

Thursday, May 31, 2001  
*via fax and mail*

# Earthtrust



Donna Wieting, Chief  
Marine Mammal Conservation Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
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Fax number: (301) 713-0376

RE: SURVEILLANCE TOWED ARRAY SENSOR SYSTEM (SURTASS) LOW  
FREQUENCY ACTIVE (LFA) SONAR PROGRAM (PAF 01-197)

Dear Ms. Wieting,

My name is Don White. I'm writing on behalf of the international conservation, research, and education organization EarthTrust, which is headquartered on Oahu, Hawaii. This letter is regarding the application by the U.S. Navy for a "Letter of Authorization" from NMFS to "take" marine mammals "by harassment". Earthtrust is opposed, on scientific grounds, to the granting of this authorization. While recognizing that there is enormous pressure being brought to bear on NMFS to issue a report which ignores the actual effect of the deployed system, we feel doing so could be NMFS' finest hour.

Earthtrust has widely-recognized expertise in cetacean sonar, communications, biology, conservation, and behavior. Moreover, my own education and prior background was as an oil-industry geophysicist whose business it was to understand and analyze the propagation of sound waves through sea and land.

In fact, I changed careers largely due to my first-hand experience of the destructive effects of high-pressure sound on wildlife. Inside the oil-exploration industry, there were no euphemisms used: everyone involved knew that wildlife was being killed, and most folks didn't care. The marine "doodlebuggers" expected all dolphins in the area to die when they fired their air guns. (Prior to using the air guns, they just dropped huge drums of high explosive off the back of the boat, with the added bonus that the boat's chef could pick from among whatever dead creatures floated to the surface).

So the ability of sound waves to kill and injure marine mammals is no new thing. What is new is the nature and duration of the true operational sound levels which would be seen in actual use of LFA arrays (which bears little resemblance to the sound levels studied). What is unique is that we live in a country so great that it

has a law requiring the impact to marine mammals to be considered prior to implementation. This decision is a test of how real this law really is in practice.

There is utterly no question that the actual effect of deploying these systems - at the real levels they will be used in "threat" conditions (which is a subjective call by a ship's captain) - will be to harm enormous numbers of marine mammals. Yet few people seem to seriously believe that a letter of authorization will be denied based on this fact. The assumption seems to be that that NMFS is simply "outranked" by the Navy's expressed desires, and that NMFS is simply going through the motions before rubber-stamping the Authorization. This letter is written in the hope that this will not prove to be the case.

I like to hire staff with Navy background, and over the years navy families have been among the most dedicated volunteers in conservation, and the most productive employees. In general, I've found navy people to be more - not less - sensitive to marine conservation than many others.

However, I'm less sanguine about the process that creates and funds massive military hardware programs. Such projects often acquire huge inertia since enormous amounts of money are at stake, and it can quickly become almost impossible to alter them, even when they fly in the face of solid logic and good science.

That seems to be the case here. If this LFA technology is deployed - and it appears that this will happen unless NOAA takes its job seriously - then the actual levels of sound at which these machines are operated will be enormous and destructive to marine life. There is just no way to credibly finesse around this reality. Moreover, just as investment in multiple-warhead ICBM's made the USA less, not more, secure; LFA is the same sort of two-edged sword. The brute-force approach of "lighting up" the oceans with sound is advantage to friend and foe alike. Indeed, it can be more of an advantage to an adversary, who will also see targets 'lit', but be able to remain relatively stealthy.

Furthermore, huge investment in one technology can, in the real world, foreclose options to fund better technology, even when it becomes available, because a deployed system - even if inferior - has already been paid for, and the pork-barrel spending contracts are locked in

I note all this because in my opinion as a geophysicist, marine mammal researcher, and computer system developer, there is a much better technology on the relatively near horizon. The good news is that the main limitation in achieving it is computing power, which is increasing exponentially.

That alternative is systems which use already-existing ocean noises to image objects underwater. That this is possible is not even debatable; it is. It's practicality only rests upon waiting a bit for computer power to advance, which is

happening anyway. Such systems are sometimes called "acoustic daylight", and may be one way large cetaceans perceive the world around them.

Such systems would be qualitatively different from the current sound-blaster technology. Just as night-vision technology made it unnecessary to develop enormous flares to illuminate terrestrial battlefields, passive high-computation acoustic imaging is totally benign to the environment, because it just listens to what is already there. As opposed to active sonar, which can be used just as well by potential enemies to locate our vessels, it gives its users a huge tactical advantage. Moreover, as a high-tech rather than brute-force application, it would be more difficult for rogue nations to duplicate and utilize.

However, developing it won't be cheap, and it likely won't be developed at all if all the "sonar defense" funding appropriations go into blasting the oceans with sound energy. The military services are still being delivered more C-130's than they even want, decades after the initial contracts, just because the contracts are hard to stop once they've started. Moreover, failing to commit heavily to a program of passive imaging will ultimately make the US less secure, not more, because if we commit to the low-tech LFA approach, the superior technology may wind up in the hands of those who could become adversaries of the USA.

So the issuance of the requested authorization letter could set into motion an unstoppable series of events devastating to marine mammals. Rather than winking and issuing this authorization to the Navy, the opportunity should be taken by NOAA to make a statement that the use of this technology by any nation is unacceptable and should be phased out, stopping the escalation of "sonar wars" in which unknown segments of the marine environment will be damaged continually for the foreseeable future.

We are afforded the opportunity to comment in this forum because of an unusual juxtaposition of U.S. laws and interests. And there is no doubt whatsoever that the proposed sonars, even more than existing ones, would be deleterious to the point of killing unknown numbers and types of marine mammals and causing unknown sub-lethal damage to many populations as a whole, giving a preposterous new spin to "small take".

In particular, deep-diving cetaceans, by their physiology and by the nature of compressibility of gasses, have air-space volumes which vary enormously and continuously, vastly increasing the odds that they will have to pass through a zone of "organic harmonic resonance" with LFA sound in order to feed, vastly amplifying the potential for direct physical damage. And from what I can see, there has been no real research at all done on what effect these sounds will have on marine mammal feeding, or the species they feed upon.

There seems to be a well-funded campaign to portray opponents of this system's deployment as poorly-informed alarmists. Admittedly some of them don't

understand the physics, which is unsurprising. How many skippers using the system will have degrees in physics, bioacoustics, or other training which would even allow them to make an educated risk/damage assessment about amping up the power, as they will undoubtedly (an increasingly!) have the option to do? Because what is proposed here is nothing less than allowing individual skippers, untrained in the effects of sound on marine wildlife, to make their own instantaneous assessments based solely on military and political considerations, answerable to no one. Protection of the US military 'objectives du jour' should NOT necessarily always be considered more important than the natural world, yet there will be no voice for marine advocacy on the bridges of these vessels; no mandate other than the tense calculus of military skirmish and maneuver.

We no longer do atmospheric nuclear testing, even though at one time it was considered necessary for national security. The world has agreed it's a bad idea. Multiple-warhead ICBM's was a tech fix which was highly touted at the time, but which decreased U.S. safety. Some things are simply bad ideas, even if they seem to solve a short-term problem at the time.

While we have a chance, let's also look beyond the obviously destructive marine mammal aspects and note that of the millions of species in the seas, all have evolved in relatively quiet sea conditions. Some of these species are important to the lives of marine mammals, yet have not been studied. Many of these critters, from shrimp to sharks, use sound integrally to their lives, and many biologically important stimuli occur at the low extreme thresholds of perception. Evolutionary theory, when seen through the lens of the emerging science of complexity, shows that species - as complex interacting adaptive systems - spontaneously evolve to the edge of criticality in many subtle ways; increasing their niche adaptation by accepting increased vulnerabilities in other areas. There are biological avalanches waiting to fall, we just don't know what they are or what will trigger them. We introduce large perturbations to such a system only at great risk to the current stable states of the ocean ecosystem as a whole.

We have no idea - none at all - which species use what kind of sound, how significant that is to the ocean's biology, or what will happen when it is routinely and radically disrupted. If that worry sounds far-fetched, who would have thought, in the 1950's, that our use of hair spray would destroy an ozone layer and kill plankton, disrupting the food chain in the Antarctic and killing plants around the globe? The earth's biosphere is in exquisitely fine-tuned balance, and if science and history have taught us anything, it's that ignorance is never a good basis for action.

Let's not let our national paranoias unnecessarily degrade this planet's marine ecosystem. Rather, let's commit funds to develop detection technology that will do the job without ravaging the seas with sound. Let's actually use the NMFS authorization procedure for the reason it was created. That is what this decision

is about: do our national marine-protective mechanisms work, or do they fold under pressure?

It is not a choice between having live whales or a strong national defense; it's a matter of simply not doing dumb stuff if we can help it. Which pretty well sums up the decision to be made by NOAA on this requested authorization, which should be denied on scientific grounds since any reasonable person must agree that the actual operation of the real systems for which a letter of authorization is being requested would pose grave dangers to marine mammals.

There is more than one kind of national security. Living on a healthy planet is an integral part of any real security. Denying an authorization will give us a second chance: let's take this active sonar idea back to the drawing board for another five years, and save taxpayer money while designing environmentally safe systems that really WILL give the USA security as a nation..

Sincerely,

A handwritten signature in black ink, appearing to read "Don White". The signature is fluid and cursive, with a large initial "D" and a stylized "W".

Don White  
President