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Regional Assessment of Offshore Wind Development in Nova Scotia
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Regional Assessment Committee Members,

Please accept this submission from the Nova Scotia Fisheries Alliance for Energy Engagement (NSFAEE). Our Alliance is comprised of the vast majority of the wild seafood harvesting and processing sector in Nova Scotia with the mission statement:

To unite the Nova Scotia fishing industry; ensuring the emerging renewable offshore energy sector is developed in a manner that respects fisheries, coastal communities, and the marine environment.

Our members participate in sustainable fisheries across many species, gear types, and geographies, process seafood in communities across Nova Scotia and Atlantic Canada, and service markets locally and around the world. Our members acknowledge the urgent crisis represented by climate change and are supportive of the orderly and sustainable development of renewable energy resources. We seek a future where both healthy fisheries and the offshore wind industry co-exist. We trust that Nova Scotia can achieve an offshore wind industry that creates additive value for the region. This will require that both the direct and indirect impacts of offshore wind development are mitigated and ocean ecosystems and harvesting activities continue to thrive.

As the Regional Assessment (RA) Committee considers the opportunity for offshore wind development, it is imperative to recognize the importance of the seafood sector to the economic health of the region. The seafood sector in Nova Scotia is the largest economic engine in the province in terms of export value, more than the next two major exports combined (Tires and Paper and Forest Products). The total value of seafood harvested and processed in 2018 was $2.8 billion; $1.4 billion in wild harvesting, $1.3 billion in processing, and $103 million in aquaculture. In addition, our industry is the lifeblood of coastal and rural Nova Scotia communities, often where few alternative economic opportunities exist.

The NSFAEE provides several streams of advice for consideration by the RA. We begin with a general comment on process and expectations. We then provide the outputs of a spatial initiative whereby the harvesting sector undertook an iterative GIS exercise to identify areas where limited fishing activity or limited harvest potential existed. Finally, we have compiled a non-exhaustive list of potential direct and indirect impacts to ocean ecosystems and fisheries from offshore wind development, which are essential to mitigate when considering development. We hope this approach will aid the RA in its important work.

General Comments:

Since the Regional Assessment process began, the regulatory and policy landscape for offshore wind energy has been inconsistent. The announcement and then subsequent retraction of an expedited development process for areas under provincial jurisdiction has created an environment of uncertainty. In this environment of uncertainty, wind energy proponents have been stepping ahead of the regulatory process and it has been difficult for stakeholder groups to meaningfully engage from an informed position.

The members of the NSFAEE make the following recommendations for consideration by the RA Committee:

1. All waters, whether they be provincial or shared federal/provincial jurisdiction, should be regulated under a common set of rules and a single regulatory regime. This will level the playing field and provide clear guidance to proponents irrespective of what side of a boundary their project may be.
2. Any future call for bids issued by the future Canada-Nova Scotia Offshore Energy Regulator be selected from within an area ultimately selected by the RA Committee in their final report as a Potential Future Development Area (PFDA) and identified as an area for further intense study (as per the original Regional Assessment's Terms of Reference) prior to the call for bids. This will allow all parties to focus attention on a limited set of areas and eliminate unneeded distractions.
3. Assuming the required Impact Assessment Act amendments are amenable and implemented in a timely fashion, all wind projects proposed in the Nova Scotia offshore be subject to individual project assessments under the applicable legislation. While the work of the RA will be robust, it will lack the ability to inform specific projects because of the rapid evolution of technology in the offshore wind sector.

Establishing Low Conflict Areas:

It is important that the RA Committee be mindful of the ongoing pressures that the fishing industry is under related to areas they harvest from. The federal government began a process of identifying marine areas for permanent spatial protection, establishing refuges and Marine Protected Areas that largely eliminated fishing opportunities. Now, the industry is being advised that a new and untested industrial use is being proposed which will undoubtedly lead to further reduced available fishing grounds and they are being told they must be prepared to accommodate this new player.

A core objective of the NSFAEE was the self-identification of areas in the marine space that would be considered low conflict because of low current or potential utilization by the fishing industry. A high-level review of available commercial fishing information (both by species and gear type) was employed to provide a broad brush of areas that appeared, at least from the available 2012 – 2021 commercial fisheries information, to be of low use.

It must be noted that the commercial fishing data used to begin this analysis is incomplete in many regards. For some fisheries that represent the highest landed value in the region (i.e. lobster), explicit spatial information on the fishery is limited because precise locations are not recorded during harvesting activities. In fact, for many fisheries, spatial information is only available from logbook entries denoting general areas in the marine space where the fisheries occur with many fleets not requiring vessel monitoring systems (VMS) to be on board. As a result, for some fisheries the only method of identifying areas that are important for fisheries is through the direct discussion with the fish harvesters.

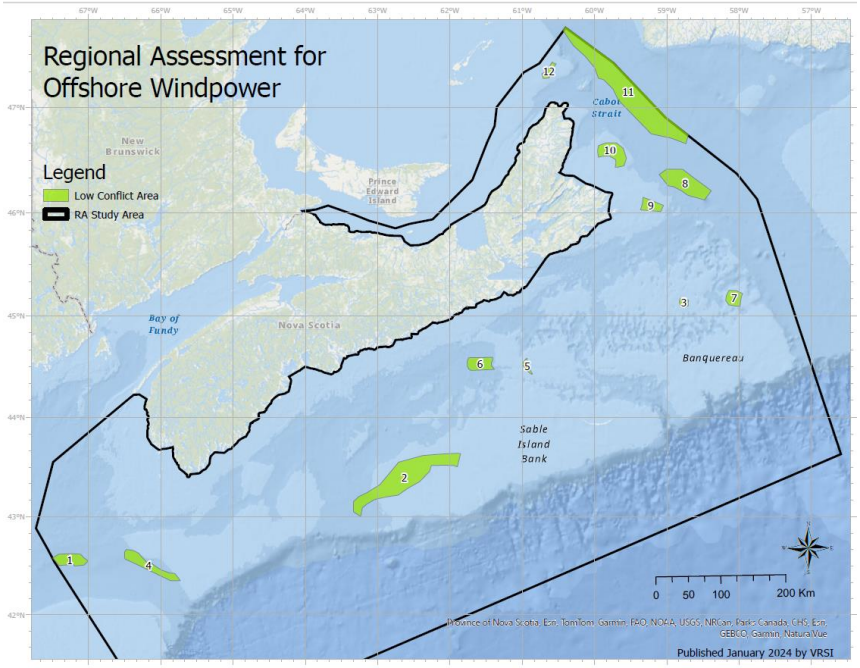
For other small-vessel fisheries (i.e. halibut), information reported to the regulator (Department of Fisheries and Oceans (DFO)) is often incomplete or inaccurate. Commercial logbooks, while valuable, represent a coarse assessment of harvesting activity as a single mistake in a decimal point recorded on the water can produce a highly misleading fishing map.

The recent spatial shifts in the fisheries must also be considered. The Scotian Shelf is rapidly warming which is impacting ocean currents and the movement of fish stocks. In fact, the spatial footprint of many fisheries in 2022 and 2023 is far different than that during the 2012 – 2021 period because of shifting resource distributions. Again, the coarse assessment provided by the 2012 to 2021 data set belies these shifts because all information is grossly aggregated to integrate information on a decadal scale. This shift is most apparent in some shellfish fisheries where the footprint informed by data from the 2012-2021 period is inconsistent with that practiced in 2022 and 2023. Updating this information was only possible through NSFAEE's direct engagement of harvesting sector representatives.

The fishing footprint presented by the 2012-2021 dataset also ignores those species that are either expanding in range (i.e. halibut), recovering from heavily depleted states (i.e. redfish) or subject to management strategies that are precautionary in nature and meant to increase value and promote long-term sustainability through protection of juveniles (i.e. scallop). To ensure that areas are available for future harvest, the expected fishing footprint derived from assessment of historical activity overlain with expectations provided by observations from the harvesting sector were used to inform focal areas of harvest.

The areas identified as being low conflict by members of the NSFAEE within the Regional Assessment Area can be found in Figure 1. Initially, some 79,000 km^2 of area was identified based on publicly available fishing information which then, because of the detailed fishery by fishery internal consultations described above, reduced to the 9,080 km^2 presented. This reduction was the direct result of the harvesting sector for many species coming forward with information not available or included in the commercial data set from DFO that was used to inform the initial delineation.

Figure 1: Identified Low Conflict Areas for Potential Offshore Wind Development:



From the perspective of NSFAEE members, the results of this assessment were not surprising, although we note that the self-identification of such large area as low-conflict across all sectors should be considered a significant achievement. The ocean is clearly a very busy place and commercial fisheries are widespread. There are few areas outside of those formally closed to the fishery where gaps in activity exist.

The NSFAEE approach has highlighted that to prevent undue impacts to the fishing industry, serious consideration should be given to siting offshore wind development within areas currently under Fisheries Act closures or other closure vehicles and we encourage the RA to not presumptively rule out any proposed or implemented MPAs from wind development. Those areas not currently closed for conservation purposes but potentially within the scope of the draft MPA network plan must be considered. As a clear example where fisheries closures may be an appropriate area for development, we suggest that the Western Emerald Banks Conservation area be considered. This region has been closed to the majority of the harvesting sector for decades and was recently identified as a marine refuge under the Fisheries Act. Given the exceptional wind potential, underlying geology and absence of fishing interests, this area is an excellent candidate for development and should be assessed further to determine if offshore wind development could be established without undermining the fisheries-focused conservation of the area.

This exercise also highlighted the coarseness of information available for the identification of areas for wind development. Many data sets being employed to produce 'recommendations' for areas of future development are severely limited by spatially and temporally sporadic information that challenges the ability to use these products to produce recommendations that will withstand scrutiny on a micro-scale. For example, information used to inform conservation concerns is often populated by modelled outputs that are underpinned by little real-world validation, meaning that their level of confidence, while high on a macro-scale, are heavily challenged on the micro-scale that is necessary to guide the delineation of potential areas for future development. In a similar fashion, information on animal distributions is plagued by datasets with substantive spatial and temporal gaps, meaning assessments can only be provided on areas where data is present and not for those areas where information has not been collected.

If spatial areas are further refined in accordance with your letter to the Minister of October 2023, we encourage the RA Committee to continue engagement with the NSFAEE as the Potential Future Development Areas (PFDAs) are identified. Once precision is provided on potential areas for future development, our members are prepared to provide the finer-scale assessment of current and future activities in these areas through the same consultative mechanism that has facilitated input from the fishing industry to date.

Finally, our exercise also highlighted the dynamic nature of harvesting activity across both space and time, adapting to available resources and shifting environments. We anticipate that these changes will continue into the future and will not simply be confined to fishing activity – distribution of natural values will also continue to change. For this reason, any areas that may be identified as PFDAs should be revisited on an ongoing basis (i.e. every 5 years) to ensure they remain suitable for offshore wind development, especially in light of emerging and changing offshore wind technologies.

In summary, our key findings and recommendations are:

1. It is challenging for the industry to identify low conflict areas for offshore wind development because fishing activity ranges widely over geography and through time.
2. Areas closed under Fisheries Act closures (i.e. marine refuges) should be considered and evaluated as PFDAs if fishery conservation objectives can be accommodated. These areas are truly low-conflict areas for the fishing industry and provide an opportunity to reduce the socio-economic consequences of displacing the fishing sector.
3. The RA Committee is cautioned against over-interpreting any synthesis of spatial information where sampling is temporally or spatially sporadic (for example, truncated time series for fisheries or long obsolete surveys for conservation values). This includes those assessment that reference fishing information and conservation values information (e.g. AEGIR or NRCan Canmet reports).

4. Any PFDAs identified by the RA Committee include some mechanism of review to ensure they continue to be appropriate areas for development in light of evolving information on the marine environment and new offshore wind technologies.
5. The NSFAEE and its members look forward to providing further information to inform planning the PFDAs in support of the 2025 Final Report.

Impacts and Implications:

While we understand that full assessment of potential impacts and implications of offshore wind development will be described in the final report being provided by the RA in 2025, we would like to take this opportunity to provide guidance to the Committee of concerns that are foremost on the minds of NSFAEE members.

In our jurisdictional scan of the impacts of offshore wind development, we have become increasingly concerned at the extensive gap in our understanding of the direct, indirect and cumulative impacts of offshore wind operations on the marine ecosystems and the fisheries they support. Ongoing work within the United States and the North Sea demonstrates impacts that were not anticipated, ranging from large scale changes in oxygen availability at the seabed through to potential impacts on distribution of larvae of commercially and non-commercially targeted marine resources. This uncertainty is highly concerning as each development becomes an experimental case, with the long-term impacts to be determined from ongoing experience as opposed to being positioned to mitigate prior to construction.

Throughout our review, it has become clear that profound data gaps exist that preclude a fulsome assessment of the direct, indirect and cumulative impacts of offshore wind development. A key ask of the NSFAEE to the RA Committee and the Federal and Provincial governments is to begin an action plan to fill our gaps in understanding of both the marine ecosystem at candidate development sites, and the impacts that offshore wind energy deployment may have on those same areas.

Operational Impacts

Operational impacts are broad and are not solely confined to the activities of the fishing sector. Impacts to shipping, search and rescue capabilities and research surveys must also be considered.

Fishers are likely to be immediately displaced through various means ranging from regulatory exclusion through to operational barriers (i.e. insurance and gear). Uncertainty on the configuration of offshore wind development sites (i.e. floating, fixed, semi-submersible) and associated permissible uses makes any evaluation of potential impacts to fishing near-impossible. Additionally, in other jurisdictions where regulators have 'permitted' some harvesting activity within offshore wind projects this activity has been constrained by other barriers that prevent operational fisheries from occurring (i.e. insurance companies refuse to cover fishery operations in wind farms due to enhanced risk/liability). In situations where harvesting activity can be adjusted outside of wind power developments (i.e. chasing the fish), a reliance on less productive fishing areas acts to increase cost, bycatch of sensitive/depleted species, conflicts with other harvesters and overall carbon emissions.

Offshore wind developments may act as fish aggregating devices for certain species, pulling resources away from areas open to fishing and having those resources become inaccessible as they congregate at newly developed reef structures, making them unavailable for harvesters to access. In a similar fashion, the construction of a wind farm stands to make sessile organisms unavailable for harvest, leading to lower allowable catches as the regulator may remove this biomass from harvest consideration if they cannot be accessed by the harvesting sector.

Operational aspects of anthropogenic use of the marine environment outside of the act of fishing must also be considered. Offshore wind developments create profound challenges to shipping and steaming routes by making direct transit areas unable to be accessed, forcing lengthy diversions that incur both cost and increase emissions.

The ability to respond to marine safety incidents must also be considered. For instance, other jurisdictions have observed exclusion of aerial search and rescue operations within wind farms, creating enhanced risk for any mariner who chooses to traverse within the footprint as well as delays in SAR operations beyond the wind farm itself. It is important to note that the very lack of coverage by search and rescue operators within wind farm developments is the underlying reason for insurance providers refusing to accept liability for harvesters operating within their boundaries. A data gap we recommend the RA Committee identify be closed is a detailed socio-economic profile of our fishery; the existing baseline distribution of services it relies on throughout Nova Scotia; and, how that availability may be impacted by a developing offshore wind sector.

The ability to complete fulsome ecosystem monitoring programs will also be impacted by offshore development. Many DFO science monitoring programs rely on robust randomly stratified survey designs executed with trawl gear. Creating offshore wind developments will create no-go zones for information collection while re-shaping distribution and productivity of key components of the ecosystem, creating potential biases in our perception of the health of the marine environment which stands to impact the very stocks targeted by the commercial fishing sector.

Oceanographic and Ecosystem Impacts

There are physical impacts to the underlying oceanography that must be considered. At its core, offshore wind farms seek to intercept energy from the atmosphere, preventing its translation into the ocean. This has been acknowledged to substantially impact thermal profiles, oxygen profiles, salinity and current regimes within the development and much further afield. Depending on the scale, this may make areas within the development no longer thermally or chemically suitable for species (both commercial and non-commercial) present prior to construction. These physical changes will be magnified in the ecosystem, creating novel local conditions that may or may not be conducive to future commercial fish production. This uncertainty must be acknowledged.

Indirect impacts beyond those mentioned above must also be considered. Any alteration of currents, productivity and chemical characteristics of the marine environment stand to impact ecosystem structure and function. For example, a minor alteration of currents of a bank ecosystem can dramatically reduce the ability for larvae to disperse, potentially impacting fisheries productivity much further afield. Similarly, reduced upper ocean cycling resulting from lost wind energy transfer stands to impact the smallest but most important components of the marine ecosystem, cascading through the ecosystem to impact even the largest consumers (i.e. endangered marine mammals). Communities at all levels will respond to new structures, leading to 'invasive' species not typically found at these locations taking hold and further perturbing the system. These changes could be based in behaviour, distribution and future productivity of many aspects of the marine environment. Again, a paucity of information in this space must be acknowledged as a key axis of uncertainty in any assessment of potential impacts.

Cumulative Impacts and the Need for Baseline Data Collection

We believe the cumulative and regional impacts of successive wind farms that will be developed as the offshore wind industry evolves off our coast is poorly understood and represents a substantive data gap that the RA Committee should identify. We are increasingly observing data gaps develop in longstanding DFO research vessel time series and other science surveys being conducted on an opportunistic basis as opposed to the fulsome baseline data needed to determine if an impact is occurring; the direction of that impact; and, potential adaptive mitigation to stem negative impacts prior to their influencing other portions of the marine ecosystem. In our collective view, this is the only path to understanding the immediate and cumulative impacts of offshore wind development on the marine ecosystem and should include input from the harvesting sector to help inform gaps in our baseline understanding.

Transmission Corridors

Our review did not include identification of the impacts and implications of potential transmission corridors to land from offshore wind farms or any possible substations required to aggregate offshore wind energy prior to delivery to shore. These pieces are highly significant and must be considered for both direct and indirect impacts. For instance, while the direct impact of a transmission corridor may be the restriction of harvesting activity along the corridor, indirect impacts must also be considered. The transmission of energy through a cable generates intensive local magnetic fields and local temperature increases – both key aspects that impact fish and shellfish behaviour to the point that they may act as a barrier to travel, blocking migration corridors. Substations produce immense amounts of warm water that not only warms the immediate environment but could create warm and de-oxygenated areas if currents are lessened due to the removal of wind energy from the oceanic environment. Again, these are impacts being considered and evaluated on an ongoing basis in other jurisdictions that chose to build first and mitigate later. We argue this approach is inappropriate and patience should be exercised to ensure sufficient baseline information is collected to allow a holistic understanding of the projects and their potential impacts.

Compensation:

As the Nova Scotia harvesting sector and buyers/processors who rely on harvesters come to understand the impacts and a framework is developed through the collection of baseline information to quantify those impacts, a mechanism must be introduced that allows for the compensation of losses incurred by harvesters and others in the seafood value chain for both direct and indirect losses that cannot otherwise be mitigated. For example, it is reasonable to assume that there can be some level of adjustment to fishing activities in response to wind farm closures (which undoubtedly will create competition issues with other harvesters already fishing areas then targeted by displaced fishers), although a period of adjustment must be considered. In other circumstances, permanent losses due to reduction of access to sessile biomass or via lost productivity because of the environmental impacts of wind farms must be recovered via long-term compensation plans that redirect revenue generation from offshore wind operations to those experiencing losses because of them. The Committee must be mindful that the marine space has been used by the fishing sector for centuries and while they intend to share the marine space with other industries, the fishing sector should not be unduly impacted without compensation by another sector forcing displacement of their activities. We look forward to revisiting this crucial topic with the RA Committee following identification of PFDAs and recommended potential mitigation measures.

Summary:

In summary, our key findings and recommendations are:

1. Every effort possible must be undertaken prior to any offshore wind development to ensure appropriate levels of baseline data are collected in and around PFDAs to ensure impacts can be determined, detected and mitigated wherever possible.
2. Our collective understanding of the potential impacts of offshore wind energy development on the structure and function of marine ecosystems remains in its infancy, as demonstrated from programs in other jurisdictions undergoing offshore wind development. This uncertainty must be acknowledged in future assessments, especially as it pertains to the future productivity of wild fish and seafood stocks.
3. Develop a detailed socio-economic profile of the fishery; the existing baseline distribution of services it relies on throughout Nova Scotia; and, how that availability may be impacted by a developing offshore wind sector.
4. Offshore wind development stands to impact the fishing industry both directly and indirectly. These impacts must be further scoped out and a plan established that will provide fair compensation to those impacted by industrial development in offshore areas.

5. Impacts not related to the marine ecosystem must also be planned for in a proactive fashion. For example, impacts to search and rescue operations and steaming routes, competition for labour and port services must also be identified as a key data gap and acquisition of baseline information must be considered.
6. Transmission corridors and their direct and indirect impacts must be more fulsomely examined with associated research to understand the impacts on species sensitive to temperature and electromagnetic fields. Identification of corridors should be an important component of the final 2025 RA Committee report.

The fishery has operated for centuries alongside a myriad of ocean uses including industrial activities and conservation initiatives that have, in concert, acted to reduce the available marine space for harvest. While we seek to continue a strong and collaborative relationship with all ocean users, we do ask that given the sustainable nature of our fisheries, the RA employ a strong risk averse lens when considering fisheries and ensure that these activities can continue in the future unabated alongside a robust offshore wind industry.

In closing, we would like to thank the RA Committee for their diligent work and professional approach to achieving the objectives of the RA. Our input at this point is predicated on the Ministers accepting the changes to the Terms of Reference proposed in the RA Committee's letter of October 25, 2023. Should your proposal not be accepted by the Ministers, we intend to provide supplementary input addressing those areas of the ToR not addressed in this submission. We appreciate that RA Committee members and Secretariat staff have been available, forthcoming and willing to engage the harvesting sector in an open and understanding fashion. On behalf of the members of the NSFAEE, we look forward to working with the RA Committee to further define harvesting activity, mitigation measures, and compensation after your release of the identified PFDAs in your Interim Report in March 2024.

Sincerely,

Kris Vascotto, Manager

On behalf of:

Area 19 Snow Crab Association	**Scotia Fundy Inshore Fishermen's Assoc.**	**Eastern Shore Fisherman's Protective Assoc.**	**Nova Scotia Seafood Alliance**	**Brazil Rock 33/34 Lobster**	**Southwest Nova Tuna Association**	**Richmond Co. Inshore Fishermen's Assoc.**
ASPANS	**Seafood Producers Association of Nova Scotia**	**Gulf Nova Scotia Tuna Fishermen's Assoc.**	**NS Swordfishermen's Association**	**Cape Breton Fish Harvesters Association**	**SHQ Swordfish Harpoon Quota Group**	**Maritime Fishermen's Union – Local 4, 6 & 9**
Atlantic Groundfish Council	**Shelburne County Quota Group**	**Guys. Co. Inshore Fishermen's Assoc.**	**Tuna Charter Nova Scotia Association**	**Clearwater Seafoods Limited Partnership**	**Coldwater Lobster**	**Bay of Fundy Inshore Fishermen's Association**