

Science Cedes Ground to Environmental Concerns

For more than two decades, the National Science Foundation (NSF) has had the final word on U.S. activities in Antarctica. That's because the international treaty governing the frozen continent essentially turned Antarctica into a scientific preserve, and NSF runs the \$250 million U.S. research program there. But the treaty was recently amended to give equal billing to environmental preservation, and as a result, NSF's hegemony may be coming to a close. For scientists who do research in the Antarctic, that could spell double trouble: more federal agencies to deal with, and vastly increased costs of complying with environmental regulation.

Although NSF is fighting to maintain its control over U.S. operations on the continent, the deck would appear to be stacked against the agency. The blows are coming from the courts and also from a surprising source: the National Research Council (NRC).

In 1991, the 26 countries that do Antarctic research signed an environmental protocol to the original treaty aimed at minimizing the impact of human activity. As the U.S. government began developing the legislation needed to put teeth into this new protocol, it asked the NRC for advice on how to balance scientific goals with environmental preservation. The NRC's response,* issued last month, recommends that NSF cede authority for scientific activities that have a major impact on the environment to other federal agencies, notably the Environmental Protection Agency (EPA).

Although the NRC report pats NSF on the back for building a strong scientific program, it says the agency can no longer go it alone. "NSF has done an exemplary job of supporting U.S. science in Antarctica, but it should share the regulatory burden," says Louis Lanzerotti, a field and space physicist at AT&T Bell Laboratories and chairman of the committee that wrote the report. At present, NSF consults with other agencies but reserves the right to act unilaterally on writing regulations and issuing permits for activities on the continent. Under the

NRC's proposal, regulations governing the disposal of solid wastes, for example, would be developed jointly by NSF and EPA, and a proposal to build a new station or a wastewater treatment facility would be approved and monitored by EPA alone.

NSF isn't happy with such an arrangement. "I concede that our past environmental record was not good," acting NSF director Fred Bernthal told a House science committee in February. But he argued strenuously



Turning green. McMurdo Station cleans up its act.

that the agency has turned over a new leaf, noting that NSF launched a 5-year, \$30 million environmental cleanup program in 1990 to correct its mistakes. "We are protecting a scientific research laboratory," said Bernthal, "and nobody has a greater interest in preserving it than the scientists who work there."

In bolstering arguments that NSF has become a better steward of the Antarctic environment, officials point to the fact that the foundation recently decided to stop using a controversial incinerator it built 2 years ago to burn food wastes next to McMurdo Station, the hub of U.S. activities in Antarctica. The incinerator was intended to replace 30 years of open burning, but environmental groups filed a lawsuit over its use, claiming that its emissions were a hazard to wildlife and that NSF had not followed U.S. environmental laws in building it. In December a federal judge rejected NSF's argument that the laws do not apply and ordered a lower court to decide whether NSF had acted properly. NSF failed to convince White House officials to appeal the ruling, which for the first time extends U.S. environmental law to the continent.

Then, in April, NSF received a report saying that the incinerator's emission levels

of dioxin and hydrogen chloride exceeded standards for large municipal incinerators—facilities that are 10 times the size of the one in Antarctica. That prompted NSF to shut it down, at least temporarily. Erick Chiang, NSF's manager of polar operations, says the foundation instead plans to spend \$500,000 this year to accommodate a year's worth of solid wastes on site before shipping them to California for disposal.

Cornelius Sullivan, an oceanographer who in May became director of NSF's Office of Polar Programs, says NSF's decision to shut down its incinerator is part of an increased focus on environmental concerns. "I want to use this situation to demonstrate that there has been a significant shift in attitude," he says. "We're not out to prove that we can do incineration correctly. Instead, we're looking at something more in keeping with responsible stewardship."

Whether the NSF has indeed become a responsible steward and should be allowed to maintain its institutional monopoly on the continent are questions that Congress must address. The February hearing was held to glean reaction to a bill introduced by Representative Rick Boucher (D-VA) of the House science committee, but a second bill, offered by Representative Gerry Studds (D-MA) of the Merchant Marine committee, is expected to be the eventual vehicle for resolving the issue. A hearing is scheduled for September.

Whatever the scope of the bill eventually adopted, it is clear that scientists will soon be paying a higher cost to do research in the Antarctic. Peter Wilkness, who recently stepped down after 8 years as head of NSF's polar programs, estimated recently that "at least \$66 million more will be needed to bring us up to minimal standards" of environmental preservation. Given tight budgets, that could mean less science. In addition, new regulations could make it much more difficult—if not impossible—for researchers to continue existing research.

Brian Howes of Woods Hole Oceanographic Institution, who has spent the past 5 years at a remote field camp studying climate change in one of Antarctica's dry valleys, worries that additional regulations may not leave his team with enough time to do science. "It takes 3 weeks to get to the camp each season," he says, "and up to 60% of our time there is spent complying with regulations on waste management, spill prevention and so on. That greatly hinders our ability to obtain the data we need."

The NRC report emphasizes the importance of balancing scientific and environmental concerns. For scientists, that could well mean a lot of ups and downs as the government strives to reach a point of equilibrium.

—Jeffrey Mervis

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