the Kish, Arklow or Codling bank were highlighted as sensitive areas in the sensitivity analysis report. The question is, why were the non-designated sandbanks excluded from the analysis?

Upon reading the report there is further confusion as a range of infra and circalittoral sediment types were included as features that met the criteria for inclusion for spatial protection in the project. Among these were Circalittoral Sand (Feature 28) and examination of the Report Appendices reveals this to be a priority habitat listed under the EU Marine Strategy Framework Directive (MSFD), which Ireland has a legal obligation to protect. The sensitivity assessment concluded that *“Circalittoral sands are highly sensitive to pressures associated with the construction (high confidence) and moderately sensitive to pressures associated with the operation (low confidence) of offshore renewable infrastructure”*, yet they were largely excluded from the ecologically sensitivity areas identified through the analyses. Why is this the case as it seems illogical?

The exclusion of seabirds from the ecological sensitivity analysis, as they are considered under the EU Birds Directive, is also a significant issue. Since publication of the sensitivity analysis report, the **DHLGH has announced the proposed designation of a large Special Protection Area (SPA) in the northern**

part of the study area, which completely changes the perception of the outputs of the report. Though no supporting evidence was provided with the SPA proposal, this area is presumed sensitive for seabirds, as that is the requirement for proposing a designation under the Birds Directive. As a result this area should be afforded protection from potentially negative impacts. Offshore wind turbines are well proven to cause disturbance and displacement of seabirds (3) and are likely the most damaging activity that could occur within an SPA. The new SPA encompasses the entire proposed ORE development area to the north of the study area. Therefore, this area does not appear to be suitable for the development of ORE and failure of the report to highlight this indicates a significant deficiency in the output of the analyses.

3. Input Data

As stated in the report ***“the quality of output from conservation prioritization modelling is directly linked to the quality of the data input”***, however there are significant issues related to the data used in the analyses with the report noting ***“that there is an urgent need to use a synoptic sampling approach to obtain an accurate picture of the population status and distribution of species and habitats in the Irish Sea”***. Most of the data was fisheries dependent data, which is biased towards areas that are of key importance for commercial fishing. Fishermen will try to avoid areas with, for example, a high abundance of juveniles as these are of no commercial value and will represent wasted effort. Therefore, an analysis which is mainly based on VMS and logbook data is biased towards identifying areas with fishing operations. Only a small amount of fisheries-independent data i.e. from fisheries surveys, were available. The Marine Institute does not conduct groundfish or pelagic surveys in the Irish Sea and most of the survey data available was likely from the AFBI groundfish survey, which has a limited number of sampling stations in the western Irish Sea the majority of which are concentrated around the Nephrops grounds in the northern part of the study area. Therefore, as stated in the report ***“the resultant sampling data is not a true representation of the species range and does not capture the diversity of life present in the Irish Sea”***.

It should be noted that mobile bottom contact fisheries do not fish on the shallow sandbank areas, nor are they surveyed by the existing fisheries surveys. There is an almost complete lack of data for these areas. Due to the conservation prioritisation approach used in the analysis this led to the omission of these areas despite their being widely recognised outside the analysis as priority sensitive habitats.

The lack of data, despite being mentioned in the report, is not immediately apparent to the general reader and requires further extensive reading of the appendices. It would be useful if a full description of the survey data used was provided in conjunction with a map of the survey stations so that the spatial and temporal coverage could be assessed. Appendix 5e provides information on what datafiles were used for each of the features in the conservation prioritisation, though the information provided for each feature is **just a basic description and does not state the number of records, temporal distribution etc. A map is provided for each feature however these display the modelled distribution data that was included in the conservation prioritisation and as the raw data is not shown it is not possible to judge the scale of extrapolation.**

There are also specific examples where the data used for assessing individual features is questionable. For example, most of the ray distribution data (Blonde, Cuckoo, Spotted, Thornback) and especially the juvenile ray data is derived from modelled distribution data (4), where boosted regression trees were used to combine bottom trawl survey data with environmental variables such as depth, temperature, salinity, and substrate to model hotspots of four ray species in the Irish Sea. **The bottom trawl survey data were collected in the Irish Sea from 1993-2012 and as such are older than the 10 years defined in the report as “relevant to the current distribution” of mobile species. Aside from this the models were derived from spatially and temporally limited data, comprising a small number of hauls conducted only in September each year. The uncertainty of the modelled data was then**

compounded by modelling it again for use in the prioritisation analysis. The complete lack of inshore data related to the rays is also notable despite it being widely known that the inshore areas around the sandbanks act as nursery areas for these species (5).

Another example of questionable data is the delineation of the herring spawning grounds in Dundalk Bay. There is no evidence to support this delineation and it was made purely on the basis of the presence of a coarse sediment substrate type, which is also widely found further south in the Irish Sea. Therefore, **the assertion that this data layer was “modelled from good data” is not supported.** The Mourne spawning ground is actually outside of the study area and is in Northern Irish waters off Killeen, Co. Down. Two of the sources cited for concluding the spawning ground was in Dundalk Bay (6,7) explicitly stated that the Irish Sea was excluded from their analyses due to a lack of data. The last record of spawning near Dundalk was in the early 1970's where the herring were noted to spawn in 1973 but that spawning was usually located further north (8). Recent genetic stock identification projects on Irish Sea and Celtic Sea herring have not noted any observations of spawning in Dundalk Bay and as such inclusion of this data layer should be reconsidered.

4. Conservation Prioritisation

The Conservation Prioritisation process was conducted in two steps and with two software programmes: *Zonation* and *prioritizr*. It is important to understand how these programmes work in order to be able to judge the outputs.

The *Zonation* programme generates a priority ranking of locations based on the proportion of conservation features that are found at each location. **Areas with more data, i.e. more conservation features relative to other areas, will be ranked higher than those with less data.** This may not reflect reality but may simply be an artefact of data availability and the data being used in the analysis. **If fisheries dependent data is the main data source used then the areas where that data was collected will likely be highlighted as the most important areas, which may not be the case.** Sensitivity information was also integrated into the *Zonation* analyses using a weighting of high sensitivity = 3, medium sensitivity = 2, low sensitivity = 1 and 0 for not sensitive, not relevant or not evaluated. In most cases (80%), mapped features had medium or high sensitivity to the sectors. The resulting *Zonation* maps highlighted areas that were deemed particularly sensitive to the sector used for defining feature weights. It would be informative for the *Zonation* maps to also show where there was limited data as by scrolling through the data maps in Appendix 5e **it is very clear to see that the data underlying the *Zonation* analysis was patchy and dominated by higher survey and fishing effort in the northern part of the study area.**

Prioritizr generates a network of potential MPAs containing set proportions of features of conservation interest while minimising the selection of cells that are important to sectoral activities. Sectoral activity layers were generated for each of six sectors: ORE, shipping, and four fishing sectors: pelagic trawling, static gear, bottom trawling, and dredge and beam trawling. It would be informative to also combine the fishing activities into a single fishing layer for comparison. Regardless one of the main points regarding the *prioritizr* analyses is that each of the sectors (fishing, ORE and shipping) were given equal weighting in the analyses. Fishing and shipping are existing activities with a long history, the activities layers for these sectors were based on empirical data, both provide essential services and both should carry a higher weighting. ORE is a relatively new phenomenon and the activity layer for the western Irish Sea ORE developments is largely theoretical as only a small number of wind turbines currently exist on the Arklow Bank. **The ORE layer should be down weighted relative to the ecologically sensitive areas, fishing areas and shipping activities. It should be determined what space is available outside of what is currently being used by other sectors or what is required for conservation and this area should be investigated for potential ORE development.**

The question of scale also arose during the *Zonation* and *prioritizr* analyses where the expert group decided to compile the data layers at a 1 km x 1 km grid scale for *Zonation* but to aggregate them to a

3 km x 3 km grid scale for *prioritiz*r. In the report “*the grid scale was selected as a compromise based on likely usefulness to policy makers after generating test solutions*”. There are two issues with this decision. Firstly, the primary objective of the study was not to delineate MPAs but to identify areas from within which a network of MPAs could be selected, though as stated above this is not possible based on the available data and the approach used. The implementation of MPAs should not have been a consideration in the report. In any case the data should have been analysed and presented in the highest resolution possible to minimise extrapolation of data and enable informed decisions to be made. VMS data is already collected and analysed at a coarse level, generally 1km², and logbook data is only collected to the ICES rectangle level. Fishing activities are much finer scaled than this and in reality there can be significant patterns of activity even within a 1km² area. Secondly there is in reality no need to use a grid system to delineate MPAs and a more flexible approach should be used to define the outlines at a finer scale to account for overlap with existing activities. This could be done on a case-by-case basis and align with bathymetry or other oceanographic features rather than using an inflexible and baseless grid system. It is simple to programme non uniform polygons into modern plotters and navigation equipment so that they can be avoided and issues of compliance and monitoring simplified.

5. Data access

For the purposes of this project, a server-based viewer was developed to enable the project team to visualise the data layers during the analysis stages of the project. This viewer facilitated the creation of a dynamic visual representation of all data layers, which effectively conveyed overlapping patterns and co-location of activities. The report states that it is anticipated that a similar viewer would be developed as part of the MPA process in the future so that stakeholders can readily view the assembled data layers in map format.

This would be a worthwhile initiative and should be started now with the public release of the data and the server-based viewer developed in the current project. This would enable stakeholders to better understand the different elements in the model and to engage with the method in advance of the MPA designation process and the ORE planning applications.

6. Peer Review

As highlighted by the KFO at the Engage (Level 3) stakeholder session in the Gresham Hotel, there is a need for the report and the methodology developed to be peer reviewed including the three aims of the project. Given the importance of the review of planning applications for ORE developments in the western Irish Sea and also the identification of potential sites for MPAs and their dependence on the output of the ecological sensitivity analysis it is essential to establish a transparent review and revision process through which issues may be highlighted and addressed. **There is no official consultation process on the report and the current informal approach whereby stakeholders may submit observations is far from robust or transparent.**

7. Other issues and questions

a. Seafood as an ecosystem service

Only a single ecosystem service was included in the analyses presented in the report, carbon sequestration. **Seafood provision (protein and nutrient provision) should also be considered as an essential ecosystem service, which may be incorporated into the model rather than merely including fishing activity as a cost layer.** This would likely change the perception of which areas should be considered sensitive and requiring protection. It may also help to highlight spatial protection measures that would assist with the rebuilding of depleted fish and shellfish stocks.

b. Carbon Sequestration

The carbon sequestration layer in the analysis is overly simplistic and based purely on the presence of muddy sediment type in the northern part of the study area and the assumption that any physical disturbance would result in the release of carbon. Different fishing gears penetrate the seabed to varying degrees and result in varying low levels of disturbance, which may release

organic carbon (OC). However, the knowledge of the effects of the disturbance and resuspension of sediments induced by trawling on the reactivity of OC, and how this compares with the effects of natural resuspension events (such as storms and waves) is extremely limited (9). A recent review of 49 studies investigating OC stocks after trawling-induced disturbances revealed highly mixed results, with 61% of studies reporting no significant effect, 29% reporting lower OC stocks and 10% reporting higher stocks (10). One must also bear in mind that monopile wind turbines penetrate the seabed up to 10-20m which greatly increases the risk of deep carbon stores being resuspended. The presence of monopiles also results in changes to the local hydrodynamics which can be observed as scour around monopiles, as observed at the Arklow Bank windfarm (11). The common solution to scour is to add scour protection rock around the base of turbines which consists of large volumes of rock and protects the monopile turbines but further alters the seabed state and hydrodynamics. Therefore, ORE developments are likely to have a much more significant impact on the seabed state in these muddy areas, than bottom fishing, and this should be considered in the model.

It is reassuring to note that the report acknowledged a point raised by the KFO at the Engage session (Level 3), which is that over 40% of Ireland's Maritime Area is already protected from bottom trawling as it lies deeper than 800m. These deep-sea areas are recognised as important for long term carbon sequestration and storage and are likely less prone to natural disturbance than the shallower areas like the Irish Sea. Transparent policy decisions are required regarding the protection of further areas for carbon sequestration and these should be based on robust scientific evidence with empirical data.

c. ORE Decommissioning

It should also be noted that decommissioning of ORE developments was not included in the sensitivity analysis despite it being a potentially significant source of pressure to ecosystems. The life-span of monopile wind turbines is approximately 20-25 years after which the turbine components need to be removed and the foundation monopile will either be removed or left in situ. Either option will alter the natural state of the particular ecosystem and result in a significant impact which has to be considered in this study.

d. Biocultural diversity

As illustrated in Figure 2.1.3 in the report there are large numbers of shipwrecks within the western Irish Sea, which are protected by the National Monuments Service (NMS). Many of these are in areas that were not highlighted as sensitive areas such as the Arklow and Kish Banks though they do not appear to have been included as a layer in the sensitivity analysis. Presumably this is because they are not biological entities in their own right, however they likely act as artificial reefs and support a high level of biodiversity which is not captured by the existing data sources. In addition if the wrecks themselves are protected then significant physical disturbance of the seabed during ORE construction and cable laying may have an impact on them and this warrants further investigation.

Conclusion

The ecological sensitivity report can be considered a good starting point covering some of the ecological issues but has not addressed, and recognised that it has not addressed, some key issues including, species or habitats already listed in the EU Birds and Habitats Directives or individually managed under the EU Common Fisheries Policy (CFP) and socio-economic impacts. **Until these additional issues are considered the report should not be used for informing the ORE planning process or for identifying areas suitable for MPAs.**

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