

APPENDIX X

UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

Office of the UNOLS Chair
Moss Landing Marine Laboratories
PO Box 450
Moss Landing, CA 95039-0450

408 755 8657 tel.
408 753 2826 fax

johnson@mlml.calstate.edu

February 2, 1995

Dr. Paul L. Stoffa
Committee on the Arctic Research Vessel
Ocean Studies Board
National Research Council
2101 Constitution Ave.
Washington, DC 20418

Dear Dr. Stoffa,

I am writing in reply to your letter of December 20, 1994, requesting the opinion of the UNOLS Council on the proposed Arctic Research Vessel (ARV). The UNOLS views on the ARV are outlined below. I would be pleased to attend your initial meeting in Washington, DC to discuss these issues further.

Let me begin by stating that it is the desire of the UNOLS Council to bring to the science community a level of access to the Arctic Ocean which approaches that available at lower latitudes in vessels of the UNOLS Fleet. Currently, the Arctic Ocean is not perceived to be readily accessible to the science community without herculean efforts by individual scientists. The key to providing this access will be new ice capable research vessels that are dedicated to Arctic Ocean research and which are operated under a model similar to that of the UNOLS Fleet.

UNOLS has had a long term involvement in this issue. Following a request from Bob Correll (then Assistant Director of Ocean Sciences at NSF) on November 20, 1987 to the UNOLS Council, the Fleet Improvement Committee (FIC) of UNOLS began consideration of the design of an ice capable research vessel. During the 6 years that the FIC has considered the ARV, at least 5 reports (see attached list) have been issued. The proposed design has changed dramatically in response to community input at national meetings and through extensive mail review and committee work by scientists, marine architects and ship operators. In particular, the community repeatedly focused on the need to operate in the multi-year ice found in waters of the Central Arctic Basin. This mission required a much more ice capable vessel than we had originally envisioned. As a result of this input, the Science Mission Requirements were finalized and approved by the UNOLS Council and a pre design study was undertaken by Glostren Associates and published in 1994. This design study included model tests of the proposed hull form in ice covered test tanks and excellent results have been obtained.

I'll continue by addressing your bulleted questions in order:

First, the current status of the UNOLS fleet. As the result of an extensive modernization and building program, the 27 vessels of the UNOLS fleet stand as the finest and most capable research fleet in the world. The eleven general purpose Class I, II and M vessels (all > 150' LOA) are all built expressly for

research. Most of these ships are either less than 10 years of age, or they have recently undergone extensive mid-life refits. Two significant additions to the fleet are planned. These are the AGOR 23 class (Thomas Thompson, 274') vessels Roger Revelle (AGOR 24) and Atlantis (AGOR 25). Both are under construction and scheduled to be delivered in 1996 and 1997, respectively. The oldest ship in the fleet, RV Atlantis II is scheduled to be retired in 1996 and replaced by the RV Knorr as a Deep Submergence Support Vessel. The US Navy has announced their intention to eliminate support for the RV Moana Wave as the new AGOR's come on line.

The current funding and ship usage situation for the fleet is similar to that of the past few years. That is, we have an excess capacity of one to one and half ships relative to requests from funded scientists for ship usage and dollars available for operations. For example, operation of the fleet is projected to cost \$49.9M for 1995, while only \$46M was available in 1994. As a result, UNOLS has generally laid up one ship each year. Because of demand for large ships in multidisciplinary programs, recent layups have impacted the intermediate (Class III) ships most severely. I should stress that this excess capacity is viewed by many as healthy, since it gives us the ability to refit vessels and meet surge requirements without affecting long-term science operations.

However, we expect to see this budget discrepancy become more serious as the new AGOR's come on be at the end of the decade. My best hope to resolve this problem is to direct other federal users of research vessels into the UNOLS fleet. For example, as the Navy has phased out their own AGOR's, operated by the Military Sealant Command, ship users from the Naval Research Laboratory system have moved onto UNOLS vessels. This has produced very satisfactory results, including a net savings for the Federal Government. There are a number of other Federal Agencies, performing substantial amounts of ocean research. These agencies could benefit both through dollar savings, identified in GAO studies, and access to a modern, superbly equipped fleet, by using UNOLS assets. Such a transition is also essential because the cost of operating the fleet has slowly become nearly 75% supported by NSF. The ecologists have a maxim - diversity equals stability.

Your second question concerned UNOLS support for the ARV Science Mission Requirements. The UNOLS position on the ARV is summarized in the 1995 Fleet Improvement Plan (FIP), which has been approved by the Council at its September 1994 meeting. The following quote is from the 1995 FIP: "*FIC recommends that the Arctic Research Vessel be the highest priority acquisition for oceanographic research. The FIC strongly supports the addition of the ARV to the UNOLS fleet and recommends that it be operated by a UNOLS institution. The FIC and UNOLS take the position that the Arctic Research Vessel should be built only if sufficient funds are available for its construction, operation and science missions.*" The Science Mission requirements for the ARV design were approved by the UNOLS Council in 1993 and they are reprinted in the 1995 FIP. The SMR's represent a consensus of the Council that was reached after extensive consultation with the Arctic research community.

Your third question regarded how the ARV will be funded. UNOLS has reiterated its position that this ship cannot be operated without additional funds for fleet operations. This point has been made in the 1995 FIP. A related recommendation of the FIC is that Federal agencies funding oceanographic research make realistic projections of ship needs over the next 5 years, and possible levels of support. The 1995 FIP looks at the crystal ball from the other end - what levels of support will be needed to maintain various sizes of UNOLS fleet, with or without the ARV.

I have discussed this issue with representatives of various agencies to assess whether or not there is a realistic hope that the needed funds will become available. While there are no hard answers, I am satisfied that the funds could be made available without unduly impacting existing oceanographic assets.

The fourth question concerns potential impacts on the UNOLS Fleet if the ARV is constructed, particularly if no additional funds are for ship operations are provided. Again, it is the express policy of UNOLS, stated in the 1995 FIP that operating funds for the ARV should represent substantially new sources of funding to the fleet. However, there is no mechanism in place to protect the existing fleet assets if a funding shortfall develops. Annual operational costs for the ARV are estimated to be in the area of \$6M pa. If the ARV were added without additional support, up to three large vessels would have to be laid up permanently. Substantial savings are obtained only by removing a vessel from the fleet. This

is clearly an unacceptable situation for the UNOLS fleet. In particular, it would mean that many scientists working at lower latitudes would not have access to the ocean.

Your fifth point concerned the question of whether the ARV will operate as a part of the UNOLS fleet. We would expect that the ARV would be a part of the fleet and the FIP expressly states that it should be operated by a UNOLS institution. There are considerable advantages to operation within UNOLS and cooperative scheduling. Efficient use of this vessel, from both the science and program management side, will require that it be scheduled in concert with other - vessels in the fleet. In addition, there are often substantial subsidies for fleet operations provided by most vessel operators.

Finally, has UNOLS considered alternate platforms? We have considered a variety of alternatives. UNOLS has sponsored the SOONS (Scientific Opportunities on Nuclear Submarines) study and the recent Workshop on Using a Nuclear Submarine as a Research Vessel. UNOLS representatives served on the design team for the RV Palmer. They have sailed on ice breakers of foreign nations and they have investigated the possibility of leasing or buying foreign ice breaking vessels. They have worked on US Coast Guard vessels and found them inadequate as currently operated. Drifting ice islands, helicopters and aircraft have been considered.

These platforms can satisfy research niches, but major interdisciplinary research efforts cannot be launched from them. Coring, net tows, large water sampling equipment and large moorings are a few examples of the operations which can be efficiently performed only from a ship. The versatility of a well equipped, ice breaking vessel that is purpose designed for research makes it the only platform that can begin to meet all of the community needs.

I hope these responses to your questions will assist you in your deliberations. Forgive me for their length. If I can be of further help, please do not hesitate to contact me.

Sincerely yours,

Kenneth S. Johnson
UNOLS Chair

cc J Bash, UNOLS C Mooers FIC D Heinrichs, NSF C Sullivan, NSF

UNOLS Reports Related to the ARV

UNOLS Fleet Improvement Committee (1988) Arctic science requirements for ice-worthy research vessels, 21 pp. UNOLS Fleet Improvement Committee (1989) Scientific mission for an intermediate ice-capable research vessel, 17 pp. The Glostén Associates (1991) Concept design of an Arctic Research Vessel -

UNOLS Fleet Improvement Committee (1993) Scientific mission requirements for an ice-capable research vessel.

UNOLS Fleet Improvement Committee (1994) Arctic Research Vessel preliminary design report.

[Return To Minutes](#)