

Dr. William Hogarth  
NOAA Fisheries  
1315 East West Highway, SSMC3  
Silver Spring, MD 20910

February 21, 2004

Re: LDEO Chicxulub Crater research program

Dear Dr. Hogarth,

I am writing to express my concern that the NSF is funding the Chicxulub Crater research program and that the Lamont-Doherty Earth Observatory has submitted a request for an "Incidental Harassment Authorization" in order to execute the research. While this program will probably provide valuable information about a remarkable geological formation, it also risks causing irreparable harm to the biota in the research area.

While environmental concerns are partially expressed in the Environmental Assessment (EA) and the Incidental Harassment Authorization (IHA), these documents fall far short of expressing the likely damage that occur as a result of the program. The EA and IHA express environmental concern in the short term – during the duration of the research, but the damage inflicted on the area will be represented in the intermediate and long term biological health of the animals living in the Chicxulub Crater environment.

The EA and IHA documents base much of their conclusions on what we know are speculative assumptions about the impact of anthropogenic noise on the subject species. It is even clearly stated in the EA (p.41) that hearing of mysticetes have not been directly studied, and that their hearing abilities have only been inferred by observation to harassment and surmised from their vocalizations. These documents also rely heavily on 'observed avoidance behavior' as a benchmark of what constitutes harassment.

Avoidance behavior is unfortunately is an ambiguous benchmark. First, it depends on circumstantial observations of humans, and their subjective determination of what constitutes "avoidance behavior" in a complicated acoustic environment. We also know from studies of Acoustic Harassment Devices (AHDs) around fishing operations that marine mammals will put themselves in harms way if they perceive that the value of approaching an AHD protected area is greater than the threat or damage that the AHD poses. Even Humans are known to remain in acoustically damaging environments if they perceive the value to outweigh the perceived hearing damage. (Just visit any nightclub to experience this.)

In light of this, it concerns me that there is no reference to intermediate or long term impacts to biological damage to the animals due to exposures to the project's airguns and other noises.

It is clear that we know very little about how loud anthropogenic noise – and particularly intense, repetitive and long duration airgun mapping programs, increases stress levels in marine mammals. It would be naïve to assume that it doesn't, but none-the-less, there is no reference in

the EA to the impact of chronic stress on the subject animals, and how it compromises their overall health and resistance to natural biological agents (viral or bacterial infection and parasites, for example).

The applicants state in both documents that they are not subject to the MMPA because the program will take place in a Mexican Exclusive Economic Zone. In light of the fact that the project is funded by American Tax dollars, is using US Taxpayer owned assets (the Maurice Ewing), and is to be executed by American scientists from American Taxpayer funded institutions, this claim is irresponsible and disingenuous. It flies in the face of American law and expressed will of the American people. The “assumed exemption” due to the project taking place in Mexican Exclusive Economic Zone is an unacceptable excuse for ignoring American Laws.

I am also concerned that the EA is framed only in the context of the MMPA (and the Endangered Species Act as far as it involves sea turtles). Environmental concerns regarding fish assumes that killing or damaging fish only involves the potential impact on marine mammal food stock. Of course fish serve more than this purpose in the ocean, so ignoring impacts on fish because it is not ‘illegal’ is short sighted. And while there may not be any laws governing the impacts of airgun noises on fish, the absence of law does not constitute an absence of risk.

Also in the EA, damage to fish is only stated in terms of avoidance behavior. The earlier statements on the avoidance behavior of cetaceans applies here as well. It has recently been found that exposure to airgun blasts compromises fish hearing in the intermediate and long term (A. Popper, R. McCauley, JASA Jan. 2003). This paper indicates that permanent damage to fish can show up days to weeks after exposure to airgun blasts. The EA also does not address the known damage to fish eggs, larvae and fry caused by airguns and similar loud explosive noises. This sets up a situation where damage to fish, with the potential of causing significant depletion of their populations may appear in the Chicxulub Crater environment long after the Maurice Ewing has left the area.

Perhaps none of this would be of such grave concern if it was not clear that the sustainable vitality of the ocean is in peril. Very recent reports by the Pew Oceans Commission, in Nature magazine, and even reports by the NSF confirm that human enterprise is seriously compromising the biological health of the seas. To fund, support or even allow a seismic program of the magnitude of the proposed LDEO Chicxulub Crater research program at this time is reckless and irresponsible.

I implore you to not issue an Incidental Harassment Authorization and to halt this program until we can have clear assurances that the research will not further compromise the health of the seas and the fish and mammals that live in it.

Sincerely,

Michael Stocker  
Science Advisor  
Seaflow, Inc.

Cc: Dr. William Hogarth, NMFS  
Dr. Rita Colwell, Director NSF  
Dr. Joseph Bordogna, Deputy Director NSF

Senator Diane Feinstein  
Senator Barbara Boxer  
Joel Reynolds, Atty. NRDC