



December 3, 2012

Bureau of Ocean Energy Management  
Office of Renewable Energy Programs  
381 Elden Street, HM 1328  
Herndon, Virginia 20170

**Re: Comments by the Society for Conservation Biology<sup>1</sup> on Behalf of its Marine Section Regarding the Environmental Assessment for Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts**

On behalf of the Marine Section of the Society for Conservation Biology (SCB), we offer the following comments on the Bureau of Ocean Energy Management's environmental assessment (EA) for its proposed wind energy lease issuance on Massachusetts' outer continental shelf.<sup>2</sup> The Bureau of Ocean Energy Management (BOEM) is responsible for issuing leases, easements, and rights-of-way on the Outer Continental Shelf (OCS) for the purpose of wind energy development.<sup>3</sup> As part of its responsibilities in carrying out these leases, BOEM is responsible for ensuring that these wind energy leases comply with all applicable environmental laws, including the Endangered Species Act. Through its scoping process, BOEM has determined that part of the Massachusetts Wind Energy Area may be important to the critically endangered North Atlantic right whale (*Eubalaena glacialis*).<sup>4</sup> Despite determining that a portion of the Wind Energy Area may be sited in close proximity to important migratory and feeding area for right whales, BOEM has chosen to lease the entire Wind Energy Area as its preferred alternative.

SCB is concerned that if BOEM were to adopt its preferred alternative, BOEM would potentially be putting the right whale at greater jeopardy of extinction. Increasing evidence indicates that chronic exposure to anthropogenic noise between 120-160 decibels (dB) harms marine mammals, including the right whale. Hatch et al. concluded that vessel traffic around Stellwagen Bank National Marine Sanctuary, which is located east of Boston, Massachusetts and close to the proposed Wind Energy Area, had significant negative effects on the ability of right whales to communicate with one another.<sup>5</sup> Thus, permitting wind leasing activities, which is anticipated to result in over 6,500 vessel trips in the proposed leasing area may represent a violating

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<sup>1</sup> SCB is an international professional organization whose mission is to advance the science and practice of conserving the Earth's biological diversity, support dissemination of conservation science, and increase application of science to management and policy. The Society's membership comprises a wide range of people interested in the conservation and study of biological diversity. Resource managers, educators, government and private conservation workers, and students make up the Society's 5,000 members worldwide in over 140 countries.

<sup>2</sup> Bureau of Ocean Energy Management. 2012. Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts, Environmental Assessment (hereafter WIND ENERGY ENVIRONMENTAL ASSESSMENT). OCS EIS/EA BOEM 2012-087; available at: <http://www.boem.gov/Renewable-Energy-Program/Smart-from-the-Start/Index.aspx>

<sup>3</sup> Energy Policy Act of 2005, 43 U.S.C. § 1337(p)(1)(C).

<sup>4</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 15.

<sup>5</sup> Hatch, L.T., et al. 2012. *Quantifying Loss of Acoustic Communication Space for Right Whales in and Around a U.S. National Marine Sanctuary*, Conservation Biology 26:983-994; Ellison, W.T., et al. 2012. *A New Context-Based Approach to Assess Marine Mammal Behavioral Responses to Anthropogenic Sounds*, Conservation Biology 26:21-28.



of Section 7 of the ESA, which requires all federal agencies to use their authorities to carry out programs for the conservation of endangered species and to ensure that their actions will not jeopardize the continued existence of any endangered species. Given the suite of anthropogenic threats that the right whale faces from commercial fisheries, collisions with large vessels, military training activities, and possibly offshore oil and gas exploration activities, **SCB recommends that BOEM adopts Alternative B, the right whale exclusion alternative, subject to certain additional mitigation measures recommended below.** Adopting this alternative would allow leasing and site assessment activities to continue in the majority of the Massachusetts Wind Energy Area while also providing an adequate level of protection for the right whale.

## **I. Background on the Wind Energy Environmental Assessment and Relevant Statutory Framework.**

The National Environmental Policy Act (NEPA) sets forth a national policy to “encourage productive and enjoyable harmony between man and his environment” and to “promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man.”<sup>6</sup> NEPA does not set out substantive environmental standards, but instead establishes action-forcing procedures that require agencies to take a “hard look” at environmental consequences.<sup>7</sup> To accomplish this hard look at environmental consequences, NEPA requires that Federal agencies prepare an Environmental Impact Statement (EIS) for all “major Federal actions significantly affecting the quality of the human environment.”<sup>8</sup> Where there is uncertainty as to whether a Federal agency action will significantly affect the environment, an agency may elect to first prepare an Environmental Assessment (EA) to determine whether a full EIS is needed.<sup>9</sup> If the EA determines that an action will significantly affect the environment, then an EIS must be prepared.<sup>10</sup> If the EA determines that an action will not significantly affect the environment, it may issue a Finding of No Significant Impact (FONSI). NEPA requires that projects be objectively evaluated as a safeguard against the inevitable institutional bias within the agency proposing a project that such project be completed as originally contemplated.<sup>11</sup>

Many proposed agency actions are complex and involve multiple levels of planning and approval. The leasing of offshore wind energy is a multi-step process that will include several levels of environmental review prior to any specific proposal to construct wind energy turbines offshore. In situations like these, agencies may tier their NEPA analysis, such that the level of specificity in the environmental analysis is concomitant with the level of specificity in the planning stage that the agency currently is undertaking.<sup>12</sup> Agencies are encouraged to tier their environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review. Whenever a broad EA or EIS has been prepared (such as a programmatic analysis of wind energy on the Atlantic OCS) and a subsequent EIS is then prepared on a specific action included within the scope of the

<sup>6</sup> 42 U.S.C. § 4321

<sup>7</sup> *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989).

<sup>8</sup> 42 U.S.C. § 4332(2)(C)

<sup>9</sup> 40 C.F.R. § 1501.4

<sup>10</sup> 40 C.F.R. § 1508.9; See also *Salmon River Concerned Citizens v. Robertson*, 32 F.3d 1346 (9<sup>th</sup> Cir. 1994).

<sup>11</sup> *Environmental Defense Fund v. U.S. Army Corps of Engineers*, 470 F.2d 289 (8<sup>th</sup> Cir. 1972).

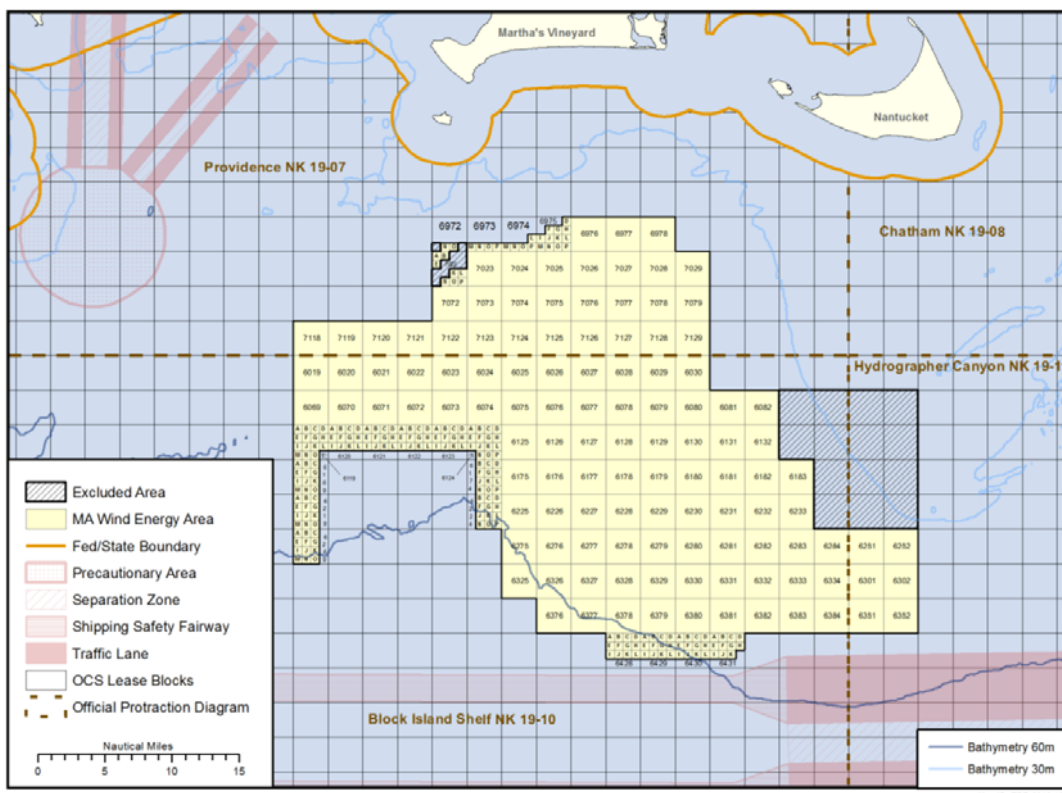
<sup>12</sup> 40 C.F.R. §§ 1502.20, 1508.28



programmatic action, the subsequent EIS need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and concentrate on the issues specific to the subsequent action.

In 2010, BOEM went through a planning process to identify suitable areas for wind energy projects offshore of Massachusetts “through collaborative, consultative, and analytical processes using the Massachusetts Renewable Energy Task Force, public information meetings, and input from the States, Native American Tribes, and other stakeholders.”<sup>13</sup> This led to the identification of the 877 square nautical mile Offshore Massachusetts Wind Energy Area. See Figure One.

Figure One – Offshore Massachusetts Wind Energy Area<sup>14</sup>



Once the Wind Energy Area was identified, BOEM began the second phase in planning, which involves the issuance of commercial wind energy leases in this area. A wind energy lease gives a lessee the exclusive right to subsequently seek BOEM approval for the development of the wind energy at a future time. The lease does not grant the lessee the right to construct any wind turbines, but rather to develop plans and gather data to develop wind turbines in the future. In a leasing proposal such as this, BOEM does not yet know where wind turbines will eventually be located because interested wind energy developers do not yet have sufficient information about the environment as to where wind turbines should be located. BOEM has elected to develop an EA to review the potential environmental impacts of leasing areas of Massachusetts for wind energy.

<sup>13</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 11.

<sup>14</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 2.



BOEM will be required to develop an EIS once it receives a specific proposal to develop offshore wind energy turbines at a specific location, and may tier its EIS to the EA being proposed here.<sup>15</sup> BOEM may also need to complete an EIS if the approval of site assessment plans (SAPs) within the Massachusetts Wind Energy Area would lead to reasonably foreseeable significant impacts on the environment.

After a wind energy lease is approved, BOEM will review the lessee's site assessment plan (SAP). The SAP contains a detailed proposal for the construction of a meteorological tower, installation of meteorological buoys, or a combination of the two to determine whether a site has sufficient wind energy potential for future development of a commercial wind energy facility. The SAP must be approved by BOEM before any site assessment activities occur, and BOEM may require modifications to the SAP prior to approval.<sup>16</sup> The final stage of the process is BOEM's review of the lessee's construction and operation plan (COP). The COP is a detailed plan for the construction and operation of a wind energy project on the lease. A COP allows the lessee to construct and operate wind turbine generators and associated facilities for a specified term. BOEM approval or approval with modifications of a COP is a precondition to the construction of any wind energy facility on the Atlantic OCS.<sup>17</sup>

Under Section 7 of the Endangered Species Act (ESA), all federal agencies within the executive branch must consult with the National Marine Fisheries Service (NMFS) if a proposed agency action could "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat."<sup>18</sup> The issuance of a wind energy lease qualifies as an action that BOEM must complete consultations on with NMFS. As an initial step, BOEM must prepare a Biological Assessment (BA) to determine whether the proposed action "may affect" a listed threatened or endangered species.<sup>19</sup> If BOEM concludes that issuing a wind energy lease "may affect" any threatened or endangered species, then NMFS and BOEM must enter into formal consultations to produce a Biological Opinion (BO) on whether the action will in fact jeopardize the survival or recovery of a listed species.

## A. Status of and Risk to the Right Whale

The primary species that may be at risk from wind energy development on the outer continental shelf are endangered marine mammals, and in particular the North Atlantic right whale, which is one of the world's most critically endangered marine mammals, with an estimated population at approximately 361 individuals. Continued threats to the North Atlantic right whale population include entanglements in commercial fisheries gear, vessel strikes, underwater noise, habitat degradation, and predators. The 2004 recovery plan for the right whale states: "there has been no apparent sign of recovery in the last 15 years....the possibility of biological extinction in the next century is very real."<sup>20</sup> Elsewhere, NMFS has stated that the "loss of even a single

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

<sup>16</sup> 30 CFR 585.613

<sup>17</sup> 30 CFR 585.620

<sup>18</sup> 16 U.S.C. § 1536(a)(2).

<sup>19</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 233.

<sup>20</sup> NMFS. 2004. Recovery Plan for the North Atlantic Right Whale (*Eubalaena glacialis*) Revision. Available at: [http://www.nmfs.noaa.gov/pr/pdfs/recovery/whale\\_right\\_northatlantic.pdf](http://www.nmfs.noaa.gov/pr/pdfs/recovery/whale_right_northatlantic.pdf)



individual may contribute to the extinction of the species.”<sup>21</sup> A 2010 biological opinion regarding the Atlantic lobster fisheries documented serious injury and mortality to right whales from fishing gear entanglements and ship strikes are still occurring at an average rate of 2.8 per year.<sup>22</sup> A 2011 stock assessment determines that a minimum of 2.4 right whales per year were either seriously injured or killed each year between 2005-2009 and set the potential biological removal for the species at 0.8 right whales/year. The stock assessment concludes, “no mortality or serious injury for this stock can be considered insignificant.”<sup>23</sup> Other endangered species, including the fin whale (*Balaenoptera physalus*) and humpback whale (*Megaptera novaeangliae*) also occur in the proposed Wind Energy Area.

SCB hopes that BOEM and NMFS will carefully consider the cumulative impacts of pre-existing stressors on north Atlantic right whales as it weighs future wind energy leasing activities. Under the status quo, the right whale is unlikely to recover. Poorly planned wind energy development could further weaken the baseline for this species, putting its recovery and survival at even greater risk. Given the conservation status of the right whale, growth of the population is essential for its survival and recovery, therefore BOEM must make every effort to mitigate any foreseeable impacts to this species in its proposed activities.

The BA completed by BOEM concluded that leasing was not likely to adversely affect any endangered species because all anticipated impacts are predicted to be either discountable or insignificant.<sup>24</sup> This conclusion is difficult to reconcile with the predicted impacts described in the EA, which predict thousands of additional vessel trips in the Wind Energy Area as well as significant acoustic noise. If these activities displace right whales or other endangered marine mammals, such actions would represent take and adverse affects for these species. SCB is particularly concerned about the potential impacts that these leasing and site assessment activities may have on the right whale because **BOEM does not have sufficient data regarding year-round distribution of the right whale and BOEM has not considered obvious supplementary mitigation actions that would further minimize any impacts from wind energy activities.** In each alternative under discussion, BOEM allows for a dramatic increase in vessel traffic to conduct high resolution geophysical surveys at all times of year. None of the alternative discusses the possibility of a seasonal closure when right whales are most likely to be present. Accordingly, **SCB recommends a rigorous analysis in the final EA and the upcoming BO to address the cumulative impacts of all activities on the right whale, and recommends additional conservation measures to protect these species in the Wind Energy Area.**

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<sup>21</sup> Advance Notice of Proposed Rulemaking (ANPR) for Right Whale Ship Strike Reduction, 69 Fed. Reg. 30,857, 30,858 (June 1, 2004)

<sup>22</sup> Endangered Species Act Section 7 Consultation on the Continued Implementation of Management Measures for the American Lobster Fishery [Consultation No. F/NER/2003/00956] at 23. Available at: [http://www.nero.noaa.gov/prot\\_res/section7/NMFS-signedBOs/LOBSTER%20BIOP%202010.pdf](http://www.nero.noaa.gov/prot_res/section7/NMFS-signedBOs/LOBSTER%20BIOP%202010.pdf)

<sup>23</sup> North Atlantic Right Whale (*Eubalaena glacialis*): Western Atlantic Stock. Available at: <http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2011whnr-w.pdf>

<sup>24</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 233.



## B. General Concerns Regarding Wind Energy Development

In order to understand the net effect or impact of any proposed energy development one must understand the direct, cumulative and related or dependent effects as well as the effects of any displacement of other activities not undertaken. To the extent that wind energy can displace fossil fuel derived energy sources, wind energy can help to reduce environmental harms. The key in environmental impact assessment and biological assessment is to understand the full array of negative and positive effects on different species. Oil-fired electric generation and coal-fired electric power has left a serious legacy of acid rain affecting many bird species, especially waterfowl. The US EPA's New England Region explains how wind energy and other renewable energy forms help reduce acid rain and other pollution that comes largely from the sulfur dioxide and nitrous oxide emitted when electricity is generated from the burning of coal, oil, and natural gas. This acid rain causes a number of problems by changing the pH balance and chemistry of waters, harming or killing fish, fish-eating birds, and plant life:

Renewable energy sources such as wind, hydroelectric, and solar are contributing to cleaner air in New England and slowing the region's increase in fossil fuel consumption. Some states are calling for increasing amounts of electricity from renewable resources. Wind power, in particular, has become a more important source of electricity due to the fact that its costs are now similar to that of traditional fossil fuel resources.<sup>25</sup>

In 2012 two related studies focusing on a tract in the White Mountains of New Hampshire found that climate change is likely to further acidify New England ecosystems that have been affected by many years of acid deposition and reductions in rainfall due to climate change.<sup>26</sup>

However, wind energy generation can also have a direct negative impacts on the environment, including many species of birds, especially sea ducks. Therefore it is important to determine how best to avoid or minimize those effects while also reducing reliance on fossil fuel generated electricity. A meta analysis by the Centre for Evidence-Based Conservation in England of several studies found in 2005 that:

Available evidence suggests that windfarms reduce the abundance of many bird species at the windfarm site. There is some evidence that Anseriformes (ducks) experience greater declines in abundance than other bird groups suggesting that a precautionary approach should be adopted to windfarm developments near aggregations of Anseriformes and to a lesser extent Charadriiformes particularly in offshore and coastal locations. There is also some evidence that impact of windfarms on bird abundance becomes more pronounced with time, suggesting that short term bird abundance studies do not provide robust indicators of the potentially deleterious impacts of windfarms on bird abundance.

These results should be interpreted with caution given the small sample sizes and

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<sup>25</sup> <http://www.epa.gov/region1/eco/acidrain/future.html>

<sup>26</sup> Groffman, P. et al., *Long-Term Integrated Studies Show Complex and Surprising Effects of Climate Change in the Northern Hardwood Forest*, BioScience, December 2012.



variable quality data. More high quality research and monitoring is required, in particular, long term studies with independent controls and variance data. Pending further research, if impacts on bird abundance are to be avoided, the available evidence suggests that windfarms should not be sited near populations of birds of conservation importance, particularly Anseriformes.<sup>27</sup>

One finding that might ameliorate some of this impact is that larger or higher powered turbines (whose blades generally make fewer rotations per minute to generate the same amount of power) led to smaller declines in bird abundance. The trend in the commercial generation industry is toward higher power turbines, particularly for offshore wind energy generation. The CEBC analysis found that:

Turbine number did not have a significant impact on bird abundance whilst turbine power had a very weak but statistically significant effect ( $r = 0.002$ ,  $SE = 0.0007$ ,  $P = 0.004$ ) with low power turbines resulting in greater declines in abundance than high power turbines.

While larger wind turbines may pose lower risks to some species, that may not be true for others, and that in turn may depend on where they are and how they are operated. One comprehensive process for making such assessments and determinations was published this year. In August of this year the Swedish Environmental Protection Agency published its English translation of an analysis of studies available in 2010 with findings that bat and bird conservation measures vary according to species, for example, that migrating sea birds tend to avoid wind farms.<sup>28</sup> **SCB recommends that as BOEM proceeds with its consideration of the area in question and other such areas, and with environmental and biological assessments and opinions that it make sure it has considered the findings and recommendations of experts and expert agencies in Europe as well as in the U.S. on these issues.**<sup>29</sup>

## **II. BOEM Should Adopt Alternative B with Modifications Because the Preferred Alternative is Not Sufficiently Protective for the Right Whale.**

The EA identified Alternative A, leasing of the entire Massachusetts Wind Energy Area, as its preferred alternative. If Alternative A is adopted, BOEM would be selecting the alternative that permits the greatest amount of human activity and development within the Wind Energy Area, which in turn would put the right whale at the highest risk of harm. These risks come from three

<sup>27</sup> "Effects of wind turbines on bird abundance", Summary Report, Reviewers: Stewart, G.B., Pullin, A.S. & Coles, C.F., Centre for Evidence-Based Conservation, The University of Birmingham, UK (2005)  
<http://www.environmentalevidence.org/Documents/Summary/Summary-SR4.pdf>

<sup>28</sup> Rydell, J. et al. 2012. The Effect of Wind Power on Birds and Bats – A synthesis for the Swedish Environmental Protection Agency (August 2012). This report is a translation of the previous report in Swedish: "Vindkraftens effekter på fåglar och fladdermöss". (Naturvårdsverket report no 6467). Available at:  
<http://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6511-9.pdf>

<sup>29</sup> For example, the Biodiversity Research Institute of Portland Maine recently presented a paper that has not yet been published on marine wildlife and off shore wind energy at a workshop hosted by the National Wind Coordinating Council and the American Wind Wildlife Institute. The BRI paper grew out of a two-day workshop in 2011 at which SCB's Policy Director and North American Section President helped to present the legal and policy context for wind energy development and wildlife conservation.  
[http://www.nationalwind.org/assets/research\\_meetings/NWCC\\_Research\\_Meeting\\_IX\\_Program\\_Final.pdf](http://www.nationalwind.org/assets/research_meetings/NWCC_Research_Meeting_IX_Program_Final.pdf)



primary areas, additional underwater acoustic pollution, increased risks of ship-strikes with whales, and acoustic injury from pile-driving activities.

There is growing evidence and research that the chronic exposure to human-induced underwater noise results in significant behavioral changes that negatively affect the conservation status of marine mammals. Increasing levels of background noise impacts critical behaviors, including the ability to survive and reproduce and also elevates stress hormone levels in individual right whales.<sup>30</sup> Hatch et al. (2012) quantified that in the areas around Stellwagen Bank National Marine Sanctuary, right whales have lost 63% of the communication opportunities available to them compared to 50 years ago.<sup>31</sup> This research indicates that right whales are repeatedly subjected to noises greater than 120-dB as a result of routine ship traffic. They suggest that these levels of chronic noise should constitute “acoustic harassment,” thereby necessitating permitting under the Marine Mammal Protection Act, which prohibits take of protected marine mammal species.

Under its preferred alternative, BOEM predicts that between 2,600 and 6,500 additional vessel trips will be required for site characterization and survey activities within the Massachusetts Wind Energy Area during the 2014-2019 site assessment period. This vessel traffic will likely result in multiple impacts for marine mammals, including reduced communication, interference with predator/prey detection, and avoidance of habitat areas.<sup>32</sup> Ambient sound levels in the Wind Energy Area may already be significantly higher than those in the deep ocean due to the increased levels of human activity in the waters around Nantucket and Martha’s Vineyard from commercial and industrial shipping, fishing vessel, and recreational boat traffic.<sup>33</sup> As a result the cumulative impact of additional acoustic pollution is hard to predict and the EA admits as much by stating that “to what extent the increase of up to 6,500 vessel round trips...would add to the acoustic environment in the region is unknown.”<sup>34</sup>

Another source of noise that will occur during the site assessment process is the use of high-resolution geophysical (HRG) surveys to identify shallow hazards and cultural resources, and to investigate the feasibility of sites for wind turbine platform construction.<sup>35</sup> Depending on the type of HRG survey equipment, broadband source levels would be between 212-226 dB. The EA estimates that surveying the entire Wind Energy Area would take approximately 14,250 hours (not including transit time to and from the Wind Energy Area). The sound range of side-scan sonar surveys would be between 100 to 900 kHz, which is outside the hearing range of baleen whales (including the right whale). However, several HRG survey methods, namely boomer and CHIRP sub-bottom profiler methods, operate at frequencies that are within the hearing frequency ranges for

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<sup>30</sup> Ellison, W.T., et al. 2012. *A New Context-Based Approach to Assess Marine Mammal Behavioral Responses to Anthropogenic Sounds*, Conservation Biology 26:21-28. Rosalind, M.R., et al. 2012. *Evidence that ship noise increases stress in right whales*. Proceedings of the Royal Society. February 2012.

<sup>31</sup> Hatch, L.T., et al. 2012. *Quantifying Loss of Acoustic Communication Space for Right Whales in and Around a U.S. National Marine Sanctuary*, Conservation Biology 26:983-994.

<sup>32</sup> Southall, B.L. 2005. *Final Report of the National Oceanic and Atmospheric Administration (NOAA) International Symposium: Shipping Noise and Marine Mammals: A Forum for Science, Management, and Technology*. 18-19 May, 2004. Arlington, VA. 40 pp.

<sup>33</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 138.

<sup>34</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 151.

<sup>35</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 25.





all marine mammals.<sup>36</sup> According to the EA, if right whales are within approximately 1,500 ft of these HRG survey activities, they may experience sound levels of 160 dB, which could result in behavioral changes or harassment.

Equally problematic, is the unavoidable increase in risk that these activities will result in a vessel collision with a right whale, or other endangered whale species. Collisions with ships resulting in serious injury or death are not uncommon with cetaceans and are a significant threat to the recovery of the North Atlantic right whale.<sup>37</sup> The EA notes that the highest risk of vessel strike for right whales is most likely during the transit to and from the Massachusetts Wind Energy Area.<sup>38</sup> Under the four alternatives presented, the preferred alternative involves the largest area, and accordingly the largest number of possible vessel trips between ports of call and the leasing area (approximately 6,500 trips). This means that the preferred alternative presents the greatest risk of harm to the right whale. It is also possible that additional noise from leasing and siting activities in the Massachusetts Wind Energy Area will displace right whales into other areas where shipping traffic is even higher, thus resulting in additional un-quantified risks to the right whale.

The final major risk to right whales comes from pile driving activities used during the construction process for meteorological towers designed to assess commercial wind energy development potential. Pile driving into the sea-floor represents some of the loudest noises that will likely be generated during the leasing and site assessment process. Pile driving uses high-energy sources that can produce high sound pressure in excess of 200 dB and broadband frequencies from 20 Hz to >20 kHz, well within the hearing range of baleen whales including the right whale.<sup>39</sup> A study of wind turbine noise on right whales, harbor porpoises, bottlenose dolphins, and harbor seals indicated that “pile-driving sounds are audible to these marine mammals at very long ranges of more than 100 km, and possibly up to more than a thousand kilometers.”<sup>40</sup> Such noise easily has the potential to adversely affect right whales that are migrating or feeding in or around the Massachusetts Wind Energy Area. According to the EA, pile-driving would be audible to nearly all marine mammals up to 50 kilometers away from the source of the pile-driving activity, and could potentially cause permanent or temporary threshold shift in physiology of impacted marine mammals that are within 100 meters of the pile-driving activities.<sup>41</sup> Lower levels of noise from pile driving could interfere with foraging or social behavior, potentially leading to avoidance of a preferred habitat. Because the preferred alternative allows for the construction of the most meteorological towers (five in total equaling 160 hours of pile driving activity), potentially in areas where right whales frequent, this alternative again represents the highest risk for this species, as well as other endangered marine mammals like fin whales, which are present year round in the Wind Energy Area.

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<sup>36</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 144.

<sup>37</sup> Kraus, S.M., et. al. 2005. North Atlantic right whales in crisis. *Science*. 309:561-562.

<sup>38</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 153.

<sup>39</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 117.

<sup>40</sup> Madsen, P.T., M. Wahlberg, J. Tougaard, K. Lucke, and P. Tyack. 2006b. *Wind turbine underwater noise and marine mammals: Implications of current knowledge and data needs*. Marine Ecology Progress Series 309: 279-295.

<sup>41</sup> Bailey, H., et. al. 2010. *Assessing underwater noise levels during pile-driving at an offshore windfarm and its potential effects on marine mammals*. Marine Pollution Bulletin, 60(6), 888-897; See also, WIND ENERGY ENVIRONMENTAL ASSESSMENT at 148.



Due to the predicted impacts described above, it is clear that Alternative A is not sufficiently precautionary or protective of the right whale. While it is true that NEPA does not contain a substantive mandate to adopt the environmentally most protective alternative, BOEM is required to comply with Section 7 of the ESA, which prohibits any agency action that is likely to jeopardize the existence of any threatened or endangered species. The additional vessel traffic and noise present two additional threats to one of the most endangered species on the planet. As discussed in Section III, the proposed standard operating conditions for site assessment work do not contain sufficient mitigation measures to protect against these predicted impacts, which will be greatest in scale under Alternative A. SCB also notes that leasing and site assessment activities probably do, as a matter of fact, make it somewhat more likely that a commercial wind farm will be installed in an area in the future. BOEM certainly has the ability to prohibit a lessee from developing a commercial wind energy facility, but allowing a lessee to conduct five years of site assessment does create a certain amount of momentum towards completing a project because the lessee will have invested substantial resources into such an endeavor. However, if areas that are known to have been frequented by right whales are excluded *at the onset* of leasing, then there is no built-in expectation that future development will be possible in that particular section of the lease area. In many ways, SCB's concern is analogous to the requirement in NEPA that an agency consider all its options before there is "irreversible and irretrievable commitment of resources" that moves the project forward.<sup>42</sup>

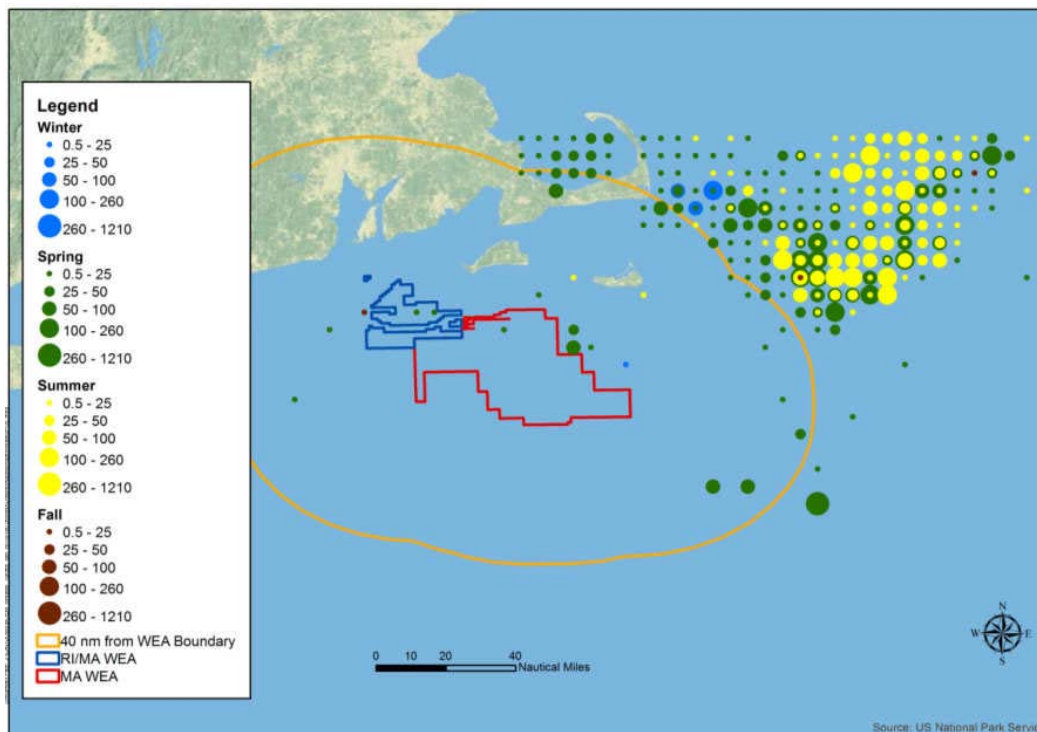
For these reasons, SCB supports Alternative B subject to the additional information and potential modification recommended below. Alternative B would exclude approximately 233 square nautical miles of the north-eastern portion of the Wind Energy Area and would reduce the likelihood of impacts on right whales by excluding areas with relatively high known historical occurrence for right whales in the spring (See Figure Two). Alternative B would result in a 35 percent reduction in vessel traffic when compared to Alternative A and a reduction in the total number of meteorological towers permitted from five to three. This in turn would lessen the amount of acoustic noise pollution from vessel transits, HRG surveys, and pile driving activities. Alternative B would result in another substantial reduction in risk for ship-strikes on right whales compared to Alternative A. The risk from all of the activities is even further reduced because BOEM would remove areas of known right whale occurrences from leasing consideration under Alternative B, thus reducing areas where project activities are more likely to interact with right whales.

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<sup>42</sup> 42 U.S.C. § 4332(2)(C)(v).



Figure Two – Historic Right Whale Sightings through 2009 in Wind Energy Area<sup>43</sup>



While supporting Alternative B, SCB is concerned that BOEM does not possess sufficient information about the year round distribution of right whales in the Wind Energy Area. For example, the EA states that distribution data is based on sightings through 2009, but that “high numbers of right whales were observed in the nearby waters to the west of the WEA during both 2010 and 2011.”<sup>44</sup> Survey effort for right whales has been relatively low in this area and that the “current knowledge of migratory and feeding activities is incomplete” and that given the variability in the timing and location of these activities, right whales could occur in the Wind Energy Area during any season. The EA admits that “more data are needed for a more definitive summary of right whale abundance in and use of this area.”<sup>45</sup> Given this data need, SCB recommends additional passive acoustic monitoring of all areas within and around the Wind Energy Area to determine where right whales may be present throughout the year. Alternative B appears designed to provide a significant buffer on the east side of the Wind Energy Area where right whales have been documented in the past (see Figure Three). However, there is no corresponding buffer on the west side of the Wind Energy Area despite the fact that large numbers of right whales were observed in those waters very recently. **SCB requests that BOEM provide additional information as to the general location of these sightings, the approximate number of right whales that were sighted, and provide additional information justification as to why BOEM chose not to establish any protective buffers on the western side of the Wind Energy Area.** If this area of recent right

<sup>43</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at Appendix F.

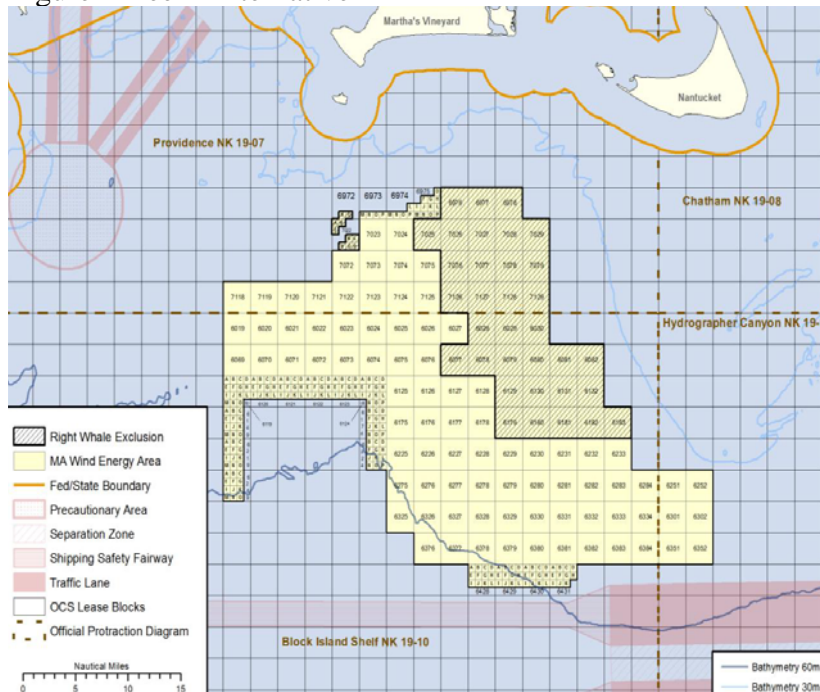
<sup>44</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 132.

<sup>45</sup> *Id.*



whale activity is significant for the species, then SCB requests that Alternative B be modified to expand the exclusion area to protect right whales on the western edge of the Wind Energy Area.

Figure Three – Alternative B<sup>46</sup>



### **III. Additional Mitigation Measures Are Required in All Site Assessment Plans and Standard Operating Conditions to Fully Protect the Right Whale and Reach a Conclusion that No Significant Impacts Will Occur.**

Under NEPA, an agency must prepare an Environmental Impact Statement unless it makes a Finding of No Significant Impact (FONSI) at the end of the EA review process. According to the regulations implementing NEPA, whether or not an impact is significant depends upon the context and intensity of the action.<sup>47</sup> For the purposes of NEPA, a project does not need to rise to the level of jeopardy under Section 7 to trigger the requirement for the preparation of an EIS. Instead, when a proposed agency action is likely to adversely affect an endangered species and triggers Section 7 consultations, that action generally rises to the level of significance that requires the preparation of an EIS.<sup>48</sup> Therefore, it is critical that BOEM take every action possible to ensure that its actions will have no effect on right whales or other endangered marine species. Doing so will require additional mitigation measures in the standard operating conditions proposed by BOEM.

<sup>46</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 17.

<sup>47</sup> 40 C.F.R. § 1508.27; See also *Hanley v Kleindienst*, 471 F.2d 823 (2nd Cir. 1972)

<sup>48</sup> *Ocean Advocates v U.S. Army Corps of Engineers*, 361 F.3d 1108 (9<sup>th</sup> Cir. 2003) (holding that the presence of one intensity factor may be sufficient to deem the action significant in certain circumstances); See also, *Greater Yellowstone Coalition v. Flowers*, 359 F.3d 1257, 1275-1276 (10<sup>th</sup> Cir. 2004) (Finding that the construction of housing development and golf course would not likely jeopardize the continued existence of the bald eagle was not determinative of the need to prepare an EIS for the project.).



The draft biological assessment prepared by BOEM concludes that the proposed leasing and site assessment activities will only produce discountable and insignificant effects. Discountable effects are defined as effects that are extremely unlikely to occur and insignificant effects relate to the size of the impact and should never reach the scale where take occurs.<sup>49</sup> SCB disagrees that leasing activities will only produce discountable and insignificant effects. In April of 2010, 98 right whales were reported feeding in the waters near the Wind Energy Area.<sup>50</sup> This represents around one-quarter to one-third of the estimated population of right whales. If a future right whale aggregation were to occur near the Wind Energy Area while activities are occurring, the EA notes that this might result in “cumulative impacts on right whales from a potential ship strike, or from noise levels that may alter feeding behavior.”<sup>51</sup> Given the number and frequency of vessel trips and associated HRG surveys, it is likely that right whales will alter their behavior to avoid this activity. For a species under severe extinction risk due to its small population size, causing right whales to alter their behavior to avoid human activity is take, and research shows that right whales are at greater risk because they tend to remain closer to the surface (putting them at greater risk of collision) when subjected to human induced noise.<sup>52</sup> The EA itself contradicts the preliminary finding in the BA by stating

Impacts on marine mammals (e.g., vessel strikes, acoustic impacts) that may result from Alternative A would add to the cumulative effects from past, present and foreseeable anthropogenic activities in the region. Based on the mitigation measures outlined in BOEM’s SOCs for Protected Species (Appendix B), the incremental contributions from Alternative A to cumulative impacts are expected to be minor, and mostly resulting from noise associated with site characterization and site assessment activities. *The potential for higher-level cumulative impacts exists, especially for right whales.*<sup>53</sup>

As part of the EA, BOEM has prepared a set of standard operating conditions (SOCs) for all leasing and site assessment activities.<sup>54</sup> According to BOEM, with implementation of its proposed SOCs, “cumulative impacts would be negligible to minor.”<sup>55</sup> “Minor” impacts to right whales are not minor from a conservation perspective and meet the threshold of significance under NEPA. **If “minor” impacts to right whales are anticipated, then BOEM must complete an EIS for this project.** Because “reasonably foreseeable projects and activities during the 5-year site assessment period from 2014 to 2019 would result in cumulative impacts on the environment,”<sup>56</sup> BOEM’s only alternative to avoid preparing an EIS is to require additional mitigation measures in the proposed

<sup>49</sup> FWS & NMFS. 1998. Consultation Handbook: Procedures for Conducting Consultations and Conference Activities Under Section 7 of the Endangered Species Act at xv-xvi.

<sup>50</sup> Khan C, T. Cole, P. Duley, A. Henry, J. Gatzke. 2011. North Atlantic Right Whale Sighting Survey (NARWSS) and Right Whale Sighting Advisory System (RWSAS) 2010 Results Summary. US Dept Commerce, Northeast Fish Sci Cent Ref Doc. 11-05; 6 pp.

<sup>51</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 227.

<sup>52</sup> Nowacek, D.P., M.P. Johnson, and P.L. Tyack. 2003, *North Atlantic right whales (Eubalaena glacialis) Ignore Ships But Respond To Altering Stimuli*. Proceedings of the Royal Society of London, B.271:227-231.

<sup>53</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 227.

<sup>54</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at Appendix B.

<sup>55</sup> WIND ENERGY ENVIRONMENTAL ASSESSMENT at 229.

<sup>56</sup> *Id.*



SOCs such that their impacts are truly negligible. SCB notes that BOEM has the authority to impose whatever mitigation measures it deems necessary to fully protect the right whale. In particular, SCB recommends the following modifications to the SOC for leasing and site assessment activities.

**1) Prohibit HRG Surveys in Months when Right Whales are Present (November 1 through April) and prohibit HRG surveys when Dynamic Management Areas are in effect.**

Under the proposed SOC, vessel trips and HRG surveys may be conducted year round. As noted above, this will greatly increase the anthropogenic noise in the underwater environment at times of year when right whales are most likely to be present and also increases the likelihood of a ship strike with a right whale. Just as BOEM has correctly limited pile driving activities to the time of year when right whales are not likely to be present in the leasing area, similar steps should be taken for all other HRG surveys. Dynamic Management Areas are established by NMFS whenever an aggregation of at least 3-4 right whales are present in a particular area. If a DMA is established within the leasing area, then HRG surveys must be temporarily suspended until the DMA is lifted.

**2) Limit Ship Speeds to 10 knots at all times for ships of all lengths, including during transits from port of departure to the Wind Energy Area.**

The existing SOC does not appear to limit vessel speeds at all traveling between ports of departure and the Wind Energy Area. Ships are limited to 10 knots within the Wind Energy Area between November 1 through April 30, and the SOC requires a vessel to slow down below 10 knots when a mother/calf pair, a pod, or large assemblage of right whales are observed near a vessel that is underway. The SOC also requires that a vessel shift to neutral if a right whale is sighted along a vessel's path.

These restrictions are not precautionary because they assume 100% observer detectability of right whales and the ability to successfully avoid a collision upon sighting a right whale. In 2009, the 50' NOAA research vessel *Auk* struck a right whale while traveling at 19 knots.<sup>57</sup> Despite having three observers on board, the right whale was not observed until it was four feet off the bow of the vessel. This collision injured the right whale, and demonstrates the less than 100% effectiveness of relying on observers and the efficacy of the existing ship strike regulations in limiting all injuries to right whales. Limiting all vessel traffic to 10 knots at all times would drastically lower the risk of ship strikes with right whales. The Marine Mammal Commission made a similar recommendation for wind energy leasing activities in the Rhode Island leasing area.<sup>58</sup>

**3) Require three observers at all times for all leasing and site assessment activities on all ships.**

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<sup>57</sup> NOAA: Crew acted responsibly before, after 2009 whale collision, [http://www.noaa.gov/news/stories/2011/20110718\\_rightwhale.html](http://www.noaa.gov/news/stories/2011/20110718_rightwhale.html) (last accessed Oct. 28, 2012)

<sup>58</sup> Marine Mammal Commission. 2012. Letter regarding Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Rhode Island and Massachusetts and associated 3 July 2012 notice requesting comments (77 Fed. Reg. 39508). Available at: [http://www.mmc.gov/letters/pdf/2012/RIMA\\_lease\\_activities\\_080212.pdf](http://www.mmc.gov/letters/pdf/2012/RIMA_lease_activities_080212.pdf)



The SOCs appear to only require one observer on each vessel at a given time. As shown by the recent *Auk* collision, it is not always possible to detect a right whale with three trained observers on board. Requiring only one observer makes it much more likely that a right whale will go undetected, thereby placing it at great risk of a ship strike. Requiring three observers allows for much greater coverage and less fatigue for each individual observer.

4) **Require that wind energy developers fund additional monitoring in the Wind Energy Area.**

The EA acknowledges that there is still a large gap in our understanding of the movements and feeding patterns of right whales throughout this area. This is a fact that the Marine Mammal Commission has also brought to the attention of BOEM. Accordingly BOEM must begin efforts to support and fund broad-scale, multi-year wildlife surveys, especially for right whales, but also including piping plovers and other listed or at risk bird or bat species, wherever the agency is proposing to conduct offshore wind energy leasing. These surveys should include passive acoustic monitoring as well as other scientifically credible wildlife surveys.

## CONCLUSION

Given the myriad potential threats to right whales, each additional threat that is authorized by BOEM or other Federal agencies increases the cumulative impacts on this species. BOEM has not taken every action within its authority to protect the right whale. SCB recommends that BOEM adopt Alternative B, the right whale exclusion alternative, subject to certain additional mitigation measures outlined above. Adopting this alternative and the modified SOCs would allow wind energy leasing and site assessment activities to continue in the majority of the Massachusetts Wind Energy Area while also providing an adequate level of protection for the right whale.

Reviewing the assessment and citing protocols of other nations with more experience than the U.S. with off-shore wind energy development, as well as the continuing research being done in the U.S., will help ensure that BOEM's procedures are as thorough as possible with regard to birds, whales and all marine life.

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