David E. Frulla

Kelley Drye & Warren LLP
Washington Harbour, Suite 400
3050 K Street, NW
Washington, DC 20007

Tel: (202) 342-8648
Fax: (202) 342-8451
dfrulla@kelleydrye.com

January 7, 2022

VIA EMAIL

Mr. Brian R. Hooker, Lead Biologist
Bureau of Ocean Energy Management
Office of Renewable Energy Programs
Mail Stop VAM-OREP
45600 Woodland Road
Sterling, Virginia 20166

Re: Fisheries Survival Fund's Response to BOEM's Request for Information – Offshore Wind Fisheries Mitigation

Dear Mr. Hooker:

We represent the Fisheries Survival Fund ("FSF") and submit these comments to the Bureau of Ocean Energy Management's ("BOEM") Request for Information ("RFI") relating to Offshore Wind Fisheries Mitigation. FSF represents the significant majority of full-time Atlantic sea scallop Limited Access fishery permit holders.

Scallops are benthic, sessile creatures. These features make the species exceptionally susceptible to changes in the ocean environment. Over two decades ago, Atlantic sea scallop populations were at a low ebb. In 1998, FSF was formed in large part to coordinate with the fishery management councils and public, academic, and private researchers, in developing a new set of best management practices to promote scallops' long-term, sustainable harvest. These practices included the implementation of rotational access area management. Since that time, the industry has invested heavily through research set-asides and other programs to collect real-time data to implement rotational management and otherwise conserve and manage the fishery.

This adaptive, rotational scallop management strategy was necessary to promote the sustainability of the species, and also to ensure the longevity of the commercial fishery and local communities that depend on them. Implementing this adaptive management scheme required sacrifices by all fishermen actively engaged in the industry. However, the net result of these sacrifices has been the resurgence and proliferation of a species that is now pound-for-pound the most economically valuable fishery in the Nation.

The fishery is now faced with the next set of challenges from a burgeoning offshore wind sector. FSF appreciates BOEM's interest in crafting new mitigation strategies to help address adverse impacts

to the scallop fishery from OSW development. FSF now seeks to once again play an integral role in their creation. The OSW industry claims to offer benefits to local fishing communities through the advent of improved infrastructure and job opportunities. That said, it is unquestionable that the proliferation of new turbine arrays will have detrimental impacts on the scallop fishery and other fisheries. Windfarms will and demonstrably do change ocean ecosystems. The goal of mitigation should be to strike a balance that ensures mutual prosperity, not merely an uneasy, zero-sum co-existence.

Therefore, our overarching recommendation in this RFI response is that BOEM strive to create an ***adaptive and proactive mitigation plan***. To be adaptive, an adequate mitigation plan should utilize a long-term approach to reduce future impacts to scallops (and other fisheries), and should also allow for flexibility as we continue to learn more about these future effects. An appropriate plan should have calibration protocols in place, which stipulate specific monitoring requirements and how to address potential changes as they occur over the next decade and beyond. It is also vital that BOEM work to ensure cohesive and meaningful coordination between fishing communities, developers, state agencies, and federal regulators as these protocols are developed and implemented.

To be proactive, an adequate mitigation plan would identify high-risk areas that should be protected, and BOEM should stipulate in the forthcoming guidelines that baseline surveys will be conducted immediately. Simultaneously, and with the involvement of active fishermen, mitigation tools need to be developed and defined upfront for how future research, surveys, bioengineering, and other mitigation techniques may be funded and deployed.

For instance, recent studies have concluded that wind farm arrays will disrupt scallop larval dispersal.[1] FSF thus sees a need to begin conservation and management efforts earlier in the life cycle of scallops than rotational management currently affords. At present under rotational management, nature generally takes its course[2] with scallops until they are juveniles, when areas containing dense concentrations of these juveniles are protected for grow-out. However, it is foreseeable that the advent of windfarms and other stressors on smaller scallops such as climate change will require scallops to be more actively conserved and managed at younger stages to ensure they are able to survive and grow.

Although the scallop industry will continue to do its part to fund RSA studies, offshore wind developers need to play a role in supporting this research, both through funding of research grants and through access and logistics support for marine scientists to conduct the necessary research and then to design and implement solutions.

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[1] Available at https://s3.amazonaws.com/nefmc.org/Doc.14.a-UMASSD_WHOI_short_report_05_6_12_2021_revison.pdf (last accessed January 4, 2021).

[2] Of note, though, the four-inch rings required on scallop dredges are designed to allow small scallops to pass through the dredge bag. This requirement has led to far better protection of small scallops, even before they are large enough for rotation.

To be clear, FSF also supports a comprehensive compensation plan that addresses direct and indirect losses to scallop fishermen from offshore wind development interference. But our priority is—and has always been—to avoid and mitigate such losses from the outset.

The Atlantic sea scallop fishery is well-positioned for the future. Beyond its historical successes and the immense collection of data obtained from RSA-funded research activities over the past two decades, the fishery has a bright outlook. Many active fishermen come from families who have been a part of the scallop fishery for generations, and each year young captains are entering this lucrative industry. Indeed, the scallop fishery generates over $500 million per year in ex vessel value, and the forecasted value of the fishery—barring impacts from climate change and offshore wind development—is on an upward trend. Commitments by all concerned to proactive and adaptive mitigation strategies will help ensure the fishery's sustainability and the benefits it provides coastal fishing communities and the Nation as a whole.

Another potential model for mitigation and compensation planning is the Gulf of Mexico Energy Security Act, which provides revenue sharing from federal oil and gas production with Gulf producing states as well as the Land & Water Conservation Fund for coastal restoration efforts. Similar funds could be allocated from offshore wind production to designated state agencies and NMFS for leading the research and conservation engineering described above; a role for fisheries cooperative research exists here, just as it does for fishery conservation and management more generally. While FSF acknowledges that BOEM lacks the authority to implement such a program at present, policies of this nature should be explored.

In sum, just as scallop fishermen made sacrifices to mitigate *their* negative impacts on the fishery years ago, FSF's proposed strategy here may require sacrifices on the part of OSW developers that want to operate, and will change the ecosystems, in the ocean commons. Below you will find additional comments organized consistent with the RFI's topic areas. FSF also references and supports in its entirety The Responsible Offshore Development Alliance's December 2021 document entitled, "Impact Fees for Commercial Fishing from Offshore Wind Development: Considerations for a National Framework."

General Approach

- *Should BOEM develop mitigation guidance for some or all of the four topic areas below and how should they be prioritized?*

  Yes, BOEM should develop guidance for each of the four topic areas. In general, the scope and order of priority for preparation of these mitigation guidelines should be designed to ensure that BOEM's application of the NEPA mitigation hierarchy – avoid, minimize, compensate – fully accounts for the adverse project-by-project and cumulative impacts on commercial fisheries from the development of offshore wind energy projects.

Further, the order of priority (in terms of preparation but not importance) for developing these mitigation elements should be designed to ensure practical guidance is provided to developers in time for them to incorporate the guidance into their development plans. For instance, as many projects are in the Construction and Operations Plan ("COP") development phase, the most pressing need is for guidelines to address issues that are included in the COP. This would include: (1) project siting, design, navigation and access; and also (2) safety measures, inasmuch as safety issues involve project (including cable) design. While critical, (3) environmental monitoring plans can realistically follow project design, except to the extent that area-specific, fishery-dependent and –independent baseline data should start to be collected as soon as feasible. (4) Financial compensation is critical but to the extent that any compensation plan will need to take into account actual empirical information from construction and operation, these processes are, in general, less proximate in terms of timing. Financial compensation represents a central element of mitigation but it cannot be reasonably calculated as a one-time upfront payment, as losses to fisheries resources and fishing communities will only occur, and be fully recognized, over time. Compensation should be thorough and accurate, even if that process takes the time to develop and implement.

Optimally, BOEM would develop and implement these guidelines before reviewing and approving any additional COPs so that developers may take these guidelines into account while preparing their COPs. In the event that BOEM opts not to develop these guidelines before reviewing and approving additional COPs, BOEM should condition any subsequent COP approvals on developers' compliance with these guidelines. BOEM has the authority and the duty to establish mitigation guidelines that clearly identify OSW developers' obligations and ensure they are scrupulously followed.

Adequate guidelines would also recognize that the impacts of OSW development on fishing appropriately extend beyond the footprint of any individual project site. Demonstrable displaced fishing effort, loss of fishing grounds (especially for an explicitly spatially-managed fishery such as scallops) and broad-scale changes to the ocean environment must also be addressed. BOEM has broad authority under the Outer Continental Shelf Lands Act to manage offshore wind energy development. The law does not limit BOEM's obligation to implement mitigation strategies to the footprint of any individual project.

- *Are there specific strategies, process steps, and engagement components for minimizing impacts and obtaining information requested in the topic areas?*

For BOEM to achieve credible outputs, it will need to ensure that the fishing community and the fisheries technical community are able to work collaboratively with wind developers. Windfarm design that fully accounts for fisheries mitigation and compensation will require integration of practical fishing experience and the collection and analysis of highly technical data. That data will come from the fisheries/natural resources, economics/social sciences, and wind energy

development disciplines. Fishery management councils have technical plan development teams that are experts in conservation and management of the specific fisheries resources under their jurisdiction.

Facilitated workshop formats may be useful if they are interactive and not simply listening sessions. However, developers conducting mere desktop exercises to simply check a NEPA box are neither sufficient to mitigate impacts comprehensively nor to compensate fisheries fully and accurately.

Adaptive mitigation approaches should be investigated and implemented. As discussed above, the scallop fishery has been managed adaptively since the early 2000s when rotational management was implemented. Likewise, adaptive, ecosystem-based management of terrestrial and offshore windfarms' impacts is a recognized and widely-accepted approach.[3]

Phased approaches to windfarm development are preferable as they allow for data and information regarding impacts and the success or failure of previously-implemented mitigation steps to be evaluated and incorporated into future planning, decision-making, construction and operation. The best mitigation measures will take into account ecosystem impacts from prior windfarm construction and operation.

Finally, fisheries and fisheries mitigation should be considered as an integrated whole, across both NMFS and BOEM, for purposes of mitigation. If areas are foreclosed to fishing because of windfarms, other areas, such as the Northern Edge of Closed Area II on Georges Bank, that are currently closed to fishing should be considered for (careful) re-opening to ensure a stable level of opportunity in a fishery.

- *Should the topics be addressed from a national or a regional perspective, and why?*

  The topics should be addressed at a national level, with consistent standards applied. However, any guidelines should be sufficiently flexible to provide for regional variation, similar to how federal fisheries management is conducted, based on national standards and guidelines but implemented through a regional fishery management council approach. Such an approach will take into account regional variation across the United States, not only in fisheries but also in all the factors that go into windfarm development. For instance, different mitigation considerations may apply to fixed versus floating windfarms.

[3] Copping. A., *et al.*, "Enabling Renewable Energy While Protecting Wildlife: An Ecological Risk-Based Approach to Wind Energy Development Using Ecosystem-Based Management Values," *Sustainability 2020*, 12, 9352, available at https://www.osti.gov/pages/servlets/purl/1721687 (last accessed January 6, 2022).

Project siting, design, navigation, and access

- *What processes and engagement between fishermen and developers for a particular project site could help BOEM identify specific project layouts that avoid, minimize, or mitigate impacts to fishing, and to ensure that parties are satisfied with the engagement?*

  This is not a task that BOEM can simply delegate to developers, both from the perspective of data availability and trust in the process. The best time for undertaking this type of engagement is post-Site Assessment Plan ("SAP") and pre-COP, so that the results can be taken into account in the COP, but with the information from site assessment at-hand. Working groups with BOEM, fishery management council and NMFS staff, the fishing industry, scientists, and developers should be convened. Notably, such engagement will need to have project-specific elements because project layouts will require site-specific and fishery- and resource-specific considerations.

  It is important for such interactions to be data-rich and for BOEM to be actively engaged. For instance, NMFS surveys for the scallop fishery date back several decades. Further, over the last twenty years, fisheries managers have also incorporated cooperative research-based dredge and drop camera video scallop surveys, as well as even more advanced technologies such as HabCam surveys, that provide comprehensive streams of information regarding benthic conditions. These tools are readily available to measure scallop abundance and recruitment on a granular scale.

- *Are there project design criteria for avoiding or minimizing impacts to fishing that the guidance should include (e.g., distance between turbines, clustering or spacing or turbines, orientation of turbines, setbacks or other means to address particular regulated fishing areas, such as Essential Fish Habitat (EFH), rotational fishing areas, closed fishing areas, or other similar regulatory spatial designations)?*

  A tool-box approach should be used. All the tools identified above should be considered for each project, and applied based on the site specific characteristics of a lease area. For instance, turbine lay-out should be developed based on considerations of the predominant types of fishing that occur in an area. Indeed, turbine layout considerations could differ if pot gear is dominant in a particular area versus towed gear.

  The same is true for orientation of turbines. This needs to be based on how vessels fish and how they transit the area.

  Oceanographic and biological processes also need to be considered. For instance, different turbine layouts and orientations may have different impacts on larval distribution. Plans need to be developed to model and then study these impacts proactively, so solutions can be designed before natural processes are irreversibly degraded.

Certainly, the need for setbacks from important fishing grounds such as scallop access areas or HAPCs should be addressed for each project. For instance, the issue of set-backs from scallop access areas has been addressed in detail in the pre-leasing process for the New York Bight.

Critically, fishermen require more information from BOEM and developers to make informed decisions and provide useful feedback during this process. For example, fishermen operate based on detailed lat-long data and nautical charts, and require similar information regarding turbine and cable layouts to be able to conceptualize how OSW plans and fishing patterns coincide. And, within windfarms, the details of inter-array cabling, the size and composition of scour pads, projected scour beyond these pads, the nature and extent of cable covering and burial, and the presence of pre-existing and other OSW-added obstructions will all impact fishing. With this information, fishermen can more accurately conceive what fishing within and around turbine arrays would look like and provide more targeted information regarding mitigation.

- *Are there evidence-based project criteria for avoiding or minimizing impacts to fishing from both export and inter-array electric cable layout, burial depth, and cable protection measures?*

  In terms of burial depth and cable protection, information regarding benthic composition and stability are critical. What is needed to bury and protect cables will depend on where these cables are buried. Experience from Great Britain, the EU, and elsewhere regarding the success of burial techniques under specified benthic conditions should be assembled and taken into account. For instance, the Crown Estate recently identified cable burial issues as one of the leading causes for reduced fishing effort within turbine arrays, due to the risks of gear snagging on the rock armouring and/or exposed cables.[4] The study recommends several alternatives for reducing these risks depending on the location and state of the benthic habitat, as well as the predominant fishing activities occurring in a particular area (*e.g.,* fixed gear vs. mobile gear).[5]

  Recommendations included pre-construction involvement of the fishing industry in developing cable plans, as well as "up-to-date and readily available maps of potential seabed hazards to fishing; use of fishing-friendly cable armouring structures [including the use of concrete mattresses in lieu of rock armouring]; more effective cable burial techniques, particularly where the nature of the seabed can significantly change; durable cable armouring; removal of waste material; post-installation surveys to verify that fishing activities case safely resume and

[4] Gray, M., *et al*., "*Changes to fishing practices around the UK as a result of the development of offshore windfarms – Phase I (Revised)*," The Crown Estate (2016) at 27, available at https://www.thecrownestate.co.uk/media/2600/final-published-ow-fishing-revised-aug-2016-clean.pdf (last accessed January 6, 2022).

[5] *Id*. at 28.

communication of findings to the fishing industry, and regular monitoring for cable exposure and other unmapped seabed hazards."[6]

This information also should factor into cable lay-out, when that is reasonably feasible. If there are two potential cable routes, and one allows more effective cable burial than the other, then the former should be preferred. Additionally, to the extent there are relatively better cable routes, cabling from adjacent windfarm projects should commonly utilize these preferred routes.

- *Are there evidence-based criteria or guidance, such as size and scale of projects, number of affected vessels, distance between projects and other factors that would avoid or minimize impacts to navigation and fishing activities within a project area?*

  As an initial matter, avoidance is best handled at the leasing stage. Relevant evidence includes fishing locations as ascertained by VMS and logbook/VTR data, as well as areal abundance of fish stocks, which is based on fishery-dependent and -independent data sources, such as survey information. Much of this data is available through NMFS and the Councils.

  Fish abundance information may also be based on oceanographic or geologic features. Any guidance will need to take into account the specifics of any location. A large project, maybe even with turbines spaced more closely together, may be suitable in areas with little to no fishing (or with fixed gear fishing), but a smaller project may need to be designed around active fishing areas, sensitive habitat areas, or areas with relatively more mobile gear fishing.

  Number of affected vessels is important, but so is the value of the catch, especially for a valuable, generally sessile resource such as scallops. BOEM should not evaluate fishing intensity without considering the absolute value of catches in a particular area.

  As stated above, more information would be useful in determining appropriate spacing of turbines in any individual instance. While one n.mi. spacing has been proposed as a general standard, this spacing is rarely adequate after considering the underwater footprint of turbine arrays, associated scour, cable arrays, as well as site-specific specific oceanic conditions.

Safety measures

- *What specific safety measures or specifications should be included in the guidance?*

  Mitigation of the impact of cabling should be included. Burial depths should be location specific. BOEM should explain in these measures that six feet is a minimum burial depth and that specific situations (such as soft benthic conditions with heavy currents) could require deeper burial. In

[6] *Id*. at 32.

areas where cables cannot be buried due to substrate, alternatives (such a fiberglass cable covers used in the North Sea for cabling relating to offshore oil and gas projects) should be considered to reduce the risk to fishing vessels and gear from rock burial.

Further, BOEM should include in guidelines that individual developers, and groups of developers, should consolidate cabling to the maximum extent feasible to minimize the amount of ocean bottom in which a fishing vessel may encounter cables.

Windfarms should have sufficiently wide transit lanes, configured to the customary direction of fishing vessel traffic through the area.

Wind turbines should be oriented consistent with the direction that fishing occurs in a certain area. For instance, if fishing vessels routinely trawl northwest to southeast in a given area, the turbines should be arrayed to allow such fishing to be conducted most safely.

Coordination between developers and the Coast Guard will also be important to ensure search-and-rescue operations can be conducted in and adjacent to windfarms.

- *Is there any specific training that is necessary to improve safety?*

  Certain developers have provided simulators that allow fishing vessel captains to experience what it would be like to navigate a fishing vessel through a wind farm.[7] Several FSF members who have used these simulators found them both enlightening and eye-opening. Future widespread access to these simulators would be helpful for facilitating discussions on mitigation, especially with regard to turbine layout and spacing requirements. Indeed, of our members that have used the simulators, each of them found the one n.mi. spacing to be quite treacherous for navigation and fishing, especially in simulated rough cross-seas or during low-visibility conditions.

- *Are there specific navigational or fishing products/equipment that could improve safety?*

  The impacts of windfarms on vessel radar needs to be considered and addressed. For instance, a case study in France demonstrated the ability to reduce wind turbines' negative impacts on radar by up to 99%.[8] If, in fact, steps can be taken to better ensure vessel radar systems can be operated without significant degradation within and adjacent to a windfarm, these steps need to be identified, tested, proven, and specified in processes that include fishermen. To the extent that radar system enhancements or upgrades that can improve radar are advisable and available, developers should be required to compensate fishermen for the costs of these enhancements.

[7] https://www.onthewater.com/what-is-it-like-to-boat-through-a-wind-farm.

[8] https://www.qinetiq.com/en/blogs/Stealth-Wind-Farm-Case-Study.

As explained above, fiberglass cable cover systems, or other systems that allow cables to be covered in areas where they cannot be buried, should be investigated for use instead of rock burial to decrease risk to gear and vessels.

- *Is there existing guidance issued by U.S. agencies, state agencies, or international bodies that should be incorporated by reference?*

  The Crown Estate's FLOWW *Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds* (August 2015)[9] provides a thoughtful roadmap for conceptualizing compensation, based on the UK's years of experience with OSW development and fisheries impacts.

Environmental monitoring plan

- *What data should be collected to understand fishery performance (e.g., changes in catch, transit, and/or fishing itself) in and around offshore wind facilities? What methods should be used to analyze such data?*

  Area-specific catch per unit of effort ("CPUE") and catch composition information should be collected. VMS data and VTR/logbook data should be assembled to show fishing and transit. Fishery independent survey data (both federal and cooperative) should be maintained to the extent possible to address changes in areal abundance and recruitment, particularly for relatively sedentary species such as scallops and clams. Individual vessels also maintain tow plotter information going back years that have been made available on an individual basis to BOEM in the past.

  Such information should be collected, maintained, and analyzed in an integrated and consistent way (such as by NMFS), and not by individual developers in an ad hoc way. Data should start to be compiled proactively, starting as soon as possible, so that robust baseline data will be available from which to measure change. The scallop fishery is spatially managed using the SAMS model, and inputs needed to adapt this model to offshore wind development should be identified and utilized.

[9] https://www.thecrownestate.co.uk/media/1776/floww-best-practice-disruption-settlement-and-community-funds.pdf (last accessed January 6, 2022).

Financial compensation

- *Data-related considerations*

    - *What data sets should be used to calculate compensation for fishing losses?*

      Data sets should be sufficiently comprehensive to allow calculation and compensation of the full impacts of fishery losses from offshore windfarm development. These data include fishery-independent survey data; fishermen's VTR/logbook data; VMS data; dealer reports; CPUE information; repair bills and receipts relating to gear damage, loss, and replacement; bills and receipts for safety equipment and equipment upgrades needed to fish in and adjacent to windfarms; changes to vessel insurance costs; and changes in fuel use. The 2015 FLOWW guidelines, referenced above, provide a useful schematic diagram for consideration. Fishing permit values should also be considered. A scallop permit trades for approximately seven million dollars. That value is predicated in part on expected levels of fishing opportunity over the long run. A reduction in permit values due to lost fishing grounds and the attendant opportunities must be compensated.

    - *How should data be handled for fisheries that lack more complete data sets?*

      Not applicable to the Atlantic sea scallop fishery.

    - *What is the expected extent of historical data that should be considered in calculating losses not otherwise mitigated?*

      Scallop sets tend to return to the same areas, but some sets return to certain places (generally access areas) more often than others. The historical data need to be long enough to capture both consistent sets and occasional sets. The frequency of sets in a given area will need to be factored into any compensation calculation. For scallops, abundance time series over a 20-year period are reasonable to consider. That is roughly two generations of scallops.

- *How should future conditions, such as changing fishery presence and abundance due to climate change, be handled in calculating financial compensation?*

  Long-term abundance trends should be monitored on an area-by-area basis, which is possible with the scallop SAMS model. In order for climate change to be factored into any calculation, changes in abundance from year to year are not probative; time series of sufficient duration to account for historic inter-annual variability both inside and adjacent to windfarms will need to be calibrated and considered. Indirect windfarm impacts, such as windfarm impacts on larval settlement and recruitment, will need to be identified and accounted for before any declines are

attributed to climate effects.[10] In summary, climate change should not be used as a default excuse to avoid full and effective avoidance, mitigation, and compensation.

- *What role should relevant state agencies have in ascertaining estimated economic impacts and the mitigation process more broadly?*

In a November 21, 2021 letter[11] to BOEM, the states of Maine, Massachusetts, Connecticut, New Hampshire, New York, New Jersey, Rhode Island, and Virginia have shown themselves willing to be active parties and participants in developing fisheries mitigation and compensation processes. BOEM should take them up on that offer. Further, state utility commissions have tasked state agencies, such as NYSERDA, with developing fisheries impact identification and mitigation efforts. These state efforts should be considered regionally, however, to ensure that BOEM accounts for all impacts from windfarms on affected fishing vessels, and not just impacts to home-state vessels.

- *What types of guidance should be included regarding compensation (e.g., gear loss, fishing loss before or during construction, losses post-construction in the shorter term (up to five years post construction) or the longer term (life of the project), losses to upstream and downstream fishing related businesses, etc.), and why?*

BOEM's mitigation factors will need to recognize that different sorts of damage will occur over differing time scales, but each time scale will need to be accounted for to ascertain an accurate representation of losses caused by offshore wind construction and operation. For instance, certain costs may be directly attributable to construction, and these losses can be calculated over a discrete time period. Direct displacement effects can generally be measured within a medium time period (five years), while impacts on fishery abundance in windfarm areas and areas to which fishermen are displaced may occur over a longer time scale. Certain costs, such as gear loss, are very discrete but will need to be calculated over the life of the project. In addition, developers should be liable for their cables over the life of the project. A vessel and crew should be compensated for any damage that occurs to them if the vessel interacts with a cable that has come unburied. As well, the vessel should be held harmless for damage to the unburied cable.

FSF is also concerned that the existing compensation funds may be inadequate. Scallops are highly valued, and any future compensation program should be funded in a manner that

[10] *See, e.g.*, C. Chen et al., *Assessing Potential Impacts of Offshore Wind Facilities on Regional Sea Scallop Larval and Early Juvenile Transports*, NOAA Grant Number: NA19NMF450023 (May 6 and 12, 2021); available at https://s3.amazonaws.com/nefmc.org/Doc.14.a-UMASSD_WHOI_short_report_05_6_12_2021_revison.pdf).

[11] Available at https://www.nyftwg.com/wp-content/uploads/2021/11/fishery-compensation-letter-to-BOEM.pdf (last accessed January 6, 2022).

accounts fully for impacts from fishery displacement and mortality events. BOEM should identify the need to allocate a percentage of the lease sale proceeds and annual lease payments to a designated compensation fund that would supplement what is being allocated by developers. While BOEM may lack authority to fund such a program at present, the agency should make the need for this program known to Congress.

- *How should the costs of gear modification, gear design, and changes in practices in order to fish within wind turbine arrays be addressed?*

  If gear needs to be changed, discrete costs can be identified. The impacts on fishery production of changes in gear and fishing practices will need to be addressed over a longer time period. Area-by-area (if possible) baseline data relating to CPUE should be compared against CPUE data once gear and fishing practices are adapted to fishing within windfarms.

- *What considerations for administration of funds should be included in the guidance, recognizing BOEM cannot receive, distribute, or directly manage the funds?*

  The main consideration is that sufficient funds need to be available to ensure full compensation. BOEM should work to ensure that developers are subject to a uniform set of guidelines for all the factors addressed in this section of the RFI. In addition, a compensation program should not be a "one and done" affair, but will need to be administered over a time scale that accounts for the range of adverse effects that windfarms will have on fishermen. Moreover, as explained above, it is within BOEM's remit to identify the need for compensation funds to Congress and the public.

- *How can the guidance provide parameters for the inherent uncertainties posed by a new industry, dynamic environmental conditions, other ocean uses (e.g., shipping, telecommunications, sand and gravel) and climate change?*

  As explained throughout this response to the RFI, environmental and resource impacts will need to be assessed over time scales sufficient to account for as many of these inherent uncertainties as possible. The impacts of other ocean uses should be considered to the extent that they become impediments to fishing effort once displaced; to the extent these other ocean uses are currently impediments, such third-party impacts should be accounted for in good baseline data. For instance, if fishermen are displaced from their fishing grounds into shipping lanes, wind developers should compensate fishermen for that change. Climate change has been addressed above.

- *Eligibility considerations:*

    - *How should the guidance identify those eligible for compensation (e.g., by valid federal fishing permit, valid vessel registration, vessel monitoring system (VMS), automated identification system (AIS) or fishing vessel trip reports/logbooks, etc.)?*

      The answer to this question will depend on how an individual vessel fishes. Certain vessels operate in only one fishery. VMS data can also be cross-referenced with VTR/logbook information to confirm or identify how much a vessel has historically fished in an area in which a windfarm is constructed.

      The situation is more complicated where vessels have permits to fish in multiple fisheries and actively utilize these permits. Vessels will need to qualify for compensation in a fishery based on having a permit but also based on VTR/logbook information, which would better capture the variety and relative importance of various species to the vessel's overall landings.

    - *How should the guidance address which sectors (commercial, recreational, shoreside) or members of a particular sector (captains, owner/operator, crew, dealers, processors) are eligible under a compensation framework?*

      Participants eligible for compensation need to be active in the fishery and have a direct and documented financial tie to fishing activities that take place within a windfarm or in areas that are demonstrably adversely affected by that windfarm. RODA's Impact Fees Report details the broad range of shore-side impacts that should be accounted for to ensure complete compensation.

- *How often should fisheries mitigation guidance be re-evaluated?*

  Mitigation guidelines should be a living document. Rather than providing a specific timeline, updates to the guidelines should begin immediately following the initiation of windfarm construction and continue through the construction and operations phases. More specifically, once the impacts from construction and development start to manifest and become better understood, regular reviews should occur to ensure that the initial mitigation guidelines are adequate and truly adaptive.

* * *

Thank you very much for considering these comments. Please do not hesitate to contact us if you have any questions or require additional information.

Respectfully,

David E. Frulla
Andrew E. Minkiewicz
Bret A. Sparks
Counsel for the Fisheries Survival Fund