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January 30, 2006

Mr. Keith Jenkins
Naval Facilities Engineering Command Atlantic
Code EV21KJ
6506 Hampton Boulevard
Norfolk, VA 23508

Re: Draft Overseas Environmental Impact Statement/Environmental Impact Statement Undersea Warfare Training Range (USWTR) (70 Federal Register 62101-62103)

Dear Mr. Jenkins:

The Animal Welfare Institute respectfully submits the following comments on the above-referenced proposed Draft Overseas Environmental Impact Statement/Environmental Impact Statement for the Undersea Warfare Training Range (DEIS). Please enter this comment letter into the record.

Preferred Alternative: No Action.

The DEIS is wholly inadequate in identifying and assessing all the potential impacts of the proposed action in accordance with the National Environmental Policy Act. The DEIS fails to sufficiently address obvious problems with respect to environmental impact in order to defend the three USWTR sites chosen for military convenience rather than to minimize impacts to the environment. The DEIS omits scientific data, especially that which conflicts with its claims, does not use current scientific evidence as part of its impact analysis, makes unsubstantiated claims, and in instances when impacts cannot be ignored or minimized, offers inadequate mitigations or glosses over the situation, stating that the Navy will cooperate with the appropriate agency to get around the problem.

1.0 The Need for the USWTR

Under the heading US World Role and the Global War on Terror (page 1-2), the DEIS claims that it is imperative that US military forces are the best trained, prepared, and equipped in the world and that anti-submarine warfare is a critical part of that mission. The inference from this is that terrorist groups are or are anticipated to be equipped with submarines that could threaten

the shallow coastal waters of the US or its allies. However Al Qaeda does not have a submarine force as stated by Captain Toady of the Navy[1]. In justifying the need for the USWTR, Captain Toady went on to say that Al Qaeda doesn't have an air force either yet was able to use aircraft to threaten the US and that it would be a dereliction of duty to assume that Al Qaeda could not use undersea warfare weapons as a threat to the US. To justify the need for the USWTR with the threat of terrorism is groundless.

The DEIS should include a full explanation as to why the USWTR will enable Navy personnel to become more effectively trained to combat the protagonists of the War on Terror or remove this justification from the document. If the reasoning is classified, the DEIS should so state.

The DEIS briefly discusses the use of simulators as a means of training its personnel in the use of active sonar. It states that "*even with advances in simulator technology, there is little capability for simulators to fully replicate the variability of acoustic transmission….. a simulator cannot match the dynamic nature of the environment, either in bathymetry, thermography, or oceanography*" (page 2-3). This is statement is not backed up by corroborated evidence. Given the current advanced state and pace of technological development and the sizeable resources which seem available to the Navy to spend on active sonar training, simulators that could approximate the range should be first rate. To dismiss the use of simulators in place of all or part of the USWTR in only 110 words is unreasonable. The DEIS should provide a thorough justification, backed up by scientific evidence, as to why simulators are unable to replicate, either partially or fully, the dynamic nature of the marine environment.

The DEIS explains that the USWTR is needed to train navy personnel in realistic anti-submarine warfare (ASW) in the littoral zone, that the use of acoustic sensors is the best method to search for submarines, and that active sonar is the most useful form of acoustic sensor in this time of quieter diesel or air-independent submarines. The DEIS fails to identify the alternatives to acoustics that can be used to search for submarines.

2.0 Site Selection Process

The DEIS states that in conducting the site selection process, the Navy evaluated operational requirements, proximity to the Fleet's homeport and training concentration areas, and quantitative requirements including range logistics support (page 2-15). Using requirements of proximity to fleet concentration areas needlessly imposes constraints that dismiss other alternatives without due consideration. This is also incongruous with the Navy's mission of being able to operate from off-shore logistics and strike platforms.

[1] Informational meeting regarding the Navy's proposed Undersea Warfare Training Range (USWTR) Draft Environmental Impact Statement (DEIS), held at the Booz Allen Hamilton McClean Campus facility, McClean, VA, November 10, 2005.

The DEIS states that a "*nearby secure federal airfield is required to support helicopter recovery services of submarine targets and EXTORPs"* (page 2-19). The implication of this is that the Navy no longer has ships from which helicopters can operate. This is an unnecessary criteria that only serves to eliminate otherwise potentially viable alternatives.

In reference to the shore landing site and infrastructure, the DEIS states that the USWTR range should be located offshore of an "*established, operational, federal shore installation…with direct access to the sea"* (page 2-19). This is another criteria that needlessly excludes otherwise potentially viable alternatives. The Navy can and does lease land for other purposes around the world and could for the very small facility required on shore.

3.0 DEIS Document Preparers

The biological communities present in the marine environment are discussed at length in the DEIS since these communities will be affected by the proposed action. However, the list of preparers of the DEIS includes only one person with a degree in marine biology and none with an advanced degree in this subject. The DEIS should be prepared by experts. Since the majority of the potential impacts from the USWTR affect the marine environment and its biological communities, a marine biologist with an advanced degree in the subject should be a co-preparer of the document.

4.0 The DEIS Does not Comply with NEPA

The National Environmental Policy Act (NEPA) requires an *EIS for actions that may significantly affect the quality of the human and natural environments.* The EIS *must disclose significant environmental impacts and inform decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts.* (page 1-13)

Throughout the DEIS document, the Navy introduces impacts that have the potential to be significant and then systematically and without solid basis trivializes these impacts, often resorting to quoting selective scientific reports or making wild assumptions based on flimsy evidence.

5.0 Species Speciously Dismissed

The DEIS uses a ranking system to predict the occurrence of marine mammals and sea turtles at the three Alternative sites. The ranks range from "*Concentrated occurrence*" through "*Expected occurrence*" and "*Low/unknown occurrence*" to "*Occurrence not expected*" (page 2.3-22).

The *Low/unknown* occurrence rank is nonsensical as *unknown* cannot be equated to *low*. Occurrence of a species in an area may be unknown because it has not been studied, but that

does not mean that its occurrence is necessarily low. The DEIS should be amended to separate the Low/unknown occurrence category into Low and Unknown.

The DEIS points out several times that though a species is expected to occur in an OPAREA, it won't be found in the USTWR area. For instance, minke whales in OPAREA A (page 3.2-25), spinner dolphins in OPAREA A (3.2-33), Clymene dolphin in OPAREA B (page3.2-42), fin whales in the OPAREA C (page 3.2-47). Marine mammals are highly mobile and range over many miles every day. The USTWR sites lie within the respective OPAREAS, so to state that an animal will be in the OPAREA but won't travel through or into the USTWR site is illogical.

Pinnipeds

The DEIS summarily dismisses pinnipeds from any discussion on impacts because "*Pinniped species are not likely to occur at the proposed USWTR sites*" (page 3.3-5). It makes this claim based on its statement that the four pinniped species known to occur in the western North Atlantic Ocean only range as far south as south of New Jersey and Delaware.

The Delaware Atlantic sea board lies within OPAREA B and the DEIS also acknowledges that both harbor seals and hooded seals have been sighted (albeit infrequently) in the most southerly OPAREA off Jacksonville, Florida (page 3.2-53). Surely if harbor seals and hooded seals have been found in the most southerly OPAREA, then they had to have been off the coasts of Maryland, Virginia, North Carolina, South Carolina and Georgia where the first two OPAREAS lie. More recent assessments conducted by the National Marine Fisheries Service (NMFS) support this.[2]

Manatees

The DEIS dismisses manatees from its analysis of all non-landside environments because, it claims, the species primarily inhabits estuarine and coastal waters and that even at OPAREA C (Florida) the probability of encountering manatees is very low. Manatees are listed as endangered under the Endangered Species Act. The number of manatee deaths spiked in 2005, the second highest yearly total on record[3]. With the fragility of this species being of particular concern, even if there is a low probability of encountering a manatee as the DEIS claims, the species should not have been so readily dismissed from the DEIS.

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[2] Waring, G. T. et al. 2003. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments* accessed on January 24, 2006 at http://www.nefsc.noaa.gov/nefsc/publications/tm/tm182/, pages 103 and 121, state that harbor seals and hooded seals are being seen more frequently off the Carolinas and Florida respectively.

[3] Save the Manatee Club. 2005. "*2005 Is Second-Highest Mortality Year On Record.*" Accessed on January 24, 2006 at http://www.savethemanatee.org/news_feature_2005_mortality.htm.

Manatees have also been reported to hear at up to 1,400 Hz or 1.4 kHz[4] which is at the low end of the mid-frequency range of the active sonar to be used at the USTWR. Intense mid-frequency sound can travel great distances from the source giving a potential for acoustic impact to Florida manatees.

With regard to the landside impacts, the DEIS states that the manatee is known to occur in coastal northeast Florida and that shallow grass beds are preferred feeding areas for manatees in coastal habitats. OPAREA C encompasses coastal northeast Florida. The DEIS states that "*extensive grass beds are not likely to occur in the turbid waters off the beach at Naval Station Mayport* [the land portion of Alternative C] *and thus, manatee presence is expected to be limited.*" (page 4.6-11)

According to the DEIS, the Navy intends to employ observers on cable laying vessels to ensure "*that the cable installation process does not interfere with or entangle any marine mammal*". (page 6-9) The DEIS does not say how many observers will be used. With regard to manatees, the DEIS adds that since the construction phase is of limited duration, the chance for contact with manatees is also limited. This is not a mitigation measure – it only takes a few seconds to strike and kill a manatee.

Seabirds

The DEIS excludes seabirds from the acoustic impacts analysis despite stating that *[T]here are few data on hearing in seabirds and even less on underwater hearing* (page 3.3-6) and that "*it is likely that many diving birds can hear mid-frequency sound.*" (page 3.3-7) The reasons given for this swift exclusion are:

- there is no evidence that seabirds use sound underwater;
- seabirds spend a very small fraction of their time submerged; and
- they can rapidly disperse to other areas if disturbed.

Absence of evidence does not equate to evidence of absence and even if there was evidence suggesting that seabirds do not use sound underwater, this doesn't mean that they will not be impacted by noise. In addition, even if some seabirds do spend a very small fraction of their time submerged, while it might lessen the likelihood of severe acoustic impact, it doesn't mean that impacts won't happen and certainly is not true for deep diving birds.

Seabirds rapidly leaving a feeding area if disturbed by noise could constitute an acoustic impact under the MMPA.

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[4] Mann, D. et al. 2005. *Temporal resolution of the Florida manatee (Trichechus manatus latirostris) auditory system*. Journal of Comparative Physiology A: Sensory, Neural, and Behavioral Physiology, 191 (10) pages 903-8.

6.0 Marine Debris

The DEIS describes how material used in the exercises which the Navy considers expendable, will be left to sink to the sea bed. Items listed in the DEIS to be annually discarded to the sea bed include:

- 48 control wires which each comprise a thin narrow gauge copper wire inside a detachable flex hose;
- 48 flex hoses, each 250 feet-long, some of which (the improved flex hoses) each contain 53 lbs of lead;
- air launch accessories which, depending on the type, may include protective nose cover, suspension bands, air stabilizer, release wire, and propeller baffle, nose cap, sway brace pad, arming wire, and fahnstock clip;
- five sets of rocket motor, airframe, nose cap, parachute, and two lead weights;
- 10,364 lbs of lead ballast;
- 132 expendable bathythermographs;
- 7,884 sonobuoys each measuring 3ft by 0.4ft;
- 33 acoustic device countermeasures;
- 50 mobile acoustic torpedo targets.

This represents a sizeable amount of debris, which the DEIS claims will be unlikely to result in any significant environmental impacts (page 4.1-3) because the debris will not only sink without incident to the sea bed, but will degrade, corrode and become assimilated into the sediments. (Later the document contradicts this claim with respect to the control wires [page 4.1-11], which it states are not likely to deteriorate or corrode rapidly since they are coated with a polyolefin.)

Throughout its discussion on the potential impacts of the USTWR debris, the DEIS discusses and then dismisses each one for each type of potentially impacted organism. In each instance the explanations as to why the impacts will not be significant are totally inadequate and where a negative impact cannot be explained away, the DEIS states that the Navy will consult with the National Marine Fisheries Service. A few examples follow.

Lead is a Resource Conservation and Recovery Act classified hazardous material and is discussed in some depth in the DEIS, separately for each component to be used during USWTR exercises. Lead's affect on marine life is discussed briefly in the DEIS which states that elevated lead concentrations have been found in the livers of marine mammals in "lead hotspots' but that it is not thought to biomagnify (not bioaccumulate) in the food chain since higher concentrations are found in invertebrates than in the animals who eat them. This discussion, though promising, is inadequate in explaining why the DEIS concludes that the impact from lead on the

environment will be insignificant. The DEIS states that lead in saltwater corrodes at a rate of 1.96 lbs per year. The operation of the range will involve the deliberate annual discharge of almost 6 tons of lead in the same geographical area, year in and year out. The accumulation of the lead on the sea bed will have significant impacts.

Similarly the DEIS claims that every one of the 48 control wires and 48 flex hoses discarded each year will sink to the sea floor without incident and that the risk of entanglement with marine animals would be low. Such a claim cannot be made without scientific proof that these wires and hoses, which are hundreds of feet long, won't tangle or interfere with an animal, other debris from the range exercise or with another inanimate object on its way down through over 1,000 feet of water. The only literature cited to discount entanglement is a 1957 paper which discussed entanglement with undersea cables. The relative thicknesses of the cables cited in the study and the control wires and flex hoses to be used at the USWTR are not detailed in the DEIS so the reader is left wondering if the cited literature can actually be satisfactorily compared to the wires and flex hoses.

A similar claim is made with regard to the air stabilizer canopies and suspension lines, which the DEIS states could billow on the sea bed and potentially pose an entanglement problem. The DEIS then claims that since the canopies are highly visible, entanglement will be unlikely. This implies that marine animals will see the canopies and will then somehow avoid them. Hazards, which will remain are being introduced into their environment.

The DEIS states that due to the large size of the non-floating air launch debris (which it says will range from 11 inches to 44 inches long), there is a small risk of ingestion by animals, except for bottom-feeding whales. It then goes on to conclude that the air launch accessories would not likely affect listed species or take species protected under the MMPA. This conclusion is irresponsible for two reasons. Firstly, 11 inches is not large, especially from the point of view of a marine mammal such as a dolphin or a whale whose prey is often larger. Second, the DEIS states that bottom-feeding whales could ingest the air launch debris but does not explain why this is not an impact.

7.0 Impacts to Invertebrates

The DEIS claims that only individual benthnic invertebrate impacts will result from use of the USTWR but that population impacts will be insignificant. With regard to acoustic impacts, the DEIS dismisses invertebrates altogether stating that mid-frequency sonar is not considered to be in their primary hearing register (page 3.3-3) and that invertebrates at the three sites already experience noise from shipping without adverse impact. The DEIS substantiates the first claim by citing a few studies but none to justify the second claim about the impacts of shipping noise.

It is generally accepted that scientific knowledge about the effects of sound on invertebrates is scant, so to assume that invertebrates will not be impacted by mid-frequency sound just because

they cannot hear it is irresponsible. There are studies which suggest that noise comparable to mid-frequency sonar may impact invertebrates.[5] Until it has been scientifically demonstrated and accepted that noise from active sonar cannot ever impact invertebrates, the precautionary principle should be applied.

8.0 Impacts to Fish

The DEIS claims that significant effects to fish are not anticipated. The DEIS substantiates this claim citing studies performed on captive individuals of select species of fish. To extrapolate the impact of noise on a few captive and presumably conditioned individuals to all species of fish in the wild is scientifically unsound. In reality, numerous studies[6] performed on fish in the wild actually demonstrate severe impacts from noise comparable to mid-frequency sonar, and not only to individuals but to populations. The DEIS claims that there is no evidence to suggest that non-impulsive noise kills fish. There is at least one study that suggests that non-impulsive noise can kill fish.[7] The DEIS also ignores the effects of masking on fish.

At all three sites there are substantial commercial and recreational fishing interests. In North Carolina, the preferred choice for the USWTR, there is concern about declines in fish populations that are targeted by commercial fishing interests.[8] To summarily dismiss impacts to fish without a more thorough analysis is reckless.

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[5] Department of Fisheries and Oceans (DFO). 2004. *Potential impacts of seismic energy on snow crab*. DFO Can. Sci. Advis. Sec. Habitat Status Report 2004/003;

Guerra, A., et al. 2004. *Calamares gigantes varados: victimas de exploraciones acústicas*. Investigacion y Ciencia (Spanish edition of Scientific American) July 2004: 35-37;

MacKenzie, D. 2004. Seismic surveys may kill giant squid. New Scientist.com news service, 22 Sept.;

McCauley, R.D., et al. 2000. Marine seismic surveys: analysis and propagation of air-gun signals; and effects of air-gun exposure on humpback whales, sea turtles, fishes and squid. CMST 163, Report R99-15, prepared for the Australian Petroleum Production Exploration Association from the Centre for Marine Science and Technology, Curtin University, Perth, Western Australia.

[6] Dalen, J. and Knutsen, G. M. 1987. Scaring effects on fish and harmful effects on eggs, larvae and fry by *offshore seismic explorations*. Pages 93-102. In: Merklinger, H. M. (Ed.). Progress in Underwater Acoustics. New York: Plenum Press;

Engâs A., et al. 1996. Effects of seismic shooting on local abundance and catch rates of cod (Gadus morhua) and haddock (Melanogrammus aeglefinus). Can. J. Fish. Aquat. Sci. 53: 2238-2249;
Løkkeborg, S. 1991. *Effects of a geophysical survey on catching success in longline fishing*. ICES CM B:40. page 9;
Løkkeborg, S. and Soldal, A.V. 1993. *The influence of seismic explorations on cod (Gadus morhua) behaviour and catch rates*. ICES mar. Sci. Symp. 196. pages 62-67;

Popper. A. N. 2003. The effects of anthropogenic sounds on fishes. Fisheries 28 (10): 24-31.

[7] Turnpenny, A. et al. 1994. The effects on fish and other marine animals of high-level underwater sound. Report prepared for UK Defense Research Agency FRR 127/94, Fawley Aquatic Research Laboratories, Ltd., UK.

[8] Rich, B. 2006. *Fisheries resolution circulates*. Maritime scholars sound the alarm over decline of commercial fishing. Morehead City News-Times, January 25, 2006.

9.0 Impacts to Sea Turtles

The DEIS states that five species of turtle can be found at the three sites, and that four are listed as endangered under the Endangered Species Act, and the fifth, the loggerhead is threatened. The Site A USWTR (land and nearshore portions) actually falls within the Onslow Bay turtle sanctuary. Yet despite acknowledging the existence of such rare and vulnerable creatures, the DEIS claims that since four of these species of turtles hear best at low frequencies, the impacts from the USWTR noise will be negligible. For the turtle sanctuary, the DEIS states that the Navy will bury the trunk cable running from the grid of transducer nodes to the shore and so negate possible impacts.

Studies cited in the DEIS are those conducted on captive animals. For leatherbacks the DEIS states that though there is no hearing data; "*it is probably safe to say that leatherbacks are not expected to have their best hearing capability in the mid- and high-frequencies*." (page 3.3-5) It is not scientifically defensible to say that since turtles cannot hear a noise at a certain frequency, they cannot be impacted by it. Similarly, the data obtained from a handful of captive specimens cannot be extrapolated to all species of turtles in the wild.

The DEIS claims that Green, loggerhead, and Kemp's Ridley sea turtles may brumate (hibernate) on the sea bed in shallow waters in the vicinity of Site C during cold periods. This presents an entanglement problem with the trunk cable. The DEIS states that the Navy will get around this by consulting NMFS. Surely since these turtles are endangered species, the Navy should commit to either burying the cable to a depth below which turtles will burrow or remove Alternative C from the list of Alternatives (given the additional presence of manatees as previously discussed, and North Atlantic right whales, discussed in subsequent paragraphs.)

10.0 Impacts to Marine Mammals

The effect of the range on marine mammals is likely the most significant environmental impact to be assessed in the DEIS for all three Alternatives. Indeed, the DEIS devotes many dozens of pages to discussing marine mammals and particularly acoustic impacts.

North Atlantic Right Whale

The DEIS acknowledges that the North Atlantic right whale is one of the most imperiled cetaceans on the planet. There are predicted to be only about 300 of these animals left and because of numerous ship strikes in recent years, including by Navy vessels, concern over its future is grave. Sadly, there have been two right whale deaths reported in the month of January

2006[9] alone, yet the Alternative C OPAREA off Jacksonville, Fla. includes a large portion of habitat designated as critical habitat for these whales (page 3.2-46). Based entirely on this fact, Alternative C should be withdrawn from consideration.

Instead, the DEIS states that the USTWR at Alternative C will be well beyond this critical habitat and no further explanation is given. With regard to ships transiting the migration paths, the DEIS lists the following mitigation measures that will be employed:

- that during certain months of the year and in certain geographical locations "Navy vessels will practice increased vigilance" to avoid vessel-whale interactions;
- while transiting within 30NM of the coast to have at least two watchstanders posted, including at least one lookout that has completed required marine mammal awareness training; and
- to "*avoid knowingly approaching any whale head on*" (page 4.2-13).

With regard to other Alternative OPAREAs, the DEIS claims that the same mitigation measures will ensure no likely adverse impact.

To merely practice increased vigilance when one is talking about only 300 individuals of a species left in the world is totally unsatisfactory. The Marine Mammal Commission in its comment letter on the USWTR notes that *the death or serious injury of a single North Atlantic right whale would constitute a significant population-level effect* [emphasis ours].[10]

These mitigation measures have not been suggested because of the USTWR and are not unique to the DEIS. These measures have been employed by the Navy for some time with respect to North Atlantic right whales. Interestingly, as the DEIS points out, perhaps in trying to 'dilute' its impact, the Navy comprises 2-3% of the overall large vessel traffic, yet the Navy has a very poor record when it comes to vessel strikes with this highly endangered species despite these mitigation measures. This makes the DEIS claim that the mitigations will ensure "*Navy vessels are not likely to adversely affect North Atlantic right whales"* clearly ludicrous.

Anthropogenic Noise

The operation of the USWTR will change the acoustic makeup of the Eastern Seaboard forever. In describing the range and its operation, the DEIS lists the following potential noise sources:

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[9] Associated Press. 2006. *Endangered right whale calf found dead off Jacksonville Beach*. January 22, 2006; and Daytona Beach News-Journal. 2006. *Scientists: Ship strike likely cause in whale's death*. January 14, 2006.

[10] Letter from David Cottingham, Executive Director, Marine Mammal Commission to Mr. Keith Jenkins, Naval Facilities Engineering Command–Atlantic, January 18, 2006.

- Engine, propeller, and hull noise from vessels used at the site including: Submarines, surface ships, aircraft, helicopters, and support vessels.
- SQS-53 mid-frequency sonar operating at a source level of 235 dB re $1\mu Pa^2$ s @ 1m;
- SQS-56 mid-frequency sonar operating at a source level of 225 dB re $1\mu Pa^2$ s @ 1m;
- Submarines auxiliary sonar systems for ice and mine avoidance, top and bottom soundings and communication;
- Aircraft sonobuoys and dipping sonars;
- Torpedo autonomous guidance systems that ensonify the target and use received echoes for guidance;
- Acoustic Device Countermeasures that act as decoys to avert localization and/or torpedo attacks;
- Training Targets that simulate target submarines by using acoustic projectors to emanate sounds to simulate submarine acoustic signatures and/or by using echo repeaters to simulate the characteristics of the echo of a particular sonar signal reflected from a specific type of submarine;
- Other noise sources described in the DEIS include range pingers and range transducer nodes.

The DEIS states that the USTWR will be used for up to 161 exercises a year with each exercise lasting six hours. With the added time taken for ships and other naval craft to transit to and from the USWTR site, the actual times when disturbances will occur could easily be for 8 hours per day, every other day.[11]

The association between anthropogenic ocean noise and its impacts on marine mammals is well documented although there is still scientific uncertainty over the actual causal mechanisms of impacts. It is generally accepted that impacts can range from altered behavior through temporary injury to mortality.[12] Altered behavior can include a startle response and can affect an animal's

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[11] The calculated transit times to and from the USWTR site are very conservative and are based on the following assumptions: that vessels will be traveling at a top speed of about 30 knots. The approximate time to arrive at the nearest edge of each Alternate site is: Site A – 1 ½ hours; Site B – ¾ hour; Site C – 2½ hours.

[12] Balcomb, K.C. and Claridge. D.E. 2001. *A mass stranding of cetaceans caused by naval sonar in the Bahamas*. Bahamas Journal of Science 8 (2) pages 1-12;

Cox, T. M. et al. In Press. *Report of a workshop to understand the impacts of anthropogenic sound on beaked whales*;

Engel, M. H. et al. 2004. *Are seismic surveys responsible for cetacean strandings? An unusual mortality of adult humpback whales in Abrolhos Bank, northeastern coast of Brazil*. Paper SC/56/E28 presented to IWC Scientific Committee, Sorrento, Italy (unpublished);

Fernandez, A. et al. 2005. "*Gas and fat embolic syndrome" involving a mass stranding of beaked whales (Family Ziphiidae) exposed to anthropogenic sonar signals*. Vet Pathology. 42. pages 446–457;

ability to: feed, find mates, stay on a migration path, communicate, stay at or return to a favored feeding area, nurse, care for young, and to catch and escape prey. Temporary injury can have the same consequences, though more severe and prolonged. Mortality can result directly from exposure to sound or indirectly as a consequence of altered behavior or temporary injury.

In its discussion of acoustic impacts (which the DEIS calls 'effects') the DEIS is flawed because it:

- chooses to base its whole evaluation of the potential acoustic impacts to marine mammals on selective and flimsy data, while ignoring more accurate, widely accepted and peer reviewed science, including a comprehensive interpretation of actual stranding data;
- chooses to assume that the primary effect of sound on an animal will be to the auditory system;
- not only extrapolates data from studies on a few captive animals of a handful of species to all cetaceans in the wild, but also extrapolates data from captive, terrestrial animals to acoustic marine animals;
- dismisses masking based on false conclusions about the nature of the noises produced by the USWTR;
- uses flawed modeling to approximate the degree of impact to numbers of specific marine mammal species; and
- casually dismisses cumulative (and synergistic) effects by minimizing the magnitude of the potential impacts and explaining away the unavoidable impacts with promises of ineffectual mitigation measures.

(footnote 12, continued from previous page)
Frantzis, A. 1998. *Does acoustic testing strand whales?* Nature. 392. page 29;

International Whaling Commission Scientific Committee (IWC/SC). 2004. Annex K: *Report of the Standing Working Group on Envifronmental Concerns*. Annual IWC meeting, Sorrento, Italy, 29 June–10 July 2004. page 56;
Jepson, P. D. et al. 2003. *Gas-bubble lesions in stranded cetaceans. Was sonar responsible for a spate of whale deaths after an Atlantic military exercise?* Nature. 425. pages 575-576;

Levine, H. 2004. *Active Sonar Waveform* JASON Group Report. JSR-03-200;

Miller, P.J.O. et al. 2000. *Whale songs lengthen in response to sonar.* Nature. 405 page 903;

Morton, A.B. and Symonds, H.K. 2002. *Displacement of Orcinus orca (L.) by high amplitude sound in British Columbia*. ICES Journal of Marine Science. 59. pages 71-80;
NOAA and U. S. Navy. 2001. *Joint Interim Report; Bahamas Marine Mammal Stranding Event of 15-16 March 2000*. National Oceanic and Atmospheric Administration;

Richardson, W.J. et al. 1995. *Marine Mammals and Noise*. New York: Academic Press, page 576.

Romano, T.A. et al. 2004. *Anthropogenic sound and marine mammal health: measures of the nervous and immune systems before and after intense sound exposure*. Can. Jo. of Fisheries and Aquatic Sciences. 61 pages 1124-1134;

Taylor, B. et al. 2004. *A call for research to assess risk of acoustic impact on beaked whale populations*. Paper SC/56/E36 presented to IWC Scientific Committee, Sorrento, Italy (unpublished);
Weller, D.W. et al. 2002. *Influence of seismic surveys on western Grey Whales off Sakhalin Island, Russia in 2001*. Paper SC/54/BRG14 presented to International Whaling Commission Scientific Committee, Shimonoseki, Japan (unpublished).

Acoustic Effect Analysis and Harassment Calculations

From its acoustic effect analysis and harassment calculations, the Navy concludes that the "*impacts to species or stocks of marine mammals would be negligible for each of the proposed USWTR alternatives."* It supports this conclusion with the statement that "*the overwhelming majority of the acoustic exposures are within the non-injurious TTS or behavioral effects zones*." (page S-12)

With regard to beaked whales the DEIS claims that it makes a special case because of the Bahamas stranding incident where "Navy mid-frequency sonar has been identified as the most plausible contributory source to the stranding event." (page 4-3.30) For beaked whales, the Navy changes the definition of Level A harassment in the DEIS to include behavioral effects, although it makes sure to state that no direct injury to beaked whales is predicted.

When it comes to individuals, the Navy claims that incidental harassment is estimated for a number of species of marine mammals and that to reconcile this it will submit a letter of authorization from NMFS for the preferred Alternative. The so-called analysis by which this conclusion is reached is based entirely on selective and flimsy data which ignores more accurate, widely accepted and peer reviewed science.

The DEIS defines injury related to an action as "*the destruction or loss of biological tissue*" and "*[b]ehavioral disruption as occurring when "there is a change in behavior as a result of the* action". (page 4.3-5)

It later defines Level A harassment as including "*any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild*" and that the injury (destruction or loss of biological tissue) "*will result in an alteration of physiological function that exceeds the normal daily physiological variation of the intact tissue*."

It defines Level B harassment as including "*all actions that disturb or are likely to disturb a marine mammal or marine mammal stock in the wild through the disruption of natural behavioral patterns....to a point where such behavioral patterns are abandoned or significantly altered*." (page 4.3-5 and 4.3-6)

The received sound exposure thresholds used in the DEIS are given in terms of energy flux density level (EL) which attempts to reconcile the standard measurement of sound pressure level over the duration of the sound. A conservative calculation to use for duration for the USTWR site would be six hours which is the maximum duration of a single exercise. This assumes that the exercise vessels do not make noise, including active sonar use, during transit to and from the site. The argument that sonar pings will only occur every 25 seconds and that exposed animals can recover during pings is absurd when one takes into account reverberation and other sound sources in operation at the same time, which as the DEIS explains, could include up to a dozen sources.

The thresholds used for Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) in the DEIS are based on minimal and sometimes out-dated studies. Similarly, the threshold used in the DEIS to anticipate behavioral disturbance should be based on the most widely accepted scientific field data and on the most sensitive individual in a group. It is not. PTS, TTS and behavioral thresholds have been calculated in the DEIS based on the results of experiments conducted on a few captive and presumably, conditioned individuals from a couple of species. Where there are data gaps, the DEIS extrapolates data from experiments on terrestrial animals.

The DEIS uses data from TTS experiments conducted on five *trained* dolphins and two beluga whales (page 4.3-12) which it calls a relatively large number of test subjects. The responses of seven individual captive animals who have been conditioned to noise cannot be translated to all types of cetaceans in the wild. This is especially troublesome as the DEIS extrapolates from odondocetes (toothed whales) to mysticetes (baleen whales). The DEIS comes up with 195 dB re 1 µPa2-s as the TTS threshold and 215 dB re 1 μPa^2-s for the PTS threshold.

Similarly the DEIS describes how it "*uses behavioral observations of trained cetaceans exposed to intense underwater sound under controlled circumstances to develop a criterion and threshold for behavioral effects."* Based on nine individuals from a couple of species (who the DEIS claims "*are closely related to the majority of animals expected to be located within the proposed USWTR area*"), the DEIS comes up with a figure for behavioral disturbance in 50% of instances as 190 dB re 1 μPa^2-s. To use 50% might be a "*common and accepted psychophysical technique*" but it is certainly not a "*conservative approach to predicting Level B harassment for military readiness activities."* (page 4.3-26) A conservative approach would have been to use the lowest level at which any of the tested subject reacted. Because captive animals are conditioned and cannot accurately represent all species of marine mammals in the wild at all life stages and for both sexes, any lab-derived figures must be viewed with skepticism as is compared to the actual field data.[13]

Extrapolating from terrestrial animal hearing data to marine mammals is even more unreasonable. Marine mammals are acoustic individuals who spend their entire lives immersed in sound in water. Their bodies have evolved to make use of sound to navigate, communicate, find food, locate and attract mates, and avoid predators. Their world is "surround sound" at its best. Marine mammals also don't just use their ears to detect sound. Though there are physical similarities between terrestrial and marine mammal ears, the environment in which each is used is very different and there is not scientific proof to justify an assumption that data on one can be used to represent the same data on another.

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[13] Morton, A.B. and Symonds, H.K. 2002. *Displacement of Orcinus orca (L.) by high amplitude sound in British Columbia*. ICES Journal of Marine Science. 59. pages 71-80;

Richardson, W.J. et al. 1995 *Marine Mammals and Noise*. New York: Academic Press;

Weller, D.W. et al. 2002. *Influence of seismic surveys on western Grey Whales off Sakhalin Island, Russia in 2001*. Paper SC/54/BRG14 presented to International Whaling Commission Scientific Committee, Shimonoseki, Japan (unpublished).

In predicting what noise levels might induce effects on a marine mammal, rather than using captive marine and terrestrial animals, surely it would be appropriate to use data from actual events when available.

Such an event is the Bahamas multi-species mass stranding incident of 2000 in which 16 animals of three species of marine mammal stranded because of the Navy's use of active mid-frequency sonar.[14] Estimates of the average sound exposure level that caused those animals to strand was less than 140 dB dB re 1 μPa.[15] In order to compare this figure with the DEIS thresholds for behavioral disturbance, TTS and PTS, this figure would have to be converted to EL for each animal based on the exposure duration.

Since this incident is the only known source for baseline data from an actual event where the direct correlation between sonar use and marine mammal impact has been accepted by the noise producer, the Navy, it would be remiss of the Navy not to perform such an exercise in the DEIS and then to use the results as part of its analysis.

The DEIS states that the Bahamas incident cannot be compared to the USTWR site because, it claims, the bathymetry around the Bahamas is different to that around the USWTR sites and because the circumstances of the naval exercise that preceded the strandings was different to the proposed USWTR use. Little is known about the actual mechanism that caused the animals to strand, so to immediately leap to the conclusion that the Bahamas incident doesn't count is reckless. Surface ducting for example, is given as a reason for the uniqueness of the Bahamas stranding (page 4.3-31), yet given the right circumstances, surface ducting could also occur in the waters at the OPAREA sites and must therefore be taken into account during the analysis.

The Bahamas incident is the only event in which a noise producer has publicly acknowledged culpability. As the DEIS points out, other strandings coincident with naval activity have also occurred, though the DEIS list is incomplete.

A more comprehensive list follows:

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[14] Department of Commerce and Secretary of the Navy. 2001. *Joint Interim Report: Bahamas Marine Mammal Stranding Event of 15-16 March 2000*.

[15] Hildebrand, J. and Balcomb, K. 2004. *Modeling the Bahamas Beaked Whale Stranding of March 2000* (Presentation at the Third Plenary Meeting of the U.S. Marine Mammal Commission Advisory Committee on Acoustic Impacts on Marine Mammals, 27-29 July 2004, San Francisco, California).

Year	Location	Species (numbers)[16]
1960	Sagami Bay, Japan	Cuvier's beaked whale(2)
1963	Gulf of Genoa, Italy	Cuvier's beaked whale (15+)
1963	Sagami Bay, Japan	Cuvier's beaked whale (8-10)
1964	Sagami Bay, Japan	Cuvier's beaked whale (2)
1966	Ligurian Sea, Italy	Cuvier's beaked whale (3)
1967	Sagami Bay, Japan	Cuvier's beaked whale (2)
1974	Corsica	Cuvier's beaked whale (3), Striped dolphin (1)
1974	Lesser Antilles	Cuvier's beaked whale (4)
1978	Sagami Bay, Japan	Cuvier's beaked whale (9)
1978	Suruga Bay, Japan	Cuvier's beaked whale (4)
1979	Sagami Bay, Japan	Cuvier's beaked whale (13)
1985	Canary Islands	Cuvier's beaked whale (12+) Gervais' beaked whale(1)
1987	Suruga Bay, Japan	Cuvier's beaked whale (2)
1987	Canary Islands	Cuvier's beaked whale (2)
1988	Canary Islands	Pygmy sperm whale (2) Cuvier's beaked whale (3) Bottlenose whale (a beaked whale) (1)
1988	Canary Islands	Cuvier's beaked whale (3) Bottlenose whale (a beaked whale) (1) Pygmy sperm whale (2)
1989	Sagami Bay, Japan	Cuvier's beaked whale (3)
1989	Canary Islands	Cuvier's beaked whale (15+) Gervais' beaked whale (3) Blainville's beaked whale (2)
1990	Suruga Bay, Japan	Cuvier's beaked whale (6)

Stranding Table continues overleaf

[16] Data for the stranding table collated from the following sources:

Brownell, R.L. et al. 2004. *Mass strandings of Cuvier's beaked whales in Japan: U.S. Naval acoustic link?* Paper SC/56/E37 presented to the International Whaling Commission Scientific Committee, Sorrento, Italy (unpublished);

International Council for the Exploration of the Sea (ICES). 2005. *Report of the Ad-hoc Group on the Impact of Sonar on Cetaceans and Fish (AGISC)*. ICES CM 2005/ACE:01;

Martin, V. et al. 2004. *Mass strandings of beaked whales in the Canary Islands*. In: Evans, P.G. H. and Miller, L. A. (Eds.). Proceedings of the Workshop on Active Sonar and Cetaceans. European Cetacean Society Newsletter, No. 42 (Special Issue). Pages 33-36.

(Stranding Table con't)

Year	**Location**	**Species (numbers)**[17]
1991	Canary Islands	Cuvier's beaked whale (2)
1996	Greece	Cuvier's beaked whale (12)
1997	Greece	Cuvier's beaked whale (9+)
1999	Virgin Islands	Cuvier's beaked whale (4)
2000	Madeira	Cuvier's beaked whale (3)
2002	Canary Islands	Cuvier's beaked whale (9) Gervais' beaked whale (1) Blainville's beaked whale (1) beaked whale spp. (3)
2003	Washington, United States	Harbor porpoise (14) Dall's porpoise (1)
2004	Hawaii, United States	Melon-headed whale (~200)
2004	Canary Islands	Cuvier's beaked whale(4)
2005	North Carolina, United States	Long-finned pilot whale (34) Dwarf sperm whale (2) Minke whale (1)

The DEIS singles out beaked whales for special attention. This much is commendable since of the documented strandings that have occurred coincident with naval activities, there are more beaked whales that any other type of cetacean. There have been suggestions that this is due to the beaked whales' deep diving behavior which when coupled with a startle response such as a reaction to noise, leads to a form of decompression sickness.[18]

[17] Data for the stranding table collated from the following sources: Brownell, R.L. et al. (2004). *Mass strandings of Cuvier's beaked whales in Japan: U.S. Naval acoustic link?* Paper SC/56/E37 presented to the IWC Scientific Committee. (unpublished); International Council for the Exploration of the Sea (ICES). (2005). *Report of the Ad-hoc Group on the Impact of Sonar on Cetaceans and Fish (AGISC)*. ICES CM 2005/ACE:01; Martin, V. et al. (2004). *Mass strandings of beaked whales in the Canary Islands*. In: Evans, P.G. H. and Miller, L. A. (Eds.). Proceedings of the Workshop on Active Sonar and Cetaceans. European Cetacean Society Newsletter, No. 42 (Special Issue). Pages 33-36.

[18] Fernández, A. et al. 2005. *"Gas and Fat Embolic Syndrome" Involving a Mass Stranding of Beaked Whales (Family Ziphiidae) Exposed to Anthropogenic Sonar Signals*. Vet Pathology 42 pages 44657;

Jepson et al. 2003. *Gas-Bubble Lesions in Stranded Cetaceans*, 425 Nature. Pages 575-76;

Houser, D.S. et al. 2001. *Can Diving-induced Tissue Nitrogen Supersaturation Increase the Chance of Acoustically Driven Bubble Growth in Marine Mammals? Journal of Theoretical Biology*. 213 (2). 21 November 2001. Pages 183-195.

There is also an increasing belief that other species may experience a similar condition, notably sperm whales.[19] The DEIS states that sperm whales can be expected to occur in the vicinity of Alternatives A and B USWTR sites and possibly in the OPAREA C though east of the USWTR site. The DEIS calculates that eight sperm whales per year will be affected by the USWTR at Site A, 16 at Site B, and though it states that sperm whale are expected at Site C, its states that density estimates are "*zero*" (page 4.3-51).

As the table above shows, there have been six documented stranding incidents associated with naval activity where non-beaked whales have stranded. This provides a further indication that the mechanisms associated with noise and its impacts on marine mammals are still far from understood, underlining the need for precaution.

The DEIS does not take into account the effects to marine mammals who do not strand on land or in shallow water to be found by marine scientists. Stranding incidents have occurred where animals have died and remained at sea.[20] It is likely that many impacted individuals go unrecorded. Animals who are impacted at sea are far harder to quantify and the fact that Alternative A is over 50 miles from the coast perhaps means that there is more chance of marine mammals being impacted but not detected. Since the Bahamas incident of 2000, the local population of beaked whales that had been studied and recorded for many years prior to the incident, has almost disappeared since subsequent sightings have been few. This suggests a population level impact from a <u>single</u> naval action.[21]

The DEIS claims that the primary physiological effects of sound are on the auditory system and based this claim on a paper almost a decade old. In the past ten years there have been ten marine mammal stranding incidents related to naval activities. Where necropsies were possible, severe non-auditory impacts have been observed.[22]

Exercises at the USTWR site could involve over a dozen sound sources. The DEIS dismisses those with source levels below 205 dB re 1 µPa @ 1m because, it claims, a 1-second ping at this level would attenuate below the [DEIS determined] Level B threshold at a distance of about 18 feet. Thus, the DEIS only considers five sound sources and even with these doesn't adequately take into account the cumulative impacts of all five.

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[19] Moore, J and Early, G.A. 2004 *Cumulative Sperm Whale Bone Damage and the Bends*. Science, 306 (5705) Page 2215.

[20] Ferndandez, A. et al. 2005. *"Gas and Fat Embolic Syndrome'' Involving a Mass Stranding of Beaked Whales (Family Ziphiidae) Exposed to Anthropogenic Sonar Signals*. Vet Pathology 42:446–457.

[21] Balcomb, K.C. and Claridge. D.E. 2001. *A mass stranding of cetaceans caused by naval sonar in the Bahamas*. Bahamas Journal of Science 8 (2) pages 1-12.

[22] Ferndandez, A. et al. 2005. *"Gas and Fat Embolic Syndrome'' Involving a Mass Stranding of Beaked Whales (Family Ziphiidae) Exposed to Anthropogenic Sonar Signals*. Vet Pathology 42:446–457; Jepson et al. (2003). Gas-Bubble Lesions in Stranded Cetaceans, 425 Nature. Pages 575-76.

For reasons already given, using 205 dB re 1 µPa @ 1m as a 'cut-off' is not conservative and conflicts with existing data from actual studies showing behavioral and injurious impacts far below this level.

Masking

Masking occurs when meaningful sounds produced by marine animals are obscured or 'masked' by other sounds, usually anthropogenic in nature and often at or near the same frequency as the original sound. Masking is important because it can affect an animal's behavior and thus its ability to feed, find mates, stay on a migration path, communicate, stay at or return to a favored feeding area, nurse, care for young, and to catch and escape prey.

The DEIS claims that the "*chance of sonar operations causing masking effects is considered negligible*." (page 4.3-29) The DEIS justifies this statement by saying that the duration of the noises emitted from the USWTR will be too short, the number too limited and the frequency bands too narrow for masking to occur. It also states that the sound won't propagate beyond a limited area around the source. The many noise sources at the USTWR site have been listed previously in this document. Ping repetition rates documented in the DEIS are 25 seconds. Reverberation also is inevitable. To claim that none of these noise sources either separately or cumulatively will be in the frequency range of all marine mammals who might be in the area is a huge stretch.

Modeling

The DEIS used a system of modeling to predict acoustic impacts from each selected source on actual marine mammal populations at the three sites. This modeling is based on the pre-determined thresholds for PTS, TTS and behavioral disturbance which are questionable and previously addressed earlier in this letter. The modeling used in the DEIS is claimed to have been approved by Navy-Standard Oceanographic and Atmospheric Master Library (OAML). In-house approval is not commensurate with rigorous scientific peer review. The models break down each sound source into a separate entity to create an "acoustic footprint" (page 4.3-38).

The modeling methods used in the DEIS are flawed. They do not take into account to any degree of satisfaction reverberation, which can prolong the duration of a sound as described; surface ducting, which will extend the amount of distance a sound will travel; multiple sound sources operating the same time; sound sources with source levels less than 205 dB re 1 µPa @ 1m; the proven that mid-frequency sound can travel at distances greater than 3,300 feet.

11.0 Mitigation Measures

Even with the high thresholds used in the acoustic impact analysis, the DEIS concedes that impacts will occur, but only behavioral impacts. Throughout the DEIS, the Navy states that predicted impacts are calculated without using mitigation measures and that where impacts are predicted, it will consult with the National Marine Fisheries Service.

The only mitigation measures that the Navy provides are for acoustic impacts, vessel transits during right whale migratory seasons, the landside component of the action, and the cable installation. There are no mitigation measures explained for: non-acoustic impacts to marine animals or the threat of vessel strike for other species of marine animal other than right whales.

It is strange that the DEIS makes no mention of using passive acoustic monitoring to detect marine mammals. It is a technology that has been found to be useful in complementing observers on deck, though even when combined with observers is not foolproof.[23]

Observers

The DEIS describes how marine mammal spotters will be used to look out for marine mammals by bridge personnel for ships and aviation units. Though spotters are a commonly used mitigation measure, it is a highly inadequate method when used in isolation for the following reasons:

- Whales are naturally diving creatures who come to the surface to breathe, so the chances of seeing a whale, even to a trained observer are not absolutely certain;
- Beaked whales are the only cetacean that the DEIS claims will receive Level A harassment. These whales can dive for periods up to 68 minutes,[24] and the estimated probability of seeing a beaked whale by a trained observer, on a good day is less than 2%;[25]
- Using trained Navy crew members who presumably have other duties to look for marine mammals is inadequate.

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[23] Barlow, J. and Rankin, S. 2005. *Estimates of the Percentage of Sperm Whales missed on Combined Visual and Acoustic Surveys in the Eastern Pacific Ocean*. The 16th Biennial conference on the Biology of Marine Mammals, San Diego, CA December 12-16, 2005. Abstract.

[24] Baird, R. et al. 2005. *Diving Behavior of Cuvier's and Blainville's Beaked Whales: Implications for Mass-Strandings in Relation to High-Intensity Sonar*. The 16th Biennial conference on the Biology of Marine Mammals, San Diego, CA December 12-16, 2005. Abstract.

[25] Barlow, J. 2004. *Presentation at the Beaked Whale Technical Workshop*, Baltimore, MD. April 13-16, 2004. The report of this meeting will be contained in Cox, T. M. et al. In Press. *Report of a workshop to understand the impacts of anthropogenic sound on beaked whales*; H. Levine. (2004) *Active Sonar Waveform* 1 (2004) (JASON Group Rep. JSR-03-200).

- Spotters can never be 100% reliable, but may be used in concert with other mitigation measures, such as passive acoustic monitoring to improve the chances of seeing a marine mammal. To achieve any degree of effectiveness, spotters must be trained individuals, dedicated to the spotting purpose only and a vessel must contain sufficient number to relieve each other and staged at various locations around a ship.

Decreasing the Sonar Level

The best mitigation measure to reduce acoustic impacts proposed in the DEIS, is to turn down the sonar by six decibels when a marine mammal is sighted within 200-300 meters of the vessel. This is shameful. The interim report of the Bahamas stranding incident of 2000 of which the Navy was a co-author, made several recommendations regarding mitigation measures to avoid stranding incidents. These recommendations at a minimum should have been used in preparation of the USTWR mitigation measures. The Bahamas incident resulted from a single transit. The USTWR will be used almost every other day in the same location, year in and year out.

Ship Strikes

A discussion of the inadequate mitigation measures proposed in the DEIS to protect North Atlantic right whales has already been presented earlier in this letter. Since however, this is one of the most endangered animals on our planet, it deserves reiteration.

The main threat to the North Atlantic right whales is from ship strike as vessels transit to and from the USTWR site. It must be also noted that noise could also threaten these whales as they migrate along the coast. The DEIS lists the following mitigation measures that will be employed:

- that during certain months of the year and in certain geographical locations "Navy vessels will practice increased vigilance" to avoid vessel-whale interactions;
- while transiting within 30NM of the coast to have at least two watchstanders are posted, including at least one lookout that has completed required marine mammal awareness training; and
- to "*avoid knowingly approaching any whale head on*" (page 4.2-13).

To merely practice increased vigilance when only 300 individuals of a species are left in the world is totally unsatisfactory. The Marine Mammal Commission in its comment letter on the USWTR notes that *the death or serious injury of a single North Atlantic right whale would constitute a significant population-level effect* [emphasis ours].[26]

[26] Letter from David Cottingham, Executive Director, Marine Mammal Commission to Mr. Keith Jenkins, Naval Facilities Engineering Command–Atlantic, January 18, 2006.

These mitigation measures have not been suggested because of the USTWR and are not unique to the DEIS. These measures have been employed by the Navy for some time with respect to North Atlantic right whales. Interestingly, as the DEIS points out in trying to 'dilute' its impact, the Navy comprises 2-3% of the overall large vessel traffic, yet the Navy has a very poor record when it comes to vessel strikes with this highly endangered species despite these mitigation measures. This makes the DEIS claim that the mitigations will ensure "*Navy vessels are not likely to adversely affect North Atlantic right whales"* clearly ludicrous.

To employ only one trained marine mammal look out is totally unsatisfactory.

These ship strike mitigation measures are described for North Atlantic right whales only and will only be employed for certain months of the year when encounters with right whales are expected. A ship strike hazard to other marine animals exists but is not included in the DEIS.

The DEIS is severely flawed and should be withdrawn and re-written to incorporate the precautionary principle in line with sound scientific practice. The Animal Welfare Institute appreciates the opportunity to comment and looks forward to its comments being fully addressed.

Sincerely,

Cathy Liss
President