MARINE MAMMAL COMMISSION

12 March 2013

Mr. P. Michael Payne, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3225

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by the U.S. Geological Survey seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act to take small numbers of marine mammals by harassment. The taking would be incidental to a marine geophysical survey to be conducted in the Gulf of Mexico in April and May 2013. The Commission also has reviewed the National Marine Fisheries Service's 20 February 2013 notice announcing receipt of the application and proposing to issue the authorization, subject to certain conditions (78 Fed. Reg. 11821).

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- require the U.S. Geological Survey to re-estimate the proposed exclusion and buffer zones and associated takes of marine mammals using site-specific information—if the exclusion and buffer zones and numbers of takes are not re-estimated, require the Survey to provide a detailed justification for (1) basing the exclusion and buffer zones for the proposed survey on modeling that does not incorporate site-specific environmental parameters and has been documented to underestimate the size of those zones and (2) how tow depth was incorporated into the model;
- require the U.S. Geological Survey to re-estimate the numbers of takes by including those takes that would occur if the survey repeats a subset of the tracklines using the single airgun, which would be in addition to takes that occur during turns and equipment testing or that occur because of equipment failure/poor data;
- prohibit the use of only a 15-minute pause following the sighting of a mysticete or large odontocete in the exclusion zone and extend that pause to cover the maximum dive times of the species likely to be encountered prior to initiating ramp-up procedures after a shutdown;
- consult with the U.S. Geological Survey and other relevant entities (e.g., the National Science Foundation and Lamont-Doherty Earth Observatory) to develop, validate, and implement a monitoring program that provides a scientifically sound, reasonably accurate assessment of the types of marine mammal taking and the numbers of marine mammals taken—the assessment should account for availability biases and the detection biases of the geophysical survey observers; and

- work with the National Science Foundation to analyze monitoring data to assess the effectiveness of ramp-up procedures as a mitigation measure for geophysical surveys.

RATIONALE

The U.S. Geological Survey proposes to conduct a geophysical survey in two lease blocks off Louisiana in the area 26 to 28º N latitude and 90 to 92º W longitude. The purpose of the proposed survey is to develop technology and collect data to characterize marine gas hydrates to understand their impact on seafloor stability, their role in climate change, and their potential as an energy source. The survey would be conducted in waters 1,500 to 2,000 m in depth with approximately 1,480 km of tracklines. It would use the R/V *Pelican* to tow a two-airgun array (nominal source level of 239.8 dB re 1μPa at 1 m (peak-to-peak) with a maximum discharge volume of 210 in^3) at 3 m depth. The Survey would use a single 35-in^3 airgun (2,000 psi) to resurvey a subset of the tracklines. The *Pelican* also would tow one hydrophone streamer, 450 m in length, during the survey. In addition, the Survey would operate a 3.5-kHz sub-bottom profiler and would use up to 46 bottom-mounted seismometers.

The Service preliminarily has determined that, at most, the proposed activities would result in a temporary modification in the behavior of small numbers of up to 19 species of marine mammals and that any impact on the affected species would be negligible. The Service does not anticipate any take of marine mammals by death or serious injury. It also believes that the potential for temporary or permanent hearing impairment will be at the least practicable level because of the proposed mitigation and monitoring measures. Those measures include monitoring exclusion and buffer zones and using shut-down and ramp-up procedures. In addition, the Survey would shut down the airguns immediately if and when a North Atlantic right whale is sighted, regardless of the distance from the *Pelican*. Ramp-up procedures would not be initiated until the right whale has not been seen at any distance for 30 minutes. Although the Commission considers the probability of sighting a right whale to be extremely low, it appreciates the extra caution that would be taken by the Survey to minimize takes by the geophysical survey.

The Commission continues to be concerned about certain aspects of this and similar authorizations for geophysical surveys. These concerns have been raised in past Commission letters (e.g., see the enclosed letter from 14 May 2012) regarding geophysical surveys.

Uncertainty in modeling exclusion and buffer zones

Exclusion zones define the area in which marine mammals are close enough to a sound source to be injured (i.e., Level A harassment) or killed by exposure to the sound. Buffer zones delineate the area in which marine mammals are close enough to a sound source to be disturbed to the extent that they change their natural behavior patterns (i.e., Level B harassment). Both zones are established based on the generation and propagation of sound from the source and general assumptions about the responses of marine mammals to sounds at specific sound pressure levels, the latter being based on limited observations of marine mammal responses under known conditions.

The Lamont-Doherty Earth Observatory conducts acoustic modeling primarily for National Science Foundation-funded geophysical research, but also for some research funded and/or conducted by the Survey. For at least six years, the Observatory has estimated exclusion and buffer zones using a simple ray trace–based modeling approach that assumes a constant sound speed with no bottom interactions (Diebold et al. 2010). That model does not incorporate environmental characteristics of the specific study area including sound speed profiles, bathymetry/water depth, sediment properties/bottom loss, or absorption coefficients. However, the Observatory believes that its model generally is conservative when compared to in-situ sound propagation measurements of the R/V *Maurice Ewing*'s arrays (i.e., 6-, 10-, 12-, and 20-airgun arrays) and the R/V *Marcus G. Langseth*'s 36-airgun array from the Gulf of Mexico (Tolstoy et al., 2004; Tolstoy et al. 2009; Diebold et al. 2010). Tolstoy et al. 2004 did not measure sound propagation from the 2-airgun array in deep water (i.e., 3,200 m), but the Survey has assumed that the model likely yields conservative exclusion and buffer zones based on measurements from the *Ewing*'s other airgun array configurations. Tolstoy et al. (2004) indicated that the model underestimates the distances to the exclusion and buffer zones in shallow water for all airgun arrays, including the 2-airgun array. In addition, Diebold et al. (2010) demonstrated that the Observatory's model underestimates the near-field sound levels in waters of intermediate depth (600–1,100 m) and in far-field sound levels in waters of deep depth (1,600–1,700 m). They also attributed the bias for intermediate depths to a change in the sound speed profiles—an input that the Observatory's model does not take into account. In fact, Diebold et al. (2010) noted the limited applicability of the Observatory's model when sound propagation is dependent on water depth, bathymetry, and bottom-loss parameters, all of which may be of concern for a survey in water depths of 1,500–2,000 m.

The Commission's concerns are reinforced by the findings of Tolstoy et al. (2009). That paper acknowledged that sound propagation depends on water depth, bathymetry, and tow depth of the array. It not only stated that sound propagation varies with environmental conditions but also used that variation as justification for measuring sound propagation at multiple locations. The Survey and National Science Foundation subsequently followed that example, by modeling sound propagation under various environmental conditions when they prepared their recent programmatic environmental impact statement for geophysical surveys worldwide. The Observatory and Foundation also used a similar modeling approach in the recent incidental harassment authorization application and associated environmental assessment for a geophysical survey of Diablo Canyon in California (77 Fed. Reg. 58256). All of these issues raise questions regarding the efficacy of the Observatory's model for estimating received sound levels at various distances and for establishing exclusion and buffer zones.

In preparation for the Gulf of Mexico survey, the Survey used the Observatory's model to estimate exclusion and buffer zones for the 2-airgun array. However, it did not stipulate how it accounted for a tow depth of 3 m. In previous authorizations, the Observatory made the adjustment using the ratios of the applicable Level A and B harassment zones and tow depths (see Table 1 of 77 Fed. Reg. 58256). However, such adjustments do not appear to be valid because, as the Observatory itself noted, the relationship between tow depth and sound exposure level is not linear (see Figure 6 in Appendix H of the programmatic environmental impact statement).

On numerous occasions the Commission has recommended that the Service or the Survey estimate exclusion and buffer zones using either empirical measurements from the particular survey

site or use a model that takes into account the conditions in the proposed survey area. In this instance empirical measurements were taken from the 2-airgun array in the Gulf of Mexico, but only in shallow water, which is not necessarily applicable to the deep water of the proposed survey area. Therefore, the Commission believes that the Survey should use a model that incorporates operational parameters (e.g., tow depth, source level, number/spacing of active airguns) and site-specific environmental parameters (e.g., sound speed profiles, bathymetry/water depth, sediment properties/bottom loss, and wind speed). To address these shortcomings, the Marine Mammal Commission again recommends that the National Marine Fisheries Service require the U.S. Geological Survey to re-estimate the proposed exclusion and buffer zones and associated takes of marine mammals using site-specific information. If the exclusion and buffer zones and numbers of takes are not re-estimated, the Commission recommends that the Service require the Survey to provide (1) a detailed justification for basing the exclusion and buffer zones for the proposed survey along the mid-Atlantic Ridge on modeling that does not incorporate site-specific environmental parameters and underestimates the size of those zones and (2) a detailed explanation of how it accounted for tow depth into its estimation process.

Underestimating the numbers of takes

The Survey estimated the numbers of takes expected during the proposed surveys using estimates of marine mammal densities and the sizes of the buffer zones and associated ensonified areas. To be precautionary, it also increased the sizes of the ensonified areas by 25 percent to account for turns, equipment testing, and repeating tracklines due to equipment failure or poor data. The Survey indicated that it would repeat a subset of the tracklines using the single airgun but did not provide specific information regarding the number of lines to be repeated or the timeframe in which those lines would be surveyed. Presumably, a day or more would occur between repeat passes of those lines. However, the Survey appears to assume that a marine mammal taken during the first pass and then again during the second pass need only be counted once. And, although it indicated that an animal could be taken up to seven times, it has requested authorization for only a few individuals of some species (i.e., two beaked whales). The Commission does not agree with this rationale for several reasons. First, marine mammals that remain in the survey area and are harassed during both passes are taken twice; the second harassment, or take, is not a continuation of the first. On both survey passes those animals may be startled, may abandon habitat, or may even be injured. Second, the marine mammals present in the survey area may change if the affected species are migrating or altering their distribution for other reasons. The available information is not sufficient to make the case that the individual marine mammals taken during the second pass will be the same individuals that were taken during the first pass. Marine mammals are highly mobile animals that often move into and out of an area quickly. The Commission believes that a better way to estimate takes could be to determine the estimated numbers of takes on a daily basis and then account for the number of days the survey would occur, much like is done for military and construction activities. Although cost-prohibitive, the Commission further believes that using animat dosimeters, as were used for the PEIS and currently are used for Navy activities, is a more accurate way to assess the number of takes per species/stock and the number of takes of each individual of that species/stock. For these reasons, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the U.S. Geological Survey to re-estimate the numbers of takes by including those takes that would occur if the survey repeats a subset of the tracklines using the single airgun, which would be in addition to takes that occur during turns and equipment testing or that occur

because of equipment failure/poor data. The Commission would welcome a meeting with the Service, Survey, Foundation, and relevant research entities (e.g., the Observatory and Scripps Institution of Oceanography) to discuss enumeration of takes at the population and individual levels.

Mitigation and monitoring measures

The *Federal Register* notice stated that the Survey would monitor the area near the survey vessel for at least 30 minutes prior to the initiation of airgun operations. The notice also stated that when airguns have been shut down because a marine mammal has been detected near or within a proposed exclusion zone, airgun activity will not resume until the marine mammal is outside the exclusion zone (i.e., the animal is observed to have left the exclusion zone or has not been seen or otherwise detected within the exclusion zone for 15 minutes in the case of small odontocetes and pinnipeds and 30 minutes in the case of mysticetes and large odontocetes, including sperm, killer, and beaked whales). However, the *Federal Register* notice also states that ramp-up procedures would occur after only 15 minutes based on the use of a comparable period in previous incidental harassment authorizations.

In short, the Commission believes that the Service's rationale is incorrect on both biological and physical grounds. The Service's approach appears to require a 15- or 30-minute pause in activity if an animal enters an exclusion zone but, in effect, that pause is not implemented based on the notion that the sound source is moving. That approach does not make sense if the position of the marine mammal is not known. That is, the key considerations driving this measure are the relative positions of the animal and the sound source. Their relative positions over time are best estimated as a function of their positions when the marine mammal was first sighted plus the speed and heading of the vessel and the speed and heading of the marine mammal. If the vessel and marine mammal are moving in opposite directions, then the marine mammal may leave the exclusion zone relatively quickly. However, if they are moving in the same direction, then the marine mammal may remain in the exclusion zone for a prolonged period. In fact, Miller et al. (2009) determined that sperm whales continued on their course of travel during exposure to airgun sounds. None of those sperm whales diverted to avoid seismic activity at distances of 1–13 km from the vessel, and most whales traveled on a parallel course. Unless a sighted marine mammal is seen leaving or outside the exclusion zone, it does not make sense to allow the survey to resume after a shorter period of time because (1) the animal spends much of its time underwater where it is not visible, (2) it may change its heading and speed in response to the vessel, and (3) it is not possible to determine the animal's position relative to the vessel or sound source after the initial sighting unless it surfaces again and is observed.

Indeed, the efficacy of this measure depends largely on observations of the marine mammal at the surface. That being the case, the dive time of the possibly affected marine mammals is a central consideration. For small cetaceans, the Commission has recommended a pause time of at least 15 minutes because their dive times are shorter and generally fall within that limit. For some mysticetes and large cetaceans, the proposed 30-minute pause may be inadequate, sometimes markedly so. Sperm whales and beaked whales, in particular, may remain submerged for periods far exceeding 30 minutes. Blainville's beaked whales dive to considerable depths (> 1,400 m) and can remain submerged for nearly an hour (Baird et al. 2006, Tyack et al. 2006). In addition, observers may not detect marine mammals each time they return to the surface, especially cryptic species such as beaked whales, which are difficult to detect even under ideal conditions. Barlow (1999) found that

"[a]ccounting for both submerged animals and animals that are otherwise missed by the observers in excellent survey conditions, only 23 percent of Cuvier's beaked whales and 45 percent of *Mesoplodon* beaked whales are estimated to be seen on ship surveys if they are located directly on the survey trackline." Thus, at least for certain species, visual monitoring alone is not adequate to detect all marine mammals within the exclusion and buffer zones, especially when passive acoustic monitoring is not implemented, which is the case for the proposed authorization. Therefore, the Marine Mammal Commission again recommends that the National Marine Fisheries Service prohibit the use of only a 15-minute pause following the sighting of a mysticete or large odontocete in the exclusion zone and extend that pause to cover the maximum dive times of the species likely to be encountered prior to initiating ramp-up procedures after a shutdown.

In addition, the Survey indicated that it will be able to assess possible impacts partly by comparing estimated marine mammal abundance during periods when the airguns are not firing (i.e., baseline conditions) with periods when they are. However, the efficacy of this approach depends, in part, on the length of the periods when the airguns are silent. If firing of the airguns causes marine mammals to depart an area and/or alter their behavior, a comparison after the airguns are silenced would be meaningful only if it involved sufficient time for the disturbed marine mammals to return to their normal distribution and/or behavior. If the time for such a return to normalcy exceeds the period that the airguns are silent, then any comparison would be largely meaningless as an indicator of the impact of seismic disturbance. Put frankly, the Commission does not believe that the proposed monitoring method is a scientifically sound way of assessing impacts on behavior or distribution. The Marine Mammal Protection Act requires that the National Marine Fisheries Service (for the Secretary of Commerce) put forth "requirements pertaining to the monitoring and reporting of such taking." Although the Act is not explicit on this point, the Commission believes that Congress's intent was that those monitoring and reporting methods be scientifically sound and yield sufficient information to confirm that the authorized taking is having only negligible impacts on the affected species and stocks. That is, the monitoring and reporting requirements should provide a reasonably accurate assessment of the types of taking and the numbers of animals taken by the proposed activity. The assessments also should account for animals present but under the water's surface and not available for sighting (i.e., availability bias) and animals at the surface but not detected (i.e., detection bias). Those adjustments are essential for determining accurate estimates of the numbers of marine mammals taken during surveys. To be useful, the corrections should be based on the ability of the protected species observers to detect marine mammals rather than a hypothetical optimum derived from scientific studies (e.g., from the Service's shipboard surveys). Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service consult with the U.S. Geological Survey and other relevant entities (e.g., the National Science Foundation and Lamont-Doherty Earth Observatory) to develop, validate, and implement a monitoring program that provides a scientifically sound, reasonably accurate assessment of the types of marine mammal taking and the numbers of marine mammals taken—the assessment should account for availability biases and the detection biases of the geophysical survey observers. Until the Service can provide assurances that take estimates are reasonably accurate, the Commission does not see how it can continue to assume that this type of survey is having no more than a negligible impact on marine mammal populations.

Effectiveness of ramp-up procedures

Although the effectiveness of ramp-up procedures has yet to be verified empirically, the Service would continue to require the Survey to monitor, document, and report observations during all ramp-up procedures. Such data will provide a stronger scientific basis for determining the effectiveness of, and deciding when to implement, this particular mitigation measure. The National Science Foundation has indicated that monitoring data from past geophysical surveys are being compiled into a single database. The Commission supports that effort by the Foundation. After the data are compiled and quality control measures have been completed, the Marine Mammal Commission recommends that the National Marine Fisheries Service work with the National Science Foundation to analyze those data to assess the effectiveness of ramp-up procedures as a mitigation measure for geophysical surveys. The Commission continues to believe that the Service should continue to require data collection and analysis to assess the effectiveness of ramp-up procedures, given that those procedures are considered a substantial component of mitigation measures.

Please contact me if you have questions about the Commission's recommendations or rationale.

Sincerely,

Timothy J. Ragen, Ph.D.
Executive Director

Cc: Holly Smith, National Science Foundation

Enclosure

Literature cited

Baird, R.W., D.L. Webster, D.J. McSweeney, A.D. Ligon, G.S. Schorr, and J. Barlow. 2006. Diving behavior and ecology of Cuvier's (*Ziphius cavirostris*) and Blainville's (*Mesoplodon densirostris*) beaked whales in Hawaii. Canadian Journal of Zoology 84(8):1120–1128.

Barlow, J. 1999. Trackline detection probability for long-diving whales. Pages 209–221 *in* G.W. Garner, S.C. Amstrup, J.L. Laake, B.F.J. Manly, L.L. McDonald, and D.G. Robertson (eds.), Marine Mammal Survey and Assessment Methods. Balkema, Rotterdam, The Netherlands.

Diebold, J.B., M. Tolstoy, L. Doermann, S.L. Nooner, S.C. Webb, and T.J. Crone. 2010. R/V *Marcus G. Langseth* seismic source: Modeling and calibration. Geochemistry, Geophysics, Geosystems 11(12), Q12012, doi:10.1029/2010GC003126.

Miller, P.J.O., M.P. Johnson, P.T. Madsen, N. Biassoni, and P.L. Tyack. 2009. Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico. Deep-Sea Research I 56(7):1168–1181.

Tolstoy, M., J. Diebold, S.C. Webb, D.R. Bohenstiehl, E. Chapp, R.C. Holmes, and M. Rawson. 2004. Broadband calibration of the R/V *Ewing* seismic sources. Geophysical Research Letters 31, L14310, doi:10.1029/2004GL020234.

Tolstoy, M., J. Diebold, L. Doermann, S. Nooner, S.C. Webb, D.R. Bohenstiehl, T.J. Crone, and R.C. Holmes. 2009. Broadband calibration of R/V *Marcus G. Langseth* four-string seismic sources. Geochemistry, Geophysics, Geosystems 10, Q08011, doi:10.1029/2009GC002451.

Tyack, P.L., M. Johnson, N. Aguilar Soto, A. Sturlese, and P.T. Madsen. 2006. Extreme diving of beaked whales. Journal of Experimental Biology 209(21):4238–4253.

MARINE MAMMAL COMMISSION

14 May 2012

Mr. P. Michael Payne, Chief
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Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by the Lamont-Doherty Earth Observatory seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act to take small numbers of marine mammals by harassment. The taking would be incidental to three marine geophysical surveys to be conducted in the northeast Pacific Ocean from June through July 2012. The Commission also has reviewed the National Marine Fisheries Service's 2 May 2012 *Federal Register* notice announcing receipt of the application and proposing to issue the authorization, subject to certain conditions (77 Fed. Reg. 25966).

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- require the Observatory to re-estimate the proposed exclusion and buffer zones and associated takes of marine mammals using site-specific information—If the exclusion and buffer zones and numbers of takes are not re-estimated require the Observatory to provide a detailed justification explaining the rationale for (1) basing the exclusion and buffer zones for the proposed survey in the northeast Pacific Ocean on empirical data collected in the Gulf of Mexico or on modeling that relies on measurements from the Gulf of Mexico and (2) using simple ratios to adjust for tow depth and applying median values to estimate propagation in intermediate water depths rather than using empirical measurements;
- require the Observatory to re-estimate the number of takes during the first survey (i.e., Juan de Fuca plate survey) by accounting for two passes over the three long transect lines, which should effectively double the estimated number of takes from a single survey pass of those lines;
- prohibit an 8-minute pause following the sighting of a marine mammal in the exclusion zone and extend that pause to cover the maximum dive times of the species likely to be encountered prior to resuming airgun operations after both power-down and shut-down procedures;
- provide additional justification for its preliminary determination that the proposed monitoring program will be sufficient to detect, with a high level of confidence, all marine mammals within or entering the identified exclusion and buffer zones—such justification should (1) identify those species that it believes can be detected with a high degree of

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confidence using visual monitoring only under the expected environmental conditions, (2) describe detection probability as a function of distance from the vessel, (3) describe changes in detection probability under various sea state and weather conditions and light levels, and (4) explain how close to the vessel marine mammals must be for observers to achieve high nighttime detection rates;

- consult with the funding agency (i.e., the National Science Foundation) and individual applicants (e.g., Lamont-Doherty Earth Observatory and the U.S. Geological Survey) to develop, validate, and implement a monitoring program that provides a scientifically sound, reasonably accurate assessment of the types of marine mammal taking and the number of marine mammals taken;
- require the Observatory to (1) report the number of marine mammals that were detected acoustically and for which a power-down or shut-down of the airguns was initiated, (2) specify if such animals also were detected visually, (3) compare the results from the two monitoring methods (visual versus acoustic) to help identify their respective strengths and weaknesses, and (4) use that information to improve mitigation and monitoring methods; and
- work with the National Science Foundation to analyze those data to help determine the effectiveness of ramp-up procedures as a mitigation measure for geophysical surveys.

RATIONALE

The National Science Foundation is funding the Lamont-Doherty Earth Observatory to conduct three geophysical surveys in waters of the northeast Pacific Ocean. The first survey would characterize the evolution and state of hydration of the Juan de Fuca plate at the Cascadia subduction zone. That survey would occur from 11 June – 5 July in the area 43 to 48º N latitude and 124 to 130º E longitude in international waters and waters of the exclusive economic zones of the United States and Canada. It would be conducted in waters from 50 to 3,000 m in depth and would involve approximately 3,051 km of tracklines. The Observatory would use the R/V *Marcus G. Langseth* to tow a 36-airgun array (nominal source levels 236 to 265 dB re 1μPa (peak-to-peak) with a maximum discharge volume of 6,600 in^3) at 9 and 12 m depth. The R/V *Langseth* would tow one 8-km hydrophone streamer during a portion of the survey and would use up to 46 bottom-mounted seismometers for the other portion of the survey. The R/V *Oceanus* would deploy and recover the seismometers during the survey. The Observatory also would operate a 10.5–13 kHz multibeam echosounder and a 3.5 kHz sub-bottom profiler continuously throughout the survey.

The second survey would provide information regarding buried structures in the Cascadia thrust zone. That survey would occur from 5–8 July in the area 43.5 to 47º N latitude and 124 to 125º E longitude in waters of the exclusive economic zone of the United States off Oregon and Washington. It would be conducted in waters from 50 to 1,000 m in depth and would involve approximately 793 km of tracklines. The Observatory would use the *Langseth* to tow the 36-airgun array at 12 m depth and would operate the multibeam echosounder and sub-bottom profiler continuously throughout the survey. The *Oceanus* would deploy and recover 12 seismometers in the water and 48 seismometers would be placed on shore.

The third survey would assess various characteristics of the Juan de Fuca plate boundary and the overlying crust at the Cascadia subduction margin. That survey would occur from 12–23 July in the area 46.5 to 47.5º N latitude and 124.5 to 126º E longitude in waters of the exclusive economic zone of the United States. It would be conducted in waters from 95 to 2,650 m in depth, and would involve approximately 1,147 km of transect lines. The Observatory would use the *Langseth* to tow the 36-airgun array at 15 m depth and to tow the 8-km hydrophone streamer. It also would operate the multibeam echosounder and sub-bottom profiler continuously throughout the survey.

The Service preliminarily has determined that, at most, the proposed activities would result in a temporary modification in the behavior of small numbers of up to 26 species of marine mammals and that any impact on the affected species would be negligible. The Service does not anticipate any take of marine mammals by death or serious injury. It also believes that the potential for temporary or permanent hearing impairment will be at the least practicable level because of the proposed mitigation and monitoring measures. Those measures include monitoring exclusion and buffer zones and using power-down, shut-down, and ramp-up procedures. In addition, the Observatory would shut-down the airguns immediately if and when a North Pacific right whale is sighted, regardless of the distance from the *Langseth*. Ramp-up procedures would not be initiated until the right whale has not been seen at any distance for 30 minutes. Although the Commission considers the probability of sighting a right whale to be extremely low, it appreciates the extra caution that would be taken by the Observatory to minimize takes by the geophysical survey.

The Commission continues to be concerned about certain aspects of this and similar authorizations for geophysical surveys. These concerns have been raised in past Commission letters (e.g., see the enclosed letter from 27 March 2012) regarding geophysical surveys funded by the National Science Foundation.

Uncertainty in exclusion and buffer zones

Exclusion zones define the area in which marine mammals are close enough to a sound source to be injured (i.e., Level A harassment) or killed by exposure to the sound. Buffer zones delineate the area in which marine mammals are close enough to a sound source to be disturbed to the extent that they change their natural behavior patterns (i.e., Level B harassment). Both zones are established based on the generation and propagation of sound from the source and general assumptions about the responses of marine mammals to sounds at specific sound pressure levels, the latter being based on limited observations of marine mammal responses under known conditions.

In 2007–2008, the Lamont-Doherty Earth Observatory conducted sound propagation studies using airgun arrays from the R/V *Langseth* (Tolstoy et al. 2009) and used results from those studies to create a model of sound propagation for estimating exclusion and buffer zones. However, that model was based on a particular set of environmental conditions, and variation in such conditions is known to affect the manner in which sound propagates through the ocean. Indeed, Tolstoy et al. (2009) not only noted that results vary with environmental conditions but also used that variation as justification for measuring sound propagation at multiple locations. The National

Science Foundation subsequently followed that example in its preparation of a programmatic environmental impact statement for geophysical surveys by modeling sound propagation under various environmental conditions. Furthermore, Tolstoy et al. (2009) acknowledged that sound propagation is not only variable, but also dependent on water depth, bathymetry, and tow depth of the array. Specifically, for the Observatory's model, the applicant has stated that it overestimates actual received sound levels in deep water (>1,000 m) and underestimates actual received sound levels in shallow water (<50 m). The Service also indicated that the Observatory's model does not allow for bottom interactions, which is important for determining sound propagation in shallow and intermediate (100–1,000 m) waters. Such deviations raise questions regarding the efficacy of the model for estimating received sound levels at certain distances and for establishing exclusion and buffer zones.

In preparation for the northeast Pacific Ocean surveys, the Observatory used that model to estimate exclusion and buffer zones for the single mitigation airgun. However, it used empirically measured sound pressure levels from the Gulf of Mexico to establish the exclusion and buffer zones for the 36-airgun array to be used in the northwest Pacific Ocean. The Observatory cited Appendix A of the environmental assessment as providing the basis for its modeling approach, but Appendix A did not discuss modeling of the mitigation airgun or empirical measurements in shallow water (i.e., 100 m for this survey). The Observatory also used values halfway between the empirical shallow and deep water measurements to estimate the received sound pressure levels in intermediate waters rather than using empirical measurements obtained at an intermediate depth for the 36-airgun array, as presented in Appendix A of the environmental assessment. In addition, the Observatory used exclusion and buffer zones for the 36-airgun array that were obtained at a tow depth of 6 m to estimate zones at tow depths of 9, 12, and 15 m using the ratios of the applicable Level A and B harassment zones and depths (see Table 1 of the *Federal Register* notice). However, such adjustments may not be valid because, as the Observatory itself notes, the relationship between tow depth and sound exposure level is not linear (see Figure 6 in Appendix A).

Consequently, the exclusion and buffer zones were based on (1) a model with known biases as a function of water depth, (2) environmental conditions that are inconsistent with those in the northeast Pacific Ocean, and (3) sound sources that are different from those that are to be used (i.e., the 36-airgun array vs. the single mitigation airgun). These problems might be less significant if mitigation and monitoring measures for this type of activity were known to be highly effective, but as is well known, and as is described later in this letter, that is not the case.

On numerous occasions the Commission has recommended that the Service or the Observatory estimate exclusion and buffer zones using either empirical measurements from the particular survey site or a model that takes into account the conditions in the proposed survey area. The model should incorporate operational parameters (e.g., tow depth, source level, and number of active airguns) and site-specific environmental parameters (e.g., sound speed profiles, surface ducts, bathymetry, water depth, and wind speed). To address these shortcomings, <u>the Marine Mammal Commission recommends</u> that the National Marine Fisheries Service require the Observatory to re-estimate the proposed exclusion and buffer zones and associated takes of marine mammals using site-specific information. If the exclusion and buffer zones and numbers of takes are not re-

estimated, the Marine Mammal Commission recommends that the Service require the Observatory to provide a detailed justification explaining the rationale for (1) basing the exclusion and buffer zones for the proposed survey in the northeast Pacific Ocean on empirical data collected in the Gulf of Mexico or on modeling that relies on measurements from the Gulf of Mexico and (2) using simple ratios to adjust for tow depth and applying median values to estimate propagation in intermediate water depths rather than using empirical measurements.

Underestimating the numbers of takes

The Observatory estimated the number of takes expected to result from the proposed surveys using the sizes of the buffer zones and associated ensonified areas, coupled with estimates of marine mammal densities. To be precautionary, it also increased the sizes of the ensonified areas by 25 percent. However, during the first survey, the Observatory would repeat three long transect lines with multiple days between passes, and it assumed that a marine mammal taken during the first pass and then again during the second pass need only be counted once. The Commission does not agree with this reasoning for several reasons. First, marine mammals that remain in the survey area and are harassed during both passes are taken twice; the second harassment, or take, is not a continuation of the first. On both survey passes those animals may be startled, may abandon habitat, or may even be injured. Second, the marine mammals present in the survey area may change if the affected species are migrating or altering their distribution for other reasons. The available information is not sufficient to make the case that the individual marine mammals taken during the second pass will be the same individuals that were taken during the first pass. Marine mammals are highly mobile animals that often move into and out of an area quickly. For those reasons, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Observatory to re-estimate the number of takes during the first survey (i.e., Juan de Fuca plate survey) by accounting for two passes over the three long transect lines, which should effectively double the estimated number of takes from a single survey pass of those lines.

Mitigation and monitoring measures

The *Federal Register* notice states that the Observatory will monitor the area near the survey vessel for at least 30 minutes prior to the initiation of and during airgun operations. The notice also states that when airguns have been powered down because a marine mammal has been detected near or within a proposed exclusion zone, airgun activity will not resume until the marine mammal is outside the exclusion zone (i.e., the animal is observed to have left the exclusion zone or has not been seen or otherwise detected within the exclusion zone for 15 minutes in the case of small odontocetes and pinnipeds and 30 minutes in the case of mysticetes and large odontocetes, including sperm, pygmy sperm, dwarf sperm, and beaked whales) or the vessel has transited beyond the original 180-dB re 1 μPa exclusion zone after an 8-minute period. That 8-minute period is based on the time it would take the *Langseth*, traveling at 8.5 km/hour, to move beyond the smallest 180-db re 1 μPa exclusion zone (i.e, 940 m for the 36-airgun array being towed at 9 m depth in waters greater than 1,000 m). However, using the same rationale, the waiting period would be more than 19 minutes for the vessel, traveling at the same speed, to move beyond the largest 180-dB re 1 μPa exclusion zone (i.e., 2,750 m for the 36-airgun array being towed at 15 m depth in waters less than

100 m). Given these extremes, the Commission does not concur with the Service's approach, which is the least protective. In addition, the Service indicated that implementing ramp-up procedures for the full array after an extended power down would not meaningfully increase the effectiveness of observing marine mammals approaching or entering the exclusion zone and would not further minimize the potential for take because the vessel would have transited more than the 940 m in 8 minutes. Here, again, the Commission disagrees with the Service's reasoning. The primary purpose of ramp-up procedures is not to increase the observer effectiveness, but rather give any marine mammals in the area an opportunity to move away from the airgun array before its impulses may harm them. In addition, the utility of ramp-up procedures is not diminished because the ship has moved away from the location where marine mammals were first sighted. Those marine mammals may be moving in the same direction as the vessel or the vessel may encounter additional marine mammals.

In short, the Commission believes that the Service's rationale is incorrect on both biological and physical grounds. The Service's approach appears to require a 15- or 30-minute pause in activity if an animal enters an exclusion zone but, in effect, that pause is not observed based on the notion that the sound source is moving. That approach does not make sense if the position of the marine mammal is not known. That is, the key consideration driving this measure is the relative positions of the animal and the sound source. Their relative positions over time are best estimated as a function of their positions when the marine mammal was first sighted plus the speed and heading of the vessel and the speed and heading of the marine mammal. If the vessel and marine mammal are moving in opposite directions, then the marine mammal may leave the exclusion zone relatively quickly. However, if they are moving in the same direction, then the marine mammal may remain in the exclusion zone for a prolonged period. In fact, Miller et al. (2009) determined that sperm whales continued on their course of travel during exposure to airgun sounds. None of those sperm whales diverted to avoid seismic activity at distances of 1–13 km from the vessel, and most whales traveled on a parallel course. Therefore, unless the marine mammal is sighted leaving or outside the exclusion zone, it does not make sense to allow the survey to resume after a shorter period of time because (1) the animal spends much of its time underwater where it is not visible, (2) it may change its heading and speed in response to the vessel, and (3) it is not possible to determine the animal's position relative to the vessel or sound source after the initial sighting unless it surfaces again and is observed.

Indeed, the efficacy of this measure depends largely on observations of the marine mammal at the surface. That being the case, the dive time of the possibly affected marine mammals is a central consideration in developing mitigation measures. For small cetaceans, the Commission has recommended a pause time of at least 15 minutes because their dive times are shorter and generally fall within that limit. For some mysticetes and large cetaceans, the proposed 30-minute pause may be inadequate, sometimes markedly so. Sperm whales and beaked whales, in particular, may remain submerged for periods far exceeding 30 minutes. Blainville's beaked whales dive to considerable depths (> 1,400 m) and can remain submerged for nearly an hour (Baird et al. 2006, Tyack et al. 2006). In addition, observers may not detect marine mammals each time they return to the surface, especially cryptic species such as beaked whales, which are difficult to detect even under ideal conditions. Barlow (1999) found that "[a]ccounting for both submerged animals and animals that are otherwise missed by the observers in excellent survey conditions, only 23 percent of Cuvier's beaked

whales and 45 percent of *Mesoplodon* beaked whales are estimated to be seen on ship surveys if they are located directly on the survey trackline." Thus, at least for certain species, visual monitoring alone is not adequate to detect all marine mammals within the exclusion and buffer zones. Therefore, the Marine Mammal Commission again recommends that the National Marine Fisheries Service prohibit an 8-minute pause following the sighting of a marine mammal in the exclusion zone and extend that pause to cover the maximum dive times of the species likely to be encountered prior to resuming airgun operations after both power-down and shut-down procedures.

In addition, as discussed in the Commission's previous letters commenting on similar activities by this and other applicants, visual monitoring is not effective during periods of bad weather or at night, especially when the radius of the exclusion zone is approximately 2,750 m in width. Although the *Federal Register* notice states that on average observers can monitor to the horizon (i.e, 10 km), it is unclear how the Observatory expects to see cryptic species (i.e., beaked whales and harbor porpoise) and smaller pinnipeds (i.e., harbor seals) at those distances even in good weather during daylight hours. Furthermore, the Observatory used Barlow (2010) as the basis for the majority of the density estimates. Those data yielded effective strip widths (i.e., based on truncation distances of 2 or 4 km and the mean probability of detection within that distance) ranging from 0.97–3.47 km depending on the species. Those distances are much less than the Observatory's assumed sighting distance of 10 km. Therefore, the Marine Mammal Commission recommends that, prior to issuing the requested authorization, the National Marine Fisheries Service provide additional justification for its preliminary determination that the proposed monitoring program will be sufficient to detect, with a high level of confidence, all marine mammals within or entering the identified exclusion and buffer zones. At a minimum, such justification should (1) identify those species that it believes can be detected with a high degree of confidence using visual monitoring only under the expected environmental conditions, (2) describe detection probability as a function of distance from the vessel, (3) describe changes in detection probability under various sea state and weather conditions and light levels, and (4) explain how close to the vessel marine mammals must be for observers to achieve high nighttime detection rates. If such information is not available, the Service and the applicant should conduct the studies needed to describe the efficacy of existing monitoring methods and develop alternative or supplemental methods to address current shortcomings.

Furthermore, the applicant indicates that it will be able to assess possible impacts by comparing estimated marine mammal abundance during periods when the airguns are not firing (i.e., baseline conditions) with periods when they are, but the efficacy of this approach depends, in part, on the length of the periods when the airguns are silent. If firing of the airguns causes marine mammals to depart an area and/or alter their behavior, a comparison after the airguns are silenced would be meaningful only if it involved sufficient time for the disturbed marine mammals to return to their normal distribution and/or behavior. If the time for such a return to normalcy exceeds the period that the airguns are silent, then any comparison would be largely meaningless as an indicator of the impact of seismic disturbance. Put frankly, the Commission does not believe that the proposed monitoring method is a scientifically sound way of assessing impacts on behavior or distribution. The Marine Mammal Protection Act requires that the National Marine Fisheries Service (for the Secretary of Commerce) put forth "requirements pertaining to the monitoring and reporting

of such taking." Although the Act is not explicit on this point, the Commission believes that Congress's intent was that those monitoring and reporting methods be scientifically sound and yield sufficient information to confirm that the authorized taking is having only negligible impacts on the affected species and stocks. That is, the monitoring and reporting requirements should provide a reasonably accurate assessment of the types of taking and the number of animals taken by the proposed activity. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service consult with the funding agency (i.e., the National Science Foundation) and individual applicants (e.g., Lamont-Doherty Earth Observatory and the U.S. Geological Survey) to develop, validate, and implement a monitoring program that provides a scientifically sound, reasonably accurate assessment of the types of marine mammal taking and the number of marine mammals taken. Without such a system in place, the Commission does not see how the Service can continue to assume that this type of survey is having no more than a negligible impact on marine mammal populations.

The *Federal Register* notice states that the applicant also would conduct vessel-based passive acoustic monitoring to augment visual monitoring during daytime operations and at night to help detect, locate, and identify marine mammals that may be present. The Commission supports the use of passive acoustic monitoring for this purpose but also considers it important to keep in mind the limitations of such monitoring. As the Commission has noted in previous correspondence, and as the Service acknowledges, passive acoustic monitoring is effective only when marine mammals vocalize. In addition, the effectiveness of passive acoustic monitoring will depend on the operator's ability to locate a vocalizing cetacean and determine whether it is within the power-down or shut-down radius or in a position such that the ship's movement will place it within the power-down or shut-down radius. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Observatory to (1) report the number of marine mammals that were detected acoustically and for which a power-down or shut-down of the airguns was initiated, (2) specify if such animals also were detected visually, (3) compare the results from the two monitoring methods (visual versus acoustic) to help identify their respective strengths and weaknesses, and (4) use that information to improve mitigation and monitoring methods.

Effectiveness of ramp-up procedures

Although the effectiveness of ramp-up procedures has yet to be verified empirically, the Service would continue to require the Observatory to monitor, document, and report observations during all ramp-up procedures. Such data will provide a stronger scientific basis for determining the effectiveness of, and deciding when to implement, this particular mitigation measure. The National Science Foundation has indicated that monitoring data from past surveys are being compiled into a single database. The Commission supports that effort by the Foundation. After the data are compiled and quality control measures have been completed, the Marine Mammal Commission recommends that the National Marine Fisheries Service work with the National Science Foundation to analyze those data to help determine the effectiveness of ramp-up procedures as a mitigation measure for geophysical surveys. International researchers also are trying to determine the impacts of seismic airguns and the effectiveness of ramp-up procedures, primarily on humpback whales, during specific life history stages. However, the results of those studies are not expected for three to

five years and even then, their applicability to other species may be limited. In the interim, the Commission continues to believe that the Service should continue to require data collection and analysis to assess the effectiveness of ramp-up procedures, given that those procedures are considered a substantial component of the mitigation measures.

Please contact me if you have questions about the Commission's recommendations or rationale.

Sincerely,

Timothy J. Ragen, Ph.D.
Executive Director

Enclosure

References

Baird, R.W., D.L. Webster, D.J. McSweeney, A.D. Ligon, G.S. Schorr, and J. Barlow. 2006. Diving behavior and ecology of Cuvier's (*Ziphius cavirostris*) and Blainville's (*Mesoplodon densirostris*) beaked whales in Hawaii. Canadian Journal of Zoology 84(8):1120–1128.

Barlow, J. 1999. Trackline detection probability for long-diving whales. Pages 209–221 *in* G.W. Garner, S.C. Amstrup, J.L. Laake, B.F.J. Manly, L.L. McDonald, and D.G. Robertson (eds.), Marine Mammal Survey and Assessment Methods. Balkema, Rotterdam, The Netherlands.

Barlow, J. 2010. Cetacean abundance in the California Current estimated from a 2008 ship-based line-transect survey. National Oceanic and Atmospheric Administration-Technical Memorandum-National Marine Fisheries Service-Southwest Fisheries Science Center-456. 24 pages.

Miller, P.J.O., M.P. Johnson, P.T. Madsen, N. Biassoni, and P.L. Tyack. 2009. Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico. Deep-Sea Research I 56(7):1168–1181.

Tolstoy, M., J. Diebold, L. Doermann, S. Nooner, S.C. Webb, D.R. Bohenstiehl, T.J. Crone, and R.C. Holmes. 2009. Broadband calibration of R/V *Marcus G. Langseth* four-string seismic sources. Geochemistry, Geophysics, Geosystems 10, Q08011, doi:10.1029/2009GC002451.

Tyack, P.L., M. Johnson, N. Aguilar Soto, A. Sturlese, and P.T. Madsen. 2006. Extreme diving of beaked whales. Journal of Experimental Biology 209(21):4238–4253.

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Seismic testing in the Gulf of Mexico

aida CADENA <aidacadenasplace@gmail.com> Fri, Mar 22, 2013 at 11:27 PM
To: ITP.Goldstein@noaa.gov

Please NO! Whale, dolphins and other marine life will hear this sound for days without end. For some cetaceans and other sea life it may mean death. Please NO!

Aida Cadena
San Antonio, Texas

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

U.S.Geological Survey

Amala Kohler <amala.kohler@yahoo.com> Sun, Mar 17, 2013 at 4:21 PM
To: ITP.Goldstein@noaa.gov

Dear Sir or Madam,

the U.S.Geological Survey has applied for the "Incidental"harassment of 19 species of marine mammals thru the use of seismic airguns as part of a "gas hydrates study".These airguns will emit decibels at 190-230 and can cause hearing damage, bleeding of the brain, behavioral issues, and strandings.

Please object to the issuance of a permit and make a public hearing be held before the Marine Mammal Commission.

Thank you very much for your consideration.

Best regards
Bodhi Kohler

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

(no subject)

Amala Kohler <amala.kohler@yahoo.com> Mon, Mar 11, 2013 at 7:32 AM
To: ITP.Goldstein@noaa.gov

To whom it concerns

Please do not allow the issuance of a take allow permit for marine mammals due to geophysical seismic testing by level "B" harassment in the Gulf of Mexico from April thru May,2013.
The U.S.Geological Survey has applied for the "Incidental"harassment of 19 species of marine mammals thru the use of seismic airguns as part of a "gas hydrates study".

These airguns will emit decibels at 190-230 and can cause hearing damage,bleeding of the brain,behavioral issues,and strandingsobject to the issuance of a permit and requesting a public hearing be held before the Marine Mammal Commission.

Please protect the marine mammals!

Thank you for your consideration.

Sincerely
Bodhi Kohler

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Please reject the US Geological Survey's permit request for the incidental harassment of 19 marine mammals

Andrea Hernandez <andreaih31@gmail.com> Fri, Mar 22, 2013 at 10:53 PM
Reply-To: Andrea Hernandez <andreaih31@gmail.com>
To: ITP.Goldstein@noaa.gov

To whom it may concern,

I am writing to you because I vehemently oppose the issuance of a “take permit” to the US Geological Survey so they may use 19 species of mammals as part of a “gas hydrates” study with seismic air guns. The air guns emit decibels in the 190 – 230 range, which can cause hearing damage, bleeding of the brain, stranding, and behavioral issues. It disgusts me that the USGS thinks nothing of taking living animals to include as part of a study that can cause such harmful, painful, and destructive physical damage to them. With so much awareness of the humane and ethical treatment of animals these days, it’s infuriating and sad that the USGS would even consider applying for a permit for “incidental” harassment of marine life. Please deny their permit request to take marine life to use in a cruel and barbaric study. They wouldn’t do this to humans, why is it ok to do it to animals??

Sincerely,

Andrea Hernandez

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Document Citation: 78 FR 11821/ Document Number:2013-03837

Andy Kerr <andykerr3@live.com> Wed, Mar 20, 2013 at 5:07 PM
To: "ITP.Goldstein@noaa.gov" <itp.goldstein@noaa.gov>

Dear Howard Goldstein NOAA/NMFS

I am writing in profound opposition to the seismic survey in the Gulf of Mexico (GOM). My love of the ocean and it's marine life has compelled me to research the effects of seismic testing on marine mammals in particular. This research has led me to believe that seismic testing is harmful to marine mammals. Below are some of the reasons why the permit should not be granted to Woods Hole:

1. The marine life of the GOM has been faced with many challenges in the past decades. Since the 2010 oil spill the struggle the struggle to survive has been compounded by the lack of pure water. Dolphins and other marine life continue to struggle for life in this heavily impacted area.
2. To batter marine mammals with 190 dB created by airguns for 96 hours in two different locations in search of gas is unacceptable.
3. Using lookouts to detect marine life during this deep seismic survey is unacceptable as the marine life spends most of their lives underwater.
4. Many species are endangered and listed on the Endangered Species Act: the sperm whale, North Atlantic right, humpback, sei, fin, and blue whales, and the West Indian manatee. Other ESA-listed species that could occur in the area are the endangered leatherback, hawksbill, green, and Kemp's ridley turtles, and the threatened loggerhead turtle". If this is allowed many more will be joining this list.

Please give this densely populated area that has already been so hard hit by the oil and gas industry a break and say no to this survey by Woods Hole.

Sincerely,
Andy Kerr
PO Box 176
Cannon Beach, Oregon 97110

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

USGS Woods Hole Request For Permit For Seismic Testing in The Gulf of Mexico

Anne <a_gareis@verizon.net> Sat, Mar 23, 2013 at 5:07 PM
To: ITP.Goldstein@noaa.gov, The.Secretary@hq.doe.gov

Please do not let this happen. The harm caused to sea creatures by seismic testing is substantial and well documented.

I object with every fiber of my being to the harming/killing of whales, dolphins, and other sea life in the search for natural gas deposits - it is a disgusting way to treat our oceans and the creatures that dwell in them.

And if compassion for fellow sentient beings is not a compelling argument for some, perhaps the great harm to humanity if our oceans are further compromised may be. I am of the very firm belief that our future as a species depends on developing clean energy sources, ones that do not dirty and pollute our environment.

If we are truly the intelligent beings we claim to be, we will move away from toxic and harmful practices toward cleaner and more efficient ones to create the energy we need.

Anne Gareis
110 Johnson Park
Buffalo, NY

716 847-8478

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013

Annelies Mullens <annelies.mullens@jessazh.be> Sun, Mar 10, 2013 at 4:05 PM
To: ITP.Goldstein@noaa.gov

Letter for P. Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service,

Concerning Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013

This permit seeks to fundamentally effect the balance of the worlds oceans and it's natural habit I wish therefore to demand that you do not award the navy this permit, which seeks to commit devastation which will have consequences well beyond the the USA oceanic jurisdiction. Request the application by the US Navy be denied.

sincerly

Annelies Mullens

dr Annelies Mullens

Endocrinologie T 011/309453 F 011/309459

annelies.mullens@jessazh.be

Denk aan het milieu voor je deze e-mail afdrukt

Jobsite:
www.ikwiljessapassen.be

Jessa Ziekenhuis op social media:
Facebook - Twitter - YouTube - LinkedIn

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

please

Annette van den Berg <vdberg.annette@gmail.com> Fri, Mar 22, 2013 at 4:34 PM
To: ITP.Goldstein@noaa.gov

Dear sir, please don't make the noices in the water. It will kill thousands of precious ceatecans, dolphins and whales. It will destroy alot living souls. It will destroy the ocean, our ocean and my ocean. Please, stop this plans and save the life in the ocean. For with a dead and dying ocean, we all will be dying. Sincerely Annette vd Berg
Netherlands

March 21, 2013

P. Michael Payne, Chief,
Permits and Conservation Division,
Office of Protected Resources,
National Marine Fisheries Service,
1315 East-West Highway, Silver Spring, MD 20910.

Re: Document Citation: 78 FR 11821/ Document Number:2013-03837

Dear Mr. Payne:

I am writing to you in reference to the above Document Citation. As you are aware, all marine life of the Gulf of Mexico is still trying to recover from the Deepwater Horizon oil spill. Specially the mammals in the Gulf were hard hit by the oil spill and are still in the process of recovery from this horrendous event.

There has been so many stranding's of dolphins in the winter of 2011. How many more dead dolphins bodies just sank into the deep waters, those are not even accounted for. We all know the fact that these types of testing will harm cetacean hearing. The outcome of these testing's maybe horrendous but we the average citizen, the "Joe Public", may never know. Will we?

By you allowing more seismic testing and these types of oil investigations, will only further continue to harm the delicate ecosystem that is having a hard time to survive and recover.

I oppose the seismic testing because the marine life of the Gulf of Mexico has been put through so much already thanks to the oil industry. There are many marine mammals on the ESA. Seismic testing can cause harm.

Please deny this permit. Thank you.

Sincerely,

Save the Blood Dolphins
Barbara Napoles

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Document Citation: 78 FR 11821/ Document Number:2013-03837

Barbara Napoles <saveblooddolphins@gmail.com> Fri, Mar 22, 2013 at 12:21 AM
To: ITP.Goldstein@noaa.gov

P. Michael Payne, Chief,
Permits and Conservation Division,
Office of Protected Resources,
National Marine Fisheries Service,
1315 East-West Highway, Silver Spring, MD 20910

Re: Document Citation: 78 FR 11821/ Document Number:2013-03837

Dear Mr. Payne:

I am writing to you in reference to the above Document Citation. As you are aware, all marine life of the Gulf of Mexico is still trying to recover from the Deepwater Horizon oil spill. Specially the mammals in the Gulf were hard hit by the oil spill and are still in the process of recovery from this horrendous event.

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I oppose the seismic testing because the marine life of the Gulf of Mexico has been put through so much already thanks to the oil industry. There are many marine mammals on the ESA. Seismic testing can cause harm.

Please deny this permit. Thank you.

Sincerely,

Save the Blood Dolphins
Barbara Napoles

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ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Proposed Incidental Harassment Authorization April to May, 2013, Marine Geophysical Survey in the Gulf of Mexico

Catherine Kilduff <ckilduff@biologicaldiversity.org> Fri, Mar 22, 2013 at 9:49 PM
To: ITP.Goldstein@noaa.gov

Mr. Payne,

Please accept the attached comments on the proposed Incidental Harassment Authorization for an April to May, 2013, marine geophysical survey in the Gulf of Mexico. I will be sending a CD of references in the mail.

Sincerely,

Catherine

Catherine Ware Kilduff

Staff Attorney
Center for Biological Diversity

415-644-8580

Boycott eating bluefin tuna - to learn more, visit http://www.bluefinboycott.org

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Via Email and Mail

Michael Payne, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910
ITP.Goldstein@noaa.gov

March 22, 2013

Dear Mr. Payne,

Thank you for the opportunity to submit these comments on the National Marine Fisheries Service's proposed Incidental Harassment Authorization for an April to May, 2013, marine geophysical survey in the Gulf of Mexico.[1] For the reasons discussed below, we believe that the Fisheries Service's approval of the activity will violate the Marine Mammal Protection Act, the Magnuson-Stevens Fisheries Conservation and Management Act ("Magnuson Stevens Act"), and the National Environmental Policy Act ("NEPA"). Without completion of formal consultation, the proposed authorization will also violate the Endangered Species Act.[2] If the Fisheries Service intends to allow harassment of marine mammals for this activity, the authorization and supporting environmental analyses under the Magnuson Stevens Act and NEPA must be revised and reissued as a draft for further public review and comment.

The Fisheries Service's intention to authorize seismic surveys to prospect for fossil fuels in the deepwater of the Gulf of Mexico during the breeding and spawning seasons for highly migratory fish such as Atlantic bluefin tuna and marine mammals such as the sperm whale brings back terrible memories of the *Deepwater Horizon* oil spill. Occurring also in deepwater and in the same months as the proposed seismic survey in 2010, the disaster highlighted the toll oil and gas exploration and development takes on wildlife. During April and May wildlife converge from all over the ocean in the Gulf of Mexico to perpetuate the cycle of life. Human activities in that area during this time undisputedly will alter this behavior. There is no justification for allowing seismic surveys in this time to look for another risky and dangerous deepwater source of energy.

[1] 78 Fed. Reg. 11821 (Feb. 20, 2013).
[2] *See id.* at 11843 ("USGS has initiated formal consultation with the NMFS, Office of Protected Resources, Endangered Species Act Interagency Cooperation Division, on this proposed seismic survey.").

It is undisputed that sound is a fundamental element of the marine environment. Whales, fish, and other wildlife depend on it for breeding, feeding, navigating, and avoiding predators – in short, for their survival and reproduction. To prospect for gas hydrates, the U.S. Geological Survey will deploy arrays of high-volume airguns firing intense impulses of compressed air – often as loud as explosives – about every six to ten seconds, 24 hours per day, for eight days. Increasingly, the available science demonstrates that these blasts disrupt baleen whale behavior and impair their communication on a vast scale; that they harm a diverse range of other marine mammals; and that they can significantly impact fish and fisheries, with unknown but potentially substantial effects on coastal communities.

Our concern is that the Fisheries Service falls short of accurately assessing the impacts of the seismic survey on the climate, marine mammals, endangered sea turtles, and overfished highly migratory species like Atlantic bluefin tuna. Oversights include:

(1) Assessing Cumulative Impacts: Failing to evaluate the harm of this project in relation to the threats already inflicted on the Gulf of Mexico;
(2) Overlooking Vulnerable Sea Life: Neglecting impacts to endangered sea turtles and essential fish habitat;
(3) Lacking MMPA Analysis: Underestimating marine mammal take and not supporting conclusions of small numbers and negligible impact; and
(4) Finding Alternatives and Weighing Climate Impacts: Analyzing environmental impacts without providing alternatives protective of marine wildlife or climate.

More details on each are provided below.

I. THE FISHERIES SERVICE FAILED TO ASSESS THE CUMULATIVE IMPACTS TO WILDLIFE HABITAT IN THE GULF OF MEXICO

The Gulf of Mexico serves both as a rich wildlife reserve with unique oceanographic properties and the source of oil and gas resources that draw intense human activity to deep waters. Increasing activity in this vulnerable area must only be done with the utmost caution to ensure that additional stress does not push wildlife past natural limits. The Fisheries Service is violating its duty under NEPA to take a hard look at the impact of its decision to allow incidental harassment of marine mammals generally by failing to analyze cumulative impacts of human activity on the habitat and wildlife in the Gulf of Mexico.[3] The NEPA analysis must quantitatively evaluate the impacts of military activities, fisheries, the Deepwater Horizon disaster, and the ongoing Unusual Mortality Event declared for cetaceans in the northern Gulf of Mexico beginning 1 February 2010.[4] In the absence of such analysis, the finding of no significant impact is arbitrary.[5]

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[3] *See* 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1501.2, 1502.5.
[4] An unusual mortality event is defined under the MMPA as a "stranding that is unexpected, involves a significant die-off of any marine mammal population, and demands immediate response." *See* Fisheries Service Website, 2010-2013 Cetacean Unusual Mortality Event in Northern Gulf of Mexico, http://www.nmfs.noaa.gov/pr/health/mmume/cetacean_gulfofmexico2010.htm.
[5] *See Grand Canyon Trust v. Fed. Aviation Admin.*, 290 F.3d 339, 340 (D.C. Cir. 2002); *Sierra Club v. Peterson*, 717 F.2d 1409, 1413 (D.C. Cir. 1983).

The Draft Environmental Assessment ("EA") mentions summarily harassment and mortality from military activities and fishing, but fails to provide any estimates of take from these activities, making cumulative impact impossible to calculate. In the cumulative effects section, the Draft EA states that the proposed survey activities "are farther offshore" than most activities, except that the survey areas are just south of Military Warning Area W92, which includes operations like "all weather flight training, refueling, test flights, bombing, fleet training, independent unit training, ASW, aircraft carrier, ship and submarine operations, and surface gunnery."[6] Despite intensive use of this nearby area, the section includes "there is little overlap between the proposed seismic surveys and other activities, and little chance of significant cumulative effects."[7] This is blatantly false. Not only are military activities nearby, but fisheries too. The EA notes pages before the cumulative impacts section that the pelagic longline fishery regularly catches leatherback sea turtles in the study area.[8] This fishery released alive an entangled sperm whale – a mother with calf – with trailing gear in 2008 and killed a sperm whale that got tangled in a longline vessel's sea anchor the same year.[9] While from a human perspective the area of the Gulf is large, the spatial scale of the Gulf of Mexico is small relative to the travelling ability of these endangered cetaceans and sea turtles. By further ensonifying the Gulf and increasing the risk of entanglement of wildlife, these seismic surveys make the available habitat even smaller.

The Draft EA fails to mention the lingering effects on habitat and wildlife in the Gulf of Mexico from the Deepwater Horizon oil spill. The below passage is excerpted from the draft marine mammal stock assessment report for Gulf of Mexico beaked whales and describes the oil spill and its effects on wildlife:

> The Deepwater Horizon MC252 drilling platform, located approximately 50 miles southeast of the Mississippi River Delta in waters about 1500m deep, exploded on 20 April 2010. The rig sank, and for 87 days millions of barrels of oil and gas were discharged from the wellhead until it was capped on 15 July 2010. During the response effort dispersants were applied extensively at the seafloor and at the sea surface (Lehr et al. 2010; OSAT 2010). In-situ burning, or controlled burning of oil at the surface, was also used extensively as a response tool (Lehr et al. 2010). The oil, dispersant and burn residue compounds present ecological concerns. The magnitude of this oil spill was unprecedented in U.S. history, causing impacts to wildlife, natural habitats and human communities along coastal areas from western Louisiana to the Florida Panhandle (NOAA 2011). It could be years before the entire scope of damage is ascertained (NOAA 2011).
>
> Shortly after the oil spill, the Natural Resource Damage Assessment (NRDA) process was initiated under the Oil Pollution Act of 1990. A variety of NRDA research studies are being conducted to determine potential impacts of the

[6] EA at 30.
[7] *Id.*
[8] *Id*. at 19.
[9] U.S. Atlantic Marine Mammal Stock Assessments: 2012 (draft) at 229, *available at* http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2012_draft.pdf.

> spill on marine mammals. These studies have focused on identifying the type, magnitude, severity, length and impact of oil exposure to oceanic, coastal and estuarine marine mammals. The research is ongoing and likely will continue for some time. For continental shelf and oceanic cetaceans, the NOAA-led efforts include: aerial surveys to document the distribution, abundance, species and exposure of marine mammals and turtles relative to oil from DWH spill; and ship surveys to evaluate exposure to oil and other chemicals and to assess changes in animal behavior and distribution relative to oil exposure through visual and acoustic surveys, deployment of passive acoustic monitoring systems, collection of tissue samples, and deployment of satellite tags on sperm and Bryde's whales.
>
> Aerial surveys have observed Risso's dolphins, spinner dolphins, pantropical spotted dolphins, striped dolphins, bottlenose dolphins and sperm whales swimming in oil in offshore waters (NOAA 2010a). The effects of oil exposure on marine mammals depend on a number of factors including the type and mixture of chemicals involved, the amount, frequency and duration of exposure, the route of exposure (inhaled, ingested, absorbed, or external) and biomedical risk factors of the particular animal (Geraci 1990; NOAA 2010b). In general, direct external contact with petroleum compounds or dispersants with skin may cause skin irritation, chemical burns and infections. Inhalation of volatile petroleum compounds or dispersants may irritate or injure the respiratory tract, which could lead to pneumonia or inflammation. Ingestion of petroleum compounds may cause injury to the gastrointestinal tract, which could affect an animal's ability to digest or absorb food. Absorption of petroleum compounds or dispersants may damage kidney, liver and brain function in addition to causing immune suppression and anemia. Long term chronic effects such as lowered reproductive success and decreased survival may occur (Geraci 1990; NOAA 2010b).[10]

In sum, the oil spill directly impacted marine mammals, sea turtles, and birds oiled or burned in response to the spill, and may have lingering effects yet to be delimited. Without knowing the extent of the harm done to the Gulf of Mexico ecosystem, the Fisheries Service should proceed with utmost caution before authorizing additional disruptive activities. For example, the Atlantic bluefin tuna spawns in the Gulf of Mexico from April to June. Concerns over the effects of the spill in combination with overfishing led the Center for Biological Diversity to petition to list bluefin tuna on the Endangered Species Act. In May 2011, the Fisheries Service listed it as a species of concern because of the remaining uncertainties regarding the effects of the Deepwater Horizon oil spill.[11] Not quantitatively analyzing cumulative impacts prevents the public from understanding whether the incremental harm that this survey inflicts has significant impacts on an already injured ecosystem that could restrict other uses like fishing.

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[10] *Id.* at 244-45.
[11] 76 Fed. Reg. 31556 (June 1, 2011).

II. EFFECTS OF SEISMIC SURVEYS ON THE MARINE ENVIRONMENT

A. The Seismic Survey's Impact to Threatened and Endangered Sea Turtles

The Draft EA does not make an adequate effort to understand the potential effects of the surveys on sea turtles and the biological consequences of those effects. It fails to provide a methodology to quantitatively assess the impact of air gun exposure on sea turtles. The Draft EA notes that temporary threshold shift ("TTS") has occurred in airgun studies of loggerhead sea turtles (present in the proposed study area) but fails to provide methodology for assessing impacts of TTS, permanent threshold shifts ("PTS") and harassment on populations of endangered leatherback and threatened loggerhead sea turtles. Also the Draft EA egregiously fails to consider the cumulative impacts between the proposed seismic survey and some of the other anthropogenic disturbances to the marine environment. In particular the Draft EA notes that leatherback sea turtles are regularly taken in the activity area as bycatch in the pelagic longline fishery, but does not discuss whether additional impacts from the surveys have the potential to jeopardize the persistence of the sea turtles.

Despite noting the likely presence of sea turtles during the seismic survey, the Draft EA does a poor job at estimating the potential effects from avoidance behavior or hearing impairment due to airguns. Without providing scientific citations so that the public can determine whether or not the U.S. Geological Survey reviewed the relevant literature, the environmental assessment concludes that "it is likely that sea turtles will exhibit behavioral changes and/or avoidance within an area of unknown size near a seismic vessel" (EA at 23). This general statement falls short of the required hard look an agency must take under NEPA. For mitigation of the airguns' effects on sea turtles, the draft environmental assessment relies on the fact that observers on board the survey vessel will watch for sea turtles and airgun operations will be shut down if a turtle enters the designated exclusion zone. Effective at-sea mitigation through use of observers is challenging because turtles are difficult to spot unless conditions are calm and they cannot be detected by passive acoustic monitoring. The more effective option would be to minimize survey activity in areas and during seasons important to sea turtles.

Of particular concern are the effects to the Northwest Atlantic Ocean loggerhead sea turtle, listed as threatened under the Endangered Species Act in 2011. The Fisheries Service has yet to propose critical habitat in Gulf of Mexico or Atlantic waters despite mandatory statutory deadlines that are overdue. In 2009, scientists observed loggerhead sea turtles diving as an avoidance response to airguns used in a seismic survey in the Mediterranean Sea.[12] This type of behavior in response to airguns could "affect turtle fitness by reducing the time and energy available for feeding, mating, or other key activities, or by increasing the amount of time spent in suboptimal habitat (such as areas where predators are more abundant or prey less abundant)."[13] The draft environmental assessment fails to mention these potential impacts to sea turtles. Before authorizing activities with demonstrated impacts on endangered species, the Fisheries Service must analyze whether airguns cause behavior changes that compromise their energy budgets, exclude them from important habitat, or increase their stress levels.

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[12] DeRuiter, S.L. and K.L. Doukara. 2012. Loggerhead turtles dive in response to airgun sound exposure. Endangered Species Research Vol. 16: 55–63, 2012. doi: 10.3354/esr00396.
[13] *Id.*

B. Potential to Adversely Impact Essential Fish Habitat (EFH) for Atlantic Bluefin Tuna and Other Large Fish

The Fisheries Service impermissibly failed to consult on the impacts of the proposed Incidental Harassment Authorization on the EFH and the habitat area of particular concern where the seismic survey will occur. Instead the Draft EA falsely claims that "[a]ll HAPCs and EFH are on the continental shelf or just beyond the shelf break, which is at ~200 m depth" (EA at 20). Table 1 provided below lists highly migratory species with essential fish habitat overlapping with the proposed study area. By statutory mandate, the Fisheries Service must consider the effects to this habitat from approval of the activities.

The Magnuson-Stevens Act requires consultation when actions to be permitted, funded, or undertaken by a federal agency may adversely impact EFH. The consultation requirements in the Magnuson-Stevens Act direct federal agencies to consult with the Fisheries Service when any of their activities may have an adverse affect on EFH and defines adverse affect as "any impact that reduces quality and/or quantity of EFH [and] may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions."[14]

The seismic survey will occur at two sites, the GC955 and the WR313, located in the deep water of the northwestern Gulf of Mexico and squarely in several species' essential fish habitat and the Atlantic bluefin tuna habitat area of particular concern.[15] We specifically request that the Fisheries Service prohibit any seismic activity in the habitat area of particular concern during bluefin tuna spawning season in order to avoid adverse impacts. The Fisheries Service identified EFH within the Gulf of Mexico for Atlantic highly migratory species in 1999 (see Table 1). As mentioned, the time of the proposed activities coincide with spawning for some of these species. The Fisheries Service has the information available to estimate the impact to the larvae of spawning migratory fish and should do so quantitatively in order to assess population level impacts.

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[14] 50 C.F.R. § 600.910(a); *see also* National Marine Fisheries Service. 2010. Essential Fish Habitat: A marine fish habitat conservation mandate for federal agencies, Gulf of Mexico Region. http://sero.nmfs.noaa.gov/hcd/pdfs/efhdocs/gom_guide_2010.pdf.

[15] *See* NMFS Essential Fish Habitat Mapper at http://www.habitat.noaa.gov/protection/efh/habitatmapper.html.

Table. 1. Summary of Offshore EFH Designated for Highly Migratory Species (NMFS 2008, Appendix 7).

Gulf of Mexico Species	Life Stage	EFH
Offshore		
Atlantic bluefin tuna	spawning/eggs/larvae adults	Gulf-wide, 15 mi offshore to EEZ 200 m to EEZ, Terrebonne LA to Galveston TX
Atlantic skipjack tuna	spawning/eggs/larvae adults	Gulf-wide, 200 m isobath to EEZ 200 to 2000 m, Terrebonne LA to Galveston TX
Atlantic yellowfin tuna	all life stages	from 200 m isobath to EEZ
Swordfish	spawning/eggs/larvae juvenile adults	Gulf-wide, 200 m isobath to EEZ as above, except to 2000 m from 88E to 86.5E W 200 to 2000 m from Tampa to Mobile Bays; MS
Blue marlin	all stages	variable, but generally Gulf-wide 200 - 2000 m except adults not shown E. of Choctawhatchee Bay, FL
White marlin	juvenile adult	Gulf-wide 200 - 2000 m isobath, except S of Galveston & Cape San Blas 100 m to EEZ, W of 86.5E W
Sailfish	all stages	Gulf-wide 200 to 2000 m isobath or EEZ, whichever is closer & within 5 mi of Padre Island & to 50 m in DeSoto Canyon
Silky shark	early juvenile late juvenile	DeSoto Canyon MS/AL, 200 - 2000 m isobath FL Keys -10,000 Islands, 50 - 2000 m isobath
Longfin mako shark	all life stages	FL Keys to 92.5E W, 200m isobath to EEZ

Airguns have been shown to dramatically depress catch rates of some commercial fish species, by 40 to 80% depending on catch method, over thousands of square kilometers around a single array,[16] leading fishermen in some parts of the world to seek industry compensation for their losses. Other impacts on commercially harvested fish include habitat abandonment – one hypothesized explanation for the fallen catch rates – reduced reproductive performance, and hearing loss.[17] In a literature review of the impact of underwater sound levels on fish, Slabbekoorn et al. (2010) noted a study that found that tuna schools in pens were less coherent in the presence of boat noise.[18] In addition, fish have also been reported to flee from seismic

[16] Engås, A., Løkkeborg, S., Ona, E., and Soldal, A.V., Effects of seismic shooting on local abundance and catch rates of cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*), Canadian Journal of Fisheries and Aquatic Sciences 53: 2238-2249 (1996); *see also* Skalski, J.R., Pearson, W.H., and Malme, C.I., Effects of sounds from a geophysical survey device on catch-per-unit-effort in a hook-and-line fishery for rockfish (*Sebastes* ssp.), Canadian Journal of Fisheries and Aquatic Sciences 49: 1357-1365 (1992).

[17] McCauley, R.D., Fewtrell, J., Duncan, A.J., Jenner, C., Jenner, M.-N., Penrose, J.D., Prince, R.I.T., Adhitya, A., Murdoch, J. and McCabe, K., Marine seismic surveys: analysis and propagation of air-gun signals, and effects of air-gun exposure on humpback whales, sea turtles, fishes, and squid (2000) (report by Curtin U. of Technology); McCauley, R., Fewtrell, J., and Popper, A.N., High intensity anthropogenic sound damages fish ears, Journal of the Acoustical Society of America 113: 638-642 (2003); Scholik, A.R., and Yan, H.Y., Effects of boat engine noise on the auditory sensitivity of the fathead minnow, *Pimephales promelas*, Environmental Biology of Fishes 63: 203-209 (2002).

[18] Slabbekoorn, H., N. Bouton, I. van Opzeeland, A. Coers, C. ten Cate, A. Popper. 2010. A noisy spring: the impact of globally rising underwater sound levels on fish. Trends in Ecology and Evolution 25(7): 419-427.

shooting areas as inferred from decreased catch rates for both long lines and trawler fisheries.[19] This could be an especially big problem in the Gulf of Mexico, which is a spawning ground for so many species. Slabbekoorn et al. (2010) concluded that "if fish sounds serve a communicative function in a reproductive context, problems of detection and recognition due to the presence of anthropogenic noise could have fitness consequences." Based on these studies, the cumulative effect of ensonification from oil and gas development activities in the Gulf of Mexico has a high likelihood of adversely affecting the spawning behavior of Atlantic bluefin tuna and the behavior of other highly migratory species.

The Fisheries Service has enough information to assess quantitatively the seismic survey's potential impacts to fish larvae. This has been done most recently by the staff of the California Coastal Commission when evaluating the environmental impacts of proposed seismic surveys by PG&E[20]; the Fisheries Service should adopt this methodology to the proposed activity. In short,

> PG&E on September 25, 2012, provided an impact assessment that used the 5.5-meter distance from the air guns as the area within which planktonic organisms would not be expected to survive due to sound exposure. The assessment calculated the volume of water within the project area that would be within this distance of the air guns as they were being fired during the survey. It used data collected from a 1997-99 entrainment study conducted offshore of DCPP to estimate the density and diversity of larvae expected to be within this volume of water, and assumed 100% mortality for the larvae within this water volume. . . . PG&E's updated evaluation, provided on October 31, 2012, states that the currently proposed survey tracks would have the full array of air guns firing over a total length of about 576 miles for a total water volume in the "zone of lethality" of about 23 billion gallons (although this does not include operations during turns with only the mitigation air gun firing). Assuming the larval densities are the same for both the previously evaluated and currently evaluated survey track lengths, the expected level of mortality would be about 36% of 9.2 million, or approximately 3.3 million larvae.

The Fisheries Service has data from larval surveys of the Atlantic bluefin tuna in the Gulf of Mexico and predictive tools that can estimate what percent of larvae are in an area at a given time.[21] Taking the available science on the effects of seismic activity on fish larvae on which the Coastal Commission relied plus the Fisheries Service's data means that estimating the number of larvae that will be in the zone of harm is well within the scope of best available science.

In addition, the Fisheries Service should consider the indirect impact of this survey, the goal of which is to facilitate prospecting for fossil fuels, on global climate change and on

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[19] *Id*.

[20] Dettmer, A., T. Luster, and C. Teufel to Coastal Commissioners and Interested Parties, regarding Addendum to Staff Report for CDP Application E-12-005 and Consistency Certification CC-027-12, Pacific Gas & Electric Company, dated Nov. 13, 2012.

[21] Muhling, B.A., M.A. Roffer, J.T. Lamkin, G.W. Ingram, M.A. Upton, G. Gawlikowski, F. Muller-Karger, S. Habtes, W.J. Richards. 2012. Overlap between Atlantic bluefin tuna spawning grounds and observed Deepwater Horizon surface oil in the northern Gulf of Mexico. Mar. Pollut. Bull. 64(4):679-87.

Atlantic bluefin tuna essential fish habitat. A recent study predicted that due to ocean warming, high probabilities of bluefin tuna larval occurrence in the Gulf of Mexico spawning areas decreased in late spring by 39–61% by 2050 and 93–96% by the end of the 21st century.[22] The Fisheries Service cannot wait to analyze climate change impacts on essential fish habitat when the foreseeable result of the activities proposed will increase ocean warming.

In addressing these comments, please keep in mind the following mandatory contents of an EFH assessment to initiate an EFH consultation:[23] 1) a description of the proposed action; 2) an analysis of the effects, including cumulative effects of the proposed action on EFH and the managed and associated species; 3) the federal agency views regarding the effects of the action on EFH; and 4) proposed mitigation, if applicable. The regulations suggest the following additional information to include as appropriate: 1) the results of an on-site evaluation; 2) the views of recognized experts on the habitat or species affected; 3) a review of pertinent literature; and 4) an analysis of alternatives, including actions to avoid or minimize impacts.[24] Upon receipt of an EFH assessment, the Fisheries Service is required to provide EFH conservation recommendations for federal actions that would adversely affect EFH. As required by Section 305(b)(4) of the Magnuson-Stevens Act, the Federal agency must respond with a description of measures proposed for avoiding, mitigating, or offsetting the impact of the activities on EFH and explain its reasons for not following any EFH Conservation Recommendations. We respectfully request that you make all of this information available to the public along with the revised NEPA analysis prior to publishing a final rule authorizing the activity.

[22] B. A. Muhling, S-K Lee, J. T. Lamkin, Y. Liu. 2011. Predicting the effects of climate change on bluefin tuna (*Thunnus thynnus*) spawning habitat in the Gulf of Mexico. ICES J. Mar. Sci. (2011) 68 (6): 1051-1062. doi: 10.1093/icesjms/fsr008.
[23] 50 C.F.R. § 600.920(e).
[24] *Id.*

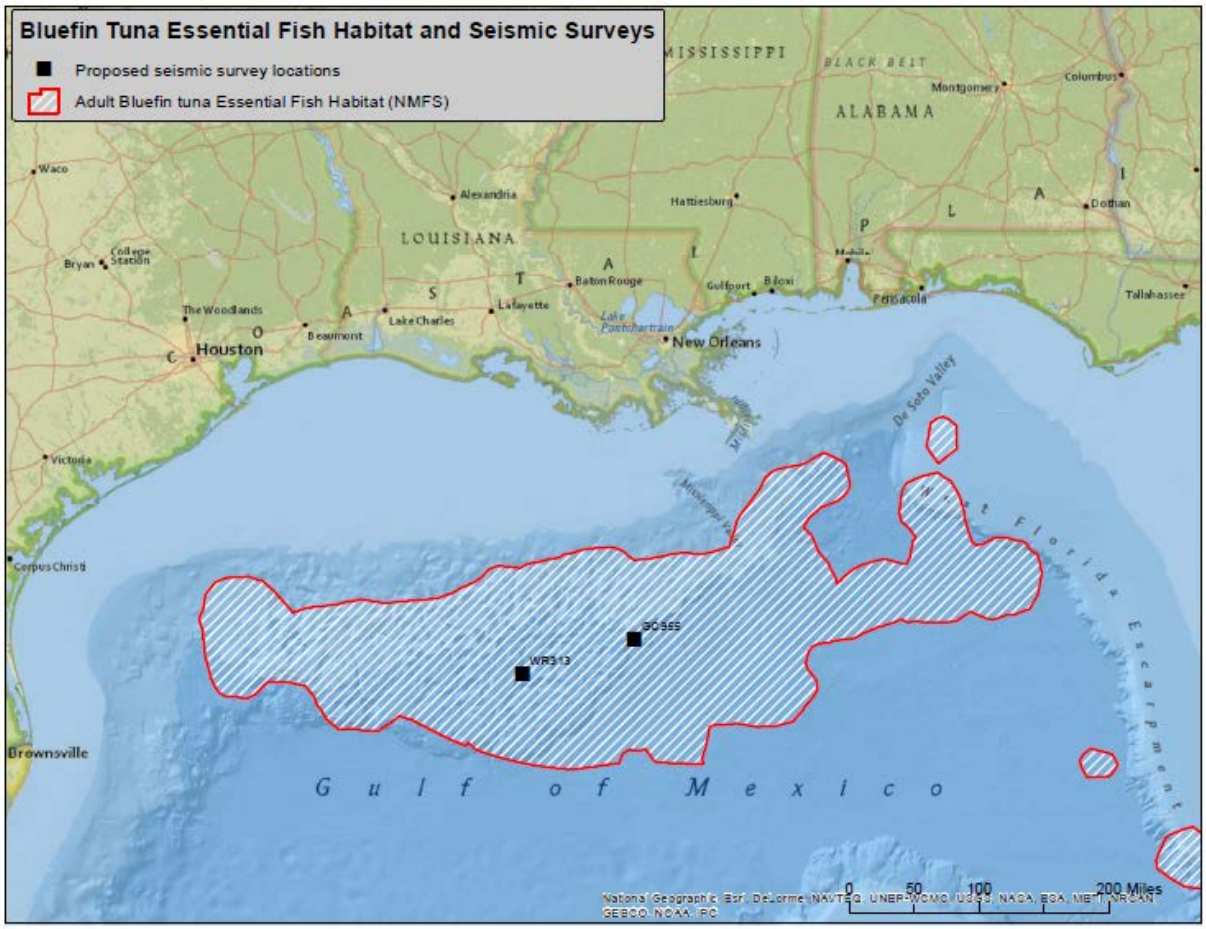

Figure 1. Location of proposed activities in relation to Atlantic bluefin tuna essential fish habitat in the Gulf of Mexico.

III. DEFICIENCIES IN THE INCIDENTAL HARASSMENT AUTHORIZATION

The Fisheries Service's IHA does not rely on the best available science regarding marine mammal impacts thresholds, including the 160-dB harassment threshold and the 180/190-dB Level A take exclusion zone threshold. Further, even if the Fisheries Service's assumptions regarding impact thresholds were correct, the IHA authorizes the take of more than small numbers of marine mammals and greater than negligible impacts on species and stocks, rendering the IHA as proposed illegal under the MMPA. For the endangered sperm whale, a deep-diving whale that feeds in the ocean's "sound channel," take of even one individual would constitute more than a negligible impact and would therefore violate the MMPA. Finally, the significant environmental effects of this action requires the Fisheries Service to prepare a full environmental impact statement analyzing the impacts of the proposed survey.

A. 160-dB Level B Harassment Threshold

The proposed IHA uses the single sound pressure level of 160 dB re 1 µPa (RMS) as a threshold for behavioral, sublethal take in all marine mammal species affected by the proposed

survey.[25] This approach does not reflect the best available science, and the choice of threshold is not sufficiently conservative in several important respects. In fact, five of the world's leading biologists and bioacousticians working in this field recently characterized the 160-dB threshold as "overly simplified, scientifically outdated, and artificially rigid."[26] The best available science indicates that the Fisheries Service must use a more conservative threshold.

Using a single sound pressure level of 160-dB for harassment represents a major step backward from recent programmatic authorizations. For Navy sonar activity, the Fisheries Service has incorporated into its analysis linear risk functions that endeavor to take account of risk and individual variability and to reflect the potential for take at relatively low levels.[27]

Furthermore, current scientific literature establishes that behavioral disruption can occur at substantially lower received levels for some species, including many species that will be impacted by the proposed survey here. For example, a single seismic survey has been shown to cause endangered fin and humpback whales to stop vocalizing – a behavior essential to breeding and foraging – and other baleen whales to abandon habitat over an area at least 100,000 square nautical miles.[28] Similarly, a low-frequency, high-amplitude fish mapping device was recently found to silence humpback whales at a distance of 200 kilometers, where received levels ranged from 88 dB to 110 dB.[29] Bowhead whales migrating through the Beaufort Sea have shown almost complete avoidance of seismic airgun received levels at 120 dB to 130 dB and below.[30]

Some odontocetes, such as beluga whales, are highly sensitive to a range of low-frequency and low-frequency-dominant anthropogenic sounds, including seismic airgun noise, which has been shown to displace belugas from near-coastal foraging areas out beyond the 130-dB isopleth.[31] Harbor porpoises are acutely sensitive to a range of anthropogenic sounds, including airguns. They have been observed to engage in avoidance responses 50 miles from a seismic airgun array, a result that is consistent with both captive and wild animal studies showing them abandoning habitat in response to pulsed sounds at very low received levels, well below

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[25] 78 Fed. Reg. at 11840-42.

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

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

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

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

[30] Miller, G.W., Elliot, R.E., Koski, W.R., Moulton, V.D., and Richardson W.J., Whales, *in* Richardson, W.J. (ed.), Marine Mammal and Acoustical Monitoring of Western Geophysical's Open-Water Seismic Program in the Alaskan Beaufort Sea, 1998 (1999); Richardson, W.J., Miller, G.W., and Greene Jr., C.R., Displacement of migrating bowhead whales by sounds from seismic surveys in shallow waters of the Beaufort Sea, *Journal of the Acoustical Society of America* 106:2281 (1999).

[31] Miller, G.W., Moulton, V.D., Davis, R.A., Holst, M., Millman, P., MacGillivray, A., and Hannay. D., Monitoring seismic effects on marine mammals—southeastern Beaufort Sea, 2001-2002, *in* Armsworthy, S.L., et al. (eds.), Offshore oil and gas environmental effects monitoring/Approaches and technologies, at 511-542 (2005).

120 dB.[32]

Although in the proposed rule the Fisheries Service cites studies showing that low-frequency sounds in general and seismic surveys in particular can have significant behavioral impacts to marine mammals well below 160 dB, the Fisheries Service irrationally sets the level B harassment threshold at 160 dB. If the Fisheries Service were to modify its threshold estimates, as it must based on the best available science, the estimated number of marine mammal takes incidental to the proposed seismic survey would be significantly higher than the Fisheries Service's current estimates.

B. 180/190-dB Level A Take Threshold and Exclusion Zone

The Fisheries Service's use of the 180/190-dB threshold for Level A takes ignores the best available science and is inadequate.[33] As the Fisheries Service itself notes, a recent study by Lucke et al. on the temporary threshold shift (TTS) thresholds for harbor porpoises using seismic sounds demonstrates that a harbor porpoise experienced TTS when exposed to airgun noise at 164 dB. [34] It is therefore clearly irrational for the Fisheries Service to use a 180-dB threshold for Level A take for all marine mammals. The Fisheries Service cannot rationally assume that other marine mammals will not also incur injury at noise levels below 180/190 dB. The Lucke et al. study demonstrates that TTS can occur at different levels for different species of cetaceans. Thus, the Fisheries Service cannot assume that TTS and even permanent threshold shifts (PTS) would be unlikely for marine mammals that enter the exclusion zone.

A number of recent studies indicate that anthropogenic sound can induce PTS at lower levels than anticipated.[35] New data indicate that mid-frequency cetaceans have greater sensitivity to sounds within their best hearing range than was previously thought.[36] This recent research indicates it is possible marine mammals will experience injury, or potentially serious injury, at lower sound thresholds than the Fisheries Service assumes. The Fisheries Service must take into account the best available science and set lower thresholds for level A take, which would lead to larger exclusion zones around the survey.

Given the Fisheries Service's decidedly lax approach to estimating impacts thresholds for injury to marine mammals from the proposed survey, it is likely that many more marine mammals will be harmed than the Fisheries Service estimates. In light of the best available science, the Fisheries Service cannot rationally defend its conclusion that the proposed survey

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

[33] 78 Fed. Reg. at 11824, 11831.

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

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

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

will harm no more than small numbers of marine mammals and will have no more than negligible impacts on those species or stocks.

C. Marine Mammal Protection Act (MMPA): Small Numbers

Even if the Fisheries Service's assumptions regarding impacts thresholds were supportable – which they are not – the Fisheries Service's own take estimates do not meet the requirements of the MMPA. Congress enacted the MMPA in 1972 in response to widespread concern that "certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities."[37] The legislative history states that the purpose of the MMPA is to manage marine mammals "for their benefit and not for the benefit of commercial exploitation."[38] The primary mechanism by which the MMPA protects marine mammals is through a moratorium on takings.[39] Under the MMPA, the term "take" is broadly defined to mean "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal."[40] "Harassment" is further defined to include acts of "torment" or "annoyance" that have the "potential" to injure a marine mammal or marine mammal stock in the wild or have the potential to "disturb" them "by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."[41]

The MMPA provides several narrow exceptions to the moratorium on take. Relevant here, the Fisheries Service may, upon request, authorize take in the form of harassment by an IHA for a period of not more than one year, provided certain conditions are met. An activity: (i) must be "specified" and limited to a "specific geographical region," (ii) must result in the incidental take of only "small numbers of marine mammals of a species or population stock," (iii) can have no more than a "negligible impact" on species and stocks, and (iv) cannot have "an unmitigatable adverse impact on the availability of such species or stock for taking for subsistence uses" by Alaska Natives.[42] In issuing an authorization, the Fisheries Service must provide for the monitoring and reporting of such takings and must prescribe methods and means of affecting the "least practicable impact" on the species or stock and its habitat.[43] Finally, for an IHA to issue, the activity cannot have the "*potential* to result in serious injury or mortality."[44]

The MMPA definition of harassment is focused on "potential harassment," which supports the conclusion that all of the animals in a population are harassed "if there is the *potential* for the act to disrupt the behavioral patterns of the most sensitive individual in the group."[45] The MMPA only allows the Fisheries Service to authorize "the incidental, but not

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[37] 16 U.S.C. § 1361(1).
[38] H. Rep. No. 92-707, at 11 (1971), reprinted in 1972 U.S.C.C.A.N., pp. 4144, 4154.
[39] 16 U.S.C. § 1371(a).
[40] *Id*. §1362(13).
[41] *Id*. § 1362(18); *see also* 50 C.F.R. § 216.3 (defining "Level A" and "Level B" harassment).
[42] *See* 16 U.S.C. § 1371(a)(5)(D)(i).
[43] *Id*. § 1371(a)(5)(D)(ii)(I).
[44] 50 C.F.R. § 216.107 (emphasis added).
[45] *Natural Res. Def. Council v. Evans*, 279 F. Supp. 2d 1129, 1157 (N.D. Cal. 2003) (emphasis added; in dicta); *see also* 16 U.S.C. § 1362(18)(A)(ii) (defining harassment to include any act of pursuit, torment, or annoyance that "has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns").

intentional, taking by harassment of *small numbers* of marine mammals."[46] Thus, even if all the estimated takes do not actually occur, the *potential* for those large takes to occur still exists, and should be included in the analysis of small numbers according to the definition of "harassment."

Here the Fisheries Service has blatantly disregarded the MMPA's prohibition on allowing the take of more than small numbers of marine mammals.[47] For example, the Fisheries Service estimates that in eight days, 118 melon-headed whales will be taken, which is over five percent of the population.[48] As noted above, this number is likely an underestimate. But even taken at face value, the Fisheries Service cannot rationally argue that this is a small number. There is no numerical cut-off for "small numbers."[49] Taking 118 whales in a week, however, from a population of 2,200 whales cannot rationally be considered "small numbers."

The Fisheries Service does not even attempt to explain how its take estimates meet the "small numbers" requirement. In fact, the IHA here entirely disregards this statutory requirement. Although the statutory language is mentioned, the Fisheries Service does not attempt to define small numbers, nor does it undertake any sort of analysis of what small numbers might be. The Ninth Circuit recently confirmed that the MMPA requires the authorizing agencies (in this case the Fisheries Service) to separately find both that only small numbers of marine mammals will be harmed and that the impacts to the species or stock will be negligible.[50] While the Fisheries Service attempted to rationalize its determination that impacts to the species or stocks will be negligible, it undertook no such analysis regarding small numbers.

In failing to separately analyze the small numbers standard and the negligible impact standard, the Fisheries Service defied clear congressional intent. As the Ninth Circuit stated in *CBD v. Salazar*, "[l]egislative history confirms our reading of the statute if such confirmation is needed. The House Report accompanying Section 101(a)(4)-(5) of the MMPA indicates that Congress intended "small numbers" and "negligible impact" to serve as two separate standards."[51] The requirement that the Fisheries Service authorize the take of only "small numbers" of individual animals is no mere technicality. Congress's intent was that the MMPA protect not only populations, but individual marine mammals.[52] While the "negligible impact" standard should serve to protect the species or population as a whole, the "small numbers" requirement guarantees that Congress's directive to protect individual marine mammals is carried out. The IHA here violates the MMPA because it does not guarantee that only small numbers of marine mammals will be taken.

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[46] 16 U.S.C. § 1362(5)(D).
[47] 16 U.S.C. § 1371(a)(5)(D)(i).
[48] 78 Fed. Reg. at 11841.
[49] *See* H.R. Rep. No. 97-228 (1981), reprinted in 1981 U.S.C.C.A.N. 1458, 1469 ("[small numbers] is not capable of being expressed in absolute numerical limits.").
[50] *Center for Biological Diversity v. Salazar*, -- F.3d --, Case No. 10-35123, 2012 WL 3570667 at *6 (9th Cir. Aug. 21, 2012).
[51] *Id.*
[52] *See* 16 U.S.C. § 1362 (18)(A) (definition of "harassment" expressly applies to acts that affect "a marine mammal or marine mammal stock in the wild."); *see also Natural Res. Def. Council v. Evans*, 364 F. Supp. 2d at 1083 1109 (N.D. Cal. 2003) ("In expressing concern about harassment to 'a marine mammal,' Congress was concerned about harassment to individual animals.").

D. Potential to Take Highly Endangered Sperm Whales

The Fisheries Service does not accurately consider the potential for sperm whale take and that the take will have more than a negligible impact. First, the Fisheries Service underestimates take from seismic surveys. The Fisheries Service relies on the "likelihood that, given sufficient notice through relatively slow shipspeed, marine mammals are expected to move away from a noise source that is annoying prior to its becoming potentially injurious" even though this has been show not to be the case for sperm whales in the Gulf of Mexico.[53] Reliance on observers for mitigation also has limited likelihood of success given the deep-diving behavior of sperm whales and the limits of visual observations at night and in poor weather. In making a negligible impact determination, the Fisheries Service evaluated factors like the context in which the take occurs.[54] For sperm whales, the take is planned for peak breeding season,[55] suggesting that the long-term impacts if reproductive success is compromised may be more severe than anticipated.

Second, the Fisheries Service underestimates the risk of entanglement for sperm whales. Even though the Fisheries Services acknowledges that this "large of an array carries the risk of entanglement for marine mammals," it completely fails to support the conclusion that large whales "have a low probability of becoming entangled due to slow speed of the survey vessel and onboard monitoring efforts." In 2008 a fishing vessel killed a sperm whale that became entangled in the sea anchor (parachute anchor and lines).[56] As the purpose of the sea anchor is to drastically slow a vessel – almost stop it – this contradicts the proposition that the U.S. Geological Survey can reduce sperm whale entanglements by slow speed or onboard monitoring efforts (which are limited by low visibility at night, when a sperm whale also might not be able to see the array).

Lastly, even taken at face value the estimated take exceeds the potential biological removal ("PBR") level of 1.1 for sperm whales. The most recent abundance estimate for the sperm whale is 763, from a summer 2009 oceanic survey covering waters from the 200-m isobaths to the seaward extent of the U.S. EEZ.[57] Threats to sperm whales in the Gulf of Mexico are numerous. The most recent stock assessment report counts one death from entanglement in a fishing vessels' anchor line and seven strandings from 2006-2010 for which it could not be determined if it was due to human interaction. This presents the possibility that mortality from human activities is already above the PBR level of 1.1. Any additional take of a sperm whale would have greater than negligible impacts on the stock because the Fisheries Service must take into account the cumulative take of sperm whales from other activities.

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[53] Results from very limited studies of northern Gulf of Mexico sperm whale responses to seismic exploration indicate that sperm whales do not appear to exhibit horizontal avoidance of seismic survey activities. Data did suggest that there may be some decrease in foraging effort during exposure to full-array airgun firing, at least for some individuals. U.S. Atlantic Marine Mammal Stock Assessments: 2012 (draft) at 231, *available at* http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2012_draft.pdf (citing Miller et al. 2009).
[54] 78 Fed. Reg. at 11842.
[55] Peak breeding season for sperm whales in the North Atlantic occurs during the spring – March/April to June. Fisheries Service 2010 Final Recovery Plan for the Sperm Whale at I-10, available at http://www.nmfs.noaa.gov/pr/pdfs/recovery/final_sperm_whale_recovery_plan_21dec.pdf.
[56] U.S. Atlantic Marine Mammal Stock Assessments: 2012 (draft) at 229, *available at* http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2012_draft.pdf.
[57] *Id.* at 227; *see* Figure 2.

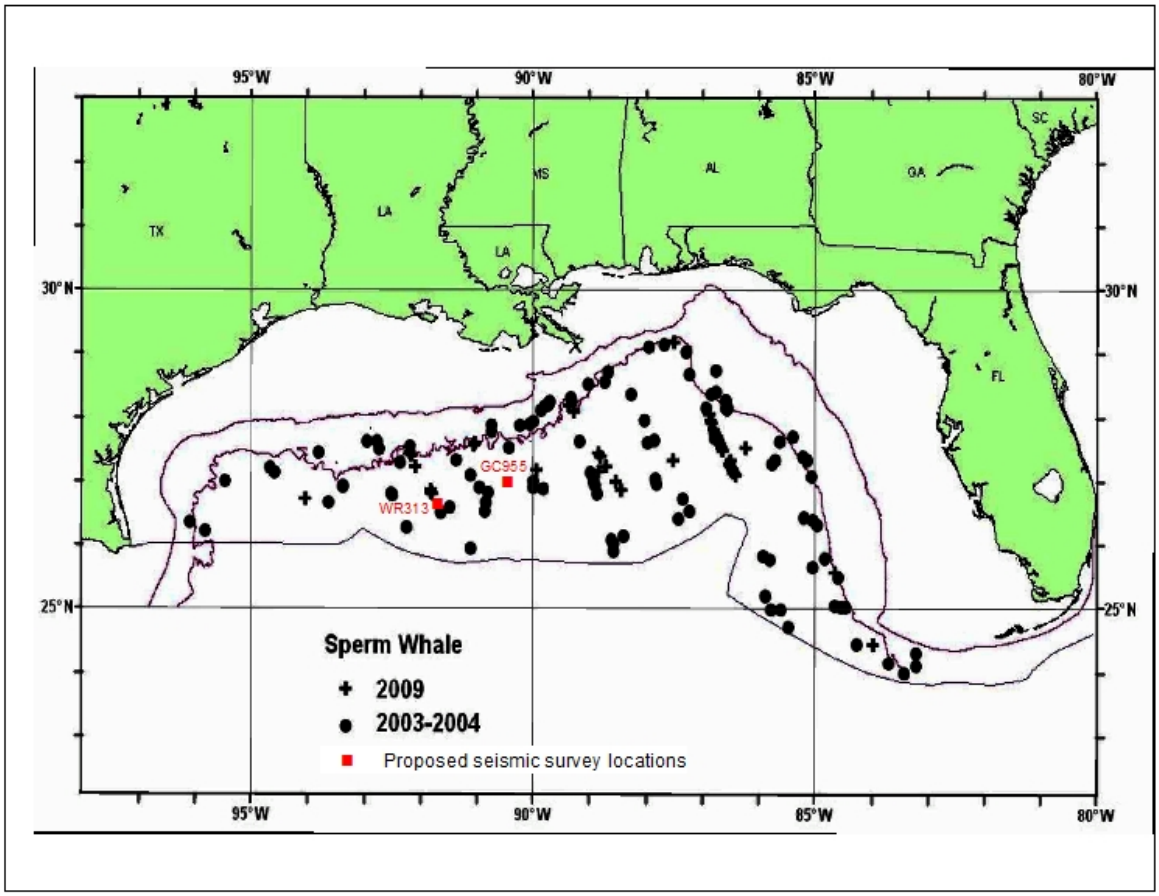

Figure 2. Distribution of sperm whale sightings from the Southeast Fisheries Science Center vessel surveys during summer 2003 and spring 2004 and during summer 2009. Solid lines indicate the 100m and 1,000m isobaths and the offshore extent of the U.S. EEZ. Source: 2012 Draft Marine Mammal Stock Assessment Reports at 226. 77 Fed. Reg. 47043 (Aug. 7, 2012).

IV. THE FISHERIES SERVICE MUST ANALYZE ADDITIONAL ALTERNATIVES AND THE PREFERRED ALTERANTIVE'S CLIMATE IMPACTS

NEPA requires federal agencies to prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment."[58] The scope of this requirement is "exceptionally broad,"[59] and it is intended to "compel agencies . . . to take seriously the potential environmental consequences of a proposed action."[60]

The Fisheries Service notes that the U.S. Geological Service has prepared a draft environmental assessment to determine whether its marine seismic surveys may have a significant effect on the human environment. We believe, based on multiple factors in NEPA's regulations and the controversial nature of government seismic surveys to prospect for novel

[58] 42 U.S.C. § 4332(C).
[59] *Found. for N. Am. Wild Sheep v. United States Dep't of Agric.*, 681 F.2d 1172, 1177 (9th Cir. 1982).
[60] *Ocean Advocates v. United States Army Corps of Eng'rs*, 402 F.3d 846, 864 (9th Cir. 2005).

deepwater fossil fuel resources, that the proposed activities do constitute a significant impact and encourage the Fisheries Service to prepare a full EIS.[61]

A. NEPA Requires a Complete Alternatives Analysis

The survey's direct adverse effects on wildlife reproducing in the Gulf of Mexico are largely related to the location and time of year of the survey activities, so the environmental assessment must ask whether U.S. Geological Survey could obtain the necessary data at another site, time of year, or using methods that would decrease or eliminate the impacts and/or duration of those activities. For either an environmental impact statement or environmental assessment, "NEPA requires that alternatives . . . be given full and meaningful consideration."[62] The draft environmental assessment fails to meet this requirement by dismissing the no action alternative in a cursory fashion and failing to consider other alternatives adequately.

The only alternatives that the environmental assessment considered were (1) the proposed action; (2) another time for the action, and (3) no action – with the interpretation that this meant no geophysical research rather than no authorization of marine mammal incidental harassment. Alternatives for the Fisheries Service to consider include (1) using alternative equipment that would reduce the number or length of survey lines; (2) selecting alternative sites that are not in essential fish habitat and a habitat area of particular concern; or (3) conducting more extensive analysis of the data collected previously to either eliminate the need for the current survey or reduce its size or duration ("sites have been extensively studied, including detailed logging while drilling,"[63]). The Fisheries Service cannot support the Draft Environmental Assessment and Determination's conclusion that the "No Action" alternative would result in the loss of geophysical data of considerable scientific value because it is possible to collect geophysical data without harassing marine mammals. In light of this, the USGS and the Fisheries Service must analyze alternative means of collecting geophysical data that lessen impacts to wildlife.

The Fisheries Service must also consider the climate impacts of the proposed methane hydrates survey in its NEPA analysis. The USGS seismic survey is a first step toward extraction of natural gas from methane hydrates in the Gulf of Mexico. This fossil fuel extraction and use would be a significant source of greenhouse gases and climate pollution. Yet, the USGS draft EA completely failed to consider direct, indirect and cumulative climate impacts of the proposed survey. Consequently, the Fisheries Service must prepare a NEPA analysis that adequately addresses these concerns.

B. Climate Pollution Must be Considered under NEPA

According to the Council on Environmental Quality's draft guidelines, an EA or EIS must consider both the greenhouse gas emissions of a project and climate change impacts upon

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[61] *See* 42 U.S.C. § 4332(2)(c); 40 C.F.R. § 1508.27; *Idaho Sporting Cong v. Thomas*, 137 F.3d 1146, 1149 (9th Cir. 1998) ("[A]n EIS must be prepared if 'substantial questions are raised as to whether a project . . . may cause significant degradation of some human environmental factor").

[62] *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172, 1217 (9th Cir. 2008) (quoting *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1245 (9th Cir. 2005)).

[63] 78 Fed. Reg. at 11822.

the project design and alternatives.[64] While the direct climate pollution emissions from this survey may not be large, the indirect and cumulative impacts are substantial. Furthermore, climate change could affect the stability of methane hydrates. Both of these climate interactions must be considered under NEPA.

The courts have found that the cumulative impacts analysis is particularly important: "[t]he impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct."[65] This court expressed particular concern with regard to the non-linear aspect of "irreversible adverse climate change" or "tipping points" wherein a seemingly small change in emissions can evoke a dramatic climate response.[66] This is particularly relevant with regard to methane hydrates, the release of which has been identified as a potential trigger of abrupt climate change.[67]

The EA conducted by the USGS utterly disregards all climate implications of the seismic survey for methane hydrates. The scope of the project as defined in the USGS's EA is impermissibly narrow. Both the indirect impacts and cumulative impacts analysis must include the foreseeable result of this survey: extraction of methane hydrates for energy. Indirect impacts are defined as effects that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[68] Under this definition, future extraction of methane hydrates for energy would be the next foreseeable step after measurements of the precise location and size of the reservoir. In fact, this is the first goal enumerated on the USGS website describing the gas hydrates project:[69]

> The first goal of the USGS Gas Hydrates Project is to contribute to research that may lead to the development of gas hydrates as a potential energy source. The coming years will see the first long-term tests of methane production from gas hydrate deposits in both deepwater and permafrost settings.

Furthermore, test wells have been established in the Arctic, and well drilling and logging has confirmed the presence of methane hydrates in the Gulf of Mexico.[70] Given that the USGS clearly anticipates that extraction and use of methane hydrates for energy will occur, this is a reasonably foreseeable indirect impact of the methane hydrate survey. Estimates of global methane hydrates reserves suggest that the methane volumes are 100 times the proven US

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[64] Council on Environmental Quality, Memorandum: Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, (Feb. 18, 2010) [hereinafter CEQ Guidelines].
[65] *Center for Biological Diversity v. National Highway Traffic Safety Administration*, supra note 62 at 1217.
[66] *Id.* at 1221.
[67] United States Climate Change Science Program, *Chapter 5: Potential for Abrupt Changes in Atmospheric Methane in* SYNTHESIS AND ASSESSMENT PRODUCT 3.4: ABRUPT CLIMATE CHANGE (2008) [hereinafter USCCSP Abrupt Climate Change].
[68] 40 CFR § 1508.8.
[69] http://woodshole.er.usgs.gov/project-pages/hydrates/energy.html (last visited March 14, 2013).
[70] See Bureau of Ocean Energy Management, Assessment of In-Place Gas Hydrate Resources of the Lower 48 United States Outer Continental Shelf (2012). Furthermore, a Japanese team recently made the first demonstration of natural gas extraction from methane hydrates. See http://www.npr.org/2013/03/15/174336812/could-tapping-undersea-methane-lead-to-a-new-gas-boom.

reserves of natural gas.[71] Thus, the climate impacts of this new source of fossil energy are potentially massive and must be considered within the NEPA analysis.

Similarly, the cumulative impacts section of the USGS draft EA is inadequate. The draft EA acknowledges that there are a variety of other activities in the area of the survey, which include ongoing oil and gas exploration and infrastructure. These are dismissed, however, because the proposed seismic surveys would occur further offshore. Yet, these activities are important from a climate perspective. If this survey results in methane production from gas hydrates, there will be a substantial addition to existing sources of greenhouse gas emissions. This is especially true given estimates that up to 500 Gigatons of carbon may be stored as methane hydrates in the Gulf of Mexico.[72]

1. Methane Emissions from Natural Gas Extraction Are Significant

It is clear that we are fast approaching a climatic "point of no return". Thus, we must make every effort to reduce fossil carbon emissions as rapidly as possible. This is particularly important when considering methane emissions. Methane is a relatively short-lived, potent climate pollutant. Methane is considered to have an atmospheric lifetime of about a decade, with over 72 times the global-warming potential of carbon dioxide over a 20-year period.[73] Thus, reductions in methane now can result in near-term decreases in greenhouse gas accumulation. Conversely, increases in methane emissions could trigger tipping points, especially in areas such as the Arctic that are particularly sensitive to methane-induced ozone formation.[74]

Beyond the climate impacts of methane, public health is strongly affected by ozone formed from methane. In fact, it has been estimated that methane reductions are an essential component of protecting public health, and can be achieved at a net cost benefit.[75]

The United States needs to make a concerted effort to mitigate methane emissions. The United Nations Environment Programme recently released an assessment report that outlined the importance of reductions in short-lived climate pollutants for protecting public health and staying

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[71] C.D. Ruppel, *Methane Hydrates and Contemporary Climate Change*, 3 NATURE EDUCATION KNOWLEDGE 29 (2011). (This corresponds to approximately 1800 Gigatons of carbon – or about 6600 Gigatons of carbon dioxide). Estimates of technically-recoverable methane hydrates are lower. One estimate for sediment hydrates only is 150 Gt C (Boswell and Collett, Current Perspectives on Gas Hydrate Reserves, 4 ENERGY & ENVIRONMENTAL SCIENCE 1206, 1214 (2011)).

[72] USCCSP Abrupt Climate Change, supra note 67 at 182. Other estimates are lower at 5 Gt C, or 18 Gt CO_2. Even this lower estimate is many orders of magnitude larger than the 25,000 metric tons CO2 suggested threshold in the CEQ guidance, supra note 64.

[73] P. Forster et al., *Chapter 2: Changes in Atmospheric Constituents and in Radiative Forcing in* CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS. CONTRIBUTION OF WORKING GROUP I TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE Table 2.14 (S. Soloman et al. eds., Cambridge University Press 2007). More complete estimates of total methane forcing indicate that the 20-year global warming potential is over 100. D.T. Shindell et al., *Improved Attribution of Climate Forcing to Emissions*, 326 SCIENCE 716, 717 (2009).

[74] See, e.g., P.K. Quinn et al., *Short-lived pollutants in the Arctic: their climate impact and possible mitigation strategies*, 8 ATMOS. CHEM. PHYS. 1723 (2008).

[75] J.J. West et al., *Global health benefits of mitigating ozone pollution with methane emission controls*, 103 PNAS 3988 (2006).

within the world's commitment to keep global temperature changes below 2° C.[76] The identified mitigation strategies *if implemented by 2030* could cut global temperature increases in half by 2050.[77] The United States is also a member of the Climate and Clean Air Coalition, which focuses on reductions in short-lived climate pollutants to mitigate climate change, prevent deaths, and improve food security.[78] Thus, potential new sources of methane must be scrutinized carefully and avoided wherever possible.

It is becoming increasingly clear that conventional natural gas operations are associated with relatively high levels of methane leakage, and these same issues are likely to plague methane hydrate operations as well. Some argue that producing natural gas for use as fuel actually provides a carbon benefit because it will replace other, more carbon-intensive fuels, such as coal. Recent studies have shown, however, that the total lifecycle emissions of natural gas power production can exceed those of coal due to methane leakage during extraction and processing.[79] Measured leakage rates[80] have exceeded the 3.2% fugitive emissions limit[81] that is required for natural gas to be cleaner than coal. Thus, it is unlikely that natural gas currently provides much if any greenhouse benefit over coal-fired generation, and can in fact be worse.

Many of the same factors that lead to fugitive methane leakage in conventional natural gas operations could also result in methane leakage from methane hydrate infrastructure. There has been some extremely preliminary research into an exchange process whereby one molecule of carbon dioxide is exchanged for one molecule of methane within clathrate structures.[82] This has been touted as a breakthrough that would make methane hydrates "clean" energy. It is too early, however, to rely on these claims. First, the long-term stability of the process is unknown. Second, the proof-of-concept is far from ready for full scale deployment. Third, problems of fugitive methane emissions from natural gas transport and processing can still impact methane hydrate operations, even with the use of carbon dioxide exchange. Therefore, the Fisheries Service should analyze the climate impacts of methane hydrate energy (1) assuming the new technology would not be applied and (2) using recent observations to make realistic assumptions regarding methane leakage rates.

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[76] United Nations Environment Program (UNEP), INTEGRATED ASSESSMENT OF BLACK CARBON AND TROPOSHERIC OZONE (2011) [hereinafter "UNEP SLP Report 2011"].
[77] *Id*. at 159.
[78] See http://www.state.gov/r/pa/prs/ps/2012/02/184055.htm (Secretary Clinton remarks introducing the Coaltion) (Feb. 12, 2012).
[79] Brune, Michael, Statement of Sierra Club Executive Director Michael Brune Before the Committee on Oversight & Government Reform (May 31, 2012); *see also* N.P. Myhrvold & K. Caldeira, Greenhouse gases, climate change and the transition from coal to low-carbon electricity, ENVIRON. RES. LETT. doi:10.1088/1748-9326/7/1/014019 (2012).
[80] For instance, leakage rates of 4% have been observed at a natural gas field in Colorado[80], while results from monitors at a natural gas field in Utah suggested methane leakage rates of up to 9%[80]. See also sources within Brune Statement, supra note 799.
[81] R.A. Alvarez et al., *Greater focus needed on methane leakage from natural gas infrastructure*, PNAS pre-publication doi/10.1073/pnas.1202407109 (2012).
[82] See, e.g., http://www.netl.doe.gov/technologies/oil-gas/FutureSupply/MethaneHydrates/projects/DOEProjects/MH_06553HydrateProdTrial.html (last visited Mar. 14, 2013).

Aside from methane, the process of fueling exploration, extraction, and processing will be another source of climate pollutants such as black carbon and carbon dioxide. These emissions could be substantial and must not be ignored.

2. Climate Pollution Impacts to the Marine Ecosystem

The oceans have already suffered as a result of greenhouse gas emissions and face a bleak future under "business as usual" emissions scenarios. Ocean warming and acidification are two major climate threats. Through thermal exchange, atmospheric heating affects ocean temperatures, which have been on a continual rise in recent decades. One result of this rise in temperature is more frequent and extreme coral bleaching events. Oceans have also become significantly more acidic due to the absorption of carbon dioxide from the atmosphere. This will result in significant decreases in ocean sound absorption for frequencies lower than about 10 kHz; ambient noise levels in the ocean within the auditory range critical for environmental interests are set to increase significantly.[83] Ocean acidification also impairs the ability of corals, crabs, abalone, oysters, sea urchins, and other animals to make shells and skeletons. Many species of phytoplankton and zooplankton, which form the basis of the marine food web, also build thick shells that are vulnerable to ocean acidification. Ocean acidification increases the toxicity of harmful algal blooms, or red tides, which are known to kill fish, marine mammals, and even cause paralytic shellfish poisoning in humans.

These impacts of climate change will be exacerbated with further release of fossil carbon into the atmosphere. The proposed seismic survey would provide precise measurement and location of massive reserves of methane hydrates under the ocean floor. The foreseeable consequence – and goal of the USGS gas hydrate project – is the use of this methane for energy. If this occurs, there will be further release of carbon dioxide and fugitive methane emissions to the atmosphere with consequent heating and acidification of the oceans.

The activity associated with extraction of methane hydrates could destabilize methane hydrates, resulting in methane leakage.[84] The impacts to the marine environment would be substantial. Methane released in deep water is oxidized (to form carbon dioxide) as it rises to the surface, with the result that oxygen would be depleted and the surrounding water would become significantly more acidic.[85] Some methane would also be released to the surface through bubbles.[86]

Furthermore, the extraction process for methane hydrates would have the potential to cause destabilization of the ocean floor. One of the goals of the USGS gas hydrates project is to better understand the relationship between sea floor stability and gas hydrates.[87] Gas hydrates

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[83] Hester, K.C., E.T. Peltzer, W.J. Kirkwood, and P.G. Brewer. 2008. Unanticipated consequences of ocean acidification: A noisier ocean at lower pH. Geophysical Research Letters 35:L 19601 (5 pp.).
[84] D.R. McConnell et al., *Review of progress in evaluating gas hydrate drilling hazards*, 34 MARINE AND PETROLEUM GEOLOGY 209, 213 (2012).
[85] D. Archer et al., *Ocean methane hydrates as a slow tipping point in the global carbon cycle*, 106 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES 20596, 20597 (2009).
[86] USCCSP Abrupt Climate Change, supra note 67 at 183; Archer et al. 2009, supra note 85.
[87] USGS, Draft Environmental Assessment of a Low-Energy Marine Geophysical Survey by the US Geological Survey in the Northwestern Gulf of Mexico, April–May 2013 (Oct. 23, 2013).

may cause submarine slopes to be less stable and more susceptible to slides due to earthquakes or other factors. Some researchers believe that sea floor landslides may be triggered by ocean warming and consequent melting of methane hydrates. Another trigger for submarine landslides could be drilling and extraction of methane hydrates. Such landslides could trigger tsunamis as well as further release of methane from hydrates.[88]

Methane hydrates are a known geohazard for deepwater drilling, with new techniques needed to assess the co-occurrence of free gas with methane hydrates before drilling for conventional fossil fuels or methane hydrates can be executed safely.[89] Combined with the risks of ocean anoxia and acidification and submarine landslides, methane hydrate extraction poses significant threats to the marine environment that must be fully disclosed in the NEPA analysis.

Thank you for your consideration of these comments. Please feel free to contact us at 415-436-9682 x. 312 or ckilduff@biologicaldiversity.org.

Sincerely,

Catherine W. Kilduff
Staff Attorney
Center for Biological Diversity

Anna "Mickey" Moritz
Legal Fellow
Center for Biological Diversity

[88] USCCSP Abrupt Climate Change, supra note 67 at 183, 185.
[89] McConnell et al., supra note 84 at 221.

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

seismic testing by level "B" harassment

Chris <starcatcheer@yahoo.com> Wed, Mar 20, 2013 at 1:44 PM
To: ITP.Goldstein@noaa.gov

Dear Sirs,
March 20, 2013

I urge you to deny the USGS "Incidental" harassment of 19 species of marine mammals permit thru the use of seismic ariguns as part of a "gas Hydrates study". I oppose to the use of underwater airguns for seismic testing. For animals that depend on sound as their primary means for communicating or finding prey, this increasingly cacaphonous environment can have devastating consequences. I find this to be a very cruel and irresponsible choice.

Christine Rieb

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

PLEASE refuse permit for the USGS Incidental Harassment

labsr1st@aol.com <labsr1st@aol.com> Fri, Mar 22, 2013 at 2:56 PM
To: ITP.Goldstein@noaa.gov

Dear Sirs,

The copy/paste below is a HORRIBLE thing to even contemplate and I am TOTALLY against this. Could you please refuse to grant them a permit!

"The USGS requests that it be issued an Incidental Harassment Authorization (IHA) allowing non-lethal takes of marine mammals incidental to the planned low-energy seismic survey"

Sincerely,
Cynthia St. Clair
3509 Edgewood Dr.
Amarillo, TX 79109
806-359-7292

To: Howard Goldstein ITP.Goldstein@noaa.gov

RE: Opposition to following permit: Takes of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013

At this very moment after the death of a Pygmy whale in the Country of Australia see "Seismic shift on whale safety Pygmy sperm whale had beaches itself" http://www.stuff.co.nz/taranaki-daily-news/business/8346568/Seismic-shift-on-whale-safety/ like the title states things happened which have application to this particular permit. Too a casual observer as myself the fact that the oil company & its representatives appear to have created a massive cover-up as to what may have been responsible for this death, as the dead whales remains have been destroyed. What remain significant in aftermath are the steps initiated to appease the public & the Agencies most likely to demand retribution from the entire oil exploration industry. Described here is what happened:

> "WesternGeco's survey is going even further again. The company has hired five environmental consultants who have been certified by DOC under its code of conduct, and they are all out at sea observing for marine mammals and monitoring the project itself.

When compared to what is being used under NOAA permitting

> Vessel-Based Visual Monitoring:
>
> PSOs will be based aboard the seismic source vessel and will watch for marine mammals near the vessel during daytime airgun operations
>
> During seismic operations in the deep water of the northwestern GOM, at least three PSOs will be based aboard the Pelican. USGS will appoint the PSOs with NMFS's concurrence

First, notice that instead of three PSO's onboard ship, they have immediately added an additional observer. In my estimation this is a knee jerk reaction of appeasement but is their solution quick as it might be.

Second point: Associated with their vessel, Western Monarch, will be an additional support vessel that is steaming in front of the survey vessel to spot any whales or dolphins prior to the big vessel approaching.

Not only that, but WesternGeco is also using a Passive Acoustic Monitoring (PAM) system to detect any vocalisations by whales or dolphins, and to help the observers locate any that may be present at night." End quote from this article

In searching permit," Takes of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013 ," using the above term, (PAM) the search yielded zero What is the significance & what additional mitigation can be done in light of the tragic event associated with yet another whale whose death stranding resulted from seismic oil testing in the near vicinity. Apparently something has subsequently been imposed onboard this particular vessel.

Recommendation for permit vessel:

!. Installation of Passive Acoustic Monitoring (PAM) system to detect any vocalisations by whales or dolphins, and to help the observers locate any that may be present at night.

2. Vessel-Based Visual Monitoring

A. Additional PSO being added to ships

B. An additional support vessel be provided to steam in front of the survey vessel to spot any whales or dolphins prior to the big vessel approaching.

My final comment: If implemented my recommendation still avoid the bigger issue of the ever escalating number of deaths caused by the oil and military war being waged on the sea its health & particularly its inhabitants. That battle will be addressed while this particular attempt has nothing to do with the larger remaining issues.

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Taking our marine mammals

Elizabeth Craig <lizcraig93@gmail.com> Fri, Mar 22, 2013 at 2:36 PM
To: ITP.Goldstein@noaa.gov

I OPPOSE THIS

MISS CRAIG

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Seismic survey comment

Jacqueline Kolb <jacqueline.kolb@gmail.com> Mon, Mar 11, 2013 at 10:16 PM
To: itp.Goldstein@noaa.gov

I'm an writing to express my concern and distress regarding the testing that poses a lethal threat to many sea creatures. Our marine life is already under a horrible assault from pollution, over-fishing, climate change and so forth. Please discontinue harmful tests and use the technology to come up with a less destructive method.

Thank you,
Jacqueline Kolb
Miami Beach, FL

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Objecting Permit and Requesting Public Hearing before the Marine and Mammal Commission

Kari Dougherty <karilyndougherty@gmail.com> Fri, Mar 22, 2013 at 11:16 PM
To: ITP.Goldstein@noaa.gov

Dear Mr. Goldstein,

Thank you for accepting our comments on behalf of Citation: 78 FR 11821, Number:2013-03837.

We object to the issuance of a permit, and request a public hearing be held before the Marine Mammal Commission.
Air guns producing 190 dB blasts underwater, for 96 hours at a time in areas densely populated with sea life is unacceptable.
The form of monitoring, by “look outs,” is unacceptable as they can only see the surface of the ocean and: 1) while the air gun
explosions will be as deep as 2000 meters. 2) Whales and dolphins spend most of their lives underwater.

None of us would want such explosions being conducted in our own neighborhoods, so please help us to respect life there
and allow us to choose to do no harm.

Many thanks for your excellent help on this urgent matter.

Sincerely,
Kari and Joe Dougherty

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

NO to US Geological Survey NOAA permit for the "Taking" of Marine Mammals

kchadwelll@aol.com <kchadwelll@aol.com> Sun, Mar 10, 2013 at 10:44 PM
To: ITP.Goldstein@noaa.gov

Potential for Stranding from Seismic Surveys—Marine mammals close to underwater detonations of high explosives can be killed or severely injured, and the auditory organs are especially susceptible to injury (Ketten et al., 1993; Ketten, 1995). However, explosives are no longer used in marine waters for commercial seismic surveys or (with rare exceptions) for seismic research. These methods have been replaced entirely by airguns or related non-explosive pulse generators. Airgun pulses are less energetic and have slower rise times, and there is no specific evidence that they can cause serious injury, death, or stranding even in the case of large airgun arrays. However, the association of strandings of beaked whales with naval exercises involving mid-frequency active sonar (non-pulse sound) and, in one case, the co-occurrence of an L-DEO seismic survey (Malakoff, 2002; Cox et al., 2006), has raised the possibility that beaked whales exposed to strong "pulsed" sounds could also be susceptible to injury and/or behavioral reactions that can lead to stranding (e.g., Hildebrand, 2005; Southall et al., 2007).Show citation box
Specific sound-related processes that lead to strandings and mortality are not well documented, but may include:
(1) Swimming in avoidance of a sound into shallow water;
(2) A change in behavior (such as a change in diving behavior) that might contribute to tissue damage, gas bubble formation, hypoxia, cardiac arrhythmia, hypertensive hemorrhage or other forms of trauma;
(3) A physiological change such as a vestibular response leading to a behavioral change or stress-induced hemorrhagic diathesis, leading in turn to tissue damage; and
(4) Tissue damage directly from sound exposure, such as through acoustically-mediated bubble formation and growth or acoustic resonance of tissues.

Kathy Chadwell
Lafayette, IN 47909

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

NO to US Geological Survey NOAA permit for the "Taking" of Marine Mammals

kchadwelll@aol.com <kchadwelll@aol.com> Sun, Mar 10, 2013 at 10:44 PM
To: ITP.Goldstein@noaa.gov

Potential for Stranding from Seismic Surveys—Marine mammals close to underwater detonations of high explosives can be killed or severely injured, and the auditory organs are especially susceptible to injury (Ketten et al., 1993; Ketten, 1995). However, explosives are no longer used in marine waters for commercial seismic surveys or (with rare exceptions) for seismic research. These methods have been replaced entirely by airguns or related non-explosive pulse generators. Airgun pulses are less energetic and have slower rise times, and there is no specific evidence that they can cause serious injury, death, or stranding even in the case of large airgun arrays. However, the association of strandings of beaked whales with naval exercises involving mid-frequency active sonar (non-pulse sound) and, in one case, the co-occurrence of an L-DEO seismic survey (Malakoff, 2002; Cox et al., 2006), has raised the possibility that beaked whales exposed to strong "pulsed" sounds could also be susceptible to injury and/or behavioral reactions that can lead to stranding (e.g., Hildebrand, 2005; Southall et al., 2007).Show citation box
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(3) A physiological change such as a vestibular response leading to a behavioral change or stress-induced hemorrhagic diathesis, leading in turn to tissue damage; and
(4) Tissue damage directly from sound exposure, such as through acoustically-mediated bubble formation and growth or acoustic resonance of tissues.

Kathy Chadwell
Lafayette, IN 47909

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Underwater blasts

katrinagergely@cox.net <katrinagergely@cox.net> Fri, Mar 22, 2013 at 8:51 PM
To: ITP.Goldstein@noaa.gov

I strongly object to the issuance of a permit, and am requesting a public hearing be held before the Marine Mammal Commission. Air guns producing 190 dB blasts underwater, for 96 hours at a time in areas densely populated with sea life is just unacceptable.
“Look Outs” (people looking for marine mammals from the deck of the ship during the survey) are unacceptable since they can only see the surface of the ocean!
1) The air gun explosions will be as deep as 2000 meters.
2) Whales and dolphins spend most of their lives underwater.

Document Citation: 78 FR 11821
Document Number:2013-03837

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Taking of Marine Mammals

Kelly Lance <lancekelly1@gmail.com> Fri, Mar 22, 2013 at 9:26 PM
To: ITP.Goldstein@noaa.gov

I object to any "Taking of Marine Mammals" by the USGS for the NOAA permit. The tests that being requested are absurd. If another country was asking to do this we would be outraged. We need to find a way to live sustainably and not just do what we want when we want to and however we want to because oil and gas exploration is lucrative. Biodiversity can never be replaced.
Please think wisely and have respect for the other creatures on this planet.
Document Citation: 78 FR 11821
Document Number: 2013-03837

Sincerely,
Kelly Lance

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Document Citation: 78 FR 11821/ Document Number:2013-03837

Kirsten massebeau <mrsmassebeau@gmail.com> Tue, Mar 19, 2013 at 1:45 PM
Reply-To: mrrsmassebeau@gmail.com
To: ITP.Goldstein@noaa.gov

Dear NOAA/NMFS,
I am writing to oppose the seismic survey in the Gulf of Mexico (GOM).

1. The marine life of the GOM has had to many challenges in the past years since the 2010 oil spill and still not recovered. Dolphins and other marine life continue to struggle for life in this heavily impacted area.
2. To batter marine mammals with 190 dB airguns for 96 hours in two different locations in search of gas is unacceptable.
3. Using lookouts to detect marine life during this deep seismic survey is unacceptable as the marine life spends most of their lives underwater.
4. Two species are listed as endangered under the ESA (the sperm, and the West Indian manatee). This survey threatens their ability to thrive.

Please give this densely populated area that has already been so hard hit by the oil and gas industry a break and say no to this survey by Woods Hole. Please stand by the Marine Mammal Protection Act and help don't harm marine mammals.
Sincerely,
Kirsten Massebeau

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Please do not grant more testing permits to the military for seismic testing

Lee Gordon <jleegordon@gmail.com> Sat, Mar 23, 2013 at 1:39 AM
To: ITP.Goldstein@noaa.gov

This is criminal as it puts intelligent lives at risk. Please act to put a stop to this insane line of reasoning.

Lee

--

Lee Gordon
2258 78th Ave SE
Mercer Island, WA 98040

(206) 653-0019

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Takes of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013

Luey Anderson <lueyander@gmail.com> Sat, Mar 16, 2013 at 1:58 AM
To: ITP.Goldstein@noaa.gov

Dear P. Michael Payne,

I am writing to ask you to please cancel the seismic testing program that is tentatively scheduled to begin soon. There must be other creative solutions for testing that will not endanger, harm, and kill our valuable sea life. We are the guardians of our planet and it is our responsibility to provide safe and clean environments for all.

Please do not do this seismic testing.

Sincerely,

Luanne Anderson

PO Box 175

Chinook 98614

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

air guns in the ocean

Lyndia11 <whales.dolphins2012@gmail.com> Fri, Mar 22, 2013 at 3:33 PM
To: ITP.Goldstein@noaa.gov

As evidenced from the past, you do not have enough information to safely continue this testing…. strandings and that is only the beginning. What about the animals that go out to sea and die? This also does not address the harm to sea plants, small fish and the sea's micro algae that gives us more than half of the oxygen on the planet. Scientific studies have shown that plants of any sort when exposed to sounds in certain frequency ranges stop reproducing and many times die. Please address these issues prior to issuing a permit.

Lyndia

Lyndia Storey
lyndia11@gmail.com
541-282-3502 (Cell)
831-704-7369 (Office)

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Deny US Geological Survey

Margaret Southwell <ms34@verizon.net> Mon, Mar 11, 2013 at 10:44 PM
To: ITP.Goldstein@noaa.gov

This is in reference to the U.S.Geological Survey applying for the "Incidental"harassment of 19 species of marine mammals thru the use of seismic airguns as part of a "gas hydrates study".These airguns will emit decibels at 190-230 and can cause hearing damage,bleeding of the brain,behavioral issues,and strandings.

I object to the issuance of a take permit for marine mammals due to geophysical seismic testing by level "B" harassment in the Gulf of Mexico from April through May, 2013.

Please deny the US Geological Survey NOAA permit for the" taking" of marine mammals.

I request a public hearing be held before the Marine Mammal Commission.

Thank you.

Margaret Southwell
113 Glenwood Rd
Fanwood
NJ
07023

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Seismic Surveys Marine Mammals

Marianne de Zwart <mariannedezwart@ziggo.nl> Sun, Mar 10, 2013 at 6:31 PM
To: ITP.Goldstein@noaa.gov

Dear Sir Goldstein,

○

○ Potential for Stranding from Seismic Surveys—Marine mammals close to underwater detonations of high explosives can be killed or severely injured, and the auditory organs are especially susceptible to injury (Ketten et al., 1993; Ketten, 1995). However, explosives are no longer used in marine waters for commercial seismic surveys or (with rare exceptions) for seismic research. These methods have been replaced entirely by airguns or related non-explosive pulse generators. Airgun pulses are less energetic and have slower rise times, and there is no specific evidence that they can cause serious injury, death, or stranding even in the case of large airgun arrays. However, the association of strandings of beaked whales with naval exercises involving mid-frequency active sonar (non-pulse sound) and, in one case, the co-occurrence of an L-DEO seismic survey (Malakoff, 2002; Cox et al., 2006), has raised the possibility that beaked whales exposed to stron...g "pulsed" sounds could also be susceptible to injury and/or behavioral reactions that can lead to stranding (e.g., Hildebrand, 2005; Southall et al., 2007).Show citation box
Specific sound-related processes that lead to strandings and mortality are not well documented, but may include:
(1) Swimming in avoidance of a sound into shallow water;
(2) A change in behavior (such as a change in diving behavior) that might contribute to tissue damage, gas bubble formation, hypoxia, cardiac arrhythmia, hypertensive hemorrhage or other forms of trauma;
(3) A physiological change such as a vestibular response leading to a behavioral change or stress-induced hemorrhagic diathesis, leading in turn to tissue damage; and
(4) Tissue damage directly from sound exposure, such as through acoustically-mediated bubble formation and growth or acoustic resonance of tissues.

○ Therefore I write this email objecting to the issuance of a permit and requesting a public hearing be held before the Marine Mammal Commission.

Sincerely,

Marianne de Zwart

Eisenhowerlaan 148,

3527 HJ Utrecht,

The Netherlands.

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

U.S.Geological Survey

Marianne Maetz <marianne.bo@gmx.de> Tue, Mar 19, 2013 at 11:56 AM
To: ITP.Goldstein@noaa.gov

Dear Sir or Madam,

the U.S.Geological Survey has applied for the "Incidental"harassment of 19 species of marine mammals thru the use of seismic airguns as part of a "gas hydrates study".These airguns will emit decibels at 190-230 and can cause hearing damage, bleeding of the brain, behavioral issues, and strandings.

Please object to the issuance of a permit and make a public hearing be held before the Marine Mammal Commission.

Thank you very much for your consideration.

Best regards

Marianne Boschen

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

(no subject)

Marianne Maetz <marianne.bo@gmx.de> Mon, Mar 11, 2013 at 8:54 AM
To: ITP.Goldstein@noaa.gov

To whom it concerns

Please do not allow the issuance of a take allow permit for marine mammals due to geophysical seismic testing by level "B" harassment in the Gulf of Mexico from April thru May,2013.
The U.S.Geological Survey has applied for the "Incidental"harassment of 19 species of marine mammals thru the use of seismic airguns as part of a "gas hydrates study".

These airguns will emit decibels at 190-230 and can cause hearing damage,bleeding of the brain,behavioral issues,and strandingsobject to the issuance of a permit and requesting a public hearing be held before the Marine Mammal Commission.

Please protect the marine mammals!

Thank you for your consideration.

Sincerely
Marianne Boschen

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Stop Seismic Testing scheduled for June-July 2013 in the Northeast Atlantic in the deep galacia region west of Spain.

Mark Hansen <mark333hansen@gmail.com> Sun, Mar 24, 2013 at 11:10 AM
To: ITP.Goldstein@noaa.gov

Listen to the sound of airguns during Seismic Testing:
Listen to the sounds of a seismic survey http://bit.ly/Jmf8CO. Whale, dolphins and other marine life will hear this sound for days without end. For some cetaceans and other sea life it may mean death.

Stop Seismic Testing scheduled for June-July 2013.

seismictestingdeaths.jpg
39K

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Do not permit USGS Woods Hole to conduct seismic testing in Gulf of Mexico

Mary Hickey <maryhickey@earthlink.net> Fri, Mar 22, 2013 at 10:20 PM
To: ITP.Goldstein@noaa.gov

Document Citation: 78 FR 11821

Document Number: 2013-03837

I object to this permit and I am requesting a hearing on this matter be held before the Marine Mammal Commission.

Numerous species of marine mammals inhabit the GOM. Several of these species are listed as endangered under the U.S. Endangered Species Act (ESA): the sperm, North Atlantic right, humpback, sei, fin, and blue whales, and the West Indian manatee. Other ESA-listed species that could occur in the area are the endangered leatherback, hawksbill, green, and Kemp's ridley turtles, and the threatened loggerhead turtle.

There is no way that you can guarantee that there will be no incidents of injury or mortality to cetaceans. Air guns are capable of reaching 230 dB and can cause hearing damage,bleeding of the brain,behavioral issues,and strandings. Marine mammals depend on their sensitive hearing for survival. Hearing loss for a cetacean can mean inability to function, hunt, navigate and cause death.

Everyday more instances of injury and death due to seismic testing are being documented. While almost all oil and gas exploration companies deny harm to marine life can be caused by seismic testing non profit organizations and ocean advocates are compiling proof that in-fact seismic testing is deadly to marine life as can be seen in Peru in April of 2012 where 2800 dolphins washed ashore.

Hardy Jones of Blue Voice.org working with Veterinarian Carlos Yaipén's released these test results taken from viable dolphin tissue samples:

"We found that stranded dolphins had the following signs: a. Bleeding in the middle ear; b. Simple fracture and cracks in the middle ear (periodic) bones; c. Hemorrhage and bubbles in mandibular fat (where dolphins perceive incoming sounds); d. Massive invasion of air bubbles which displaced the normal tissue of vital organs such as lungs, liver, kidney, bladder and blood vessels; e. Pulmonary emphysema: air bubbles, bleeding and massive destruction of lung tissue." All of these symptoms concur with the effects of seismic testing on cetaceans: "What he has found is evidence of acoustical trauma leading to rapid ascent and decompression syndrome. In other words loud noises, produced repeatedly over a long period of time, startled the dolphins who raced for the surface and incurred what humans call the bends."

I ask you to consider the irreparable harm that this seismic testing will do to all of the creatures of the ocean and request that a hearing on this matter be held before the Marine Mammal Commission and that this permit be denied at this time.

Sincerely,

Mary T. Hickey
208 W. University Street
Wooster OH 44691
330-262-7059

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

letters of objection

mary jo christian <mjexcels108@yahoo.com> Fri, Mar 22, 2013 at 11:13 PM
Reply-To: mary jo christian <mjexcels108@yahoo.com>
To: "ITP.Goldstein@noaa.gov" <ITP.Goldstein@noaa.gov>

I am writing NOAAto DENY the issuance of a take permit for marine mammals due to geophysical seismic testing by level "B" harassment in the Gulf of Mexico from April thru May,2013.The U.S.Geological Survey has applied for the "Incidental"harassment of 19 species of marine mammals thru the use of seismic airguns as part of a "gas hydrates study". These airguns will emit decibels at 190-230 and can cause hearing damage,bleeding of the brain,behavioral issues,and strandings. I strongly object to the issuance of a permit and request a public hearing be held before the Marine Mammal Commission.

Sincerely,
Mary Jo Christian
189 swimming River Rd
Tinton Falls Nj 07724

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Please Reject USGS Woods Hole Permit

michael perlmutter <mikeperly@hotmail.com> Fri, Mar 22, 2013 at 10:06 PM
To: "ITP.Goldstein@noaa.gov" <itp.goldstein@noaa.gov>

Document Citation: 78 FR 11821

Document Number:2013-03837

I object to this permit and I am requesting a hearing on this matter be held before the Marine Mammal Commission.

Numerous species of marine mammals inhabit the GOM. Several of these species are listed as endangered under the U.S. Endangered Species Act (ESA): the sperm, North Atlantic right, humpback, sei, fin, and blue whales, and the West Indian manatee. Other ESA-listed species that could occur in the area are the endangered leatherback, hawksbill, green, and Kemp's ridley turtles, and the threatened loggerhead turtle.

There is absolutely no way that you can guarantee that there will be no incidents of injury or mortality. Air guns are capable of reaching 230dB and can cause hearing damage,bleeding of the brain,behavioral issues,and strandings. Marine mammals depend on their sensitive hearing for survival. Hearing loss for a cetacean can mean inability to function, hunt, navigate and cause death.

Everyday more instances of injury and death due to seismic testing are being documented. While almost all oil and gas exploration companies deny harm to marine life can be caused by seismic testing non profit organizations and ocean advocates are compiling proof that in-fact seismic testing is deadly to marine life as can be seen in Peru in April of 2012 where 2800 dolphins washed ashore.

Hardy Jones of Blue Voice.org working with Veterinarian Carlos Yaipén's released these test results taken from viable dolphin tissue samples:

"We found that stranded dolphins had the following signs: a. Bleeding in the middle ear. b. Simple fracture and cracks in the middle ear (periodic) bones.c. Hemorrhage and bubbles in mandibular fat (where dolphins perceive incoming sounds) d. Massive invasion of air bubbles which displaced the normal tissue of vital organs such as lungs, liver, kidney, bladder and blood vessels.e. Pulmonary emphysema: air bubbles, bleeding and massive destruction of lung tissue" (Source) All of these symptoms concur with the effects of seismic testing on cetaceans: "What he has found is evidence of acoustical trauma leading to rapid ascent and decompression syndrome. In other words loud noises, produced repeatedly over a long period of time, startled the dolphins who raced for the surface and incurred what humans call the bends".(Source)

I ask you to consider the irreparable harm that this seismic testing will do to all of the creatures of the ocean. Once I again, I am respectfully requesting a hearing on this matter be held before the Marine Mammal Commision and that this permit be denied at this time.

Sincerely

Michael Perlmutter
www.soundcloud.com/pebble-path

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

ommentary on the issuance of a take permit for marine mammals due to geophysical seismic testing by level "B" harassment in the Gulf of Mexico from April thru May,2013.

michelle gurley <sycamorewinds@yahoo.com> Fri, Mar 22, 2013 at 4:32 PM
Reply-To: michelle gurley <sycamorewinds@yahoo.com>
To: "ITP.Goldstein@noaa.gov" <ITP.Goldstein@noaa.gov>

Document Citation: 78 FR 11821
Document Number:2013-03837

I object to this permit and I am requesting a hearing on this matter be held before the Marine Mammal Commission.
Numerous species of marine mammals inhabit the GOM. Several of these species are listed as endangered under the U.S. Endangered Species Act (ESA): the sperm, North Atlantic right, humpback, sei, fin, and blue whales, and the West Indian manatee. Other ESA-listed species that could occur in the area are the endangered leatherback, hawksbill, green, and Kemp's ridley turtles, and the threatened loggerhead turtle.
There is absilutely no way that you can guarantee that there will be no incidents of injury or mortality. Air guns are capable of reaching 230dB and can cause hearing damage,bleeding of the brain,behavioral issues,and strandings. Marine mammals depend on their sensitive hearing for survival. Hearing loss for a cetacean can mean inability to function, hunt, navigate and cause death.
Everyday more instances of injury and death due to seismic testing are being documented. While almost all oil and gas exploration companies deny harm to marine life can be caused by seismic testing non profit organizations and ocean advocates are compiling proof that in-fact seismic testing is deadly to marine life as can be seen in Peru in April of 2012 where 2800 dolphins washed ashore.
Hardy Jones of Blue Voice.org working with Veterinarian Carlos Yaipén's released these test results taken from viable dolphin tissue samples:
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I ask you to consider the irreparable harm that this seismic testing will do to all of the creatures

of the ocean.

Once I again, I am respectfully requesting a hearing on this matter be held before the Marine Mammal Commision and that this permit be denied at this time.

Sincerely

Michelle Gurley

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Marine Geophysical Survey

Nic Slocum <nic@whale.ie> Thu, Mar 21, 2013 at 10:55 AM
To: ITP.Goldstein@noaa.gov

Dear Sir

I write in relation to the proposed...

Take of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013

I urge you to reconsider this activity as it cannot be justified in this mordern and enlightened age. NOAA has always been high on my list of organisation that I admire. Since hearing about this proposal I have radically changed my view.

Please do the right thing and make the correct choice.

Thank you

Nic

Nic Slocum
Whale Watch West Cork
Union Hall
Co. Cork
Ireland

Tel: 00 353 28 33357
Mobile: 00 353 86 120 0027
Email: nic@whale.ie

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Plead

Odia van Loggerenberg <odia.vlog@gmail.com> Thu, Mar 14, 2013 at 5:32 AM
To: ITP.Goldstein@noaa.gov

Good morning dear Sir

Please do not let the scientists use the seismic airguns near the 19 species of marine life for the Gas Hydrates Study.

Thank you Sir

Kindest regards
Odia van Loggerenberg nee Diedericks
Identity number 670516 0136 089
South African Citizen

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Objection to seismic testing in Gulf of Mexico

Patricia Lane <pat.lane12@sbcglobal.net> Fri, Mar 22, 2013 at 10:09 PM
To: ITP.Goldstein@noaa.gov

Dear Mr. Goldstein:

I am submitting my objection to proposed seismic testing by the Woods Hole organization to be accomplished in the Gulf of Mexico.

I object to the issuance of a permit, and request a public hearing be held before the Marine Mammal Commission. Air guns producing 190 dB blasts underwater, for 96 hours at a time in areas densely populated with sea life is unacceptable. Their form of monitoring, "look outs" (people looking for marine mammals from the deck of the ship during the survey) is unacceptable as they can only see the surface of the ocean and: 1) while the air gun explosions will be as deep as 2000 meters. 2) Whales and dolphins spend most of their lives underwater.
I could go on about the stultifying amount of damage to our ocean neighbors, but will end my objection here. I reference Documents No. 78 FR 11821 and 2013-03837.

Patricia Lane
1621 Kirk St.
Evanston IL 60202

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Stop!

Priya Tuli <tuli.priya@gmail.com> Fri, Mar 22, 2013 at 4:01 PM
To: ITP.Goldstein@noaa.gov

I strongly oppose seismic testing, which is known to cause severe trauma and loss of life among whales, dolphins and other marine life.

Please stop this from happening.

Thank you,
Priya

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Document Citation: 78 FR 11821 Document Number:2013-03837

sandra <besaouin@charter.net> Fri, Mar 22, 2013 at 8:46 PM
To: ITP.Goldstein@noaa.gov

Document Citation: 78 FR 11821

Document Number:2013-03837

I object to this permit and I am requesting a hearing on this matter be held before the Marine Mammal Commission.

Numerous species of marine mammals inhabit the GOM. Several of these species are listed as endangered under the U.S. Endangered Species Act (ESA): the sperm, North Atlantic right, humpback, sei, fin, and blue whales, and the West Indian manatee. Other ESA-listed species that could occur in the area are the endangered leatherback, hawksbill, green, and Kemp's ridley turtles, and the threatened loggerhead turtle.

There is absilutely no way that you can guarantee that there will be no incidents of injury or mortality. Air guns are capable of reaching 230dB and can cause hearing damage,bleeding of the brain,behavioral issues,and strandings. Marine mammals depend on their sensitive hearing for survival. Hearing loss for a cetacean can mean inability to function, hunt, navigate and cause death.

Everyday more instances of injury and death due to seismic testing are being documented. While almost all oil and gas exploration companies deny harm to marine life can be caused by seismic testing non profit organizations and ocean advocates are compiling proof that in-fact seismic testing is deadly to marine life as can be seen in Peru in April of 2012 where 2800 dolphins washed ashore.

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"We found that stranded dolphins had the following signs: a. Bleeding in the middle ear. b. Simple fracture and cracks in the middle ear (periodic) bones.c. Hemorrhage and bubbles in mandibular fat (where dolphins perceive incoming sounds) d. Massive invasion of air bubbles which displaced the normal tissue of vital organs such as lungs, liver, kidney, bladder and blood vessels.e. Pulmonary emphysema: air bubbles, bleeding and massive destruction of lung tissue" (Source) All of these symptoms concur with the effects of seismic testing on cetaceans: "What he has found is evidence of acoustical trauma leading to rapid ascent and decompression syndrome. In other words loud noises, produced repeatedly over a long period of time, startled the dolphins who raced for the surface and incurred what humans call the bends".(Source)

I ask you to consider the irreparable harm that this seismic testing will do to all of the creatures of the ocean. Once I again, I am respectfully requesting a hearing on this matter be held before the Marine Mammal Commision and that this permit be denied at this time.

Sincerely
Sandra Taylor
7146 The Terrace
Anderson, CA 96007
besaouin@charter.net

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

IAGC/API comments on USGS low-energy seismic suvey proposed IHA

Sarah Tsoflias <sarah.tsoflias@iagc.org> Fri, Mar 22, 2013 at 4:12 PM
To: ITP.Goldstein@noaa.gov
Cc: Chip Gill <chipgill@iagc.org>, Andy Radford <Radforda@api.org>, "Bruce A. Tackett" <bruce.a.tackett@gmail.com>

To Whom It May Concern,

Attached please find comments submitted by the International Association of Geophysical Contractors (IAGC) and the American Petroleum Institute (API) in response to NMFS's request for comments on the proposed Incidental Harassment Authorization (IHA) to allow USGS to take marine mammals, by harassment, incidental to conducting a low-energy marine geophysical (seismic) survey in the Gulf of Mexico, April to May 2013 [Federal Register Volume 78, Number 34, Pages 11821-11844].

If you have difficulty in opening the attached file or have questions, please contact me.

Kind regards,

Sarah Lindsay Tsoflias

Vice President - Marine Environment

International Association of Geophysical Contractors

Office: +1 785 749 9343

Mobile: +1 785 424 3800

Email: sarah.tsoflias@iagc.org

Website: www.iagc.org

Click here to register for IAGC's Annual Golf Tournament, 12 April 2013, Houston, Texas, USA

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THE VOICE OF THE GEOPHYSICAL INDUSTRY SINCE 1971
International Association of Geophysical Contractors

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Industry_NMFS_corr_CmmtsUSGSGOMIHA_VF_2013_03_22.pdf
126K

Via Electronic Mail

22 March 2013

Mr. P. Michael Payne
Chief, Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910
Email: ITP.Goldstein@noaa.gov

Subject: Notice of Proposed Incidental Harassment Authorization - Takes of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May 2013; RIN 0648-XC389

Dear Mr. Payne,

The International Association of Geophysical Contractors (IAGC) and the American Petroleum Institute (API), hereinafter referred to as "the Associations," are pleased to provide the following comments to the National Marine Fisheries Service (NMFS) on the United States Geological Survey's (USGS) application for an Incidental Harassment Authorization (IHA) for a low-energy geophysical survey in the Gulf of Mexico.

The Associations represent companies engaged in the exploration for and development of offshore oil and natural gas resources. The Associations' interest in this action reflects that their members conduct geophysical surveys using seismic imaging tools similar to those employed by USGS and also their members have extensive operations in the deepwater Gulf of Mexico where the USGS survey is planned.

The potential environmental effect of marine sound from industry activities is of great interest to the Associations and their members. Accurately characterizing sound producing activities, properly evaluating their environmental consequences and developing practicable and effective mitigation of the defined adverse impacts is a top priority.

In recent months, the Associations have individually and/or in concert with other trade associations reviewed and provided comment on separate environmental documents and regulatory actions that considered the acoustic effects of seismic surveys and other industry activities on marine mammals. These actions include the BOEM Petition for Incidental Take Authorization for the Gulf of Mexico [Federal Register, Vol. 76, No. 114. p.34656]; the DEIS for Effects of Oil and Gas Activities in the Arctic Ocean [Federal

Register, Vol. 77, No. 11, pp. 2513-14]; the Draft PEIS for Atlantic Geologic & Geophysical (G&G) Activities [Federal Register, Vol 77, No. 62, pp 13921; the proposed Incidental Take Regulation for Pacific Walruses and Polar Bears associated with oil industry activities in the Chukchi Sea [Federal Register, Vol. 78 , No. 6, pp. 1942]; and the NOAA Office of Coastal Survey's request for Letter of Authorization associated with hydrographic surveys [Federal Register, Vol. 78 , No. 6, pp 1205]. The Associations' comments on the proposed USGS Low Energy Seismic Survey in the Gulf of Mexico Incidental Harassment Authorization (IHA) application and associated Draft Environmental Assessment (DEA) are provided in the context of industry comments filed on the Federal Register notices mentioned above.

I. Summary Comments:

A. Environmental consequences should be evaluated using the best available science that properly discriminates between empirical fact and conjecture; and reflects the probabilities of effect and weight of the evidence in presenting the risks of adverse impacts of anthropogenic sound upon marine species.

B. A reasonable threshold for anticipation of adverse effects should be established before mitigation is demanded and that mitigation should be effective and practicable.

The proposed shutdown requirement for dolphins, which frequently bow-ride vessels, is not warranted. Scientific research on the hearing of delphinids and hearing control plus decades of studies and field observations of dolphins interacting with seismic vessels fail to support a conclusion that sound from seismic surveys injure these animals. The DEA fails to present the environmental assessment sufficient to justify the need for shutdowns. The proposal is operationally disruptive, potentially to a level of making such surveys impossible to conduct. The requirement conflicts with longstanding mitigation methods for seismic surveys in the Gulf of Mexico as well as proposed mitigation measures.

C. Utilization of related NEPA documents.

The USGS IHA application refers to related NEPA documents but then largely ignores them resulting in costly, redundant effort that results in a much less robust DEA which contains conjectural risk assessments and unwarranted mitigation zone requirements. The National Science Foundation (NSF), USGS and NMFS expended significant resources over a five-year period in development of the *2011 Final Programmatic Environmental Impact Statement/Overseas Environmental Impact Statement for Marine Seismic Research funded by the NSF or conducted by USGS* to develop a consistent, standardized approach to frequent IHA applications for seismic surveys. The IHA application, while referencing the 2011 Final PEIS/OEIS, does not appear to fully utilize its extensive environmental assessment indicating minimal impacts from low energy seismic surveys nor adopts its more moderate, generic mitigation requirements. In fact, the USGS HIS application seems to

require larger monitoring zones without information or explanation of what new or site-specific risk factors justify them.

D. Timely issuance of an IHA

The requested application has minimal potential for substantive, adverse environmental consequences. The benefits of the action are significant. Thus, an IHA for nonlethal, incidental, unintentional take of small numbers of marine mammals should be issued promptly.

II. Detailed Comments:

A. Environmental impacts should be evaluated using the best available science that properly presents the effects and risks of adverse effects upon marine species.

1. A clear and consistently applied regulatory process is needed where the various factors are evaluated, conservative factors reflecting reasonable probabilities are documented in a way that the regulated community can see the layers of conservative factors and the balancing of empirical facts, conjecture and observed field effects for decisions are clearly explained.

2. In the Associations' opinion, evaluation of impacts from marine sound sources continues to blur the distinctions between exposure and effect leading to unsupportable overestimates of the risks to marine wildlife. The USGS IHA in fact validates this concern: "It is common practice to estimate how many mammals would be present within a particular distance of industrial activities and/or exposed to a particular level of sound. In most cases, this approach likely overestimates the numbers of marine mammals that would be affected in some biologically important manner" [FR USGS IHA; Page 24].

3. Industry does not believe the principle of equating received sound levels to "takes" has been subjected to public comment or peer review as is required. This interpretive application of exposure as a proxy for incidental take is not supported by the MMPA, which requires that harassment must occur [16 U.S.C. 1362(18)(A)]. In the case of Level B Harassment, the disturbance must be related to a disruption in behavioral patterns, not just a change in behavior [16 U.S.C. 1362(18)(A)(ii), 1362(18)(D)].

4. There is no jurisdictional precedent defining whether sound occurring at a certain level constitutes a take. It is simply not enough for an animal to be exposed to a sound. For there to be a "take" based on harassment, there must be disruption in a pattern of behavior and it must be caused by an act of pursuit, torment or annoyance. 16 U.S.C. 1362(18)(A). [Source: Industry comment: Atlantic page 9-10]

5. Recently, the US Fish & Wildlife Service (FWS) in its Polar Bear & Walrus ITR clarified how it evaluates the potential effects of sound on marine life by clearly labeling "exposures" and more clearly differentiating "exposures" from "takes." [FR, Vol. 78 , No. 6, pg. 1942-1989]

The USGS IHA application and associated Environmental Assessment do not provide this clarity and thus overstate the environmental effects of the action. In addition, the USGS IHA does not clearly explain when an exposure has a behavioral effect, whether this rises to be a countable take and finally whether any of this is biologically significant at either an individual or population level. The overestimate of effect is especially acute for a 'low energy' seismic survey. The fact that in the IHA, USGS proposes to use large seismic source arrays as a proxy for a small 2-source element operation and that it uses shallow-water sound propagation as a proxy for deep water propagation further adds to the overestimate of potential acoustic impacts.

6. Bow riding by dolphins is an excellent example of a normal behavioral pattern and should not therefore be assessed as a take based on received sound levels, using any metric.

7. The USGS IHA Application and associated DEA would have been improved by the inclusion of more recent scientific information. The application, for example, makes extensive reference to Richardson, et al. 1995 and Richardson, et al. 1999. It should have also included more recent science indicating that avoidance responses are likely both minor and unrelated to sound levels (Richardson et al., 2011, Southall 2010 and Ellison 2012). This would have facilitated a more accurate risk assessment and would have more clearly noted that the detailed statistical analyses needed to validate conjecture regarding subtle changes in direction are simply not available.

8. It does not appear that frequency weighting was adequately considered in assessing Level B behavioral effects. It is well documented that dolphins are mid-frequency hearing specialists. The seismic source, as described in the IHA application, has "dominant frequency components <500 Hz" (IHA pg. 4) and the 105 in^3 GI source has dominant frequency components 0-188 Hz (DEA pg. 5). There is little overlap in dolphins' nominal hearing range (150 Hz - 160 kHz; Southall et al. 2007) and the dominant frequency components of the seismic sources. Failure to incorporate frequency weighting likely results in overestimating dolphin incidental takes by at least a factor of two.

9. Also, there is mounting scientific evidence that behavioral reactions are species-dependent (Stone and Tasker, 2006) and can vary due to biological and environmental context (Wartzok et al., 2004; Frost et al., 1984; Finley et al.,1990; Richardson et al., 2011; Miller et al., 2005; and Richardson et al., 1999).

B. Mitigation requiring shutdown of the seismic source for dolphins is unwarranted and not justified by the best available science.

1. The USGS IHA prescribes mitigation zones and requires shut-downs for *all* marine mammals, including dolphins, entering the defined 190/180/160 dB ensonified area. Based on the information detailed in this letter, the Associations strongly recommend that NMFS and USGS do not require shut-down of the seismic sources for dolphins entering the exclusion zone.

2. It has been commonly observed that dolphins seek to bow ride seismic and other vessels, challenging assertions of harm to the animals. The fact that various marine mammals want to approach and enter the ensonified area raises serious questions about the basic validity of a regulatory approach that rigidly established proximity to sound as its basis.

3. The biology of dolphin hearing, hearing control mechanisms and dolphin behavior involving bow-riding should have been more fully considered in the IHA request and environmental risk analyses of the DEA. Failure to adequately consider these factors results in overestimating the risk of seismic surveys to bow-riding dolphins. This faulty risk assessment is then used to support the new and unwarranted dolphin shutdown requirement.

4. It has been long recognized that cetaceans emit sounds as they echolocate that are well above the regulatory protective levels of 180/160 dB re: 1 μPa (rms). Repeated dolphin clicks have been measured up to 230 dB (Au et al., 1978). Alexander Supin and Paul Nachtigall developed a way of measuring the hearing of cetaceans during echolocation by examining the brain wave patterns of the animals to both the outgoing echolocation signal and the echo that returned from that signal (Supin et al., 2003; Nachtigall and Supin 2008). Research on harbor porpoise (Linnenschmidt et al., 2012) and the bottlenose dolphin (Li et al., 2011, 2012) suggest hearing control may apply to a number of different species of echo locating whales and dolphins. The DEA should consider this new research regarding the potential hearing control mechanisms of odontocetes. There are indications that some cetaceans naturally reduce their hearing sensitivity and therefore the estimates of incidental takes should be reduced.

5. Recent work by Jim Finneran investigated the auditory effects on bottlenose dolphins exposed to multiple underwater impulses produced by a seismic air gun. The pre- and post-exposure hearing thresholds in exposed dolphins were compared to determine the amount of temporary hearing loss, called a temporary threshold shift (TTS), as a function of exposure level and the number of impulses. The

dolphins exposed to seismic sound received levels up to 196 dB re 1 μPa^2-s (cumulative SEL) showed **no** measurable TTS (Finneran, et al. 2012, European Conference on Underwater Acoustics and Finneran et al. 2011, Acoustical Society of America Meeting). The EA would be improved by a discussion of this research regarding animal sound tolerance. These results would further explain why dolphins may bow ride seismic vessels without sustaining injury.

6. The DEA should have considered extensive peer reviewed literature and field observations that establish that bow riding is normal, not abnormal, behavior for dolphins.
    a) Northern bottlenose whales are sometimes quite tolerant of slow-moving vessels (Reeves et al., 1993; Hooker et al., 2001).
    b) Dolphins may tolerate boats of all sizes, often approaching and riding the bow and stern waves (Shane et al., 1986).
    c) Spinner dolphins in the Gulf of Mexico were observed bow riding the survey vessel in all 14 sightings of this species during one survey (Würsig et al., 1998).

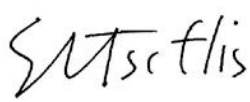
7. Proposed mitigation measures conflict with existing requirements.
    a) In the US GOM, the requirement to shut-down seismic sources if an animal enters the exclusion zone has historically been applied to whales, but not dolphins. BOEM's existing mitigation requirements are documented in NTL 2012-G02. The USGS monitoring/shutdown zones should be consistent with these existing mitigation measures which have been proven protective. The existing standard is premised upon a 2002 NMFS Biological Opinion. And BOEM has itself previously recognized in its recent Supplemental Environmental Assessment for a specific seismic survey permit in the Gulf of Mexico that extending the shutdown requirement to delphinids is unwarranted.
    b) The proposed USGS requirement to shut down for all marine mammals entering the exclusion zone also conflicts with discretionary shutdowns contemplated in the Atlantic G&G Draft Environmental Impact Statement. In the Atlantic G&G DEIS proposal, shutdowns would not be required for dolphins approaching the vessel or towed equipment at a speed and vector that indicates voluntary approach to bow-ride or chase towed equipment (this proposed mitigation measure is also unwarranted). If a dolphin voluntarily moves into the exclusion zone after the acoustic sound sources are operating, it is reasoned that the sound pressure level is not negatively affecting that particular animal. [Source: Atlantic G&G DEIS Page 2-6 thru 2-7]

8. Dolphin shutdowns would be operationally disruptive. Geophysical operators report that dolphins frequently approach and chase equipment towed in the water behind the vessel. Therefore, requiring

a shutdown for dolphins could significantly increase survey duration or even make it impossible to conduct some high-resolution surveys. [Source: Atlantic G&G DEIS; Volume 2, Appendix C - Existing Regulations, Protective Measures, and Mitigation, Page C-15.]

The Associations appreciate the opportunity to submit comments to NMFS on the USGS's IHA application for a low-energy geophysical survey. If you have any questions, please contact Andy Radford (radforda@api.org; (202) 682-8584) or Sarah Tsoflias (sarah.tsoflias@iagc.org; (785) 749-9343).

Sincerely,



Andy Radford, API
Senior Policy Advisor – Offshore

Sarah L. Tsoflias, IAGC
Vice President – Marine Environment

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Fwd: Fw: Document Citation: 78 FR 11821 Document Number:2013-03837

SAROSEA@aol.com <SAROSEA@aol.com> Fri, Mar 22, 2013 at 10:41 PM
To: ITP.Goldstein@noaa.gov

: Fw: Document Citation: 78 FR 11821 Document Number:2013

To: ITP.Goldstein@noaa.gov
Sent: Friday, March 22, 2013 5:46 PM
Subject: Document Citation: 78 FR 11821 Document Number:2013-03837

Document Citation: 78 FR 11821

Document Number:2013-03837

I object to this permit and I am requesting a hearing on this matter be held before the Marine Mammal Commission.

Numerous species of marine mammals inhabit the GOM. Several of these species are listed as endangered under the U.S. Endangered Species Act (ESA): the sperm, North Atlantic right, humpback, sei, fin, and blue whales, and the West Indian manatee. Other ESA-listed species that could occur in the area are the endangered leatherback, hawksbill, green, and Kemp's ridley turtles, and the threatened loggerhead turtle.

There is absilutely no way that you can guarantee that there will be no incidents of injury or mortality. Air guns are capable of reaching 230dB and can cause hearing damage,bleeding of the brain,behavioral issues,and strandings. Marine mammals depend on their sensitive hearing for survival. Hearing loss for a cetacean can mean inability to function, hunt, navigate and cause death.

Everyday more instances of injury and death due to seismic testing are being documented. While almost all oil and gas exploration companies deny harm to marine life can be caused by seismic testing non profit organizations and ocean advocates are compiling proof that in-fact seismic testing is deadly to marine life as can be seen in Peru in April of 2012 where 2800 dolphins washed ashore.

Hardy Jones of Blue Voice.org working with Veterinarian Carlos Yaipén's released these test results taken from viable dolphin tissue samples:

"We found that stranded dolphins had the following signs: a. Bleeding in the middle ear. b. Simple fracture and cracks in the middle ear (periodic) bones.c. Hemorrhage and bubbles in mandibular fat (where dolphins perceive incoming sounds) d. Massive invasion of air bubbles which displaced the normal tissue of vital organs such as lungs, liver, kidney, bladder and blood vessels.e. Pulmonary emphysema: air bubbles, bleeding and massive destruction of lung tissue" (Source) All of these symptoms concur with the effects of seismic testing on cetaceans: "What he has found is evidence of acoustical trauma leading to rapid ascent and decompression syndrome. In other words loud noises, produced repeatedly over a long period of time, startled the dolphins who raced for the surface and incurred what humans call the bends".(Source)

I ask you to consider the irreparable harm that this seismic testing will do to all of the creatures of the ocean.

Once I again, I am respectfully requesting a hearing on this matter be held before the Marine Mammal Commision and that this permit be denied at this time.

Sincerely
Sandra Taylor
7146 The Terrace
Anderson, CA 96007
besaouin@charter.net

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Fwd: regarding USGS application to "take" marine mammals as part of seismic testing

Howard Goldstein - NOAA Federal <howard.goldstein@noaa.gov> Sun, Mar 24, 2013 at 5:26 PM
To: ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

---------- Forwarded message ----------
From: Spencer Lennard <spencer@bigwildlife.org>
Date: Fri, Mar 22, 2013 at 7:07 PM
Subject: regarding USGS application to "take" marine mammals as part of seismic testing
To: Jolie.Harrison@noaa.gov, Howard.Goldstein@noaa.gov

Greetings Ms. Harrison and Mr. Goldstein,

I am writing to request that you deny the application (https://www.federalregister.gov/articles/2013/02/20/2013-03837/takes-of-marine-mammals-incidental-to-specified-activities-low-energy-marine-geophysical-survey-in) submitted by the US Geological Survey to conduct Seismic Testing in the Gulf of Mexico and likely incur incidental "take" of marine mammals.

Considering that all marine mammals worldwide are experiencing a host of escalating threats against them (including seismic testing, "hunting", ship strikes and oil and gas drilling among others), it is ludicrous to add more causes of mortality/stress on those species. Primarily due to "whaling", populations of all marine mammals have dramatically declined this century and have not even come close to a true recovery (which will most likely never occur). It is that that reason that I adamantly oppose any permitting by your agency for further seismic testing or allowance for any "take" of marine mammals.

Thank you for this opportunity to comment of this proposal.

Sincerely,

Spencer Lennard

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Howard Goldstein
Fisheries Biologist
NOAA Fisheries
Office of Protected Resources
Permits and Conservation Division
1315 East West Highway, Rm 13140
Silver Spring, MD 20910

U.S. Department of Commerce
Office: 301-427-8417
Fax: 301-713-0376
Howard.Goldstein@noaa.gov
Web: http://www.nmfs.noaa.gov/pr/permits/incidental.htm#iha

www.nmfs.noaa.gov

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Takes of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013

Stephanie <aloha@waiihawaii.com> Fri, Mar 22, 2013 at 12:44 AM
To: ITP.Goldstein@noaa.gov

To whom it may concern:

Takes of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013
This is not ethical, 'takes' means kill.
Marine mammals have the right to safe life in there home, it is not our home, we have no right to 'takes'.
The marine animals can not speak for themselves, they would not agree with this home invasion.
Do not allow 'Takes of Marine Mammals Incidental to Specified Activities; Low-Energy Marine Geophysical Survey in the Gulf of Mexico, April to May, 2013' (Or ever)
Once life is gone it it gone forever, extinction is a real thing.
Stop this once and for all.

Sincerely,
Stephanie Walkeapaa
808 286 0499

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Document Citation: 78 FR 11821 Page: 11821 -11844 (24 pages) RIN: 0648-XC38 Document Number: 2013-03837

Steve Hambrick <salviaham@aol.com> Tue, Mar 19, 2013 at 11:51 PM
To: ITP.Goldstein@noaa.gov

Whales and dolphins are sentient creatures, that live in the ocean. (We or I oppose the use of seismic guns to be used to harass and kill them.)
I OPPOSE TO THE USE OF UNDERWATER AIRGUNS FOR SEISMIC TESTING! Please deny this permit.There is no need whatsoever for USGS to conduct the testing with the use of airguns.The taking of up to 19 species of marine mammals in the application is ridiculous. Thank you for your attention ,

Stephen Hambrick
146 Fox Lane
Walworth,Wi. 53184

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Please deny seismic testing.

Susan Bagley <rcdodson1@msn.com> Sun, Mar 17, 2013 at 12:26 AM
To: ITP.Goldstein@noaa.gov

It is too harmful to the sea life.

Thank you,

Susan Bagley
860 Ave M
Seaside OR 97138

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

78 FR 11821, 2013-03837

Susan Dobrowolsky <susanx2@att.net> Sun, Mar 24, 2013 at 3:18 PM
To: itp.goldstein@noaa.gov

Dr Mr. Goldstein,

With all due respect I must ask that you not move forward with the plan for seismic testing in the Gulf of Mexico. There is clear scientific evidence that many marine animals will be maimed or killed. It is not acceptable for these creatures to be injured.

Air guns producing 190 dB blasts underwater, for 96 hours at a time in areas densely populated with sea life is unacceptable. The proposed form of monitoring, “look outs” (people looking for marine mammals from the deck of the ship during the survey) is unacceptable as they can only see the surface of the ocean.

The proposed plan would have too grave an impact on too many.

Thank you for your consideration.

All the best,

Susan Dobrowolsky
Canoga Park, CA 91303
818-887-0828

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Seismic Testing

Tom Reimann <turdle@tgssystems.com> Fri, Mar 22, 2013 at 11:24 PM
To: itp.goldstein@noaa.gov

I strongly object to the seismic exploration in the Golf of Mexico. It is is too harmful to the ceataceans who live there.

Tom Reimann

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

Seismic Testing

Val Parry <tyddles@aol.com> Sun, Mar 17, 2013 at 9:53 AM
To: ITP.Goldstein@noaa.gov

Please do not allow this seismic testing, it will kill and injure sea creatures who are in sharp decline...will you tell your grandchildren that you were responsible for the death of the oceans???

Val Parry
Liverpool
UK

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

USGS Woods Hole Permit For Deadly Seismic Testing in The Gulf of Mexico

Wendy Scharfman <wscharfman@gmail.com> Sat, Mar 23, 2013 at 9:49 AM
To: ITP.Goldstein@noaa.gov

To whom it may concern,

As a concerned citizen I strongly object to the issuance of a permit, and request a public hearing be held before the Marine Mammal Commission. Air guns producing 190 dB blasts underwater, for 96 hours at a time in areas densely populated with sea life is unacceptable. Your form of monitoring, “look outs” is unacceptable as you are ONLY able to see the surface of the ocean and your air gun explosions will be as deep as 2000 meters. Whales and dolphins spend most of their lives underwater and will be impacted severely.

There is no way that Woods Hole can guarantee there will be no incidents of injury and mortality.

Document Citation: 78 FR 11821

Document Number:2013-03837

Signed,

Wendy Scharfman

ITP Goldstein - NOAA Service Account <itp.goldstein@noaa.gov>

US Geological Survey NOAA Permit

Zoe Chamberlin <zoechamberlin@yahoo.com> Mon, Mar 11, 2013 at 11:17 PM
Reply-To: Zoe Chamberlin <zoechamberlin@yahoo.com>
To: "ITP.Goldstein@noaa.gov" <ITP.Goldstein@noaa.gov>

Mr. Payne,

I am writing you this letter to urge you to deny authorization for the U.S. Geological Survey NOAA permit for the taking of marine mammals. It has been widely documented that the use of active sonar, underwater detonations, and other extremely loud noises terrorizes and often kills cetaceans. As you know, many mass strandings have been directly linked to the use of underwater acoustical testing and the like. In other words, these animals would rather take their own lives than be subjected to such unimaginable torture. Frankly, it amazes me that this authorization is even being considered in this day and age, where we are fully aware of the truly horrible consequences these testing activities have on cetaceans and other marine mammals. I ask you in earnest, please take my comments and others like mine into account when you make your decision.

Thank you so much for your time and consideration,
Zoe Chamberlin