

Classification Dispute Stalls NOAA Program

NOAA wants to produce detailed maps of the ocean floor around the United States; the Defense Department says such information should be kept secret

Two years ago, the United States in effect acquired a vast new chunk of unexplored territory when President Reagan extended the nation's boundaries to 200 miles offshore. In the past, when nations took over new pieces of real estate, one of the first things they did was to send out survey teams to map their new possessions and see what they had gained. The National Oceanic and Atmospheric Administration (NOAA), the civilian agency primarily responsible for charting the coastal waters around the United States, wants to follow this well-established tradition.

NOAA has drawn up an ambitious plan to conduct a systematic, detailed topographical survey of the ocean floor in the 200-mile "economic exclusion zone" created by Reagan's action. The plan, which is made possible by a combination of new technologies developed over the past decade, is to produce a series of maps of the entire area that will show features on the ocean floor in breathtaking detail. It has been enthusiastically endorsed by industry and academic scientists, who believe the maps will provide a wealth of information useful for minerals exploration, fisheries, and geological research.

But the Department of Defense sees another potential use for the information. It believes that such detailed maps could be useful to an enemy, presumably to find hiding places for submarines, and it wants to classify all the data generated by NOAA's proposed survey. As a result, NOAA's plans are currently in limbo, and the two agencies are locked in a dispute that could have far-reaching consequences.

The dispute first arose several months ago, shortly after NOAA began to draw up its plans. The Department of Defense, the Navy, and the Defense Mapping Agency all raised objections on national security grounds. The matter was briefly raised during hearings on marine research held in September by the oceanography subcommittee of the House Committee on Merchant Marine and Fisheries, and congressional staff members were later given a classified briefing by the Navy. At that time, NOAA and Defense Department officials said they would try to find an accommodation, and

it was hoped that the problem would soon go away.

It hasn't. In October, NOAA received a letter from the National Security Council, and the Department of Defense has maintained its position that the information should be classified. As a result, NOAA has put on hold a formal announcement of the program, which it was hoping to publish in order to attract investigators to work on the survey vessels. Finally, on 16 January, Paul Wolff, head of NOAA's National Ocean Service, brought the matter before the Board on Ocean Science and Policy of the National Academy of Sciences. He says he did so at the request of acting NOAA administrator Anthony Calio. The board is now collecting information on the dispute before deciding what action, if any, to take.

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One frustrating aspect of the dispute is that the Defense Department has not made public its objections because the objections themselves are classified. All the paper work relating to the dispute is also classified. John Steele, of the Woods Hole Oceanographic Institution, calls this a "Catch-22 situation." Without knowing what the Navy is concerned about, he notes, oceanographers cannot respond to the concerns. William Nierenberg of the Scripps Institution of Oceanography, who has long been an adviser to the Defense Department, says he does not know the details of the dispute, but says the notion that enemy submarines could use the proposed maps to find hiding places "makes no sense to me. It is inconceivable that a submarine will hide there," rather than in the mid-ocean. (The Department of Defense had not responded to several queries from *Science* by the time this issue went to press.)

If NOAA is prevented from going

ahead with its plan, oceanographers believe that an opportunity to develop an invaluable data base would be forfeited. The program would be an impressive undertaking, involving mapping of the entire ocean floor around the U.S. coast to the edge of the continental shelf or to a distance of 200 miles from the shore. Such an undertaking is made possible by two recently developed technologies: a sonar scanning system called Sea-beam, which gives highly accurate depth information, and a satellite system called the Global Positioning System that pinpoints the exact position of the survey ships (see page 617).

The Sea-beam technology was developed about 10 years ago and has already been extensively used by the Navy for its own charting needs. The technology itself is not classified and in fact is already installed on several ships in the United States and abroad. In essence, it consists of an array of sonar instruments mounted on the hull of a survey vessel, which collect depth data from a swath about 1-mile wide. The data are fed into a computer, which generates topographical maps of the ocean floor.

Not only does the system provide highly detailed and accurate information but it also enables a large area to be covered in a short space of time. In the past, maps of the ocean floor have been developed from single sonar instruments, which provide information only on the depth immediately beneath the ship. Thus, many passes had to be made to build up a detailed map, and the information generally was not computerized. Detailed maps have been developed in this way close inshore but surveys in deeper waters have mostly consisted of widely spaced soundings, and "a lot of artistic license" has gone into making some maps, says Christian Andreasen, a NOAA oceanographer who will direct the new program if it goes ahead.

NOAA has been doing some surveys with Sea-beam off the California coast in an area known as the Mendocino escarpment. According to NOAA's Wolff, when the new maps were put alongside the old ones, the differences were "really striking." The Sea-beam data depict in fine detail geological structures such as

canyons and old riverbeds, and features formed by ocean currents. "It is altogether spectacular geology," Wolff told the House oceanography subcommittee last September.

Wolff told the subcommittee that when he first saw the Sea-beam charts, he became enthusiastic about mapping the entire economic exclusion zone. NOAA's plans have been reviewed by researchers from industry, other government agencies, and universities, and they have been equally enthusiastic. "There was general applause in the academic community when we heard NOAA was going to do this," says John Knauss, dean of marine sciences at the University of Rhode Island.

Wolff predicts that the data generated by NOAA's proposed survey "will have an enormous impact on a number of U.S. economic activities." They are likely to be useful for minerals prospecting and for locating promising areas for fishing, he says. He believes, however, that "the unplanned benefits will exceed the planned benefits," because all the results of a survey of such magnitude cannot be predicted in advance.

The potential scientific payoff from Sea-beam is expected to lie in the exquisite detail it provides. This scientific potential is, in fact, already being exploited by university researchers. Three academic research vessels in the United States have recently been equipped with the technology and are using it for surveys of specific regions. Moreover, Sea-beam has also been put on ships owned by several other countries, including France, West Germany, Japan, and Canada. So far, the Defense Department has not raised objections to these activities but appears to be concerned only about the extensive, systematic mapping proposed by NOAA.

This raises an interesting paradox. Reagan has declared that there will be no restrictions on scientific research in the U.S. economic exclusion zone. Thus researchers, including foreigners, could presumably do part of what NOAA is intending. "To force the scientific community to repeat the kinds of observations that will be made [by NOAA] . . . seems to make no sense," says Ross Heath of the University of Washington.

Because the Sea-beam technology itself is declassified and so widely available, NOAA did not anticipate any objections to its plan. When objections were raised, it was generally expected that the problem would be quickly resolved. It has, however, been going on for months now, and no resolution appears to be in sight.—COLIN NORMAN

DOD Reorganizes Management

In a partial bow to his critics, Secretary of Defense Caspar Weinberger has decided to reallocate some responsibility for weapons purchases. Specifically, he stripped the Undersecretary of Defense for Research and Engineering of primary responsibility for overall production policy and some key production decisions, handing it off instead to a new office responsible for oversight, logistics, and spare parts policies. The effect is to drive a wedge of sorts between those responsible for research and development and those responsible for production, with the result that fewer faulty weapons may get from the laboratory to the factory.

Although Weinberger noted that the Pentagon "has experienced significant problems and received considerable criticism in recent years" for producing bad weapons, he was vague about why this reform is being done now. One reason may be that the position of Undersecretary of Defense for Research and Engineering is now vacant, and the previous tenant, Richard DeLauer, had opposed any reduction in his authority. Another may be the release one week earlier of a sharply critical draft report on Pentagon decisionmaking by a panel of defense experts convened by the Center for Strategic and International Studies at Georgetown University. And a third reason may have been a hearing the previous week before the oversight subcommittee of the Senate Committee on Governmental Affairs, during which a group of senior corporate executives described Defense Department weapons-buying as costly, chaotic, inefficient, undisciplined, and in need of drastic structural change.

The executives are former members of the President's Private Sector Survey on Cost Control chaired by J. Peter Grace, a blue-ribbon panel that was handpicked by the White House to identify waste and inefficiency throughout the government. One of the panel's principal criticisms, announced in 1983, was that the Undersecretary of Defense for Research and Engineering controlled most aspects of both weapons development and acquisition, a circumstance portrayed as a potential conflict of interest. In effect, it enabled the Pentagon's top scientist to pass judgment on the worth of his own creations. In addition, the panel criticized the fact that production of a weapon is supervised by the military service that places the original order, a situation that was said to inhibit the cancellation of "marginal programs" that fail to meet expectations.

The panel had recommended that responsibility for weapons research and acquisition be separated, and that production be controlled by the Defense Secretary, not the individual services. According to testimony before the subcommittee by William Tremayne, a senior vice president of the Prudential Insurance Company, these changes "would lead to significant alleviation of program instability," limit the "excessive" number of new weapons programs, and constrain the widespread practice of redesigning weapons after production has begun.

With the new reforms announced by Weinberger on 29 January, these concerns have been only partially met. Production policy will be set by the new office, but the individual services will retain control of major weapons purchases. At a news conference, Deputy Secretary of Defense William Taft IV told reporters that "we do not favor" a transfer of all purchasing responsibility away from the services. Although he provided no further explanation, Mary Ann Gilleece, an undersecretary of defense for acquisition management, had previously told Congress that the savings from such a move are unclear, while the costs of disrupting current activities are "substantial." Somewhat mysteriously, she also said that the president's commission had "looked at the acquisition function in isolation and divorced from the broader mission of DOD. Our first mission is to meet the threat of global expansionism and ensure the national security."

Executives on the cost-cutting panel are not about to abandon their fight, despite the Pentagon's negative reaction. They have formed a formal lobbying group, Citizens Against Waste, and published their conclusions as a popular book, *War on Waste* (Macmillan, New York, 1984).

—R. JEFFREY SMITH