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Re: Comments by the Marine Section of the Society for Conservation Biology[1] on the Draft Programmatic Environmental Impact Statement for Atlantic Geological & Geophysical Activities.

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 (BOEM) draft programmatic environmental impact statement (PEIS) regarding future geological and geophysical activities in support of oil and gas exploration and development, renewable energy, and marine minerals in the Mid- and South Atlantic Planning Areas of the Atlantic Ocean. In particular, we are concerned that the draft PEIS underestimates the risks that seismic activities, especially deep penetration seismic air gun surveys, pose for the critically endangered north Atlantic right whale (*Eubalaena glacialis*). Given the suite of anthropogenic threats that this species already faces from commercial and recreational fisheries, collisions with large vessels, renewable energy development, marine minerals use, LNG import terminals, military training, and dredged material disposal, as well as long-term challenges of climate change, seismic surveys will likely place this species in greater jeopardy of extinction.

High-intensity pulses produced by seismic air gun surveys can cause a range of impacts on marine mammals, fish, and other marine life, including habitat displacement, disruption of vital behaviors essential to foraging and breeding. In some cases, seismic air gun surveys can result in injuries or mortalities to marine species, including marine mammals.[2] SCB supports Alternative C, the alternative that would permit no action with regard to oil and gas exploration, but would not affect the measurement of wind resources and related renewable energy studies. Alternative C represents the appropriately precautionary approach to managing the ongoing development of the Atlantic Ocean's natural resources, while providing sufficient protection for its critically endangered wildlife.

[1] 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.

[2] *See, e.g.*, Hildebrand, J.A., *Impacts of anthropogenic sound*, *in* Reynolds, J.E. III, Perrin, W.F., Reeves, R.R., Montgomery, S., and Ragen, T.J. (eds), *Marine Mammal Research: Conservation beyond Crisis* (2006); Weilgart, L., *The impacts of anthropogenic ocean noise on cetaceans and implications for management.* Canadian Journal of Zoology 85: 1091-1116 (2007).

I. Background on the Programmatic EIS and Relevant Statutory Framework.

In 1990, Congress imposed a moratorium on pending oil and gas development activities on the outer continental shelf (OCS) of the Atlantic Ocean. The moratorium was instituted shortly after the 1989 Exxon Valdez oil spill. Despite the passage of the Oil Pollution Act, which including oil spill restoration and prevention measures, many remained concerned that a precautionary approach was needed regarding additional offshore oil development. The Congressional moratorium was reinforced in 1998 when President Clinton issued an Executive Order[3] that prohibited federal agencies from conducting activities relating to oil and gas development on the Atlantic OCS. Both the Congressional and Executive Office moratoria were allowed to expire in 2008. In the appropriations bill for the Department of Interior (DOI), Congress required the DOI "to conduct a Programmatic EIS to evaluate potential significant environmental effects of multiple geological and geophysical activities in the Atlantic OCS."[4] In January of 2011, BOEM began the process under the National Environmental Policy Act (NEPA) to develop a programmatic EIS, and released a draft programmatic EIS (hereafter "PEIS") on March 28, 2012.[5] The PEIS analyzes three alternatives:

- Alternative A, the proposed action, would authorize all G&G activities (oil and gas exploration, renewable energy development, and marine mineral development) in all program areas from short to a distance of 350 nautical miles (nmi) offshore. Alternative A would include 617,775 line kilometers of 2D streamer surveys, 120,000 line km of 3D streamer surveys, and 900 line km of 3D WAZ surveys; or approximately 3,750 days of vessel activity over the 2012-2020 period. The renewable energy program is expected to conduct 4,255 days of high resolution geophysical (HRG) survey vessel activity and as many as 9,969 vessel trips for coring operations between 2012 and 2020.
- Alternative B would authorize the same G&G activities in the same geographical area, but include additional mitigation measures to protect the north Atlantic right whale, including additional time-area closures for North Atlantic right whales and sea turtles, and would establish a 40 kilometer separation distance between simultaneously operating deep-penetration seismic air gun surveys.
- Alternative C is the no-action alternative required by NEPA, which would not authorize any seismic activity in the Atlantic OCS. Existing efforts to develop renewable energy on the OCS would not be impacted.

The PEIS has determined that geological and geophysical (G&G) activities could potentially result in tens of thousands of incidents of Level A harassment each year. The Marine Mammal Protection Act (MMPA) defines Level A harassment as those acts which have "the potential to injure a marine mammal."[6] Under Alternative A, and depending on the modeling method[7] used by

[3] Memorandum on Withdrawal of Certain Areas of the United States Outer Continental Shelf from Leasing Disposition, 34 Weekly Comp. Pres. Doc. 1111 (June 12, 1998)
[4] H. Conf. Report 111-316, Interior Department and Further Continuing Appropriations, Fiscal Year 2010, Public Law 111-88 (Oct. 30, 2009).
[5] *Atlantic OCS Proposed Geological and Geophysical Activities Mid-Atlantic and South Atlantic Planning Areas Draft Programmatic Environmental Impact Statement* (hereafter Draft PEIS). The full EIS can be located at: http://www.boem.gov/oil-and-gas-energy-program/GOMR/GandG.aspx
[6] 16 U.S.C. § 1362(18)(A)(i)

the National Marine Fisheries Service (NMFS), there could be up to 11,748 Level A takes of bottlenose dolphin, 6,147 Level A takes of short-beaked common dolphin, 5,848 Level A takes of Atlantic spotted dolphin, 4,631 Level A takes of short-finned pilot whale, and 3,993 Level A takes of striped dolphin each year.[8] Seven federally-endangered whales occurring in the areas proposed for G&G activities would also be subject to Level A take, including up to 310 incidents of Level A take of sperm whales each year, 12 incidents of Level A take of humpback whales each year, and up to 2 incidents of Level A take of the critically endangered north Atlantic right whale each year.[9] Level A take is anticipated temporary or possible permanent hearing loss, which can "partially or completely reduce an individual's ability to effectively communicate; detect important predator, prey, and/or conspecific signals; and/or detect important environmental features associated with spatial orientation."[10]

The modeling also predicts substantial Level B harassment, which is defined by the MMPA as harassment that "has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering." Using the NMFS 160-dB criterion, the five species with the highest annual Level B take estimates are "the bottlenose dolphin (up to 1,151,442 individuals/year); short-beaked common dolphin (up to 602,424 individuals/year); Atlantic spotted dolphin (up to 573,121 individuals/year); short-finned pilot whale (up to 453,897 individuals/year); and striped dolphin (up to 391,376 individuals/year)."[11] Sperm whales could experience up to 30,356 incidents of Level B take each year, humpback whales could be exposed to up to 1,131 Level B takes each year, and north Atlantic right whales could be exposed to up to 184 Level B takes each year. Under Alternative A, a time-area closure for North Atlantic right whales would be included, and is predicted to reduce Level A and Level B incidental takes of North Atlantic right whales by about 67 percent from the levels described above.

Under Alternative B, similar levels of take would occur, except that the expanded time-area closure for North Atlantic right whales under Alternative B would reduce the risk of acoustic and vessel strike impacts on this species. According to the PEIS "incidental take was not modeled for Alternative B, it is estimated that the expanded time-area closure would avoid approximately 80 percent of the incidental takes of North Atlantic right whales over the period of this Programmatic EIS."[12] The expanded time-area closure for North Atlantic right whales under Alternative B would slightly reduce the risk of acoustic and vessel strike impacts on some other marine mammals by precluding certain surveys in a portion of the AOI during certain times. Additionally, the time-area closure in Brevard County under Alternative B would reduce the risk of disrupting sea turtle nesting in an area that is estimated to support 25 percent of all loggerhead turtle nesting in the United States.

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[7] NMFS uses the Acoustic Integration Model which sets Level A at noises above 180-dB and the Southall (2007) criterion to assess injuries to marine mammals. Draft PEIS at xii.
[8] Draft PEIS at xiii.
[9] Draft PEIS Supplemental Take Tables at 5.
[10] Draft PEIS at 4-46.
[11] Draft PEIS at 4-54.
[12] Draft PEIS at xxiv.

Section 101 of the MMPA provides a mechanism for allowing the incidental (not intentional) taking of "small numbers" so long as the taking has no more than a "negligible impact" on such species.[13] Incidental take" authorizations require that regulations be promulgated outlining the (i) permissible methods and the specified geographical region of taking; (ii) the means of effecting the least practicable adverse impact on the species or stock and its habitat and on the availability of the species or stock for subsistence uses; and (iii) requirements for monitoring and reporting. The MMPA does allow takes for those marine mammal species protected as threatened or endangered under the Endangered Species Act (ESA) so long as the taking remains small in number and has a negligible impact on a listed species.

Under Section 7 of the Endangered Species Act (ESA), all federal agencies within the executive branch must consult with the NMFS and/or the U.S. Fish and Wildlife Service (FWS) 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."[14] Under Section 7 the action agency, in this case the BOEM, must prepare a Biological Assessment (BA) to determine whether the proposed action "may affect" a listed threatened or endangered species. If the agency concludes that an action "may affect" a listed species, the NMFS or FWS enters 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, and identifies Reasonable and Prudent Alternatives (RPAs) to avoid a jeopardy finding. Given the duty not to jeopardize any endangered species' survival or recovery, and the Section 7(a)(1) duty to affirmatively assist in the recovery of listed species, BOEM has a duty to limit incidental taking to levels that will not reduce the likelihood of recovery. In the case of the north Atlantic right whale, the conservation status of the species requires avoiding even the least amount of additional harm.

The Biological Assessment (BA) prepared by BOEM, with the input from NMFS, has concluded that proposed seismic activities are likely to adversely affect all of the endangered whales found in the proposed activity area, including the critically endangered North Atlantic right whale.[15] The BA concludes that mitigation measures required by BOEM will "be effective in avoiding Level A harassment of North Atlantic right whales by active acoustic sound sources *to the maximum extent practicable*."[16] However, there is a significant difference between avoiding all adverse effects altogether and avoiding adverse effects to the maximum extent practicable. The former guarantees that harm will not come to any individual right whale, the latter only reduces the risk to individual right whales. Thus, while BOEM may not expect that Level A take, i.e. injury or mortality, will occur, BOEM cannot guarantee that its actions will not jeopardize the North Atlantic right whale. Therefore, SCB disagrees that BOEM has done everything possible to mitigate the impacts of these proposed seismic activities. SCB notes that BOEM has the authority to impose whatever mitigation measures it deems necessary to fully protect the right whale. For example, BOEM could prohibit all seismic activities in the entire South Atlantic planning area when right

[13] 16 U.S.C. § 1371(a)(5)(A)(i).
[14] 16 U.S.C. § 1536(a)(2).
[15] BOEM. 2012. *Atlantic OCS Proposed Geological and Geophysical Activities: Mid-Atlantic and South Atlantic Planning Areas Biological Assessment* at A-141. Available at: http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/GOMR/Biological_Assessment_finalforwebposting_wcover_5-24-12.pdf
[16] *Id*. at A-145.

whales are on their calving and nursing grounds each winter. Such a prohibition would be much more effective than closing only 4% of the project area at certain times of year.[17] Substantially more significant mitigation measures are required because of the extraordinarily wide geographic scale that the impacts of seismic surveys can be felt at by the large baleen whales.

Baleen whales vocalizations and acoustic sensitivities overlap with the enormous low-frequency energy that seismic air gun surveys cause in the water. For example, a single seismic survey has been shown to cause endangered fin and humpback whales to stop vocalizing, an essential behavioral activity for breeding and foraging, over an area at least 100,000 square nautical miles in size, and can cause baleen whales to abandon habitat over the same scale.[18] Similarly, seismic air gun noise can also mask the calls of vocalizing baleen whales over vast distances, substantially compromising their ability to communicate, feed, find mates, and engage in other vital behavior.[19] The intermittency of air gun pulses does not mitigate this effect since their acoustic energy spreads over time.[20] The critically endangered North Atlantic right whale is particularly vulnerable to masking effects from seismic air gun surveys given the acoustic and behavioral characteristics of its calls.[21] The exposure levels implicated in all of these studies above are lower than the threshold used to evaluate air gun behavioral impacts in the DPEIS. Repeated insult from seismic air gun surveys would occur on top of already high levels of background noise. For individual right whales, and cumulatively for the species, these activities represent jeopardy for the species continued existence.

II. The Programmatic EIS Contains Procedural Shortcomings That Limit the Ability to Review the Underlying Scientific Conclusions Regarding the Impacts of G&G Activities on Marine Mammals.

The draft PEIS contains a significant procedural shortcoming, namely it fails to consider a sufficient number of meaningful alternatives discussed in the draft EIS. The National Environmental Policy Act has two overarching goals -- to require agencies to take a "hard look" at the consequences of a proposed action, and to provide the public with both information about the proposed action and an opportunity to provide its comments on the action.[22] The way an agency takes a hard look at a proposed action is by analyzing a range of alternatives to the action, which the

[17] PEIS at 2-4.

[18] Clark, C.W., and Gagnon, G.C., *Considering the temporal and spatial scales of noise exposures from seismic surveys on baleen whales* (2006) (IWC Sci. Comm. Doc. IWC/SC/58/E9); Clark, C.W., pers. comm. with M. Jasny, NRDC (Apr. 2010); *see also* MacLeod, K., Simmonds, M.P., and Murray, E., *Abundance of fin (Balaenoptera physalus) and sei whales (B. Borealis) amid oil exploration and development off northwest Scotland,* Journal of Cetacean Research and Management 8: 247-254 (2006).

[19] Clark, C.W., Ellison, W.T., Southall, B.L., Hatch, L., van Parijs, S., Frankel, A., and Ponirakis, D., *Acoustic masking in marine ecosystems as a function of anthropogenic sound sources (2009)* (IWC Sci. Comm. Doc. SC/61/E10).

[20] *Id.*; Weilgart, L. (ed.), *Report of the workshop on alternative technologies to seismic airgun surveys for oil and gas exploration and their potential for reducing impacts on marine mammals,* 31 Aug. – 1 Sept., 2009, Monterey, Calif. (2010) (available at www.okeanos-stiftung.org/okeanos/download.php?id=19).

[21] Clark et al., *Acoustic masking in marine ecosystems as a function of anthropogenic sound sources;* Clark, C.W., Ellison, W.T., Southall, B.L., Hatch, L., Van Parijs, S.M., Frankel, A., and Ponirakis, D., *Acoustic masking in marine ecosystems: intuitions, analysis, and implication,* Marine Ecology Progress Series 395: 201-222 (2009).

[22] *Robertson v. Methow Valley Citizens Council*, 490 US 332, 356 (1989).

Council on Environmental Quality (CEQ) describes as the "heart of the environmental impact statement."[23] SCB is concerned that BOEM imprudently eliminated from further consideration several significant alternatives to the proposed action in the draft EIS, leaving the existing document with no meaningful consideration of practical alternatives (other than no-action) to the proposed action. Instead, the EIS only provides two substantive choices: G&G activities throughout the South and Mid-Atlantic OCS and the same with a little bit more mitigation. As has been upheld in several courts, "the existence of a viable but unexamined alternative renders an environmental impact statement inadequate."[24] As a result, an agency must "look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action and sufficient to permit a reasoned choice."[25]

SCB recognizes that Congress ordered BOEM to conduct a Programmatic EIS to "evaluate potential significant environmental effects of multiple geological and geophysical activities in the Atlantic OCS." However, this general requirement did not eliminate BOEM's discretion as to where within the Atlantic OCS to permit defer G&G seismic surveys. It may be for this reason that BOEM felt justified in not considering an EIS alternative that would have included the North Atlantic OCS region. SCB is concerned that BOEM did not consider other macro-level options for where and when (both seasonally and over subsequent years) G&G activities might take place. For example, BOEM did not consider in its draft EIS an option for only conducting G&G in the mid-Atlantic or only conducting G&G in areas over 20, 50, or 100 miles from shore. BOEM also eliminated from detailed consideration the possibility of requiring non-air gun acoustic surveys in the Atlantic OCS despite the fact that "some air gun alternative technologies are available now or in the next 1-5 years."[26] Even if these technologies are not yet perfected, requiring their use in the Atlantic could provide the needed incentive for industry to improve these technologies to the point that they are comparable to traditional seismic air gun surveys. Overall, given the exceptionally high level of marine mammal take anticipated, the failure of BOEM to consider additional options in the PIES beyond (1) conducting seismic throughout the South and Mid-Atlantic planning areas and (2) no G&G seismic activities anywhere does not appear to represent a sufficiently broad range of alternatives, making the PEIS inadequate.

Therefore, SCB recommends that BOEM reconsider its overall approach in the PEIS, and in regard to G&G seismic activities, include more detailed hypothetical periods of inactivity to allow marine mammal populations to recover from adverse impacts from G&G seismic activities and fully integrate a research and monitoring program to determine how well the various mitigation measures are working. This should involve comprehensive impact studies before, during and after any seismic activities and an adaptive management program to adjust future G&G activities as more is learned about the impact of such activities on marine mammal populations. Given the uncertainties involved regarding the cumulative impact of anthropogenic activities in the marine environment, the PEIS should have discussed in detail any seismic program alternatives that include a more precautionary approach for undertaking these G&G activities.

[23] 40 C.F.R. § 1502.14
[24] *Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir.1985)
[25] *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519 (9th Cir. 1992) (internal quotations omitted).
[26] Draft PEIS at 2-54.

Second, the draft PEIS states that the review of G&G activities "is programmatic in nature and therefore will not result in an application for an ITA under Section 101(a)(5) of the MMPA."[27] With respect to the ESA, the draft PEIS states that a BA will eventually be provided to the NMFS so that the consultation between the two agencies can begin.[28] However, there is no indication as to whether the BO will be completed prior to the completion of the final PEIS. BOEM states that, instead, the draft PEIS "will serve as a reference for environmental documentation regarding future site-specific actions. Such future documentation will tier off this document in a similar fashion to that under NEPA."[29] As a general practice, it is acceptable for an agency to use programmatic documents as a reference for future, site-specific environmental analysis. As will be discussed in greater detail below, there are significant concerns for the cumulative impact that G&G activities will have on north Atlantic right whales in specific and other endangered marine mammals in general. Therefore, tiering site-specific actions to this larger PEIS presents the risk that the best available science will be lacking in both the PEIS and future, related environmental analyses.

SCB recognizes that it is not a violation of NEPA to move forward with an EIS without the benefit of a completed BO under the ESA or an ITA under the MMPA. However, under normal circumstances, NEPA serves as the primary vehicle for all federal agencies to submit recommended changes and mitigation measures to the primary agency reviewing the project to ensure that a project complies with *all* environmental laws. The CEQ's regulations implementing NEPA state that "to the fullest extent possible" agencies shall prepare an EIS "concurrently with and integrated with ... the Endangered Species Act and other environmental review laws."[30] By moving forward with the PEIS without the benefit of the NMFS' input, BOEM undermines the ability of the public to comment on the adequacy of proposed mitigation measures. This lack of meaningful review is especially troubling given that the PEIS acknowledges that "incidental take was not modeled for Alternative B" with respect to the effectiveness of mitigation for the north Atlantic right whale. If BOEM and NMFS are only approximating how effective mitigation might be for right whales, then it is difficult to imagine how the public could adequately comment on the proposed mitigation in the PEIS either. Because of these shortcomings, SCB recommends Alternative C as the only alternative in the PEIS that is sufficiently precautionary to fully protect endangered species in the Atlantic Ocean.

Finally, SCB is concerned that BOEM has not undertaken enough of an effort to address areas where there is a lack of information regarding the impacts of seismic air gun survey activities. NEPA regulations set out an "ordered process" for an agency preparing an EIS in the face of missing information.[31] When there is incomplete information relevant to reasonably foreseeable significant adverse impacts that is essential to a reasoned choice among alternatives, an agency must obtain and include the missing information in the EIS if the overall costs of obtaining it are not exorbitant.[32] The CEQ's regulation furthers NEPA's purpose of ensuring that agencies make "fully informed and well-considered decisions," by ensuring a "widespread discussion and consideration

[27] PEIS at 5-9.
[28] *Id*.
[29] *Id*.
[30] 40 C.F.R. § 1502.25
[31] *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1244 (9th Cir. 1984).
[32] 40 C.F.R. § 1502.22.

of the environmental risks" of a project.[33] The PEIS does not fully address data gaps that may be critical to the survival and recovery of endangered whales in the Atlantic. For example, the BOEM concludes that:

> there is incomplete or unavailable information (40 CFR 1502.22) for all marine mammals with respect to: (1) seasonal abundances; (2) stock or population size; (3) population trends, whether they are increasing, stable, or decreasing; (4) the hearing range for mysticetes; and (5) the basic biology of specific species and their physiology for underwater hearing.[34]

These factors all seem particularly important given the scale of seismic air gun surveys that BOEM is considering permitting in the future. Equally problematic is the basic approach towards categorizing the effects of marine sounds on marine mammals. As was explained in a letter by several scientists that have conducted extensive research on the effects of marine noise:

> The working assumption that impulsive noise never disrupts marine mammal behavior at levels below 160 dB (RMS), and disrupts behavior with 100% probability at higher levels has been repeatedly demonstrated to be incorrect, including in cases involving the sources and areas being considered in the Arctic DEIS. That 160 dB (RMS) threshold level originated from the California HESS panel report in the late 1990s1 and was based on best available data from reactions to seismic surveys measured in the 1980s. Since then considerable evidence has accumulated, and these newer data indicate that behavioral disruptions from pulsed sources can occur well below that 160 dB (RMS) threshold and are influenced by behavioral and contextual co-variates. For example, migrating bowheads are known to avoid seismic air gun surveys in the Arctic at distances beyond 20 kilometers, where received levels are approximately 120-130 dB (RMS).[35]

SCB believes that given these uncertainties, especially as they may apply to the North Atlantic right whale, that seismic activities should not be permitted at this time, given the large gaps in BOEM's knowledge and information about these key scientific issues.

III. Alternative C is the Only Alternative that is Sufficiently Protective of the North Atlantic Right Whale to Ensure Compliance with the Endangered Species Act.

The North Atlantic right whale is one of the world's most critically endangered marine mammals, with an estimated population at approximately 361 individuals. In the context of the

[33] *Vermont Yankee Nuclear Power Corp. v. Natural Resources Def. Council*, 435 U.S. 519, 558 (1978); *LaFlamme v. FERC*, 852 F.2d 389, 398 (9th Cir. 1988) (internal quotation marks omitted).
[34] PEIS at 4-11.
[35] Letter from Christopher Clark, David Mann, Patrick Miller, Doug Nowacek, Brandon Southall, Comments on Arctic Ocean Draft Environmental Impact Statement, February 8, 2012. See also, Richardson, W. J., Miller, G. W., & Greene, Jr., C. R. (1999). *Displacement of migrating bowhead whales by sounds from seismic surveys in shallow waters of the Beaufort Sea*. Journal of the Acoustical Society of America, 106, 2281.

MMPA, the right whale is classified as strategic because the "average annual human-related mortality and serious injury exceeds [potential biological removal] (Waring et al., 2010)."[36] 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." Elsewhere, NMFS stated that the "loss of even a single individual may contribute to the extinction of the species."[37] There may have been a slight improvement in the right whale's conservation status since 2004, and in the 2010 BO regarding Atlantic lobster fisheries, NMFS concluded that "the serious injury or mortality of one right whale per year, as a result of fisheries entanglement is not likely to reduce appreciably the likelihood of both survival and recovery of the North Atlantic right whale population."[38]

However, this is not to say that the threats to right whales have abated. As the 2010 lobster BO notes, "documented serious injury and mortality to right whales decreased to an average rate of 2.8 per year. Incidental fishery entanglement records and ship strike records for the period 2004 through 2008 averaged of 0.8 (U.S. waters 0.6) and 2.0 (U.S. waters, 1.6) respectively per year."[39] And while SCB understands the statistical validity of these data, in real life, it is difficult to injure 0.8 of a particular individual right whale without injuring the remaining 0.2 of that individual. SCB understands that BOEM and NMFS must do their best to model the likely amount of Level A take of right whales from seismic activities. However, an environmental impact statement must also consider cumulative impacts of the proposed action compared to the existing baseline. Thus, if entanglements average 0.6 incidents per year in U.S. waters, ship strikes average 1.6 incidents per year, and the PEIS predicts 0.27 to 2.29 incidents of Level A take per year – which amounts to as many as *five* animals per year –, BOEM and NMFS have an obligation to consider how all of these incidents of take interact synergistically on right whale populations.

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 seismic activities. For example, when NMFS conducted a population viability analysis (PVA) of the right whale as part of the 2010 lobster BO, NMFS concluded that, "the status quo showed an 8.6% probability of achieving a 2.0% growth rate over the next 35 years. With one less mortality per year, that probability went up to 14.7%, with one less adult female mortality per year, the probability improved to 24.6%." In other words, if existing threats continue at their current levels, the right whale has between a 75%-90% chance of either having a stable population or a population that is increasing at less than the stated recovery goal for the species. Given the conservation status of the right whale, growth of the population is essential for its survival and recovery. But G&G seismic surveys were not part of this calculus. And if seismic surveys are in fact a precursor to commercial oil and gas development along the Atlantic OCS, additional threats could potentially develop which undermine the small

[36] Draft PEIS at 4-25.
[37] *Advance Notice of Proposed Rulemaking (ANPR) for Right Whale Ship Strike Reduction*, 69 Fed. Reg. 30,857, 30,858 (June 1, 2004)
[38] *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 119 (hereafter "Lobster BO"), Oct. 29, 2010. Available at: http://www.nero.noaa.gov/prot_res/section7/NMFS-signedBOs/LOBSTER%20BIOP%202010.pdf
[39] Lobster BO at 23.

conservation gains that have been made over the last twenty years with the north Atlantic right whale. Whether or not these seismic activities will further jeopardize the species must not be underestimated in the BO and consultation between BOEM and NMFS. And, as will be discussed in greater detail below, the precariousness of this species in light of these threats must not be underestimated in the agency's analysis of significance for the PEIS.

IV. The Programmatic EIS's Analytical Approach Underestimates the Risks to Endangered Marine Mammals and the Environment Generally.

NEPA requires federal agencies to prepare an EIS for any proposed action "significantly affecting the quality of the human environment."[40] Accordingly, the CEQ has developed regulations that define "significantly" based on the context and intensity of the proposed action.[41] "Context" means the affected environment in which a proposed action would occur, while, "intensity" means the degree to which the proposed action would, among other things, have "highly uncertain effects or unique or unknown risks," "cumulative effects," or "adverse effects on endangered or threatened species or designated critical habitat (pursuant to the Endangered Species Act)."[42] For the PEIS, BOEM analyzed the significance to affected natural resources from G&G seismic activities and categorized the impacts as "negligible," "minor," "moderate," or "major."[43] For impacts to marine mammals, BOEM defined moderate impacts as "injury or mortality, but in low enough numbers such that the continued viability of the local population or stock is not threatened and the annual rates of recruitment or survival of the local population or stock are not seriously affected."[44] Major impacts were defined as "extensive levels of life-threatening or debilitating injury or mortality in sufficiently high numbers that the continued viability of the population is seriously threatened, including serious diminishment of annual rates of recruitment or survival."[45]

For its analysis of the effect of project-related seismic air gun survey noise, BOEM concluded that "most impacts would be limited to short-term disruption of behavioral patterns or displacement of individual marine mammals from discrete areas…including both critical and preferred habitat."[46] BOEM predicted that because impacts "would be somewhat localized and temporary in duration," and "based on the results of this analysis and proposed mitigation measures, *the effects on marine mammals would be moderate*."[47] SCB is very concerned that the conclusion regarding the significance of the impacts of seismic activities does not represent a meaningful, scientific statement because impacts must be evaluated on a species-by-species basis, not in the aggregate.

The impact of thousands of linear miles of seismic surveys over a ten-year period on a species whose global population is 361, as is the case for the north Atlantic right whale, will be far

[40] 42 U.S.C. § 4332(C).
[41] 40 C.F.R. § 1508.27
[42] *Id*.
[43] Draft PEIS at xii.
[44] Draft PEIS at 4-44.
[45] *Id*.
[46] Draft PEIS at 4-55.
[47] *Id*. (emphasis added).

different from a species whose population in the western Atlantic is 4,800 individuals, as is the case for sperm whale. And the impacts to these two species will be different than those for species such as the bottlenose dolphin and common dolphin, whose populations could easily run into the hundreds of thousands in the Atlantic. If seismic activities kill or injure one right whale, that event could diminish the entire species' annual rate of recruitment or survival, making such activity one of "major" significance. In contrast, the death of one common dolphin from seismic activities is probably of negligible significance for the species under NEPA or the MMPA. But, the PEIS fails to consider these species individually when it comes to assessing significance. Given that the PEIS provides predicted Level A and Level B take for all relevant species within the Atlantic planning areas, BOEM should also be able to assess whether or not such take reaches a particular threshold of significance by the definitions it has provided. Stating that the impacts to marine mammals will be moderate masks the gravity of the potential takes of all of the threatened, endangered and depleted marine mammals in the proposed activity area. SCB requests that BOEM provide supplemental information addressing whether anticipated take will result in major or moderate impacts for each ESA-listed or MMPA-depleted species.

CONCLUSION

Because of the lack of meaningful opportunities to comment on the adequacy of mitigation with respect to compliance with the MMPA and the ESA, and the procedural and analytical shortcomings of the current PEIS, SCB recommends that BOEM choose Alternative C, the no-action alternative.

Respectfully,

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