

# UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

Advisory Council Meeting  
January 29, 30, 1987  
Room 114, Scripps Building  
Scripps Institution of Oceanography  
University of California, San Diego  
La Jolla, California

Advisory Council Members together with representatives from the Minerals Management Service, National Science Foundation and Office of Naval Research met at Scripps Institution of Oceanography, La Jolla, California. The meeting was called to order at 8:30 a.m. January 29, 1987, by Council Chairman John Martin. The Meeting generally followed the Agenda (Appendix I).

## Attendees:

### Advisory Council

John Martin, Chairman  
Robertson P. Dinsmore  
Robert A. Knox  
Arthur Maxwell  
Charles S. Yentsch  
George Keller, *ex-officio*  
Robert W. Corell, *ex-officio*

### Observers

Keith Kaulum, ONR  
Hawley Thomas, MMS  
Donald F. Heinrichs, NSF  
John G. McMillan, NSF

### UNOLS Office

William D. Barbee



Before addressing the agenda, Dr. Martin recognized Dr. Edward A. Frieman, Director, Scripps. Dr. Frieman welcomed the Advisory Council and extended Scripps' hospitality. He noted the importance of ships to the U.S. effort in oceanography and the critical importance of a competent fleet of capable ships to support the global oceanographic effort forecast for the near future. He made special mention of the ONR/Navy role in acquiring ships for the academic fleet and of the critical need for continuing adequate support both for science at sea and ship operations. He implored the Council to maintain UNOLS' traditional strong advocacy of capable sea-going facilities to support ocean research.

**The Advisory Council accepted minutes from their October 29, 1986 meeting.**

**The Council next reviewed and reported on their standing roles.**

**UNOLS Ship Scheduling.** October, 1986 ship scheduling meetings and the status of schedules for 1987 were reported by Bob Dinsmore and Bill Barbee.

Current schedules for the KNORR and the GYRE include extended lay-up periods (six months or more). The OSPREY will continue in conversion through 1987; no operating schedule has been advanced. The CAPE HATTERAS schedule is its weakest since it entered the fleet. It includes a three month open period. Schedules for the remaining vessels in the fleet are generally satisfactory.

The Advisory Council discussed with NSF representatives the OSPREY conversion and the ships status. Recommendations and actions from the Council (principally those reported in October 24, 1984) and from the Special Panel formed by OCE/OCFS in August, 1985 were reviewed. (It was noted that the Special Panel was formed by NSF and was not a UNOLS panel. The Chairman, Advisory Council was asked and made presentation to the Panel. During the discussion, NSF representatives noted that OCFS has not provided funding for OSPREY conversions; they were providing some support to maintain a marine operations capability at USC.

The Council was concerned that USC's conversion of the OSPREY was essentially unilateral, and might not be consistent with UNOLS fleet replacement plans or the best interests of the academic ocean research community. They were especially concerned that an aggregation of such individual actions could scuttle orderly fleet replacement plans. At the same time there was sentiment on the Council that initiative by individual institutions to provide ships and facilities in support of federally sponsored ocean

research was traditional, had been highly beneficial in many instances, doubtless would continue and should be encouraged.

The matter was tabled for a time after which the Advisory Council adopted a resolution:

*The fleet of ships and support facilities that is funded by federal agencies is not a closed system, nor can it ever be. The Advisory Council recognizes that from time to time new ships and facilities will be proposed for federal support by individual institutions, and that these proposals may enhance or compete with UNOLS goals, depending on circumstances. The Advisory Council recommends that the Fleet Improvement Committee as part of its regular business:*

- o anticipate these new proposals to the maximum extent possible;*
- o evaluate their impacts, positive or negative, on the overall plans of the community for ships and facilities, paying particular attention to established UNOLS plans; and;*
- o make clear recommendations to the Advisory Council and to UNOLS in each instance as to whether the proposals should be endorsed or opposed.*

*In parallel with this recommendation for the FIC, the Advisory Council encourages funding agencies to continue to inform the Council of any such new proposals that may arise, so that the Council may obtain FIC recommendations and, through UNOLS, transmit them back to the agencies.*

**ALVIN Review Committee.** Robert Corell, ARC Chairman, reported that the Committee had held its annual workshop for ALVIN program advanced planning (in San Francisco, December 7, 1986, just preceding the Fall AGU meeting). Letters of intent for work after 1988 were received from twelve investigators (or teams) comprising about 230 ALVIN dives. The Notices were for work in areas from the North Atlantic to the Western Pacific; there was more interest in the Atlantic (Mid Atlantic Ridge) than had been anticipated.

The ARC was informed by funding agency representatives that there is interest in a well-focused research project under the U.S.-French Bilateral to be undertaken in 1989 or beyond. A science planning group has been formed (Don Heinrichs is co-chair for the U.S.), and a strong candidate is a program of investigations of the Mid Atlantic Ridge, using ALVIN and French Submersibles. *The Advisory Council, noting recent heavy demand for ALVIN, expressed concern that such a U.S.-French bilateral effort not receive such high priority that it preempt equally or more compelling science by other U.S. investigators. Don Heinrichs noted that NSF, OCE/OCFS will not explicitly protect money to support projects under the bilateral.*

Proposals would be funded on the basis of their scientific merit, and the U.S. part of the focus project would presumably be made up of individual MAR investigations such as those for which Notices of Intent had already been received. Bob Corell noted that the ARC had expressed concerns similar to those of the Advisory Council, and would not likely favor a situation wherein the ALVIN program would be warped or dominated by the Bilateral for several years.

**Results of the workshop together with other information gained will be used for outyear planning by the ARC at their May, 1987 meeting.**

Recommendations for 1988 have already been made: work in the eastern Pacific, including extended work on the Gorda-Juan de Fuca, and return to Woods Hole for overhaul. **Schedule recommendations for 1988 will be made in May, 1987.**

**The ALVIN Review Committee met on December 8, 1987 (also in San Francisco).** They reviewed a limited number of extraordinary dive requests for work in 1987 and to revise and refine their schedule recommendations for 1987. Part of the motivation was to reach a better balance among projects sponsored by the three funding agencies. A new ALVIN-ATLANTIS II schedule has been distributed.

**A chairman and working group to prepare the UNOLS-sponsored Submersible Science Study - 1987 is being formed.** Bruce Robison, UCSB, has agreed to chair the group, and candidates have been agreed on for an about eight person working group.

The Advisory Council asked for a status report on **the Navy submersible SEA CLIFF and its availability for academic submersible research.** Two critical problems exist: no suitable support ship is available, and terms and conditions for a daily use rate are not final. Keith Kaulum noted that seven proposals for support ships are under review. The proposals are for highly capable ships. Policy for the proposed daily rate, to apply to instrumentation, equipment and operational support, is being formulated.

There had been, recently, concern that **some operational procedures for ALVIN-ATLANTIS II should be re-vamped,** both to provide better support of on-board science projects and to improve the basis for morale within the ALVIN group. It was noted that the ARC, funding agencies and Woods Hole ALVIN group management are all aware of critical challenges in operational management of the ALVIN-AII operation and of a continuing need to refine the operation. Keith Kaulum reported on his just-completed trip to observe ALVIN-AII operations during a project cruise.

On completion of the ARC report, Robert Corell noted his recent appointment at NSF under the Intergovernmental

**Personnel Act** and submitted his resignation as Vice Chairman, UNOLS. His resignation was accepted.

The Advisory Council commended Robert W. Corell for his service to UNOLS and the Advisory Council. Dr. Corell has served variously as UNOLS Vice Chairman, Advisory Council member, and Chairman, ALVIN Review Committee since 1976.

**Fleet Improvement Committee.** The Fleet Improvement Committee is fully organized and will have its first meeting during the week February 2-6, in College Station, Texas. The FIC, Worth Nowlin, TAMU, Chairman and Richard Barber, Duke, R.P. Dinsmore, WHOI, Donn Gorsline, USC, Marcus Langseth, L-DGO, James Murray, UW, Bruce Robison, UCSB and Fred Spiess, Scripps members will operate both as committee of the whole and through subcommittees/working groups. It is anticipated that under Worth Nowlin's chairmanship the FIC will address appropriate fleet management issues, and will consider fleet/fleet replacement issues in a context of national ocean program/ocean community planning and direction.

By inference from agenda material already distributed, the FIC will look at SWATH design applicability for new coastal/regional research vessels. They will also consider that part of their charge recommending that two of UNOLS' conceptual designs (for larger ships) be advanced to the preliminary design stage.

Bob Dinsmore provided to the Council a *Status Report on R/V's MELVILLE and KNORR Propulsion Refit* (Appendix II). Results are available from the engineering study initiated in 1985 and those from a survey of Z-drives (late 1986) will soon be available. A meeting to analyze and evaluate engineering studies had just been completed at Scripps.

Keith Kaulum noted that funding for refit of the two ships would be secured soon. A preliminary design proposal will be submitted in early March, 1987; the preliminary design study would be completed by July, 1987. The request for proposals for final design and overhaul would be issued in June, with funding (award) in October, 1987. The first ship overhaul would begin in October, 1988, and require about one year.

**Cruise Assessments.** A summary of Cruise Assessments received for the third quarter, 1986 had been distributed to the Council. The Council discussed shortcomings and benefits in the current scheme for assessing individual ship effectiveness. (Shortcomings, especially, had been discussed at several earlier Advisory Council meetings.) The Council agreed that current procedures (wherein assessments are submitted through operating institutions) should be continued under most circumstances but that

explicit provision should be made so that P.I.'s/Chief Scientists could submit assessments directly to the Advisory Council should extraordinary circumstances warrant. It was also recommended that forms for cruise assessments should be included in User Manuals.

Bob Dinsmore agreed to assume standing role for cruise assessments and, with the Executive Secretary, to implement the Council's change in procedures.

**Inspection Programs for UNOLS Ships.** Bob Dinsmore provided a report on UNOLS ship inspections (Appendix III). A list of inspections scheduled for 1987 was included.

The NSF/MARAD inspection continues to find improvement (fleetwide and for individual ships) in material condition. In addition to material condition and stability, emphasis will be put on readiness (e.g., procedures, emergency drills, medical capability and planning) and on stability. The report lists discrepancies that are regular or widespread throughout the UNOLS fleet.

Recommendations and identification of issues were also included. The Advisory Council generally deferred action on recommendations. They did, however, agree that Ship Characteristic Sheets should be eliminated. They suggested that the issue of inviting observers (from UNOLS or other UNOLS institutions) to individual inspections should be handled on an informal basis. The Council declined to take a position on the INSURV program. They suggested that UNOLS institutions with concerns about INSURV should open a dialog with ONR. Keith Kaulum, ONR agreed.

**Shipboard scientific instrumentation, technician programs.** John Martin noted that Advisory Council efforts to survey and describe UNOLS institution charges and practices have been melded with RVOC efforts. To date, efforts have not been effective in even documenting various practices (or charges). Clearly, there is not a universal approach among institutions.

Some queries had been received on the possibility of including marine technician support in ship operations proposals. NSF representatives noted that at the time that the marine technicians program was established it was not possible to manage the two programs under a combined proposal. The situation may or may not have changed.

Two problems seem to be widespread throughout UNOLS: unexpected or unanticipated charges for CTD use, and various factors associated with non G and G. projects deployed on ships specializing in G and G.

**UNOLS News.** Copies of Volume 3, Number 4 had been distributed. Bill Barbee will gather information for Volume 4, Number 1, to be distributed March, 1987.

There was concern that UNOLS News is almost exclusively a summary of information from UNOLS meetings or of items from UNOLS officials. No clear way was advanced for gaining broader input.

**International Restrictions to Ocean Science.** *The Advisory Council agreed that the International Restrictions to Ocean Science Committee (IROSC) be discontinued.* The Council noted that issues of obtaining clearances and fulfilling related obligations remain of critical importance. A committee of the Advisory Council (as IROSC has been) has not, however, proven an effective means of addressing those issues. Further, the Council's charge establishing IROSC was not specific to the compelling foreign jurisdiction issues facing the academic ocean research community. *Should need or demand arise, UNOLS should be open to establishing a new group as a UNOLS committee and with a more focused charge.*

Chairman Keller noted that he intended that the ability to conduct ocean research in waters under foreign jurisdiction would be a keynote item at the next UNOLS meeting.

**UNOLS Ship Use Statistics.** In response to an Advisory Council request of October, 1986, Bill Barbee provided a five year (1981-85) summary of UNOLS fleet statistics (Appendix IV). The Council found the summary instructive, particularly as it provided information on the amount and stability of use of ships by class. They instructed the Executive Secretary to continue to provide five year summaries. They also asked for: the addition of cost information and the addition of an *out of service* category.

NSF representatives noted that OCFS has a program to provide most of the information in the summary.

**Scientific and government trends; agency and community contact.** Discussion of the October 30, 1986 meeting between NSF/DPP representatives, the UNOLS executive committee and others was, for the most part, deferred until Ron La Count's meeting with the Council (January 30). Mr. La Count will discuss with the Council DPP plans for ships to support polar research and UNOLS' potential to fill an advisory role concerning DPP's ship management responsibilities. The Advisory Council was alerted to a new development wherein, a FY-1988 NSF/DPP budget item of \$13M for a *research vessel with ice-breaking capability.*

Bill Barbee had attended the December 15, 1986 meeting of FOFCC. Research ship operating agencies (NSF, NOAA, Navy, CG and USGS) gave reports on 1986 and 1987 ship operations

and operational/out of service status of their ships. NSF, Navy and Coast Guard give projections on their research ship acquisition/planning. (Details of interest from all of these presentations are herein covered under Funding agency reports, etc.) Peter Wilkness, NSF/DPP reported on those events leading to current availability of research vessels and ice breakers for U.S. high latitude ocean research (e.g., limitations on GLACIER'S service capability, midlives for POLAR class icebreakers). He discussed negotiations between NSF and the Coast Guard, NSF Arctic and Antarctic vessel requirements and NSF decisions: to cancel research vessel deployments in support of project AMEREIZ (until adequate ice breaker capability is available) and to lease a vessel to fill NSF's requirements in the Antarctic.

The UNOLS observer was questioned by Coast Guard concerning the stability of science community support for new ice breakers. The response: the UNOLS community supports, in general, CG acquisition of new ice breaker with ocean research capabilities; there is not, however, agreement that new Coast Guard icebreakers would fill academic community needs for polar research vessels. There is also ambiguity as to whether or not ocean research requirements are a compelling aspect of the justification of new icebreakers.

It was reported for UNOLS that the Fleet Improvement Committee has been formed, with their first meeting set for early February, and that UNOLS will sponsor a submersible science study to be completed during 1987.

It should be noted that terms of reference for FOFCC and its Coordinating Board include keeping close liaison with UNOLS; UNOLS should continue to provide observers for FOFCC meetings.

**Robert Corell noted the multi-agency interest in and emphasis on Global Geosciences Initiatives.** Planning and initiatives were included in the press release for the President's State of the Union message (although not included in the speech). A mid-February meeting had been set to identify interagency ties for their global geoscience efforts.

Other changes noted were: Selection of Tom Pyke as NOAA's Assistant Administrator for NESDIS. (NESDIS is the satellite, data and information arm for NOAA). Mike Champ has been named on Ocean Systems Engineering in NSF's Directorate for Engineering. The program will be at about an \$8M/year level.

**Remarks from funding Agencies.** Don Heinrichs provided an overview of NSF/OCE budgets for 1986 through 1988 (estimated):



National Science Foundation  
 Ocean Sciences Division  
 \$Million

	FY1986	FY1987	FY1988	Percent Inc. 1988/1987
OSRS	56.9	66.4	74.3	11.8%
OFS	33.7	37.2	43.9	18.0%
ODP	<u>28.9</u>	<u>30.1</u>	<u>31.3</u>	<u>4.2%</u>
OCE	119.5	133.7	149.5	11.8%

The 1987 budget is essentially as reported by NSF/OCE in October, 1986. (See Minutes Advisory Council Meeting, October 29, 1986, Appendix IV for details of the OCFS budget for 1987.)

The NSF budget projection for 1988 identifies major growth areas, including ocean sciences. The total for OCE is estimated at \$149M. President's budget included a statement projecting a doubling of NSF's budget by 1992.

Within OCFS (and generally in OCE) growth in 1988 is identified with Global Geosciences Initiatives:

- facilities/support needs for TOGA, WOCE, GOFs, etc.,
- ALVIN support and facilities for Ridge Crest Studies,
- establishment of an accelerator mass spectrometer center to be managed out of OCFS, (an RFP approach will be used to determine center location/institution),
- expanded ocean technology development and support,
- engineering design studies for an R/V to replace ATLANTIS II (i.e., submersible support capability).

With the increase anticipated for seagoing activities in support of global geosciences, current core programs would remain about level funded.

Research directions would include planning and field studies for TOGA and WOCE, initial GOFs field studies, program funding for satellite and modeling data/information, ridge crest studies and marine bio-technology.

NSF had recently issued an announcement, Research Experience for Undergraduates (REU), outlining opportunities for support emphasizing undergraduates and non PhD-program participants, especially women and minorities. Support would be for participation as technical and science support personnel on approved projects. OCE-OCFS believes that it funds many appropriate projects (e.g., research, engineering development, marine technicians support) and would welcome proposals, either for REU site or supplemental awards.

The revision of NSF's long range plan for ocean sciences is before the Ocean Studies Board for review, and due for release in late March. This version is almost a complete re-write.

Keith Kaulum reported that internal studies at ONR could have significant effects on ONR's way of doing business, on their internal management structure and on their mode and level of support for ocean research and facilities. ONR's mode of support for the UNOLS fleet is under examination, and may change for 1988. Beginning in 1988, ONR will be more involved in instrumentation/technology development.

The procurement schedule for AGOR-23 had slipped. The RFP for NAVSEA procurement should be issued in mid-February. The operator-institution RFP should also be issued in February, with about three months for responses. The purchase requisition to provide for institution participation in the ship acquisition process was in preparation.

A recent ONR telemail message invited name suggestions for AGOR-23.

Navy/ONR procurement practices will, next year, require that 50% of their funding be obligated on October 1 (first day of the FY) and 90% by January 1. *This should foster early research funding decisions.*

Note was made of the near-crisis in funding re-powering of MELVILLE and KNORR. In late 1986 the project was removed from budgets at DOD. Strong efforts beginning with Commander Geoff Whiting, through CNR and by Secretary of the Navy Lehman resulting in recovering funding for the project. (See UNOLS Chairman letter, Appendix V.)

Hawley Thomas reported that the MMS budget for 1988 was being analyzed.

MMS was evaluating a letter from UNOLS (originating with George Shor, Scripps) that questioned some aspects of MMS use of UNOLS ships, and offered suggestions for improved procedures. Response and action will be after a meeting of MMS regional chiefs.

Don Heinrichs relayed that USGS anticipates no significant use of UNOLS ships in 1987. He also noted that USGS's POWELL was being transferred on a three year bailment to a Caribbean Research Center.

R.R. La Count, manager, Polar Operations Section, NSF's Division of Polar Programs met with the Council (January 30) to discuss marine aspects of DPP's polar operations.

Background for the discussion included the DPP-UNOLS executive committee meeting (October 30) at which DPP had inquired about UNOLS filling an advisory function for DPP marine operations. Since DPP has no traditional advisory structure in this area, the use of UNOLS seemed appropriate.

Especially since the POLAR DUKE has been in service for Antarctic operations, DPP has moved to foster a DPP-UNOLS relationship that would include participation in UNOLS scheduling and appropriate oversight (e.g., advise on outfitting POLAR DUKE for research).

Recent developments make it likely that DPP will soon begin to operate a second vessel in the Antarctic, a research vessel with ice breaking capability. DPP would like UNOLS advice in outfitting this additional vessel.

NSF's budget estimates for 1988 include \$13 million to procure a research vessel with ice breaking capability. The intent is to employ the vessel principally in the Antarctic, to enable conduct of the U.S. ocean research program there.

Events leading to NSF/DPP's effort to acquire this research vessel include last fall's announcement that the Coast Guard's GLACIER could no longer be deployed as an icebreaker. Although, later negotiations led to GLACIER'S deployment to Antarctica as an *ice strengthened* vessel, DPP could not conduct their planned oceanographic research for want of a capable escort/standby icebreaker; project AMEREIZ was canceled. The earliest Coast Guard response would be 1994-1995 when their two new icebreakers became available.

After negotiation with the Coast Guard, NSF decided they must acquire a research vessel to fulfill their Antarctic obligations. Upon investigating the availability of suitable ships (both U.S. and foreign) and with information from UNOLS and the ocean community, an RFP was prepared for a general purpose research vessel with ice breaking capability.

The vessel would have science and polar operation capabilities comparable to the POLAR STERN, LOA less than 300 ft., ice capable to break 3 ft. of ice at 3 knots. Acquisition would be by lease (charter), with option to buy. DPP feels confident that there will be interest in responding to the RFP.

In response to Mr. La Count's request for advice in outfitting the new vessel, the UNOLS Chairman suggested that such advice should be generated through the Fleet Improvement Committee. The Advisory Council agreed. Mr. La Count will contact Worth Nowlin, FIC.

**Don Heinrichs reported that NSF has essentially agreed to bond over the CAYUSE to EPA for three years. EPA would**

operate the CAYUSE under their region IV, in the Gulf of Mexico.

In addition to interest from UNOLS institutions, a State of Maine consortium had shown interest in acquiring and operating CAYUSE should no federal agency bid.

**UNOLS Business.** Several items of UNOLS business were addressed while there was still a quorum.

**UNOLS Charter.** A marked up copy of the Charter had been circulated to the Council. Most of the suggested changes were modest ones, necessary to make the document consistent. *The Council recommended that these changes be submitted to UNOLS membership for their adoption at the next meeting.*

A more substantive change was to Annex I of the charter, A Procedure for Coordinating Ship Schedules. *The Council agreed that the Executive Secretary should redraft Annex I in consultation with scheduling chairmen to reflect procedural changes in ship schedule coordination agreed to in October, 1986. The redraft should be submitted to UNOLS members for action.*

In discussing ship scheduling procedures, the *Advisory Council and agency representatives agreed that the first joint ship scheduling group meeting should be deferred until July, so that more information would be available on science proposal decisions and ship use requirements. The Council also recommends that during March, 1988 ship use requests and tentative ship schedules be exchanged among institutions and with the UNOLS Office.* The Executive Secretary was instructed to arrange meetings and exchanges in cooperation with ship scheduling chairmen. The final scheduling meeting of the year would be in October, in conjunction with regular UNOLS meetings.

In a related matter in response to UNOLS member requests and because of changes in dates for ship scheduling meetings, **the Advisory Council recommended that general UNOLS and Advisory Council meetings for May, 1987 be canceled.** UNOLS should revert to a schedule of one general meeting each year, to be held in October. The Executive Secretary was instructed to poll UNOLS membership and, if they agreed, to reschedule meetings.

**UNOLS Office.** George Keller reported that, in response to his notification on proposals to host the UNOLS Office, two institutions had expressed interest: Lamont-Doherty Geological Observatory and the University of Washington. They had been invited to submit proposals (including their candidates for Executive Secretary) and a schedule had been made to evaluate proposals and recommend selection. A screening committee was being formed, including the UNOLS Chairman, representatives from UNOLS Member Institutions and funding agency representatives.

**UNOLS Nominations.** Nominations will be needed during 1987 for three Advisory Council positions and, after Robert Corell's resignation, for UNOLS Vice Chairman. Membership was discussed for a nominating committee. (Note: Should May UNOLS meetings be canceled, elections would take place at the October, 1987 meeting.)

**UNOLS Structure and Mission.** Discussion of the adequacy of the existing UNOLS structure and suggestions for changing emphasis in the mission or restructuring UNOLS was brief. A letter from Brian Lewis (Appendix VI) was reviewed with interest. The Council wanted more fully developed concepts for their consideration and instructed the Executive Secretary to confer with Brian Lewis.

**Fleet Wide Insurance.** Because of sharp rising costs and limited availability of insurance, interest had been building to examine the feasibility of fleet wide insurance. NSF has plans to sponsor a feasibility study, to be undertaken late in 1987.

Another item was introduced concerning risk management. Some UNOLS institutions require pre-embarkation status and/or release forms for personnel boarding their ships. Status forms generally seek to determine people's employment (and workmen's compensation) status as a part of risk management. Release forms also seek to limit risk to operating institutions risk.

The Executive Secretary was instructed to survey UNOLS operating institutions with a simple questionnaire on risk management/insurance practices, to collect status forms and releases used by all UNOLS institutions and to circulate the forms to the Advisory Council and institutions.

**With no further business the meeting was adjourned at 11:55, January 30, 1987.**


 UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM
**AGENDA**

Advisory Council Meeting  
 January 29, 30, 1987  
 Room 114, Scripps Building  
 Scripps Institution of Oceanography  
 University of California, San Diego  
 La Jolla, California

Call the Meeting - John Martin

Accept the minutes of October 29, 1986 Advisory Council Meetings - Minutes will be distributed about the first of the year.

**Advisory Council Standing Roles**

**UNOLS Ship Scheduling** - Tom Malone and Ken MacDonald are A/C reps to East and West Coast Scheduling Groups. Discussion of 1987 schedules, progress toward improving scheduling process; NSF/ONR representative may advance suggestions for improving scheduling process. Discussion of a revised UNOLS Charter Annex I.

**ALVIN Review Committee** - Robert Corell will report on ALVIN workshop and Committee meeting (Dec. 7, 8, 1986), program in 1986, schedule for 1987 and tentative advance plans for 1988 and beyond. Discussion of ARC status, etc.

**Fleet Improvement Committee** - George Keller will report on formation of the FIC. First FIC meeting is scheduled for February 3, 4, 1987.

**Cruise Assessments** - Cruise Assessment summaries for third quarter, 1986 will be available. A/C should decide if they want to continue the assessment process, have this as a standing role, and if so, pick a member for the role.

**Vessel Inspection** - Bob Dinsmore report on the program. A/C may examine reports from individual ship inspections, as furnished by Dick West, NSF. (Note that A/C decided at Oct. 1986 meeting that they should be made available.)

**Shipboard scientific instrumentation, technician programs** - John Martin report.

**UNOLS NEWS** - Vol. 3, No. 4 distributed January, 1987. Collect input for Vol. 4, No. 1 (about March 1987). News items, suggestions from A/C members or others are welcomed. (Perhaps there should be some direct solicitation.)

**International Restrictions to Ocean Science** - Decide whether or not to continue IROSC. If so, switch it to UNOLS Committee Status. Implement process.

**UNOLS Statistics** - Five year summary of UNOLS Ship Use (UNOLS Office).

**Scientific and government trends; agency and community contact** - Reports on UNOLS-DPP meeting (Oct. 30), FOFCC meeting (December 15), etc. Action as required. UNOLS Chairman's Correspondence.

**Remarks from Funding Agencies** - Agency representations will provide information as they choose (NSF, ONR, USGS, MMS, NOAA, other). In addition to regular reports, Ron La Count, NSF/DPP will report to the Council on the status of efforts to acquire a research vessel with ice breaking capability. Note earlier UNOLS recommendations. (Mr. La Count will be available on Jan. 30.)

**UNOLS Fleet Policies and Strategies for the 1990's** - (It is not clear how the Council will proceed on this. No clear course of action was evident at the end of the October meeting. Possible focal issues: R/V WOCE and UNOLS, NSF's concept of a CORE FLEET, UNOLS-DPP and polar research vessels, research vessel requirements from NSF's LRP, achieving some consensus on management strategies, policies.)

**UNOLS Structure and Mission** - Advisory Council examination of UNOLS' structure and mission. Note correspondence between UNOLS Chairman and Brian Lewis, containing a suggested pattern. Note also that Grant Gross has called for an examination of the overall mission and structure of groups advisory to NSF and other federal ocean agencies (e.g., ACOS, NAS/NRC's Ocean Studies Board, JOI/JOIDES Board of Directors, in addition to UNOLS).

**Fleet Wide Insurance** - Especially in recent years the cost of obtaining insurance for the UNOLS fleet has been rising rapidly. NSF and many operators have shown interest in the possibility of policies providing fleet coverage. (Individual operators now cover their own ships.) First step would probably be a study to determine feasibility, cost savings, pros and cons.

**UNOLS Business**

**UNOLS Charter** - Council recommendations on changes to the UNOLS Charter, including re-drafted Annex I on ship scheduling. Recommended changes must be circulated to UNOLS members, so they can act at May Semiannual Meeting.

**UNOLS Office** - George Keller report of Member Institution interest in hosting UNOLS Office. Discussion of schedule for an Advisory Council evaluation of proposals, etc. Establish A/C evaluation panel, etc.

**UNOLS Nominations** - George Keller will discuss with the Council formation of a Nominating Committee and Nominations. Three terms expire on the Advisory Council. Incumbents are Tom Malone (from an Associate Member Institution) and Art Maxwell and Jeff Fox.

STATUS REPORT ON R/Vs MELVILLE AND KNORR PROPULSION REFIT

The AGOR-14 class was conceived in 1965 as a new design of research vessel over its predecessors AGORs 3 to 13. Those ships all were variations of the basic AGOR 3 design; each sub class modified to meet new and changing requirements. Finally, the list of proposed modifications became so great that the AGOR 3 design could not be changed sufficiently to accommodate them. Accordingly, it was decided to make the AGOR 14 the lead ship of an entirely new class. The basic requirements were centered around five areas. These were:

- basic arrangements
- maneuverability and position keeping
- speed and endurance
- propulsion plant and basic auxiliaries
- acoustic quieting

Open deck space and flexibility for accommodating scientific outfitting were the chief forces in the basic arrangements. That this requirement has been successfully met can be attested to by the sole use of these ships in seagoing programs where they and no others can fulfill the needs.

Maneuverability and position keeping were defined as maintaining position against a 40 knot beam wind and a one knot beam current (35,000 lb. force). Almost alone this requirement drove the selection of the propulsion system resulting in the use of two Voith-Schneider cycloidal propellers, one aft-2,000 HP and one forward-1,000 HP. As a precaution against untested experimental systems, it was stated at the time that the system must be simple — "off the shelf" and "debugged". Under no conditions were the designers to pass on trouble-shooting problems and high maintenance costs to the operator. Operational experience has demonstrated that the ships do possess exceptional maneuverability, probably unsurpassed among all research ships; however, high casualty rates and accompanying maintenance costs have led to ambivalence by the operators and users.

The speed and endurance requirement was set at 12 knots and 10,000 miles respectively. Under normal operating conditions, 12 knots has not been fully achievable as a regular cruising (or even full) speed.

Other than to meet the maneuverability criteria, the requirement for the main propulsion plant was simplicity. This resulted in a single, large, low speed diesel engine to drive both aft and forward cycloids. The machinery arrangement is shown in Figure 1. The lengthy shafting, clutches, couplings, and other novel arrangements make questionable whether simplicity actually has been achieved.

Quiet ship requirements have not been met in the AGOR 14 class. Quite the contrary, these ships have a reputation for noisiness. Scientific echo sounding from the hull is virtually impossible. The noise problem has appeared to be so related to the propulsion system that no serious effort has been mounted to identify or correct it.

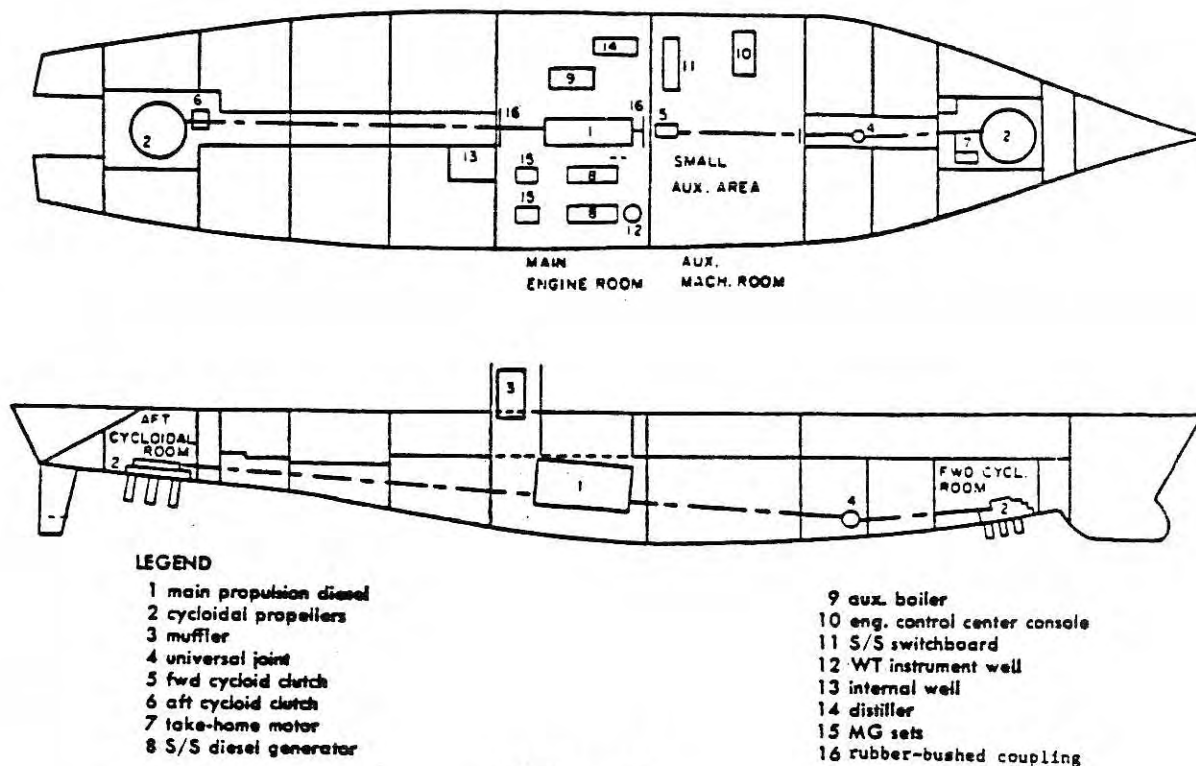


Figure 1.

MELVILLE (AGOR 14) and KNORR (AGOR 15) were completed in 1969 and 1970 respectively. They are sister ships but not twins. Their differences reflect certain preferences or "options" on the part of the operating institutions (Item 1, above). These options were an intended feature of the individual ships' designs. In other aspects, particularly propulsion machinery, their construction trials and subsequent operating histories have been so alike that a problem evident on one is certain to be followed by the same problem on the other.

From the outset, the ships were beset with maintenance problems chiefly associated with the drive train and propulsion system. These ranged from vibrations, alignments, gears, seals, and more recently, a massive failure in the aft cycloid itself. The high maintenance costs and time lost are a matter of record. The ships are now 15 years old and have demonstrated that the problems encountered are beyond the "debugging" stage. If full service life is to be expected, a major engineering refit is required.

In 1985, an engineering study was commenced. The purpose of the study was to examine the problems with the existing propulsion system to redefine the mission requirements (Appendix A) and to investigate the alternatives of modifying and/or replacing the propulsion system. This study has been completed and has been reported. Results of that study showed (1) that the average mean time between failures on the AGORs over the past 15 years is 10 months and shows no sign of current improvements; (2) radiated noise from the existing ship systems preclude any reasonable attempts to meet scientific acoustical requirements; and (3) possible refits can be summarized as follows:

- o Three alternatives are cycloid, Z-drive and screw propulsion. All can meet requirements.
- o Conventional screw propulsion will require most change ergo cost.



Issues:

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A good example is the SAIL System; this has been pushed hard - and funded - as a "UNOLS Recommendation". Most ships now have or can field a SAIL System, but they are reporting that most shipboard investigators are not interested in it. Questions are arising whether or not it is really needed. Who answers the question, who cancels the recommendation?
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UNOLS SHIPS  
INSPECTION PROGRAM

1987 Schedules

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R/V OCEANUS	TBS	NSF/MARAD

Notes:

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INSURV is by U.S. Navy Board of Inspection and Survey.
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3. Chief discrepancies which show up with regular frequency include:
  - . Winches and Cranes - obsolescence, poor maintenance (chiefly lubrication), inadequate wire monitors,
  - . Overside Handling - Frames and Cranes inadequate and too small, sloppy rigging, hazardous procedures, blocks too small
  - . Laboratory Quality - Labs dirty and sloppy, poor cabinetry, poor lighting, too small, no eyewash, Electrical outlets not marked or grounded.
  - . Meteorological - anemometers, barometer, substand for science.
  - . Pollution Controls - oil and/or sewage missing or substandard.
  - . Watertight integrity - openings in watertight bulkheads, doors missing or malfunctioning

- o Cycloid and Z-drive rated about equal and ahead of screw propulsion for maneuverability performance.
- o Integrated electric is suitable and recommended for all alternatives. A four engine system is feasible for existing hull.

The engineering study accomplished under contract to the J.J. Henry Co, Inc. summarized its findings in a conceptual arrangement plan showing two jet bow thrusters, with a four engine integrated electric plant. This is shown as Figure 2.

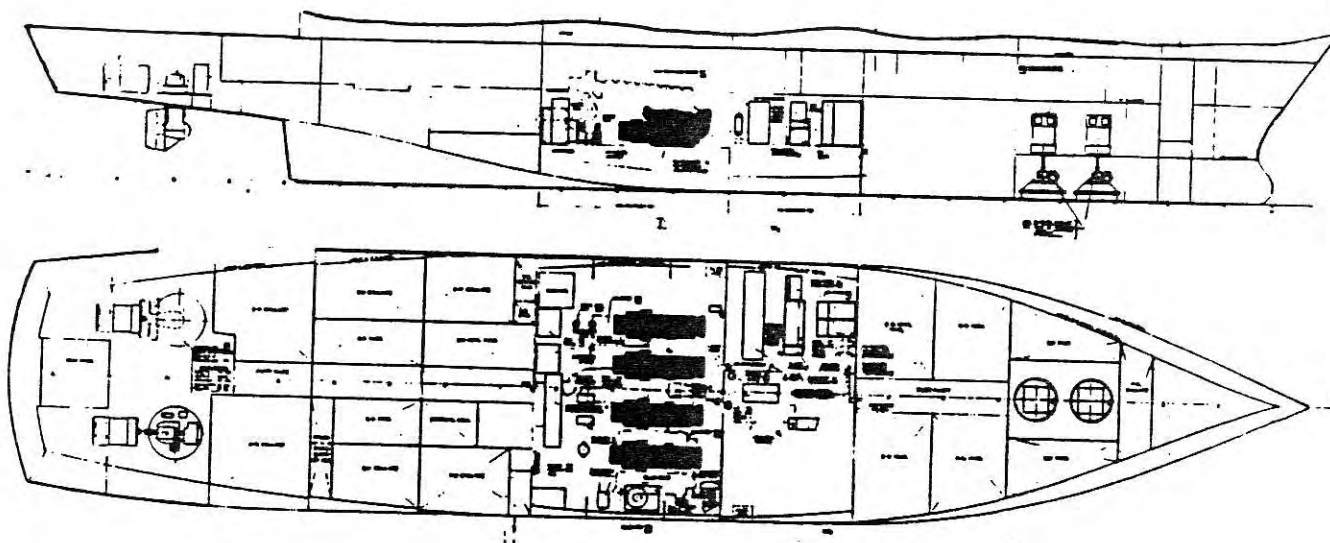


Figure 2

### Propulsion and Thruster Machinery Evaluation

The Repowering Study compared Z-drive propulsors favorably against cycloid and conventional screw propulsion. Subsequent reviews have concurred but recommended that more information must be evaluated before any final decision is made. The nature of information needed regarding Z-drive propulsors and associated thrusters includes engineering data, actual shipboard performance, first hand observation, and acoustical characteristics. Similar information should be acquired for modern cycloid propulsors.

The majority of Z-drives are manufactured in Northern Europe and in Japan. Their use is becoming more widespread but except for tugboats and drillships, most of the vessels outfitted operate in those areas. These include workboats, offshore supply vessels, diving support ships and research vessels. In November-December 1986, under ONR support, a survey

team comprising the below listed individuals visited manufacturers in Europe for the purpose of compiling operating and performance data on azimuthing thrusters. The team comprised:

Robertson Dinsmore - WHOI - Principal Investigator/Team Leader  
James Williams - Scripps - Marine Superintendent  
Richard Dimmock - WHOI - Port Engineer  
Duane Laible - Consulting Naval Architect - Glosten Associates

The itinerary included:

ONR London	Conference
Rotterdam, Netherlands	Visit Schottel Co. and Schottel Z-drive equipped pipe laying vessel
Sunderland, U.K.	Visit M/Vs STENA SEAWELL, one under construction and one on builders trials. Both equipped with KA-ME-WA propulsors.
Ulsteinvik, Norway	Visit Ulstein Co. and ships with Ulstein rudder propellers.
Hamburg, Germany	Visit and ride vessels with Schottel Z-drives and Voith cycloid drives.
Stockholm, Sweden	Visit Swedish Navy offices and discuss performance of new Voith cycloids.
Rauma, Finland	Visit Hollming shipyard and inspect and ride ships equipped with Aquamaster Z-drives.
Heidenheim, Germany	Visit Voith Co. for discussions on performance of cycloid drives.

Results from the visits are being analyzed and will be available in early February.

In addition to performance data obtained from the foregoing visits, acoustic analyses are especially important to the decision-making process. To date, acoustic evaluations have identified the existing ship problems and set target goals to meet requirements; however, little information is available on the several alternative installations under consideration and how they would relate to the AGOR 14 class. An acoustic analysis is being conducted by BBN Laboratories with ONR support to examine candidate thrusters and predict noise characteristics to design and operating parameters. Acoustic source levels will be used to briefly assess impact on sonar systems. As appropriate, noise reduction requirements and attenuating mechanisms will be presented. Requirements for additional data and/or analysis necessary for propulsor/thruster selection will be identified.

### Feasibility for Jumboizing

The Repowering Study did not include the effects of lengthening (or stretching) the hull. It arose late in the study and only a cursory look deemed it as a feasible or desirable measure. The chief attraction is to return the ship to its design draft and reduce drag resistance and transom immersion. Additional benefits include increased laboratory and accommodations space, greater payload capacity, and increased speed. Before any firm planning is started, the scope and cost of any hull lengthening should be determined along with ascertaining the reality of any of the foregoing benefits.

A study is being carried out by the naval architectural firm of Glosten Associates to investigate the feasibility of jumboizing the AGOR 14 class as a part of the refit program. Specifically, the effects on weight, longitudinal strength and stability, payload, speed, power and operating range, will be examined along with determining an estimated cost. In addition, alternative arrangements will be examined such as sponsons, new stern section or other concepts.

### Dynamic Positioning Study

The Repowering Study relied heavily on prior studies or general practice assumptions in order to determine the forces involved with dynamic positioning. Unfortunately, the calculations from previous studies are not available. At best, they are suspect, and the worst case is that they never were done.

There is a need for a detailed analysis of the forces involved. A primary factor in the selection of propulsors and thrusters is the requirement for dynamic positioning and precision trackline maneuvering.

It is planned to undertake an evaluation of the dynamic positioning forces involved, and power required to meet the intended AGOR 14 requirements. For this study, a recognized expert will be employed.

### AC-DC Electric Drive Selection

The Repowering Study recommended an integrated electric plant and discussed the choice between an SCR (DC) drive and an AC drive. The former appeared to be highly attractive except for the several sources of harmonic and other interference inherent with thyristor control drives. As part of making a decision, more information is required concerning this potential problem and its solution. Experience shows that when there is prior planned control over SCR interference, the results are successful. When there is no planning to head off this problem, retrofits have been only partially successful.

It is planned that a recognized marine electrical engineer conduct a study on the recommendations for safeguards against the several forms of problems inherent with AC-DC converters. At the same time there will be a second

look at AC-AC drives. From all reports, there is much new development in this field.

### Review Meeting

As a final phase of the preplanning engineering studies, it is planned to hold a review meeting at Washington, D.C. in March 1987. The purpose of this meeting will be to review all phases of the engineering studies and to make recommendations for the design planning period, March-October 1987, leading up to the actual refit program in 1988-1989.

A report of this meeting will be included with earlier reports as a final report of the preplanning period.

### PROGRAM SCHEDULE

<u>Action</u>	<u>Period</u>	<u>Remarks</u>
Complete concept & technical studies	February 1987	WHOI contract using consultants
Decision workshop to fix overhaul elements	March 1987	Participation by WHOI, SIO, NSF, ONR, UNOLS, consultants
Preliminary design study	March-July 1987	Contract with WHOI who will use naval architect consultants
Request proposals for final design and overhaul	June 1987	To WHOI and SIO only
Review proposals for final design and overhaul for one or both ships	August-September	ONR, NSF task group with UNOLS representative
Fund proposal	October 1987	This may be incrementally funded contract for both ships (FY-88 & 89)
Begin overhaul (1st ship)	October 1988	
Complete overhaul and shakedown	October 1989	

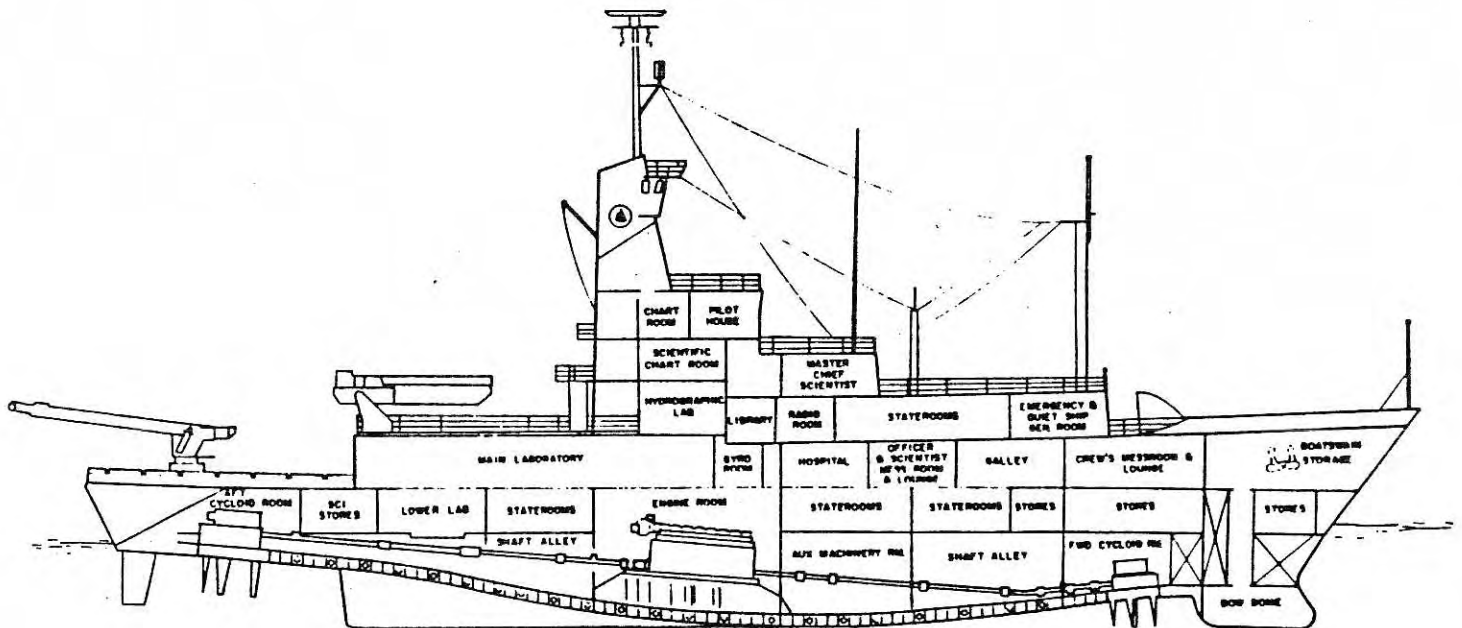
### Attachments

A description of the AGOR 15 and a current statement of scientific and operational requirements are attached.

Description of AGOR-15 (AGOR-14 similar but not identical)

The Research Vessel KNORR was designed and built under the direction of the Supervisor of Shipbuilding, Naval Ship Systems Command by the Defoe Shipbuilding Corporation of Bay City, Michigan. The vessel was launched in 1968 and delivered to Woods Hole Oceanographic Institution on April 15, 1970. The ship was designed as a general purpose oceanographic research vessel. A summary of current data is:

Built:	1969	Ownership:	Title held by U S Navy; operated under contract with ONR by WHOI
Length:	245' LOA (75 m)	Speed:	Cruising - 10.0 knots Full - 12.0 knots Minimum - Dead Slow
Beam:	46' (14 m)	Endurance:	45 Days
Draft:	16' (4.8 m)	Range:	10,000 miles
Gross Tonnage:	1,806 tons	Fuel Capacity:	110,100 gals.
Displacement:	1,915 L tons	Laboratories:	Wet - 400 sq. ft. Dry (3) - 3,000 sq. ft.
Crew:	24	Ships Service Generators:	Two 300 KVA, Enterprise diesel DSM-36 generators
Scientific Personnel:	24		
Main Engine:	One Enterprise DMR diesel engine; 2,500 HP		
Propulsion:	Cycloidal propellers forward and aft (J. M. Voith Model 32G and 24E)		



KNORR - Inboard Profile

## AGOR 14 REPOWERING STUDY

SCIENTIFIC AND OPERATIONAL REQUIREMENTS - Orig. July 1985  
Revised June 1986

The oceanographic mission requirements from 1965 have been updated and revised for the purpose of best meeting projected oceanographic requirements at sea. The following tentative requirements shall apply for the purpose of this Study.

1. Speed: 14 knots maximum speed, but this alone should not dictate the choice of a propulsion system.
2. Endurance: Minimum 10,000 miles at 12 knots cruising speed.  
Minimum 15,000 miles at 10 knots cruising speed.
3. Tow Pull: 10,000 lbs at 6 knots  
25,000 lbs at 2.5 knots
4. Speed Control: Continuous speed control or increments not greater than 0.1 knot (0-6 knots) and 0.2 knot (6-14 knots).
5. Ice Strengthening: ABS Class C, but this should not dictate the choice of a propulsion system.
6. Acoustics: Ship should be as quiet as possible for hull mounted echo sounding and towed multichannel seismic arrays. Design target is precision echo sounding at 3.5 and 12 kHz and Sea Beam to depths of 6,000 m and acoustic doppler profiling at frequencies between 50-300 kHz; up to 10 knots sustained speed at Sea State 4 (8-ft wave height).
7. Dynamic Positioning: Depths to 6,000 m in wind speed 35 knots, SS 5 and 3-knot current, at best heading, using GPS and/or bottom transponders. Max excursion of 150 ft.
8. Precision Trackline: Maintain slow speed (2 knots mean speed) track under controlled conditions (GPS and/or bottom transponders in depths to 6,000 m) in wind speed 35 knots, SS 5 and 3-knot current, and ships heading within 45 degrees of intended track with a 10,000 lb. horizontal pull.  $\pm 0.1$  knot speed control along track. Maximum lateral excursion 150 ft.
- 8a. Maintain the maneuverability of the existing vessels.
9. Payload: Provide for deck and hold loading of not less than 100 tons total in addition to regular scientific outfit.
10. Electric Load: Provide for auxiliary electric power about 50% more than now available.



29 Jan 1987

R. P. Dinsmore

UNOLS SHIPS  
INSPECTION PROGRAM

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**UNOLS FLEET STATISTICS  
FIVE YEAR SUMMARY  
1981-1985**

	DAYS/Percent				AVERAGE DAYS PER SHIP
	NSF	ONR	OTHER	TOTAL	
<b>1981</b>					
Class II (5 ships)	884/75	155/13	141/12	1180/100	236
Class III (8 ships)	1018/58	315/18	426/24	1759/100	220
Class IV (6 ships)	462/71	25/04	160/25	647/100	108
< Class IV (7 ships)	642/70	15/02	258/28	915/100	131
FLEET TOTAL (26 ship)	3006/67	510/11	985/22	4501/100	173
<b>1982</b>					
Class II (5 ships)	956/78	168/14	102/08	1226/100	245
Class III (6 ships)	875/64	180/13	324/23	1379/100	230
Class IV (6 ships)	739/71	46/05	253/24	1038/100	173
< Class IV (7 ships)	496/66	23/03	237/31	756/100	108
FLEET TOTAL (24 ships)	3066/70	417/09	916/21	4399/100	183
<b>1983</b>					
Class II (5 ships)	836/75	212/19	69/06	1117/100	223
Class III (7 ships)	1166/68	205/12	332/20	1703/100	243
Class IV (6 ships)	688/79	30/03	159/18	877/100	146
< Class IV (7 ships)	484/61	39/05	274/34	797/100	114
FLEET TOTAL (25 ships)	3174/71	468/11	834/18	4494/100	180
<b>1984</b>					
Class II (6 ships)	1255/77	237/15	137/08	1599/100	266
Class III (8 ships)	955/58	189/11	508/31	1652/100	206
Class IV (7 ships)	776/78	0/0	223/22	999/100	143
< Class IV (6 ships)	430/76	30/05	107/19	567/100	94
FLEET TOTAL (27 ships)	3386/70	456/10	975/20	4817/100	178
<b>1985</b>					
Class II (7 ships)	1310/68	352/18	254/13	1916/100	274
Class III (7 ships)	788/67	74/06	315/26	1177/100	168
Class IV (7 ships)	915/82	20/02	175/16	1110/100	158
< Class IV (5 ships)	394/70	33/06	139/26	566/100	113
FLEET TOTAL (26 ships)	3407/72	479/10	883/18	4769/100	183
<b>1981-1985 FIVE YEAR TOTALS</b>					
Class II	5211/74	1124/16	703/10	7038	251
Class III	4802/62	963/13	1905/25	7670	219
Class IV	3580/77	121/02	970/21	4671	146
< Class IV	2446/68	140/04	1015/28	3601	113
<b>FIVE YEAR FLEET TOTAL</b>	16,039/70	2,348/10	4,599/20	22,980	180
<b>AVERAGE/YEAR</b>	3,208	470	920	4,596	-

**UNOLS FLEET STATISTICS  
FIVE YEAR FLEET HISTORY  
1981-1985**

1981	1982	1983	1984	1985
<p><b>Class II (5)</b></p> <p>MELVILLE KNORR ATLANTIS II</p> <p>1. THOMPSON WASHINGTON</p>	<p><b>Class II (5)</b></p> <p>MELVILLE KNORR</p> <p>4. CONRAD THOMPSON WASHINGTON</p>	<p><b>Class II (5)</b></p> <p>MELVILLE KNORR</p> <p>10. CONRAD THOMPSON WASHINGTON</p>	<p><b>Class II (6)</b></p> <p>MELVILLE KNORR</p> <p>13. ATLANTIS II CONRAD THOMPSON WASHINGTON</p>	<p><b>Class II (7)</b></p> <p>MELVILLE KNORR ATLANTIS II CONRAD THOMPSON WASHINGTON</p> <p>17. MOANA WAVE</p>
<p><b>Class III (8)</b></p> <p>VEMA ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON KANA KEOKI</p>	<p><b>Class III (6)</b></p> <p>5. ENDEAVOR OCEANUS WECOMA GYRE</p> <p>6. NEW HORIZON KANA KEOKI</p>	<p><b>Class III (7)</b></p> <p>ENDEAVOR OCEANUS WECOMA GYRE</p> <p>11. ISELIN NEW HORIZON KANA KEOKI</p>	<p><b>Class III (8)</b></p> <p>ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON</p> <p>14. FRED MOORE KANA KEOKI</p>	<p><b>Class III (7)</b></p> <p>ENDEAVOR OCEANUS WECOMA GYRE</p> <p>22. ISELIN NEW HORIZON FRED MOORE</p> <p>18.</p>
<p><b>Class IV (6)</b></p> <p>2. CAPE FLORIDA ALPHA HELIX CAPE HENLOPEN</p> <p>3. EASTWARD VELERO IV R. WARFIELD</p>	<p><b>Class IV (6)</b></p> <p>7. CAPE FLORIDA CAPE HATTERAS ALPHA HELIX CAPE HENLOPEN</p> <p>8. VELERO IV R. WARFIELD</p>	<p><b>Class IV (6)</b></p> <p>CAPE FLORIDA CAPE HATTERAS ALPHA HELIX CAPE HENLOPEN VELERO IV R. WARFIELD</p>	<p><b>Class IV (7)</b></p> <p>CAPE FLORIDA CAPE HATTERAS ALPHA HELIX</p> <p>15. R. SPROUL CAPE HENLOPEN VELERO IV R. WARFIELD</p>	<p><b>Class IV (7)</b></p> <p>CAPE FLORIDA CAPE HATTERAS ALPHA HELIX R. SPROUL CAPE HENLOPEN VELERO IV R. WARFIELD</p>
<p><b>&lt; Class IV (7)</b></p> <p>SCRIPPS CAYUSE LONGHORN BLUE FIN HOH ONAR CALANUS</p>	<p><b>&lt; Class IV (7)</b></p> <p>SCRIPPS CAYUSE LONGHORN BLUE FIN</p> <p>9. HOH ONAR CALANUS</p>	<p><b>&lt; Class IV (7)</b></p> <p>SCRIPPS CAYUSE LONGHORN BLUE FIN ONAR</p> <p>12. BARNES CALANUS</p>	<p><b>&lt; Class IV (6)</b></p> <p>SCRIPPS CAYUSE</p> <p>16. BLUE FIN ONAR BARNES CALANUS</p>	<p><b>&lt; Class IV (5)</b></p> <p>19. CAYUSE BLUE FIN</p> <p>20.</p> <p>21. LAURENTIAN BARNES CALANUS</p>

**NOTES:**

1. CONRAD out of service (midlife) 1981.
2. CAPE FLORIDA entered fleet midway 1981.
3. EASTWARD operated only 2 days 1981.
4. ATLANTIS II out of service 1982 (modification); CONRAD back.
5. VEMA retired 1982 (no sponsored use).
6. ISELIN did not operate 1982 (no schedule).
7. CAPE HATTERAS operated all of 1982.
8. EASTWARD retired from fleet.
9. HOH retired during year.
10. ATLANTIS II out of service 1983 (modifications for ALVIN).
11. ISELIN back in operation 1983.
12. BARNES entered fleet late in 1983.
13. ATLANTIS II returned to service 1984.
14. FRED MOORE entered fleet 1984.
15. ROBERT SPROUL entered fleet late in 1984.
16. LONGHORN out of fleet 1984.
17. MOANA WAVE stretched to CLASS II 1985.
18. KANA KEOKI retired 1985.
19. SCRIPPS retired 1985.
20. ONAR retired 1985.
21. LAURENTIAN added 1985.
22. ISELIN operated only 4 days in 1985.

## UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

An association of Institutions  
for the coordination and support  
of university oceanographic facilities

Oregon State University  
Research Office  
Corvallis, OR 97331-2135  
(503) 754-3437

January 26, 1987

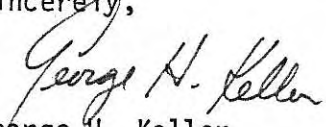
J. B. Mooney, Jr., Rear Admiral  
Department of the Navy  
Chief of Naval Research  
Arlington, Virginia 22217-5000

Dear Admiral Mooney:

All of us in the academic oceanographic community are very much indebted to you and the efforts of others in the Navy for the insight and persistence in moving forward with the program request to overhaul the KNORR and MELVILLE. I know that this has not been an easy task considering the many demands on Navy funds, but the capabilities these two vessels provide to oceanographic research in the United States are truly unique and will certainly justify the expenditures called for in these overhauls.

My colleagues and I in the University National Oceanographic Laboratory System stand ready to assist Keith Kaulum in any way we can in developing a final plan for these overhauls.

Sincerely,

  
George H. Keller  
Chairman

GHK:ms

cc: Capt. W. Barbee ✓  
Dr. E. A. Frieman  
Dr. W. Merrel  
Dr. W. Munk  
Dr. W. Nowlin  
Dr. J. H. Steel

UNIVERSITY OF WASHINGTON  
SEATTLE, WASHINGTON 98195

School of Oceanography, WB-10  
Office of the Director

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OFFICE  
November 17 1986

Dr. George H. Keller  
Dean of Research  
Oregon State University  
Corvallis, OR 97331-2135

Dear George:

I have the following thoughts on UNOLS to offer, stimulated by our conversation in Washington, D.C. These thoughts have mostly to do with the structure of UNOLS and its mission.

As it exists now, it seems to me that the following are true:

1. The UNOLS membership is the oceanographic labs in the United States.
2. The primary mission of UNOLS is to provide advice on the scheduling of federal oceanographic facilities. The goal of this mission is to optimize the use of these facilities so that the federal research dollars are used as effectively as possible.
3. The object of the advice is the federal funding agencies.

Accepting the above, one then asks: What is the optimum structure for executing the mission?

I would divide the structure into the following two components.

A. Tactical Component. This could have, for example:

- Ship scheduling
- Alvin scheduling
- Multi-channel seismic scheduling
- Tactical policy group for recommending tactics.

B. Strategic Component.

This is the component that is the recipient of the tactical information. They must review and act on the information to ensure that the federal research dollars are most effectively used.

This component must have in it responsible representatives of the federal funding agencies, and possibly a few elder statesmen.

It seems to me that, at present, the UNOLS Advisory Council is taking on the role of the strategic component. The problem is that it is elected by the tactical group (UNOLS) and, as such, cannot make strategic decisions without disrupting the tactical process. I would view the Advisory Council as the tactical policy group in the above structure. What we lack is a formal strategic component that can translate the tactical information into an operational plan. In a way, there exists an informal system wherein the UNOLS information is used mostly by NSF to make funding decisions. I think we need a more formal system so that everyone knows who is making the decisions and that will cause the funding agencies (especially, NSF and ONR) to collectively plan ahead.

I offer the attached wiring diagram as a possible way of implementing these suggestions.

All the best,



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BTRL:bf  
enclosure



