



*Responsible Offshore Development Alliance*

June 29, 2020

RADM Thomas Allan Jr., Commander U.S. Coast Guard, First Coast Guard District 408 Atlantic Avenue Boston, MA 02110	Department of Homeland Security ATTN: Chief Information Officer/Information Quality Officer 245 Murray Lane SW, Mail Stop 0136 Washington, DC 20528
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**Re: REQUEST FOR CORRECTION: Massachusetts/Rhode Island Port Access  
Route Study: Docket No. USCG-2019-0131**

Dear Commander Allan:

The Responsible Offshore Development Alliance (RODA) submits the following Request for Correction regarding the United States Coast Guard's (USCG) Notice of Availability of the Massachusetts and Rhode Island Port Access Route Study (MARIPARS).<sup>1</sup> As described in submissions from RODA and numerous fisheries experts in response to the Notice of Study and Draft Study, the MARIPARS contains serious foundational and analytical errors that merit correction as the conclusions are not supported by the record.

We are grateful that the USCG included the transit proposal submitted by RODA, and developed for years prior by multiple entities, in the Federal Register materials. However, the information disseminated in the Final Study does not evidence a basis of objective data and analysis. We do not purport to question the USCG's deep knowledge and professionalism regarding maritime safety but echo the concerns of thousands of fishermen and fisheries experts that the MARIPARS' conclusions remain wholly unsupported and unsubstantiated by its associated record. The Information Quality Act (IQA) provides a mechanism to request a correction to this highly influential public document, the process for which "should serve to address the genuine and valid needs of the agency and its constituents without disrupting agency processes."<sup>2</sup> We therefore respectfully request the initiation of that process.

**I. Required Information**

The following is provided in accordance with the Department of Homeland Security's "Information Quality Implementation" guidance.<sup>3</sup>

**Description of Information Needing Correction:**

The Areas Offshore of Massachusetts and Rhode Island Port Access Route Study: Final Report and corresponding Notice of Availability (Docket Number USCG-2019-0131; May 14<sup>th</sup> 2020).

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<sup>1</sup> 85 Fed. Reg. 31792 (May 27, 2020).

<sup>2</sup> 67 Fed. Reg. 8452, 8458 (2002).

<sup>3</sup> DHS Directives System, Instruction Number: 139-02-001, Revision Number: 01 (Nov. 27, 2019).

Manner in Which Information Does Not Comply with IQ Guidelines:

The information contained in the MARIPARS contains fundamental omissions and calculation errors that compromise the quality, objectivity, utility, and integrity of the information contained therein.

Manner Disseminated and Date of Dissemination

Federal Register Notice: 85 Fed. Reg. 31792 (May 27, 2020).

Specific Errors Cited for Correction and Proposed Correction of Remedy

The MARIPARS contains five key errors, which are presented along with the corresponding section number of this letter that provides more detailed information below.

- (1) Inappropriate selection of fisheries data sources (Section III)
- (2) Complete absence of analysis of fishing vessel operational requirements (Section IV)
- (3) Unjustified analysis of only one layout design rather than a range (Section V)
- (4) Inclusion of clear mathematical errors (Section VI)
- (5) False assertions regarding radar interference (Section VII)

Proposed corrections: (A) Revise the MARIPARS document and relevant analyses to include data descriptive of fisheries operations and accurate calculations; (B) Clearly describe limitations and caveats in the MARIPARS; (C) Conduct peer review in accordance with OMB guidance on highly influential scientific assessments; and (D) Enjoin use of challenged information as a basis for regulatory action by any federal agency, including the Bureau of Ocean Energy Management, pending resolution of this request.

How Petitioner is Affected and How Correction Would Benefit Them

RODA is a membership-based coalition of fishery-dependent companies and associations committed to improving the compatibility of new offshore development with their businesses. Our approximately 170 members are comprised of major fishing community groups, individual vessels, and shoreside dealers operating in federal and state waters of the New England, Mid-Atlantic, and Pacific coasts. Many of RODA's members own or operate fishing vessels that work or transit in the MA/RI wind energy areas or are members of communities that include such individuals. Our members will be directly impacted by activities that influence safety at sea and displacement from fishing grounds that are converted to industrial energy uses. As the MARIPARS will directly inform the configuration of approximately 2000 wind turbines in an area fished by our members, and will likely be precedential in regions where other members fish, RODA is a directly impacted group. Correction of the MARIPARS will improve certainty regarding the efficacy of safety measures and the public's understanding and implementation of those measures, directly benefitting our members and all ocean users.

Petitioner's Contact Information:

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## II. The MARIPARS Is an “Influential” Document under the IQA

The MARIPARS squarely fits the applicability criteria issued by the White House’s Office of Management and Budget (OMB) regarding federally disseminated information, and therefore a defined set of information quality standards apply.

### *a. Information Quality Standards*

OMB promulgated Information Quality Act (IQA) guidance to federal agencies for “ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information)” such agencies disseminate.<sup>4</sup> Special provisions apply to influential information. These guidelines have been revised several times, and certain agencies including the Department of Homeland Security have adopted additional agency-specific guidance that builds on the controlling OMB guidance.

#### Objectivity

OMB has provided all federal agencies with requirements for agency presentation of information to support “objectivity.” The OMB guidelines state, in the general definition of “objectivity,” that an agency “needs to identify . . . the supporting data and models so that the public can assess for itself whether there may be some reason to question the objectivity of the sources.” and that “[i]f an agency is responsible for disseminating influential scientific, financial, or statistical information, agency guidelines shall include a high degree of transparency about data and methods to facilitate the reproducibility of such information by qualified third parties.”<sup>5</sup>

#### Influential Information

Information disseminated by agencies is deemed “influential” if it “will have or does have a clear and substantial impact on important public policies or important private sector decisions.”<sup>6</sup> Influential scientific information is subject to “reproducibility” as a component of “objectivity.” “Reproducibility” means that “the information is capable of being substantially reproduced, subject to an acceptable degree of imprecision.”<sup>7</sup>

OMB has determined that a scientific assessment, has specific additional requirements if it is “highly influential;” that is, if:

the agency or the OIRA Administrator determines that the dissemination could have a clear and substantial impact on important public policies (including regulatory actions) or private sector decisions with a potential effect of more than \$500 million in any one year or that the dissemination involves precedent setting, novel and complex approaches, or significant interagency interest.<sup>8</sup>

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<sup>4</sup> Pub. L. 106-554, § 515 (2000).

<sup>5</sup> 67 Fed. Reg. at 8459.

<sup>6</sup> *Id.* at 8460.

<sup>7</sup> *Id.*

<sup>8</sup> Office of Management and Budget, *Revised Information Quality Bulletin for Peer Review* (Apr. 15, 2004), at 20.

A Highly Influential Scientific Assessment (HISA) is subject to minimum requirements of peer review which, generally, include that an agency must make publicly available a written charge to the peer reviewers, the peer reviewers' report and agency's responses, and that peer reviewers possess the necessary expertise, address potential conflicts of interest, and are independent from the agency. Agencies are also encouraged to use the National Academy of Science's panel selection criteria in populating peer review panels.<sup>9</sup>

In 2019, OMB directed all federal agencies to update their guidelines for implementing the IQA.<sup>10</sup> To the best of our knowledge, neither the USCG or the Department of Homeland Security has implemented clear guidelines to build upon the OMB guidance in determining whether disseminated information is "influential."<sup>11</sup> Curiously, DHS Information Quality Standards website currently states:

Based on a review conducted, the Department of Homeland Security (through the Science and Technology Directorate) believes that it does not currently produce or sponsor the distribution of influential scientific information (including highly influential scientific assessments) within the definitions promulgated by OMB.<sup>12</sup>

Regardless of this disclaiming statement on a website and lack of clear agency-specific guidance, the OMB guidelines apply to all federal information that fits their criteria, including the MARIPARS.

#### Utility and Integrity

The OMB guidelines define "utility" as the "usefulness of the information to its intended users." They further define integrity as "security of information — protection of the information from unauthorized access or revision, to ensure that the information is not compromised through corruption or falsification." These definitions appear intended to be straightforward and are customarily interpreted as such.

#### ***b. The MARIPARS Is "Highly Influential" and Therefore Requires Peer Review***

The MARIPARS fits squarely within the OMB and DHS's own definition of "influential." Standing alone, it is a desktop study with the goals, *inter alia*, of determining present and potential traffic density and the necessity and nature of modifications to routing measures required to provide safe access routes for vessel traffic proceeding to and from places in the United States.<sup>13</sup> The USCG explicitly states "a PARS is a study, not a rulemaking"<sup>14</sup> and, viewed in isolation, it is not. The issue at hand is that regardless of the wording of the MARIPARS' associated Federal Register notice, it was *in fact*

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<sup>9</sup> *Id.* at 2.

<sup>10</sup> Office of Management and Budget, *Memorandum for the Heads of Executive Departments and Agencies: Improving Implementation of the Information Quality Act*, M-19-15 (Apr. 24, 2019).

<sup>11</sup> See U.S. Department of Homeland Security, *DHS Directives System Instruction Number: 139-02-001* Revision Number: 01 (Nov. 27, 2019), which defines "influential" but provides no criteria for evaluation.

<sup>12</sup> See <https://www.dhs.gov/information-quality-standards>.

<sup>13</sup> See <https://www.navcen.uscg.gov/?pageName=PARSBackground>.

<sup>14</sup> 85 Fed. Reg. at 31792.

conducted in order to recommend layouts to BOEM for the New England offshore wind energy lease areas. To claim that such a recommendation (from an agency of maritime safety experts, to one without any such expertise) is unlikely to have a “clear and substantial impact” on decision making would be naïve at best.

The USCG attempted to qualify that the MARIPARS would not directly, in itself, determine regulatory measures but that the agency “will evaluate the navigational safety risks of each [wind energy project] proposal on a case-by-case basis.”<sup>15</sup> This statement directly contradicts with language in the same notice that it will “revisit the need for informal and formal measures to preserve safe, efficient navigation and [search and rescue] operations” **only if** “subsequent MA/RI WEA project proposals diverge from a standard and uniform grid pattern approved in previous projects.”<sup>16</sup>

The project that will set the precedent for these “subsequent” projects is Vineyard Wind I. Since publication of the MARIPARS, BOEM published the Supplemental Environmental Impact Statement (SEIS) for that project, with the proposed action noted as the same layout analyzed in the MARIPARS. In a far departure from a project-specific analysis, BOEM relies almost exclusively on MARIPARS in determining that the 1x1 grid would have only negligible to moderate direct and indirect impacts to navigation and vessel traffic, and only “moderate” cumulative impacts across all of the lease areas.

Repeatedly throughout the SEIS, BOEM cites the draft MARIPARS finding that “the 2020 draft Massachusetts and Rhode Island Port Access Route Study (MARIPARS; USCG 2020) provided quantitatively-derived recommendations for turbine spacing and transit lane widths within the wind arrays.”<sup>17</sup> The substance of this recommendation (i.e. uniform grid with 1 nautical mile spacing with diagonal lanes of approximately 0.7 nautical miles wide) does not change from the draft to the final version of the MARIPARS. BOEM then goes on to state:

As a cooperating agency with BOEM, BOEM and USCG will continue to consult over the course of the NEPA process for the proposed Project as it relates to navigational safety and other aspects, including the impacts associated with alternatives assessed. The USCG will make a final recommendation on transit routes after the comments received during the Draft MARIPARS comment period are assessed... Based on the foregoing, BOEM does not believe that there is incomplete or unavailable information on navigation and vessel traffic that is essential to a reasoned choice among alternatives.<sup>18</sup>

In short, BOEM is basing its understanding of the impacts of the alternatives, and thus its regulatory decision, on the information provided by the USCG’s MARIPARS. Therefore, the information provided by the MARIPARS is highly influential as it has “a clear and substantial impact on important public policies” as described by OMB. It clearly satisfies every one of the OMB’s other criteria for an HISA as well, as BOEM’s decision will have an equally clear and substantial impact on a private sector decision

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<sup>15</sup> *Id.* at 31796.

<sup>16</sup> *Id.*

<sup>17</sup> Bureau of Ocean Energy Management, *Vineyard Wind 1 Offshore Wind Energy Project Supplement to the Draft Environmental Impact Statement* OCS EIS/EA BOEM 2020-025 (June 2020), at ES-2 (fn).

<sup>18</sup> *Id.*

with well over \$500 million in annual effects, is precedent setting (i.e. the first utility-scale offshore wind energy project in U.S. federal waters), involves novel and complex approaches, and has generated obviously significant interagency interest.

It is worth noting that, although not explicitly recognized as a factor of “influence” in the OMB guidelines, the public’s attention to this issue is additional clear evidence of its influence—a level of attention that would be incredible for a simple “study” with no influence upon rulemaking. This is evidenced by the likely hundreds of media articles on the topic and the congratulatory fanfare from several public and private sector groups who share one trait in common: they are experts in neither maritime safety nor commercial fishing. This praise, much of which appeared on the record through public comments or in media statements, was universal in its messaging that the MARIPARS authoritatively resolved the matter of fishing vessel safety in wind energy arrays. Quite simply, it is *not* resolved if fundamental questions were not addressed—and they were not, as described below.

### ***c. Public Comment Process Does Not Disqualify IQA Review***

It is difficult to determine the exact process with which the USCG reviews IQA Requests for Correction. We are aware of DHS guidance stating that the administrative complaint mechanism does not apply to “certain disseminations of information [that] include a comprehensive public comment process,”<sup>19</sup> but other guidance documents directly contradict this.<sup>20</sup> Legislative history regarding the IQA clearly demonstrated Congressional intent that the Office of Management and Budget (OMB) would have regulatory authority over the quality of information used and disseminated in agency rulemaking and other decision making, and the Administrative Procedure Act mandates a public notice and comment period for such actions, as does OMB guidance.<sup>21</sup> If IQA was not intended to apply to information associated with rulemaking, since rulemaking almost always includes public comment processes, nearly all “influential” information would be exempt rendering the entire law moot. Clearly this outcome would not comport with the public interest.

In this matter, the comment period associated with the MARIPARS does not preempt applicability of IQA review, as comments directly related to information quality in the draft document were wholly unaddressed. Moreover, the IQA requirement for peer review of HISA cannot be cured through notice and comment. Therefore, this RFC must be considered on its merits.

## **III. The MARIPARS Relied on Inappropriate Data Sources**

### **→ Relevant IQA criteria: *Objectivity, Utility***

Fishing vessels operating in, or transiting through, the MA/RI wind energy areas (WEAs) are monitored in different ways. Prior to initiation of the MARIPARS study, and throughout its development, multiple fisheries groups including RODA informed the USCG that the majority of

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<sup>19</sup> U.S. Department of Homeland Security, *DHS Directives System Instruction Number: 139-02-001* Revision Number: 01 (Nov. 27, 2019), at 11.

<sup>20</sup> U.S. Department of Homeland Security, *Information Quality Guidelines* (2011) (available at <https://www.dhs.gov/sites/default/files/publications/dhs-iq-guidelines-fy2011.pdf>), at 8 (“Information in rulemakings and other documents concerning which public participation and comment are sought are subject to these guidelines”).

<sup>21</sup> See 66 Fed. Reg 49718 (Sept. 28, 2001), at 49720-21.

fishing vessels in the MA/RI WEAs are not using Automatic Identification System (AIS) technology, and therefore it should not be used as a primary data source for evaluating vessel behavior.<sup>22</sup> These comments were echoed in workshops by the National Marine Fisheries Service<sup>23</sup> and in formal comments by BOEM.<sup>24</sup> Despite this clearly communicated information, the MARIPARS nevertheless analyzed and cited only AIS data to represent fisheries activity in the WEA.

The documented study inputs from public outreach were likewise flawed. The MARIPARS contains a list of nearly 900 contacts included in “Stakeholder Outreach.” It includes numerous recreational fishermen, municipal and state authorities, environmental advocacy groups, offshore wind developers, ferry companies, reporters, and even police departments. Only three commercial fisheries contacts are included; one of which is not an active fisherman but a Fisheries Liaison officer for one of the wind developers. It is unclear what input was received from these contacts since the MARIPARS contains no additional information about the list. However, given the failure to address written comments this appears to be an alternative avenue the USCG used for input. Including only two active fishing contacts in the formal outreach plan is not sufficient to inform a study primarily focused on fishing vessels.

#### **IV. The MARIPARS Offers Conclusions Regarding Fisheries Access Without Any Supporting Information**

→ Relevant IQA criteria: *Objectivity, Utility, Reproducibility*

The MARIPARS purports to characterize appropriate turbine layouts to maintain fishing activity within the WEA but there is no information whatsoever as to vessels’ spatial requirements or other important factors when engaging in fishing (i.e. when gear is deployed and hauled). Similar to the request to use spatial data sets that best capture transit in the area, fisheries participants and others expressly requested the inclusion of this information in the MARIPARS analysis and noted that spatial needs while utilizing mobile gear are different than while transiting.<sup>25</sup> The MARIPARS boldly asserts that “the recommended standard and uniform grid pattern provide sufficient space for certain vessels that fish in the WEA to continue fishing after the wind farms are constructed” with absolutely no supportive evidence, and then goes even further by concluding that should larger transit corridors be adopted, “the reduced turbine spacing would largely preclude fishing in the WEA.” Such

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<sup>22</sup> See, e.g., Letter from RODA to USCG regarding Port Access Route Study: The Areas Offshore of Massachusetts and Rhode Island (May 28<sup>th</sup>, 2019) (“As we and others have noted, AIS and VMS data provide important information to understand movement patterns for some vessels and fisheries, but these data streams are not fully representative ... vessels’ activities are best understood by examining a broader range of data sources”).

<sup>23</sup> See RODA, “December 3, 2018 Workshop Documents” <https://rodafisheries.org/portfolio/december-3-2018-workshop-documents/>.

<sup>24</sup> See Letter from James Bennett, Program Manager, Office of Renewable Energy Programs (BOEM) to Edward LeBlanc, Chief, Waterways Division Coast Guard Sector Southeastern New England (June 4, 2019), *available at*: <https://www.regulations.gov/document?D=USCG-2019-0131-0044> (“As AIS is only required in fishing vessels 65 feet or greater in length, supplementing with VMS data can further characterize area vessel use”).

<sup>25</sup> BOEM even repeated this request in its comments to the Draft MARIPARS on March 24<sup>th</sup>, 2020 (“BOEM again requests that the USCG consider objective vessel needs, such as typical fishing vessel maneuverability ... each vessel type requires specific sea space to safely maneuver”).

statements would indicate that the USCG has analyzed fishing footprints and risks specific to the gear types used in the area and determined minimum viable spacing for various operations, perhaps even in differing sea states. However, this information is perplexingly absent.

The objectives of a PARS include “[p]otential traffic density” indicating that “it is the purpose of the study to analyze, to the extent possible, changes to traffic patterns and density.”<sup>26</sup> The MARIPARS fails to achieve this mandate too, as it contains no analysis of potential changes in traffic patterns mariners will be forced to take as a result of infrastructure build out. It only includes such basic information as the number of vessels currently operating in the area as a “Vessel Transit Summary” appendix and does not consider how many are expected to do so in the future, including numbers of vessels associated with offshore wind energy activity. Moreover, it is unclear how these vessels were counted and whether that census is also solely based on AIS data. Likewise, weather information is listed in an appendix but never analyzed. At a minimum, the MARIPARS must document areas with potential funneling and bottlenecks of mariners and analyze the increase in traffic to ports and wind energy areas of service vessels for construction, operations and maintenance. Introducing an entirely new ocean user with the resultant increase in traffic and spatial conflicts is certain to change use patterns, and this outcome is entirely overlooked.

#### **V. The MARIPARS Was Improperly Narrow by Focusing on Only One Layout Design**

→ Relevant IQA criteria: *Objectivity, Integrity, Utility*

Despite the document referencing submitted comments, public input, and requests for the MARIPARS to quantify the risk associated with the inclusion of navigation safety corridors (referred to incorrectly by non-Coast Guard laymen—RODA included—as “transit lanes”) in the MA/RI WEA, the analysis it contains does not do so. Furthermore, the MARIPARS gives no justification for the dismissal of any possible routing measure by simply stating “after considering all options and the vessel traffic patterns within the MA/RI WEA, a standard and uniform grid pattern with at least three lines of orientation throughout the MA/RI WEA would allow for safe navigation and continuity of USCG missions through seven adjacent wind farm lease areas over more than 1400 square miles of ocean.”<sup>27</sup>

RODA submitted a proposal on January 3<sup>rd</sup>, 2020 requesting analysis of a one mile by one mile array layout in addition to dedicated navigation safety corridors of four-mile width, which was correctly noted in the Notice of Study.<sup>28</sup> It was therefore surprising when, in the Notice of Availability, the USCG dismissed consideration of dedicated transit corridors by stating that they would “actually provide far less area” than the recommended array since “project developers have made clear that larger corridors ... would result in reduced [turbine] spacing.”<sup>29</sup> As stated above, no numbers or mathematical analyses were provided to validate this statement and an objective study would have considered a well-substantiated range or minimum required spacing rather than focusing on only one possible outcome. Instead, the MARIPARS outcome aligned exactly with that submitted by the

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<sup>26</sup> See <https://www.navcen.uscg.gov/?pageName=PARSBackground>.

<sup>27</sup> 85 Fed. Reg. 31792 (May 27, 2020).

<sup>28</sup> 85 Fed. Reg. 5222 (Jan. 29, 2020).

<sup>29</sup> 85 Fed. Reg. at 31795.



five New England lease-holding offshore wind energy developers on November 1, 2019—well into the time period in which the USCG was conducting its analysis.<sup>30</sup>

A transparent and evidence-based review, moreover, would require the USCG to provide facts and calculations to support this assertion. Instead, it relied on developers' attestations that there are a predetermined number of turbines that will be placed in the wind energy areas—including those that do not yet have power purchase agreements. That supposition is at odds with anything in the public record, which in fact supports the opposite conclusion.

***a. Regulators Have Consistently Stated No Project Decisions Are Made Until an EIS***

Throughout the development of wind energy projects in U.S. federal waters, fishermen have raised concerns through every available public comment period regarding the significant impacts this activity will have to their businesses and communities—including concerns regarding safety at sea. They have asked, repeatedly, through RODA and on their own behalf, for minimization and mitigation of conflicts *before* key project decisions are made.

In response, BOEM and other regulatory entities have consistently stated that the entire planning and surveying process, from area identification to lease issuance to survey and assessment activities, has negligible impacts to fishing, and only once a Construction and Operations Plan (COP) is reviewed do fisheries impacts merit analysis. Their argument is that *no* binding or irreversible project decisions have been made to that point, and that fisheries interactions can be effectively de-conflicted through preparation of the Environmental Impact Statement immediately preceding final project approval. To date, no project has received such approval, and most of the New England project areas have not even developed COPs. Some examples of these statements include:

- “After lease issuance but prior to COP approval, BOEM retains the authority to prevent the environmental impacts of a commercial wind power facility from occurring.”<sup>31</sup>
- A developer’s investment in a lease is “made with full awareness that its proposals for a wind energy facility may be rejected and that it may never construct or operate such a facility.”<sup>32</sup>
- BOEM does not consider the impacts resulting from the development of a commercial wind power facility within the WEA, to be reasonably foreseeable at [the time of lease issuance]. Based on “the experiences of the offshore wind industry in northern Europe, the project design and the resulting environmental impacts are often geographically and design specific,

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<sup>30</sup> The mere fact that the developers submitted a formal, widely-publicized layout proposal to the USCG while it was conducting the MARIPARS provides further evidence of the study’s high degree of influence; it is difficult to imagine how a simple informational study would have merited the investment otherwise.

<sup>31</sup> Bureau of Ocean Energy Management, *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New York: Environmental Assessment*, OCS EIS/EA BOEM 2016-042 (June 2016), at 1-7.

<sup>32</sup> *Fisheries Survival Fund v. Jewell*, 2018 WL 4705795 (D.D.C. Sept. 30, 2018).

and it would therefore be premature to analyze environmental impacts related to potential approval of any future COP at this time.”<sup>33</sup>

Despite these clear statements that project-controlling design decisions cannot be made before project finalization, there have already been instances where developers’ assertions—even incorrect ones—regarding project parameters have unevenly influenced the regulatory process. A notable example is the Draft Environmental Impact Statement for the Vineyard Wind project, which failed to thoroughly analyze any alternative in which turbines had more than 1-mile spacing and primarily analyzed only a “diamond-shape” turbine spacing (aligned NW-SE), based on the developer’s statement that such layouts would be economically unfeasible and therefore equivalent to the “no action” alternative.<sup>34</sup> This stands in stark contrast to the E-W proposal the developers submitted to the USCG in November 2019 (which is analyzed in the MARIPARS) that had yet to appear elsewhere in any federal public records—only in the media—at the time of the MARIPARS’ publication.

***b. The Record Clearly States Wider Transit Lanes May Be Additional to a Grid Pattern***

In fact, the record supports the opposite conclusion; developers have known since before drafting COPs (or even obtaining leases, in the case of half of the New England areas) that transit lanes of at least two miles will likely create no-build areas within their leases. For example:

- BOEM expressly referenced the ongoing development of these proposed transit lanes prior to the auction in order to alert prospective bidders of the possibility of no-build areas.<sup>35</sup>
- Working group processes in Rhode Island and Massachusetts clearly and consistently requested both a “1x1” East-West grid layout *and* additional lanes for safe transit starting in early 2018.

Simply put, if the mere fact of procuring a lease determines the number of turbines that will be included in a project and create obligations on federal agencies such as the USCG to accommodate that number in analysis and decision making, that information needs to be included in the environmental review process for lease issuance (or perhaps even earlier, when states announce offshore wind power goals). The fact that this has not yet occurred for the New England projects means that no prejudicial decisions, or analyses underpinning such decisions, can be made at this time.

If the number of turbines is predetermined before any attempts at conflict reduction are made, by what means do agencies and developers intend to achieve their promises of coexistence? Moreover,

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<sup>33</sup> Bureau of Ocean Energy Management, *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New York: Environmental Assessment*, OCS EIS/EA BOEM 2016-042 (June 2016), at 4-132.

<sup>34</sup> Vineyard Wind DEIS at 2-16; *see also* Letter from Erich Stephens, Chief Development Officer, Vineyard Wind to Grover Fugate, Executive Director, Rhode Island Coastal Resources Management Council (Nov. 19, 2018) at 18 (“it is not possible to reorient the entire project in an east west direction”).

<sup>35</sup> *See* BOEM, *Atlantic Wind Lease Sale 4A - Supplemental Information for Bidders: Potential Vessel Transit Corridors* (Dec. 10, 2018), at <https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/MA/Vessel-Transit-Corridor-Supplemental-Information-for-Bidders-ATLW-4.pdf>.

legal precedent requires a balancing of uses (such as those authorized under the Magnuson Stevens Fisheries Management and Conservation Act and Outer Continental Shelf Lands Act) in order to identify the best solutions for shared natural resources.

It would appear as though the USCG chose to only analyze the layout preferred by the developers, despite the agencies' stated public policy objectives and legal mandates for balancing uses. Or, perhaps, the USCG intended its MARIPARS recommendations to set the lower bound of an acceptable range and the leaseholding developers simply chose to propose layouts consistent with that forthcoming recommended minimum? The salient point is that we, and the public at large, cannot determine why the developers' agreed-upon layout and the MARIPARS' sole layout were identical when no information regarding the USCG's study progress was publicly available at the time of the proposal, the federal government continues to assert that no project design decisions have been made, and insufficient information is available in the MARIPARS to evaluate the methodology and inputs. This clearly indicates that the MARIPARS information quality is insufficient.

#### **VI. MARIPARS Included Overt Errors in Calculations**

→ Relevant IQA criteria: *Reproducibility, Utility, Objectivity*

As stated in the comment letter submitted by RODA in March 2020 on the draft study (Appendix I and incorporated herein by reference), there are calculation errors that are not addressed in the final MARIPARS. For example, based on a peer review conducted by Dr. Thomas Sproul, the justification of 1x1 gridded turbine placement is incorrect in at least 2 ways. One, the analysis fails to use the USCG's own guidance for Closest Point of Approach for a fixed hazard and instead relies on methodology from a Netherlands study cited in British guidelines.<sup>36</sup> Second, in using this alternative methodology to calculate adequate spacing between fixed hazards, the calculations fail to include an UNCLOS Safety Zone (of 500m) on each side of the "transit lane." There are other errors clearly outlined in RODA's, Dr. Sproul's, and others' comments submitted on the draft MARIPARS, and yet the final version fails to address any of those errors or provide an explanation as to why in the responses to comments section.

#### **VII. MARIPARS Contains Inaccurate Information Regarding Existing Knowledge of Radar Interference**

→ Relevant IQA criteria: *Objectivity, Utility*

As previously stated in RODA's comment letter on the draft MARIPARS analysis, the study arbitrarily ignores available information on concerns associated with radar interference.

We reviewed several studies that address correlations between wind turbines and marine radar interference. To date, the USCG is not aware of an authoritative scientific study that confirms or refutes the concern that WTGs will degrade marine radar.<sup>37</sup>

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<sup>36</sup> U.K Maritime and Coastguard Agency, *Marine Guidance Note 543, Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response* (Feb. 2016).

<sup>37</sup> MARIPARS at 26.

This statement is unsubstantiated, incorrect, and disregards well-documented information demonstrating interference of wind turbines on radar functioning. The Department of Defense has repeatedly raised concerns that “radar clutter (i.e. false targets) from the wind turbine blades would seriously impair the agency’s ability to detect, monitor, and safely conduct air operations.”<sup>38</sup> Similar concerns have been expressed by the National Security Council,<sup>39</sup> and in several European countries with existing wind arrays.<sup>40</sup> Furthermore, an entire interagency Memorandum of Understanding has created the Wind Turbine Radar Interference Working Group (WTRIM) that is dedicated to identifying mitigation strategies for radar interference.<sup>41</sup> The USCG has also compiled, studied, and documented a significant amount of information demonstrating marine radar degradation from offshore wind turbines in its review of the Cape Wind project as far back as over a decade ago. RODA documented all of these sources in its comments (Appendix I) and the USCG provided no response as to why these studies were not included in the final MARIPARS. As numerous agencies and private sector groups from multiple industries have expressed real concern with radar interference from wind turbines, it is irresponsible for the MARIPARS analysis to dismiss this potential conflict without conducting a comprehensive investigation and clearly documenting what information is known and unknown.

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Thank you for your consideration of this Request for Correction and your continued attention to these important issues. Please do not hesitate to reach out if we can provide additional information or clarification.

Sincerely,



Annie Hawkins, Executive Director



Fiona Hogan, Research Director

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<sup>38</sup> A brief history of the federal government’s awareness of this issue is included in U.S. Department of Energy, Federal Interagency Wind Turbine Radar Interference Mitigation Strategy (Jan. 2016), at 2 (available at <https://www.energy.gov/sites/prod/files/2016/06/f32/Federal-Interagency-Wind-Turbine-RadarInterference-Mitigation-Strategy-02092016rev.pdf>).

<sup>39</sup> Sandia National Laboratories, IFT&E Industry Report: Wind Turbine-Radar Interference Test Summary, SAND2014-19003 (Sept. 2014) (available at: [https://www.energy.gov/sites/prod/files/2014/10/f18/IFTE%20Industry%20Report\\_FINAL.pdf](https://www.energy.gov/sites/prod/files/2014/10/f18/IFTE%20Industry%20Report_FINAL.pdf)).

<sup>40</sup> United States Department of Defense, Report to the Congressional Defense Committees: The Effect of Windmill Farms on Military Readiness (2006) (available at: <http://www.defense.gov/pubs/pdfs/windfarmreport.pdf>).

<sup>41</sup> U.S. Department of Energy, Federal Interagency Wind Turbine Radar Interference Mitigation Strategy (Jan. 2016), at 2 (available at <https://www.energy.gov/sites/prod/files/2016/06/f32/Federal-Interagency-WindTurbine-Radar-Interference-Mitigation-Strategy-02092016rev.pdf>).

A handwritten signature in blue ink that reads "Lane Johnston". The signature is fluid and cursive, with the first name "Lane" and the last name "Johnston" clearly legible.

Lane Johnston, Programs Manager  
*Responsible Offshore Development Alliance*

cc: Dr. Walter Cruickshank, Acting Director  
Bureau of Ocean Energy Management

# Appendix I



*Responsible Offshore Development Alliance*

March 16, 2020

RADM Andrew J. Tiongson, Commander  
U.S. Coast Guard, First Coast Guard District  
408 Atlantic Avenue  
Boston, MA 02110

**Re: Port Access Route Study: The Areas Offshore of Massachusetts and Rhode Island; Docket No. USCG-2019-0131**

Dear Commander Tiongson:

The Responsible Offshore Development Alliance (RODA) submits the following comments regarding the United States Coast Guard's (USCG) Notice of Availability of the draft report for its Massachusetts and Rhode Island Port Access Route Study (MARIPARS) (Draft Study).<sup>1</sup>

RODA is a membership-based coalition of fishery-dependent companies and associations committed to improving the compatibility of new offshore development with their businesses. Our approximately 170 members are comprised of major fishing community groups, individual vessels, and shoreside dealers operating in federal and state waters of the New England, Mid-Atlantic, and Pacific coasts.

As detailed in previous comments to USCG and other regulatory agencies, RODA has played an ongoing role in the development of recommendations for turbine layout, orientation, and fishing vessel transit needs in wind energy arrays. Our members greatly value their direct work with these agencies—as well as offshore wind developers—in collaborating on mutually satisfactory solutions that will support coexistence among multiple ocean uses. RODA strives to move quickly toward a future in which fishermen can work together with project proponents and federal and state authorities to productively and efficiently approach project design and mitigation in a manner that effectively reduces risk for both industries.

Despite what we believe are shared goals toward collaboration, as offshore wind energy development is an emerging use of the marine environment it is absolutely imperative that early projects do not set precedents that will lead to large-scale displacement and economic harm to existing sustainable fishing practices. RODA thus continues to urge the regulatory authorities including USCG to exercise special care in conducting analyses and gathering input from impacted fishermen in order to ensure that impacts are effectively addressed.

The comments below detail a number of concerns regarding the Draft Study as it stands. First, the analysis places greater priority on potential future uses of the MA/RI Wind Energy Areas (WEA), rather than on existing uses, by only analyzing one layout—that submitted proposed by the wind energy developers. While previously submitted comments, including layouts with potential transit lanes, are noted in the report, the MARIPARS in its current iteration does not give a full investigation

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<sup>1</sup> 85 Fed. Reg. 5222 (Jan. 29, 2020).

of these alternatives and these must be included in the final report. Second, the analysis fails to substantiate the specific impacts that will befall on fishing vessels due to their unique nature. Understanding more than how a vessel will get from point A to point B is prudent as fishermen are often constrained by distinctive operational and management requirements, such as days at sea, that others transiting through an area do not need to consider. Third, based on an expert peer review, the calculations used to justify the 1x1 nm grid spacing do not follow USCG's own guidance to determine the Closest Point of Approach (CPA) for a fixed hazard, which is the appropriate methodology to use and would require substantially wider spacing for transit routing in a gridded array layout. Fourth, despite noting the presence of studies on radar interference within a WEA, the report fails to review these studies or produce any recommendations for mitigation of such interference. RODA respectfully requests that USCG conducts a more in-depth analysis on these and the other key issues raised herein prior to finalizing the MARIPARS report.

### **I. USCG Must Provide Impartial Analysis based on Safety, Not Energy Contracts**

The docket supporting the Draft Study correctly summarizes the numerous discussions, workshops, and other efforts by RODA and a large number of our members leading up to the initiation of the MARIPARS.<sup>2</sup> We especially appreciate USCG's inclusion of the original map RODA developed showing traditional fishing vessel transit routes as well as our letter dated January 3, 2020 requesting analysis of dedicated routing corridors, and hereby reiterate that request.

USCG's duty under the goals of MARIPARS is "to enhance navigational safety by examining existing shipping routes and waterway uses."<sup>3</sup> Rather than starting from a neutral position focusing on existing uses and safety, however, the Draft Study effectively over-prioritizes potential *future* uses by only analyzing the array layout proposed in the November 1, 2019 letter from the wind energy developers. USCG appears to justify this decision by stating that it "is a cooperating agency in [the Bureau of Ocean Energy Management's (BOEM)] review process and has no legal authority to direct placement or orientation of wind turbines."<sup>4</sup> Whether or not USCG can dictate the exact placement of wind turbines, it is the nation's foremost maritime safety expert, with the mission "to ensure our Nation's maritime safety, security and stewardship."

RODA and its members have expressed repeatedly that the fragmented offshore wind energy decision making process does not sufficiently include consideration of fishery needs early enough in the planning process to effect meaningful compatibility. This remains a systemic problem. With regard to the New England lease areas, the agencies needed to adopt a structured approach to maintaining fishing vessels' ability to safely transit the area much sooner.

Fragmentation in the planning process led to the execution of the first power purchase agreement (PPA, on July 31, 2018) with a state before any federal or state regulatory effort to identify fishing vessel transit needs *throughout the entirety of the MA/RI lease areas*, despite a high degree of

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<sup>2</sup> RODA members have informed us that the docket does not include several written communications between fishery representatives and USCG after the November 1, 2019 submission of the developers' joint proposal.

<sup>3</sup> 84 Fed. Reg. 11314 (Mar. 26, 2019).

<sup>4</sup> 85 Fed. Reg. at 5223. Presumably this statement relates to the interpretation of the "One Federal Decision" policy that BOEM has ultimate authority over all decisions regarding offshore wind energy project approvals.



dependence on the area for such activity. As a result, that first project, and then others, were contractually locked in to produce energy in amounts and at prices that became difficult to adjust. Most fishermen who attended transit discussions in the second half of 2018 recognized this difficulty and thus attempted to “negotiate” a solution that would be considerate to the developers with contracts but still maintain safe transit. As noted in the docket, those efforts failed to reach a full consensus, both between fishermen and developers but also amongst the multiple leaseholders.

Fishermen, developers, federal, and state agencies collectively recognized the difficulties associated with defining appropriate transit lanes after PPAs during the RODA transit workshops in late 2018. At that time, BOEM was poised to conduct the auction for the three newer MA/RI leases. It issued a “buyer beware” referencing the ongoing development of transit lanes so that any developer acquiring one of those leases could readily recognize that fishing vessel needs may impact the developers’ ability to fully build out the new areas.<sup>5</sup>

Since that time, states have continued to sign additional PPAs based on the existing and new lease areas, and RODA is troubled that this continues to occur before USCG and other regulatory authorities have completed the development of unbiased transit recommendations. To meet the multiple goals of preserving safe transit, reducing risk to developers and fishermen, meeting power generation and pricing goals, and promoting efficient environmental review, all parties (both public and private) would benefit from procedural changes or federal leadership that prioritizes up-front conflict reduction. Given the absence of such an effort at this time, USCG must conduct its MARIPARS analysis in a way that does not predetermine the outcome based on the results of a flawed process to date.

## **II. Unique Nature of Fishing Vessel Needs**

Commercial fishing vessels have unique operational requirements while in transit, such as the need for sea room due to weather and potential crew fatigue. RODA relies on the expertise of its members when commenting on safety issues for fishing operations. Our members have consistently and adamantly stated that the risk to their safety is too high to operate within a wind energy area. The footprint of a vessel greatly expands, in both length and width, when fishing gear is actively towed and dramatically reduces the maneuverability of the vessel. However, even when gear is not deployed, just as commercial cargo or passenger vessels, fishing vessels have a need for safe transit and established routing.<sup>6</sup>

RODA is aware of comments from service vessel representatives and others supporting the proposition that the uniform 1x1 grid layout proposed by the offshore wind energy developers and contained as the only alternative in the Draft Study would provide sufficient spacing for their operations. These statements cannot be applied to fishing vessels, which are clearly differentiated from service vessels.<sup>7</sup> As described above, fishing vessels are unique in their operations and cannot

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<sup>5</sup> BOEM, Atlantic Wind Lease Sale 4A - Supplemental Information for Bidders: Potential Vessel Transit Corridors (Dec. 10, 2018) (available at: <https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/MA/Vessel-Transit-Corridor-Supplemental-Information-for-Bidders-ATLW-4.pdf>).

<sup>6</sup> Vessels also have unique spacing requirements to engage in fishing activity within a wind energy array, which is outside the scope of these comments and of the MARIPARS study.

<sup>7</sup> With regard to service vessels, peer-reviewed literature also suggests the need for, and availability of, scientific modeling regarding collision risk from WTGs, particularly as facilities move farther offshore and into

safely transit within a grid layout with the spacing proposed in the Draft Study. In a letter submitted in response to the MARIPARS Notice of Study, BOEM recognized the unique needs of commercial fishing vessels and specifically asked USCG to focus part of its analysis on the specific needs of the commercial fishing industry, including maneuverability when recommending the width of potential transit routes.<sup>8</sup> The specific needs of the commercial fishing fleet need to be analyzed to ensure the safety of the fleet.

Insufficient spacing between turbines forces fishing vessels to transit around wind energy areas, regardless of the weather conditions. This may result in bottlenecks in zones deemed safe for transit due to vessels being rerouted by the existence of wind energy areas. Insufficient spacing directly increases the risk to fishermen's safety when transiting home during poor weather conditions, i.e. strong winds and high seas. Fishing vessels may fish until they are forced to return home because of weather; this is distinctly different to service vessels, which cannot service turbines in poor weather conditions and are less likely to be deployed in those conditions.

Service vessels are likely to make shorter trips in order to resolve an issue on a turbine or sub-station, or remain anchored in a work location for longer periods of time, as opposed to fishing vessels that frequently make active trips averaging 5-10 days in length. The nature of these trips, and of the work of fishing, can lead to significant crew fatigue. Fisheries specific regulations can impact fishing vessel transit behavior too; in some fisheries permit holders are allocated a set number of days at sea (DAS) each fishing year and they will land the maximum amount of fish possible when on a DAS before returning to port. If vessels must cut a trip short, or if it takes extra time "on the clock" to navigate around a WEA because it is unsafe to transit through, the vessel owner and crew will realize a direct financial loss. Once a trip has ended, vessels need to return to port as quickly as possible to sell the freshest product. These reasons limit the vessels' ability to ride out a storm at sea and are why they prefer the most direct route to their port. These important contextual influences, unique to fishing vessels, should be more satisfactorily analyzed in the final MARIPARS report.

### **III. The Draft Study Has Significant Analytical Deficiencies and Omissions**

The Draft Study contains numerous flaws, which prompted our members to request RODA to commission an expert peer review from Dr. Thomas Sproul (Appendix I). They considered this review to be essential given the apparent omissions in the Draft Study, particularly given the importance of safety-at-sea. Dr. Sproul identified a number of shortcomings in the Draft Study analysis, including insufficient application of USCG guidance for Closest Point of Approach (CPA) and errors in the calculation of the minimum spacing between the turbines, in both rows and on the diagonal.

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deeper water. See, e.g., Lijuan Dai *et al.*, *Risk of Collision between Service Vessels and Offshore Wind Turbines*, *Reliability Engineering and System Safety* 109 (2013), at 18-31.

<sup>8</sup> Docket No. USCG-2019-0131-0044 (Jun. 4, 2019).

The Draft Study report utilizes a Netherlands study<sup>9</sup> cited in the UK MGN 543<sup>10</sup> to justify the methodology used in calculations for determining the necessary space for safe passage between turbines. As explained in Dr. Sproul's expert review, it is unclear why the report failed to utilize USCG's own guidance on CPA to determine the recommended width of navigation safety corridors between fixed hazards, such as wind turbines.

Dr. Sproul's expert review outlines the calculations that should be employed using USCG's CPA guidance (Appendix I). The Marine Planning Guidelines in COMDTINST 16003.2B state that under ideal conditions the CPA should be 0.5-1.0 nm from each fixed hazard, and in less than ideal conditions a CPA of 2 nm or more may be necessary.<sup>11</sup> In addition to guidance on CPA for both sides of a navigation safety corridor, COMDTINST 16003.2B indicates the corridor should be designed for a sufficient number of vessels to pass. This constitutes a recommendation that there should be some space for routing between the CPA buffers, but does not include a precise method for calculating its width. Utilizing the routing width recommendation from either the Baird report,<sup>12</sup> 0.32 nm, or the methods used in the Draft Study of 23 lengths of the largest vessel anticipated (i.e. 0.74 nm for a 195 ft. vessel),<sup>13</sup> the absolute minimum spacing should be 1.32 nm (or 1.74 nm) along the diagonal transit corridors through the grid, corresponding to a uniform grid spacing of 1.87 nm (or 2.46 nm). It should be noted that this spacing minimum is based on calculations for ideal conditions, in which fishing vessels do not always operate as noted above. The wider spacing of 1.32 nm on the diagonal would be the only way to allow for a sufficient straightaway course for transit on the diagonal through the WEA.

The alternative spacing method used in the Draft Study (from the "Netherlands study") is not the best methodology to use for the reasons detailed in Dr. Sproul's report. The justification for why USCG used this method fails to mention that: i) USCG guidance for CPA exists; ii) the Draft Study calculations are below the minimum CPA guidance; iii) NVIC 01-19<sup>14</sup> indicates the older MGN 543 was used to develop the USCG Marine Planning Guidelines, and that USCG reviewed the newer MGN 543 and decided *not* to update the guidelines based on the new information it contained; iv) both the MGN 371 and 543 contain recommendations matching the USCG guidance for CPA where turbines should be placed no closer than 0.5 nm from the nearest edge of a shipping route; v) MGN 543 also includes recommendations for 2 nm buffer zones between wind farms and shipping lanes, and for the "20

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<sup>9</sup> Ministry of Infrastructure and the Environment and the Ministry of Economic Affairs of the Netherlands, *Assessment Framework for Defining Safety Distances between Shipping Lanes and Offshore Wind Farms* (2015).

<sup>10</sup> U.K Maritime and Coastguard Agency, *Marine Guidance Note 543, Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response* (Feb. 2016) [hereinafter "MGN 543"].

<sup>11</sup> United States Coast Guard, *Commandant Instruction 16003.2B, Appendix E. Marine Planning to Operate and Maintain the Marine Transportation System (MTS) and Implement National Policy* (June 28, 2019) at E-4.

<sup>12</sup> Baird & Associates, Ltd., *Vessel Navigation Through the Proposed Rhode Island/Massachusetts and Massachusetts Wind Energy Areas* (Oct. 31, 2019) (accompanying the leaseholders' proposal letter).

<sup>13</sup> See Appendix I, item 5, at 7.

<sup>14</sup> United States Coast Guard, *Navigation and Vessel Inspection Circular 01-19, Guidance on the Coast Guard's Roles and Responsibilities for Offshore Renewable Energy Installations (OREI)* (Aug. 1, 2019).

degree rule” which requires a 5.5 nm corridor width for 15 nm corridors between turbines;<sup>15</sup> and vi) other methods suggesting wider safety margins were not used in the calculations.

While the methodology used was not the most appropriate for determining adequate spacing, the Draft Study’s calculations using the “Netherlands study” methodology are also incorrect. They fail to include an UNCLOS Safety Zone (500 m) on each side of the transit lane (clearly shown in the Draft Study Figure 21, pg. 36). Additionally, the calculations assume vessels with a maximum length of 144 ft., which is the documented length of vessels that is available from AIS data. This is considerably less than the vessel length overall considered in developers’ Navigational Risk Assessments<sup>16</sup> and the maximum fishing vessel length cited in the Baird report. From these documents, and feedback from our fishing industry members, Dr. Sproul’s assumption that the maximum length of fishing vessels transiting the WEA is 195 ft. appears more accurate.

The Draft Study analysis fails to consider the possibility of search-and-rescue (SAR) along diagonal search paths in the WEA. As identified in Dr. Sproul’s expert review, the Draft Study recommends “a minimum of 1 nm between turbines along a search path” (p. 29), which will be confined to taking place only along North-South and East-West SAR paths in the Draft Study recommended layout. Consideration of adequate spacing for SAR along a diagonal path is necessary as vessels are intended to transit along this path, which has been indicated in both the Draft Study (pg. 29) and by fishermen who have historically used the area. Furthermore, as indicated in the Draft Study, because predominant wind patterns include summer winds tending to blow from the Southwest and winter winds from the Northwest, a drifting boat in need of SAR would likely need to be searched for along the diagonal. The Draft Study states that normal flight procedures require a turn diameter of 0.8-1.0 nm, and “spacing less than 1 nm will require aircraft to transit the entire length and conduct turns outside of the windfarm” (pg. 29). This poses obvious concerns for fishermen who may require SAR, due to the large contiguous nature of the MA/RI WEA. Expanding the diagonal spacing to 1.0 nm would require 1.41 grid spacing.<sup>17</sup>

The Draft Study also did not conduct a modeling analysis to estimate the overall impacts on navigational safety caused by changes in navigational behaviors resulting from WEAs as called for in the 2016 Atlantic Coast Port Access Route Study (ACPARS).<sup>18</sup> The report called for a model that included individual and cumulative effects on the marine transportation system. The ACPARS Working Group (WG) was unable to complete such a model, because of a lack of expertise on the WG, but recognized it was critical in order to “determine if routing measures are appropriate and to evaluate the changes in navigational safety risk resulting from different siting and routing scenarios.”<sup>19</sup>

Finally, the Draft Study puts the risk on individual vessels by not recommending the use of additional safety measures such as a navigation safety corridor that would account for the cumulative effects of

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<sup>15</sup> MGN 543 at 18-20.

<sup>16</sup> Clarendon Hill Consulting, *Vineyard Wind Revised Navigational Safety Risk Assessment* (July 24, 2018), Table 4.0-2 at 46; Deepwater Wind South Fork, LLC, *South Fork Wind Farm Navigational Safety Risk Assessment* (Oct. 2, 2018), Table 5-2 at 71.

<sup>17</sup> See Appendix I.

<sup>18</sup> USCG, *Atlantic Coast Port Access Route Summary: Final Report* (July 2015), Docket No. USCG-2011-0351.

<sup>19</sup> *Id.* at i.

multiple vessels transiting through a wind energy area. The ACPARS planning guidelines discuss the use of navigation safety corridors as these may reduce risk to all sizes of vessels, which may be forced to transit closer to each other than they would in open ocean conditions. Environmental conditions dictate the path a vessel takes, which can lead to the actual path taken by a vessel differing from its intended path. Vessel operators must be vigilant to notice if this occurs in a WEA with minimal spacing in order to reduce the risk of collision with turbines or other vessels.

#### **IV. The Draft Study Fails to Consider Concerns Associated with Radar Interference**

Wind turbines interfere with radar systems, including those used aboard fishing vessels. The Notice of Study for the MARIPARS report stated that its goal is “to enhance navigational safety by examining existing shipping routes and waterway uses” and that, through the study, USCG would “identify anticipated impacts to navigation that may be experienced by mariners intending to transit in, around and through the study area which includes the MA/RI Wind Energy Area (MA/RI WEA).”<sup>20</sup> In order to accomplish the stated study goals, USCG must carefully consider navigation impacts that may result from degradation of marine radar. This effort must incorporate all relevant existing information and new analyses if appropriate, as USCG has done for previous project reviews.

As described below, USCG, BOEM, and other agencies performed dedicated analyses regarding interference to marine radar associated with the Cape Wind project. RODA requests a similar analysis be conducted for the current generation projects. It would not be adequate to solely rely on these studies for the recent slate of proposed MA/RI projects, since the technology and footprint contemplated for the projects have advanced considerably in the past decade.

##### ***a. The Draft Study Arbitrarily Ignores Available Information***

USCG did not exercise due diligence in considering navigation hazards posed by radar interference in the draft study, despite the abundance of available information. The subject is only addressed in Section III: “Vessel Traffic and Characteristics Analysis, Subsection H. Radar,” (p. 26). The relevant text reads, in its entirety:

The potential for interference with marine radar is site specific and depends on many factors including, but not limited to, turbine size, array layouts, number of turbines, construction material(s), and the types of vessels impacted. A number of commenters mentioned the potential for radar interference by [wind turbine generators (WTG)]. We reviewed several studies that address correlations between wind turbines and marine radar interference. To date, the USCG is not aware of an authoritative scientific study that confirms or refutes the concern that WTGs will degrade marine radar.

The final sentence is misleading. It has been extensively confirmed that WTGs will degrade marine radar, but exact effects on all vessels and the resulting level of safety risk have not been precisely quantified. Given the continued improvement in radar technology and wide variability in marine radars in use by commercial fishermen, quantifying exact effects is a difficult task. However, exact quantification does not preclude consideration of a safety standard given that effects are known to

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<sup>20</sup> 84 Fed. Reg. 11314 (Mar. 26, 2019).

exist. The various navigational risk assessments completed by offshore wind energy leaseholders to date similarly omit consideration of this important issue.

***b. Wind Turbines' Interference with Radar Functioning Is Well Documented***

The Draft Study's assertions that minimal or conflicting information exists to support a conclusion that wind turbines degrade marine radar directly conflict with USCG's previous statements as well as other readily available information.

***1. Information on Turbine Effects to Government Radar Is Readily Available***

More than a decade of information available to the U.S. government shows that wind turbines significantly interfere with radar functioning. The Department of Defense has repeatedly raised concerns that "radar clutter (i.e., false targets) from the wind turbine blades would seriously impair the agency's ability to detect, monitor, and safely conduct air operations."<sup>21</sup> In response to early concerns over land- and sea-based turbines, the National Security Council requested the White House Office of Science and Technology Policy conduct an internal study in 2011 that found WTGs interfered with radar used for national defense, security, aviation, and weather forecasting "by creating clutter, reducing detection sensitivity, obscuring potential targets, and scattering target returns. These effects on radar systems tend to inhibit target detection, generate false targets, interfere with target tracking, and impede critical weather forecasts."<sup>22</sup>

This type of information is also well known in Europe. Several countries including the United Kingdom, Germany, Netherlands, Austria and Norway require developers to obtain special permission for wind facilities to ensure that radar conflicts are minimized. Each has also established "protection zones" ranging from 5–50 nm around military radar systems.<sup>23</sup>

More recently, in 2014, an interagency Memorandum of Understanding created the Wind Turbine Radar Interference Working Group (WTRIM), which strives to identify and develop recommendations for newer, more effective mitigation solutions.<sup>24</sup> While that group does not appear to have investigated WTG impacts to marine vessel radar systems, it is unclear why the U.S. government would invest significant attention and resources to only certain aspects of radar interference and not others. The WTRIM's expertise and that of other federal agency subject matter experts should be included to apply lessons learned from these related efforts to the MARIPARS study. All traditional radar systems—and those that are used on most fishing vessels—operate using fundamentally the same technology; there is no reason for fishing vessels' navigation systems to be exempt.

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<sup>21</sup> A brief history of the federal government's awareness of this issue is included in U.S. Department of Energy, Federal Interagency Wind Turbine Radar Interference Mitigation Strategy (Jan. 2016), at 2 (*available at* <https://www.energy.gov/sites/prod/files/2016/06/f32/Federal-Interagency-Wind-Turbine-Radar-Interference-Mitigation-Strategy-02092016rev.pdf>).

<sup>22</sup> Sandia National Laboratories, *IFT&E Industry Report: Wind Turbine-Radar Interference Test Summary*, SAND2014-19003 (Sept. 2014) (*available at*: [https://www.energy.gov/sites/prod/files/2014/10/f18/IFTE%20Industry%20Report\\_FINAL.pdf](https://www.energy.gov/sites/prod/files/2014/10/f18/IFTE%20Industry%20Report_FINAL.pdf)).

<sup>23</sup> United States Department of Defense, *Report to the Congressional Defense Committees: The Effect of Windmill Farms on Military Readiness* (2006) (*available at*: <http://www.defense.gov/pubs/pdfs/windfarmreport.pdf>).

<sup>24</sup> U.S. Department of Energy, Federal Interagency Wind Turbine Radar Interference Mitigation Strategy (Jan. 2016), at 2 (*available at* <https://www.energy.gov/sites/prod/files/2016/06/f32/Federal-Interagency-Wind-Turbine-Radar-Interference-Mitigation-Strategy-02092016rev.pdf>) [hereinafter WTRIM].

## 2. Marine Radar on Fishing Vessels

In addition to the large body of information showing that WTGs impact all radar systems, USCG has previously documented that wind turbines specifically negatively impact marine radar. In 2008, the Marine Minerals Service (MMS, which preceded BOEM as the lead federal agency for offshore wind energy permitting) reviewed the proposed Cape Wind project. During the course of that review two conflicting reports addressing this issue were submitted to MMS, which then referred the matter to USCG for consideration.<sup>25</sup> To resolve discrepancies between the two studies, USCG commissioned a third report from Technology Services Corporation (TSC), titled “Report of the Effect on Radar Interference of the Proposed Cape Wind Project.” In a memorandum to MMS, Captain Perry of USCG concurred with the findings of the TSC report and recommended based on its conclusions that MMS characterize the Cape Wind project’s impacts to marine radar as “moderate.”<sup>26</sup> Specifically, the TSC report found that the project’s implementation would significantly adversely impact the ability of a vessel inside or outside of the wind energy facility to detect a vessel within that facility by radar.<sup>27</sup> These findings were fully upheld by a later study prepared for the U.S. Department of Energy, with USCG support, that surveyed and simulated electromagnetic and acoustical challenges to sea surface, subsurface, and airborne electronic systems posed by offshore wind turbines.<sup>28</sup>

Additional studies exist beyond those previously analyzed by USCG. In but one example, a widely circulated study investigated effects to marine radar of the Kentish Flats wind project in the United Kingdom.<sup>29</sup> It was funded by offshore wind developers and is one of the few field-based studies of which RODA is aware that specifically investigated marine radar interference as it would apply to fishing vessels. That study confirmed some of the findings of the TSC study: “effects were generated on marine radar systems in the vicinity of wind farms,” which included interference to the ability of radar operators outside of a wind energy array to identify small vessels within the array. The study also noted some valuable potential mitigation strategies. However, it was limited in that observations occurred only from about 1 nm outside of a wind energy facility and expressly warned it should not be used to draw conclusions outside of its specific context of “collision avoidance in pilotage waters from about 1 nm outside a single small wind farm, not to general navigation close to or within other

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<sup>25</sup> Memorandum from Capt. R.J. Perry, USCG Sector SENE, to COMDT (DCO) regarding Assessment of Potential Impacts to Marine Radar from the Nantucket Sound Wind Facility as Proposed by Cape Wind, LLC (Dec. 30, 2008), at 2.

<sup>26</sup> Per the impact categories submitted by MMS at the time of the review, a “moderate” impact was defined as

- a. Impacts to the affected activity or community are unavoidable, and
- b. Proper mitigation would reduce impacts substantially during the life of the proposed action, or
- c. The affected activity or community would have to adjust somewhat to account for disruptions due to impacts of the proposed action, or
- d. Once the impacting agent is eliminated, the affected activity or community would return to a condition with no measurable effects from the proposed action if proper remedial action is taken.” *Id.*

<sup>27</sup> USCG, *Assessment of Potential Impacts to Marine Radar as It Relates to Marine Navigation Safety from the Nantucket Sound Wind Facility as Proposed by Cape Wind, LLC* (Jan. 2009), at 11. (available at <https://www.boem.gov/sites/default/files/renewable-energy-program/Studies/USCGRADARfindingsandrecommendationsFINAL.pdf>).

<sup>28</sup> Hao Ling *et al.*, *Assessment of Offshore Wind Farm Effects on Sea Surface, Subsurface and Airborne Electronic Systems*, Final Report DE-EE0005380 (Sept. 2013), at 19.

<sup>29</sup> MARICO Marine, *Investigation of Technical and Operational Effects on Marine Radar Close to Kentish Flats Offshore Wind Farm* (Apr. 2007).

anticipated wind farm developments.” It is also important to note that the significantly smaller size of turbines in that project compared to those proposed for the MA/RI WEAs.

The realization of these concerns has been documented through informational exchanges with European fishermen who operate in areas where turbines have been installed, including this widely-shared photograph taken by one of RODA’s members aboard a fishing vessel in the U.K.’s Thanet Offshore Wind Farm:



This image, and other experiences of RODA members, confirms the degradation of marine radar within wind arrays.

### 3. *In the MA/RI WEAs*

Specific to the proposed MA/RI WEAs, and through scoping for the MARIPARS study, fishermen and others have repeatedly raised questions regarding the potential for reduced radar capabilities.<sup>30</sup> USCG has previously recognized these concerns both on and off the record, and its findings in the Draft Study represent a dramatic and perplexing departure from prior statements.<sup>31</sup>

Of primary concern in this area are the enormous differences in size and scope of both the proposed WTGs for these projects (potentially exceeding 18 MW by the time build-out is complete) and the 1400 square mile footprint of the contiguous lease areas, which is by far the largest in the world. In light of clear documentation of larger turbines producing greater radar impacts, and of expanding difficulties in identifying vessels the further they are located within a wind energy array, why would the New England lease areas not merit, at a minimum, the level of desktop analysis USCG performed for the Cape Wind project?

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<sup>30</sup> See, e.g., Letter from RODA to USCG regarding Port Access Route Study, Docket No. USCG-2019-0131-0029 (May 28, 2019); see also Letter from Zdenka Willis, Director, U.S. IOOS Program Office, to Andrew Krueger, Project Coordinator, BOEM regarding Commercial Leasing for Wind Power Development on the Outer Continental Shelf Offshore New York (July 14, 2014) (“There are eleven [11] high frequency [HF] radars in New Jersey, New York, and Rhode Island that will be negatively impacted to some degree or another by wind turbines situated offshore Long Island . . . NOS and the U.S. IOOS Program would like to work with BOEM to seek to minimize and if possible eliminate impacts to HF radar operations”).

<sup>31</sup> See Letter from Chris Glander, USCG to Brian Krevor, BOEM regarding Vineyard Wind Draft Environmental Impact Statement (March 1, 2019), at 4 (“We recognize that potential impacts to marine radar continues to be of concern to mariners. Radar impacts are a function of numerous issues including turbine height and size, proximity to other towers, weather, atmospheric, shipboard radar quality, radar operator proficiency, target size and number, etc.”).



The Draft Study also fails to identify effects on airborne radar, which may be substantial. These could affect SAR operations because the gain reduction necessary to remove clutter will obscure small targets, i.e., small craft, which tend to produce a weaker return signal. Small craft are more difficult to identify by airborne radar; for example in the QinetiQ 2004 study using British lifeboats, vessels of about 35-40 ft in length were identified as such (lengths were not given in the study, but are apparent from the photos).<sup>32</sup> As part of the MARIPARS study, a data request was made to the RI Department of Environmental Management, which provided median vessel lengths for the four primary gear types operating out of Rhode Island (scallop dredge, pots and traps, gillnet, and otter trawl), using VTR data from 2013-2017. The median length of a vessel using gillnets was 39.0 ft and the median length of a vessel using pots and/or traps was 42.2 ft. Thus, essentially half of all gillnet and lobster/crab fishermen out of Rhode Island are likely small enough craft to experience difficulty with radar detection.

***c. The Final MARIPARS Must Include Mitigation Strategies to Reduce Safety Risk***

There appears to be broad agreement among experts that turbine placement is a key strategy to minimize radar interference. It is simply inconceivable that USCG would issue recommendations for turbine spacing in the MA/RI lease areas without any probing analysis of the extent of, and possible mitigation measures for, this interference as part of its comprehensive safety analysis. Therefore, this issue needs to be considered in any spacing recommendations and advance of project layout finalization. Several studies, including many of those referenced above, propose mitigation strategies that could be considered to reduce the impacts of marine radar degradation from turbines.

The WTRIM in its 2016 report stated that methods to minimize interaction to radar from turbines include, *inter alia*, “spacing the specific locations of wind turbines farther apart to enable detection of targets between them,” clearly stating that “[t]he most important and straightforward approach [to minimizing wind turbine radar interference] is the proper siting of wind facilities on the landscape as well as ‘micro siting’ of wind turbines within planned facilities.”<sup>33</sup> A separate study funded in part by developer Iberdrola similarly concluded “[d]ue to the great influence of both wind farm layout and dimensions of wind turbines have on the potential impact, associations related to radar services are demanding case by case impact studies before a wind farm is installed”.<sup>34</sup>

Changes in turbine spacing are not the only possible mitigation measure. The Final Environmental Impact Statement for Cape Wind project notes this:

Several mitigation techniques can potentially be employed to reduce the effect of the turbines on radar. Radar mitigation techniques could include reducing the radar cross section (RCS) of the turbines and increasing the RCS of the vessels within or near the wind farm.<sup>35</sup>

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<sup>32</sup> U.K. Maritime and Coastguard Agency, *Results of the Electromagnetic Investigations and Assessments of Marine Radar, Communications and Positioning Systems Undertaken at the North Hoyle Wind Farm by QinetiQ* (Nov. 15, 2004), at 40.

<sup>33</sup> WTRIM at 3.

<sup>34</sup> Itziar Angulo et al., *Impact analysis of wind farms on telecommunication services*, *Renewable and Sustainable Energy Reviews* 32 (2014), at 91.

<sup>35</sup> U.S. Department of the Interior, *Cape Wind Energy Project Environmental Impact Statement* (Jan. 2009), at 27.

Although the FEIS goes on to conclude that increasing the RCS of vessels within the wind farm would enhance radar visibility but not noticeability and therefore only have a minor effect on navigational safety, other strategies may prove more effective. These could include turbine blades specially engineered to reduce a turbine's radar signature, upgrades to vessels' radar systems, use of AIS transponders, cell towers, radar operator training, and others.

***d. The Final MARIPARS Report Must Consider Whether Spacing Adjustments Must Be Made to Mitigate Radar Interference***

Some of the available literature contains measurements that may be useful in translating radar interference into turbine spacing or safe vessel distance guidelines. The Cape Wind FEIS indicates that secondary reflections (aka "false targets") cannot occur closer than the second circle of turbines due to physics.<sup>36</sup> In the case of a uniform grid, there are two scenarios to consider. For travel along the horizontal and vertical lines of orientation, the worst-case second circle occurs when a vessel passes between two turbines and has a radius of 1.12 times the uniform grid spacing distance (e.g., 1 nm). For travel along the diagonals, the worst-case second circle occurs when a vessel passes closest to a single turbine on either side and has a radius of 0.79 times the uniform grid spacing distance. Navigation safety analyses with respect to radar interference could consider these distances, in combination with projections of vessel speed, reaction time, and probability of detection to assess the resulting safety impacts. For a vessel among turbines that are tightly spaced, reduced radar range may be needed. However, at least one study shows that at a radar range of 0.75 nm, multiple turbines within that range can create enough clutter as to make small craft difficult to detect or notice.<sup>37</sup>

Other reports may also be informative. For example, the Netherlands study cited in the Draft Study recommends a safe distance of 0.8 nm with respect to radar. Moreover, the USCG CPA guidelines suggest 0.5-1.0 nm minimum distance between vessels and fixed or moving hazards and evidence supports that small craft cannot be distinguished from turbine radar signatures until they are at least 385 m (0.21 nm) away from a turbine.<sup>38</sup> If the CPA was considered to be the minimum safe distance that a passing vessel could be surprised by appearance of a small craft, then this suggests a safe passing distance of 0.71-1.21 nm from the nearest turbine. Applied to travel along the diagonals, these distances would correspond to diagonal corridor widths of 1.42-2.42 nm, or uniform grid spacing of 2.01-3.42 nm.

**V. The Draft Study Omits Other Issues Raised in Public Comment**

Several important issues that fishermen have repeatedly raised throughout the development process for the MA/RI wind projects are absent from the Draft Study. As directed by COMDTINST 16003.2B, Appendix D, a PARS study must "collect and analyze data and other information on:... (k) economic (costs and benefits) effects and impacts; and (l) any additional information that arises as a result of public comments."<sup>39</sup> We have identified and described some of the additional concerns held by fishermen that the Draft Study fails to consider below.

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<sup>36</sup> USCG 2008 at 27.

<sup>37</sup> Eli Brookner, *Deleterious Effects of Cape Cod Proposed Wind Farm on Marine Radars* (March 2008), at 11-12.

<sup>38</sup> QinetiQ (2004).

<sup>39</sup> United States Coast Guard, *Commandant Instruction 16003.2B, Appendix D. Marine Planning to Operate and Maintain the Marine Transportation System (MTS) and Implement National Policy* (June 28, 2019), at D-3.

**a. Funneling effects**

In RODA's comments on the MARIPARS Notice of Study,<sup>40</sup> we expressed concern over funneling effects in desired transit routes through a WEA. The Draft Study fails to include risk analysis of any bottleneck points that may arise in transit paths that would be used often and by multiple vessels at the same time (such as the most direct route from a specific port to common fishing grounds). This is an important factor to inform the modeling analysis to estimate safety caused by changes in navigational behaviors referenced in Section III above. It is paramount that these lanes be sufficiently wide enough for that increased volume of vessel traffic to transit safely. Of particular concern, changes in weather may lead to rapid increased transiting of vessels back to their homeport. If lanes used for transiting are not sufficiently wide this would lead to a bottleneck effect and create serious safety risk. Thus, high traffic within these lanes should be considered as sizing is determined.

**b. Economic Impacts**

The Draft Study does not include any cost benefit analysis or economic analysis of alternative layouts, despite the reference cited above expressly mandating this to be done. The report simply and insufficiently states, "[v]essel operators will have to balance the risks of going through a wind farm against the economic impacts associated with the additional distance, fuel, and passage time." (pg. 32). Costs and benefits that should be considered include:

1. Cost and productivity implications for the production of wind power;
2. Costs borne by all vessels including costs of extra distance traveled and extra time at sea, including fuel, maintenance, and labor costs, as well as opportunity costs due to slower transit or when fishing time is constrained;
3. Costs borne by all vessels related to safety preparation, including purchase of upgraded navigation, radar or vessel tracking systems, radar visibility improvement gear, and in the case of fishing vessels, the potential need for an extra crew member to man the tiller and safety systems during all fishing activities;
4. Costs borne by fishing vessels in terms of potential lost landings value;
5. Cost borne by fishermen and by the public due to impairment of NOAA research vessels for stock assessment (NOAA has indicated that its research vessels currently used to conduct fishery-independent surveys will not pass within 1 nm of a wind turbine, and that large shares of their survey areas are to be compromised by MA/RI WEA); and
6. Costs due to navigation safety risks, including increased frequency and severity of vessel accidents in the WEA following construction, increased use of USCG search and rescue resources in response, increased cost of USCG search and rescue operations due to limitations imposed by the presence of turbines, and resulting increases in estimated loss of life and property from the combination of these factors.

The request of a thorough economic analysis is not unique to RODA members. Dr. Robert Griffin, an assistant professor of environmental economics at the University of Massachusetts-Dartmouth, also presented concerns in response to the Draft Study<sup>41</sup> that: 1) the potential for economic impacts is substantial; 2) the Draft Study, if finalized, would set a precedent that economic factors will not be considered for future wind development layouts; 3) there is an apparent rush to a ruling with

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<sup>40</sup> Docket No. USCG-2019-0131-0029 (May 28, 2019).

<sup>41</sup> Docket No. USCG-2019-0131-0054 (Feb. 26, 2020).

insufficient understanding of these impacts; and 4) the Draft Study misses an opportunity to develop a robust science-based procedure for future decisions. RODA urges USCG to conduct a complete economic cost and benefit analysis for all layouts considered for inclusion in the final version of the MARIPARS.

*c. Icing*

An additional concern held by the fishing industry not analyzed in the Draft Study, is the effect that ice buildup on turbine blades may have on safe passage around a turbine. Ice buildup on the turbines is a known issue for wind energy areas in cold climates. Rime icing is a major concern for wind turbines,<sup>42</sup> and once temperatures rise, the ice is likely to dislodge from the blades. Layouts with minimal spacing between turbines increase the risk to transiting vessels from falling ice. The distance from the turbine that the ice can travel varies, dependent on whether the blades are active or locked down. Some of the additional factors affecting the distance travelled include the rotor diameter, hub height, size of the ice fragment, rotor position, and wind speed.<sup>43</sup> Although the cited studies do not suggest icefall is likely to occur outside of the 500 m buffer zone, the size and height of the turbines, in addition to unique geographic features in New England, indicate that USCG should conclusively ensure that recommended turbine spacing maintains a high level of safety, year round, for vessels operating in proximity to wind energy areas.

\* \* \* \* \*

Thank you for your consideration of these comments and our request for additional analysis regarding these important issues. Please do not hesitate to reach out if we can provide additional information or clarification.

Sincerely,



Annie Hawkins, Executive Director



Fiona Hogan, Research Director



Lane Johnston, Programs Manager  
*Responsible Offshore Development Alliance*

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<sup>42</sup> Colin Morgan *et al.*, *Assessment of Safety Risks Arising from Wind Turbine Icing*, EWEC-CONFERENCE (Oct. 1997), at 141-144.

<sup>43</sup> Henry Seifert *et al.*, *Risk Analysis of Ice Throw from Wind Turbines*, in Proceedings of BOREAS VI April 9-11 2004, Pyhatunturi, Finland (2004) (available at <http://web1.msue.msu.edu/cdnr/icethrowseifertb.pdf>).

# APPENDIX I

# THOMAS SPROUL, PH.D.

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## COMMENTS RE: MARIPARS DRAFT OF 01/22/2020: Docket USCG-2019-0131

**March 16, 2020**

Mr. Michael Emerson, Director  
Marine Transportation Systems (CG-SPW)  
U.S. Coast Guard, Stop 7501  
Washington, DC 20593-751

By email: [Michael.D.Emerson@uscg.mil](mailto:Michael.D.Emerson@uscg.mil)

Also submitted as public comment to Docket USCG-2019-0131 via [regulations.gov](https://www.regulations.gov)

### **Dear Mr. Emerson:**

Enclosed is my review of The Areas Offshore of Massachusetts and Rhode Island Port Access Route Study, January 22, 2020 DRAFT (USCG-2019-0131), the "MARIPARS Draft." Preparation of my review was coordinated and funded by the Responsible Offshore Development Alliance (RODA) following direct requests by multiple members of fishing communities. My review was funded through direct contributions from the fishing industry.

The MARIPARS Draft recommends "the MA/RI WEA's turbine layout be developed along a standard and uniform grid pattern with at least three lines of orientation and standard spacing" (p. 2) because this layout would "satisfactorily and expeditiously provide safe navigation and continuity of USCG missions" (p. 34). The MARIPARS Draft explicitly considers the importance of travel along the diagonals of the grid layout in recommending three lines of orientation (pp. 32, 36, 37), and states that "a standard array with adequate spacing between WTGs... would create multiple navigation safety corridors through the WEA" (p. 34).

Clearly, spacing between the turbines must be adequate for safe passage. The MARIPARS Draft recommends corridors for transit and fishing that are 1 NM wide in the North-South and East-West directions and 0.6 – 0.8 NM wide in the Northwest-Southeast direction. In other words, a 1 NM uniform grid is recommended, and the resulting diagonal corridor width of 0.7 NM (due to simple geometry) is deemed acceptable. This recommendation exactly matches

the “uniform 1x1 wind turbine layout” proposal submitted by the New England offshore wind leaseholders on November 1, 2019.

**The MARIPARS Draft grid spacing recommendations are insufficient for safety, and they appear to be made in error. On the critical issue of spacing along the diagonals, the MARIPARS Draft departs from USCG guidance and uses an alternative method without adequate justification. Further, only through apparent computation errors in this alternative method do the MARIPARS recommendations match the leaseholders’ 1x1 grid proposal.**

**By my calculations, the absolute minimum spacing should be 1.32 NM along the diagonal transit corridors through the grid, corresponding to uniform grid spacing of 1.87 NM.** These calculations use the minimum Closest Point of Approach (CPA) guidance from the USCG (for ideal conditions) combined with the Baird methodology (accompanying the leaseholders’ proposal) for calculating the necessary width of a route (between CPA buffers on either side), allowing for vessels to pass and maneuver. This minimum spacing calculation should not be construed as a recommendation – it does not account for many risk factors that are present, nor does it recognize alternative guidelines recommending additional safety margin. It is my opinion that substantially wider spacing is necessary for safety.

## **Scope of Analysis**

My analysis is confined to addressing spacing within a uniform grid layout. This analysis does not evaluate nor endorse a uniform grid layout versus alternatives with additional routing measures or wider navigation safety corridors, such as those requested in the public comment letters of the Massachusetts Lobstermen’s Association (May 20, 2019) and Seafreeze Ltd. (May 24, 2019), and in the letters after the public comment period by the RI Commercial Fisheries Center (December 18, 2019) and by RODA (January 3, 2020) in response to the leaseholders’ proposal. It is obvious even to a casual observer that a 1x1 grid layout carries additional navigation risk after removal of 4 NM-wide navigation corridors (*aka* “transit lanes”).

## Findings

1. The MARIPARS Draft defines navigational safety corridors (Appendix B, p. 1) consistently with USCG Marine Planning Guidelines in COMDTINST 16003.2B,<sup>1</sup> Appendix E:

“Navigation Safety Corridors identify the amount of area necessary for vessels to safely transit along a route under all situations. These corridors are not considered routing measures by the Coast Guard or the International Maritime Organization (IMO), but are a tool to delineate areas where no offshore development should be considered.”

Since vessels are allowed, and expected, to pass through all straight-line routes between turbines in the uniform grid proposed to cover the WEA, any such route must be considered a navigation safety corridor: the space between turbines in the uniform grid is clearly both a route where vessels must transit safely and an area where no offshore development should be considered. This fact is confirmed by the explicit statement in the MARIPARS Draft that the uniform grid layout “would create multiple navigation safety corridors through the WEA” (p. 34).

2. Despite this acknowledgment, the Draft fails to mention that the Marine Planning Guidelines contained in COMDTINST 16003.2B, Appendix E, also explicitly provide guidance related to the width of navigation safety corridors: the Closest Point of Approach (CPA) is “the safe distance at which a vessel can pass a fixed or moving hazard” (p. E-4). Depending on the assessment of risk factors, COMDTINST 16003.2B, Appendix E indicates a CPA of 0.5 – 1.0 NM may be acceptable under ideal conditions, but that under less ideal conditions a CPA of 2 NM or more may be necessary (p. E-4).

When identifying a straight-line route as a navigation safety corridor with hazards present on both sides, the CPA guidelines must apply on both sides of any vessel transiting the route after accounting for the necessary room for vessels to pass and

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<sup>1</sup> COMDTINST 16003.2B is United States Coast Guard Commandant Instruction 16003.2B, Marine Planning to Operate and Maintain the Marine Transportation System (MTS) and Implement National Policy (June 28, 2019). This document is cited as guidance on page 1 of the MARIPARS Draft.



maneuver. This means the minimum CPA distance of 0.5 NM to either side of a route corresponds to a diagonal navigation safety corridor width of 1.0 NM *plus the width of the route itself*. Even if the width of the route itself is assumed to be zero, a 0.5 NM CPA corresponds to a 1.0 NM diagonal corridor width, which corresponds to 1.41 NM uniform grid spacing due to geometry.

Thus, the leaseholders' 1 NM uniform grid proposal conflicts with the barest minimum USCG guidance for CPA with respect to travel along the diagonals. This conflict is neither mentioned nor evaluated in the MARIPRAS Draft, which makes spacing recommendations exactly conforming to the leaseholders' proposal.

3. The Marine Planning Guidelines in COMDTINST 16003.2B, Appendix E do not give exact prescriptions for the width of the route between CPA buffers on either side, other than indicating that space should be available for "a minimum of two vessels passing abeam of one another and other vessel operations in the area" (p. E-4). Using the calculations in the Baird report accompanying the leaseholders' proposal, the route width would be 0.32 NM. Using the calculation in the MARIPARS Draft (Fig. 21, p. 36), the route width would be 23 lengths of the largest vessel anticipated. Based on submissions by the leaseholders, I use a length of 195 ft (see item 5 on page 7 below) for the calculation, giving a route width of 0.74 NM.

Depending on the minimum CPA distance being 0.5 NM or 1 NM, these estimated route widths correspond to minimum diagonal navigation corridor widths of 1.32 – 2.32 NM using the Baird methodology, or 1.74 – 2.74 NM using the MARIPARS methodology. Applied to the uniform grid layout advocated in the MARIPARS Draft, these diagonal navigation corridor widths correspond to minimum grid spacing of 1.87 – 3.28 NM using the Baird methodology or 2.46 – 3.87 NM using the MARIPARS methodology. In a general setting where less than ideal conditions are anticipated and a 2 NM CPA is required, diagonal corridor widths are 4.32 NM or 4.74 NM, corresponding to minimum grid spacing of 6.11 NM or 6.70 NM.

While these distances may seem large in contrast to the leaseholders' proposal, some context is important. Well-known recommendations from Europe (mentioned below)

make either the same “route width + 4 NM” recommendation as derived here for the diagonals, or encourage use of a “20-degree rule” which would require navigation corridors substantially wider than 6.70 NM along the longest transections of the WEA. Similar widths have previously been requested by members of the commercial fishing industry and by RODA.

4. An alternative spacing analysis method, found in the “Netherlands study,” is applied to the diagonals in the MARIPARS Draft. Justification for this alternative analysis is provided in Section IV.D. paragraphs 2-4 (p. 34). The justification can be summarized as: i) there is no standard methodology for spacing (par. 2), ii) comments requested we review the British guidance document MGN 543<sup>2</sup> (par. 3), and iii) MGN 543 refers to a Netherlands study... which seems to provide a reasonable approach (par. 4). The justification offered in the MARIPARS Draft is wholly inadequate and fails to mention:

- i) the existence of USCG guidance for CPA;
- ii) that the resulting calculations from the spacing analysis method chosen result in recommendations below the minimum CPA guidance;
- iii) that NVIC 01-19<sup>3</sup> explicitly states that MGN 371 was used in developing the USCG Marine Planning Guidelines, and that “The USCG views MGN 543 as a simplification of its predecessor, MGN 371, and does not deem it necessary or prudent to revise our [Marine Planning] Guidelines” (NVIC 01-19, Enclosure 3, p.1, note 2);
- iv) the presence in both MGN 371 and 543 of recommendations exactly matching USCG guidance for CPA (MGN 371 p. 13, MGN 543 p. 21), in

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<sup>2</sup> MGN 543 is the United Kingdom Maritime and Coastguard Agency (MCA) Marine Guidance Note 543, Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response Issues (January, 2016). MGN 371 is its predecessor, issued August, 2008.

<sup>3</sup> NVIC 01-19 is United States Coast Guard Navigation and Vessel Inspection Circular 01-19, Guidance on the Coast Guard's Roles and Responsibilities for Offshore Renewable Energy Installations (OREI) (August 1, 2019). From page 1 of the MARIPARS Draft: “NVIC 01-19 providing [sic] further guidance to USCG units and external stakeholders on factors the USCG considers when evaluating risk in OREI.”

which both use the term “intolerable” to describe turbines being placed closer than ½ NM from the nearest edge of a shipping route;

- v) the presence in MGN 543 of other recommendations that suggest even wider safety margins, such as a 2 NM buffer zone between wind farms and shipping lanes (p. 19), corresponding to a 4+ NM total navigation corridor width, or the “20-degree rule” (pp. 18-20) which is related to the concept of Cross Track Error in COMDTINST 16003.2B Appendix E (pp. E-3, E-4).<sup>4</sup> The 20-degree rule would require a 5.5 NM corridor width for 15 NM corridors between turbines, and proportionally wider corridors for longer rows of turbines (a 65 NM long diagonal corridor is contemplated in the MARIPARS Draft, p. 32, Fig. 20); and,
- vi) why, among the new recommendations in MGN 543 (not previously found in MGN 371), only the method suggesting the narrowest safety margin was chosen for use in the MARIPARS Draft and all other methods suggesting wider safety margins were discarded without consideration.

5. The alternative spacing analysis contains computation errors. Corrected computations give diagonal corridor widths of 1.28 NM, and resulting grid spacing of 1.81 NM.

According to the MARIPARS draft, the calculation is based on the so-called “Netherlands study,”<sup>5</sup> which clearly indicates the 500 m (0.270 NM) UNCLOS Safety Zone applies on each side of the route if vessels are passing between turbines (Appendix 6, p. 62). The calculation error is prominently shown in MARIPARS Figure 21 (p. 36), in which the missing UNCLOS Safety Zone for the second row of turbines breaks the symmetry of the colored bands in the Figure.

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<sup>4</sup> Like Closest Point of Approach, concern about Cross Track Error is omitted from the MARIPARS Draft.

<sup>5</sup> “White Paper on Offshore Wind Energy, Appendix 6: Assessment Framework for Defining Safety Distances between Shipping Lanes and Offshore Wind Farms,” published by The Ministry of Infrastructure and the Environment and the Ministry of Economic Affairs of the Netherlands. September, 2014.

The recommendations of the alternative spacing analysis depend critically on the maximum length of vessels contemplated to navigate through the developed wind energy area (WEA). The MARIPARS Draft assumes these vessels to be only fishing vessels, and reports their maximum length as 144 ft. With respect to maximum vessel length, there appear to be additional data sources *submitted by the developers* documenting the presence of significantly larger vessels. These submissions were apparently ignored despite BOEM's explicit request that the Coast Guard "consider vessel traffic analyses already submitted through developer NSRAs (Navigation Safety Risk Assessments)." (MARIPARS Draft Appendix E, Synopsis of Comments, p. 4).

The Revised Navigational Risk Assessment (July 24, 2018) submitted by Vineyard Wind as an appendix to their Construction and Operations Plan (COP) reported maximum vessel lengths in the 2016-2017 AIS data to be 197 ft for commercial fishing and 184 ft for recreational vessels (Table 4.0-2, p. 46). In the Baird report accompanying the leaseholders' proposal of a 1x1 uniform grid layout, the maximum fishing vessel length for 2017-2018 was listed at 195 ft for commercial fishing and 300 ft for recreational vessels (Table 2.1, p. 3). Finally, the South Fork Wind Farm (SFWF) Navigational Risk Assessment (COP Appendix X, October 2, 2018) submitted by Orsted reported that 37% of all vessels transiting in the vicinity of the SFWF had a length overall (LOA) of 164-246 ft (Table 5-2, p. 71) using July 2016 to July 2017 data from the AIS (p. 22).

To summarize the above, it appears 195 ft is a more appropriate assumption for the maximum length of vessels transiting the WEA than the 144 ft length assumed in the MARIPARS Draft. A length of 195 ft is still conservative given that it is not known whether larger vessels, including recreational, will continue to pass through the MA/RI Wind Energy Area (WEA) after development. A recent study commissioned by NYSERDA<sup>6</sup> notes "it is generally not prudent for large commercial vessels (>70 meters [220 feet] in length) to transit between [turbines]," (p. 46) but makes no such observation for smaller vessels. As a more extreme example, the leaseholders contend that vessels up to 400 ft may still safely pass through the turbine array.

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<sup>6</sup> New York State Offshore Wind Master Plan Shipping and Navigation Study, NYSERDA Report 17-25q, December 2017. Prepared for New York State Energy Research and Development Authority by The Renewables Consulting Group, LLC, New York, NY.

Applying the estimate of 195 ft to the calculation in MARIPARS Section IV.D. (23 vessel lengths) results in an additional 1,173 ft (0.193 NM) needed for the required minimum width of the route, between the UNCLOS safety zones. The full calculation generates required diagonal corridor widths of 1.28 NM, or uniform grid spacing of 1.81 NM. This width is still narrower than the recommendation from USCG CPA guidance.

6. The MARIPARS analysis fails to consider the possibility of search-and-rescue (SAR) along diagonal search paths. Doing so would result in a diagonal spacing requirement of 1.0 NM, corresponding to 1.41 NM grid spacing. It is not discussed that this requirement would exceed the spacing in the leaseholders' proposal. The following considerations emphasize the potential importance of search along the grid diagonals, and/or 1 NM spacing along the diagonals.

i) As discussed above, both the MARIPARS Draft and the leaseholders' proposal indicates vessels are intended to transit along the diagonals of the WEA. In their seminal text, Soza (1996)<sup>7</sup> defines a "line datum" as including "situations where a vessel or aircraft was known or suspected to have experienced distress while traveling along a straight line connecting two points" (pp. 3-6, 3-7). In this event the highest probability search area will be parallel to that line (pp. 3-7, 3-8). If vessels are transiting along the diagonal corridors of the uniform grid layout, there will inevitably be SAR incidents with a line datum along a diagonal, where a search pattern of sweeps along parallel diagonals may be optimal. The MARIPARS Draft recommends "a minimum of 1 NM between turbines along a search path" (p. 29), based on visual flight rules for helicopters. Unfortunately, this requirement renders diagonal search paths infeasible in the leaseholders' proposed 1x1 grid and suggests the need for a minimum of 1 NM spacing along the diagonal navigation corridors of the grid, or 1.41 NM uniform grid spacing.

ii) The MARIPARS Draft indicates that disabled vessels are the most common SAR incident in the WEA (p. 27), while Soza states "survivors adrift on the ocean

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<sup>7</sup> The Theory of Search, A Simplified Explanation. Soza & Company, Ltd. and Office of Search and Rescue, U.S. Coast Guard. October 1996.

move with the winds and currents" (p. 1-5, among many). The MARIPARS Draft indicates that predominant wind patterns in the area include summer winds tending to blow from the Southwest and stronger winter winds tending to blow from the Northwest (p. 26). While this observation also suggests high probability search along the diagonals, this is likely to be a secondary concern relative to the line datum scenario above: drift motion over periods of "one to a few days" may be somewhat predictable, but is usually quite random over shorter time scales (Soza 1996, p. 5-3). Depending on the density of the grid layout, it may be quite unlikely that a disabled vessel could be adrift for an extended period without encountering a WTG platform.

- iii) The MARIPARS Draft notes that "in the event visibility significantly decreases while a helicopter is already operating within the WEA, space may be needed greater than 1 NM in order for a flight crew to safely exit the wind farm area," but acknowledges it is not known how much additional space is needed (p. 30). Implementing 1 NM spacing along the diagonals would allow for both diagonal search and for aircraft facing deteriorating conditions to optionally exit the WEA using the larger 1.41 NM grid spacing available along the horizontal and vertical lines of orientation.

## Summary

I would like to conclude my letter with a brief overview of my findings.

On the critical issue of spacing to either side of a navigation corridor, the MARIPARS Draft departs from USCG Closest Point of Approach (CPA) guidance without explanation. In place of the guidance, an alternative spacing analysis method is used without proper justification, and computation errors are made within the alternative method. To make matters worse, the alternative method was previously evaluated and discarded by the USCG.

Though they would not require as much spacing as CPA guidance, search-and-rescue considerations with respect to a search path along the grid diagonals are also ignored.

Altogether, these shortcomings serve to understate the minimum required grid spacing for safe transit by 46% or more by my calculations. Such a severe miscalculation can have dramatic consequences for safe navigation in the MA/RI Wind Energy Area. Furthermore, correcting any one of the oversights identified would lead to recommended grid spacing that is substantially wider than that proposed by the leaseholders. Instead, the MARIPARS Draft fails to discuss any potentially conflicting guidance and issues a recommendation exactly matching the leaseholders' proposal.

After reading my review, I believe you will agree that the MARIPARS Draft cannot and should not be approved as final until substantial corrections are made.

Sincerely,

**Thomas Sproul, Ph.D.**