



By Regular and Electronic Mail

March 23, 2009

Regional Supervisor, Leasing and Environment (MS 5410)
Minerals Management Service, Gulf of Mexico OCS Region
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Re: **Comments on the Notice of Intent to Prepare a Programmatic Environmental Statement on the Atlantic OCS**

On behalf of the Natural Resources Defense Council (“NRDC”) and our 1.2 million members and activists, I appreciate the opportunity to submit comments regarding the Mineral Management Service’s (“MMS”) Notice of Intent (“NOI”) to prepare a Programmatic Environmental Impact Statement (“PEIS”) to evaluate potential environmental effects of multiple geological and geophysical exploration activities on the Atlantic Outer Continental Shelf (“OCS”). *See* 74 Fed. Reg. 3636 (Jan. 21, 2009) (“Scoping Notice”).

We appreciate MMS’s commitment to prepare a PEIS for these activities, as required by the National Environmental Policy Act (“NEPA”), 42 U.S.C. §§ 4331 *et seq.* As you are aware, maritime acoustic activities, such as seismic surveys, side-scan sonar surveys, electromagnetic surveys, geological and geochemical sampling and remote sensing, have the potential to kill, injure, and harass marine mammals and other marine life over wide geographic areas. It is imperative, in approaching such activities, that MMS incorporate the rigorous, objective analysis demanded by NEPA into the earliest possible stages of its planning. To that end, we offer the following comments and recommendations. Our comments are also aimed at helping MMS ensure that the potential adverse impacts of seismic surveys and other geological and geophysical exploration (“G&G”) activities are properly analyzed, avoided, minimized, and mitigated.

Our primary concerns with the acoustic impacts of seismic surveys include the following:

- Ensuring that survey areas do not overlap with important breeding, feeding and migratory habitat for threatened and endangered marine mammals.

- Ensuring that the surveys do not coincide with breeding and calving periods, as well as migratory routes, for other marine mammals.
- Requiring adequate baseline information and density data for marine mammal species in the affected area before conducting surveys, and proceeding with sufficient precautions (including the adoption of meaningful spatial and temporal restrictions to protect biologically sensitive areas and periods).
- Requiring a full analysis of biological and oceanographic features and other means to identify areas of avoidance for seismic activity.
- Collection of baseline ecological data for measuring the impacts of oil and gas operations on feeding grounds (including those from potential oil spills).
- Adoption of long-term marine mammal monitoring plans and surveys.

We also recommend that additional studies and consultation be undertaken with regard to the impacts of seismic sounds on marine mammals.

I. Legal Framework: The National Environmental Policy Act

NEPA “declares a broad national commitment to protecting and promoting environmental quality.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989). NEPA establishes a national policy to “encourage productive and enjoyable harmony between man and his environment” and “promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man.” 42 U.S.C. § 4321. In order to achieve its broad goals, NEPA mandates that “to the fullest extent possible” the “policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with [NEPA].” 42 U.S.C. § 4332. To that end, NEPA requires that the potential environmental impacts of any “major Federal actions significantly affecting the quality of the human environment” be considered through the preparation an environmental impact statement (“EIS”). *Robertson*, 490 U.S. at 348; 42 U.S.C. § 4332. This directive is known as a “set of action-forcing procedures” that require decision makers to take “a ‘hard look’ at environmental consequences.” *Robertson*, 490 U.S. at 349 (quoting *Kleppe v. Sierra Club*, 427 U.S. 390, 410, n.21 (1976)).

Central to NEPA is its requirement that, before any federal action that “may significantly degrade some human environmental factor” can be undertaken, agencies must prepare an EIS. *Steamboaters v. F.E.R.C.*, 759 F.2d 1382, 1392 (9th Cir. 1985) (emphasis in original). The requirement to prepare an EIS “serves NEPA’s action-forcing purpose in two important respects.” *Robertson*, 490 U.S. at 349. First, “the agency, in reaching its decision, will have available, and will *carefully consider*, *detailed information* concerning significant environmental impacts[,]” and second, “the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.” *Id.* (emphasis added). As the Supreme Court explained: “NEPA’s instruction that all federal agencies comply with the impact statement requirement... ‘to the fullest extent possible’ [cit. omit.] is neither accidental nor hyperbolic. Rather the phrase is a deliberate command that the duty NEPA imposes upon the agencies to consider

environmental factors not be shunted aside in the bureaucratic shuffle.” *Flint Ridge Development Co. v. Scenic Rivers Ass’n*, 426 U.S. 776, 787 (1976).

The fundamental purpose of an EIS is to force the decision-maker to take a “hard look” at a particular action – at the agency’s need for it, at the environmental consequences it will have, and at more environmentally benign alternatives that may substitute for it – before the decision to proceed is made. 40 C.F.R. §§ 1500.1(b), 1502.1; *Baltimore Gas & Electric v. NRDC*, 462 U.S. 87, 97 (1983). This “hard look” requires agencies to obtain high quality information and accurate scientific analysis. 40 C.F.R. § 1500.1(b). “General statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided.” *Klamath-Siskiyou Wilderness Center v. Bureau of Land Management*, 387 F.3d 989, 994 (9th Cir. 2004) (quoting *Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372, 1380 (9th Cir. 1998)). The law is clear that the EIS must be a pre-decisional, objective, rigorous, and neutral document, not a work of advocacy to justify an outcome that has been foreordained.

II. Recommendations and Suggestions for the PEIS

To comply with NEPA, an EIS must include a “full and fair discussion of significant environmental impacts.” 40 C.F.R. § 1502.1. In addition to discussing the environmental impacts, the EIS must assess cumulative impacts, including the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future significant actions.” *Id.* § 1508.7. An EIS must also “inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.” *Id.* § 1502.1. Mitigation measures must also be addressed in an EIS. *Id.* § 1502.14(f).

A. Environmental Impacts Analysis

A core element of the PEIS will be its assessment of the distribution and abundance of marine mammal species. Careful assessment is essential, not only for meeting MMS’s responsibility under NEPA to objectively describe the environment affected by seismic surveys, but also for evaluating the impacts of the activity on marine mammals and for determining reasonable alternatives. To that end, further research regarding marine mammal distribution (occurrence, distribution and abundance), habitat (foraging, breeding, calving and migration routes), and oceanographic features (to identify areas of avoidance) may be necessary before finalizing a PEIS. In addition, all data should be gathered in a standardized and scientific manner. The environmental impacts analysis must also address any data gaps.

The PEIS must carefully analyze the impacts of seismic activity on marine wildlife in a meaningful and comprehensive way. This environmental analysis must include all species that may be potentially impacted, such as marine mammals, sea turtles, fish, invertebrates, and sea birds. Although marine mammals have been the subject of much

research on the effects of underwater noise, other animals – including fish and squid—are also put at great risk by noise, particularly the noise generated by seismic airguns.¹ MMS must also pay particular heed to endangered and vulnerable populations, including the species that have been shown to be particularly vulnerable to disturbance from intense undersea noise.

The PEIS must account not only for the possibility of direct physical injury to marine life from undersea noise, but also for behavioral effects and for indirect effects that, in some cases, may be lethal or severe. 40 C.F.R. § 1508.8 (requiring analysis of both direct and indirect impacts). In particular, the impacts of stress, masking and displacement on marine mammals must be addressed. For example, “stress” on marine mammals is a serious problem for animals exposed even to moderate levels of sound for extended periods.² Stress from ocean noise — whether alone or in combination with other stressors — may weaken a cetacean’s immune system, making it more vulnerable to parasites and diseases that normally would not be fatal.³ Moreover, according to studies on terrestrial mammals, chronic noise can interfere with brain development, increase the risk of myocardial infarctions, depress reproductive rates, and cause malformations and other defects in young – and all at moderate levels of exposure.⁴

¹ See A.N. Popper, Effects of Anthropogenic Sounds on Fishes, 28(10) Fisheries 26-27 (2003); M.C. Hastings & A.N. Popper, Effects of Sound on Fish 19 (2005) (Report to the California Department of Transportation, Contract No. 43A0139), p., 19; D.A. Croll, Marine Vertebrates and Low Frequency Sound—Technical Report for LFA EIS 1-90 (1999); R. McCauley, J. Fewtrell, and A.N. Popper, High Intensity Anthropogenic Sound Damages Fish Ears, 113 Journal of the Acoustical Society of America 640 (2003); A. Engås, S. Løkkeborg, E. Ona, and A.V. Soldal, Effects of Seismic Shooting on Local Abundance and Catch Rates of Cod (*Gadus morhua*) and Haddock (*Melanogrammus aeglefinus*), 53 Canadian Journal of Fisheries and Aquatic Sciences 2238-49 (1996); J.R. Skalski, W.H. Pearson, and C.I. Malme, Effects of Sound from a Geophysical Survey Device on Catch-Per-Unit-Effort in a Hook-and-Line Fishery for Rockfish (*Sebastes* spp.), 49 Canadian Journal of Fisheries and Aquatic Sciences 1357-65 (1992). See also S. Løkkeborg and A.V. Soldal, The Influence of Seismic Exploration with Airguns on Cod (*Gadus morhua*) Behaviour and Catch Rates, 196 ICES Marine Science Symposium 62-67 (1993); J.H.S. Blaxter and R.S. Batty, The Development of Startle Responses in Herring Larvae, 65 Journal of the Marine Biological Association of the U.K. 737-50 (1985); F.R. Knudsen, P.S. Enger, and O. Sand, Awareness Reactions and Avoidance Responses to Sound in Juvenile Atlantic Salmon, *Salmo salar* L., 40 Journal of Fish Biology 523-34 (1992); McCauley et al., Marine Seismic Surveys at 126-61.

² See Wright, A.J., N. Aguilar Soto, A.L. Baldwin, M. Bateson, C.M. Beale, C.Clark, T. Deak, E.F. Edwards, A. Fernández, A. Godinho, L. Hatch, A. Kakuschke, D. Lusseau, D. Martineau, L.M. Romero, L. Weilgart, B. Wintle, G. Notarbartolo di Sciara, and V. Martin, Do marine mammals experience stress related to anthropogenic noise?, 20 International Journal of Comparative Psychology, 274-316 (2007).

³ See Romano, T.A., M.J. Keogh, C. Kelly, P. Feng, L. Berk, C.E. Schlundt, D.A. Carder, and J.J. Finneran, Anthropogenic Sound and Marine Mammal Health: Measures of the Nervous and Immune Systems Before and After Intense Sound Exposure, 61 Canadian Journal of Fisheries and Aquatic Sciences 1124, 1130-31 (2004).

⁴ See, e.g., E.F. Chang and M.M. Merzenich, Environmental Noise Retards Auditory Cortical Development, 300 Science 498 (2003) (rats); S.N. Willich, K. Wegscheider, M. Stallmann, and T. Keil, Noise Burden and the Risk of Myocardial Infarction, European Heart Journal (2005) (Nov. 24, 2005) (humans); F.H. Harrington and A.M. Veitch, Calving Success of Woodland Caribou Exposed to Low-Level Jet Fighter Overflights, 45 Arctic vol. 213 (1992) (caribou).

Likewise, the impacts of displacement— which can lead to abandonment of habitat or migratory pathways – and masking – such as the masking of calls of predators or potential mates – must be thoroughly analyzed in the PEIS.

Notably, NEPA requires MMS to make every attempt to obtain and disclose data necessary to its analysis. It is not enough for NEPA purposes to claim that insufficient information is available. Unless the costs of obtaining the information are exorbitant, NEPA requires that the information be obtained. 40 C.F.R. § 1502.22(a). If the costs are deemed excessive, then the EIS must explain the relevance of incomplete information, summarize existing credible scientific evidence on the issue, and evaluate impacts using theoretical approaches or research methods generally accepted in the scientific community. *Id.* § 1502.22(c). Similarly, scientific disagreement on relevant issues cannot be ignored. Throughout the document, MMS is required to “insure the professional integrity, including scientific integrity,” of its discussions and analyses. *Id.* § 1502.24.

B. Cumulative Impacts Analysis

The PEIS must also include a full and fair discussion of cumulative environmental impacts. It is not sufficient, for purposes of this discussion, to consider the proposed action in isolation, divorced from other public and private activities that impinge on the same resource. Rather, it is incumbent on MMS to assess cumulative impacts as well, including the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future significant actions.” 40 C.F.R. § 1508.7. Thus, MMS “cannot treat the identified environmental concern in a vacuum.” *TOMAC v. Norton*, 433 F.3d 852, 863 (D.C. Cir. 2006) (*quoting Grand Canyon Trust v. FAA*, 290 F.3d 339, 345 (D.C. Cir. 2002)).

A thorough cumulative impacts analysis is especially important to understanding the harm that may be caused by undersea noise generated by seismic and other G&G activity. The Scientific Committee of the International Whaling Commission has stressed the significance of cumulative effects from acoustic activities. *See International Whaling Commission, Report of the Scientific Committee to the International Whaling Commission*, at Annex K § 6.4 (2004). The Committee found that evidence of increased sound from several different sources, including military sonar, ships and seismic activities, was “cause for serious concern.” *Id.* at § 12.2.5.1. The Committee also reported that there is “now compelling evidence implicating anthropogenic sound as a potential threat to marine mammals”, particularly noting “the potential for cumulative or synergistic effects of sounds . . . with non-acoustic anthropogenic stressors.” *Id.*

These concerns highlight the importance of considering both the cumulative effects of multiple sources of noise and the synergistic effects of acoustic impacts together with other environmental stressors, such as chemical and biological pollution, habitat degradation, fishing bycatch, and ship strikes, and analyzing the effects of these impacts on marine mammal populations.

Thus, at a minimum, the PEIS must consider the cumulative impacts of (1) all the Atlantic OCS seismic and other G&G activity, taken together; (2) all military activities in the region of these activities; (3) recreational watercraft activities in the region; (4) industrial and commercial activities, such as fishing and shipping, that may impact the same populations of animals; and (5) synergistic effects of noise pollution when taken together with, for example, exposures to pollutants and contaminants as well as chronic habitat degradation. These impacts must be considered in light of current and reasonably foreseeable future environmental stressors. Only by analyzing these impacts together can MMS reach a full understanding of the environmental consequences.

C. Alternatives Analysis

NEPA requires decision-makers to consider alternatives to their proposed actions. Thus, MMS must evaluate reasonable alternatives that would avoid or minimize adverse impacts to the proposed seismic surveys. 40 C.F.R. § 1502.1. This requires MMS to “[r]igorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.” *Id.* § 1502.14(a).

In analyzing seismic surveys and other G&G activities – activities whose potential impacts on marine mammals and endangered species extend across a vast area – it is critical that MMS give full consideration to all reasonable alternatives for the purpose of minimizing harm. For example, the alternatives considered must take into account the possibility of restricting seismic surveys geographically or temporally—restricting them from certain areas, or from certain areas at particular times of the year, or allowing them to proceed only in certain weather states and visual conditions—in order to lessen impacts on natural resources. In addition, and as discussed below, the PEIS should incorporate a wide variety of mitigation measures, including spatial and temporal restrictions; operational requirements (such as ramp-up and safety zones); and alternative technologies.

D. Mitigation Measures

Under NEPA, a decision-maker must discuss measures designed to mitigate the proposed action’s impact on the environment. 40 C.F.R. § 1502.14(f). Considering the question of mitigation measures at the programmatic level, rather than deferring such analysis to the project-specific level, is particularly important because programmatic review can serve as a means for developing new, more effective mitigation measures that take advantage of economies of scale.

MMS must consider ways to mitigate the impacts of seismic and other G&G activities and to ensure adequate species protection. The best way to mitigate the effects of seismic and other G&G activity on marine wildlife is to designate spatial and temporal restrictions, such as avoiding areas with high marine mammal abundance as well as breeding and calving periods and migratory routes. In addition, sources should be kept

to the lowest practicable levels using the least number of airguns. Other mitigation measures should, at a minimum, include the following:

- 1) Requiring safety zones
- 2) Implementing other operational restrictions (such as ramp-up procedures, routing airguns to ensure that marine mammals are not driven ashore, etc.)
- 3) Visual monitoring (factoring in variables such as sea states and adverse weather conditions)
- 4) Passive acoustic monitoring
- 5) Limiting periods of exposure
- 6) Use of alternative technologies
- 7) Considering oceanographic effects including bathymetry and currents (to take account of variations in acoustic propagation between locations as well as variation in spreading rate of contaminants from potential spills), and
- 8) Establishing an independent, publicly inclusive committee to review relevant environmental management practices.

Further, there must be requirements for comprehensive monitoring during seismic and other G&G activities. As seismic and other G&G activities occur, observations of species distribution, as well as effects on the animals, should be recorded, reported and incorporated into future mitigation plans.

E. Compliance With Other Federal and State Laws

A number of federal laws are implicated by the seismic and G&G activities at issue here. Among those that must be addressed in the PEIS are the following:

First, the Marine Mammal Protection Act (“MMPA”), 16 U.S.C. § 1361 et seq., which requires a permit or other authorization from the National Marine Fisheries Service (“NMFS”) or the U.S. Fish and Wildlife Service prior to any “take” of marine mammals. NRDC will submit comments regarding any application for an incidental take permit under the MMPA to NMFS at the appropriate time.

Second, the Endangered Species Act, 16 U.S.C. § 1531 et seq., which requires formal consultation with NMFS or the U.S. Fish and Wildlife Service as well as a legally valid Incidental Take Permit, prior to the “take” of any endangered or threatened marine mammals or other species, including fish, sea turtles, and birds, or “adverse modification” of critical habitat. *See, e.g.,* 1536(a)(2); *Romero-Barcelo v. Brown*, 643 F.2d 835 (1st Cir. 1981), *rev’d on other grounds, Weinberger v. Romero-Carcelo*, 456 U.S. 304, 313 (1982). Given the scope and significance of OCS G&G activities, MMS must engage in formal consultation with NMFS and the U.S. Fish and Wildlife over any potentially affected endangered and threatened species.

Third, the federal consistency provisions of the Coastal Zone Management Act (“CZMA”), 16 U.S.C. § 1456(c)(1)(A), govern the resources off the coast and may also apply. The CZMA mandates that activities that affect the natural resources of the coastal zone—whether they are located “within or outside the coastal zone”—be carried out “in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs.”

The PEIS may also implicate the Magnuson-Stevens Fisheries Conservation and Management Act, 16 U.S.C. § 1801 et seq.; the Marine Protection, Research and Sanctuaries Act, 33 U.S.C. § 1401 et seq.; the Sanctuaries Act, 33 U.S.C. § 1401 et seq.; the Migratory Bird Treaty Act, 16 U.S.C. § 703 et seq.; Executive Order 13158 (May 26, 2000); the Clean Air Act, 42 U.S.C. § 7401 et seq.; the Clean Water Act, 33 U.S.C. § 401 et seq.; and other statutes protecting the public health.

III. Conclusion

NRDC is committed to minimizing the impact of high-intensity seismic activities on the marine environment, particularly on marine mammals. We therefore urge MMS to issue a PEIS that fully satisfies the requirements of NEPA.

Thank you for your consideration of our comments on this important matter. We welcome the opportunity to discuss the matter with you at any time.

Sincerely,

A handwritten signature in blue ink, appearing to read "Taryn Kiekow".

Taryn Kiekow
Staff Attorney, Marine Mammal Project