

P. Michael Payne,
Chief, Marine Mammal Conservation Division,
Office of Protected Resources,
National Marine Fisheries Service,
1315 East-West Highway,
Silver Spring, MD 20910-3225

Cc: Dr. William Hogarth
Senator Barbara Boxer (Report attached)
Senator Diane Fienstein (Report attached)
Governor Christine Gregoire (Report attached)

Re: NMFS Report on the USS Shoup Haro Strait/Orca incident

March 21, 2005

Dear Mr. Payne,

I have reviewed the National Marine Fisheries Service report on the Haro Strait incident.¹ While the report does indicate that the noise of the USS Shoup was the “likely” cause of the Orca's “behavioral reactions,” according to the NMFS metrics, the noise did not cause any harm.

I believe that this reveals some shortcomings of the NMFS metrics and their associated assumptions on a few accounts.

First, they are based on assessment of biological damage in terms of Temporary Threshold Shift (TTS) and Permanent Threshold Shift (PTS). While TTS and PTS are benchmarks that are continually used for policy decisions, I don't believe that using them reflects a humane concern for the welfare of animals.

Second: The metrics include “Sound Exposure Level” (SEL) that incorporates noise exposure over time (in seconds).² While this metric may more accurately represent the physics of the sound exposure, it does not accurately represent the biological effects of the exposure.

By way of example: If we are instantaneously exposed to a bright flash of light at 30,000 LUX, we would temporarily be blinded. If we ramp the light level up to 30,000 LUX over 20 seconds, our iris' would adapt, and if it got too bright, we would close our eyes and thus avoid eye damage. In this example, the “Light Exposure Levels” for the ramped light would be much greater than the “Light Exposure Level” for the bright flash. So by the “Exposure Level” metric, the bright flash would be considered less damaging. This reflects the inaccuracy of the SEL metric in measuring biological impacts of loud noises.

The Third shortcoming is that the noise is only considered “noise” and is not framed in terms of the type of noise it is. In this context, Beethoven at 110dB has the same impact as fingernails on chalkboards at 110dB. The distinction here is not aesthetic; given human biological reaction to the "fingernails on chalkboards" sound, it clearly has a biological impact. The USS Shoup noise was more like the fingernails and less like Beethoven.

Fourthly, the opinion expressed in the report indicates that there were no “long term biological effects” due to “masking” because it only occurred over a short duration of three hours. This statement seems to assume the rationalist position that the Orcas are merely communication devices with sound instrumentation designed for a specific long term biological purpose.

This rationalist position is predicated on the opinion that human beings alone have a monopoly on thought, emotions, and the ability to consider their predicament. It ignores the fact that Orcas are a bit more complicated than just biological devices. I don't believe that even the most hardened whale biologist would argue that these animals don't think or feel, so this “negligible” effect of masking statement does not persuade me that the USS Shoup incident was not a real problem.

Unfortunately it appears that the NMFS believes that this ‘scientifically substantiated’ document has absolved the US Navy of any wrongdoing. I will not hold the Navy up to the NMFS standards on this incident, and will continue to maintain that this disaster was another case demonstrating that the US Navy active sonar technologies, and the NMFS standards, need to be seriously reviewed.

Sincerely,

Michael Stocker
Science Advisor
www.seaflow.org

¹ “Assessment of Acoustic Exposures on Marine Mammals in Conjunction with *USS Shoup* Active Sonar Transmissions in the Eastern Strait of Juan de Fuca and Haro Strait, Washington 5 May 2003” National Marine Fisheries Service, Office of Protected Resources January 21, 2005

² See: Mardi C. Hastings “Noise exposure metrics for auditory and non-auditory damage in aquatic animals” J. Acoust. Soc. Am. 116, 2533 (2004)