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The Guysborough County Inshore Fishermen's Association (GCIFA) is a not-for-profit commercial fishing organization. GCIFA is an accredited non-profit association under the Fisheries Organization Support Act, registered with the Registry of Joint Stock. The association is made up of core fishermen and crewmembers that reside and fish in the County of Guysborough, NS. There are 140 members of multi-species license holders with fisheries conducted in the inshore, mid-shore and offshore. The association has a volunteer board of directors who are elected from the membership.

We would like to provide comments and feedback on the Regional Assessment for offshore wind development in Nova Scotia. We appreciate the opportunity to participate in discussions regarding placement of renewable energy development in the ocean and marine spatial planning techniques employed for identifying offshore wind development areas. The GCIFA has been an active stakeholder providing input at meetings, sitting on committees, and attending conferences regarding marine spatial planning for over 20 years. The health and viability of Canada's seafood industry is paramount to the economy here in Nova Scotia. We are concerned the offshore renewable energy sector will impact marine species and the fishing industry's ability to sustain our current level of seafood harvesting and export. We wish to find a path forward that will allow our energy providers to switch to renewables, meet provincial and federal GHG emissions reduction targets, create economic opportunities within our communities and maintain our healthy oceans for future generations to participate in wild caught fisheries. The construction phase, infrastructure, noise, vibrations, and electromagnetic fields created by offshore wind turbines and their effects on fish and fish habitat are concerning. We hope to provide the RA committee with a summary of our concerns, provide some resources for information, relevant data on fishing activity and some useful documents relating to offshore wind and fisheries conflict mitigation produced in other areas of the world.

Our Comments on SeaFOAM methodology, Technical report and Marxan analysis

Setting parameters of the Marxan analysis target of retaining 90% of the total landings for each fishery management unit inherently shows an impact to commercial fisheries. If this target of 90% is achieved, can we expect a 10% reduction in landings of each commercial species? Loss of biodiversity? Reduction in larval survival? Larval transport? Decrease in survival of migratory marine species such as whales or bluefin tuna? The SeaFOAM is a desktop analysis; the real loss could actually be much more than 10%. Is it not possible to set the target at 95%? 98%? Please explain why 90% was chosen. Were those higher targets attempted in Marxan, what was the result? No viable solutions with higher than 90% targets?

LFA 41 is within the SeaFOAM study area and the regional assessment study area. The quota is managed by the DFO. We would be interested to see the Marxan analysis of the offshore lobster high productive areas of LFA41. Unfortunately, this data was not shared with other fishing industry stakeholders or perhaps the analysis was not ready in time for the September 30th deadline of fishing industry representatives to respond to the SeaFOAM analysis and technical



report. I do hope there will be future opportunities to provide input to this process as many of the data layers were not completed in time for public input.

In the technical report prepared by DFO SeaFOAM, what conservation layers will be used in the Marxan analysis? We were informed that marine protected areas were included. What data on marine mammals will be used for this analysis? Are there recent whale migration areas plotted onto map? Recent whale closure areas highlighted?

SeaFOAM project methodology, its limitations and assumptions will likely be thoroughly explained in the technical report.

Identified Gaps from preliminary SeaFOAM analysis

- Spawning and nursery areas, research gaps or outdated data
- SARA species areas other than identified-on ATLAS
- Mackerel, Whelk, rock crab, shrimp trap fishery, eelgrass areas

Fishing activity intensity does not include the water space the boat travels through to get to a specific fishing ground nor will it include the trip to a port to unload the product. Can a map of most frequented routes in and out of ports be highlighted on the Marxan analysis? If not, as another area of conflict of marine space could be shipping lanes and common fishing routes being intercepted by offshore wind construction vessels. Another thing to remember is that many fishermen have their own wharfs, leave from this location and return to this location at end of their fishing trip. Placing a wind farm directly in the path of vessels leaving to go fishing and directly in the path when returning to port (their private wharfs) will impact our daily lives adding extra time and fuel costs onto each fishing trip. This may cause fishing vessels to tie up or unload at other locations to avoid this wind farm, meandering between and around vessel traffic associated with wind farm construction and its added fuel costs. This could have more implications on economics of seafood that is landed in specific counties around the province.

Local ecological knowledge can be incorporated into the technical report. Much data was collected in the past for the oil spill response mapping project. Sensitive species (SARA) were identified, sensitive spawning and nursery areas and economic ranking of fisheries was completed. This information was collected from direct interviews with fishermen, recorded on spreadsheets, audio recordings, with areas highlighted on nautical charts. Identified areas were displayed on digital maps created by the DFO. This project included ecological knowledge from participants conducting fishing activity from the tip of Cape Breton, Cape North to Eastern Shore Guysborough County.

Implementing a buffer zone around healthy fishing areas to protect the stock from leaving the area because they are drawn to the power cables or artificial habitat created by wind farm infrastructure. One long term study recently published from the UK reported more fish in the area of the wind farm than areas outside the wind farm after operation. Fish are drawn to the artificial reefs made by scour material and also drawn to the EMF emitted by the transportation of electricity through the cables. The size of the buffer zone should depend on size of wind farm and bathymetry of the area surrounding the fishing hotspot but should be no less than two to



three times the distance between wind turbines. There are many design specifications for offshore wind turbines that are currently unknown. Also unknown is how these larger turbines will interact with the atmosphere and ocean surface. We are concerned about the impact to the ecosystem from a reduction of wind energy. We have not been able to sufficiently research this topic, its impact or implications for ocean surfaces and marine life. As climate change continues to effect ocean stratification, we are concerned wind turbines will amplify this effect.

More studies are needed on crustaceans and electromagnetic fields. More data is needed on effects on mackerel, herring (extremely sensitive to sound and light), bluefin tuna, billfish and white sharks on effects of EMF. Maximum levels of EMF should be implemented into regulations surrounding the toxicity of EMF to crustaceans and fish lifecycles. Density of power cables, EMF maximum levels and number of offshore substations should be limited by federal regulations that protect fish health, habitat, and behavior.

The decision to add seaweed farming or finfish farming to an offshore wind farm lease could attract more fish to the wind farm. This could have positive or negative effects on fishing. Decisions to integrate aquaculture into wind farms should have stakeholder input and collaborative decision-making processes. We ask that these multi-industry projects not be approved until the effects of renewable energy in Atlantic Canadian waters are thoroughly studied.

We would like to see siting of all offshore wind farms to be at least 50km from the coastline. This will decrease the altered view from the coast and produce less interactions with the fishing industry. This is not unreasonable, many wind farms in the UK are at least this far offshore. China has successfully installed two wind farms approx. 72km off the coast. Hywind Tampen is a wind farm 140km off the Norwegian coast. Orsted Hornsea one is situated 120 km off the coast of Britain. The proposed Marthas vineyard wind farm in the US, and many others in the UK, is 27km off the coast of Massachusetts. The underwater banks and shoals are areas of high biodiversity, high fishing activity and offer important fish habitat. We ask that all offshore wind development is sited a healthy distance away from any bank on the Scotian shelf. They are areas of high economic importance to the fishing industry thus to the economy here in Nova Scotia.

We would like to see a new environmental risk assessment frequently performed as increased vessel traffic and other activities increase the risk of marine accidents such as oil spills, ship to ship collisions, ship to turbine collisions and vessel marine mammal collisions. What is the added risk of a mammal-ship strike from increased vessels on the Scotian shelf? BOEM has estimated that construction activities of each wind project would require 25-46 vessels in the US. That number has to increase the risk of ship strikes to listed species at risk such as the North Atlantic Right Whale.

Cumulative effects from offshore wind development projects in US waters are rarely discussed here in Canada. Many of these proposed projects south of the border are fixed, monopile structures affixed to the seafloor and most are larger in scale than the offshore wind projects proposed in Canadian waters. Many US based proposed and approved projects are 65+ wind turbines in scale. This number of turbines per project installed by pile driving into the seafloor, over the course of several years may have unassumed consequences for marine mammals and



fish that pass through both Canadian waters and American waters. The construction activities may impact marine species that migrate into Canadian waters. Mammals may find themselves here in Canadian waters as a result of impacts of vessel strikes or physiological damage to navigational cognitive abilities or acoustic senses that occurred in American waters from their offshore wind development. It is also very possible that marine species that have the ability to move, will end up in Canadian waters at unusual times of the year to avoid acoustic noise pollution associated with the renewable energy projects in US waters.

The consequence of this could bring a lucrative benefit to the Canadian commercial fisheries or an unhealthy damaged stock that has no food source in Canadian waters during the wrong times of the year, resulting in more strandings and marine mammal mortality events in Canada. The quantity and timing of construction related activities in the US could affect the biodiversity in Canadian waters resulting in marine mammals and other species such as pelagic fish to alter their migration timing or path. Investigations of cumulative impacts on specific species must have a longer lens looking past provincial and national borders. "Wind turbine underwater noise and marine mammals: implications of current knowledge and data needs" by P. T. Madsen^{1,*}, M. Wahlberg², J. Tougaard³, K. Lucke⁴, P. Tyack¹ on page 289 Pile driving, explains that most mammals will be able to hear sounds generated from construction related to pile driving up to 100kms and potentially thousands of kilometres away. These loud short duration sounds can affect their ability to hear prey and decreases communication with their own species.

Compensation to the Fishing industry

We would like to see the province of Nova Scotia explore a request for information from impacted fishing participants. This has been conducted in the US from states that have opened their waters to wind energy development. An offshore wind energy-fishing mitigation and compensation strategy needs to be prepared. We would like to see a fisheries liaison committee/organization/agency be appointed to deal with conflicts and compensation for all offshore renewable energy projects provincial and federal separately relating to mitigating impacts to commercial and recreational fisheries. Another cumulative effect is local residents adjacent to an offshore wind farm and a member of the fishing industry who has been impacted by the same offshore wind farm are the same people. Fishermen are residents of the small coastal communities that will have an impacted view and seascape from their properties and communities. These are the Nova Scotians who will be impacted the most. These fishermen will require mitigation, compensation, and reassurances that their personal and professional daily lives will be guarded from impacts from this new renewable energy sector. Financial mitigation agreements are an integral part of offshore wind projects, community benefits remunerated for the alterations to their natural views. In other countries, bidding points were offered to renewable energy proponents who pledged to provide specific community benefits to communities impacted by the project.

Compensation to the individual fishers affected by specific projects should be dealt with by the Canada-Nova Scotia offshore energy board. Compensation for non project specific leases being designated for renewables to the wider fishing industry should be written into regulations by the Federal Impact Assessment Agency, this shall compensate for the loss of space, loss of access,



potential losses of current and future income, decreases in value of commercial fishing licenses etc. Temporary fishing area closures due to construction related activities will economically impact our industry. We are regulated by the DFO to conduct fishing activities during specific times of the year. These conflicts need to be dealt with through a fisheries mitigation agency/organization appointed to deal with specific projects. Creating an independent board that is not the energy's regulator will aid cooperation and mitigation discussions.

Will there be a requirement for underwater acoustic monitoring during the scoping phase? 5km away, 10km away from project site? Will there be a requirement for underwater acoustic monitoring during the construction phase? Acoustic monitoring during operation of the project to measure actual noise produced? A 2023 study by Rand Acoustics LLC demonstrated a large difference between reported noise levels produced by sonar equipment as recorded in documents associated with wind projects and the actual measured sound levels during survey activities of offshore wind projects. The underwater noise was erroneously underestimated. Rand's data showed that the noise emitted from the sonar was much louder. The findings of this study is featured in the documentary "Thrown to the wind" released by Michael Shellenberger. Regulators need to independently verify actual equipment sound levels instead of accepting the energy companies sound levels provided in documents. Acoustic underwater monitoring should be carried out during the benthic characterization sonar phase and construction phase by an independent party and transparency of this data is imperative for measuring metrics associated with effects. Monitoring programs of operational phases should be independently performed after turbines start producing power and a report highlighting any changes in estimated noise vs actual noise levels and changes in fishing activity recorded.

Research fund designated for ocean ecosystem health, gauging impacts, and new monitoring technologies.

We would like to see policies that allow for future additional mitigation and best practices to be adopted as new research uncovers effects not currently known. We would like to see new technologies be implemented ongoing for infrastructure and turbines already installed and operational. Some examples are painted turbine blades to reduce bird collisions, technologies that mitigate vibrations, low noise motors vs gear box technology, sound absorbing materials, etc.

Requirements for seismic surveys conducted during the scoping phase for siting should include the requirement to notify the public and other marine users who work in the area, this should be written in the regulations. We would like this activity to be carefully examined using a separate environmental assessment tool with public commenting period. This type of activity can disturb benthic marine organisms and marine mammals. Animals under stressful conditions often cease foraging activities. Seismic surveys could cause a fish population or crustacean population to move out of suitable habitat areas. We are aware of a massive harbour porpoise stranding off the coast of Denmark caused by naval exercises, fishing was initially blamed as some animals had rope markings and missing tail flukes. After weeks of investigations, it was found that a large number of naval vessels were in the area at the time. Transparency should be



a priority for this new offshore wind sector. If a research vessel is conducting sonar activities, the public should be aware of where and when. Research vessels can be very expensive to charter for surveys for a small fishing organization like the GCIFA. Partnerships for fisheries surveys with vessels such as benthic characterization surveys, pipelaying or maintenance vessels. If collaborating, we can provide the technicians for field work at sea if a suitable vessel is available.

We would like to see more opportunities for individuals in adjacent coastal communities offered a chance to invest in a project for partial ownership of energy profits from specific turbines within a project. If individual community members are given an opportunity to own a small share in the profits perhaps there would be more support for offshore renewable energy projects in coastal communities. What has been happening thus far, is foreign owned energy companies meeting with the fishing industry proposing projects that they say will not affect our industry, often refuse to disclose who this renewable energy will be sold to and are very sparse on details regarding benefits to our communities. Nova Scotians already pay the highest electricity rates in the Atlantic provinces with a 6.9% rate hike approved for 2024.

Cumulative effects of non project specific effects

Five individual renewable energy projects in one region, eastern scotia shelf. One right whale or one white shark could encounter effects from all 5 wind farms in a 48-hr period not including wind turbines located in waters south of Nova Scotia. This cumulative effect could alter behaviour which could have fatal results. It is like a final destination movie or the mouse trap® game where the whale successfully survives 8 wind farm interactions, but the 9th is the final fatal blow. Reality is there are other factors such as climate change, fishing, shipping, and environmental toxins that this whale has to deal with not only wind farms.

Assessment of suitable coastline for onshore infrastructure should be fairly distributed across province as opposed to concentrated in less populated areas and counties. As Guysborough is one of the least populated counties in the province, we do not want to absorb a majority of this new development simply because proponents wish to take the path of least resistance.

We would like to suggest fisheries data be updated every 5 years as stocks are not fixed in specific locations, fish populations move over time and climate change is causing rapid changes. A flexible, fluid constantly updated process works best for assessing new projects as they apply for EA approvals.

What type of personal protective equipment will fishermen need to work in proximity to wind farms? How long can they stay in the area before human health is impacted? Will fishermen experience headaches, nausea, vertigo, migraines, dizziness, this could affect their ability to perform their job duties and ultimately impact their safety and other crew members safety. This could impact mental health and affect socioeconomics of local communities.



Cumulative effects assessment of a specific project should have a study area of 3 times their project site and depending on type of infrastructure and construction the noise effects could be felt a thousand kilometres away.

Submitting fishing data to highlight high and low conflict areas, may be beneficial but will this always unfairly direct wind development to the low population areas and "low" fishing activity areas, this puts the sparsely populated counties of NS at higher vulnerability, higher risk to environmental accidents, higher risk to loss of marine space. Everyone knows the population of Nova Scotia is not uniformly spread throughout. The fishing industry activity is not uniformly spread across the Scotian shelf. But there has got to be a more just way to distribute this new marine industry rather than siting all wind farm areas in the less densely population counties/fishing areas.

Reasons why fishermen are concerned about wind turbines in the ocean

- Wind turbines create safety risks to fishermen due to collisions and damage our fishing gear
- The effect on human health of working in close proximity to offshore wind farms will be experienced by fishermen who often work weeks in the same area.
- The turbines and buffer zones require very large areas of ocean space, the commercial fishing industry will lose access to critical fishing areas.
- They may create marine debris
- They may alter marine species abundance or health
- A concern about the amount of taxpayer's investments
- Turbine cables/anchors may harm whales and other mammals
- Wind turbine construction activity could cause whales to move closer to the coastline creating more interactions with the fishing industry
- They create underwater noise pollution, could affect fish behavior and life cycle
- Construction activities damage ecosystem health
- They could affect SARA species ability to recover
- Offshore wind farms could speed ocean warming, affect ocean current regimes and larval distribution
- They could alter migration patterns of fish and mammals

If the fishing industry provides input on identifying areas for offshore wind development, because this area is not economically viable to the fishing industry, and an adjacent area is. What happens when this high productive fishing area becomes unsuitable for fish habitat because of the wind turbines noise/vibrations? How can we prove the fish didn't move because of some 'other reason' ie climate change. Another reason to implement a good-sized buffer zone around high productive fishing location. Required setbacks or exclusion zones must take into consideration economics, fishing as a tradition and cultural value, natural resource extraction of wind is no more important than sustaining coastal communities who rely on the sustainable fish stocks on the Eastern Scotian shelf.



We have heard that some fishing can occur within the wind farms but is it safe? Will the safety of fishermen be at risk? If yes, you can conclude the size of the wind farm plus the exclusion zones is equal to the loss of space that fishing fleets will lose access to. The highest courts in the US have made judgments in favor of the fishing industry losses and we expect the same result here in Canada. We would like to see a fair compensation package offered ahead of this industry being placed in the ocean instead of the lengthy court hearings the industry may have to proceed with in dealing with fisheries conflicts in the future.

The main seafood exporting provinces were Nova Scotia (\$2.48B), New Brunswick (\$2.21B), and Newfoundland and Labrador (\$1.42B), accounting for 70 per cent of Canada's fish and seafood export value. Canada's fish and seafood exports were worth \$8.79B1 in 2021, a 36 per cent increase over 2020 and an 18 per cent increase over the previous high in 2019. (Fisheries and Oceans Canada. 2022. Canada's Fish And Seafood Trade in 2021: Overview. Ottawa: DFO. iii + 25 p.). The continued success of the fishing industry is critical to sustaining NS economy. Renewable energy must not replace and cannot replace this industry. Many of the renewable energy companies are foreign owned, private companies that will pocket the profits. The fishing industry provides thousands of jobs directly and indirectly to Nova Scotia. Few jobs are expected after construction is complete of the offshore wind turbines. If we sacrifice the health of the ocean for renewable energy, our NS economy will be negatively affected. This new offshore wind industry pales in comparison to how big our seafood industry is here in Nova Scotia.

The degree of influence offshore wind developers have on final decisions

It worries us that foreign energy companies are attempting to paint a dire picture of cost analysis scenarios that of course favor the cheapest and fastest way to build and place turbines in the ocean. We caution the RA committee that the fastest and cheapest route is not always best. It is best for the energy companies but could have the most environmental damage to our ocean and fish habitat. Is this the way Canada wants to proceed? We have piped oil/natural gas over 225km offshore NS from oil platforms, don't tell us that it is not possible to do the same for electricity. There are offshore wind projects planned for other parts of the world that are over 90km from the coastline. Our utility carries electricity to Nova Scotia homes hundreds of kilometres on land, a business that is very profitable for its shareholders. Images produced by a consulting firm which highlight good (cheapest) areas for wind development get published over and over again in media coverage as well as open public information sessions held by Net Zero Atlantic is alarming and misleading the public. Instead of using the image that highlights both fishing and good (cheapest) wind areas, the image of good wind areas only gets published. This is disheartening and may influence final decisions. Nova Scotians are starting to believe that decisions are already made regarding placement of offshore wind sites because the same maps are published time and time again. Those images highlight the cheapest spots for the energy companies. There are in fact many other areas that the wind resource is equally available. It is bold and presumptuous to announce a renewable energy project before the governmental assessment is completed. It could jeopardize the independence of the consultation process. Are renewable energy companies attempting to circumvent the objectives of the RA Committee?



It may be necessary that DFO resource management investigate where new fishing areas or existing licenses could relocate to fish their quota to accommodate wind development to allow harvesters to continue landing the same quantity of seafood. Keeping in mind that moving a license or quota to the other end of Nova Scotia will likely result in other harvesters benefitting instead of the harvester that was impacted. For example, a fisherman from Guysborough County is not going to travel to Yarmouth to fish his quota, he would end up selling it and his small coastal community would lose the economic benefits from the seafood landings/jobs. Conversations between DFO resource management and commercial fish license holders would be necessary. If the Minister of Fisheries and Oceans wants to maintain current seafood exports and create Gigawatts of offshore wind, there will be concessions her department will have to make to allow harvesters to fish areas that historically their licenses does not allow. If all the offshore wind development is installed in areas East of Halifax, then Harvesters who fish east of Halifax must be allowed to fish other areas possibly farther west than their license historically allows. Taking 2,000km² of ocean space for wind development, concentrates fishing effort in other areas which results in more pressure on the stock. New fishing management areas may need to be created or altered. Altering fishing season start and end dates may need to be adjusted to allow time to catch quotas or other harvesting rules may need to be removed. Reducing our fishing areas impacts many other things economically and ecologically.

Benefits to Nova Scotians

Offshore wind energy projects won't result in cheaper electricity rates at Nova Scotia Power for consumers. It won't make us richer. It allows a foreign owned corporation to extract yet another natural resource from Canada with out compensating Canadians and local residents who have to put up with these turbines being in their back yard. It allows a private corporation NS Power Inc to skirt a carbon tax that they could have avoided had they not been unresponsive during the last 20 years. The private company providing electricity to Nova Scotians have raised and plan to continue raising utility rates for consumers. Where are the benefits to Nova Scotians to offshore wind energy projects? A few jobs during construction can be achieved with any economic development project. When the risks to a sustainable industry and environmental costs outweigh the few benefits, is the project worth doing?

The feasibility and profitability of offshore wind farms are dependent on international energy markets, the price of natural gas, the availability of raw materials such as steel and concrete, the price of crude oil and the price of mining minerals required for fabrication of wind turbines. There are many external factors affecting the renewable energy sector. Instability in the markets will undoubtedly slow and pause these projects. The astronomical cost of start up infrastructure coupled with the high-risk market instability is causing many energy conglomerates to put brakes on renewable projects, often requiring millions of dollars of public funds to initiate renewable energy projects with no requirement for completion or recovering public funds when projects don't materialize. When battery storage technology improves will the energy from offshore wind turbines be profitable compared to renewable energy produced on land.

If materials can be constructed here in NS, then it needs to be manufactured here. The requirement of local materials, workshops, professionals and factories should be included in



regulations. Coastal communities closest to the project should take priority in all consultations whether they are First Nations communities, African American communities or predominately Caucasian communities. It is disgusting that local residents have to view the wind turbines everyday without compensation and yet other communities 200km away are offered benefits ahead of project announcement. MOUs and project partnerships should be signed with the communities the project is closest too and impacted marine users. Communities that are closest in proximity should be informed first and get an opportunity to invest first.

Marine Mammals

The breadth of knowledge and literature published on marine mammal acoustics would worry even the most carefree Nova Scotian when it comes to offshore wind turbines. Size matters when it comes to sound emitted by the turbine. The design of a 15MW turbine has just been completed this year in 2023. This technology is still in a prototype phase. No studies have been completed on noise levels. No tests have been performed in the marine environment. No data has been published on the sound output, EMF levels, vibration levels or pile driving noise associated with installation of these large sized turbines. Therefore, we cannot make assumptions about impacts. The renewable energy regulator should publish thresholds based on biological behavioral changes to marine species and metrics to monitor. Setting these guidelines now will allow the renewable energy industry to develop and grow in a manner that furthers the continuation of a healthy ocean ecosystem and generates renewable energy for Canadians.

Dead whales and dolphins – Stopping the domino effect

Blame game – The blame game has the potential to negatively impact either or both the fishing industries and renewable energy developments. The social license to conduct operations within Nova Scotian waters could be revoked if granted at all. It is imperative that renewable energy companies operate with a level of integrity and social responsibility in respect to the marine waters and other marine stakeholders.

Publicity – media releases regarding marine mammal interactions or detection of their presence within a wind farm lease site require immediate communication to Canadians on a public social media platform or accessible website during siting activities, construction and operation of wind turbines. In the US renewable energy proponents are required to report interactions with mammals such as ship strikes but this data is never released to the public. This is a grave disservice. How can we protect marine mammals if the cause of their injury/death are hidden? Yet when a fishing rope is found wrapped around the carcass of a whale, it is information readily released in the media.

Transparency - The necessity of transparency surrounding marine mammal interactions requires trust and cooperation within industries and a level of commitment to inform Canadians in a timely manner. The necessity to inform regulators obviously will be implemented within guideline frameworks but information releases to the general public and media are imperative as social media will be quick to pass judgment and could affect other industry reputations as well as the renewable energy company.



Mitigation Baseline data collection for a minimum of 2-3 years on marine mammal presence and identification of species as well as timing should be a minimum requirement. We would like to see scoping of site characteristics to occur during times when marine mammals are not present. This should be confirmed by acoustic listening devices as well as sounding deterrence signals well in advance to give whales and other mammals time to vacate the area before sonar scans, or construction related activities occur. These alarms should occur frequently and ongoing during construction.

Fall out on seafood industry, negative publicity affects seafood exports and international market access and prices. If a marine mammal fatality occurs in the vicinity of an offshore wind farm, specify distance from wind farm and operations that were occurring in the last 14 days even if the mammal is found entangled in fishing gear. Disclosing any information that may pertain to this mammal or this mortality event could lessen the impact on seafood prices. Siting an offshore wind project within a designated fishing area could affect the value of commercial fishing licenses. It also could negatively impact the perception of the health of the seafood which will have cascading effects on prices, consumer behavior and social perception of seafood viability as a healthy food option globally.

The area of Western/Emerald Banks Conservation area also known as the haddock box is already not being used by the fishing industry. This area is large in size, over 10,000km². This conservation area already excludes fishing activity. It remains open to all other marine users. We have conceded that transmission cables will undoubtedly be placed in important fishing areas. GCIFA is aware the pipeline corridor previously used by the oil and gas industry off Goldboro is a coveted location for prospective offshore renewable energy companies. This pipeline corridor covers a distance of over 200km from shore. Local fishermen will be affected by this infrastructure. Compensation needs will arise. The fishing industry can and is willing to absorb the loss, temporary or permanent from transmission cables. We cannot loose access to our fishing grounds because renewable energy is more important than a local sustainably harvested food source. We would like the RA committee to note dormant, unused oil and gas leases should be areas thoroughly investigated for renewable energy production. These two areas mentioned above should be the first areas explored for renewable energy, they would result in the least impact to the fishing industry.

The list of renewable energy companies that have applied for a marine mammal take authorization in the US is growing by the day. It appears that every renewable energy proponent that has been granted a lease for offshore wind projects has applied for this permit. Each permit can be effective for up to 5 years. Wind Energy companies conducting not only construction activities, but site characterization surveys have applied and been approved for a marine mammal take authorization permit. This is concerning. The information being relayed to the public is this type of benthic characterization surveys are not harmful to marine mammals. Why the need for a marine mammal take permit to conduct a sonar benthic characterization survey? Is it to ensure the company is not liable for vessel strikes with marine mammals or is this type of technology indeed harmful to marine mammals? 44 dolphins washed up dead in the state of New Jersey this year. That is a lot. We have a healthy Atlantic white sided dolphin population here in Nova Scotia. We have less than 4 dolphins washing up dead on our beaches currently each year. In Canada, when a



project is expected to impact species at risk, the proponent applies for a SARA permit. We are unaware if there is a public consultation process associated with a Section 74 SARA application. In some instances, in the US, the public review period was 15 days to provide comments on a 1-year marine mammal take authorization renewal for energy companies conducting simple benthic characterization survey activities.

We regret we do not have more time to prepare stats regarding the number of marine mammals take authorizations currently approved in the US for renewable energy projects on the east coast. It is our hope that Canadian government public service marine mammal researchers are taking notice and factoring these projects into the hurdles facing the North Atlantic Right Whale population recovery strategies. For example, a renewable energy proponent in the US was granted approval to conduct site characterization surveys for which the marine mammal take authorization permitted the harassment of 8% of the global population of NARW. This same project has recently applied for a 5-year marine mammal take authorization permit for the construction phase of its wind turbines. The application requests permission to conduct activities that could harass/impact 88 NARW in its first year (almost 24% of the population), and 91 NARW in the second year of the project, almost 25% of the global population. There are an estimated 368 North Atlantic Right Whales left in the world. And that is just one project's potential impacts! Fishermen fear that wind turbines may attract marine mammals, if so then fishermen will avoid travelling through or fishing within the wind farm. There is no doubt the offshore wind industry will negatively impact marine mammals.

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-other-energy-activities-renewable>

“Project activities that may result in incidental take include pile driving (impact and vibratory), drilling, unexploded ordnance or munitions and explosives of concern detonation, and vessel-based site assessment surveys using high-resolution geophysical equipment.”

Draft Impacts Table

We were asked to provide comments on Table 1 Draft Table of potential impact pathways and impacts on identified valued components from offshore wind Activities provided by the RA Committee:

In the marine fish and fish habitat component

- Water quality characteristics other than turbidity
- The potential toxins such as pyridine, heavy metals and bacteria that could enter the marine environment from disturbing ocean sediment layers. A plethora of contaminants exist in marine sediments from historical industrial activities and natural deposits, undisturbed they are harmless to fish and fish habitat having very little interactions with the seawater. Cadmium compounds and chromium compounds are listed as a group 1 carcinogenic to humans by the IARC



Potential Impacts: Once construction related activities disturb benthic environments, these contaminants could impact fish, fish habitat (water quality parameters) and other marine users who rely on these fish stocks. Fish mortality events could continue to occur for quite sometime after seabed disturbance up to two years. When this topic was discussed at stakeholder engagement sessions, and a NRCan meeting regarding Bill C-49, the response was this topic is covered by an EA on specific projects. Once an EA has been approved, and this chemical release occurs after approval, during the construction phase, what remedial actions can the fishing industry take to recoup income losses due to a crustacean or groundfish mortality event? We have not received a satisfactory answer to date.

Viewscapes / Visual Aesthetics – Potential impacts

- Tourism Industry could be affected by the offshore wind energy sector
- Real or perceived impacts to physical and/or mental health from a change in viewscape. This impact could also be applicable to members of the fishing industry as their view of their workspace will be altered. Fishermen could suffer mental and or physical health impacts particularly if they can see the wind farm from their home community and fish in the vicinity, often for days at a time, of an offshore wind development area.

Fisheries and other ocean users

Potential impacts

- Economic impacts specific to the fishing industry who are reliant on wild fish stocks.
- Changes in harvesting locations - Commercial fishing is designated to specific harvesting areas already enforced by the DFO. Our fishermen cannot move their licenses to other areas, we are required to conduct our fishing activities in areas detailed in our fishing conditions by our regulators. If fish stocks move, we cannot necessarily follow.
- Profit margins decreases due to burning more fuel. Often seafood harvesting prices dictate whether a fishing trip or quota is profitable for our harvesters, with recent high costs of diesel and bait, increasing fuel costs could result in less quota being caught. Occasionally the DFO will decrease quota in the following year if the previous years quota were not caught. The potential to lose future quota factors into every decision fishermen make.
- Changes in Nova Scotia seafood exports
- Changes in value of commercial fishing licenses after siting an offshore wind farm within the designated fishing area.
- Avoidance of the area due to fear of workplace accidents
- Effects on local fish processors from potential reductions in catch also has a domino effect on communities. The fishermen and his crew are affected first, then processors and their staff, then communities and small business also feel the effects of reductions in seafood landings.

Health Impacts

- Physical and or mental impacts to marine users from working in close proximity to an offshore wind farm



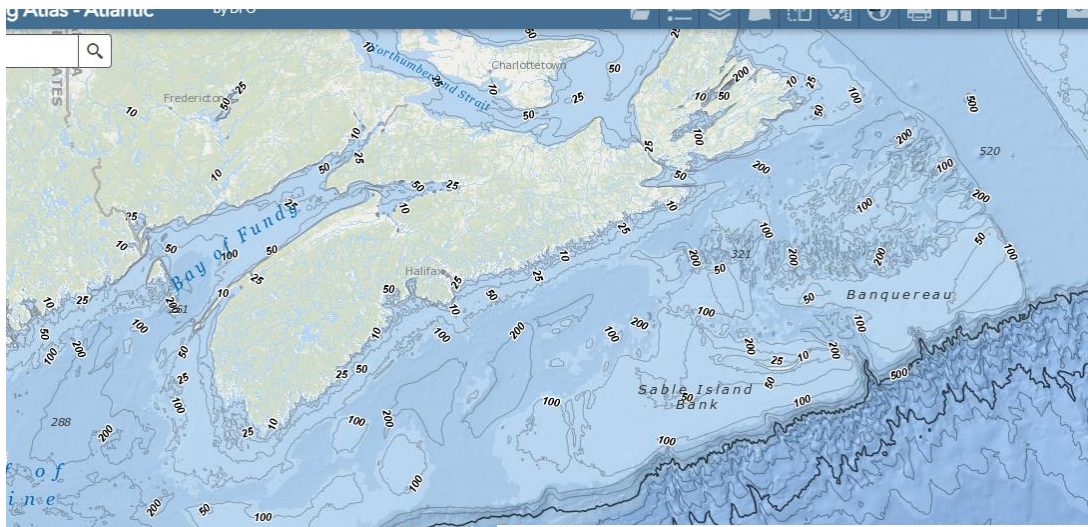
- List of health impacts associated with wind turbines on land can be transferred to offshore wind turbines. Keeping in mind, that offshore wind turbines will be bigger, louder, taller and sound travels faster across water. Can we infer that offshore wind turbines will have more impact on human health than land turbines? Is there human health studies on the proper PPE we should implore when working within an offshore wind farm?
- Is there more vertigo, headaches, etc.
- Job loss due to health issues associated with wind turbine proximity / risks/dangers
- Safety of people who work at sea
- Fear of workplace accidents

Increased risk of collision was captured in the changes in fisheries operations but should also be included in health component.

Communities and Economy Section of draft table of impacts

- The draft table published during the regional assessment noted “changes in household income” as a possible impact. No change in household income, employment levels and economic activity is also a potential impact. This scenario must also be weighed. Potential for electricity rate increases to pay for infrastructure will be passed on to the taxpayers of this province. We are currently paying for a carbon tax, when this gets removed because we have switched to renewable energy, the tax will be renamed as a renewable energy surcharge. There is no energy source cheaper than coal. Global warming is forcing us to switch off fossil fuels but wind energy is not a cheaper energy source.

Map of Nova Scotia Eastern Scotian Shelf



Shallower Areas or Banks are hotspots of biodiversity and high commercial fishing activities.

- Middle Bank
- Roseway Bank



- LaHave Bank
 - German Bank
 - Emerald Bank
 - Grand Mannan Banks, Southwest & Northeast
 - Browns Bank
 - Sable Island Bank
 - Canso Bank
 - Misaine Bank
 - Artimon Bank
 - Banquereau
 - St. Pierre Bank
-
- Drilling Muds contain numerous toxic heavy metals. We are unsure if any construction activities associated with renewable energy projects will employ any type of drilling muds. There are many published studies on the toxicity of these muds to crustaceans.
 - Anti corrosion and anti-biofouling chemicals used in this industry should be monitored, water quality monitoring programs are necessary as these chemicals are known toxins for marine life, before construction, during construction and post construction.
 - Hypoxic conditions are known to occur in the ocean under natural conditions but also are known to occur due to climate change and anthropogenic influences. A heavy organic decomposition layer can create unhealthy conditions in the ocean.

Cultural and Heritage

Nova Scotia's heritage is fishing. Many of our coastal communities were established over 400 years ago. Small fishing villages are the number one reason tourists visit Nova Scotia. Our pristine waters and seascapes offer a vacation away from industrial infrastructure with quiet beaches where seabirds are often the only sounds. Our coastal waters, inlets and bays should offer tourists and local residents not only economic opportunities but also recreational activities and intrinsic value of nature. Altering our seascape could impact the tourism industry, recreational boaters, and our identity in small coastal towns as ocean stewards. Sable Island offers tourism opportunities. It is a piece of our culture and heritage here in Nova Scotia. Research regarding seabirds surrounding Sable Island should be conducted. Granting seabed leases of Nova Scotian coastal waters to an energy conglomerate, to local residents feels like we are losing a part of our family. A familiar neighbour that has been looking after us and vice versa for centuries. We rely on these coastal waters to feed our families, harvesters for a livelihood and the indirect jobs they provide. The ocean offers us employment opportunities, recreational activities, and cultural experiences.

A multi-billion-dollar fishing industry exists here right now in this province, any new marine user that wishes to share ocean space with this giant industry already operating in Nova Scotia waters must not impact this billion-dollar industry. It would be devastating to our coastal communities. The new offshore wind renewable energy sector does not promise thousands of jobs to Nova



Scotians, it does not promise cheaper electricity and it does not promise to sell this renewable energy source to Nova Scotians.

We need regulations before seabed leases

Nova Scotia specific documents on policy, frameworks and best practices need to be prepared, as we do not have the time to write these documents before feedback is submitted to the RA committee, we have provided a similar document from another country that could be used as a guide and a list of guidelines and reports that should be prepared in preparation for this new sector operating in a shared marine space. Nova Scotia Fisheries Alliance for Energy Engagement (NSFAEE) should have input into contents of such documents when being created.

- We need a framework for mitigating impacts for commercial and recreational fishers.
- We need community benefits guidelines
- We need an EA process that deals with cumulative impacts
- We need documents on best practices, setting threshold noise levels, lessons learned from other countries etc.
- We need fisheries liaison groups/board/committees to deal with project specific fisheries interactions and communications between industries reps and renewable energy companies.

Thank you for your consideration of these comments.

Sincerely,

Melinda Cole - Marine Biologist for Guysborough County Inshore Fishermen's Association

Ginny Boudreau, Executive Director for Guysborough County Inshore Fishermen's Association