It appears to be a challenge for some scientists to exercise the same skepticism and rigor they employ in their own area of expertise to questions of science that fall outside their specialty. Although this may not be a serious problem in academic or professional arenas, where scientists stand ready, willing, and able to correct one another, it may be a serious one when scientists debate scientific controversies in public forums, where the audience is less qualified to evaluate the validity of scientists’ statements. Scientists who argue outside their expertise in the public arena can make errors of judgment that raise important concerns about their responsibilities to the public. In this vein, a recent commentary warned scientists of the dangers to science of political advocacy, cautioning that “today’s scientists need to understand the consequences for science of relying on political advocacy as the primary mechanism of connecting science with policy” (Pielke 2002, p. 368).

Examples of scientists making errors of judgment, or even committing outright fraud, are not new (Weinberg 1976, Broad and Wade 1982, Kilbourne and Kilbourne 1983), but are arguably more common today in those areas the media considers to be especially newsworthy. It is irresponsible for respected specialists to allow their passion for some cause to overcome their professional responsibility to determine what constitutes the current science on the issue in question. Such carelessness is especially regrettable in contested environmental or resource use issues in which politics, emotion, urban myths, and poor science confound the search for answers. Scientists, among others, would most likely agree that there is no better basis for sound political and administrative decisionmaking than the best available scientific information, and most would agree that this is especially true in the fields of resource management and environmental protection (Brundtland 1997).

Co-opting scientists for advocacy
Many prominent environmental and animal protection organizations have scientific advisers or may co-opt scientists—including some from unrelated fields—who, while knowing little of the contemporary science on the specific problems being addressed, nevertheless share public concerns about species endangerment, loss of biodiversity, or other environmental issues. We recognize that scientists are not only scientists and that “in donning the white coat at the laboratory door...[they] do not step aside from the passions, ambitions, and failings that animate those in other walks of life” (Broad and Wade 1982, p. 19). We are concerned that when scientist–advocates lower their scientific standards in support of popular causes—while presenting themselves as scientists—science itself can be diminished, as can the rights of resource users and competent management of the environment.

Actions by scientists that increase uncertainty to implausible levels or unreasonably engender controversy in environmental or resource management decisionmaking have been deemed acts of scientific misconduct (NAS 1992, Schweder 2000). When politics and passion (including opposing research on sentimental grounds; Butterworth 1992) intrude into discussion and analysis of many environmental and resource use issues, serious questions arise about the professional responsibility and trustworthiness of scientists and environmental organizations whose passion or self-interest

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Forum

appears to detract from their responsibility to remain well-informed when operating in a public arena (Bonner 1993, Bailey 1995, Mrosovsky 1997, Friedheim 2001).

We acknowledge that scientist–advocates who are careless or selective in their use of science can be found on both sides of every scientific controversy. Advocates of the sustainable use of natural resources can be as uncritical in their use of science as can advocates of animal protection. In the rest of this article we critique a recent episode concerning a highly contested issue that has persisted for several years and doubtlessly will continue for more years yet.

Jumping on a bandwagon requires caution

In May 2002 scientists sent an open letter to the Japanese government questioning the scientific merits of Japan’s whaling research program. This letter provides an example of scientists’ not assuming prudent responsibility for their public pronouncements. The text of this open letter was published as a full-page advertisement in the New York Times (20 May 2002) (see the World Wildlife Fund’s Web site www.wwfus.org/news/attachments/whaling_ad.pdf). The letter was signed by 21 distinguished scientists, including three Nobel laureates, four members of the National Academy of Sciences, and a former president of the American Association for the Advancement of Science. Sadly, the letter contains numerous errors of science and law and thus reflects poorly on the capability of the instigating organization and the care taken by the scientists endorsing this letter. In our view, the fact that most of the scientists who signed the letter are not whale biologists, nor involved with fishery or wildlife science or management, does not absolve those scientists from taking responsibility for their actions in attacking the scientific research activities of others.

Japan’s whale research programs

Japan initiated a 16-year Antarctic whale research program (JARPA) in 1987–1988 with a two-year feasibility study. JARPA’s objectives include estimating biological parameters (especially the natural mortality rate) and determining the stock structure of Antarctic minke whales, examining the role of whales in the Antarctic ecosystem, and investigating the effect of environmental change on cetacea. This program includes sighting surveys and a sampling component that takes a maximum of 440 minke whales annually (IWC n.d.).

In 1994 Japan began another whale research program (JARPN) with the goal of determining the stock structure and feeding ecology of minke whales in the North Pacific. An important goal of the five-year study was to improve the design of implementation simulation trials for the revised management procedure, a basic requirement for managing a sustainable commercial minke whale fishery in the North Pacific. This second research program required, among other things, an annual sample of 100 minke whales (IWC n.d.).

In 2000 JARPN was expanded (and renamed JARPN II) to include research on Bryde’s and sperm whales, so that ecosystem models for the region could be developed and the impact of environmental changes (including the impacts of pollutants) on whales and the marine ecosystem could be determined. An important component of JARPN II is to study the feeding ecology of whales; to this end, sei whales were recently added to the three whale species already being sampled. The program also includes sighting surveys of all cetacean species in the region. The program is designed to sample 150 minke, 50 Bryde’s, 50 sei, and 10 sperm whales annually (IWC n.d.). The participation of international scientists is welcomed in all three studies: JARPN, JARPN II, and JARPA.

Bogus science—or careless critics?

The open letter claims that Japan’s whale research is bogus because it does not meet minimum standards for credible science, citing lack of relevancy for management, refusal to release information for independent review, and lack of testable hypotheses. These are serious accusations to level against the leading whale and fishery scientists in the review committee who critically review Japan’s Antarctic research program (JARPA) to determine its management relevance and scientific merit. The International Whaling Commission’s (IWC) Scientific Committee is composed of more than 120 scientists from a number of nonwhaling and whaling countries (including Japan), with the former representing a clear majority.

The chair of the JARPA committee (established by the Scientific Committee) reported in the midpoint review of the 16-year program that “there was general agreement [in the review group’s report]...that the data presented on stock structure...were important contributions to the objectives of JARPA and stock management” (IWC 1998, p. 98), adding that “JARPA has already made a major contribution to the understanding of certain biological parameters” (IWC 1998, p. 101). Regarding the North Pacific minke whale research program, the Scientific Committee, in responding to the commission’s request for advice on whether the research was required for management, noted that the information obtained has been and will continue to be used in the refinement of implementation simulation trials for North Pacific minke whales, and consequently the information was relevant to the management of minke (IWC 2001).

With respect to Japanese Antarctic research, the IWC Scientific Committee “agreed that [these] studies provided useful information for both the formulation of such hypotheses and for the selection of study areas...[and that] such studies would be of interest to CCAMLR [Convention on the Conservation of Antarctic Marine Living Resources] and Southern Ocean GLOBEC [Global Ocean Ecosystem Dynamics]” (IWC 1998, p. 100). At the halfway point of the program, “information [from this research] has set the stage for answering many questions about long-term population changes regarding minke whales” (IWC 1998, p. 101). Other commentators, after providing a careful summary of the IWC Scientific Committee’s assessment of Japan’s North Pacific whale research programs, have noted the misleading
characterization of Scientific Committee action by the commission itself (Greenberg et al. 2002).

Scientist–advocates accusing scientists

The open letter also falsely claims that the Japanese have refused to make information available for independent review and that their research lacks a testable hypothesis. Contrary to these assertions, the research methods and findings are routinely reviewed by credible international scientists both before and during critical scrutiny by the IWC Scientific Committee. At the time of the IWC Scientific Committee review of the Antarctic research program (IWC 2001), 64 reports, including research data, had been reviewed. The Web site of the Institute of Cetacean Research listed over 150 reports one year before the open letter was sent to the Japanese government and made public (see www.whalesci.org/contribution). The text of these IWC reviews are readily available, either on the Internet (e.g., through the Institute of Cetacean Research, www.icrwhale.org), at some libraries, in peer-reviewed articles, or directly from the laboratories conducting the research.

Although the open letter charges that Japan has refused to make the information it collects available for independent review, it is normal practice for scientists to withhold preliminary results or unpublished research data until its formal presentation. This general practice, followed by Japan, nevertheless does not prevent full and detailed scrutiny of Japan’s research (IWC 2001) and data sets (IWC 1998) by members of the IWC Scientific Committee during their annual and intersessional meetings. Furthermore, any scientist can apply to Japan’s Institute of Cetacean Research for access to data by following standard procedures for research cooperation.

The assertion that the Japanese research program lacks a testable hypothesis is an indiscriminate broadside without foundation, as may be seen in the authoritative reviews of the overall program components. The review of JARPA noted that the Scientific Committee had commended the program for both the quantity and the quality of its scientific work. The review committee also called attention to the useful information that JARPA studies provided for the formulation of hypotheses (IWC 1998).

Trade and science: Keeping research lawful

The open letter also contends that the research program is a commercial operation because the edible whale products remaining after the scientific samples have been taken are sold. Such nonwasteful disposal of the whale carcass is required by article VIII (2) of the International Convention for the Regulation of Whaling (ICRW 1946), which states that “any whales taken under these special permits shall so far as practicable be processed and the proceeds shall be dealt with in accordance with directions issued by the Government by which the permit was granted.” The legally required processing of meat taken by scientific permit cannot sensibly be taken to impugn the scientific nature of the undertaking. Certainly the IWC Scientific Committee evaluates the research by the appropriateness of its methodological rigor and its results, and not on the basis of whether the nonsampled tissues are sold, given away, or jettisoned at sea.

In addition, the open letter erroneously charges that Japan claimed an exemption for scientific whaling under international law. However, under general international law, any nation has the right to take whales for food and research purposes and needs no exemption (Jacobson 2001). Furthermore, Japan is a party to the International Convention for the Regulation of Whaling, article VIII of which specifically authorizes scientific whaling notwithstanding the ban placed on commercial whaling. Under no acceptable circumstances can compliance with a treaty prove violation of its provisions.

Killing whales for science

The open letter asserts that Japan’s research kills whales in the absence of a compelling scientific need. However, the IWC Secretariat has stated that certain data can be obtained (at least in the short term, that is, within one to two or more decades) only through lethal means (IWC n.d.). These data include, for example, the age of the animal, the reproductive status and history of female whales, and internal tissues unobtainable from biopsy samples. The IWC statement points out that such postmortem examinations are important in any consideration of biological parameters (e.g., mortality and reproductive rates) and interpretation of pollutant levels.

During IWC Scientific Committee meetings, disagreement continues as to whether lethal research is required to answer the research objectives of Japan’s whale research program. Specifically with regard to Japan’s Antarctic program, however, the JARPA review noted that the logistics and abundance of minke whales probably precluded the successful application of nonlethal techniques (IWC 1997).

Upholding public trust in science

We are sympathetic to those who for ethical or emotional reasons oppose the killing of whales for food or research. The food issue involves questions of subsistence (which include important questions of culture and morals), nutrition, and health, all of which are outside the frame of reference of this article. The research issue remains controversial, with scientists disagreeing about the justification of killing whales for research purposes.

If scientists’ opposition to whaling stems from reasons of science, then those scientists should be quite sure of their facts if they intend to influence public understanding of an issue that demands scientific input for its resolution. Whaling remains a complex and contentious issue. To understand this complexity, and to form sound judgments about this contested activity, requires careful attention to relevant facts that are readily available from reliable sources. To do otherwise is a derecognition of a scientist’s professional and ethical responsibility and is regrettable when the public trust in scientists’ judgments on a number of environmental and resource use issues is a matter of both national and international importance.
Acknowledgments
We wish to acknowledge the helpful comments and other assistance provided by Douglas Butterworth, Dan Goodman, Luis A. Pastene, and Judith Zeh during the writing of this paper. We also thank three anonymous reviewers for their comments.

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