Ms Charlina Vitcheva
Director-General
Directorate-General for Maritime Affairs and Fisheries
European Commission
1000 Brussel
Belgium

Dun Laoghaire/Zoetermeer, 04 November 2020

Ref.no. PELAC: 2021PAC06

Ref.no. NSAC: 16-1920

Dear Ms Vitcheva,

Subject: NWWAC, PELAC and NSAC advice for a non-recurrent request to ICES on the impact of marine wind energy developments on commercial fish stocks

Background

Over the past years, the Pelagic, North Western Waters and North Sea Advisory Councils have paid careful attention to ongoing developments regarding the effects of offshore activities on relevant commercially exploited stocks as well as their biology. All three ACs consider wind farm developments an important sector in European offshore areas contributing to underwater noise and other environmental impacts. However, the impacts of these activities on fish, shellfish, spawning grounds and larval development, both in the long and short term, remain poorly understood by the scientific community. Over time, there may be varying impacts on the different life history stages of the species present due to the multiple phases of offshore wind farm development, and factors linked to these may include: habitat alteration, noise and vibration, electromagnetic fields, scouring and sedimentation, reef effects, introduction of invasive species, lighting effects, ecosystem changes and trophic cascades, and pollution from accidents or structural damage[1].

For the European Union to meet its climate objectives of decarbonising the entire economy by 80-95% by 2050, there is a need to move away from fossil fuels and towards greener energy such as wind, solar and hydropower. The revised Renewable Energy Directive 2009/28/EC will take effect from 01 July 2021 onwards and requires that at least 32% of all energy consumed in the EU is from renewable energy sources by 2030 (link).

According to Wind Europe (link), 502 new offshore wind turbines were connected to the grid in 2019 across 20 project with an additional new (gross) capacity of 3,627 MW, thus raising the total installed

[1] Petruny-Parker, M., A. Malek, M. Long, D. Spencer, F. Mattera, E. Hasbrouck, J. Scotti, K. Gerbino, J. Wilson. 2015. Identifying Information Needs and Approaches for Assessing Potential Impacts of Offshore Wind Farm Development on Fisheries Resources in the Northeast Region. US Dept. of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Herndon, VA. OCS Study BOEM 2015-037. 79 pp.

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offshore wind capacity to 22,072 MW from 5,047 grid-connected wind turbines across 12 countries. Construction work also started on 5 other wind farms, with the UK accounting for the largest amount of offshore wind capacity in Europe (45% of all installations), followed by Germany (34%), Denmark (8%), Belgium (7%) and the Netherlands (5%). The average distance to shore is 59km at an average water depth of 33m.

This places marine wind energy developments firmly into the space of viable commercial fisheries in many Member States which is of great concern to fishers. Sustainable fisheries management is at the heart of the Common Fisheries Policy, and the many efforts made by fishers in the North East Atlantic in implementing and adhering to the rules of sustainable stock management have led to a stabilisation of many commercial stocks.

On both the European and the international level it is unclear to what extent potential cumulative effects of offshore wind energy developments on fishing areas, for example spawning grounds, nursery areas, or important habitats for fish stocks, are taken into account in a cross-border context, as policy, research and mitigation appear not to be streamlined. Currently, effects on a wide scale are unknown, and research, monitoring and marine spatial planning tend to be carried out at a national level.

Fisheries and offshore wind energy developments coexisting is vital for both food and energy production in the future. However, the understanding of interactions and impacts of these rapidly expanding offshore wind developments on fisheries remains limited.

Impacts are generated both during the developmental as well as the operational phase, and adverse effects remain poorly understood, such regarding acoustic impacts of seismic acquisition and surveys during the development stage for example on spawning and nursery stocks. There is recent significant research in both South East Australia[2] and on the Atlantic coastline of the United States and Canada, off the coasts of Newfoundland, Nova Scotia & Coast of Labrador, Maine and south to Florida indicating that that these seismic airgun surveys, sometimes described as seismic blasting, trigger significant adverse impacts to both spawning and nursery stocks up to and including stock collapse.

Further research has indicated that these surveys can cause a collapse in phytoplankton with consequent and significant knock-on collapse in fish stocks, which is of particular concern in the context of the phytoplankton-rich spawning and nursery grounds off the coast of Ireland, and specifically, the East, South and South- West Coast and in both the Irish and Celtic Seas where a number of significant fish stocks are located whose health is critical to the well-being of the Irish, French, Spanish, Dutch/German and Belgian Fishing Fleets, including Mackerel, Horse Mackerel, Herring, Hake, Monkfish, Megrim, Cod, Prawns, Whiting, Black Sole, Lobster and Crab.[3] In addition, potential acoustic impacts are generated, for example on spawning and nursery stocks, due to pile-

[2] Fisheries Research and Development Corporation (FRDC) Australia 2019-072: Multiple - Before After Control Impact (M-BACI) analysis of the effect of a 3D marine seismic survey on Danish Seine catch rates (link)
[3] Please also refer to joint NWWAC & PELAC advice for non-recurrent request to ICES on seismic impacts (link)
[3] For example in Ireland by the Irish Whale & Dolphin Group and Galway Mayo Institute of Technology (link)

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driving in relation to construction of both the foundations of the generator column and in the construction of the many stays all of which are anchored into concrete piles driven into the sea floor.

While considerable research has been conducted into the effects of seismic airgun surveying in the European marine environment on marine mammals[4], limited to no research has been conducted in the North Western Waters and the North Sea on the significant adverse impacts and effects of seismic airgun surveying on fish stocks.

In addition, AC members feel that there is a considerable knowledge gap in Europe regarding the effects of seismic surveying on migratory fish stocks including Albacore Tuna, Bluefin Tuna, Swordfish, a number of species of sharks and common species of fish such as mackerel which run from the Celtic Sea to the Coast of Norway.

Moreover, it appears that much of the research conducted to date in Europe has been spatially limited in its studying of the adverse impacts on migratory and spawning tocks as well as nursery areas insofar as adverse impacts have been estimated in the range of a radius of 1.5 Kms from source. Both North American and Australian research has shown that impacts from marine acoustic surveys and specifically seismic airgun survey can be felt by fish and shellfish species at distances of up to 300 miles (480 kms).

In December 2019, the Committee referral was announced of the Initiative report on the impact on Fisheries of Offshore Wind Farms (2019/2158(INI)) for preparation in 2020 to trigger scientific based discussion. At the time of writing, this own-initiative procedure is still awaiting Committee decision with an indicative plenary sitting date envisaged for 15 December 2020.

The three ACs firmly believe that independent scientific research on the impacts of marine wind energy developments is necessary and urgent and were happy to see the establishment of the ICES Working Group on Offshore Wind Development and Fisheries (WGOWDF) in 2020 (link). This Working Group will focus on the challenges experienced by offshore wind activities to effectively address fisheries considerations, including evaluating and addressing impacts on fishery operations and fishing communities, fishery-independent surveys and fishery-dependent data, and marine habitat alterations and other key interactions as laid out in its Terms of Reference[5].

However, the NWW, North Sea and Pelagic AC members are specifically concerned over these potential impacts given the importance of e.g. spawning grounds/burrows for the health of the stocks under their remit.

The NWW, North Sea and Pelagic ACs are equally concerned over the quality, thoroughness and independence of impact studies carried out prior to offshore projects in their remit area. To date, most impact studies are being commissioned and/or funded by the energy sector, raising the question of impartiality.

The Pelagic, North Sea and NWW ACs would therefore like to contribute to the development of scientific expertise by ICES in this research field, in the form of a non-recurrent request and kindly ask the European Commission to consider the following research questions as a basis for a non-recurrent request to ICES.

[5] 2019/FT/HAPISG06 A Working Group on Offshore Wind Development and Fisheries (link)

Input non-recurrent request to ICES

The NWWAC, NSAC and PELAC have joined forces in a joint Focus Group on impacts from offshore wind farms, to formulate the specific research needs and advice deliverables for a non-recurrent request to ICES.

In our view all three ACs would benefit from ICES advice on the following general research questions:

- Upon evaluating existing scientific publications on the impacts of offshore wind farm activities on larval development/reproduction/growth/migration of commercially exploited stocks (both pelagic and demersal, as well as invertebrates) in the North Western Waters and North Sea region, what are the knowledge gaps identified that are relevant to address in the context of ecosystem-based fisheries management?
- What is the impact of habitat change on larval, juvenile, and adult stages of fish and invertebrate species in a variety of ways of habitat changes associated with offshore wind energy facility construction and operation,(for example loss of hard bottom and sand wave habitats due to sedimentation and scouring, addition of high-relief habitat around turbines, redistribution/displacement of important spawning, nursery, and foraging habitats?
- What are the impacts of changes in sea surface and seafloor circulation patterns associated with the development of offshore wind energy facilities on patterns of larval drift and settlement, for example in cod, as well as the cumulative impacts of several wind parks situated closely together and of all marine activity in the geographical vicinity considered together?
- What are the impacts of changes on upwelling events and productivity cycles that drive fish production, turbidity and sedimentation processes that influence species assemblage structure and trophic interactions?
- What are the behavioural and physical effects related to construction activities of offshore wind energy developments, for example high impulse activities such as pile-driving and seismic exploration, on larval/adult life stages of commercially exploited fish and invertebrate species?
- What is the impact of electromagnetic energy leaking from offshore wind installation, including transmission cables on the seafloor, on elasmobranch species, which use electromagnetic fields to navigate and hunt for food?
- Is there an increased risk regarding the introduction of invasive species both during both development and construction phase of offshore wind energy developments?
- Does increased noise and vibration associated with the operation of windfarm developments and increased boat traffic result in increased larval mortality for commercially exploited fish and invertebrate species, displacement of or interruption to migration patterns and reproductive behaviours, alteration of species distributions, and injury or mortality of fish?
- To what extent have accumulations of offshore wind farm developments and other noise sources been taken into consideration in existing research, and within EIAs? When considering existing

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environmental impact assessments (EIAs) carried out prior to offshore wind farm developments, what parameters are not addressed that would be relevant to be included to determine the impact of the surveys on (the major) commercially exploited stocks within an ecosystem context for example via model-based approaches as identified by ICES WGODF?

- What are the adverse responses (life cycle, biological functions) of larval, juvenile, and adult stages of fish and invertebrate species to potential pollution from wind turbine developments (for example structures, paints, sacrificial anodes)? Are there any recommendations to avoid and reduce these potential impacts?
- What are the cumulate impacts relating to both the upscaling of existing wind farms and the colocation of several wind farms in the same geographical area on the environment and natural resources, and specifically on spawning grounds?
- What are the impacts on lobster and crab populations in shallower waters close inshore where cable laying, including associated seismic surveys related to offshore wind farms, takes place?

We thank you for taking this advice into consideration and look forward to your response.

Best regards,

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Chairman NWWAC Executive Committee	Chairman PELAC Executive Committee	Chairman NSAC Executive Committee

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