

NSAC Advice Ref. 08-2021

NSAC Advice on the Development of Offshore Windfarms and Fisheries Interactions

This paper was approved by the NSAC Executive Committee on 28 December 2020 via written procedure.

1. Background

The European Green Deal strives to make Europe the first climate-neutral continent by 2050¹. The European Commission (EC) estimates that between 240 and 450GW of offshore wind power is needed as part of climate change commitments to supply 30% of electricity demand from offshore wind by 2050². According to Wind Europe, the comparative generating costs of offshore wind have been falling and are expected to continue to fall, making offshore wind increasingly competitive alongside other forms of electricity generation³, confirming its key position in delivering a transition to clean energy⁴. Offshore renewable energy is regarded as a key sector for front loading investment as a means of boosting jobs and economic activity in order to recover from COVID-19⁵.

A study commissioned by the EC⁶ reported that OWFs have developed so far in the North Sea without major conflict with commercial fisheries. This broad picture, however, masks a number of important considerations:

- Although evidence of overt conflict may be limited when reviewing the available literature, the loss of access to fishing grounds is self-evident through prohibitions on activities, where in a number of countries (Netherlands, Germany and Belgium) fishing communities have lost access to fishing grounds without any provisions for compensation.
- Many projects have so far been developed in coastal waters where static gear fisheries dominate and may more readily co-exist within the confines of wind farm arrays.

¹ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

² https://ec.europa.eu/energy/topics/renewable-energy/onshore-and-offshore-wind_en#:~:text=Offshore%20wind%20power%20needs%20by,be%20supplied%20by%20offshore%20wind.

³ <https://windeurope.org/policy/topics/economics/>

⁴ https://ec.europa.eu/energy/topics/renewable-energy/onshore-and-offshore-wind_en

⁵ https://ec.europa.eu/energy/topics/renewable-energy/eu-strategy-offshore-renewable-energy_en

⁶ Dupont, C., Herpers, F., and Le Visage, C. (2020) Recommendations for Positive Interactions Between Offshore Wind Farms and Fisheries: Short Background Study, Luxembourg: Publications Office of the European Union, https://www.msp-platform.eu/sites/default/files/recommendations_for_positive_interactions_between_offshore_wind_farms_and_fisheries.pdf.pdf



- The largest growth in projects over the last few years has been in the UK that has not applied generalised policies to limit access to fisheries. Here, while there is evidence of static gear fisheries, particularly potting for crab and lobster, operating within the footprint of wind farms, there is not yet conclusive evidence of significant levels of towed gear fishing activities taking place. The earlier development of offshore wind in Denmark occurred in waters with limited fishing activity and was accompanied by formalised arrangements for compensation to the fishing industry for loss of access to fishing grounds.

The EC study does, however, recognise the potential for conflicts to increase with the growth of the OWF sector. A recent study for the European Parliament⁷ provides further quantification for potential conflict based on an analysis of the overlap between known offshore renewables proposals and fisheries. This study identifies a sharp increase in spatial conflict potential in the North Sea, Baltic Sea and Mediterranean with the spatial overlap between offshore renewables and fisheries at least doubling over the next five years in these sea basins. The North Sea and Baltic Sea are identified as being at the centre for planned OWF installations up to 2025 and the North Sea beyond 2025.

Based on analysis of current fishing patterns using vessel monitoring system (VMS) data, analysis for the North Sea identifies that the largest overlap of proposals with the fishing grounds of beam trawlers targeting sole and plaice, followed by otter trawlers targeting cod and plaice, and beam trawlers targeting common shrimp. A critical overlap is also identified over the longer term for Scottish seine fisheries targeting cod, haddock and flatfish. Other fisheries are also affected by some proposals (principally, dredge and otter trawl targeting *Nephrops norvegicus*) up until 2025. In the German EEZ, the addition of fishing grounds for beam trawls targeting shrimp are identified for proposals 2025.

The drive for OWF electricity generation is also taking place in parallel to the growth in other marine sectors such as interconnector/telecoms cables, aggregate extraction, marine mining and spoil disposal, as well as measures to protect marine habitats and the seabed. Brexit and/or climate induced shifts in resource distributions⁸ or changes in water quality (e.g. resulting from pollution) could also lead to further displacement effects and loss of access to fishing grounds.

2. Advice and Recommendations

The trajectory for the development of offshore wind is of great concern to fishers. The combination of allocation of rights to other uses and other changes in the access to fishing grounds is occurring with insufficient consideration to tenure rights over access to fisheries resources. Without proactive policy intervention, NSAC considers that a continuation of the status quo risks an incoherent approach resulting in the displacement of fishing activity with associated knock-on impacts on the environment and on the *modus operandi* of individual fishing fleets⁹ that over time will threaten the viability of fishing communities.

⁷ Stelzenmüller, V. *et al.* 2020, Research for PECH Committee – Impact of the use of offshore wind and other marine renewables on European fisheries. European Parliament, Policy Department for Structural and Cohesion Policies, Brussels

[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652212/IPOL_STU\(2020\)652212_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652212/IPOL_STU(2020)652212_EN.pdf)

⁸ p33, *ibid.*

⁹ p28, *ibid.*

The planning of OWFs within a framework of marine spatial planning (MSP) should, therefore, actively address conflicts and identify synergies in order to make best use of marine space whilst protecting the marine environment. This requires an appropriate planning framework, the assessment of socio-economic impacts of OWF on fisheries based on solid evidence and effective engagement with stakeholders, towards mutually agreed outcomes on managing OWF-fisheries interactions. The following provides advice and recommendations on how marine planning and licencing processes for OWFs may be improved to limit conflicts with fisheries and promote, multi-use, co-location and co-existence.

2.1 Recognising resource access tenure and safeguarding fishing grounds

Commercial fisheries comprise multiple métiers operating from multiple ports and harbours which in aggregate form the most spatially distributed set of human activities in our seas. A loss of fishing grounds occurs when exclusive rights are granted for new marine uses on existing fishing grounds or when a newly permitted use is not compatible with existing fishing activities.

A fair recognition of fishing access rights is a key consideration in planning OWF policy. Marine plans typically require new proposals to account of fisheries, but there exist few concrete rights of tenure/access to fishing grounds¹⁰ or safeguards to protect them.

RECOMMENDATION 1: Governments should identify areas of fisheries importance and attribute these areas with spatially defined safeguarding policies in marine plans¹¹. Overtime, these should be periodically updated in line with marine plan review processes to reflect any changes in the distribution of fishing activities and fisheries resources.

While for the purpose of marine planning, the use of marine space is generally well represented for the >12m sector through VMS, significant gaps exist for the small-scale sector. This lack of evidence leaves fisheries at a disadvantage when planning for new marine activities.

RECOMMENDATION 2: The representation of marine space used by fisheries requires effective mapping to include all sizes of fishing vessels. Gaps in coverage should be prioritised and maps on fishing activity regularly updated.

2.2 Facilitating “multi-use” and co-existence between offshore wind farms and fisheries

Growing pressure over the use of marine space and cumulative effects of marine activity underlies the purpose of marine planning to manage conflicts between users and promote the

¹⁰ In the German EEZ, for example, only an area for the *Nephrops norvegicus* fishery has been reserved to remain exclusively a fishery.

¹¹ The concept of areas of fisheries importance (or “core grounds”) has been explored in a study for the Marine Management Organisation, the marine planning authority in England: MMO (2014) Scoping the Opportunities and Challenges to Using a ‘Core Fishing Grounds’ Approach to Develop a Spatial Marine Plan Policy for Fishing. A report produced for the Marine Management Organisation, pp 85 MMO Project No: 1074. ISBN: 978-1-909452-32-9. <https://www.gov.uk/government/publications/scoping-the-opportunities-and-challenges-to-using-a-core-fishing-grounds-approach-to-develop-a-spatial-marine-plan-policy-for-fishing-mmo-1074>

sustainable coexistence of uses¹². Multi-use is one possible outcome of structured MSP processes and several European research programmes have examined approaches for combining activities with view to enhancing economic potential and environmental impact (TROPOS, MERMAID and H2Ocean under FP7-OCEAN, MARIBE and MUSES under Horizon 2020)¹³. MUSES has defined ocean multi-use as:

*“the joint use of resources in close geographic proximity by either a single user or multiple users. It is an umbrella term that covers a multitude of use combinations in the marine realm and represents a radical change from the concept of exclusive resource rights to the inclusive sharing of resources and space by one or more users”*¹⁴

Co-existence (two activities (e.g. fishing activities and OWF) exist at the same time and/or in the same place¹⁵) and co-location (the fact that at least two activities are actively managed together while sharing space at sea¹⁶) are regarded as a sub-type of multi-use that most typically relates to new OWF developments occurring upon existing fishing grounds. However, good practice examples of co-existence and co-location are still scarce¹⁷. There is a need, therefore, for decision-making processes to be better aligned with the principle of multi-use.

RECOMMENDATION 3: Governments should ensure sufficient weight is given to the concept of multi-use in policy, planning and licensing processes and clarify rights and responsibilities of different users towards ensuring its effective delivery.

The potential for fishing activities to co-exist in the vicinity of wind farm arrays depends on the operational space required to undertake fishing activities effectively and safely, as well as the distance between turbines and any associated infrastructure.

RECOMMENDATION 4: Technical reference guidance on operational spatial requirements for fishing activities should be prepared to better inform marine planning synergies and commercial fisheries impact assessments associated with offshore wind farm proposals. This should be updated over time through feedback, monitoring and empirical analysis of fishing practices within wind farms (see also recommendations 14 and 16).

Technological innovation such as the trend to increasing wind turbine sizes and associated spacing requirements can improve the prospects for co-existence with fisheries and strategic planning of cable networks with view to rationalising the extent of cabling required can help to manage the potential for fisheries-cables interactions and limit impacts on the seabed.

Individual projects can also support co-existence through the following:

- Arranging turbine and inter-array cable layouts to include corridors that aid navigation and fisheries access.

¹² European Union (2014). Directive 2014/89/EU Of The European Parliament And Of The Council of 23 July 2014 Establishing a Framework for Maritime Spatial Planning. Brussels: Official Journal of the European Union.

¹³ p3-4 in Schupp, M.F., Bocci, M., Depellegrin, D., Kafas, A., Kyriazi, Z., Lukic, I., Schultz-Zehden, A., Krause, G., Onyango, V. and Buck, B.H., 2019. Toward a common understanding of ocean multi-use. *Frontiers in Marine Science*, 6, <https://www.frontiersin.org/articles/10.3389/fmars.2019.00165/full>

¹⁴ p4, *ibid*.

¹⁵ p39 in Stelzenmüller *et al.* (2020).

¹⁶ p39, *ibid*.

¹⁷ p39, *ibid*.

- Using the types of infrastructure foundations and installation processes that have the least impact on fishing activities and the seabed.
- Prioritising cable burial, supported by cable burial risk assessment with appropriate burial depth targets that account for the physical nature of the seabed including the levels of bed shear stress and the presence of mobile sand-waves, as well as fisheries operating in the area¹⁸.
- Post installation surveys to confirm no cable exposures or obstructions to fishing exist following construction. Fishing trials may verify that fishing activities can resume.
- Periodic cable surveys should be undertaken during the lifetime of the project to update ongoing cable burial risk assessments and detect any re-emergent cables. Any detected hazards should be alerted to mariners¹⁹.

Project specific protocols, rules of cohabitation as well as information and communication procedures can be defined to facilitate co-existence when planning for surveys, works and maintenance operations, transit routes, and handling disruption to fisheries and the relocation of static gears. England and Scotland require proposals to develop plans to facilitate and manage fisheries and OWF co-existence (Fisheries Liaison and Co-existence Plans – England; Fisheries Management and Mitigation Strategies – Scotland).

The use of local fishers and vessels in supporting construction and maintenance activities such as in guarding assets and managing marine traffic offers a way to mitigate impacts on fishing communities and their local knowledge is often advantageous in successfully undertaking such activities.

RECOMMENDATION 5: Where fisheries are feasible and permitted within offshore wind farms, governments should require proposals to be accompanied by plans that demonstrate how the proposal will enable and facilitate access to fisheries and manage and mitigate impacts.

2.3 Compensate where co-existence between offshore wind farms and fisheries is not possible

In countries that do not permit fisheries, or in cases where it may not be possible to accommodate fishing activities (e.g. certain types of fishing activities such as pair trawling or seine netting may require more space than is possible within a wind farm array), fishing communities should not be expected to bear the impacts resulting from loss of access to fishing grounds and associated loss of income or additional expenditure.

RECOMMENDATION 6: Governments should adopt policies that ensure that where fisheries are deemed to be not compatible, impacts to fishing businesses and communities are assessed and appropriately compensated.

¹⁸ See, for example, Carbon Trust (2015) Cable burial risk assessment methodology <https://www.carbontrust.com/resources/cable-burial-risk-assessment-cbra-guidance-and-application-guide> and Tertente, V. Secomendi, M. Owne, M. J. (2017) Application of the Bathymetric Position Index Method (BPI) for the purpose of defining reference seabed level for cable burial: https://www.researchgate.net/publication/318672698_Application_of_the_Bathymetric_Position_Index_Method_BPI_for_the_purpose_of_defining_a_reference_seabed_level_for_cable_burial

¹⁹ The Kingfisher Bulletin, for example, provides information on the location of offshore wind farm and cables related infrastructure and associated hazards in the UK that are alerted to it by asset owners: <https://kingfisherbulletin.org/>.

2.4 International conventions, national interpretations and liability for damages

National interpretations of the UN Convention of the Law of the Sea (UNCLOS) and provisions are the source of general policies in some countries to limit fishing activities in the vicinity of OWFs and over cables. Several countries have prohibited fishery access to OWFs (Netherlands, Belgium, Germany), although some of these are exploring options for allowing access to fisheries (e.g. trials with static gears have been taking place in Germany and the Netherlands and one OWF in the Netherlands was opened up to specific fishing techniques in 2018²⁰). Denmark has prohibited fisheries except for static gears in some OWFs. In countries that do not change policies, or in cases where fisheries are not compatible with an OWF proposal, loss of access to fishing grounds will impact those fisheries, with impacts increasing in magnitude as more OWFs are commissioned.

In order to avoid disproportionate impacts on fisheries in increasingly congested marine areas such as the North Sea, generalised provisions should be reviewed with view to managing interactions through project level risk-based approaches. Appropriately buried or protected marine cables informed by cable burial risk assessment should not interfere with fishing activities, and monitoring and alerting of specific locations of any cable exposures or associated marine hazards to the fishing industry can help ensure that risks are managed effectively.

RECOMMENDATION 7: Governments with generalised policies to limit fishing within OWFs should consider project specific risk management approaches that take account of practical mitigation strategies to manage safety and cable integrity risks in line with good engineering practice.

UNCLOS protects cables from damages that result from wilful intent or culpable negligence. However, where fishing activities are permitted to operate in the vicinity of OWFs and cables, this leaves ambiguity with respect to the conditions that could be considered to constitute wilful or culpable negligence should fishing activities result in damage occurring. Under these circumstances, fishers' fears of potential exposure to prosecution are a source of concern that hinders co-existence.

The recommendation of the International Hydrographic Organisation (IHO) to avoid fishing activities at a minimum distance of 0.25-nautical miles either side of a submarine cable in order to minimise risk²¹ further undermines the prospect for co-existence by failing to account for the need to manage multiple uses in the marine environment with practical steps to minimise risk. Ultimately, avoiding fishing in proximity to the location of cables is not compatible with co-existence between the fishing and offshore wind industries, nor given the existing and growing network of cables in our seas is it possible for commercial fisheries to operate viably by routinely avoiding the locations of cables.

RECOMMENDATION 8: Governments should examine where greater clarity can be provided within UNCLOS and/or national legal systems that interpret its provisions over the rights to fish in the vicinity of buried/protected submarine cables and the protection of cables so that conditions defining liability are clearer.

²⁰ p43 in Stelzenmüller *et al.* (2020).

²¹ Resolutions of the International Hydrographic Organization, Publication M-3 2nd Edition – 2010, Updated August 2018, https://iho.int/iho_pubs/misc/M3-E-AUGUST18.pdf

Despite the present lack of clarity over liability, in cases where fishing activities are currently permitted within OWFs there appears to be little evidence to date that insurance has been withdrawn when operating in their vicinity.

However, the scale of OWF developments could result in changes in insurance markets in the future. In the Netherlands, the possibility of opening windfarms to fishing activities has generated concerns over changes to the burden of liabilities carried by OWFs, the lack of sufficient levels of indemnity carried by fishing vessel insurance policies to cover potential claims associated with OWF repair costs, and associated increases in premium costs for both OWFs and fishing vessel insurance policies²². In Denmark, the uncertainty over insurance cover has been resolved through cooperative organisations for insurance where membership of all parties has been made mandatory²³.

RECOMMENDATION 9: The potential for cooperative organisations for insurance as practised in Denmark should be explored in other countries towards identifying appropriate arrangements for managing insured liabilities.

Article 115 of UNCLOS stipulates indemnity requirements on cable owners if fishing gear or anchors are sacrificed in order to avoid damaging a cable. However, it is not clear that such provisions are being made available in all countries where OWFs are being developed.

RECOMMENDATION 10: Governments should have in place clearly identified indemnity provisions for sacrificed fishing gears in line with UNCLOS.

2.5 Co-locating offshore wind farms with marine protected areas

Germany presently precludes the construction of OWFs in marine protected areas (MPAs) under national policy, while the UK has permitted their development subject to completing impact and regulatory assessments and receiving planning consent. Other countries have plans for wind farms to be co-located with MPAs (Sweden, Belgium and France).

The industry and other interest group (OIG) members of NSAC take different views on the co-location of OWFs with MPAs and, therefore, it has not been possible for NSAC to reach a consensus-based recommendation on this subject.

The industry members of NSAC consider that given the scale of proposals necessary to meet renewable energy targets, and the associated scale of implied impacts on other marine uses such as fisheries, it is not realistic to apply national policies that prohibit the development of offshore wind and MPAs separately from one another.

In the view of NSAC industry members, where OWF proposals can be demonstrated to be compatible with the conservation objectives of MPAs, and co-location can limit impacts on other marine users and avoid generating the knock-on environmental effects from the displacement of human activities, governments should prepare guidance that facilitates the identification of locations where developments could be compatible with marine MPAs. This would also be in line with the purpose of marine planning to promote sustainable co-existence of uses as set out in the Marine Spatial Planning Directive²⁴.

²² p38 Primo Marine (2019) Consequences of possible sea-bed fishery in future offshore wind farms. Report to Rijksdienst voor Onderzoek Nederland.

²³ p41 in Stelzenmüller et al. (2020).

²⁴ European Union (2014). Directive 2014/89/EU.

Further, the industry members take the view that any suitable areas identified in line with such guidance should still take into account existing uses of MPAs, given that, for example, fisheries that are in line with the site conservation objectives may still be permitted. On the same basis, governments should not view OWFs as automatically constituting areas that can subsequently be designated as marine protected areas, without giving consideration to other marine users in the proposed area/s, although there may be cases based on the particular merits of a site choices where it may be appropriate to co-plan MPAs with OWFs (e.g. to meet pre-defined policy targets for MPAs).

OIG members have reservations about co-locating wind farms with MPAs on the basis that human activities should not impact MPAs and compromise conservation objectives. In their view, most existing MPAs are currently 'paper parks' with few enforced protective measures, therefore, there is still a need to develop well protected MPAs and marine reserves to compensate for the increase in OWFs and the ecological pressure and risks they carry. In line with the Commission's communication on the EU Biodiversity Strategy for 2030²⁵, there is a need to establish 30% of marine space consisting of well-managed protected areas and 10% marine reserves.

Furthermore, OIG members consider that OWFs come with ecological risks and impacts that still need further study and conclusions drawn before considering co-locating OWFs to meet conservation objectives. Europe's seas have yet to reach Good Environmental Status as required by the MSFD (Marine Strategy Framework Directive), renewable energy brings us a step closer to mitigating climate change, yet wide-scale protection and restoration of the oceans is still urgent and necessary to sustain our energy, food and nature needs. To remain within the ecological carrying capacity, nature should be a priority in countering the accumulating pressures on EU seas, therefore restoring and protecting nature from human pressures such as OWFs remains critical.

2.5 Managing legacy infrastructure and marine hazards after decommissioning

Decommissioning should seek to ensure OWF infrastructure does not pose a safety risk or generate enduring environmental impacts. Infrastructure that is left in situ may present a marine hazard to the safe operation of fishing activities.

RECOMMENDATION 11: In order to minimise the long-term risks to fishing activities following the decommissioning of OWF infrastructure, governments should ensure that marine hazards are removed at the point of decommissioning so that fishing may safely resume. Any sub-seabed infrastructure left in situ should be subject to appropriate monitoring and contingency arrangements to mitigate any re-exposure of seabed hazards.

Any long-term legacies following decommissioning of infrastructure left in situ are expected to be borne by the asset owners. Provisions are, however, needed in case that an asset owner becomes insolvent.

RECOMMENDATION 12: Bonds or equivalent financial arrangements should be in place to ensure decommissioning can be delivered and insurer of last resort arrangements should be established at a national or collective OWF industry level to cover long term liabilities arising from abandoned/decommissioned infrastructure, to apply, for example, in the case of insolvency.

²⁵ https://eur-lex.europa.eu/resource.html?uri=cellar:a3c806a6-9ab3-11ea-9d2d-01aa75ed71a1.0001.02/DOC_1&format=PDF

2.6 Promoting fisheries and offshore wind farm research

Few governments have coordinated research programmes on offshore wind and fisheries, and research that we are aware of is mostly limited to ad-hoc projects. ICES has established a Working Group on Offshore Wind Development and Fisheries (WGOWF) but research outputs have yet to materialise.

RECOMMENDATION 13: Governments should improve coordination of OWF-fisheries research. A regular conference to facilitate and cross fertilise research findings would assist in advancing knowledge in what remains a relatively sparsely researched area.

RECOMMENDATION 14: Targeted research on the co-existence of fishing activities with OWFs and the development of quantitative methodologies for assessing impacts resulting from spatial loss of access to fishing grounds including cumulative effects are needed (see also recommendation 4).

RECOMMENDATION 15: Standardisation in the provisioning of data on fishing activities at sufficient spatial resolution would assist in monitoring and analysis of changes to fishing practices occurring in the vicinity of OWFs.

RECOMMENDATION 16: Monitoring and empirical analysis of fishing practices before, during and after the construction of OWFs is important in building up greater levels of understanding on co-existence which may feed into best practice (see also recommendation 4 and 14).

RECOMMENDATION 17: Additional research is needed on marine environment and fisheries resource effects. Fisheries related ecological research is covered in a separate joint advice from the NWWAC, Pelagic AC and NSAC²⁶.

²⁶ https://www.nsrac.org/wp-content/uploads/2020/11/01-2021-NWWAC-PELAC-NSAC-ICES-NR-request-Wind_November_2020_EN.pdf