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Whale and Dolphin Conservation Society

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May 31, 2001

Dear Ms. Wieting,

Re: Proposed Rule for the take of marine mammals incidental to operations of SURTASS LFA sonar by the US Navy

WDCS is responding to the request from NMFS for interested organisations to submit comments, information and suggestions concerning the content of the proposed regulations to authorize this take by the US Navy.

We continue to believe that the NAVY EIS is incomplete and has failed to answer many of the questions that have been asked previously, and WDCS therefore requests that NMFS disallows this Proposed Rule.

We are commenting here on major issues that are still outstanding after publication of the FEIS. We have already submitted our concerns on this issue (see attached WDCS comments from October 1999), and these still stand.

WDCS believes that NMFS are in an invaluable position to set an important global precedent (facilitated by the MMPA legislation), by taking an entirely justified precautionary approach to this significant noise threat. *NMFS and Navy EIS text are in italics.*

Comment 8: Using the information provided by the Navy in its application and draft OEIS/EIS, NMFS believes that it has sufficient information to move forward and propose rulemaking. This decision, however, does not preclude NMFS from requesting additional information from the Navy during the rulemaking process. However, a final rule will not be promulgated by NMFS unless the Agency makes a finding of negligible impact based on all relevant information acquired during the rulemaking process.

WDCS believes that there is not sufficient information, with the minimal peer-reviewed data available and few species studied to date, to proceed under the 'findings of negligible impact'. This should be rectified with much more reliable data before proceeding

When the U.S. Navy first discussed whether an incidental, small take authorization was required for its SURTASS LFA sonar, NMFS determined that insufficient information existed to make a negligible impact determination. NMFS suggested the U.S. Navy conduct a scientific research program on marine mammals to determine potential effects of SURTASS LFA sonar on marine mammals.

Although the US Navy conducted the LFS SRP in answer to NMFS' request, the data collected from this project are not complete. The US Navy (Comment 4-5.18, FEIS Volume 1) states that '*the conduct of scientific peer review is an extensive and lengthy process. Results of the LFS SRP are being peer reviewed and have been/will be published*' If NMFS considered it important to have the LFS SRP conducted in the first instance, why were the full results not considered to be important in this process? Full results of studies conducted to date should be made available before proceeding further.

There have been no research studies conducted to the 180 dB received level (RL) which the US Navy are proposing is a safe level for a zone at which to monitor marine mammals. Whilst WDCS do not wish that the US Navy (or any other bodies) should use playback studies to investigate such levels, we do not believe that the information from the studies conducted to date that the US Navy has collected are representative of low frequency active sonar, nor can they be broadly used to include all cetacean species. This must be rectified. Many of the answers given by the US Navy on the subject of potential impacts on marine mammals – LFS SRP (Issue 4-5) fail to properly answer the questions posed.

NMFS proposes to issue an LOA for each individual SURTASS LFA sonar system which will list the area(s) in which the deployment vessel plans to operate. In its application, the Navy states that there is a remote possibility that two sources may be operating in the same geographic area at the same time. NMFS intends to base its negligible impact assessment on that scenario. If LOAs are issued, the use of more than two SURTASS LFA sonar sources operating at the same time within the same specific geographic area would be considered a violation of the LOA.

Comment 10: NMFS believes that it would be impractical to attempt to structure regulations specifying migratory corridors.

Despite this consideration, WDCS believes that impacts could be minimised (should LFA sonar be approved) by offering seasonal protection through known migration paths. Many of those species for which migratory paths are available are listed by the IUCN as endangered or threatened species, we believe these should be considered.

Please find below the website address for the convention text for CMS (Convention on Migratory Species) and the Appendixes for species listed in Appendix I and II. Although the US is not member to CMS, this international agreement should be respected.. Uncertainty about the distribution and migration routes, only adds to our concerns about the introduction of such intrusive and wide-spread noise as that proposed here by the US Navy.

Comment 12: NMFS believes that by defining "small numbers" to mean a portion of a marine mammal species or stock whose taking would have a negligible impact as in the definition of "small" found in Sec. 216.103, an upper limit is placed on the term, and the phrase effectively implements the Congressional intent underlying the rule.

Any conclusions based on there being no "take" of significance below received levels of 180 dB may be misleading. WDCS believes that this has not been adequately verified and therefore LFA sonar should be disallowed until such a time as this can be proved.

Comment 13: Also, there is no evidence linking SURTASS LFA sonar transmissions to any stranding event, and further the Navy's proposed long-term monitoring (LTM) program will have a component to investigate any correlation between SURTASS LFA sonar transmissions and stranding events.

The US Navy is already involved in investigations with NMFS (NOAA, 2001) because of military actions in the Bahamas in March 2000, at which time a mass stranding involving several species of cetacean occurred. Whilst LFAS may not have been involved directly in this particular event, it may have implications for the deployment of all powerful sonars. Activitaion of LFA sonar should not be allowed, at least until these studies have been finalised.

WDCS notes that Frantzis (1998) highlighted the relationship between military activities involving sonar and the stranding of beaked whales in Greece in 1996. A Bioacoustics Panel formed by NATO could not disprove this theory. Furthermore, Balcomb (2001) believes the 2000 strandings event to be so significant that, as he wrote in a letter to the US Navy, no identifiable animals were left in his study area in the Bahamas in the year since the event. The implication being that sonar may have wiped out the entire local population. We also note an excerpt from Rowles *et al.* (2000): that mass strandings in the Bahamas are unusual, and mass strandings of beaked whales in general are uncommon

Historically from 1838 through 1999 there have been 49 mass strandings of beaked whales, 19 of which were reported from 1963-1999 and involved Ziphius cavirostris (J. Mead, unpublished report). Of the 49 reports of beaked whale mass strandings, 8 have been associated with military activities (Simmonds and Lopez-Jurado, 1991, J. Mead, unpublished report), and all of those have involved Zc as the principal species. These data cannot be ignored by the US Navy. Further investigation by the US Navy into military activities and cetacean strandings is warranted.

Comment 16: A preliminary determination on whether information is sufficient to make a determination that SURTASS LFA sonar is having no more than a negligible impact is a part of this rulemaking process.

Goold (2001) included in his submission to the US Navy, corrections concerning the Risk Continuum Analysis section of the DEIS. We concur with Goold that should the EIS document go for peer review publication, it would be criticised on the basis of its modelling alone. The modelling is presumptuous to say the least.

Comment 18: NMFS encourages small take applicants, if possible, to design, establish and monitor an appropriate area around a loud noise source.

We think that it is imperative that, if the Navy is allowed to use its LFA sonar, they continuously monitor the 180 dB received level and the 1 km zone (at the very least), and that the Navy also records detailed findings of differences between the two and make the data available to NMFS.

For this proposed action, scientists have determined that a single-ping received level of 180 dB can be considered a scientifically precautionary level to prevent the potential onset of injury to a marine mammal. As a result, the Navy has proposed to establish a 180 dB safety zone for SURTASS LFA sonar operations, that would protect marine mammals that enter this area because the SURTASS LFA source transmissions would be terminated upon detection of the animal.

WDCS continues to be concerned that an undetected animal could be subject to repeated 'pings' within the 180 dB received level. Furthermore, if an animal is detected in the 180 dB zone after LFA sonar has been initiated, it will not be possible to know precisely how long that animal has been subject to higher received levels. Under these circumstances, the individual should be assumed injured, regardless of behavioural data collected.

In addition, received levels at which onset of injury occurs are still unknown, and caution has been recommended in interpretation within relevant scientific fora, including HESS and in the proceedings of the Workshop on the Effects of Anthropogenic Noise in the Marine Environment. In the FEIS, the US Navy itself states that it '*accepts the risks are high at 180 dB, and assumes that risk of a significant change in biologically important behaviour is low below 150 dB RL*'.

Balcomb (2001) concludes in his latest findings that the whales in the Bahamas incident were adversely and lethally impacted by sonar "pings" at received levels well below the 180 dB re 1 μPa considered "safe" for whales.

A second example is the Greek mass stranding of 1996, where, according to calculations of the Bioacoustics Panel and commented on in Balcomb's conclusions, the RL for the first whale to strand was approximately 150 dB re 1 μPa.

Comment 19: Because of the offshore nature of SURTASS LFA sonar operations, the Navy does not believe that there is a potential for SURTASS LFA sonar to result in marine mammal stranding incidents

This could be confusing. Does the Navy mean that there will not be strandings because the LFA sonar is offshore and therefore the possible ill fate of animals will not come to light because of the distance

from shore? Balcomb (2001) documented that the beaked whales that came ashore in the Bahamas in March 2000 stranded over an area 200 kilometres across.

The death of a stranded cetacean is the only way in which its body can be used to gather valuable information about the health of the individual before its death, and provide clues to help with assessments including cause of death. That Balcomb and his colleagues were in the area that the strandings occurred in the Bahamas when they did was extraordinary.

In another unique example, Todd et al. (1996) found that humpback whales in Newfoundland waters showed no response to underwater explosions and yet, there was an increased incidence of fishing net entanglements involving humpback whales in the area. This case shows us that our current knowledge of studying behavioural effects of such actions, be they sonar or explosions, to come up with an estimate of 'take' can be grossly misleading. What becomes of stressed or confused animals in offshore waters due to noise pollution can only be guessed at. The cause of entanglements, collisions with vessels and other such incidents cannot be predicted or, often, recognised.

Comment 20: NMFS recognises that the Navy should provide supporting evidence of the efficiency of the HFM3 sonar based on documentation of its effectiveness or field testing results. As a result, until such time as the Navy provides verifiable test results on the HFM3 sonar, ***NMFS will need to base its determination of negligible impact solely on the effectiveness of geographic mitigation.*** *However, NMFS does not agree that the proposed incidental takings would result in more than minimal levels of serious injury.*

The current calculations, as they stand in the FEIS, state that the methodology used to calculate the overall effectiveness estimate for the LFA sonar monitoring to prevent injury **includes** visual monitoring and passive and active acoustic detection. Calculations of geographic mitigation alone will affect the overall results of mitigation calculations that have been made in the FEIS and therefore the 'take' requested. Calculations need to be adjusted so as not to include visual and passive and active acoustic detection of species. These should be calculated before the US Navy is allowed to proceed.

The FEIS also states (5-1.12) that pelagic migration routes are covered adequately by the monitoring mitigation. Furthermore, NMFS states in its comments to the DEIS that '*it is unknown whether or not humpback whales calve or mate along their migration routes*'. At least until the research has been conducted on HMF3, the only mitigation proposed (i.e geographical mitigation) will not, in fact, cover these offshore migratory paths, which may also include calving and breeding areas.

Because serious injury is unlikely to occur unless a marine mammal is well within the 180 dB SURTASS LFA sonar safety zone and close to the source, and because the closer the mammal is to the vessel, the more likely it will be detected, and the SURTASS LFA sonar operation suspended, the potential for serious injury to occur is minimal

WDCS questions NMFS's terminology here that serious injury is unlikely to occur unless a marine mammal is well within the 180 dB zone. In fact, it is our understanding that any animal within the 180 dB is considered injured. Again, in the FEIS, the US Navy itself states that it '*accepts the risks are high at 180 dB, and assumes that risk of a significant change in biologically important behaviour is low below 150 dB RL*'. We also believe that it is a weak argument to state that the closer an animal is to the vessel, the more likely they will be detected. Cetaceans spend the majority of their lives under the waters surface. For example, sperm whales and beaked whales can dive for great lengths of time.

Comment 21: NMFS believes that the issue of cumulative impact of increasing use of LFA sonar technologies by non-U.S. nations and other LF sources is a subject for the Navy to address under NEPA.

Other nations are developing low frequency active sonar. This technology, regardless of the specific energy details, will be a very loud noise source. The cumulative impacts of US Navy LFA sonar with other military sonars might well be devastating and we note that other nations do not have the same

requirements for public scrutiny of their military sonar development as the US. The answer provided on page 10-145 of Volume 1 is insufficient.

Consideration and evaluation of the cumulative impacts of the proposed action and other marine noise sources on the environment (including other LFA-like sonars used by other navies) is not addressed adequately in the EIS. The US Navy should conduct a full investigation into such cumulative impacts.

Comment 23: While the commenter is correct that behavioural modifications can be expected at lower SPLs, the proposed monitoring (visual, passive acoustic and active acoustic), is not likely to be as effective at the greater distances where these impacts are likely to occur. As a result, NMFS prefers to require the Navy to concentrate monitoring in an area wherein marine mammals are more likely to incur an injury, than at distances wherein the incidental taking will be limited to short-term behavioural modifications.

No studies conducted to date have proven that only short-term behavioural modifications occur outside the 1 km zone. We believe that, if the Navy is allowed to continue, that they also assess effects outside this zone. Is the long-term monitoring process only to assess what occurs within the 180 dB zone (noting that when an animal comes within the zone, the system is to be shut down)?

How will groups of animals be assessed, including migrating animals, if they are not all within this zone? Particularly susceptible animals, for example, mothers and calves, exhibit an avoidance response even to man made sounds they are unaccustomed to (McCauley, 1998).

Comment 30. The Navy proposed in its application to employ a 5-minute ramp-up during the HFM3 sonar transmissions. Since the HFM3 sonar will be operating for a minimum of 30 minutes prior to initiation of SURTASS LFA sonar, ramp-up of the SURTASS LFA sonar is not necessary.

WDCS suggests that the Navy conducts research on the 'ramp-up' theory, in order that it can be better understood whether or not such an activity is useful or harmful to the health of marine mammals.

Further, it is WDCS's understanding that the HFM3 is classed as a 'fish-finder'. Considering the energy output differences between it (supposedly minimal) and the very powerful output of low frequency active sonar, the LFA sonar should definitely be "ramped-up". The Navy currently proposes to detect cetaceans with the HFM3 device, and to repel them with it also. WDCS believes that the differences in power output of the HFM3 and the LFA sonar means that it is not sufficient to use the HFM3 device as a 'ramp-up' in order to warn cetaceans of the impending loud noise. The LFA source produces such a powerful output, we believe it should be ramped-up.

Comment 33: NMFS questions the commenter's statement that the HFM3 sonar is potentially harmful.

Although HFM3 sonar may be comparable to other standard fish finding sonars, it is still an additional source of noise pollution and is therefore an additional degradation of the marine environment. It may still cause, among other things, distress or confusion, and this should be investigated. WDCS are unaware of any relevant studies on the effect of fish finders on marine animals.

NMFS encourages the Navy and others to undertake research into more effective passive acoustics.

WDCS concurs.

Comment 34: NMFS proposes here to make a condition of the LOA that visual monitoring must start no less than 30 minutes prior to starting SURTASS LFA sonar transmissions, whenever visibility allows such monitoring

It will not be clear what is happening when visibility doesn't allow this

Comment 35: NMFS is proposing that the LOA contain a condition requiring the Navy to conduct visual and passive acoustic monitoring for a period of time no less than 15 minutes after the last SURTASS LFA sonar transmission of the sequence.

Will NMFS make it a condition, that if there is observable change in marine mammal behaviour, monitoring continues until such behaviour returns to what the observer regards as 'normal'?

What are the consequences for LFAS transmissions, if behavioural changes are observed? At what point is the action considered a 'take'?

Comment 38: One commenter recommended the establishment of a clear timetable for additional research, especially of SURTASS LFA's long term impacts; and a secure budget for research over the expected life of the program. Response: NMFS cannot require the Navy to undertake a particular level and type of research, outside the purview of this proposed Authorization. NMFS can however, and does strongly encourages the Navy to undertake research to determine impacts on species of marine mammals that may potentially be affected by LF sounds. NMFS expects the Navy will provide NMFS with a detailed plan for research.

WDCS looks forward to such a document being made available.

Impacts to Marine Mammals Because the LFS SRP failed to document any extended biologically significant response at maximum RLs up to 150 dB, the Navy determined that there was a 2.5-percent value of a risk of an animal incurring a disruption of biologically important behaviour at an SPL of 150 dB, a 50-percent risk at 165 dB, and a 95-percent risk at 180 dB.

Although this point has already been stated in previous letters from WDCS and others, it is important to reiterate that much of the data from the SRP, even that which has been analysed, is still not fully interpreted.

Miller *et al.* (2000) published the article 'Whale songs lengthen in response to sonar'. We may assume that male humpback whales consider the low frequency active sonar source to be competition from other male singers, but can only guess about the full biological implications of this.

NMFS stated in its submission to the DEIS that protocols should be outlined if any marine animal becomes injured. *Given the low numbers of individual marine mammals that could potentially experience high received levels, the added complexity of an "injury continuum" was not deemed necessary by the Navy.*

WDCS would like to see this validated with detailed independent research. Balcomb (2001) is the only example of data available, that concludes a local population of beaked whales was killed by military sonar. Balcomb (2001) believes that it is probable that all Cuvier's beaked whales in the region when the naval exercise commenced, were killed by the sonar. Since the Bahamas sonar incident, this species has been seen only once in an entire year, and that was a sighting of two previously unidentified whales.

NMFS scientists and other scientists are in general agreement that TTS is not an injury (i.e., does not result in tissue damage) but is an impairment to hearing (resulting in an increased elevation in hearing sensitivity) that may last for a few minutes to a few days, depending upon the level and duration of exposure.

WDCS questions this interpretation. TTS may lead to increased vulnerability to predation or to confusion, which may then lead to stranding and death (Ketten, 1998)

In addition, there is no evidence that TTS would occur in marine mammals at an SPL of 180 dB, and, in fact, Schlundt et al. (2000) indicates that onset TTS, for at least some species, occurs at significantly higher SPLs

Similarly, there is no evidence that TTS shouldn't occur at SPL of below 180 dB. Further, caution should be used with studies conducted in captive environments, with species that aren't considered to be at highest risk.

Estimation of Potential Effect to Marine Mammal Stocks The potential effects on marine mammals from operation of SURTASS LFA sonar will not cause the direct removal of animals, but may result in a small reduction of an affected individual animal's overall reproductive success.

Considering the lack of relevant data, this is a bold statement. The only data available where animals are known to have perished (i.e. stranding events in Greece in 1996 and Bahamas in 2000) is inconclusive (although the Bahamas incident is still under review).

Proposed LOA Conditions

(1) Prior to each exercise, the marine mammal safety zone will be measured to determine the distance from the source to the 180-dB isopleth. That distance will be the established safety zone for that exercise; and

(2) The Navy must test the effectiveness of HFM3 at detecting marine mammals within 0.5 km (0.3 nm), 1 km (0.54 nm) and 2 km (1.1 nm) of the source. A report must be provided to NMFS not later than 120 days prior to the expiration of the first LOA. Detail of annual report submission to NMFS is minimal (Appendix A, page 2, Enclosure 3). We would like to know if this information would be publicly available through the Federal Register.

NMFS noted in its comments on the DEIS that the results of past SURTASS operations (believed to be similar to those now proposed) should be presented (page E-228 Vol. 2). The Final EIS responded that "*development of the marine mammal monitoring mitigation presented herein included review of pertinent prior test data*" yet no reference is made to results of previous SURTASS work. In a letter to the US Navy (Appendix A, Vol. 1, Hilda Diaz-Soltero) NMFS stated that they would adopt the FEIS when making its determination, provided their comments are addressed. WDCS does not believe the Navy addressed this comment fully.

In summary, WDCS requests that before proceeding :

- All peer-review data should be made available, including full results of the LFS SRP studies, and for all species concerned.

- Research studies need to be conducted related to the actual received levels predicted as conclusions based on no "take" of significance below received levels of 180 dB cannot be adequately verified.

- Investigations into the stranding event in the Bahamas in March 2000 need to be finalised.

- Further investigation by the US Navy into military activities and cetacean strandings is warranted.

- Mitigation calculations need to be adjusted so as not to include visual and passive and active acoustic detection of species. Attention also needs to be given to the issue that "geographical" mitigation does not cover offshore migratory paths, which may also be calving and breeding areas.

- It should be made clear that <u>any</u> animal within the 180 dB is considered injured

- The US Navy should conduct a <u>full</u> investigation into cumulative impacts.

- The US Navy conducts research into better understanding of efficacy of the 'ramp-up' theory.

- The US Navy should conduct studies on the effect of fish finders on marine animals.

- The US Navy should undertake research into more effective passive acoustics.

- A detailed plan for research into the long-term effects of LFA sonar should be made available.
- Protocols should be prepared for the eventuality that any marine animal becomes injured.
- Results of past SURTASS operations should be made available.

Should the US Navy be allowed to proceed :

- Seasonal protection should be offered through all known migration paths, including those listed by the IUCN.
- Continuous monitoring and recording of detailed findings of differences between, at least, the 180 dB received level and the 1 km zone.
- All individuals within the 180 dB RL should be assumed injured, regardless of behavioural data collected, as it cannot be known how long they have been within that area.
- Both short- and long-term monitoring processes should include behavioural modifications that occur outside the 1 km zone
- It is not sufficient to use the HFM3 device as a 'ramp-up'. The LFA source produces such a powerful output, we believe it should be ramped-up.
- If there is observable change in marine mammal behaviour, monitoring should continue until such behaviour returns to what the observer regards as 'normal'

In conclusion, WDCS opposes any operational deployment of low frequency active sonar by the US or any other Navy

Thank you for the opportunity to comment, and for your consideration of these concerns We would also refer you to WDCS's previous submission to the US Navy in October, 1999.

Yours sincerely,

Sarah Dolman

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