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Coast Guard Icebreaker Requirements

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Subcommittee on Transportation
Senate Committee on Appropriations

Mr. Chairman and Members of the Subcommittee:

We appreciate this opportunity to comment on the Coast Guard's plans to procure a new icebreaker. Our work to date has focused on the projected needs for the icebreaker, and, to a more limited extent, on alternative ways that such needs could be met. On the basis of current information, we cannot conclude either that the new icebreaker is needed or that it is not needed. Before the decision to procure a new icebreaker is made, we believe a number of critical uncertainties need to be addressed and resolved. Our testimony today discusses these uncertainties, that relate to whether

-- the projected needs used to justify the new icebreaker are accurate in view of user agencies' funding and current plans and perspectives,

-- alternative ways of meeting the icebreaker needs have been adequately analyzed, and

-- the current design for the new icebreaker will be the most appropriate for meeting anticipated future needs.

While some reassessment of projected needs for a new icebreaker is warranted, further analyses of needs will not in itself resolve the uncertainties surrounding the decision to

acquire a new icebreaker. To resolve the uncertainties, there are important policy decisions that must be made relative to the management, funding, and use of the nation's icebreaker fleet. An excellent forum for addressing these issues is a report the President is required to prepare on the nation's icebreaking needs and how to meet the needs. Although this report was to be submitted to the Congress by October 1, 1988, it has not yet been completed.

BACKGROUND

The Coast Guard's icebreaker fleet has declined, because of age and budget constraints, from five in 1980 to two in 1989. For nearly 10 years, the Coast Guard has been unsuccessful in obtaining the administration's support for funds to build another icebreaker.

The Coast Guard is now requesting funds for a new icebreaker to meet needs identified by a number of users, including the Department of Defense, the National Science Foundation (NSF), the U.S. Geological Survey (USGS), and the National Oceanographic and Atmospheric Administration (NOAA). The Coast Guard estimates the acquisition cost for the new vessel will be about $330 million and the annual operating cost about $7 million. The new icebreaker would have greater research capability than the Coast Guard's existing two icebreakers. On the other hand, it will only be able

to break 4.5 feet of ice continuously at a speed of 3 knots, while each of the two existing vessels are able to break 6 feet of ice continuously at that speed. If funds are approved for the new icebreaker for fiscal year 1990, the Coast Guard projects the vessel can be constructed and in operation by 1995.

ACCURACY OF PROJECTED NEEDS

A number of factors raise uncertainties about the accuracy or currency of the projected needs for a new icebreaker identified in two interagency studies that the Coast Guard cites as the basis for its request. These factors include

-- the impact of funding constraints on the various agencies' abilities to use the vessel,

-- the lack of incentive that current cost-sharing arrangements provide for users to identify only those needs that they can realistically use,

-- disagreements between the Coast Guard and the largest user over key needs, and

-- plans of the two largest users to acquire their own vessels to meet some of their needs.

Further, reviewing historical usage and wartime requirements do little to overcome the uncertainties regarding projected needs.

Basis for Icebreaker Needs

While the Coast Guard uses icebreakers for some of its own missions, such as search and rescue, most--over 90 percent--of the use goes to other federal agencies on a user charge basis. Priority missions include breaking ice for vessels resupplying Defense bases in Greenland and NSF's McMurdo station in the Antarctic. In addition, the icebreakers provide a platform from which Defense, NSF, USGS, and NOAA conduct scientific research in both the Arctic and Antarctic.

The most comprehensive interagency study of user icebreaker needs, and the one that has been the primary support for the new icebreaker, is a 1984 study that projects a median need of 671 operating icebreaker days annually from 1985 through 2000.[1] The study included input from the primary icebreaker users. The Coast Guard also points to a 1988 interagency study that updated user need projections and that it believes reaffirmed the 1984 study's conclusion that the Coast Guard needed four icebreakers.[2]

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[1]United States Polar Icebreaker Requirements Study, Interagency Report, July 1984.

[2]Report of High Latitude Research Vessel Requirements, 1988, Federal Oceanographic Fleet Coordination Council.

The Coast Guard has determined that 144 operating days are available annually per vessel. The figure of 144 days is largely a function of the limit on the number of days the Coast Guard believes a crew should stay away from home port (currently 185), adjusted by the number of days the Coast Guard needs to perform such operational support functions as training (currently 41). By relating the 144 available operating days to the projected 671 needed operating days, the 1984 study concluded that at least four icebreakers are required to meet median projected needs. Because of budget constraints, however, the Coast Guard has elected to request funds for only one new icebreaker at present.

Impact of Funding Constraints

The projected user days in the interagency studies may not be accurate because of the impact funding constraints have on some agencies' abilities to conduct planned research. Officials at both NOAA and USGS told us that reduced budgets have forced their agencies to deactivate some of their own vessels that were used in the past for scientific research in the arctic regions. Further, NOAA officials are concerned about the impact of 1990 budget cuts on the agency's ability to fund projected usage. And, USGS officials told us that, realistically, the agency would only be able to use about half of its projected days in a good budget year.

While the effect of future funding constraints on projected user needs is uncertain, the 1988 study indicated that this factor could make its total user estimates as much as 50 percent too high. A 50-percent reduction could lower projected usage to about 335 days, which is considerably below the 432 days that would be available with three icebreakers. Under current operating practices, the Coast Guard's existing two vessels can provide 288 operating days. However, later in my testimony I will discuss alternatives that should be explored for increasing the available operating days for the existing vessels.

Impact of Cost-Sharing Arrangements

Projections of user days may also be inaccurate because current cost-sharing arrangements do not provide incentives for agencies to identify only those needs that will realistically be funded. That is because users do not have to pay the Coast Guard for icebreaker days they say they will need but do not use. Coast Guard officials told us that this situation has sometimes resulted in their icebreakers and crews remaining idle because user agencies could not fund their share of the costs. This happens even though the fees have covered only 8.5 percent of the operating costs during the past two years and none of the construction costs of these icebreakers.

Disagreements Over Requirements

Adding to the question of the accuracy of projected user days are Coast Guard and NSF disagreements about requirements for resupplying stations in the Antarctic. First, the Coast Guard believes a backup vessel is required during the resupply of NSF's McMurdo station in case the primary icebreaker becomes disabled or stuck in heavy ice. NSF, however, which must pay for backup services, believes a backup icebreaker is unnecessary. NSF argues that (1) its mission at McMurdo would not be materially affected if the resupply was not completed in any single year, (2) there has been little need for a backup in past years, and (3) there are foreign icebreakers operating in the area that could provide assistance in an emergency. Second, NSF disagrees with the days included in the projections for the resupply of its Palmer station. NSF is now leasing a foreign vessel to accomplish this mission and plans to continue this practice.

Users Acquiring Own Vessels

Perhaps the most critical factor raising uncertainties about the accuracy of projected user days is that NSF, which has been the largest single user in the past (nearly 50 percent), plans to obtain its own vessels to perform research in the Antarctic and Arctic. For its antarctic research, NSF is currently requesting bids to lease an icebreaker for up to 10 years, with an option to

purchase it at the end of that period. NSF would also like to obtain another vessel for its arctic research. According to NSF, while the agency will still need Coast Guard icebreaking support after it obtains its own vessels, the number of days it will need for research will not be as much as is included in the 1984 and 1988 studies.

NSF also plans to offer space on its vessels to other science agencies when possible. In addition, the Navy has long-range plans to obtain a vessel for its arctic research. If these actions occur, the number of projected user research days included in the interagency studies would be reduced even further.

In addition, NSF officials, as well as officials from the other scientific agencies, have stated that they prefer not to use Coast Guard icebreakers for research. They point out there is limited space and facilities available to support scientists on the icebreakers, and they are uncertain about how much time the Coast Guard can make available for research and when it can make this time available. Further, NSF officials told us their analysis indicates that NSF's use of its own vessels would be more (1) efficient for the type of multidisciplinary research that it requires and (2) cost-effective to the government because they are not constructed to serve the multiple functions of the Coast Guard icebreakers and because they can be operated year round. While the Coast Guard expects to provide improved scientific research

facilities on its new icebreaker and is upgrading these capabilities on its two existing icebreakers, NSF officials state the agency will use Coast Guard vessels for research purposes only as a last resort.

Historical Usage

Reviewing historical usage of the Coast Guard's icebreakers may not be a helpful means of testing the accuracy of projected future needs. Since 1985, user time has averaged about 475 days annually--considerably below the 671 days the 1984 study projected would be used beginning in 1985. Also, the average usage of 475 days includes over 130 days annually by the NSF and the Maritime Administration that they say are no longer required. Although Coast Guard officials say that agencies have not been asking for days they know the Coast Guard cannot supply, agency funding constraints, disenchantment with Coast Guard vessels for research, and use of other vessels raise significant uncertainties regarding their use of Coast Guard icebreakers. Also, Coast Guard documents indicate that its management is concerned about the utilization of the icebreakers and has considered the elimination of the user charge to improve utilization. Further, Coast Guard efforts to fill its excess capacity for fiscal year 1989, when it has only two icebreakers available, have to date been unsuccessful.

Wartime Icebreaker Requirements

While our testimony thus far has dealt with peacetime requirements for Coast Guard icebreakers, it is important to point out that these icebreakers would also be needed to support military requirements during wartime situations. A Navy position, which resulted from a review by various commanders of a classified Defense consultant's study, is that four icebreakers are needed for wartime purposes. The study itself, however, stated that current requirements and plans support the need for just two icebreakers. Thus, even from a wartime perspective, the need for more than the current two icebreakers is uncertain.

ALTERNATIVE WAYS TO MEET ICEBREAKING NEEDS

Our concern about the accuracy of projected icebreaker needs is compounded because there is insufficient analyses of alternatives for meeting those needs. Alternatives include (1) adding another crew to or changing the home port of existing vessels to increase available operating days or (2) obtaining icebreaking services from other countries.

Three Crews for Two Existing Vessels

The Coast Guard may be able to increase available operating days of its two existing icebreakers by assigning a third crew to

alternate between them. We noted that NSF uses the multi-crew approach on its current leased vessel and plans to use this approach on its new vessel. Although the third crew approach was originally planned for its two existing icebreakers, the Coast Guard did not implement the plan because of funding constraints.

According to the Coast Guard's icebreaker acquisition project paper, a third crew could add as many as 55 operating days annually per ship, increasing each ship's available annual operating days from 144 to 199, or a total of 398 annual operating days. To achieve this change, however, the Coast Guard would have to modify its current policy of allowing 165 days a year for ship maintenance. The Coast Guard's acquisition paper also indicates that the long-term effects on ship maintenance, sustainability, and other considerations need further study. Although the 1984 interagency study recommended analysis of the third crew-option, such an analysis has not been done.

Changing Icebreaker Home Ports

Moving one or both of the icebreakers from their current home port on the West Coast to the East Coast could also increase available operating days of existing icebreakers by reducing transit time for the Greenland missions by as many as 40 days. Although the Coast Guard and its users have indicated a need for a detailed analysis of the costs associated with the benefits of this

option, a formal study has not been done. Coast Guard officials, however, told us that they are informally looking at this option.

Using Other Countries' Icebreakers

Another option for meeting icebreaker needs might be to obtain icebreaking services from other countries. Canada, for example, operates eight icebreakers and might be able to assist in resupplying Greenland bases on a cost-reimbursable basis. In addition, there are four Canadian commercial icebreakers that might be available to support scientific research. Operators of these vessels have already contacted USGS about leasing their vessels.

Although Canadian assistance has been obtained for the Greenland missions in the past, Coast Guard officials told us this practice raises questions about the appropriateness of foreign vessels supporting U.S. activities. Further, a Coast Guard official told us that it is up to the users, not the Coast Guard, to seek out alternatives to its icebreakers. The Coast Guard did, however, conduct an analysis that showed if Canada assisted in the resupply of Greenland bases and NSF supplied all of its own antarctic research needs, 399 of the 671 days would still be needed annually from 1985 through 2000. Thus, this analysis still supports the need for a third icebreaker. However, as the 1988 study stated, the projected user needs could be overstated by as

much as 50 percent. Further, the 398 days possibly available with a third crew comes very close to meeting this need.

TYPE OF ICEBREAKER NEEDED

While the design for the new icebreaker was determined, according to Coast Guard officials, after extensive coordination with the users and consideration of available funding, several important questions remain about the appropriateness of the vessel's design.

For example, in addition to NSF's plans to obtain its own vessel to conduct arctic research instead of using the Coast Guard's vessels, the type of icebreaking that it will require to support its research in that area has also changed since the interagency studies were done. NSF officials told us that if the agency obtains its own vessel for arctic research, it will require icebreaking support in the future that is likely to be more compatible with the capabilities of the Coast Guard's existing vessels. These officials said the ability of the Coast Guard's currently planned new icebreaker to meet that need is marginal because of its lower icebreaking capability. According to Coast Guard officials, the estimated cost of building an icebreaker with the icebreaking capability of its existing vessels, but without the proposed research facilities of the planned new icebreaker, is about the same as the cost of the planned new vessel.

In addition, the Coast Guard believes that an icebreaker of its existing type is required for resupplying the McMurdo station, and that another icebreaker of the same type would be required as a backup to complete the mission if the first one breaks down or gets stuck in heavy ice. While the Coast Guard has two icebreakers of the same type, each is scheduled for 165 days of maintenance annually. Having only two of this type of icebreaker lessens the chance that both will always be available to fulfill primary and backup roles. Further, a third icebreaker of this type could be used to replace one of the existing vessels, both of which will be about 20 years old when a new icebreaker would become available in 1995.

ADMINISTRATION REPORT ON ICEBREAKER NEEDS

The Coast Guard's 1988 authorization required the President to report to the Congress by October 1, 1988, on the nation's icebreaking needs and how to meet them. We understand that disagreements between the Coast Guard and NSF, such as those discussed in our testimony, have delayed the report.

In our view, this report could serve a critical role in resolving a number of the issues I have raised today. For example, although the Coast Guard is designated as the single manager for the nation's icebreaker fleet, NSF is acquiring its own

icebreaker. While NSF officials have told us that an NSF vessel is a more efficient and effective way of meeting its research needs, Coast Guard officials told us that using its vessels only to break ice makes their operation less efficient. In addition, they noted that unlike the Coast Guard vessels, the NSF icebreaker would not be available for national defense.

Further, questions related to using foreign vessels to support U.S. activities in the Arctic and Antarctic need to be addressed. When discussing the possibility of using Canada to support the resupply of the Defense bases on Greenland, Coast Guard officials told us that it is important for the United States to "show the flag" by using U.S. icebreakers to support activities in these regions. On the other hand, NSF is currently using a foreign vessel to resupply its Palmer station and has also used this vessel to support the State Department in conducting inspections in the Antarctic.

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In summary, Mr. Chairman our work to date has raised a number of critical questions that need to be resolved because they get to the heart of the overall issue of what the nation's icebreaker needs are and how such needs should be met. Answers to these questions are also important, given the costs of a new icebreaker and the nation's reliance on its capabilities over its 30-year life span.

A first step in answering the questions is to resolve the policy issues related to the continued need for a single manager of the nation's icebreaker fleet and the desirability of using only U.S. icebreakers to support U.S. activities in the Arctic and Antarctic. Resolution of these issues, along with (1) a resolution of Coast Guard and NSF disagreements with respect to NSF's changing needs, (2) a reassessment of the impact of funding constraints on user needs, and (3) the completion of studies of alternatives for meeting these needs, should enable the administration to report to the Congress on its unified icebreaker needs and how these needs can best be met.

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This concludes our prepared statement, I will now be happy to answer any questions you and the Committee members may have.