

APPENDIX G
COMMENT-RESPONSE MATRIX

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
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| General Opposition to Proposed Activity | | | | |
| 1 | Frank Bovasso | Opposed seismic survey based on concerns about impacts to fishing industry and connection with oil and gas. | The National Science Foundation (NSF) acknowledges the concern expressed over the proposed activity. As noted in the Draft Amended Environmental Assessment (EA), p. 56, the proposed activity is not related to oil industry research. The proposed activity is not expected to have significant impacts on the fishing industry (see Draft Amended EA, p. 52-53 and 56). No changes were made in the Final Amended EA in response to this comment. | No change |
| 20 | Robert Switzer | Opposed seismic survey; suggests it would disrupt wildlife and is unnecessary. | NSF acknowledges the concern expressed over the proposed activity. The proposed activity is not expected to have significant impacts on wildlife (Draft Amended EA, Chapter IV). As was described in the Draft Amended EA, p. 1-2, the proposed seismic survey would collect data in support of a research proposal that was reviewed under the NSF merit review process and identified as an NSF program priority to meet NSF's need to foster an understanding of Earth processes. No changes were made in the Final Amended EA in response to this comment. | No change |
| 74 | John Aurnhammer | Requested further research and testing on the effects of seismic surveys on fish and marine mammals before the survey moves forward. Suggests that we have no idea how the activity would affect fish and marine mammals. | NSF acknowledges the concern expressed over the proposed activity. NSF disagrees, however, that there is "no idea" how the proposed activity would affect fish and marine mammals in the survey area. Based on the analysis presented in the Draft Amended EA and the Programmatic Environmental Impact Statement/Overseas Environmental Impact Statement for Marine Seismic Research Funded by NSF or Conducted by the U.S. Geological Survey (PEIS) and the 2014 Final EA (to which the Draft Amended EA tier), the proposed activity is not expected to have significant impacts on fish (see Draft Amended EA, p. 50-53) and marine mammals (see Draft Amended EA, p. 49-50). As noted in the Draft Amended EA, Chapter IV, no significant impacts to marine mammals or fish were observed during the 2014 survey activity, or in previous NSF-funded seismic surveys. Furthermore, the federal agencies with regulatory authority over the protection of fisheries and marine mammals did not determine that significant impacts would occur. To learn more about impacts of seismic surveys on fish, NSF provided federal funds to support an international conference on the effects of sound on the marine environment. No changes were made in the Final Amended EA in response to this comment. | No change |
| Request 30 Day Extension | | | | |
| 7 | Clean Ocean Action (COA) et al. ¹ ; | Requested 30 day extension based | A 30-day extension of the public comment period on the Draft Amended EA was | No change |

¹ Clean Ocean Action, Jersey Coast Anglers Association, Fishermen's Dock Cooperative, New Jersey Outdoor Alliance, Greater Point Pleasant Charter Boat Association, Reef Rescue, Barnegat Light, NJ, Anglers Conservation Network, United Boatmen of New Jersey, Viking Village, Beach Buggy Association of New Jersey, Save Barnegat Bay, Hands

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|---|---|--|---|------------------------------------|
| 9 10 11 15 16 18 19 21 73 | United Boatman of New Jersey; Mary C. Wilding; Marlena Christensen; Glenn Arthur; Mayor of Barnegat Light, Kirk O. Larson, Sr.; Members of the New Jersey Congressional Delegation: Menendez; Booker; Smith; Pallone; Lobiondo; MacArthur; Jersey Coast Anglers Association; New Jersey Outdoor Alliance; Patricia Morgan | on the assumption that the Draft Amended EA contains reference to 126 additional sources of published data and scientific literature that were not contained in the December 2013 Draft EA. | requested based on an assertion that the document included the addition of 126 new published data and scientific literature. NSF compared the sources cited in the 2014 Final EA for the project issued on July 1, 2014, with the 2015 Draft Amended EA. The 2014 Final EA, which was issued nearly 6 months before the 2015 Draft Amended EA, contained all but 6 of the sources identified in "Section VI. Literature Cited". Three of those sources were actually referenced in the 2014 Final EA document on page 32 but were inadvertently omitted from the "Section VI. Literature Cited". Of the remaining three additional sources, one is the 2014 Final EA for the "Seismic Reflection Scientific Research Surveys During 2014 and 2015 in Support of Mapping the US Atlantic Seaboard Extended Continental Margin and Investigating Tsunami Hazards" issued on August 21, 2014. Despite the addition of only a few sources of published data and scientific literature referenced in the 2015 Draft Amended EA, NSF decided to extend the public comment period by an additional 15 days above and beyond the 37 days it was planned to be open for comment. The public comment period was opened on December 19, 2014 and closed on February 9, 2015, 11:59pm Eastern Standard Time. No changes were made in the Final Amended EA in response to this comment. | |
| 8 | United Boatman of New Jersey | Requested 30-day extension of the public comment period because of the migratory species of fish including bluefish, sea bass, fluke, and school sized blue fin tuna that migrate from south to north and east to west during that timeframe. They cannot afford any disruption in normal patterns, as they are restricted to a limited season for these species already. They noted that any disruption in normal | NSF extended the public comment period by an additional 15 days above and beyond the 37 days it was planned to be open for comment. As noted in the Draft Amended EA, p. 53, any impacts to fish species would occur very close to the survey vessel and would be temporary. The PEIS also concluded that seismic surveys could cause temporary, localized reduced fish catch to some species, but that effects on commercial and recreation fisheries were not significant. In decades of seismic surveys carried out by the <i>Langseth</i> and its predecessor, the R/V <i>Ewing</i> , Protected Species Observers (PSOs) and other crew members have seen no seismic sound-related fish or invertebrate injuries or mortality. As noted in the Draft Amended EA, p.53, past seismic surveys in the proposed survey area (2002, 1998, 1995, and 1990) did not result in noticeable effects on commercial or recreational fish catches, based on a review of multi-year National Marine Fisheries Service (NMFS) fish catch data in | No change |

Across the Sand, and The Ocean Foundation. After the close of the public comment period, COA submitted a revised comment, adding the Center for Biological Diversity as a signatory.

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|------------------------|----------------------------|---|---|--|
| | | pattern could result in days lost at sea. | <p>the months when seismic surveys were undertaken. No fish kills or injuries were observed during the 2014 survey (RPS 2014a)². To sample fishing vessel traffic during the proposed survey period off New Jersey, we requested historical National Automated Identification System³ (NAIS) data from the U.S. Coast Guard (USCG) Navigation Center for June and July 2013 and 2014. The number of fishing vessels equipped with AIS was 21–27 per month, with only 4–6 of those spending more than a few hours in the proposed survey area. Some, but not all, small recreational fishing vessels would be included, as the use of AIS systems is voluntary for small vessels. No fisheries activities except vessels in transit were observed in the survey area during the 13 days that the <i>Langseth</i> was there in July 2014.</p> <p>Given the proposed activities, no significant impacts on marine invertebrates, marine fish, their Essential Fish Habitat (EFH), and their fisheries would be expected. Fishing activities would not be precluded from operating in the proposed survey area. Space-use conflicts would be avoided and, therefore, impacts would be negligible, through communication with the fishing community and publication of a Notice to Mariners about operations in the area.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| Request Public Hearing | | | | |
| 14 49 | Glenn Arthur COA et al. | Expressed interest in a public hearing and sought clarification as to whether one was required. | Thank you for your interest in the proposed Marine Geophysical Survey off New Jersey. There is no federal requirement for holding a public hearing for an EA under the National Environmental Protection Act (NEPA); however, there is a requirement of public participation. As standard practice, NSF fulfills its public participation requirement on EAs by making draft EAs available to the public on the NSF website for a 30 day-open comment period. Following this practice, the Draft Amended EA was made available for public comment on 19 December 2014. Because the comment period overlapped with several holidays, an extra 7 days was added to the original open comment period, providing 37 days for public comment. After consideration of requests to extend the public comment period, NSF decided to further extend the public comment period by an additional 15 days above and beyond the 37 days it was planned to be open for comment, finally closing on 9 February 2015. | No change |

² RPS. 2014. Draft protected species mitigation and monitoring report: 3-D seismic survey in the northwest Atlantic Ocean off New Jersey, 1 July 2014–23 July 2014, R/V *Marcus G. Langseth*. Rep. from RPS, Houston, TX, for Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY.

³ Using the National Automated Identification System (NAIS), detailed information on marine vessel traffic is collected, consolidated, and disseminated to the USCG and other government agencies; the information includes vessel type, name, and other information that allows the data to be sorted by activities, e.g., fishing, diving, sailing, recreational, and cargo. Because AIS-equipped vessels transmit at regular intervals, it is possible to discriminate between vessels that are in the area for a period of time and those that are passing through.

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|---------------------|---|---|--|------------------------------------|
| | | | No changes were made in the Final Amended EA in response to this comment. | |
| Scuba Diving Safety | | | | |
| 2 12 46 | New Jersey (NJ) Council of Diving Clubs; Glenn Arthur; COA et al. | Expressed concern about safe diving distance from seismic survey. COA et al. noted that a full EIS must address these concerns and identify strict monitoring and mitigation. | <p>In their comments, the New Jersey Council of Diving Clubs (NJCDC) suggested that a 145-decibel (dB) low-frequency sound limit could provide a suitable margin of safety for sport divers. Based on in situ measurements collected during 2014 using seismic streamer data and analyzed by Crone (pers. comm. 2015), a 145-dB level would be ~14 km (~7.5 nm) from the vessel. This 145-dB value is extrapolated from measured values; measured values at 160-dB and 180-dB distances were significantly lower, by 30–50%, than modeled values. Except for the <i>Lillian</i>, there is only one potential dive site in a 14-km buffer around the survey area, an unidentified wreck very near the outer edge of the buffer in >60 m water depth. The 14-km buffer is conservative, as it is around the entire survey area, not the vessel itself. The vessel, which would be constantly moving, would be a minimum of 14 km from a point on the edge of the buffer, but could be as far away as ~65 km from that point when it is at the far end of the survey area.</p> <p>As a mitigation measure to avoid space-use conflict, Columbia University’s Lamont-Doherty Earth Observatory (L-DEO) has initiated outreach efforts to the diving community for proposed 2015 activities and would continue to do so should the activity go forward. Coordination activities would include direct contact with known dive shops, charter vessels, and communications through Notice to Mariners and direct radio contact with any dive boats observed at any distance from the <i>Langseth</i> during operations. NSF appreciates the efforts the diving community has made to coordinate and avoid space-use conflicts in both 2014 and 2015. As there is no indication of significant impacts associated with the proposed activity, preparation of an Environmental Impact Statement (EIS) is not required.</p> <p>The Final Amended EA has been updated to reflect recommended diving distances from the actively operating seismic vessel.</p> | Chapter IV (5) |
| 3 | NJ Council of Diving Clubs | Expressed concern about the way the coordinates for the survey were represented in the Draft EA. | Thank you for your suggestion. The Final Amended EA has been revised to give the Global Positioning System (GPS) coordinates in degrees and decimal minutes as requested. | Page 4 |
| 4 | NJ Council of Diving Clubs; | Noted that only one shipwreck (the <i>Lillian</i>) is identified within the survey area and suggested there may be other shipwrecks in the area, including more within the suggested | Thank you for bringing to our attention that there may be additional dive sites not captured during our review of potential sites, including shipwrecks, within the survey area. The National Oceanic and Atmospheric Administration (NOAA) Automated Wreck and Obstruction System offered the most comprehensive source of potential dive sites within the survey area. Although there could be additional dive and wreck | No change |

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|----------------------------|---|---|------------------------------------|
| 45 | COA et al. | <p>diving buffer area.</p> <p>COA et al. also noted that the Draft EA provided little information to the impacts that this proposed study would have on the recreational underwater diving community.</p> | <p>sites within the survey area, during the public comment period, no other specific sites were identified within the survey area. Regardless, LDEO would use outreach efforts in advance of the survey to contact prospective divers. Local dive operators known to operate in the survey area would be notified about survey activities. Location of the <i>Langseth</i> and proposed activities within the survey area would be communicated to the public via Notice to Mariners. Therefore mariners in or near the survey area would be made aware of <i>Langseth</i> activities even if specific dive sites were not captured in Figure 2, of the Final Amended EA.</p> <p>As there are many more dive sites outside of the survey area, and only one site identified within the survey area, very little impact would be expected on the recreational diving community from the proposed activity (Draft Amended EA, p. 54). To sample diving activity during the proposed survey period off New Jersey, historical NAIS data for both diving boats and pleasure craft in June and July 2013 and 2014 were requested and evaluated. There was only one AIS-identified dive boat in the survey area, apparently moving through the area in June 2013 and June 2014. In 2015, only one operator appears to have scheduled summer dives on the <i>Lillian</i>, on 11 July and 23 August (Deep Expeditions 2015⁴). As of 1 May 2015, no other operators were found that had scheduled dives on the <i>Lillian</i> during the summer of 2015. As noted in the Draft Amended EA, p. 54, no dive vessels were observed within the survey area during the 2014 survey.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 6 | NJ Council of Diving Clubs | Expressed interest in coordinating scuba diving and survey activity with the same individual as last year and knowing survey timing. | LDEO (and the same individual) would continue to coordinate with local scuba diving operations for the proposed 2015 survey as was done in 2014. The 2015 survey activity was proposed for a 30-day period within the June/July/August 2015 timeframe. If the survey moves forward, the specific dates of the survey would be conveyed through the outreach efforts described in the Final Amended EA and in the above noted responses. No changes were made in the Final Amended EA in response to this comment. | No change |
| 13 | Glenn Arthur | Expressed concern that in 2014 there was no communication with the diving community before and during the survey and questioned who would be notified before and during the 2015 survey. | In 2014, LDEO contacted local dive shops known to operate at the dive site <i>Lillian</i> . In addition, LDEO coordinated with the USCG to issue Notice to Mariners to alert vessel operators within the area. For the 2015 survey, LDEO would again coordinate with local scuba diving operators as was done in 2014 and with USCG to issue Notice to Mariners. No changes were made in the Final Amended EA in response to this comment. | No change |

⁴ Deep Expeditions. 2015. Independence II 2015 schedule. Accessed in April 2015 at <http://www.deepexpeditions.com/DESchedule2015.pdf>.

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|---|----------------------------|---|---|------------------------------------|
| 51 | NJDEP | Noted that the proposed survey time period is the peak timeframe for scuba related activities and that this sector could be significantly impacted by the sound generated from this activity. | <p>NSF agrees with New Jersey Department of Environmental Protection (NJDEP) that the proposed survey time period likely does overlap with the peak timeframe for scuba diving off the coast of New Jersey. NSF, however, disagrees with NJDEP’s assessment that this sector could be significantly impacted by the sound generated from this activity. The majority of scuba diving sites are located closer to shore, whereas the survey location is more distant from shore. Out of 900 shipwrecks or obstructions identified by the NOAA Automated Wreck and Obstruction System, only one infrequently used dive site (the <i>Lillian</i>) was located within the survey area. Although it is possible that undocumented dive sites are located within or near the survey area, none have been specifically identified during the public comment period. The proposed seismic activity would only occur for ~30 days within the June/July/ August timeframe, leaving 60 days within peak summer season for divers to dive when no seismic activities would be occurring at the <i>Lillian</i> dive site, or any undocumented sites within or near the survey area.</p> <p>To sample diving activity during the proposed survey period off New Jersey, historical NAIS data for both diving boats and pleasure craft in June and July 2013 and 2014 were evaluated. There was only one AIS-identified dive boat in the survey area, apparently moving through the area in June 2013 and June 2014. In 2015, only one operator appears to have scheduled summer dives on the <i>Lillian</i>, on 11 July and 23 August (Deep Expeditions 2015⁴). As of 1 May 2015, no other operators were found that have scheduled dives on the <i>Lillian</i> during summer 2015.</p> <p>Regardless of whether all dive sites have been documented in Figure 2 of the Final EA, LDEO would coordinate with local scuba diving operators and with USCG to issue Notice to Mariners to coordinate and avoid space use conflicts with divers in and near the proposed survey area.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | No change |
| 52 | NJDEP | Commented that the proper consideration and notification needs to be provided to this important recreational sector during any activity. | As noted above and in the Draft Amended EA, LDEO would coordinate with local scuba diving operators as was done in 2014 and with USCG to issue Notice to Mariners. No changes were made in the Final Amended EA in response to this comment. | No change |
| Survey Monitoring and Mitigation | | | | |
| 5 | NJ Council of Diving Clubs | Suggested that National Marine Fisheries remotely monitoring fish and marine life within the survey area during the survey. Noted they | NSF is unable to comment on behalf of NMFS. NSF, however, has considered using underwater cameras to monitor fish; however, because underwater visibility within the survey area is extremely low, underwater cameras would likely not be an effective mechanism to record any potential impacts, especially at increasing | No change |

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|------------|--|--|------------------------------------|
| | | hope to use underwater cameras to record any impact during the survey. | distances from the camera. As noted in the Draft Amended EA, Chapter IV, no significant impacts from the proposed activity would be anticipated on fish and marine life in the survey area. No changes were made in the Final Amended EA in response to this comment. | |
| 30 | COA et al. | Stated that the federal agencies must fully comply with the ESA and develop a robust biological opinion based on the best available science. They further urged, “NSF and Rutgers to establish more stringent mitigation measures to protect ESA-listed species than are currently proposed by the IHA.” | NSF did consult under Endangered Species Act (ESA) Section 7. NMFS issued a Biological Opinion (BO)/Incidental Take Statement (ITS) with robust monitoring and mitigation measures that NSF would implement. Although COA et al. suggest that NSF establish more stringent mitigation measures to protect ESA-listed species, no particular measures were identified or recommended. As this public comment was submitted before the issuance of the NMFS notice of intent to issue an Incidental Harassment Authorization (IHA) and the IHA for the proposed 2015 activity, NSF assumes “more stringent mitigation measures to protect ESA-listed species than are currently proposed by the IHA” was in reference to mitigation measures identified in the 2014 IHA. Regardless, NSF believes the monitoring and mitigation measures identified in the Draft Amended EA, which were based on the PEIS standard measures, are conservative and robust. As noted above, NSF would, of course, comply with the requirements set forth in the IHA. No changes were made in the Final Amended EA in response to this comment. | No change |
| 41 | COA et al. | Claimed that the 15- and 30-minute wait times for mitigation are too limited. Suggested that this information adds to the need to conduct a full EIS and that longer, more conservative time thresholds (i.e., at least 60 minutes) for large odontocetes observed in the mitigation zone are needed. | NSF has proposed the use of 15- and 30-min mitigation wait times as those were identified in the PEIS as appropriate standard mitigation measures and have been standard measures in past IHAs. Based on the amount of time it would take the seismic vessel to exit the Exclusion Zone (EZ) for the <i>Langseth’s</i> full 36-airgun array, a 15-min clearance time has been designated for small odontocetes/pinnipeds/turtles, whereas a more precautionary 30-min period was chosen for large cetaceans. (For the smaller source to be used for the proposed survey, the time to exit the 180-dB zone would be ~3 min, but the 15-min and 30-min clearance times would be retained.) As noted by NMFS (2013) ⁵ , even though some whales are known to dive for longer periods (e.g., sperm and beaked whales), it is unlikely that an animal would dive and follow the vessel at the average acquisition speed, and a significant portion of dive movement is vertical rather than horizontal. Thus, the vessel would be well beyond the EZ and the diving animal within the designated clearance periods. NSF disagrees with COA’s statement that consideration of whale dive times adds to the need for a full EIS for the proposed activity; whale dive times were considered in | No change |

⁵ NMFS (National Marine Fisheries Service). 2013. Notice; issuance of an Incidental Take Authorization (ITA). Takes of marine mammals incidental to specified activities; marine geophysical survey in the northeast Atlantic Ocean, June to July 2014. **Fed. Regist.** 78(109; 6 June 2013):34069-34083.

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|---|--|--|
| | | | <p>the PEIS and have been considered within the framework of the Final Amended EA. NSF would comply with the requirement established in the IHA for the proposed activity.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 63 | NJDEP | <p>Recommended to further protect marine species that an aerial survey be performed over the project area just prior to the vessel leaving its home port. The purpose of the flyover would be to determine if there is a feeding, static, or migrating population of marine mammals (especially right whales and harbor porpoise which have a lower recommended PTS [permanent threshold shift] threshold level, according to new NMFS guidelines, now undergoing public comment) or sea turtles in the vicinity. If marine mammals or sea turtles are not observed during the flyover then the survey could be performed as scheduled. If marine mammals or sea turtles were found within or near the project area during the flyover, then delaying the survey for 3-4 days would be prudent.</p> | <p>The aerial survey recommended by NJDEP would not be a scientifically rigorous or effective mitigation measure. Regardless, NSF did bring this recommendation to the attention of NMFS during the IHA consultation process. NMFS, the federal agency with jurisdiction to regulate activities having the potential to affect marine mammals in the proposed survey area, however, did not recommend conducting aerial surveys as a mitigation measure that would further protect marine mammals in the IHA issued for the proposed survey. If this measure were to be included in the study, it would unnecessarily add noise to the survey area and would require further assessment under NEPA, ESA, and the Marine Mammal Protection Act (MMPA). Importantly, because of the high-risk nature of marine mammal aerial surveys, especially those that occur farther offshore, NSF would only consider conducting one if it were recommended or required, and scientifically justified, by NMFS. On May 17, 2008, a Cessna 337A, N5382S, crashed while attempting to divert to Eagles Nest Airport (31E), West Creek, New Jersey, for an emergency landing and the certified commercial pilot and one passenger were fatally injured, and the other two passengers were seriously injured.⁶ The plane was conducting a marine mammal survey flight for a study funded by NJDEP. The proposed survey would take place substantially beyond the nearshore area that NJDEP had contracted for the fatal aerial survey, further increasing risk in the event of an in-flight emergency.</p> <p>Aside from the high risk associated with this recommendation, NJDEP has not demonstrated that this measure has biologically relevant scientific merit and would improve marine species protection. In contrast, the monitoring and mitigation plan proposed by NSF includes standard and systematic monitoring and mitigation measures for seismic surveys. The <i>Langseth</i> would carry five PSOs on board to observe for marine species around the vessel and survey area. Observations would begin during daylight hours immediately upon leaving port. During deployment of seismic gear, PSOs would have the opportunity to monitor around the vessel and observe for feeding, static, or migrating populations of sea turtles or marine mammals. Seismic operations would not begin if marine mammals, sea turtles, or sea birds were observed within a designated zone around the seismic source. The</p> | No change |

⁶ NJDEP EBS Final Report: Volume III, July 2010; <http://www.kathrynsreport.com/2013/01/trenton-new-jersey-woman-injured-in.html>

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|---|---|--|
| | | | <p>standard monitoring and mitigation measures described in the PEIS and Draft Amended EA would be followed along with the additional measures set forth in the associated IHA and BO/ITS.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 64 | NJDEP | <p>Recommended that the incorporation of a QA/QC⁷ plan that would designate one person as responsible for ensuring the cessation of sound producing activities if marine mammals or sea turtles are observed during transect runs. The vessel should stop all noise for at least 30 minutes after the animal is no longer observable in the area. The designee would document any observations of marine mammals or sea turtles, and send all relevant occurrence information to the ENSP for inclusion into the Biotics database.</p> | <p>As described in the Draft Amended EA (p. 5-8) and associated IHA application (p. 34-40), 5 NMFS-approved PSOs would be independently contracted to participate on the survey. Although inclusion of PSOs during a seismic survey is a standard measure required by the PEIS and has been the case for previous surveys, it is also a requirement of the IHA and BO/ITS issued by NMFS. PSOs would monitor and report on the presence and behavior of marine species, and direct the implementation of the mitigation measures for the research activity as described in the NSF Draft Amended EA, Letter of Concurrence (LOC) issued by the United States Fish and Wildlife Service (USFWS), and IHA and BO/ITS, including the cessation of seismic sources because of the presence of marine species within a designated area around the vessel. PSOs would document any observations during the survey as described by the Draft Amended EA, IHA, and BO/ITS. As the survey would be conducted in federal waters outside of NJ state waters and NMFS has federal jurisdiction over the protection of marine mammals, NSF would be legally required to follow the monitoring and mitigation requirements dictated in the IHA and BO/ITS issued by NMFS; this includes adhering to designated cessation periods of the seismic source because of the presence of marine mammals.</p> <p>In addition to the five independently contracted PSOs, NSF offered NJDEP the opportunity to identify a staff member to participate as an observer during the survey, should it go forward. Whereas ultimate authority to enforce the requirements of the IHA, including cessation of seismic activity, would remain with the PSOs, the NJDEP observer would have the opportunity to monitor, make recommendations, record and document observations, and provide observations to NJDEP's Endangered and Nongame Species Program for inclusion in the Biotics database. After NMFS approval, the formal report of PSO observations could be provided to NJDEP's Endangered and Nongame Species Program for inclusion in the Biotics database. To address concerns about space-use conflicts, throughout the duration of the survey, the R/V <i>Langseth</i> and any support vessel could keep a log of all vessels observed within the survey area; the complete log could be included in the formal report of PSO observations submitted to NJDEP's Endangered and Nongame</p> | No change |

⁷ QA/QC was not defined by NJDEP, however, NSF has assumed it to mean "Quality Assurance/Quality Control."

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|-----------|---|--|------------------------------------|
| | | | <p>Species Program. NAIS data could also be evaluated and reported to NJDEP to confirm vessel activity in the survey area. These offers and suggestions were repeatedly made to New Jersey over the past several months; unfortunately, however, NJDEP has not responded to any of these offers and suggestions.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 72 | NJDEP | <p>Asserted that NJDEP and NSF are in agreement that there is not enough data available to definitely project the impact of the proposed survey on fisheries and marine mammals off the coast of NJ. Recommended that NSF incorporate a study of these impacts into the proposed marine geophysical survey. Suggested that a bio-assessment study should be conducted in conjunction with the marine geophysical survey and by an independent researcher.</p> | <p>Based on the analysis presented in the Draft Amended EA, the PEIS, and 2014 Final EA, along with consultation conclusions under the MMPA, ESA, and EFH, and results/observations from funding seismic research surveys for several decades, NSF draws the conclusion that the proposed activity would not significantly impact marine species or their habitat off the coast of NJ. As stated in the Draft Amended EA (page vi), "With the planned monitoring and mitigation measures, unavoidable impacts to each species of marine mammal and sea turtle that could be encountered would be expected to be limited to short-term, localized changes in behavior and distribution near the seismic vessel. At most, effects on marine mammals may be interpreted as falling within the U.S. Marine Mammal Protection Act (MMPA) definition of "Level B Harassment" for those species managed by NMFS. No long-term or significant effects would be expected on individual marine mammals, sea turtles, seabirds, fish, the populations to which they belong, or their habitats."</p> <p>Further, NJDEP recommended that NSF incorporate a study of the potential impacts of the proposed survey on fisheries and marine mammals into the proposed marine geophysical survey. The proposed activity already includes a monitoring plan that, should the survey go forward, would assess the project's impacts on marine species, including marine mammals, sea turtles, sea birds, and fish. As described in the Draft Amended EA (pages 5-8 and 45), the associated IHA application, the issued IHA, and the BO/ITS, 5 NMFS-approved PSOs would be independently contracted to be present during the survey to conduct monitoring activities and implement mitigation measures. Rotating shifts of PSOs would allow 2 observers to monitor for marine species during daylight hours, and 1 observer to monitor the Passive Acoustic Monitoring system during day and nighttime seismic operations. Although inclusion of PSOs during a seismic survey is a standard measure required by the PEIS, it is also a requirement of the IHA and BO/ITS issued by NMFS, and was identified and required in the IHA issued for the survey in 2014. PSOs would monitor and report on the presence and behavior of marine species, and implement any of the mitigation measures for the research activity as described in the NSF Draft Amended EA, LOC issued by USFWS, and the IHA and BO/ITS, including the cessation of seismic sources. PSOs would document any observations, including species behavior and abundance,</p> | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|--|--|---|---|--|
| | | | <p>during the survey as described by the Draft Amended EA and as required by the IHA and BO/ITS. Within 90 days of the conclusion of the survey, an observation report would be provided to NMFS, which, after NMFS review, is a public document. Pre-survey monitoring would commence upon departure from port and during initial gear deployment; monitoring would continue throughout the duration of the survey. Post-survey monitoring would occur upon conclusion of the seismic operations, during gear retrieval, transit through survey area, and transit to port. Should a support vessel be used during the survey, the vessel could serve as an additional platform for marine species observations.</p> <p>NJDEP suggested that a bio-assessment study should be conducted in conjunction with the marine geophysical survey and by an independent researcher. NJDEP, however, did not define or provide any details about what a bio-assessment study should, from their perspective, include or evaluate.</p> <p>The research proposal for the proposed activity was submitted to the NSF Marine Geology and Geophysics program (MG&G), which supports a broad range of research on all aspects of geology and geophysics of the ocean basins and margins, as well as the Great Lakes. Proposals submitted to this program must relate to established program priorities (for more detail see: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=11726). Whereas collaborative interdisciplinary research efforts are encouraged and funded by NSF, they are not a pre-requisite for all funding opportunities, including MG&G. A bio-assessment study was not included in the research proposal associated with this proposed activity. During the NSF merit review process, inclusion of a bio-assessment study was not recommended by the panel or MG&G as necessary for award. The research proposal was, however, determined to be highly meritorious during the merit review process, met all NSF program requirements, and was recommended by NSF Program Officers as worthy of funding.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| Potential Socioeconomic Impacts | | | | |
| 17 53 | Mayor of Barnegat Light, Kirk O. Larson, Sr.; NJDEP | Expressed concern about the potential economic impacts of the survey, including on the town of Barnegat Light. Stated that the potential economic impacts of the survey should be noted. | As noted in the Draft Amended EA, p. 10-11, implementation of the proposed activity would not affect, beneficially or adversely, socioeconomic resources. Because of the distance from shore, human activities in the area around the survey vessel would be limited to SCUBA diving, commercial and recreational fishing activities, and other vessel traffic transiting near the survey area. Because of the nature of the proposed activity and geographic location, no impacts would be expected on marine-related local businesses such as coastal restaurants, hotels, and bait and tackle shops. | Chapter III, "Fisheries" |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|---|-------------------|--|--|--|
| | | | <p>Potential impacts on fishing, SCUBA diving, and vessel traffic were described in the Draft Amended EA, Chapter III and IV. There could be space-use conflicts with SCUBA divers in the survey area; however, most SCUBA diving activity takes place outside of the survey area, closer to shore. As very few dive sites would be impacted in the survey area and given the short duration of the proposed activity (~30 days), economic impacts on the diving industry would be limited, if any. L-DEO would coordinate with local dive operators to avoid space-use conflicts (e.g., for dives on the <i>Lillian</i>).</p> <p>Similarly, space-use conflicts could arise with fishing vessels within the survey area; however, LDEO would coordinate with vessels to avoid issues. To sample fishing vessel traffic during the proposed survey period off New Jersey, we requested historical NAIS data from the USCG Navigation Center for June and July 2013 and 2014. The number of fishing vessels equipped with AIS was 21–27 per month, with only 4–6 of those spending more than a few hours in the proposed survey area. Some, but not all, small recreational fishing vessels would be included, as the use of AIS systems is voluntary for small vessels. There was only one AIS-identified dive boat in the survey area, apparently moving through the area in June 2013 and June 2014. In 2015, it appears that one dive operator has scheduled summer dives on the <i>Lillian</i>, on 11 July and 23 August. During the ~13 days of 2014 survey activity, no fisheries activities or dive vessels were seen in the survey area (Draft Amended EA, p. 52 and 54). Additionally, there was limited merchant vessel activity in the survey area; most merchant traffic was lining up for “safety fairway” to the west of the survey area (Draft Amended EA, p. 55). No significant impacts from the proposed activity would be expected on diving activities and commercial and recreational fishing. The Final Amended EA was updated to reflect 2013 and 2014 NAIS data.</p> | |
| Potential Impacts on Marine Life and/or habitat | | | | |
| 22 | Lincoln Hollister | Suggested that the potential impacts from airguns on marine life have been exaggerated by opponents of seismic surveys and notes there is no scientific evidence for some of the claims. | Thank you for your interest in the proposed Marine Geophysical Survey off New Jersey. NSF believes that the potential impacts from the proposed activity have been conservatively reflected in Chapter IV of the Draft Amended EA. No significant impacts from the proposed activity would be expected on marine species from the proposed activity; serious injury and mortality and fish kills would not be expected. NSF notes that some claims are inconsistent with the research and other evidence collected and analyzed by NSF and the regulatory agencies that issued the IHA and the BO/ITS. No changes were made in the Final Amended EA in response to this comment. | No change |

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|-------------------|--|---|---|
| 23 | Lincoln Hollister | Suggested that the benefits of conducting the proposed research exceed what little, if any, disturbance might be done to marine life. | Thank you for your comment. No changes were made in the Final Amended EA in response to this comment. | No change |
| 29 | COA et al. | Suggested that NMFS should consider the impact from the proposed activity on potential right whale critical habitat | <p>The comment, although submitted to NSF, appears to be directed towards NMFS. NSF is unable to respond on behalf of NMFS. NSF, however, did consider potential impacts on North Atlantic right whales (NARWs) and designated critical habitat in the Draft Amended EA (see p. 14-17). As noted in the Draft Amended EA, p. 16, although there is a petition and a Proposed Rule (in February 2015) to revise critical habitat for NARWs, the revision does not include the migratory corridor off NJ. It is outside of NSF’s authority to compel NMFS to amend the current status of North Atlantic right whale critical habitat that falls under their jurisdiction. The Final Amended EA has been updated to reflect this new information.</p> <p>Also, NARW habitat was identified by NMFS as an “important biological area” (IBA) in U.S. waters. A recent special issue of the journal Aquatic Mammals (February 2015) was devoted to the identification and description by NOAA of IBAs in U.S. waters; for an area to be biologically important for cetacean species, stocks, or populations, it needs to meet at least one of the following four criteria: reproductive area; feeding area; migratory corridor; or small and resident population. The NARW migratory corridor was designated an IBA, but only during March–April and November–December (LaBrecque et al. 2015)⁸.</p> <p>Regardless of the status of the critical habitat, no impacts would be expected upon North Atlantic right whale habitat from the proposed activity.</p> | Chapter III, “North Atlantic Right Whale” |
| 37 | COA et al. | Suggested that the Draft Amended EA failed to describe the cumulative effects from other seismic surveys, including oil and gas seismic surveys, and sonar on the same stocks of marine mammals. | NSF did assess the cumulative effects of oil and gas (O&G) industry, military, research, and fisheries activities, vessel traffic, and marine mammal disease in the Draft Amended EA, p. 54-57. As noted in the Draft Amended EA, the proposed survey site is outside of the Bureau of Ocean Energy Management (BOEM) Atlantic Outer Continental shelf Proposed Geological and Geophysical Activities in the Mid-Atlantic and South Atlantic Planning Areas (BOEM 2014) ⁹ . No seismic surveys by the oil and gas industry are proposed off shore New Jersey in the foreseeable future. At | Chapter IV, “Cumulative Effects” |

⁸ LaBrecque, E., C. Curtice, J. Harrison, S.M. Van Parijs, and P.N. Halpin. 2015. Biologically important areas for cetaceans within U.S. waters—east coast region. p. 17-29 *In*: S.M. Van Parijs, C. Curtice, and M.C. Ferguson (eds.), Biologically important areas for cetaceans within U.S. waters. **Aquat. Mamm.** (Special Issue) 41(1). 128 p.

⁹ BOEM (Bureau of Ocean Energy Management). 2014. Atlantic OCS proposed geological and geophysical activities: Mid-Atlantic and South Atlantic Planning Areas. Final Programmatic Environmental Impact Statement. U.S. Department of the Interior. Prepared under GSA Task Order No. M11PD00013 by CSA Ocean Sciences Inc. February 2014.

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|-----------|--|--|---|
| | | COA et al. stated, "The Navy Atlantic testing and training estimates 21.8 million instances of harm to marine mammals in the coming years. | <p>the time the Draft Amended EA was prepared, it was unclear if and when any O&G related seismic surveys would be implemented in the future. A number of seismic surveys, however, have been proposed within the Mid-Atlantic and South Atlantic Planning Areas. At this time, the proposals are under various federal regulatory reviews and it is unclear if and when they would be approved to move forward. It remains unlikely, however, that the proposed survey would overlap in time with any of the proposed O&G industry seismic surveys.</p> <p>Although COA et al. also commented on potential harm to marine mammals from Navy activities, the comment does not cite the source for the data. It appears this may be the total of the behavioral, Temporary Threshold Shift (TTS), and PTS impacts (not necessarily number of individuals) from Table 3.4-15 to 3.4-18 of the 2013 U.S. Navy Atlantic Fleet Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement (AFTT EIS/OEIS). The AFTT EIS/OEIS covers a 5-year period and the study area is vast, 20–65°N, from the coast to 45°W, an area of 8.9 million km². The proposed survey, on the other hand, covers a 30-day period, and the survey area is ~600 km², 0.007% of the AFTT EIS/OEIS study area. The U.S. Navy activities described in the Cumulative Effects section of the Draft Amended EA are those that could occur at the Atlantic City Range Complex (ACRC) as there could be spatial and temporal overlap with the proposed activity relative to the cumulative impacts analysis. ACRC activities were included in the AFTT EIS/OEIS; the area of the ACRC is <0.2% of the AFTT study area.</p> <p>The Final Amended EA has been updated to reflect the current status of O&G related seismic surveys.</p> | |
| 50 | NJDEP | Noted that the time of year, proposed location, and length of time for the survey are all significant negative factors that may likely adversely affect normal fisheries movement migration and availability. Stated that these impacts could lead to direct and indirect consequences to New Jersey's important commercial and recreational fishing industries. | NSF did consider potential impacts on fish and fisheries from seismic surveys in Sections 3.2.4 and 3.3.4 and Appendix D of PEIS, and in the Draft Amended EA, p. 50-53 and 56. Although NSF agrees with NJDEP that there could potentially be an effect on fish and fisheries within the survey area, NSF believes any impact would be short-term and localized, occurring only near the source vessel. The marine seismic survey would be conducted substantially outside of state waters and, therefore, would not overlap with fisheries activities inside the NJ coastal zone. Fisheries activities would not be precluded from operating within or around the survey area. During the proposed seismic survey, only a small fraction of the survey area would be ensounded by the source array at any given time (Draft Amended EA, p. 53) and the distance in which Level B harassment could be expected from the vessel is only 6.1 km from the source and would remain substantially outside of state waters. Given the proposed activity, no significant impacts on marine invertebrates, marine fish, their EFH, and | Chapter III, "Fisheries" and introduction |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|---------|---|--|
| | | | <p>their fisheries would be expected. Similarly, given the distance to shore, direct and indirect consequences to New Jersey’s commercial and recreational fishing industries would not be expected.</p> <p>NJDEP noted in its letter that, because of the time of year and project duration, the potential impacts could significantly affect fish harvest rates. On p. 2 of its letter, NJDEP provided information about two species based on data from May through August. The survey, however, is not proposed to occur in May but rather for a 30-day period within the June/July/August timeframe. Furthermore, the survey would only take place for ~30 days, not the entire summer season, and only a small portion of the entire survey area would be affected at any one time during seismic operations. As stated in the Draft Amended EA (p. 53), “the proposed survey area represents less than one half percent (0.28%) of the area of waters from the NJ shore to the EEZ...” The information presented by NJDEP in their letter, however, presumes the loss of an entire harvest season for particular species over the entire NJ coastal region. In the unlikely event the survey were to have an impact on harvest rates, it would impact a much smaller percentage of harvest than what was presented by NJDEP.</p> <p>To sample fishing vessel traffic during the proposed survey period off New Jersey, historical NAIS data from the USCG Navigation Center for June and July 2013 and 2014 were requested and evaluated. The number of fishing vessels equipped with AIS was 21–27 per month, with only 4–6 of those spending more than a few hours in the proposed survey area. Some, but not all, small recreational fishing vessels would be included, as the use of AIS systems is voluntary for small vessels. This information was added to the Final Amended EA.</p> <p>During 2014 survey activity, no actively operating fisheries vessels were encountered by the <i>Langseth</i> within the survey area (Draft Amended EA, p. 52). Past seismic surveys in the proposed survey area (2002, 1998, 1995, 1990) did not result in noticeable effects on commercial or recreational fish catches, based on a review of multi-year NMFS fish catch data in the months when seismic surveys were undertaken (Draft Amended EA, p. 53). The issuance of the Final EA, Finding of No Significant Impact (FONSI), IHA, and BO/ITS by NMFS in July 2014 further verified that significant impacts would not be expected from the proposed activity. Observations from the brief 2014 survey support this conclusion (RPS 2014a)².</p> <p>Because of the nature of the proposed activity, no impacts would be anticipated on marine-related local business such as coastal restaurants, hotels, and bait and tackle shops; this clarification was added in the Chapter III of the Final Amended EA.</p> | |

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|-----------|---|---|------------------------------------|
| 54 | NJDEP | Identified a portion of the proposed survey area known as “The Fingers” as a recognized productive and historical fishing area under NJDEP’s Prime Fisheries Area Mapping beyond state waters. | NSF updated the Final Amended EA to specifically identify “The Fingers” as a recognized productive and historical fishing area overlapping the survey area beyond state waters. | Chapter III, “Fisheries” |
| 55 | NJDEP | <p>Asserted that, based on previous studies examining seismic surveys and fisheries disturbances, it is reasonably foreseeable that the proposed survey will have an impact from fisheries distribution, movement, migration and spawning perspectives that will lead to direct and indirect negative consequences to NJ’s fishing industries.</p> <p>NJDEP specifically noted, “Svein Lokkeborg, et al., highlighted that “reduced catches on fishing grounds exposed to seismic survey activities have been demonstrated.”¹⁰</p> <p>NJDEP also specifically noted, “The conclusions reached by the Løkkeborg study are further</p> | <p>NSF did consider potential impacts on fish and fisheries from seismic surveys in Sections 3.2.4 and 3.3.4 and Appendix D of PEIS, and in the Draft Amended EA, p. 50-53. Although NSF agrees with NJDEP that there could potentially be an effect on fish and fisheries within the survey area, NSF believes any impact would be short-term and localized, occurring only near the source vessel. The marine seismic survey would be conducted substantially outside of state waters, and would not preclude fisheries vessels from operating within or around the survey area. During the proposed seismic survey, only a small fraction of the survey area would be ensounded by the source array at any given time (Draft Amended EA, p. 53), and the conservatively predicted distance in which Level B harassment could be expected from the vessel is only 6.1 km from the source and would remain substantially outside of state waters.</p> <p>The reference in NJDEP’s letter is a review in a book, “The effects of noise on aquatic life”, whereas the reference in the EA is a paper in a journal that presents the results of a field experiment off Norway in 2009. As stated on p. 52 of the amended EA, Løkkeborg et al. (2012)¹² described in their introduction three studies in the 1990s that showed effects on fisheries. “In contradiction to these findings and fishermen’s concerns” (Løkkeborg et al. 2012:1278), their study off Norway in 2009 showed that gillnet catches during seismic shooting were doubled for redfish (86% increase) and Greenland halibut (132%), whereas longline catches decreased (16% for Greenland halibut, 25% for haddock). These results were explained by greater swimming activity and lowered food search behaviour in fish exposed to airgun sound. Also, for all but one fish species (pollock), acoustic mapping did not suggest displacement from fishing grounds (Løkkeborg et al. 2012).</p> <p>Fewtrell and McCauley (2012) did not study catch rates, nor did they make any suggestions that their results were applicable to catch rates. Rather, as stated in the amended EA, they exposed squid, pink snapper, and trevally to pulses from a single</p> | Chapter III, “Fisheries” |

¹⁰ Løkkeborg, S., E. Ona, A. Vold, and A. Salthaug. 2012a. Effects of sounds from seismic air guns on fish behavior and catch rates. *Advances in Experimental Medicine and Biology* 730:415-419.

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|-----------|---|---|------------------------------------|
| | | supported by other recent studies concluding that catch rates reduced in the presence of seismic studies.” ¹¹ | <p>airgun. The received sound levels ranged from 120 to 184 dB re 1 dB re 1 $\mu\text{Pa}^2 \cdot \text{s}$ Sound Exposure Level (SEL). Increases in alarm responses were seen in the squid and fish at SELs >147–151 dB re 1 $\mu\text{Pa}^2 \cdot \text{s}$; the fish swam faster and formed more cohesive groups in response to the airgun sounds, and squid were seen to discharge ink or change their swimming pattern or vertical position in the water column. Given the proposed activity, no significant impacts on marine invertebrates, marine fish, their EFH, and their fisheries would be expected. Similarly, given the distance to shore, direct and indirect consequences to New Jersey’s commercial and recreational fishing industries would not be expected. During 2014 survey activity, no actively operating fisheries vessels were encountered by the <i>Langseth</i> in the survey area (Draft Amended EA, p. 52). The number of fishing vessels equipped with AIS was 21–27 per month, with only 4–6 of those spending more than a few hours in the proposed survey area. Some, but not all, small recreational fishing vessels would be included, as the use of AIS systems is voluntary for small vessels. This information was added to the Final Amended EA.</p> <p>Past seismic surveys in the proposed survey area (2002, 1998, 1995, 1990) did not result in noticeable effects on commercial or recreational fish catches, based on a review of multi-year NMFS fish catch data in the months when seismic surveys were undertaken. The issuance of the Final EA, FONSI, IHA, and BO/ITS by NMFS in July 2014 further verified that significant impacts would not be expected from the proposed activity. Observations from the brief 2014 survey support this conclusion (RPS 2014a)².</p> | |
| 56 | NJDEP | Noted that offshore waters serve as essential habitat for invertebrate species; “Studies have provided evidence that noise exposure during larval development produces body malformations in marine invertebrates. Scallop larvae exposed to playbacks of seismic | As stated on p. 51 of the amended EA, “Significant developmental delays and body abnormalities in scallop larvae exposed to seismic pulses were reported by de Soto et al. (2013). Their experiment used larvae enclosed in 60-ml flasks suspended in a 2-m diameter by 1.3-m water depth tank and exposed to a playback of seismic sound at a distance of 5–10 cm. [Emphasis added] This laboratory experiment would not, however, be representative of the proposed activity. Other studies conducted in the field have shown no effects on Dungeness crab larvae or snow crab embryos (Pearson et al. 1994; DFOC 2004 in NSF PEIS ¹⁴). Moreover, a major annual scallop- | |

¹² Løkkeborg, S., E. Ona, A. Vold, and A. Salthaug. 2012. Sounds from seismic air guns: Gear- and species-specific effects on catch rates and fish distribution. **Can. J. Fish. Aquat. Sci.** 69:1278-1291.

¹¹ Fewtrell, J.L. and R.D. McCauley. 2012. Impact of airgun noise on the behaviour of marine fish and squid. **Mar. Poll. Bull.** 64(5):984-993.

¹⁴ NSF and USGS (National Science Foundation and U.S. Geological Survey). 2011. Final Programmatic Environmental Impact Statement/Overseas Environmental Impact Statement for Marine Seismic Research Funded by the National Science Foundation or Conducted by the U.S. Geological Survey. Accessed on 28 April 2015 at <http://www.nsf.gov/geo/oce/envcomp/usgs-nsf-marine-seismic-research/nsf-usgs-final-eis-oeis-with-appendices.pdf>.

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|------------|--|---|--|
| | | pulses showed significant developmental delays and 46% developed body abnormalities. Similar effects were observed in all independent samples exposed to noise while no malformations were found in the control groups.” ¹³ ; and that a reduction in harvestable stock would result in further impacts to NJ commercial fisheries. | spawning period occurs in the Mid-Atlantic Bight during late summer to fall (August–October), although MacDonald and Thompson (1988 in NMFS 2004 ¹⁵) reported scallop spawning off New Jersey during September–November. Therefore, the timing of the proposed activity (June/July/August) would mainly avoid the scallop-spawning period. | |
| 43 | COA et al. | Suggested that the Draft Amended EA provides only broad information on commercial and recreational fishing activities that have historically occurred in the waters off New Jersey and was lacking site-specific detail, including how habitats may be affected and mitigation measures. | NSF disagrees with COA’s comment. Significant detail regarding the specific types of fish habitat, fish, and fishing activities off the coast of NJ were included in the Draft Amended EA in Chapter 3, p. 29-33. Potential effects on fish, fish habitat, and commercial and recreational fisheries were included in detail in the Draft Amended EA, p. 50-53. Some fisheries information collected by NOAA is protected under proprietary/privacy laws, so the level of detail at a particular geographic location is not always publicly available. PSOs on board the vessel would monitor for all marine species, including fish, and although unexpected, would report any unusual behavior or observed impacts, such as fish kills. Should any such impacts be observed, PSOs would have the authority to shut down the airguns. Language was included in the Final Amended EA, Chapter II (3)(b) Operational Phase to identify the PSO monitoring and mitigation roles with respect to fish. | Chapter II, “Monitoring and Mitigation Measures” |
| 44 | COA et al. | Suggested that information and recommendations from recent studies on potential impacts on fish and shellfish from noise sources referenced in the Draft Amended EA were not adequately addressed, including mitigation recommendations, and were insufficient to meet the obligations to consult on EFH impacts and | NSF disagrees with COA et al.’s conclusion that the Draft Amended EA did not adequately address recently published literature and potential impacts and recommendations. The determination of sufficiency of information to consult under EFH was the responsibility and decision of NMFS. As NMFS issued an EFH determination, the information provided was sufficient. The Draft Amended EA and PEIS contained an extensive review of scientific literature on impacts from noise sources on the environment and analysis, allowing a firm basis for weighing the risks and benefits of the Proposed Action. No changes were made in the Final Amended EA in response to this comment. | No change |

¹³ de Soto, N.A, Delorme, N., Atkins, J., Howard, S., William, J., and M. Johnson. Anthropogenic noise causes body malformations and delays development in marine larvae. **Sci. Rep.** 3:2831. doi: 10.1038/srep02831.

¹⁵ NMFS (National Marine Fisheries Service). 2004. Essential Fish Habitat source document: sea scallop, *Placopecten magellanicus*, life history and habitat characteristics. 2nd edit. NOAA Tech. Memo. NMFS-NE-189. 21 p. Accessed at <http://www.nefsc.noaa.gov/publications/tm/tm189/tm189.pdf> in June 2014.

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|---|--|--|
| | | comply with NEPA’s hard look requirement. | | |
| 58 | NJDEP | Suggested that a better comparison of the survey area would be the percent of survey area to the Exclusive Economic Zone (EEZ), where “During 2002-2006 (the last year reported), commercial catch in the EEZ along the U.S. east coast has only been landed by U.S. and Canadian vessels, with the vast majority of the catch (>99%) taken by U.S. vessels (Sea Around Us Project 2011)” or the distinct areas which the commercial fisheries target.” | The Draft Amended EA describes the proposed survey area as less than one half percent (0.28%) of the water area between the NJ shore and the EEZ. The comment seems to suggest that the survey area be expressed as a percentage of (1) all U.S. east coast waters to the EEZ or (2) the distinct areas that commercial fisheries target. The first percentage would be extremely small, but not relevant to NJ’s fisheries. It is not possible to calculate the second percentage because the distinct areas targeted by commercial fisheries are not known; as a result, potential impacts on fisheries were assessed on all commercial fisheries in NJ waters based on available scientific literature. No changes were made in the Final Amended EA in response to this comment. | No change |
| 59 | NJDEP | Identified NJ’s Atlantic Ocean waters as a migration corridor for marine species. Noted that noise pollution may adversely impact marine species; behavioral alterations may jeopardize individuals survival; animals distressed by sound may be more susceptible to disease; and that the proposed activity would add to existing and increasing cacophony of anthropogenic noise pollution, including to North Atlantic right whales which have been detected to be present within 37 km of the shoreline during all seasons, and other marine mammals such as humpback whales, fin whales, and harbor porpoises. | NSF mainly agrees with NJDEP’s comment, and these points were also identified in the Draft Amended EA. The proposed activity, however, as described in the Draft Amended EA, would not be expected to have significant impacts on marine species or their habitats. The proposed survey is expected to result in only minor behavioral disturbances that would be expected to have only negligible impacts both on individual marine mammals and on the associated species and stocks. The type of effects described by NJDEP would only occur if marine mammals were excluded from critical areas for migration, feeding, or breeding at critical times, and that would not be the case off NJ in summer. NJDEP also stated, “Acoustic detections of whale calls by Geo-Marine, Inc. confirmed the presence of right whales within 37 km of the shoreline, approximately between Seaside Park and Stone Harbor, during all seasons, concluding that some individual right whales occur in the nearshore waters off New Jersey either transiently or regularly.” Whereas it is possible, it is not likely that a small number of North Atlantic right whales (NARWs) could be off New Jersey in June. Geo-Marine, Inc.’s (GMI’s) acoustic recording effort was in March, June, September, and December 2008, and March and August 2009. The majority of acoustic detections of NARWs were in March 2008 (78 or 60%), whereas there were only 7 detections in March 2009, indicating annual differences or, more likely, methodological limitations. There were 12 acoustic detections in June 2008. NARW sightings were few: during the | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|--|--|---|
| | | | <p>study period (aerial and vessel surveys once or twice monthly between February 2008 and June 2009), there were a total of 4 sightings during November, December, and January. As stated on page 8 of the Draft Amended EA, “Special mitigation measures were considered for this cruise. Although it is very unlikely that a NARW would be encountered, the airgun array would be shut down if one is sighted at any distance from the vessel because of the species’ rarity and conservation status.”</p> <p>A recent special issue of the journal <i>Aquatic Mammals</i> (February 2015) was devoted to the identification and description by NOAA of “important biological areas” (IBAs) in U.S. waters; for an area to be biologically important for cetacean species, stocks, or populations, it needs to meet at least one of the following four criteria: reproductive area; feeding area; migratory corridor; or small and resident population. The only IBA off New Jersey is the NARW migratory corridor during March–April and November–December¹⁰, which the timing of the proposed 2015 survey in June/July/August would avoid. No changes were made in the Final Amended EA in response to this comment.</p> | |
| 60 | NJDEP | <p>Suggested that sound is important for sea turtles, referring to Piniak et al. (2012), and that they might be impacted by anthropogenic sound and that the waters off New Jersey provide critical migration and feeding areas for sea turtles. Noted that the Draft Amended EA failed to include the numerous sea turtle sightings reported from the Oyster Creek Nuclear Generating Station located in Forked River, NJ.</p> <p>Identified that the sea turtles may be migrating through the study location during the critical June-July period, making them susceptible not</p> | <p>Thank you for identifying additional sources of sea turtle data. Although the full reference was not provided, Piniak et al. 2012¹⁶ was reviewed and its conclusions were taken into consideration when preparing the Final Amended EA. Sightings reported from the Oyster Creek Nuclear Generating Station¹⁷ located in Forked River, NJ were reviewed and taken into consideration when preparing the Final Amended EA.</p> <p>As was noted in the Draft Amended EA, NSF agrees with NJDEP that sea turtles could migrate through the study location during the proposed survey period. PSOs, however, would monitor for sea turtles around the vessel and would employ power down and shut down mitigation measures if sea turtles were to approach or enter the 180-dB EZ. Because of the design of the seismic equipment used on the R/V <i>Langseth</i>, sea turtle entanglement in the gear is highly unlikely. Similarly, sea turtle injury or mortalities as a result of ship strike by the <i>Langseth</i> would be highly unlikely given the slow operating speed during seismic operations. As stated on p. 50 of the Draft Amended EA, “In decades of seismic surveys carried out by the R/V <i>Langseth</i> and its predecessor, the R/V <i>Ewing</i>, Protected Species Observers (PSOs) and other</p> | Chapter IV, “Summary of Potential Effects of Airgun Sounds”; Chapter III, “Sea Turtles” |

¹⁶ Piniak, W.E.D., D.A. Mann, S.A. Eckert, and C.A. Harms. 2012a. Amphibious hearing in sea turtles. p. 83-88. *In*: A.N. Popper and A. Hawkins (eds.), The effects of noise on aquatic life. Springer, New York. 695 p.

¹⁷ Houlihan, K. and K. Paez. 2014. Annual report of sea turtle incidental takes—2014, Oyster Creek Nuclear Generating Station. Rep. from Exelon Generation, Oyster Creek, NJ, for National Marine Fisheries Service Northeast Region, Gloucester, MA. December 2014.

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
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| | | only to impacts from seismic activity but to entanglement in the seismic array gear, and injury/mortality due to ship strikes. | crew members have seen no seismic sound-related sea turtle injuries or mortality, including during 2014 survey activities [off New Jersey].” | |
| 61 | NJDEP | Stated that many of the sea turtles migrating near NJ during the proposed project period are juveniles. Claimed that the effects from airgun noise to smaller turtles will undoubtedly be greater than those observed in monitoring studies while their ability to swim away/avoid the airgun array because of their size will be reduced. | Although NJDEP suggests, “Effects from air gun noise to smaller turtles will undoubtedly be greater than those observed in monitoring studies...”, no scientific references were provided to support this conclusion, nor were specific references provided to identify which “monitoring studies” NJDEP was referring. Whereas smaller sea turtles might be slightly more disadvantaged at swimming away from the source, because of the vessel operating speed, the ship would pass by any sea turtle relative quickly regardless of turtle size. PSOs would also monitor and mitigate for sea turtles around the vessel. No changes were made in the Final Amended EA in response to this comment. | No change |
| 62 | NJDEP | Stated that they are encouraged that the researchers plan to reduce the sonic signature to a more reasonable level than was previously proposed by using the smaller source array. | Thank you for your comment. Based on information gathered during the 2014 survey, the 700-in ³ source was viewed sufficient to meet the research goals. No changes were made in the Final Amended EA in response to this comment. | No change |
| Preparation of an EIS | | | | |
| 25 | COA et al. | Suggested that the proposed activity warrants preparation of an EIS. | NSF prepared a PEIS for marine seismic research in June 2011 and issued a Record of Decision in June 2012. The PEIS evaluated the potential effects of marine seismic research at both a broad and detailed level. The PEIS was aimed to minimize the duplication of effort in environmental documentation and to address the potential for cumulative effects of NSF-funded marine seismic research on the environment. The PEIS assembled and analyzed the broadest range of direct, indirect, and cumulative impacts associated with all NSF-funded marine seismic research activities in addition to other past, present, and reasonably foreseeable projects in the region of influence. The PEIS serves as a strong technical basis for a more global assessment of the potential cumulative impacts of NSF-funded activities in the future. As noted in the PEIS, Chapter 1, Section 1.4, the PEIS sets up a framework for streamlining the preparation of subsequent environmental documents where needed for site specific surveys. In addition, the PEIS notes that time- and location-specific documents | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|--------------------|--------------------------|---|---|--|
| | | | <p>would be addressed in EIS supplements, tiered EAs, or other appropriate environmental documentation that would follow the publication of the PEIS (per Council for Environmental Quality regulations at 40 CFR 1502.20). Tiering of environmental documentation makes subsequent documents of greater use and meaning without duplicating previous paperwork and environmental analyses. In addition, the PEIS identified an appropriate and prudent set of standard mitigation measures to be integrated into future NSF-funded seismic surveys.</p> <p>One of the sites evaluated in detail in the PEIS included a survey at approximately the same location as the proposed site. Information about this Detailed Analysis Area (DAA), the Northwestern Atlantic (NW Atlantic), can be found throughout the various Chapters of the PEIS. Because of slight differences between the Proposed Action and the NW Atlantic DAA presented in the PEIS (e.g. source size and water depth), site-specific environmental analysis was prepared for the proposed activity to more accurately evaluate potential effects. For the 2014 survey, Draft and Final EAs were prepared that tiered to the PEIS. A Draft Amended EA was prepared for the proposed 2015 survey, which tiered to both the 2014 Final EA and the PEIS. The Draft Amended EA is consistent with the analytical framework established in the PEIS, including the incorporation of the standard mitigation measures. The Draft Amended EA, the 2014 Final EA, and the PEIS, included analysis of the direct, indirect and cumulative impacts, and alternatives, and were made available for public comment periods; the Draft Amended EA, in particular, was open for a 52-day public comment period, 22 days more than the NSF standard 30-day public comment period for Draft EAs. Based on the analysis presented in the Draft Amended EA, the 2014 Final EA, and the PEIS, significant impacts on the environment are not expected from the proposed activity. As significant impacts are not expected from the proposed activity, the preparation of an EIS is not warranted.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| Regulations | | | | |
| 26 | COA et al. | Suggested that NSF should comply with Coastal Zone Management Act (CZMA). | <p>NSF has complied with the requirements of the CZMA. NSF submitted a Consistency Determination to the States of New Jersey and New York for the Proposed Action pursuant to CZMA. Additional information regarding the CZMA process can be found in the Final Amended EA, Chapter IV (8).</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | No change |
| 27 30 | COA et al. COA et al. | Suggested that NSF and LDEO should consult under ESA, fully comply, develop a robust biological | <p>NSF did consult under ESA Section 7 with NMFS and USFWS for the proposed activity. USFWS concurred with NSF that the proposed activity may affect but was not likely to adversely affect species under their jurisdiction. Section 7 consultation for the</p> | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|------------|--|--|--|
| | | opinion, and adopt robust mitigation measures “such as those described in the alternatives section described above.” | <p>proposed 2015 survey resulted in the issuance of a BO/ITS by NMFS. NSF’s intent to consult under ESA Section 7 with NMFS and USFWS for the proposed 2015 survey was noted in the Draft Amended EA, p. 57-59. Updated information about the ESA consultations conducted for the 2015 survey activity has been incorporated into the Final Amended EA in Chapter IV (8). The Draft Amended EA also noted that NSF had consulted under ESA Section 7 with NMFS and USFWS for the 2014 survey. The 2014 survey activity consultations resulted in concurrence from USFWS that the proposed activity may affect but was not likely to adversely affect species under their jurisdiction, and issuance of a BO/ITS by NMFS. COA states in its letter on page 3, “Moreover, NSF and Rutgers should adopt robust mitigation measures such as those described in the alternatives section above to avoid adverse impacts to listed species.” There does not appear to be an ‘alternatives section’ above that sentence in the letter, however, so it was unclear to NSF to which robust mitigation measures COA was referring. Robust monitoring and mitigation measures for the proposed activity were, however, described in the Draft Amended EA, p. 5-8, and 45. NSF would also implement the monitoring and mitigation measures defined in the BO/ITS and in the USFWS concurrence letter.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 28 | COA et al. | Suggested that NMFS’s reliance on the 160-dB Level B and 180/190-dB Level A thresholds do not reflect best available science (as described above). | <p>The ESA process requires conformity with current NMFS policy; therefore, the Draft Amended EA was prepared in accordance with the current acoustic guidance established by NMFS. As noted in the Draft Amended EA, in December 2013, NOAA published revised draft acoustic guidelines for assessing the effects of anthropogenic sound on marine mammals; however, the date of release of the final guidelines and how they would be implemented are unknown. Therefore, the Final Amended EA also reflects the current acoustic guidance established by NMFS. It is outside of NSF’s authority to change NMFS’s acoustic guidelines and policies. NMFS provided an explanation of why it applies the current thresholds in the notice of intent to issue an IHA for the 2015 survey (Federal Register Notice 13962, March 17, 2015) and the notice of intent to issue an IHA and response to comments for the IHA issued for the 2014 survey (Federal Register Notice 14779, March 17, 2014 and Federal Register Notice 38504, July 8, 2014). COA states in its letter on p. 3, “NMFS’ reliance on the 160-dB Level B and 180/190 Level A thresholds do not reflect the best available science. As described above, the best available science supports lower thresholds for many marine species.” There is, however, no discussion or reference above those two sentences in the letter regarding thresholds; therefore, NSF is unable to specifically address that point. NSF would implement the monitoring and mitigation measures required by the BO/ITS.</p> | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|------------------------------------|------------|---|---|---|
| | | | No changes were made in the Final Amended EA in response to this comment. | |
| 42 | COA et al. | Noted that agencies have a statutory obligation to consult on the impact of federal activities on essential fish habitat under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). | <p>NSF did consult under MSFCMA with NOAA for EFH for the proposed survey and the 2014 survey. NOAA concluded for both the proposed survey and the 2014 survey that some level of adverse effects to EFH may occur as a result of the proposed activity, however no project-specific EFH conservation recommendations were provided. NOAA recommended additional research and monitoring to gain a better understanding of the potential effects that seismic surveys may have on EFH, federal managed species, their prey, and other NOAA trust resources for future NSF activities, however, this was not a consultation requirement. In response to this recommendation, NSF provided federal funds for an international conference in March 2015 designed to address impact of sound on the marine environment.</p> <p>NSF's intent to consult under MSFCMA for EFH for the proposed survey was noted in the Draft Amended EA, p. 58. Updated information about the MSFCMA for EFH consultation conducted for the 2015 survey activity was included in the Final Amended EA. The Draft Amended EA also noted that NSF had consulted under MSFCMA for EFH for the 2014 survey.</p> | Chapter IV, "Public Involvement and Coordination with Other Agencies and Processes" |
| 65 | NJDEP | Noted that the Division of Land Use Regulation is currently reviewing a Federal Consistency for the proposed NSF marine geophysical survey, submitted on 22 December 2014. A final determination was expected to be provided by 19 February or 5 March 2015 if a 15-day extension is requested. | After receiving and approving a 15-day extension request, NSF received a federal consistency review from NJDEP on March 6, 2015. Additional information regarding the CZMA process can be found in the Final Amended EA, Chapter IV (8). | No change |
| Take estimates and Modeling | | | | |
| 31 | COA et al. | Suggested that the methodology to develop exclusion and buffer zones and estimate marine mammal takes was a broad methodology and the same used in the March 2014 Draft EA, "...despite several concerns raised by the Marine Mammal Commission and others during the comment period on the draft IHA. COA shares many of the MMC | In the comment, NSF assumes that "draft IHA" means the March 17, 2014 notice of intent to issue an IHA by NMFS. In the comment, COA et al. also state they agree with "many" of the concerns raised by the Marine Mammal Commission (MMC) on the 2014 "draft IHA", however, it is unclear to NSF specifically which concerns they are in agreement with and which ones they are not. In addition, in the statement it is unclear which other commenters during the 2014 IHA public comment period COA et al. considers "experts." NSF disagrees with COA that the methodology to develop exclusion and buffer zones and take estimates followed a broad methodology. The methodology used was very specific and was described in detail in the Draft Amended EA. The methodology used to develop exclusion zones were described in | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|------------|--|--|--|
| | | concerns and recommends that the Draft Amended EA be revised to account for expert recommendations.” | detail in the Draft Amended EA, Chapter II (p. 6-7) and Appendix A. The specific methodology to develop take estimates was described in the Draft Amended EA, Chapter IV (p. 45-49). NMFS provided detailed responses to comments received on the March 17, 2014, notice of intent to issue an IHA, including comments by MMC, in the Federal Register notice of IHA issuance for the 2014 survey (Federal Register Notice 38504, July 8, 2014). No changes were made in the Final Amended EA in response to this comment. | |
| 32 | COA et al. | Suggested that the NMFS acoustic criteria threshold, 160 dB and 180/190 dB, used to determine take are not based on the best available science, and refers to authorizations issued to the Navy for naval sonar activities which incorporate linear risk functions to account for risk and individual variability as an example. | As the IHA process requires conformity with current NMFS policy, the Draft Amended EA and IHA application were prepared in accordance with the current acoustic guidance established by NMFS. As noted in the Draft Amended EA, in December 2013, NOAA published revised draft acoustic guidelines for assessing the effects of anthropogenic sound on marine mammals for public review and comment, however, the date of release of the final guidelines and how they would be implemented are unknown. Therefore, the Final Amended EA also reflects the current acoustic guidance established by NMFS. It is outside of NSF’s authority to change NMFS’s acoustic guidelines and policies. No changes were made in the Final Amended EA in response to this comment. | No change |
| 33 | COA et al. | Suggested that the agency’s approach to estimating impact thresholds for injury to marine mammals is “non-conservative” and therefore more marine mammals would be harmed than estimated. | As the IHA process requires conformity with current NMFS policy, the Draft Amended EA and IHA application were prepared in accordance with the current acoustic guidance established by NMFS. As noted in the Draft Amended EA, in December 2013, NOAA published for public review and comment revised draft acoustic guidelines for assessing the effects of anthropogenic sound on marine mammals, however, the date of release of the final guidelines and how they would be implemented are unknown. Therefore, the Final Amended EA also reflects the current acoustic guidance established by NMFS. It is outside of NSF’s authority to change NMFS’s acoustic guidelines and policies. Although the commenter assumes that a change in acoustic guidance thresholds would result in increased take for species for the proposed activity, this assumption may be incorrect, as a change in thresholds based on marine mammal TTS, the expected offset between the TTS and PTS thresholds, differences in the acoustic frequencies to which different marine mammal groups are sensitive, and other factors, in fact, would likely result in a decrease of take for some species. No changes were made in the Final Amended EA in response to this comment. | No change |
| 34 | COA et al. | Recommended that the applicant rectify inconsistencies between the | Although COA et al. have suggested NSF rectify the inconsistencies between the Draft Amended EA and the 2014 IHA issued by NMFS, it is unclear to which issues | No change |

| Com-ment # | Commenter | Comment | Response | Final Amended EA Page # or Section |
|------------|------------|--|--|------------------------------------|
| | | Draft Amended EA and the 2014 IHA issued by NMFS. | <p>exactly they are referring. NSF is therefore unable to address these concerns more specifically; however, if these inconsistencies were identified in more detail elsewhere in their comments, (such as issues related to calculating the exclusion zone and take estimates), NSF may have subsequently addressed them. The only operational and procedural difference between the 2014 survey and the proposed 2015 survey would be the use of the smaller source size (700 in³); therefore, the analysis included in the Draft Amended EA was based only on that source size, whereas the 2014 IHA analysis was based on the larger (1400 in³). In addition, the Draft Amended EA noted in various places differences in analytical approach (e.g., p. 47) between it and the 2014 IHA. The analytical approach in the 2015 IHA (and the associated NMFS EA), differed slightly from the approach in the 2014 survey; these differences were addressed in the Final Amended EA as well. Regardless of any differences in analytical approach between the Draft Amended EA and the 2014 IHA, NSF would comply with all requirements of the IHA issued in 2015 for the proposed activity.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 35 | COA et al. | Suggested that exclusion and buffer zones were developed via a simplistic model. Recommends that the applicant re-estimate exclusion and buffer zones after inputting project specific operational details (including tow-depth, airgun source intensity, and number of firing airguns) and environmental parameters (including water depth, seafloor geology, and how sound refracts in the water column) into its sound propagation model. | For the proposed shallow water survey, use of a model with environmental characteristics of the specific study area is unnecessary as the predicted operational mitigation radii were based on empirical results (see Draft Amended EA, Appendix A) and confirmed by in situ measurements (Crone, pers. comm. 2015). For shallow-water surveys, such as for the proposed activity, analysis of field measurements collected during calibration studies in shallow water of the Gulf of Mexico demonstrated that they are appropriate to use to derive mitigation radii in other shallow water environments. Preliminary analysis by Crone (pers. comm. 2015) of data collected during the 2014 survey off NJ, confirmed that in situ measurements and estimates of the 160- and 180-dB distances collected by the <i>Langseth</i> hydrophone streamer were significantly smaller than the predicted operational mitigation radii. This analysis, therefore, confirmed the predicted mitigation radii were conservative and appropriate for mitigation use. This analysis also confirmed the effectiveness of the use of scaling factors. Preliminary analysis results for the proposed shallow water survey site are consistent with analysis conducted of a shallow water site off the Washington coast (Crone et al. 2014) ¹⁸ . The analysis by Crone (pers. comm. 2015) also demonstrates that an additional 3-dB buffer added to the exclusion zone, which was required by NMFS for the 2014 survey, would be | No change |

¹⁸ Crone, T.J., M. Tolstoy, and H. Carton. 2014. Estimating shallow water sound power levels and mitigation radii for the R/V *Marcus G. Langseth* using an 8 km long MCS streamer. *Geochem. Geophys. Geosyst.* 15(10):3793-3807. doi:10.1002/2014GC005420.

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|------------|--|---|--|
| | | | <p>unnecessary and scientifically unjustified. Although smaller mitigation radii might be warranted based on the scientific analysis in Crone et al. (2014)²² and Crone (pers. comm. 2015), NSF would remain committed to implementing the conservative radii originally presented in the Draft Amended EA and incorporated in the IHA.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 36 | COA et al. | <p>Suggested that the EA underestimates the impact on marine mammal takes, and on all marine life, in the small ocean area affected, because the calculation method does not take into account the fact that areas will be ensonified on multiple occasions over the 30-day project period; the EA should include an assessment of the total multiplied ensonified area for a given day and the total number of survey days.</p> | <p>NSF disagrees that we have underestimated take, as this same methodology for estimating take (and not substantially overestimating take) has been used for most previous NSF-funded seismic surveys. NMFS does not provide specific guidance to IHA applicants on estimating take, therefore, there is variability in methodological approaches. In fact, NMFS has used the NSF/LDEO methodology to estimate take for past surveys. In a survey such as this where areas are ensonified on multiple occasions, the same individuals might be exposed more than once. For the 2014 survey, NMFS added an additional 25% to the estimated take to account for the turnover of marine mammals in the survey area. For the proposed survey, NMFS included a 25% contingency factor in the take analysis described in their EA for the IHA. As described in the Final Amended EA, NMFS introduced a new approach for calculating takes: with some exceptions, “The modeled number of instances of exposures to sound levels ≥ 160 dB re: 1 μPa is the product of the species density (where available), the daily ensonified area of 1,226 km², and the number of survey days (30 plus 25 percent contingency for a total of 38 days)”. The use of the numbers of exposures, not the numbers of individuals, to calculate take authorization differs from NMFS’ practice for more than a decade for NSF-related seismic surveys. For those species, as a result of this different methodology, authorized takes are 1.8–214 times what they were in 2014, despite the smaller airgun array being used in 2015. Whereas NSF believes that NMFS’s methodology results in an overestimation of take and of potential impacts to marine species from the Proposed Action, NSF would adhere to the requirements of the IHA. As described in the Final Amended EA, during an NSF-funded, ~5000-km, two dimensional (2-D) seismic survey from the <i>Langseth</i> off the coast of North Carolina in September–October 2014, only 296 cetaceans were observed within the predicted 160-dB zone and potentially taken, representing <2% of the 15,498 authorized takes (RPS 2015)¹⁹. During an USGS, ~2700 km, 2-D seismic survey from the <i>Langseth</i> along the U.S. east coast in August–September 2014, only 3 unidentified dolphins</p> | Chapter IV, 1(e) |

¹⁹ RPS. 2015. Protected species mitigation and monitoring report: East North American Margin (ENAM) 2-D seismic survey in the Atlantic Ocean off the coast of Cape Hatteras, North Carolina, 16 September–18 October 2014, R/V *Marcus G. Langseth*. Rep. from RPS, Houston, TX, for Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY.

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|------------|---|---|--|
| | | Suggested that, “these concentrated multiplied affects must be evaluated for all marine life species, not just mammals and turtles.” | <p>were observed within the predicted 160-dB zone and potentially taken, representing <0.03% of the 11,367 authorized takes (RPS 2014b)²⁰. A discussion of the difference in approach on calculating take estimates between the Draft Amended EA and the NMFS EA for the 2014 survey is given in the Draft Amended EA, p. 47 and 49. A discussion of the difference in approach on calculating take estimates between the Draft Amended EA and the IHA for the proposed survey is presented in the Final EA.</p> <p>It is not clear what is meant by COA et al.’s comment, “these concentrated multiplied affects must be evaluated for all marine life species, not just mammals and turtles.” The potential effects of the survey are taken into account for all marine species in the Draft Amended EA, Chapter IV. Take estimates, however, are only applicable and calculated for marine mammals and, only by NMFS, for sea turtles. No changes were made in the Final Amended EA in response to this last comment.</p> | |
| 38 | COA et al. | Stated that no explanation is provided in the Draft Amended EA for why a 1.25 turnover estimate is omitted since it was included in the 2014 IHA and that it is essential to include. | <p>NSF has used the same methodology for estimating take (and not substantially overestimating take) for most previous NSF-funded seismic surveys. NMFS does not provide specific guidance to IHA applicants on estimating take, therefore, there is variability in methodological approaches. In fact, NMFS has used the NSF/LDEO methodology to estimate take for past surveys. In a survey such as this where areas are ensonified on multiple occasions, the same individuals might be exposed more than once. For the 2014 survey, NMFS added an additional 25% to the estimated take to account for the turnover of marine mammals in the survey area. For the proposed survey, NMFS included a 25% contingency factor in the take analysis described in their EA for the IHA. As described in the Final Amended EA, NMFS introduced a new approach for calculating takes: with some exceptions, “The modeled number of instances of exposures to sound levels ≥ 160 dB re: 1 μPa is the product of the species density (where available), the daily ensonified area of 1,226 km², and the number of survey days (30 plus 25 percent contingency for a total of 38 days)”. The use of the numbers of exposures, not the numbers of individuals, to calculate take authorization differs from NMFS’ practice for more than a decade for NSF-related seismic surveys. For those species, as a result of this different methodology, authorized takes are 1.8–214 times what they were in 2014, despite the smaller airgun array being used in 2015. Whereas NMFS’ analysis does result in an increase in take from 2014 and 2015, the number of takes for both years falls well within the range of insignificance and meets the criteria for issuing an IHA.</p> | Chapter IV, 1(e) |

²⁰ RPS. 2014b. Draft protected species mitigation and monitoring report: U.S. Geological Survey 2-D seismic reflection scientific research survey program: mapping the U.S. Atlantic seaboard extended continental margin and investigating tsunami hazards, in the northwest Atlantic Ocean, Phase 1, 20 August 2014–13 September 2014, R/V *Marcus G. Langseth*. Rep. from RPS, Houston, TX, for Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY.

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|------------|---|--|--|
| | | | <p>Whereas, based on recent data, NSF believes NMFS' methodology results in an overestimation of take and of potential impacts to marine species from the Proposed Action, NSF would adhere to the requirements of the IHA.</p> <p>As described in the Final Amended EA, during an NSF-funded, ~5000-km, 2-D seismic survey from the <i>Langseth</i> off the coast of North Carolina in September–October 2014, only 296 cetaceans were observed within the predicted 160-dB zone and potentially taken, representing <2% of the 15,498 authorized takes (RPS 2015)²³. During an USGS, ~2700 km, 2-D seismic survey from the <i>Langseth</i> along the U.S. east coast in August–September 2014, only 3 unidentified dolphins were observed within the predicted 160-dB zone and potentially taken, representing <0.03% of the 11,367 authorized marine mammal takes (RPS 2014b)²⁴.</p> <p>A discussion of the difference in approach on calculating take estimates between the Draft Amended EA and the NMFS EA for the 2014 survey is given in the Draft Amended EA, p. 47 and 49. A discussion of the difference in approach on calculating take estimates between the Draft Amended EA and the IHA for the proposed survey is presented in the Final EA.</p> | |
| 39 | COA et al. | Recommended that updated species information and take estimates be provided for the three pinniped species that were included in the 2014 IHA. | <p>No pinnipeds were included in the 2014 NSF Final EA or in the Draft Amended EA; as stated on p. 12 of the Draft Amended EA, harp seals and hooded seals are rare in the proposed survey area, and gray and harbor seals have a more northerly distribution during the summer and are therefore not expected to occur there during the survey. No pinnipeds were observed during the 13-day cruise in 2014. Information on grey, harbor, and harp seals were included in the 2014 NMFS EA, and were incorporated into the 2014 NSF Final EA and Draft Amended EA by reference as if fully set forth therein; the Final Amended EA for the proposed survey also incorporated information from the 2014 and 2015 NMFS EA. NSF believes NMFS has taken a conservative approach by including potential takes for pinnipeds. Although NSF disagrees with NMFS that there is potential for pinniped takes, NSF would, however, adhere to the requirements of the IHA. No changes were made in the Final Amended EA in response to this comment.</p> | No change |
| 40 | COA et al. | Noted that the 2014 IHA and Biological Opinion included a more conservative exclusion zone for marine mammals and sea turtles of 177-dB rather than the standard 180-dB zone required by NMFS guidance of all other seismic | <p>For the 2014 survey, NMFS required NSF to include a 3-dB buffer, adding ~50%, to the 180-dB (for cetaceans and sea turtles) and 190-dB (for pinnipeds) exclusion zones during operational mitigation. Preliminary analysis by Crone (pers. comm. 2015) of data collected during the 2014 survey off NJ confirmed that in situ measurements and estimates of the 160- and 180-dB isopleths collected by the <i>Langseth</i> hydrophone streamer were significantly smaller than the predicted operational mitigation radii. This analysis, therefore, confirmed the predicted mitigation radii</p> | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|--|-------------------|---|---|--|
| | | surveys. Stated that the EA should be amended to include updated estimates of marine mammal and sea turtle impacts under the 177-dB exclusion zone approach. | <p>were conservative and appropriate for mitigation use. Preliminary analysis results for the proposed shallow water survey site are consistent with analysis conducted of a shallow water site off the Washington coast (Crone et al. 2014)²². The analysis by Crone (pers. comm. 2015) also demonstrates that an additional 3-dB buffer added to the exclusion zone, which was required by NMFS for the 2014 survey, would be unnecessary and scientifically unjustified. Ultimately, NMFS did not require a 3-dB buffer in the IHA and BO/ITS issued for the proposed survey. Although smaller mitigation radii might be warranted based on the scientific analysis in Crone et al. (2014)²² and Crone (pers. comm. 2015), NSF would remain committed to implementing the conservative radii originally presented in the Draft Amended EA and incorporated in the IHA for the proposed survey. As is standard practice, marine mammal takes for the 2014 survey were based on the 160-dB radii, not the expanded 177-dB and 187-dB exclusion zones used for operational mitigation (i.e., shut downs/power downs). Marine mammal takes calculated for the 2015 survey were also based on the 160dB radii. NSF and NMFS were consistent in this approach for calculating take.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| Evaluation of Alternative Actions/No Action | | | | |
| 24 | Lincoln Hollister | Noted that the negative impact of stopping an academic seismic survey includes the loss of scientific data and knowledge of sea level rise for informing public policy, research programs, and the impairment of student education and future scientific careers. | The consequences of not conducting the proposed research activity are described in the Draft Amended EA, p. 60. The Draft Amended EA appears to reflect the effects described in the comment submitted. No changes were made in the Final Amended EA in response to this comment. | No change |
| 47 | COA et al. | Stated that the Draft Amended EA did not provide sufficient evaluation of the No-Action Alternative and suggests conducting the research using existing core samples and 2-dimensional seismic data previously obtained within the project area. | The No-Action Alternative was described in the Draft Amended EA, p. 8 and 60. The proposed research cannot be conducted using existing core samples and 2-D seismic data previously obtained in the project area. As discussed in the Draft Amended EA, p. 2, features such as river valleys cut into coastal plain sediments, now buried under a km of younger sediment and flooded by today's ocean, cannot be resolved in existing 2-D seismic data to the degree required to map shifting shallow-water depositional settings in the vicinity of clinoform rollovers. This is the basis for the proposal to use a three dimensional (3-D) reflection survey to map sequences at the proposed survey site around existing International Ocean Discovery Program (IODP) Expedition 313 drill sites and analyze their spatial/temporal evolution. As noted in | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
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| | | Suggested that as the project would occur in public waters, a comparison of the potential environmental and socioeconomic harm from the seismic activity against the potential contribution of the study result to scientific understanding is critical. | <p>the Draft Amended EA, p. 60, “Existing seismic profiles occur at intervals too coarse to achieve the proposed scientific goals of this project. To the larger spacing and the limitations inherent in processing 2-D seismic data preclude identification of key features of the past margin such as river or delta channels and shoreline adjustments. Only dense, 3-D seismic acquisition and processing can provide continuity of imaging to enable confident identification of these features, whose distributions are expected to evolve throughout the time period recorded in the sediments targeted. The No-Action Alternative would not meet the purpose and need for the proposed activities.”</p> <p>The purpose and objectives of the proposed research were described in the Draft Amended EA, p.1. Potential environmental impacts, including any potential socioeconomic impacts, from the Proposed Action, Alternative Action, and No-Action Alternative were described in the Draft Amended EA, p. 10-11 and 34-60. The research proposal, which provides greater detail about the proposed activity, has been included as Appendix B in the Final Amended EA. The research proposal was also included as an Appendix in the NSF Final EA for the 2014 survey (Appendix B). No changes were made in the Final Amended EA in response to this comment; however, the research proposal, which provides greater detail about the proposed activity, has been included as Appendix B in the Final Amended EA.</p> | |
| 48 | COA et al. | <p>Stated that the Draft Amended EA contains only a brief discussion of conducting the survey at another time; questions why summer months have again been identified as the only viable timeframe for the project; and recommended incorporation of information from experts in marine mammal biology and fisheries in its evaluation of alternate times of year from the study.</p> <p>This recommendation was based on the statement that, “recent research has confirmed the year-round presence of North Atlantic right whales off the New Jersey coast,</p> | <p>In addition to the proposed activity occurring in summer 2015, the Draft Amended EA did identify conducting the survey at another time as an Action Alternative, (p. 8 and 59). Reasons why June/July/August was chosen as the survey timing were discussed in the Draft Amended, p. 6. Weather conditions, the availability of personnel (including scientists), vessel, and equipment, were factors considered when developing the timing of the Proposed Action and Action Alternative.</p> <p>The Draft Amended EA does take into consideration information from experts in marine mammal biology and fisheries in its evaluation of alternative times for the Proposed Action. Although recent research demonstrates that NARWs could be present year round off New Jersey, they are more likely to be present during November–April; thus, a survey during that period would have a greater chance of encountering a NARW.</p> <p>Acoustic recordings off New Jersey were made between March 2008 and November 2009. In fact, monthly numbers of NARW detections were highest in March, April, and May (not June) 2008 (10, 25, and 37), and much lower in the other months (0–7). The high numbers in March–May 2008 are, in part, attributable to the fact that beginning in June 2008, at least half of the recording devices were configured for</p> | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|--|---|--|
| | | <p>and furthermore, that the numbers of up-call detections per day were highest in the March through June time period.²¹</p> <p>Stated that, "Given that weather issues (including Hurricane Arthur and "equipment damage from rough seas") are identified in the Draft Amended EA as a primary contributor to the failure of the researchers to complete the survey within the time allotted last summer, it is questionable why the summer months have again been identified as the only viable timeframe for the project."</p> | <p>odontocete (higher frequency) sounds (Whitt et al. 2013). Also, despite very intense vessel and aerial survey effort off New Jersey between January 2008 and December 2009 (12,893 km and 12,222 km, respectively), there were only a total of 4 sightings, in May 2008, November 2008, January 2009, and December 2009).</p> <p>Whereas hurricanes can occur in the summer, peak hurricane season starts in mid-August and extends until mid-October²²; some of NJ's deadliest recorded storms have occurred during September/October. The most recent deadly hurricane that hit the NJ shoreline was Hurricane Sandy which impacted the state from October 26, 2012 to November 8, 2012. It was declared a major disaster on October 30, 2012.²³ Hurricane Sandy was responsible for 73 deaths in the United States and cost billions of dollars in assistance.²⁴ The rough weather encountered by the <i>Langseth</i> during the 2014 survey demonstrates the challenges of conducting oceanographic research even during optimal weather periods, and similarly, highlights the potential safety hazards of operating during suboptimal weather periods.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 57 | NJDEP | <p>Suggested September/October to be an appropriate time of year to conduct the survey as it is outside of North Atlantic right whale migration and winter weather. Recommended rescheduling the survey to a future time in September/October when the vessel, personnel, and equipment are available.</p> | <p>NJDEP suggested shifting the survey to a September/October timeframe for 2015, or to a September/October timeframe of a future year. Whereas NSF has taken into consideration alternative times to conduct the survey, NJDEP has disregarded reasons provided in the Draft Amended EA for survey scheduling limitations, including presence of marine species, weather, and personnel and equipment availability.</p> <p>There is no indication in seasonal marine mammal density data that September/October would be preferable to June through August. NJDEP has failed to identify how the September/October timeframe is more optimal and less impactful to marine mammals than the June/July/ August timeframe proposed by NSF, a timeframe that federal agencies with jurisdiction over endangered and threatened species in the area have also found to be optimal to operate with respect to marine mammals. These agencies also found in 2014 that the 2014 survey, also authorized to occur during the June/July/August timeframe, would not result in significant impacts to marine species, including endangered or threatened species, and their habitats, and</p> | No change |

²¹ Whitt, A.D., K. Dudzinski, and J.R. Laliberté. 2013. North Atlantic right whale distribution and seasonal occurrence in nearshore waters off New Jersey, U.S.A., and implications for management. **Endang. Species Res.** 20:59-69.

²² http://climate.rutgers.edu/stateclim/?section=menu&%20target=nj_hurricane_history

²³ <http://www.fema.gov/disaster/4086>

²⁴ <http://www.fema.gov/sandy-recovery-office>

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|---------|--|--|
| | | | <p>met the criteria for obtaining an IHA. At most, with implementation of monitoring and mitigation measures, the proposed activity, like the 2014 survey, could result in Level B harassment (behavior modification) to marine mammals. Given that the federal agencies charged with protecting marine mammals and endangered and threatened species authorized the same activity during the June/July/ August time-frame in 2014, it is logical that NSF has proposed that the project occur within the same time period in 2015.</p> <p>September/October is actually peak season for hurricanes²²; some of NJ's deadliest recorded storms have occurred during September/October. The most recent deadly hurricane that hit the NJ shoreline was Hurricane Sandy, which impacted the state from October 26, 2012 to November 8, 2012. It was declared a major disaster on October 30, 2012.²³ Hurricane Sandy was responsible for 73 deaths in the United States and cost billions of dollars in assistance.²⁴ The rough weather encountered by the <i>Langseth</i> during the 2014 survey demonstrates the challenges of conducting oceanographic research even during optimal weather periods (summer), and similarly, highlights the potential safety hazards of operating during suboptimal weather periods.</p> <p>During the September/October 2015 timeframe, the lead Principal Investigator (PI) and a collaborating PI have teaching obligations, and two collaborating PIs are scheduled to conduct field work at sea on other research cruises. Although the <i>Langseth</i> has been in the North Atlantic for the last year and a half in support of academic research activities, this is the first time it has operated along the U.S. east coast since it began science operations in 2008. At present, the <i>Langseth</i> is scheduled to support other research activities in 2015, including a research activity in the Mediterranean Sea; the <i>Langseth</i> is scheduled to depart in support of that activity in September. After that survey, the vessel is scheduled to transit to the east coast of South America, the west coast of South America, then on to the southwest Pacific Ocean. Therefore, it is not a reasonable assumption that the <i>Langseth</i> would be available to work along the U.S. east coast in the foreseeable future. As a U.S. government-owned national asset, it is NSF's responsibility to operate the vessel in the most efficient way possible; thus, when scheduling the vessel in support of research activities, factors such as minimizing transits are considered.</p> <p>NJDEP has suggested that the geologic formations at the target depths of interest are static and not likely to change if the proposed activity were rescheduled to September to October in a future year in which the personnel and equipment essential to meet the overall project objectives are available. This suggestion, however, does not</p> | |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
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| | | | <p>take into account that the research was proposed by researchers and students whose professional and academic careers depend upon the collection of these data and successful completion of the survey. In other words, there is a timeliness factor involved with the proposed activity, as well as a desire to have the scientific results incorporated into the broader scientific community in the near term.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |
| 66 | NJDEP | <p>Claimed that the Alternative Action is inadequate in minimizing or avoiding certain environmental impacts. Notes that the Draft Amended EA failed to consider this as part of any alternative.</p> | <p>Thank you for your comment; NSF acknowledges NJDEP’s opinion that the Action Alternative does not minimize or avoid certain environmental impacts. For clarification, under NEPA, Action Alternatives are not required to “minimize or avoid impacts” but rather are alternatives to the Proposed Action that also meet the purpose and need of the agency. The environmental consequences of the Proposed Action, Action Alternatives, and No-Action Alternative, including those that may or may not avoid or minimize adverse impacts or enhance the quality of the human environment, are then considered to assist in agency decision-making. No changes were made in the Final Amended EA in response to this comment.</p> | No change |
| 67 | NJDEP | <p>Noted that the Amended EA did not incorporate any changes to the scope or timing of the study between last year and this year.</p> | <p>For clarification, NSF received no comments during the open public comment period on the Draft EA for the 2014 survey. Whereas NSF did consider comments that were submitted as part of the IHA process associated with the 2014 survey, and there were some suggestions to move the survey to other time periods (such as winter), NSF did not find compelling scientific reasons to alter the timing of the Proposed Action, and there were logistical and safety issues associated with moving the survey to alternative time frames. All authorizations for conducting the survey during the June/July/August period in 2014 were received from the federal regulatory agencies with jurisdiction over the survey area, and those same agencies also issued authorizations for the proposed activity this year. In addition, as noted in the Draft Amended EA, weather conditions and the availability of personnel, vessel, and equipment were considered when developing the timing of the Proposed Action and Action Alternative. The Action Alternative proposed in the Draft Amended EA was proposed to consider alternative timeframes for conducting the survey.</p> <p>It is unclear what types of changes to the project scope NJDEP felt should have been considered in the Action Alternative; therefore, NSF is unable to provide a more specific response to this concern. No changes were made in the Final Amended EA in response to this comment.</p> | No change |
| 68 | NJDEP | <p>Commented that the project was not amended to change the study</p> | <p>For clarification, NSF received no comments during the open public comment period on the Draft EA for the 2014 survey. Whereas NSF did consider comments that were</p> | Chapter II, “Monitoring |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
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| | | period or incorporate other “harm minimization strategies like additional monitoring”. | <p>submitted as part of the IHA process associated with the 2014 survey, and there were some suggestions to move the survey to other time periods (such as winter), NSF did not find compelling scientific reasons to alter the timing of the Proposed Action, and there were logistical and safety issues associated with moving the survey to alternative time frames. All authorizations for conducting the survey during the June/July/August period in 2014 were received from the federal regulatory agencies with jurisdiction over the survey area, and those same agencies also issued authorizations for the proposed activity this year. In addition, as noted in the Draft Amended EA, weather conditions and the availability of personnel, vessel, and equipment were considered when developing the timing of the Proposed Action and Action Alternative. The Action Alternative proposed in the Draft Amended EA was proposed to consider alternative timeframes for conducting the survey.</p> <p>It is unclear to NSF which 2014 public comments provided on “harm minimizing strategies like additional monitoring” received during the NMFS IHA process NJDEP feels should have been incorporated into the Draft Amended EA. The Action Alternative included the same monitoring and mitigation measures as the Proposed Action. These monitoring and mitigation measures were consistent with the PEIS and previous monitoring and mitigation measures included in many IHAs issued for NSF funded seismic surveys. In addition to these standard monitoring and mitigation measures, NMFS did include two additional mitigation measures in the IHA issued for the 2015 survey: (1) a 1-min shot interval for the mitigation airgun; and (2) shutdowns of the source for large (6 or more) groups of whales. These changes were noted in the Final Amended EA.</p> | and Mitigation Measures” |
| 69 | NJDEP | Noted that the current project still does not incorporate suggestions offered by NMFS in a letter dated June 18, 2014 that specifies: “some level of adverse effect to [Essential Fish Habitat (EFH)] may occur”; and “additional research and monitoring is needed to gain a better understanding of the potential effects these activities may have on EFH ... and should be a component of future NSF funded seismic survey activities.” Noted that the Amended EA failed to consider these elements | <p>NSF did consult under MSFCMA with NOAA for Essential Fish Habitat for the 2014 survey and 2015 proposed activity. NOAA concluded for the 2014 survey and the 2015 proposed activity that some level of adverse effects to EFH may occur as a result of the proposed activity, however no project-specific EFH conservation recommendations were provided. NOAA recommended additional research and monitoring to gain a better understanding of the potential effects that seismic surveys may have on EFH, federal managed species, their prey, and other NOAA trust resources for future NSF activities, however, this was not a consultation requirement. In response, NSF provided federal funds to an international conference designed to address the impacts of sound on the marine environment.</p> <p>NSF’s intent to consult under MSFCMA for EFH for the proposed 2015 survey was noted in the Draft Amended EA, p. 58. Updated information about the MSFCMA for EFH consultation conducted for the 2015 survey activity was incorporated into the</p> | Chapter II, “Monitoring and Mitigation Measures” |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|---|--|--|
| | | as part of any alternative. | <p>Final Amended EA in Chapter IV (8).</p> <p>For both the Proposed Action and Action Alternative (Survey at Another Time), PSOs on board the vessel would monitor for all marine species, including fish, and although unexpected, would report any unusual behavior or observed impacts, such as fish kills. Should any such impacts be observed, PSOs would have the authority to shut down the airguns. Language was included in the Final Amended EA to identify the PSO monitoring and mitigation roles with respect to fish.</p> | |
| 70 | NJDEP | Stated that the No-Action Alternative does not adequately explain the need for conducting the seismic study and fails to substantiate how the data collected are necessary. | <p>The need for conducting the Proposed Action and the purpose for collecting data was appropriately described in the Draft Amended EA, p. 1. Whereas the No-Action Alternative is not considered a reasonable alternative because it does not meet the purpose and need for the Proposed Action, as required under Council of Environmental Quality (CEQ) regulations (40 CFR 1502.14[d]), the No-Action Alternative is carried forward for analysis. The No-Action Alternative (i.e., do not issue an IHA and do not conduct the research operations) was described in the Draft Amended EA, p. 8, and the environmental consequences of implementing the No-Action Alternative were described on p. 60. The proposed research cannot be conducted using existing core samples and 2-D seismic data previously obtained within the project area. As discussed in the Draft Amended EA, p. 2, features such as river valleys cut into coastal plain sediments, now buried under a km of younger sediment and flooded by today's ocean, cannot be resolved in existing 2-D seismic data to the degree required to map shifting shallow-water depositional settings in the vicinity of clinoform rollovers. This is the basis for the proposal to use a 3-D reflection survey to map sequences at the proposed survey site around existing IODP Expedition 313 drill sites and analyze their spatial/temporal evolution. As noted in the Draft Amended EA, p. 60, "Existing seismic profiles occur at intervals too coarse to achieve the proposed scientific goals of this proposed activity. To the larger spacing and the limitations inherent in processing 2-D seismic data preclude identification of key features of the past margin such as river or delta channels and shoreline adjustments. Only dense and 3-D seismic acquisition and processing can provide continuity of imaging to enable confident identification of these features, whose distributions are expected to evolve throughout the time period recorded in the sediments targeted. The No-Action Alternative would not meet the purpose and need for the proposed activities."</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | No change |
| 71 | NJDEP | Noted that the Draft Amended EA failed to explain the need to conduct | The Proposed Action and timing were described in detail in the Draft Amended EA, p. 2-8. In particular, survey timing was considered during the planning stages of the | No change |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
|-------------------|-----------|---|--|--|
| | | <p>the survey in summer months and in this year. Recommends that based on NJDEP's concerns expressed in response to the marine geophysical survey proposed last year, the proposed survey should have been moved to fall/winter months. Recommends the survey be conducted in September-October 2015, or future year, to reduce the impact to fisheries and marine mammals.</p> | <p>survey, as described on p. 6 of the Draft Amended EA. Factors that were taken into consideration for the proposed survey timing included environmental conditions (such as the seasonal presence of marine mammals, sea turtles, seabirds), weather conditions, equipment and personnel availability, and optimal timing for other proposed surveys on the <i>Langseth</i>.</p> <p>For clarification, NSF received no comments from NJDEP during the open public comment period on the Draft EA for the 2014 survey. Whereas NSF did consider comments that were submitted as part of the IHA process associated with the 2014 survey, and there were some suggestions to move the survey to other time periods (such as winter), NSF did not find compelling scientific reasons to alter the timing of the Proposed Action, and there were logistical and safety issues associated with moving the survey to alternative time frames.</p> <p>There is no indication in seasonal marine mammal density data that September/ October would be preferable to June through August. NJDEP has failed to identify how the September/October timeframe is more optimal and less impactful than the June/July/August timeframe proposed by NSF, a timeframe that federal agencies with jurisdiction over endangered and threatened species in the area have also found to be of an optimal period to operate with respect to marine mammals. These agencies also found in 2014 that the 2014 survey, also authorized to occur during the June/July/August timeframe, would not result in significant impacts to marine species, including endangered or threatened species, and their habitats, and met the criteria for obtaining an IHA. At most, with implementation of monitoring and mitigation measures, the proposed activity, like the 2014 survey could result in Level B harassment (behavior modification) to marine mammals. Given that the federal agencies charged with protecting marine mammals and endangered and threatened species authorized the same activity during the June/July/August timeframe in 2014, it is logical that NSF has proposed that the project occur within the same time period in 2015.</p> <p>Importantly, September/October is actually peak season for hurricanes²²; some of NJ's deadliest recorded storms have occurred during September/October. The most recent of these that hit the NJ shoreline was Hurricane Sandy, which impacted the state from October 26, 2012 to November 8, 2012. The hurricane was declared a major disaster on October 30, 2012.²³ Hurricane Sandy was responsible for 73 deaths in the United States and cost billions of dollars in assistance.²⁴ The rough weather encountered by the <i>Langseth</i> during the 2014 survey demonstrates the challenges of conducting oceanographic research even during optimal weather periods (summer), and similarly, highlights the potential safety hazards of operating</p> | |

| Com- ment # | Commenter | Comment | Response | Final Amen- ded EA Page # or Section |
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| | | | <p>during suboptimal weather periods.</p> <p>During the September/October timeframe, the lead PI and a collaborating PI have teaching obligations, and two collaborating PIs are scheduled to conduct field work at sea on other research cruises. Although the <i>Langseth</i> has been in the North Atlantic for the last year and a half in support of academic research activities, this is the first time it has operated along the U.S. east coast since it began science operations in 2008. At present, the <i>Langseth</i> is scheduled to support other research activities in 2015, including a research activity in the Mediterranean Sea; the <i>Langseth</i> is scheduled to depart in support of that activity in September. After that survey, the vessel is scheduled to transit to the east coast of South America, the west coast of South America, then on to the southwest Pacific Ocean. Therefore, it is not a reasonable assumption that the <i>Langseth</i> would be available to work along the U.S. east coast in the foreseeable future. As a U.S. government-owned national asset, it is NSF's responsibility to operate the vessel in the most efficient way possible; thus, when scheduling the vessel in support of research activities, factors such as minimizing transits are considered.</p> <p>NJDEP has suggested that the geologic formations at the target depths of interest are static and not likely to change if the proposed activity were rescheduled to September to October in a future year in which the personnel and equipment essential to meet the overall project objectives are available. This suggestion, however, does not take into account that the research was proposed by researchers and students whose professional and academic careers depend upon the collection of these data and successful completion of the survey. In other words, there is a timeliness factor involved with the proposed activity, as well as a desire to have the scientific results incorporated into the broader scientific community in the near term.</p> <p>All authorizations for conducting the survey during the June/July/August period in both 2014 and 2015 were received from the federal regulatory agencies with jurisdiction over the survey area. In addition, as noted in the Draft Amended EA, weather conditions and the availability of personnel, vessel, and equipment were considered when developing the timing of the Proposed Action and Action Alternative. The Action Alternative proposed in the Draft Amended EA was proposed to consider alternative timeframes for conducting the survey.</p> <p>No changes were made in the Final Amended EA in response to this comment.</p> | |