

A-0116



ANIMAL WELFARE INSTITUTE

PO Box 3650 Washington, DC 20027-0150 www.awionline.org
telephone: (703) 836-4300 facsimile: (703) 836-0400

March 27, 2008

Naval Facilities Engineering Command
LANTDIV, Attn: Code EV22 (Atlantic Fleet Sonar Project Manager)
6506 Hampton Boulevard
Norfolk, VA 23508-1278

Re: Draft Environmental Impact Statement/Overseas Environmental Impact Statement
Federal Register Notice Vol. 73, Number 32, Page 8856-8858

Dear Sirs:

The Animal Welfare Institute (AWI) appreciates the opportunity to submit the following comments on the US Navy's Atlantic Fleet Active Sonar Training Draft Environmental Impact Statement/Overseas Environmental Impact Statement (DEIS/OEIS). This comment letter is limited to the impacts of the active sonar use described in the DEIS/OEIS but this does not imply that AWI believes that impacts from other activities described in the DEIS/OEIS will be benign.

900 [In view of the evidence related to the impacts of human-generated undersea noise, including active sonar use, on marine animals¹ and the international action and calls for pre-caution² over

¹ The Navy is aware of the literature on behavioral, physical and auditory impacts of undersea noise on marine mammals and other species. It includes W.J. Richardson et al., Marine Mammals and Noise (1995); National Research Council, Ocean Noise and Marine Mammals (2003); P. Tyack, "Behavioral Impacts of Sound on Marine Mammals," Presentation to the U.S. Marine Mammal Commission Advisory Committee on Acoustic Impacts on Marine Mammals (February 4, 2004); Whale and Dolphin Conservation Society, Oceans of Noise (2004); M. Jasny, Sounding the Depths II: The Rising Toll of Sonar, Shipping, and Industrial Ocean Noise on Marine Life (2005); A. Fernández et al., "'Gas and Fat Embolic Syndrome' Involving a Mass Stranding of Beaked Whales (Family Ziphiidae) Exposed to Anthropogenic Sonar Signals," 42 Veterinary Pathology 446 (2005); Vidal Martin et al., "Mass Strandings of Beaked Whales in the Canary Islands," in Proceedings of the Workshop on Active Sonar and Cetaceans 33 (P.G.H. Evans & L.A. Miller eds., 2004); Jepson, P. D. et al., "Gas bubble lesions in stranded cetaceans," Nature 425: 575-576 (2003); International Whaling Commission, 2004 Report of the Scientific Committee, Annex K at Tab. 1; M. Jasny, Sounding the Depths II at Tab. 1-3; McCauley, R., J. Fewtrell, and A.N. Popper, "High intensity anthropogenic sound damages fish ears," Journal of the Acoustical Society of America 113: 638-42 (2003); Bart, A. N., Clark, J., Young, J. and Zohar, Y., "Underwater ambient noise measurements in aquaculture systems: a survey," Aquacultural Engineering 25: 99-110 (2001); Engås, A., 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*)," Canadian Journal of Fisheries and Aquatic Sciences 53:2238-2249 (1996); Frantzis, A. 1998. Does acoustic testing strand whales? Nature (London), 392: 29; and Balcomb, K.C., and Claridge, D.E. 2001. A mass stranding of cetaceans caused by naval sonar in the Bahamas. Bahamas J. Sci. 8(2): 1-8.

² In recent years the international community has come to recognize the significance of anthropogenic ocean noise in relation to its impacts on marine life. In July 2005, the UN Secretary General prominently included the problem of ocean noise in a report to the General Assembly listing anthropogenic underwater noise as one of five "current major threats to some populations of whales and other cetaceans," and including noise as one of the ten "main

A-016

the introduction of anthropogenic noise into our oceans, we strongly urge the Navy to reconsider its planned action.]

904 [The US Navy (the Navy) should demonstrate a serious commitment to the protection of marine life by: a) ceasing actions involving the introduction of high intensity anthropogenic noise into the ocean in areas where there are known populations of marine animals, including designated protected areas, migration routes, and breeding, mating and feeding areas; b) reducing the output levels of its active sonar to the minimum practicable level; and c) committing to meaningful mitigation measures that assure the strongest protections for marine animals.] 905 906

✓ [**Active Sonar Use Harms Marine Life**

[There is a growing list of stranding events coincident with active sonar use - Spain (2006), North Carolina (2005), Taiwan (2005), Hawaii (2004), Canary Islands (2004, 2002, 1991, 1989, 1988, 1985), Washington State (2003), Virgin Islands (1999), Bahamas (2000), Madeira (2000), Greece (1996), and Japan (1990, 1989, 1987, 1979, 1978, 1968). In the DEIS/OEIS the Navy admits to active sonar use being the potential causative factor in five of these cases - Spain (2006), Canary Islands (2002), Bahamas (2000), Madeira (2000), and Greece (1996).]

915 [Despite the overwhelming evidence that active mid-frequency sonar use has caused deaths in marine mammals, the Navy has chosen the DEIS/OEIS alternative with the potential to do the most harm. Instead of committing to avoiding areas and times when marine mammals and other biologically sensitive factors are present, the Navy chooses the alternative that allows it to operate whenever and wherever it pleases. This is not the approach to take in an area such as the

current and foreseeable impacts on marine biodiversity" on the high seas. Specific references from this and other fora recognizing and/or addressing the problems of anthropogenic ocean noise include: General Assembly Resolution, Oceans and the Law of the Sea, §120 (A/62/L.27) (December 4, 2006); Report of the Secretary General, Oceans and the Law of the Sea Addendum, §9 and §51-54 (A/62/66/Add.2) (September 10, 2007); Report of the Secretary General, Oceans and the Law of the Sea Addendum, §150, and §190-195, (A/62/66/Add.1) (August 31, 2007); Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its eighth meeting, §92 (July 30, 2007); Report of the Secretary General, Oceans and the Law of the Sea, § 183 and 286 (A/62/66) (March 12, 2007); General Assembly Resolution, Oceans and the Law of the Sea, §107 (A/61/222) (March 16, 2007); Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (A/61/156) (July 17, 2006); Report of the Ad Hoc Open-Ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction, § 38 (March 2006); General Assembly Resolution, Oceans and the Law of the Sea, § 84 (A/60/30) (November 2005); Report of the Secretary General, Oceans and the Law of the Sea, §159 and 147 (A/60/63/Add.1) (July 15 2005); Commission Proposal for a Directive of the European Parliament and of the Council establishing a framework for Community Action in the field of Marine Environmental Policy, COM(2005)505 (October 24, 2005); Revised Draft of the Proposal reflecting the Political Agreement of the Council (Environment) on 18 December 2006, New Article 2(a), § 7; IUCN/World Conservation Union 2004: Resolution 053, "Underwater Noise Pollution" (November 2004); European Parliament 2004: Resolution B6-0018/2004 (October 21, 2004); International Whaling Commission 2004: Report of the Scientific Committee, at § 12.2.5 and Annex K -- Report of the Standing Working Group on Environmental Concerns; ACCOBAMS 2004: Second Meeting of Parties, Res. 2.16, "Assessment and Impact Assessment of Man Made Noise"; Arctic Treaty Consultative Meeting 2004: Informational Paper 056, "An Update on Some Issues Surrounding Noise Pollution," at 7; ASCOBANS 2003: Fourth Meeting of Parties, Res. 5, "Effects of Noise and of Vessels."

A-016

eastern seaboard which is rich in marine life and home to the last few remaining North Atlantic right whales.]

918 [The Navy's analysis of acoustic impacts to marine mammals is through modeling based on abundance estimates which were largely determined from aerial surveys, a difficult way to count marine mammals, especially relatively small animals and those that dive for prolonged periods such as beaked whales – the very animals thought to be most susceptible to anthropogenic ocean noise. Modeling based on estimates is an inexact science that cannot accurately predict every eventuality in the real world.]

923 [However, using its modeling, the Navy predicts that for its preferred alternative, each year its active sonar use in the preferred action will cause: over 2 ½ million marine mammals to be behaviorally impacted; over 20,608 to experience temporary deafness; and 120 to be exposed to active sonar at levels sufficient to cause permanent deafness (a deaf cetacean is a dead cetacean). The Navy claims that its modeling predictions are before mitigation measures are put in place, but the proposed mitigation measures are severely flawed as outlined below and cannot be relied upon to prevent harm.]

925 [The Navy is asking the National Marine Fisheries Service (NMFS) for permission to kill or injure up to 10 beaked whales stating this is a precautionary "overestimate" and admitting that it wants to avoid investigation should a beaked whale be found "dead coincident with Navy activities" because it would "unnecessarily interfere with Navy training exercises." This cavalier attitude to the deaths of marine life is shocking.]

935 [Though the numbers of animals that the Navy predicts its proposal will impact are worryingly high, we believe them to be gross underestimates of the real numbers of animals potentially at risk because of the thresholds the Navy is using to predict behavioral disturbance and levels of deafness. The Navy is using 215 dB (re 1 μ Pa²-s) as the threshold above which it says permanent deafness (PTS) will occur and 195 dB (re 1 μ Pa²-s) as the threshold above which it says temporary deafness (TTS) will occur. Behavioral impacts are predicted based on a dose-response function. The threshold numbers are based on Navy-funded studies involving a few captive animals of a couple of species, including terrestrial animals, who were also presumably habituated to noise.]

945 [In the wild, animals display wide variety, just as humans do, with not only different species exhibiting different hearing capabilities, but also different ages, different sexes, and even merely different individuals of the same species displaying different sensitivities to noise. The empirical evidence proves that these threshold levels are too high since animals have stranded and died at received levels of active sonar over ten thousand times lower than 195 dB.³]

³ The animals in the Bahamas 2000 stranding incident in which 17 animals of various species stranded and died after the Navy's mid-frequency active sonar use were exposed to received noise levels of 150-160 dB according to modeling reported in Hildebrand, J.A. (2005) Impacts of anthropogenic sound. In Marine Mammal Research: conservation beyond crisis. Edited by J.E. Reynolds, III, Perrin, W. F., Reeves, R. R., Montgomery, S. and Ragen, T. J. Johns Hopkins University Press, Baltimore, Maryland. Pp. 101-124.

A-016

The use of the dose-response function to predict behavioral impacts to marine mammals is preferable to the previous methodology used by the Navy and the National Marine Fisheries Service (NMFS) as it likely more readily depicts the real world. However it is not without its flaws. Principal among the flaws is the data set used in the development of the dose-response predictions. The Navy acknowledges that the data used is limiting given that it is based on one set of controlled exposure experiments on a small number of captive toothed whales and two surveys on wild baleen whales. The Navy should not be using such limited data sets to predict behavioral impacts, especially given the enormity of the AFAST proposal. [The Navy states that to assist in addressing this lack of data, it is funding a series of controlled exposure experiments on wild whales, the first of which took place in the Bahamas in 2007. Yet preliminary results from this experiment support a much lower threshold for behavioral impacts than the Navy is using. In the experiment, only one successful playback experiment on a beaked whale was achieved and in it a tagged Blainsville beaked whale displayed a probable behavioral response at a received level of MFA sonar of 145 dB re 1 μ Pa [rms]. The precautionary principle should be applied and the Navy should, at a minimum curb its activities around known areas of high marine mammal density and at times when marine animals are expected to be present.]

953

954 [The dose-response approach does not take into account factors such as an animal's perception of the sound, including non-auditory effects or potential masking impacts, the cumulative and synergistic effects of several noise sources and possible long-term impacts.] Furthermore, predicting the probabilities of population responses to a sound while ignoring individual animals is problematic if that individual is a key individual to that population. For the north Atlantic right whale for example, the impacts of a stressor on an individual can have population level impacts. There are countless examples of individuals of the same species receiving the same exposure levels of noise, yet reacting differently.⁴ In some circumstances, cetaceans also seem to react to the change in received level, rather than the received level per se, or whether a noise source is approaching the animal or not. Clearly, dosage is not the only, or possibly even the most important, factor to consider in determining the dose-response function approach.

959 [The Navy's proposed mitigation methods are woefully inadequate. They include using non-dedicated trained observers to look out for marine mammals and passive acoustic monitoring to listen for vocalizing marine mammals. Even if an animal is spotted and reported within 1,000 yards of the sonar dome the sonar will not be stopped but will be turned down by a mere 6 decibels to 229 decibels – still over 10 million times more intense than the Navy's human diver standard of 145 decibels and over a million times more than the noise level received by the animals in the Bahamas incident of 2000.]

✓ [According to the Navy's proposed mitigation measures, the sonar will only be shut down when an animal is spotted within 200 yards of the sonar dome. By the time the sonar has traveled that far, it will already have been ensonified for many minutes with noise equivalent to that which

⁴ Nowacek, et. al. (2004) North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli, Proceedings of the Royal Society, Volume 271, Number 1536, February 07, 2004.

A-016

caused the Bahamas whales to strand and die. To shut off the sonar when an animal is observed and reported at 200 yards will already be too late.]

✓ [The likelihood of even a trained and dedicated marine mammal observer seeing every animal in the vicinity of the ships at all times is very low. Whales and dolphins are diving animals, some staying at depth for over an hour. Beaked whales are only at surface 8% of the time and the chance of seeing beaked whales has been calculated by NMFS scientists at a mere 2% during good conditions. Human observers cannot possibly see every animal in the vicinity of the ships at all times.]

1046 [The Navy intends to use the active sonar day and night. During hours of inclement weather, poor sea states and darkness, human observers are virtually useless and so the only mitigation method will be passive acoustic monitoring. Passive acoustic monitoring is only adequate for vocalizing animals within range and then only at certain frequencies. The Navy should not be using active sonar during periods of darkness and poor visibility.]

1063 [The Navy's operational requirements should not supersede its marine stewardship obligations. Other navies use more effective mitigation procedures which, in some cases, the Navy has adhered to, demonstrating that operational effectiveness need not be compromised for the sake of protecting the marine environment.]

NA [Specifically the NATO Undersea Research Center requires much stricter measures for the protection of marine mammals during high intensity active sonar use. Sites are selected only after an environmental assessment has considered known marine mammal habitat and noise propagation and sites are selected to avoid enclosed areas and coastal areas with complex steep sea bed topography. Ship tracks are planned to provide marine mammal escape routes and avoidance of embayments.] Operations are suspended if marine mammals enter the safety zone which is defined as the area ensounded to 160 dB for large whales. The safety zone for endangered species, or for Cuvier's beaked whales is double the above-mentioned safety zone. ✓]

1080 [Similarly, the Australian Navy takes more cautious and significant steps to minimize harm to marine life from sonar exercises. It imposes seasonal and geographic restrictions on the use of mid-frequency active sonar systems at highest power levels and avoids transmissions with source levels greater than 210 dB within 30 nautical miles off certain coastlines during times when whales are likely to be present. It also uses lower power levels in conditions that may produce surface ducting or embayments. It also avoids seamounts and monitors a 4,000 yard safety zone for 30 minutes prior to sonar transmission which is maintained throughout the active sonar transmissions with an immediate shut-down procedure if a marine mammal is detected within the safety zone.]

The Navy can and has complied with the Australian Navy's mitigation methods, for example during Operation Talisman Saber in 2007. Therefore for the Navy to be aware of the existence and implications of more stringent mitigation methods, to have implemented them and then to not use them around its own shores is unacceptable.]

A-0116

1081 [The Navy has also employed more stringent mitigation measures than it is proposing in this DEIS. During the Rim of the Pacific biennial exercise in 2006 the Navy adopted larger marine mammal safety zones, had at least one dedicated marine mammal observer, implemented restrictions on exercises involving the use of active sonar taking place in channels between islands with steep underwater topography and instituted a reduction of power levels in conditions of low visibility. It must be noted that these improved mitigation procedures for the RIMPAC 2006 exercises were only implemented after the courts deemed the Navy's proposed mitigation to be inadequate and a settlement was reached.]

1084 [In conclusion, the Navy should be adhering to much stricter mitigation methods in use by other navies for similar exercises and to include those that the Navy when required to, has used before. The Navy should commit to the following at a minimum:]

- 1085 - [exercises should not be conducted at night or during other periods when visibility is poor;]
- 1087 - [exercises should not be conducted during conditions that are conducive to ducting;]
- 1090 - [areas where marine animals are known to congregate, such as known feeding and breeding areas, should be completely avoided;]
- 1092 - [areas close to the migration paths of the North Atlantic right whale should be off-limits to Navy traffic during the migration season;]
- 1093 - [at least three trained and dedicated marine mammal observers should be employed on all ships equipped with MFA sonar;]
- 1094 - [dedicated marine mammal aerial surveillance should be employed to look for marine animals an hour before and an hour after an exercise;]
- 1096 - [when an animal is observed within 2,000 yards of the sonar dome, the sonar should be shut down until the animal has left the area.]
- 1097 - [an after action report for each exercise documenting ship positions and sonar use should be prepared and made publically available at no charge.]

We appreciate the opportunity to provide our comments.

Sincerely,



Susan Millward
Research Associate

cc: Michael Payne, Office of Protected Resources, NMFS