

May 16, 2014

Via electronic mail sent to ITP.Cody@noaa.gov

Ms. Jolie Harrison
Supervisor, Incidental Take Program
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
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RE: Comments on the National Marine Fisheries Service Incidental Harassment Authorization for the Takes of Marine Mammals Incidental to Specified Activities; Marine Geophysical Survey in the Northwest Atlantic Ocean Offshore New Jersey, May to August 2014 (RIN 0648-XD141)

Dear Ms. Harrison:

On behalf of the undersigned organizations, Clean Ocean Action (COA) submits the following comments in response to the National Marine Fisheries Service (NMFS) request for comments for the proposed incidental harassment authorization (IHA) for the takes of marine mammals incidental to a marine geophysical survey in the Northwest Atlantic Ocean Offshore New Jersey, May to August 2014 (RIN 0648-XD141).¹

Lamont-Doherty Earth Observatory (L-DEO), in collaboration with the National Science Foundation, Rutgers University, and the University of Texas, proposes to conduct a seismic vessel survey off the coast of New Jersey between May and August 2014 to study changes in sea level from 60 million years ago to present ("Proposed Project"). The Proposed Project includes the use of two four- or eight-airgun subarrays operating alternately, in conjunction with a multibeam echosounder, sub-bottom profiler, and acoustic Doppler current profiler. The nominal source levels of the airgun subarrays range from 246 to 253 decibels (dB) re: 1 μ Pa (peak-to-peak), and airguns would fire every 5.4 seconds, 24 hours a day, for a 30 day period set to commence on June 3, 2014. The area to be surveyed is a roughly rectangular region that

¹ 79 Fed. Reg. at 14780 (Monday, March 17, 2014) (hereafter "NMFS IHA").

encompasses approximately 230 square miles and is positioned between 15.5 and 52.8 miles of the coast of New Jersey.

NMFS issued its proposed IHA for takes of 690 marine mammals by harassment under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA). The Proposed Project is subject to regulations under the National Environmental Policy Act (NEPA) and must also request a Section 7 Consultation under the Endangered Species Act (ESA)² and an Essential Fish Habitat assessment under the Magnuson-Stevens Fishery Conservation and Management Act.³

For the reasons detailed herein, the undersigned organizations request denial of the NMFS IHA on the grounds that the potential impacts to marine mammals are incompatible with the goals, mandates, and prohibitions of the MMPA. However, should NMFS determine that it will proceed with issuance of a final IHA, significant revision of the authorization and the completion of a full Environmental Impact Statement (EIS) would be necessary to remedy issues of incomplete information, inadequate assessment of impacts, and insufficient evaluation of alternatives and mitigation measures. Importantly, the Proposed Project should not be conducted during summer, which is the peak of marine mammal (and other marine species) activity off the New Jersey coast, as well as the height of tourism and fishing seasons. Moreover, NMFS would have to ensure that best available science and regulatory review are incorporated into the document, and require stronger mitigation measures and consider different times of year for the Proposed Project.

I. NMFS must ensure that its IHA complies with the MMPA.

The MMPA places a “moratorium on the taking” of marine mammals.⁴ Any authorization to take marine mammals must result in the incidental take of only “small numbers of marine mammals of a species or population stock,” and can have no more than a “negligible impact” on species and stocks. Furthermore, NMFS must provide for the monitoring and reporting of such takings and must prescribe methods and means of affecting the “least practicable adverse impact” on the species or stock and their habitat.⁵

A. Scientific evidence supports marine mammal harassment below the 160-dB Level B threshold

² Section 7 of the ESA (16 U.S.C. 1531 et seq.) outlines the procedures for Federal interagency cooperation to conserve federally-listed species and designated critical habitats.

³ Public Law (P.L.) 94-265, as amended by the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (P.L. 109-479). EFH Guidelines at 50 CFR 600.05-600.930 outline the process to satisfy EFH consultation under Section 305(b)(2)-(4)) of the MSA.

⁴ 16 U.S.C. § 1371(a). **Error! Main Document Only.**

⁵ 16 U.S.C. § 1371(a)(5)(A) & (D).

The proposed IHA uses the single sound pressure level of 160 dB re 1 μ Pa (RMS) as a threshold for behavioral, sub-lethal take in all marine mammal species affected by the proposed survey.⁶ This approach does not reflect the best available science, and the choice of threshold is not sufficiently conservative in several important respects. In fact, five of the world's leading biologists and bioacousticians working in this field recently characterized the 160-dB threshold as "overly simplified, scientifically outdated, and artificially rigid."⁷ Therefore, the best available science indicates that NMFS must use a more conservative threshold.

Using a single sound pressure level of 160-dB for harassment represents a major step backward from recent programmatic authorizations. For Navy sonar activity, for example, NMFS has incorporated linear risk functions into its analysis, which endeavor to account for risk and individual variability and to reflect the potential for take at relatively low source levels.⁸

Furthermore, current scientific literature establishes that behavioral disruption can occur at substantially lower received levels for some marine mammal species, including those that will be impacted by the Proposed Project. For example, the startup of a seismic survey has been shown to cause endangered fin and humpback whales to stop vocalizing – a behavior essential to breeding and foraging.⁹ Similarly, a low-frequency, high-amplitude fish shoal imaging device was recently found to silence humpback whales at a distance of up to 200 kilometers, where received levels ranged from 5 to 22 dB above ambient noise levels.¹⁰ Groups of humpback whales in the wild have been observed to exhibit avoidance behaviors at a distance of two kilometers from a small airgun array; the received levels in these trials were 159 dB re: 1 μ Pa² peak-to-peak.¹¹ Blue whale behavioral changes in response to a small airgun array have also been monitored. Researchers tracked a blue whale traveling and vocalizing in the vicinity of a vessel firing a four-gun array with a source level of 215 dB re: 1 μ Pa² peak-to-peak and noted that at a distance of 10 kilometers from the vessel (where the received level was estimated to be 143 dB re: 1 μ Pa² peak-to-peak), the whale ceased vocalizations for an hour and changed

⁶ 79 Fed. Reg. at 14801.

⁷ Clark, C., Mann, D., Miller, P., Nowacek, D., and Southall, B., Comments on Arctic Ocean Draft Environmental Impact Statement at 2 (Feb. 28, 2012); see 40 C.F.R. § 1502.22.

⁸ See, e.g., 74 Fed. Reg. 4844, 4844-4885 (Jan. 27, 2009).

⁹ Clark, C.W., and Gagnon, G.C. 2006. Considering the temporal and spatial scales of noise exposures from seismic surveys on baleen whales. (IWC Sci. Comm. Doc. IWC/SC/58/E9); 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).

¹⁰ Risch, D., Corkeron, P.J., Ellison, W.T., and van Parijs, S.M., Changes in humpback whale song occurrence in response to an acoustic source 200 km away, *PLoS ONE* 7(1): e29741. doi:10.1371/journal.pone.0029741 (2012).

¹¹ McCauley, R.D., Jenner, M.N., Jenner, C., McCabe, K.A., and Murdoch, J. 1998. The response of humpback whales (*Megaptera novaeangliae*) to offshore seismic survey: Preliminary results of observations above a working seismic vessel and experimental exposures. *Appea Journal*: 692-706.

course significantly.¹² The literature also shows that harbor porpoises are acutely sensitive to a range of anthropogenic sounds, including airguns. They have been observed to engage in avoidance responses 50 miles from a seismic airgun array, a result that is consistent with both captive and wild animal studies showing them abandoning habitat in response to pulsed sounds at very low received levels, well below 120 dB.¹³ Cuvier's beaked whales exhibited alarming behavioral impacts when exposed to sonar at low received levels of 89-127dB re: 1 μ Pa.¹⁴

Although the proposed IHA NMFS cites many studies that show low-frequency sounds in general and seismic surveys in particular can have significant behavioral impacts to marine mammals well below 160 dB,¹⁵ NMFS nonetheless irrationally continues to rely upon a Level B harassment threshold of 160 dB. NMFS should modify its threshold estimates, as they must be based on the best available science; this would in turn likely significantly increase the estimated number of marine mammal takes incidental to the Proposed Project.

B. NMFS's assertion of no Level A takes is not based on best available science

Although the NMFS IHA states that marine mammal harassment will be limited to Level B takes, evidence in the scientific literature has indicated that temporary threshold shifts (TTS) can occur in cetaceans at source levels lower than proposed for this survey. As NMFS itself cites, a recent study involved the exposure of a captive harbour porpoise to one airgun firing on three occasions at an average source level of 201 dB re: 1 μ Pa² peak-to-peak.¹⁶ In addition to avoidance behavior exhibited by the animal during the trials, the researchers estimated through modeling that the onset of TTS that did not fully subside until *55 hours after exposure*.¹⁷ Moreover, NMFS cannot rationally assume that other marine mammals will not incur injury at noise levels below those in the Proposed Project. The Lucke *et al.* study demonstrates that TTS can occur at different levels for different species of cetaceans. Moreover, controlled exposure trials in which harbor seals were exposed to small airguns firing for one hour at source levels ranging from 215 to 224 dB re: 1 μ Pa² peak-to-peak revealed

¹² McDonald, M.A., Hildebrand, J.A., and Webb, S.C. 1995. Blue and fin whale observed on a seafloor array in the Northeast Pacific. *Journal of the Acoustical Society of America* **98**: 712-721.

¹³ See, e.g., Bain, D.E., and Williams, R., Long-range effects of airgun noise on marine mammals: responses as a function of received sound level and distance (2006) (IWC Sci. Comm. Doc. IWC/SC/58/E35).

¹⁴ DeRuiter, S.L., Southall, B.L., Calambokidis, J., Zimmer, W.M.X., Sadykova, D., Falcone, E.A., Friedlaender, A.S., Joseph, J.E., Moretti, D., Schoor, G.S., Thomas, L., and Tyack, P.L. 2013. First Direct Measurements of behavioural responses by Cuvier's beaked whales to mid-frequency active sonar. *Biology Letters* **9**: 20130223 1 (2013).

¹⁵ 79 Fed. Reg. at 14787.

¹⁶ Lucke, Klaus, Siebert, U., Lepper, P. a, & Blanchet, M.-A. (2009). Temporary shift in masked hearing thresholds in a harbor porpoise (*Phocoena phocoena*) after exposure to seismic airgun stimuli. *The Journal of the Acoustical Society of America*, 125(6): 4060-70.

¹⁷ Lucke, K., Siebert, U., Lepper, P.A., and Blanchet, M.-A. 2009. Temporary shift in masked hearing thresholds in a harbor porpoise (*Phocoena phocoena*) after exposure to seismic airgun stimuli. *Journal of the Acoustical Society of America* 125: 4060-4070. Emphasis added.

dramatic physiological and behavioral responses, including a fright response evidenced by significant drops in heart rate; decreased stomach temperatures indicating a cessation of feeding; and rapid swimming away from the noise source.¹⁸ Thus, NMFS cannot assume that TTS and even permanent threshold shifts (PTS) would be unlikely for marine mammals in the area of this Proposed Project.

A number of other recent studies indicate that anthropogenic sound can induce PTS at lower levels than anticipated.¹⁹ New data indicate that mid-frequency cetaceans have greater sensitivity to sounds within their best hearing range than was previously thought.²⁰ NMFS must also consider that even behavioral disturbance can amount to a Level A take if it interferes with essential life functions. For example, TTS can impair reproductive success and fitness that would constitute harm or Level A harassment. Beaked whales are sensitive to noise, and it is not necessarily the auditory damage that causes the injury. Sounds cause beaked whales to change their behavior, including panic response and rapid surfacing, which results in an injury similar to decompression sickness (“the bends”).²¹

Given NMFS’s decidedly non-conservative approach to estimating impacts thresholds for injury to marine mammals from the proposed survey, it is likely that many more marine mammals will be harmed than NMFS estimates. In light of the best available science, NMFS cannot rationally defend its conclusion that the proposed survey will not lead to any Level A impacts and will have no more than negligible impacts on these species or stocks. NMFS must take into account the best available science and set lower thresholds for level A take, which would lead to larger exclusion zones around the survey.

II. NOAA must prepare an EIS because there are significant environmental impacts from the Proposed Project

¹⁸ Thompson, D., Sjöberg, M., Bryant, M.E., Lovell, P., and Bjorge, A. 1998. Behavioral and physiological responses of harbour (*Phoca vitulina*) and grey (*Halichoerus grypus*) seals to seismic surveys. Report to European Commission of BROMMAD Project. MAS2 C7940098.

¹⁹ Kastak, D., Mulsow, J., Ghoul, A., and Reichmuth, C. 2008. Noise-induced permanent threshold shift in a harbor seal [abstract], *Journal of the Acoustical Society of America* **123**: 2986; Kujawa, S.G., and Liberman, M.C. 2009. Adding insult to injury: cochlear nerve degeneration after “temporary” noise-induced hearing loss, *Journal of Neuroscience* **29**: 14077-14085.

²⁰ See discussion in Wood, J., Southall, B.L. and Tollit, D.J. 2012. PG&E offshore 3-D Seismic Survey Project EIR – Marine Mammal Technical Draft Report. SMRU Ltd.; Marine Mammal Commission, Marine Mammals and Noise: A Sound Approach to Research Management, Report to Congress, at 46 (March 2007).

²¹ Cox, T.M., Ragen, T.J., Read, A.J., Vos, E., Baird, R.W., Balcomb, K., Barlow, J., Caldwell, J., Cranford, T., Crum, L., D’Amico, A., D’Spain, G., Fernandez, A., Finneran, J., Gentry, R., Gerth, W., Gulland, F., Hildebrand, J., Houser, D., Hullar, T., Jepson, P.D., Ketten, D., MacLeod, C.D., Miller, P., Moore, S., Mountain, D.C., Palka, D., Ponganis, P., Rommel, S., Rowles, T., Taylor, B., Tyack, P., Wartzok, D., Gisiner, R., Mead, J., and Benner, L. 2006. Understanding the impacts of anthropogenic sound on beaked whales. *Journal of Cetacean Resource Management* **7**: 177-187.

For the reasons discussed below, we strongly urge NMFS to prepare an EIS for this project, which would include complete scientific substantiation for the project, a thorough analysis of all direct, indirect, and cumulative environmental impacts, and consideration of a full range of alternatives to the project. Moreover, to meet its NEPA obligations, the NEPA document must be made available for public review and comment.²²

A. Purpose of NEPA and EA and trigger for an EIS

NEPA's fundamental purposes are to guarantee that: (1) agencies take a hard look at the environmental consequences of their actions before these actions occur; and (2) agencies make the relevant information available to the public so that it may also play a role in both the decision-making process and the implementation of that decision.²³ To assure transparency and thoroughness, agencies also must "to the fullest extent possible...[e]ncourage and facilitate public involvement" in decision-making.²⁴ Despite the fact that a draft Environmental Assessment (EA) was released in December 2013, the public was not offered an opportunity to comment on the Proposed Project until the issuance of the proposed IHA on March 17, 2014, less than three months before the study was scheduled to begin.

The purpose of an EA is to assist the agency in determining whether the project may significantly affect the environment and therefore require a full EIS.²⁵ An agency may avoid preparing a full EIS if the agency: (1) prepares an environmental assessment identifying and analyzing the action's environmental effects; and (2) makes a finding of no significant impact, which presents the agency's reasons for concluding that the action's environmental effects are not significant.²⁶ NEPA requires federal agencies to prepare an EIS for all "major federal actions significantly affecting the quality of the human environment."²⁷ A full EIS is required if "substantial questions are raised as to whether a project...may cause significant degradation of some human environmental factor."²⁸ To trigger this requirement, the plaintiff "need *not* show

²² See, e.g. *Anderson v. Evans*, 314 F.3d 1006, 1016 (9th Cir. 2002) ("the public must be given an opportunity to comment on draft EAs and EISs").

²³ See, e.g. 40 C.F.R. § 1500.1.

²⁴ 40 C.F.R. §1500.2(d)

²⁵ 42 U.S.C. §4332(2)(C); 40C.F.R. §1508.9.

²⁶ 40 C.F.R. §§ 1501.4(b), (e); 1508.9; 1508.1.3.

²⁷ 42 U.S.C. § 4332(2)(C); see also 40 C.F.R. § 1501.4. The Act defines the "human environment" as including "the natural and physical environment and the relationship of people with that environment...This means that economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment." 40 C.F.R. § 1508.14.

²⁸ *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1149-50 (9th Cir. 1998).

that significant effects will *in fact* occur;” but rather, “raising substantial questions whether a project may have a significant environmental effect is sufficient.”²⁹

Whether an action may have “significant” impacts on the environment is determined by considering the “context” and “intensity” of the action.³⁰ “Context” means the significance of the project “must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.”³¹ Intensity of the action is determined by considering the following ten factors: (1) impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial; (2) the degree to which the proposed action affects public health or safety; (3) unique characteristics of the geographic area such as proximity to ecologically critical areas; (4) the degree to which the effects on the quality of the human environment are likely to be highly controversial; (5) the degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks; (6) the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; (7) whether the action is related to other actions with individually insignificant but cumulatively significant impacts; (8) the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources; (9) the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the federal Endangered Species Act; (10) whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.³² The presence of one or more significant effects can trigger the need for a full EIS.³³ Based on the nature of potential impacts to marine life from the Proposed Project and the incomplete analysis of such impacts in the EA (discussed further below), a full EIS must be prepared for this study.

B. Availability of new information subsequent to the finalization of the PEIS in 2011 precludes NMFS’s reliance on this prior NEPA analysis.

It is inadequate for NMFS to rely on any prior NEPA analysis because there is significant new information about the impacts of seismic surveys on marine mammals and fish. New, relevant

²⁹ *Id.* (emphases in original).

³⁰ 40 C.F.R. § 1508.27.

³¹ *Id.* § 1508.27(a).

³² 40 C.F.R. § 1508.27(b)(1)-(10).

³³ See, e.g. *Nat’l Parks & Conserv. Ass’n. v. Babbitt*, 241 F.3d 722, 731 (9th Cir. 2001) (either of two significance factors considered by the court “may be sufficient to require preparation of an EIS in appropriate circumstances”); *Anderson v. Evans*, 350 F.3d 815, 835 (9th Cir. 2003) (presence of one or more factors can necessitate preparation of a full EIS).

information on marine mammals, specifically North Atlantic right whales and bottlenose dolphins, is discussed herein in Section IV. Additionally, while tiering to a broader EIS may be useful in complying with NEPA, it does not eliminate the need to conduct a thorough analysis of the impacts of the site-specific actions.³⁴

C. Cumulative actions and effects have not been adequately evaluated.

In conducting a NEPA review, federal agencies must look at cumulative actions and effects. Cumulative actions are those that “have cumulatively significant impacts and should therefore be discussed in the same impact statement.”³⁵ Similar actions include those that have “common timing or geography.”³⁶ Cumulative impacts are those that result when combined with past, present, and reasonably foreseeable future actions on the resources of the area.³⁷

Here, there are numerous activities in the region that will harm the same marine mammals and environment that must be analyzed in a cumulative impacts analysis. The Proposed Project has made only limited consideration of the cumulative impacts of this project in conjunction with other current and/or proposed anthropogenic noise-producing activities in the region. The Draft EA used by NMFS in drafting its IHA devotes only two sentences to the proposed Geologic and Geophysical (G&G) seismic airgun and other related seabed test drilling activities being considered by the Bureau of Ocean Energy Management (BOEM) for the mid- and south-Atlantic OCS Planning areas, which is also out for public review and comment at this time. Cumulative impacts from shipping activities are only addressed in terms of increased vessel traffic, and the additive effects of more noise in the area and a greater potential for ship strikes are not considered. Marine mammal disease is also a concern, particularly for bottlenose dolphins affected in 2013 by *morbillivirus*. The Draft EA only assesses the potential for the Proposed Project to “contribute to the development or continuation of a morbillivirus outbreak”³⁸ in bottlenose dolphins, but fails to consider the cumulative harmful effects of the Proposed Project on the population in light of the recent morbillivirus outbreak.

Such assessments are significant components of an analysis of potential impacts to marine life from the additional set of noise sources considered in the Proposed Project, and must be assessed in the NMFS IHA.

D. Potential impacts from sound-producing sources other than seismic airguns were not evaluated.

³⁴ 40 C.F.R. § 1502.20.

³⁵ 40 CFR § 1508.25(a)(2).

³⁶ Id. at § 1508.25(a)(3).

³⁷ 40 C.F.R. §§ 1502.16, 1508.7, 1508.8, 1508.25(a)(2).

³⁸ Draft Environmental Assessment (Dec. 2013, rev. April 2014) at 43.

Neither the NMFS IHA nor the EA upon which it relies have offered any meaningful evaluation of the potential impacts that other sound-producing sources used in the Proposed Project may have on marine species. Of particular concern, the NMFS IHA indicates that a high-frequency Kongsberg EM 122 multibeam echosounder will operate concurrently with airgun operations. The multibeam echosounder produces sound in the 10.5 to 13.0 kHz frequency range, which is within the optimal hearing spectrum for many odontocete and pinniped species that may occur in the study area. A 12-kHz multibeam echosounder system operated by an Exxon survey vessel off the coast of Madagascar was implicated by an independent scientific review panel (ISRP) in the mass-stranding of approximately 100 melon-headed whales (*Peponocephala electra*) in 2008.³⁹ The report of the ISRP stated, “all other possible factors considered were determined by the ISRP to be unlikely causes for the initial behavioral response.”⁴⁰

Furthermore, a 2002 seismic expedition in the Gulf of California, also lead by L-DEO, employed a similar multibeam sonar system with a center frequency of 15.5 kHz and source levels of 237 dB. Beaked whale strandings observed in the area of the survey in September 2002 may have been linked to the use of this technology – a federal judge responded by ordering the ship to cease operations.⁴¹

Based on the correlation between these previous stranding events and the use of multibeam sonar technology, it is imperative that NMFS fully assess the potential for this source to impact marine mammals both on its own and in concert with seismic airgun blasts.

E. The analysis of alternatives in the EA was incomplete.

The “heart” of the NEPA process is an agency’s duty to consider “alternatives to the proposed action” and to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.”⁴² The CEQ regulations require NMFS to “rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated

³⁹ Southall, B.L., Rowles, T., Gulland, F., Baird, R. W., and Jepson, P.D. 2013. Final report of the Independent Scientific Review Panel investigating potential contributing factors to a 2008 mass stranding of melon-headed whales (*Peponocephala electra*) in Antsohihy, Madagascar.

⁴⁰ Id.

⁴¹ Cox, T.M., Ragen, T.J., Read, A.J., Vos, E., Baird, R.W., Balcomb, K., Barlow, J., Caldwell, J., Cranford, T., Crum, L., D’Amico, A., D’Spain, G., Fernandez, A., Finneran, J., Gentry, R., Gerth, W., Gulland, F., Hildebrand, J., Houser, D., Hullar, T., Jepson, P.D., Ketten, D., MacLeod, C.D., Miller, P., Moore, S., Mountain, D.C., Palka, D., Ponganis, P., Rommel, S., Rowles, T., Taylor, B., Tyack, P., Wartzok, D., Gisiner, R., Mead, J., and Benner, L. 2006. Understanding the impacts of anthropogenic sound on beaked whales. *Journal of Cetacean Resource Management* 7: 177-187.

⁴² 42 U.S.C. §§ 4332(2)(C)(iii), 4332(2)(E).

from detailed study, briefly discuss the reasons for their having been eliminated.”⁴³ “A ‘viable but unexamined alternative renders [the] environmental impact statement inadequate.’”⁴⁴

The EA does not devote sufficient evaluation of the No Action alternative, in which researchers conducting the study would not proceed with the Proposed Project but would instead rely on core samples previously conducted in the same area to evaluate historical changes in sea level rise. We also urge NMFS to consider alternative times of year for the Proposed Project and evaluate when the potential for impact to marine life would be at its lowest. Should it be determined that the Proposed Project must continue as planned for the summer of 2014, we urge NMFS to consider alternatives with stronger mitigation measures including larger exclusion zones and lower sound thresholds, avoidance of areas that are high value habitat to marine mammals, suspension of activities in low light and night conditions, use of the fewest surveys and duplicate surveys as possible, and other methods to detect marine mammals beyond visual observation and acoustic monitoring.

III. NMFS must take best available science and the precautionary principle into account.

Several experts in marine mammal bioacoustics have underscored our extremely limited understanding of the potential auditory and behavioral impacts to marine mammals from the use of seismic airguns and other sound-producing technologies. Darlene R. Ketten, a marine biologist and neuro-anatomist at the Woods Hole Oceanographic Institution, has written, “[a]t this time we have insufficient data to accurately predetermine the underwater acoustic impact for anthropogenic sources.”⁴⁵ Other published scientists have noted, “[g]iven the current state of knowledge...the risk of seismic sources causing hearing damage to marine mammals cannot be dismissed as negligible.”⁴⁶ Scientists have also commented on the variability in how a seismic source could affect a marine mammal based on the orientation of the source relative to the animal, which is not considered in the Proposed Project. A 2004 review paper on the effects of seismic surveys on marine mammals stated, “[m]arine mammals will be distributed in a variety of positions relative to a seismic array and the signal they receive may have a complicated and variable nature.”⁴⁷ A study of the environmental implications of marine seismic surveys conducted in Australia published in 2000 concluded, “[i]t was believed slight differences in the orientations of receivers to each array, alignments and depths of array components and of functioning air guns within each array contributed to the measured

⁴³ 40 C.F.R. § 1502.14(a).

⁴⁴ *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 814 (9th Cir. 1999) (quoting *Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir. 1985)).

⁴⁵ Ketten, D.R. Marine Mammal Auditory Systems: A Summary of Audiometric and Anatomical Data and Implications for Underwater Acoustic Impacts. *Polarforschung*, 72. Jahrgung, Nr. 2/3, pp. 79-92.

⁴⁶ Gordon, J.C.D., Gillespie, D., Potter, J., Frantzis, A., Simmonds, M.P., Swift, R., and Thompson, D. 2004. A Review of the Effects of Seismic Survey on Marine Mammals. *Marine Technology Society Journal* 37: 14-32.

⁴⁷ *Id.*

differences. Again this exemplified the difficulty of predicting the received air gun level for a specific air gun array.”⁴⁸

Because of this high degree of uncertainty in our understanding of impacts to marine mammals from airgun sources, compounded by the variability in the level of impact based on the position of the source relative to a marine mammal, NMFS should be precautionary in its assessment of incidental takes. One of the Principles in the 2010 Final Recommendations of the Interagency Ocean Policy Task Force report urges the use of best available science and the precautionary approach: “Decisions affecting the ocean...should be informed by and consistent with the best available science. Decision-making will also be guided by a precautionary approach as reflected in the Rio Declaration of 1992.”⁴⁹ Responsible application of the precautionary principle to the NMFS IHA would reasonably have led to the denial of marine mammal takes incidental to the Proposed Project.

IV. Important species information was not incorporated into NMFS’s analysis.

Of particular concern is that a 2013 peer-reviewed study demonstrating North Atlantic right whale presence off the New Jersey coast year-round, particularly in the spring and summer months, does not appear to have been incorporated into the NMFS IHA. Furthermore, factors that may compound the number of bottlenose dolphin takes, including the recent population debilitation by *morbillivirus* and the time and area overlaps between the Proposed Project and calving, do not appear to have been taken into account. Inclusion of this information is critical to ensuring that the NMFS IHA is based on the best available science and considers external factors in its take estimates.

A. The presence, abundance, and potential impacts to North Atlantic right whales in the survey area were not adequately evaluated.

With respect to the critically endangered North Atlantic right whale (*Eubalaena glacialis*), NMFS fails to take into account the best available science on population size, cumulative effects, or species presence in the survey area. NOAA estimates that the western population of the North Atlantic right whale contains only about 400 individuals.⁵⁰ Because of this critically low population level, NMFS has stated that “no mortality or serious injury for this stock can be

⁴⁸ McCauley, R.D., Fewtrell, J., Duncan, A.J., Jenner, C., Jenner, M-N., Penrose, J.P., Prince, R.I.T., Adhitya, A., Murdoch, J., and McCabe, K. 2000. Marine seismic surveys – A study of environmental implications. *Appea Journal* 692-708.

⁴⁹ The White House Council on Environmental Quality. Final Recommendations Of The Interagency Ocean Policy Principle 15 of the Rio Declaration 1992 reads, “in order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall be not used as a reason for postponing cost-effective measures to prevent environmental degradation.”

⁵⁰ http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/rightwhale_northatlantic.htm.

considered insignificant.”⁵¹ The NMFS IHA authorizes the Level B take of three (3) individual right whales; however, given the low population level and NMFS’s own prior statements, take of even one individual would constitute more than a negligible impact and would therefore violate the MMPA.

The NMFS IHA does not cite specific research papers or information on right whales that may give the reader an indication of NMFS reached its decision on the number of authorized takes. For example, in the Behavioral Disturbance section, subsection Baleen Whales, the following whale species are mentioned: gray, bowhead, humpback, blue, sei, fin, and minke.⁵² The North Atlantic right whale, arguably the most important marine mammal species in this group of 26 marine mammals authorized for takings due to its strategic status, is not even mentioned in this section. As such, the NMFS IHA provides no analysis of specific right whale impacts from the Proposed Project, other than to authorize three Level B takes. It is unclear whether the variety of other baseline stressors facing right whales in the region, including ship strikes and fishing gear entanglement, were accounted for in the calculation of takes. Nevertheless, it is essential that NMFS consider the cumulative effects of the Proposed Project in addition to these pre-existing stressors.

The peer-reviewed, Whitt *et al.* 2013 paper, “North Atlantic right whale distribution and seasonal occurrence in nearshore waters off New Jersey, USA, and implications for management,” should have been considered by NMFS in its evaluation of potential right whale impacts. This study involved the use of passive acoustic monitoring at several locations off the New Jersey coast over the course of two years and found that “North Atlantic right whales are present off New Jersey throughout the year and not only during ‘typical’ migratory periods.”⁵³ The numbers of up-call detections per day were highest from March through June, which indicates that right whales communicate extensively during this time of year off the New Jersey coast.⁵⁴ Furthermore, skim-feeding behavior observed off Barnegat Bay indicated that right whale feeding grounds may extend beyond the generally understood primary feeding areas further north, leading the authors to conclude that the “sightings and acoustic data from the present study also suggest that the nearshore waters of New Jersey may serve habitat functions other than migration for this species.”⁵⁵ If NMFS has not included this study in its assessment of right whale takes, then the three takes authorized may be a significant underestimation.

⁵¹ NMFS. 2012. Marine Mammal Stock Assessment Reports (SARs) by Species/Stock; North Atlantic Right Whale (*Eubalaena glacialis*): Western Atlantic Stock. <http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2012whnr-w.pdf>.

⁵² 79 Fed. Reg. at 14787-14788.

⁵³ Whitt, A.D., Dudzinski, K., and Laliberte, J.R. 2013. North Atlantic right whale distribution and seasonal occurrence in nearshore waters off New Jersey, USA, and implications for management. *Endangered Species Research* 20: 59-69.

⁵⁴ Id.

⁵⁵ Id.

B. The NMFS IHA does not appear to account for external factors potentially affecting the area bottlenose dolphin population.

Common bottlenose dolphins (*Tursiops truncatus*) are commonly observed in New Jersey coastal waters during the summer months, and have been sighted as far north as Barnegat Light.⁵⁶ The Proposed Project authorizes takes of 279 pelagic bottlenose dolphins, the highest number of all the marine mammal species evaluated.⁵⁷ This high number of takes is troublesome for two reasons. Firstly, according to Robert Schoelkopf, founding director of the Marine Mammal Stranding Center in Brigantine, NJ, the calving season for bottlenose dolphins in the New Jersey coastal region typically runs from May through June.⁵⁸ The Proposed Project would subject newborn calves to intense levels of noise; these individuals are limited in their ability to flee the ensonified area due to their dependence on their mothers and small size, and are possibly also more susceptible to hearing damage than adult dolphins. The Proposed Project does not account for the overlap of the survey period with the bottlenose dolphin calving period, nor does it evaluate the potential heightened sensitivity of bottlenose dolphin calves to anthropogenic noise.

Furthermore, the MMSC recorded 151 bottlenose dolphin strandings in 2013 alone, compared to 19 strandings in 2012. This high number of strandings prompted NOAA to declare an Unusual Mortality Event for bottlenose dolphins along the Atlantic coast from early July 2013 through the present. Investigations led by NOAA have tentatively identified *morbillivirus* as the most probable cause of the strandings.⁵⁹ Mr. Schoelkopf has expressed concern about the impact that the Proposed Project could have on the local bottlenose dolphin population: “They’ve already taken a pretty good beating, death-rate wise. To have the testing conducted during the birthing period could be even more traumatizing to the entire population. If we’re looking at a normal death rate on animals because of entanglement and fishing gear, shark bites, [and] pneumonia, then the sonic explosions could be totally devastating to anything that swims underwater.”⁶⁰ The stranding data indicate that the local bottlenose dolphin population has been compromised by the *morbillivirus* outbreak of 2013, and the Proposed Project puts this population and its numbers under further, unnecessary stress.

⁵⁶ Robert Schoelkopf, pers. comm.

⁵⁷ 79 Fed. Reg. at 14802 (Table 5).

⁵⁸ Robert Schoelkopf, pers. comm.

⁵⁹ <http://www.nmfs.noaa.gov/pr/health/mmume/midatliddolphins2013.html>.

⁶⁰ <http://thesandpaper.villagesoup.com/p/environmental-organizations-against-proposed-seismic-testing-off-barnegat-bay/1158487>.

V. NMFS's determination that only "negligible" impacts to marine mammals will occur is reckless and not scientifically defensible.

The Proposed Project acknowledges the scarcity of data throughout the discussion of potential impacts to marine life, and yet irrationally characterizes impacts to marine life as "negligible." Examples from the text of the Proposed Project that are particularly noteworthy include:

- "We expect that the masking effects of pulsed sounds...on marine mammal calls and other natural sounds will be limited, although there are very few specific data on this."⁶¹
- "The sound criteria used to estimate how many marine mammals might be disturbed to some biologically-important degree by a seismic program are based primarily on behavioral observations of a few species...for many species there are no data on responses to marine seismic surveys."⁶²
- "There is little systematic information available about reactions of toothed whales to noise pulses."⁶³
- "[T]here has been no specific documentation of temporary threshold shift let alone permanent hearing damage (i.e., permanent threshold shift), in free-ranging marine mammals exposed to sequences of airgun pulses during realistic field conditions."⁶⁴
- "The available data do not allow identification of a specific exposure level above which non-auditory effects can be expected...or any meaningful quantitative predictions of the numbers (if any) of marine mammals that might be affected in those ways."⁶⁵

Based on the extremely limited amount of real-world data upon which to base its conclusions regarding potential impacts to marine life, how can NMFS comfortably state that the impacts to marine mammals are all expected to be "negligible" and fall within the Level B Harassment classification? As stated previously, in the absence of robust data that points to a low likelihood of impacts, the NMFS IHA should rely on a more conservative, precautionary approach.

VI. The NMFS IHA contains several references to location, project, or species information that is incorrect.

⁶¹ 79 Fed. Reg. at 14785.

⁶² 79 Fed. Reg. at 14787.

⁶³ 79 Fed. Reg. at 14788.

⁶⁴ 79 Fed. Reg. at 14789.

⁶⁵ 79 Fed. Reg. at 14791.

The Proposed Project contains several references to information that is incorrect, leading the reader to conclude that “cut and paste” from previously issued NMFS IHAs was employed in the drafting of this document. Examples include:

- “It is considerably less likely that PTS would occur during the proposed seismic survey in Cook Inlet.”⁶⁶ Cook Inlet is in Alaska. NMFS should ensure that local conditions in the study area have been accounted for in its analysis.
- “Additionally, no beaked whale species occur in the proposed seismic survey area.”⁶⁷ The Proposed Project states that six beaked whale species are listed as potentially occurring in the proposed seismic survey area; these include Blainville’s beaked whale, Cuvier’s beaked whale, Gervais’ beaked whale, Sowerby’s beaked whale, True’s beaked whale, and northern bottlenose whale.⁶⁸ NMFS should ensure that assessments of potential impacts to these beaked whale species have been completed.
- “[M]arine mammals might experience stress responses at received levels lower than those necessary to trigger onset TTS. Based on empirical studies of the time required to recover from stress responses...NMFS also assumes that stress responses could persist beyond the time interval required for animals to recover from TTS and might result in pathological and pre-pathological states that would be as significant as behavioral responses to TTS. However, as stated previously in this document, the source levels of the drillships are not loud enough to induce PTS or likely even TTS” (p. 14791). There are no drillships in this proposed study. NMFS should ensure that a complete evaluation of the potential for sources proposed for use in this study to induce TTS or PTS.

How can the assessment of impacts to marine life be accepted as comprehensive, given the apparent lack of close scrutiny that went into drafting it? We urge NMFS to remove such erroneous references from the IHA and ensure that other instances of incorrect information do not exist within the document.

VII. Conclusion

For the reasons detailed above, the undersigned organizations request denial of the NMFS IHA. The Proposed Project threatens serious harm to numerous species of marine mammals and is therefore contrary to the goals, mandates, and prohibitions of the MMPA.

However, should NMFS determine that it will proceed with issuance of a final IHA, significant revision of the authorization and the completion of a full EIS are necessary to remedy issues of

⁶⁶ 79 Fed. Reg. at 14790.

⁶⁷ 79 Fed. Reg. at 14791.

⁶⁸ 79 Fed. Reg. at 14783 (Table 1).

incomplete information, inadequate assessment of impacts, and insufficient evaluation of alternatives and mitigation measures. Importantly, the Proposed Project must not be allowed to be conducted during summer, which is the peak of marine mammal (and other marine species) activity off the New Jersey coast, as well as the height of tourism and fishing seasons. NMFS would also have to ensure that best available science and regulatory review are incorporated into the document, and require stronger mitigation measures and consider different times of year for the Proposed Project.

Sincerely,

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