



Letters

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SCIENTIFIC CORRESPONDENCE

MARINE MAMMAL SCIENCE, THE U.S. NAVY AND ACADEMIC FREEDOM

The increasing reliance of the U.S. marine mammal research community on U.S. Navy funding appears to be effectively restricting academic freedom. Here we are concerned with the structure of scientific funding, not the integrity of the scientists who receive it, nor the science they do with it. Our concerns have been crystallized by our experiences with two projects: "Shipshock" and "ATOC." We will not discuss the complex issues raised by either of these projects in this letter, except as they refer to our principal concern—a systematic unwillingness to publicly criticize defense-related projects within the U.S. marine mammal research community.

In February 1994 we were approached by representatives of a consortium of conservation and animal welfare groups (including "Save the Whales," the Natural Resources Defense Council, and the Humane Society of the United States) who were looking for a marine mammal scientist with a Ph.D. who was prepared to make a public statement requesting that the U.S. Navy detonate 1,000–10,000 lb explosions somewhere other than near the edge of the Channel Islands Marine Sanctuary off California. These "Shipshock" explosions, as the Navy acknowledges (Anon 1994), could kill, injure, or harass numbers of marine mammals. The conservation groups could, at that time, find no marine mammalogists in the U.S. with Ph.D.s who were prepared to make such a statement.

More than 20 U.S. scientists were approached, but none would assist. About one quarter of these replied that they disapproved of the siting of the detonations but declined to proclaim so publicly, some explaining that they were either working on projects funded by the U.S. Navy or hoped to be (M. Sidenstecker II, personal communication). So the conservation groups, working in a state with the highest concentration of marine mammal scientists anywhere in the world, turned to us in Nova Scotia. Subsequently, they located two U.S. marine mammalogists (with Ph.D.s) prepared to speak out.

Scientists may decline to make public statements on conservation or animal welfare issues for all kinds of reasons: they may be busy and have other priorities, feel insufficiently informed, believe that the issue is unimportant, or think it more effective to work through less public channels. However, in this case a number of scientists felt sufficiently informed and that the issue was important, but did not wish publicly to help the conservation groups with their lawsuit (which eventually led to the relocation of the explosions) because of potential repercussions from the Navy on their funding prospects.

This effective restriction of academic freedom caused by the importance of U.S. Naval funding for marine mammal research has been echoed in another issue. We have been trying to raise awareness about the potential threats to marine mammals posed by the "ATOC (Acoustic Thermometry of Ocean Climate)" sound sources which are planned to be operated for the next few years, and possibly decades, off California and Hawaii (Munk *et al.* 1992). This project is also linked to the U.S. Navy. Almost all prominent U.S. marine mammal scientists with expertise in acoustics are involved in this project. When we first questioned the safety of the ATOC sources for marine life we were asked whether we would like to join the project. Although a number of U.S. scientists have expressed concern about ATOC, those most willing to take an open public stand have come from other countries.

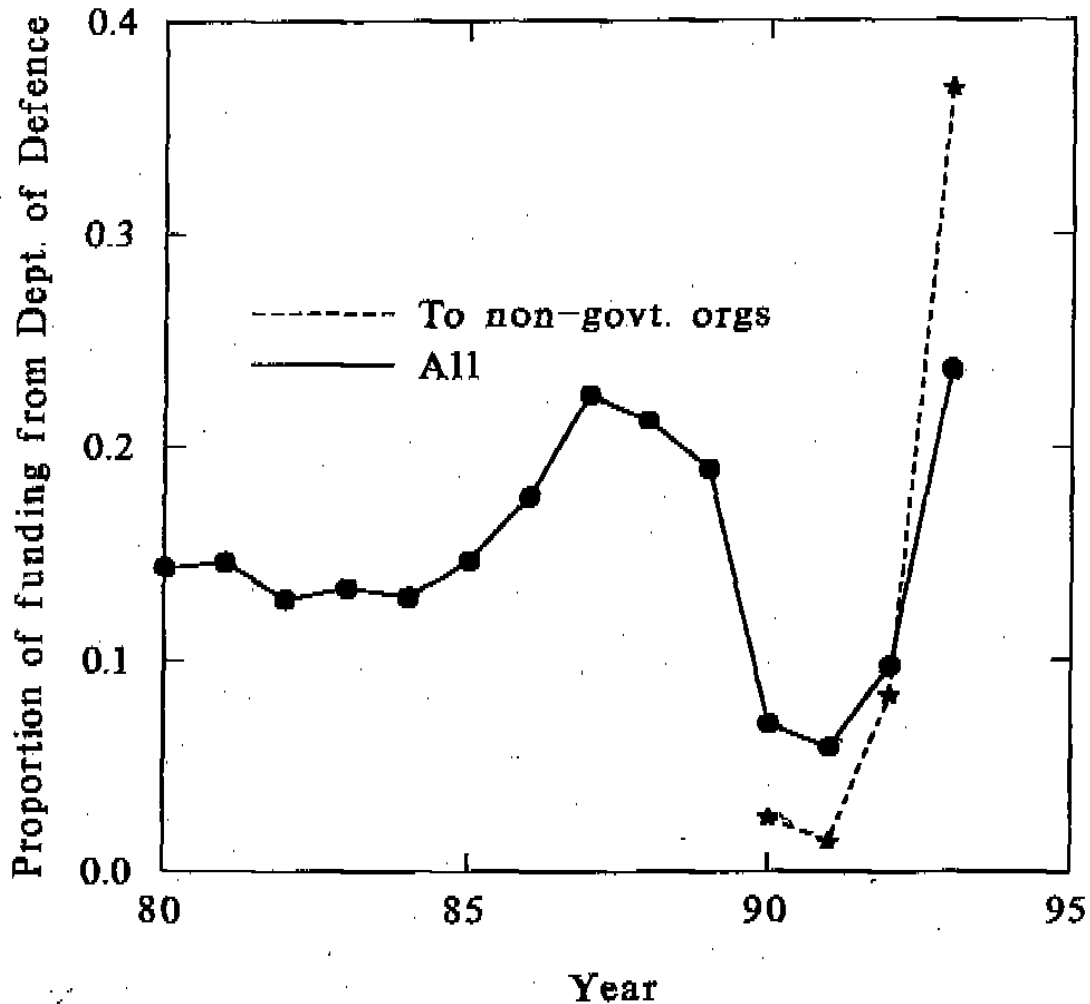


Figure 1. Proportion of U.S. federal marine mammal research funding from the Department of Defense by year (from Waring 1994): ● = total proportion; * = excluding projects principally carried out by U.S. federal and state agencies. Department of Defense funds used for the ATOC Marine Mammal Research Program (\$4.2M in 1993–1996) are not included.

This difference in response is not, we think, the result of a difference in personal integrity between marine mammal scientists in the U.S. and other countries. Marine mammalogists in the U.S. have been vocal and active on other conservation issues, such as tuna-porpoise and scientific whaling. However, the current structure of marine mammal science in the U.S., where Navy and other defense-related agencies fund a large proportion of medium-large projects (especially those involving underwater acoustics), effectively restricts academic freedom.

At prestigious U.S. research universities and institutions scientists are expected to bring in many tens of thousands of research dollars annually. For a marine mammal scientist there are few sources of money in these quantities. National Science Foundation support is very difficult to obtain (about 10 projects are funded each year (Waring 1994)), perhaps partly because of the non-experimental and long-term nature of much of marine mammal science and partly because of the difficulties of obtaining research permits. Contracts for environmental assessments of oil exploration and exploitation were another source of funds,

but these are fewer now. Conservation groups have been strong supporters of marine mammal science in developing countries, where a few thousand, or even a few hundred, dollars can make a big difference. But research groups at the major U.S. institutions operate on scales which make these sums seem insignificant.

According to Waring (1994) the U.S. Department of Defense (mainly the Navy) supported marine mammal research to a total of \$6.9M in 1993, excluding the ATOC Marine Mammal Research Program (\$4.2M over approximately a three-year period). Adding \$1.45M for the ATOC Marine Mammal Research Program's funding in 1993 to the figures presented by Waring (1994), we conclude that, in 1993, the Department of Defense provided 28% of the total U.S. federal marine mammal research funds. If projects principally conducted by U.S. federal or state agencies are excluded, then the Department of Defense's contribution rises to 48% of the \$8.0M provided to universities, individuals, and consulting companies. This proportion has been rising steeply since 1990 (Fig. 1).

U.S. federal money dominates marine mammal funding world-wide. For example, the total funds raised to address the priorities of the Cetacean Specialist Group of the Species Survival Commission of the International Union for the Conservation of Nature to assist the survival of the most threatened cetacean species is about US\$500,000 (Gimenez-Dixon and Stuart 1993), less than one eighth of the funds allocated to monitoring the effects of the ATOC sounds on marine mammals. The major research groups in the U.S. (as well as some in other countries) are becoming increasingly dependent on U.S. Defense money.

The U.S. Navy funds much research which appears to have no direct, or obvious indirect, link to military operations. We are told by recipients of grants from the Office of Naval Research that they are treated fairly and are allowed to publish their results freely. This is all to the Navy's credit. But it is disturbing when any agency with a principal mandate unrelated to science funds a large proportion of the research in any field. When the contribution of the agency is so important that there are few remaining scientists willing and able to publicly criticize the operations of the organization, there is a problem with academic freedom.

We believe that there is a particular cause for concern when the grantor is an armed service, whose mandate is to develop destructive force. The destructive potential of the U.S. Navy will frequently be a threat to the marine environment, including marine mammals. Additionally, military organizations are disinclined to disclose information—some of the information from ATOC may be potentially "classified."

In order to preserve the integrity of marine mammal science, and the quality of the marine environment, it is vital that there should remain experienced, competent scientists who feel academically free to make independent assessments of projects funded by, or linked to, the U.S. Navy and to criticize them publicly.

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