UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

UNOLS COUNCIL MEETING

SUMMARY REPORT

July 15-16, 1993

Guin Library, Hatfield Marine Center
Oregon State University
Newport, Oregon

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Guin Library, Building 109
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The UNOLS Council met on July 15-16, 1993 at the Guin Library at the Hatfield Marine Center of Oregon State University in Newport, Oregon. The meeting was called to order by Garry Brass, UNOLS Chair, at 8:30 a.m. The attendees are listed in Appendix I and the meeting agenda is included as Appendix II. These minutes reflect the order in which items were addressed.

APPENDICES

I. Attendance List
II. Agenda
III. Arctic Research Vessel Design
IV. UNOLS Fleet Operations Costs
V. KNORR Conversion Oversight Committee
VI. NSF Budget Slides
VII. Preliminary 1992 Cruise Assessment Summary
VIII. 1992 Captain's Post Cruise Report Summary
IX. UNOLS Correspondences
X. HBOI Request for SEA DIVER
XI. Annex II and Annex IV of the UNOLS Charter

WELCOME & INTRODUCTION

Dr. Lavern Weber of OSU welcomed the Council to Hatfield Marine Center and showed a short video of the OSU facilities and programs.

COUNCIL MINUTES: The minutes of the January 1993 Council meeting were accepted as written.

COMMITTEE REPORTS

RESEARCH VESSEL OPERATORS COMMITTEE - Mike Prince, RVOC Chair, gave the RVOC report. This year the annual meeting will be hosted by Dean Letzring at the Texas A&M facility in Galveston, TX on October 26-28. The agenda is being formulated. It will included reports from the agencies, operators, and equipment representatives. They will invite representatives from industry to speak on ECDIS, winches (Dynacon and Markey) and marine paints. Workshops will be formed to address specific issues. These are to include:

1) Control of Pollution and Hazardous Material
   - The Oil Pollution Act of 1990
2) Cost of Crew Compensation
   - They will look at benefit rates, how costs are determined, and identify innovative practices.
3) Future needs of research vessels
   - Do the ships of today meet the science needs?
   - They will review the paper on lay-up schedules.

Other items to be addressed at the RVOC meeting include reviewing the RVOC Annex to the UNOLS Charter and reviewing medical advisory contract needs. It was requested that the Captain's Post Cruise Report be re-examined to determine the usefulness of its questions.

The only outstanding item for RVOC was the "Guidelines" for chartering non-UNOLS vessels. The Council requested that the title of the paper be renamed from "Check list" to "Guidelines" and that a revision date be added. The paper was discussed at length by the Council and questions were raised regarding: (1) Who should perform the inspection?; (2) When the inspection should be performed? and (3) Whose responsibility is it to see that the vessel has been inspected? It was suggested that the PIs should have some way of showing that they are in compliance with the guidelines. NSF has indicated that they will not fund shiptime on a vessel that has not been inspected. **Mike indicated that RVOC will review the Safety Standards and Guidelines to assure that the methodology for obtaining the inspection is clearly stated. He will modify the Guidelines' cover letter and resubmit the paper for approval at the next Council meeting.** After acceptance, the guideline will be broadly distributed to the community. Don Heinrichs will look into having a check box added to form 831 to show compliance by the PI.

<u>DEEP SUBMERGENCE SCIENCE Committee</u> - Jeff Fox, DESSC Chair, reported on the DESSC meeting held at Woods Hole in June. He gave a historical perspective of where we were a year ago and the events since that time. In 1992, the outlook for ALVIN operations was gloomy with underutilization of the facility. Since that time a workshop and planning meeting were held to help re-energize and focus the user community. As a result, a great deal of ALVIN interest has been generated for use in 1994 and 1995. Going into 1994, 272 dives are proposed, with an additional 159 already funded. Additionally, the marriage of ALVIN and WHOI ROV operations has taken place and proposals for WHOI ROV use in 1994 have been submitted.

Based on proposal pressure, DESSC recommended the following operational plan. In 1994, there is strong community support for operations in the traditional ALVIN arenas of Northern East Pacific Rise, the Pacific coast and Juan de Fuca. The science is mature and much of the work is associated time series studies. In 1995, proposal pressure again indicates interest for ALVIN use in the traditional arenas. DESSC recommends operations in winter/early spring in the Mid-Atlantic Ridge (MAR), to be followed by a strong program in Juan de Fuca. The MAR work is associated with other programs such as FARA and ODP. In late 1995, a foray to Southern EPR is recommended based on proposal pressure and a collaborative effort with

Japan. Following the Southern EPR work, ALVIN would enter an overhaul period while KNORR is converted to a support ship for the submersible and ROVs.

DESSC refers to the above recommended plan as Plan A. It is based on ATLANTIS II not being sold before 1995 and KNORR's conversion being held off until 1996. However, if a buyer is found for ATLANTIS II, both NSF and ONR will strongly encourage a quick sale. If this is the case, then Plan B would be implemented and the overhaul/conversion would be moved up. Plan B may also be put into effect if KNORR is underutilized in 1994 and 1995.

Beyond 1995, there is a strong response from the community to take ALVIN out of the traditional regions to the Western Pacific and Tethyan Region. A late 1996 time frame is being considered for a Western Pacific program. Any plans for expeditions to remote regions will be based on proposal pressure and logistical restraints. DESSC has alerted the community to the possible absence of ALVIN for work in the traditional arenas while a global program is pursued. They have encouraged the use of ROVs to perform deep submergence tasks when feasible.

There were lessons learned over the last year. Following ALVIN's overhaul, motor controller problems occurred during Jeff Karson's dive program which resulted in aborting his cruise. As a result of weather days, ALVIN's post overhaul shakedown period was cut short. Not enough dives were spent on check-out of safety and mechanical systems. DESSC is on record to encourage more intense shakedowns and add more engineering dives in the future.

As an outcome of the DESSC workshop held in November, the community recommended as a top priority that ALVIN's imaging capabilities be upgraded. WHOI, working with the user community and DESSC, is finalizing a proposal for imaging upgrades. The proposal is requesting a two year grant of $200K-$300K for accomplishing the improvements.

There is some indication that the Navy may be close to authorizing ALVIN's depth capability to be increased to 4500 meters. A condition of this authorization will most likely require that all motor controller containers be replaced. The present containers cannot go below 4000 meters.

Jeff reported that he testified before the Congressional Committee on Merchant Marine and Fisheries on the state of deep submergence science and new funding paradigms for support of assets in this country. One proposed idea was that Congress appropriate full block funding for a national Deep Submergence Program and that this program would be administered through the NOAA/NURP program. To maintain the high standards, DESSC would request being designated the oversight committee to any such program. There are still many issues, questions, and concerns that need to be addressed before going forth. The community needs to clearly articulate the rationale for creating a national facility. The importance of maintaining a sophisticated sampling capability for research on the ocean bottom in the next decade needs to be documented.

Congress responded to Jeff's testimony with interest and correspondences have followed. As a first step, the UNOLS/science community, working with agencies and private companies need

to formulate a plan of action. DESSC is in the process of writing a white paper. Garry Brass, Jeff Fox, and Jack Bash are communicating with Ned Ostenso, NOAA, to keep the momentum going. They will continue correspondences with Senator Ortiz (D) Texas, Subcommittee Chair. The need to finalize DESSC's Fall workshop report was emphasized.

The Council expressed their concern over housing the national facility with NOAA. NOAA can tend to be too politically driven. The Council encouraged DESSC to proceed, but cautiously. **A motion was made and approved to form a task force of Jeff Fox, Bob Wall and David Karl to get together with David Duane, Ned Ostenso, and Michael Ledbetter to formulate views on how to proceed.** They will report back at the next meeting.

FLEET IMPROVEMENT COMMITTEE - Marcus Langseth, FIC Chair, reported on FIC activities:

Coastal Workshop - The Coastal Workshop was held in February and was very successful. Don Wright and the Steering Committee did a fine job bringing the community together. Four working groups were formed on each of the first two days. The first day examined the various types of science and measurements being performed in the Coastal arena. These included synoptic measurements, interdisciplinary studies, time series measurement, and information management and communications. On the second day of the meeting, the work groups looked at the facilities needed to carry out the science. They were divided into four groups: large ships, small ships, non ship observing platforms, and field and shipboard instrumentation. An executive summary draft of the meeting has been prepared and distributed. **Garry Brass requested that Don Wright report on the Coastal Workshop at the UNOLS Annual meeting.**

Some of the findings of the workshop concluded that coastal science is growing. Events in the coastal environment can take place very rapidly and the ability to take "snap-shot" measurements is very important. Facility needs include large, shallow draft ships with multiple wire capability and ample lab space. Large UNOLS ships were considered, but would probably require some reconfiguring. The needs for small, low cost ships varied for the different coastal regions. The Gulf of Maine and Alaskan ships would require good sea-keeping capabilities. The Alaskan ship would also require some ice capability and significant range. The Gulf of Mexico and Eastern seaboard would require shallow draft vessels. The Pacific Coasts needs are currently being met by the present inventory.

Other coastal facility needs that were noted in the workshop included a method for maintaining a system of shared use equipment, the ability to use ships and platforms of opportunity, the need for an inventory of facilities and tools, and an information handling group. Many platforms of the future will not be ships and might include: buoys, aircraft, satellites, AUVs, ROVs, and blimps.

Action items resulting from the workshop were the need to complete a facility inventory list and the need for a concept design of a large, shallow draft ship. **The Council tasked the FIC to first develop the science mission requirements for such a vessel.**

Don Heinrichs reemphasized that NSF will not be the major funding source for the construction of a coastal vessel. They will, however, participate in funding science for coastal work.

Garry Brass requested that Don Scavia, NOAA, be invited to the next Council or Annual meeting to discuss the status of NOAA's report on Coastal needs. Some questions that might be asked of Don could include "What coastal science needs are not being met today?" and "What will be the source of the capital investment for building new facilities?"

Arctic Research Vessel - Marcus Langseth provided a status report on the Arctic Research Vessel (ARV). The Glosten design combines the features of the Thyssen Waas and ODEN hull forms. See Appendix III for the ARV layout. The vessel will have the capability for a 450 foot turning radius. Additionally, heeling tanks are planned to allow the vessel to "wiggle" free from ice jams. It is designed for a 90 day endurance and will be built in accordance with CASPPR regulations. The vessel is currently projected at 343 feet LOA, but is expected to be reduced slightly. The main deck will be devoted to science and will include two Baltic rooms. Thirty six science bunks with two bunks per room are planned. Presently, the preliminary design study is coming to an end. Hull model tests to evaluate sea-keeping capabilities will be performed in a tank facility in Hamberg. The SMR for the vessel will be reviewed for the final time at next week's FIC meeting.

Garry Brass reiterated that the UNOLS Council will only endorse the building of this vessel if the funds for both construction and operation are added to the NSF budget. The estimated day rate for the ship is $32,000. Don Heinrichs reported that arctic science will be a priority at the Foundation. NSF plans to do a purchase and amortization request. They do not plan to request full appropriation for construction from Congress. The State of Alaska has indicated an interest to provide substantial financial support.

Fleet Improvement Plan Update - Marcus reported that next week's FIC meeting will focus on completing the Fleet Improvement Plan update. They hope to present a draft to the Council at their fall meeting.

Marcus presented a number of tables and charts showing operating costs for the fleet from 1985 through 1992, see Appendix IV. Tables 1a & 1b compare the operating costs over the years for Classes I, II, and III. Although the total cost has increased, very little change is seen in the daily rates when a 4% inflator is added. Overall, the cost of operating the fleet has changed little over the last eight years. Finally, the last chart in Appendix IV shows that there is little correlation between daily rates and percent ship utilization.

KNORR Conversion - A joint FIC/DESSC Subcommittee has been formed to provide oversight of the KNORR conversion to support ships for ALVIN and ROVs. The Committee is chaired by Ken Johnson from FIC and includes two members of FIC, two members of DESSC, and two representatives from the deep submergence community, see Appendix V. They plan on meeting at WHOI on September 22 while KNORR is in port.

SHIP SCHEDULING COMMITTEE - Ken Palfrey, Ship Scheduling Committee Chair, gave the report on scheduling and fleet operations. The 1993 operations are in full stream with one scheduling incident since the start of the year. The VICKERS ceased operations in late spring and the work scheduled for this ship had to be rescheduled on other UNOLS vessels. Rose Dufour was instrumental in helping to rearrange schedules to accommodate the VICKERS cruises. The Council extends their appreciation to Rose for her efforts.

On June 23, the spring ship scheduling meeting for 1994 operations was held. The scheduling process has become so effective that only one day was necessary to review all ship schedules. Further consideration has been given to eliminate the spring meeting which could be accomplished via telemail and agency review. L-DEO kicked off the scheduling process early in 1993 by submitting a schedule for EWING operations. Overall, the East Coast schedules indicate there will only be work enough for three intermediate ships in the Atlantic. This will force a lay-up of one of the four East Coast intermediates. Since OCEANUS will not be available for operations until late spring or early summer after the refit, it was recommended that the vessel operate with a reduced schedule for the year. It was noted that THOMPSON's schedule is being driven by work in the Arabian Sea.

The Fall Scheduling Meeting is scheduled for September 9 in Washington D.C.

Garry and Ken reported that a complaint had been received regarding notification of plans for ship lay-up. After considerable discussion, the committee felt that in the future, individual notices be sent to any operator institution having a ship recommended for lay-up. The formal scheduling meeting report will be distributed to the community after the institution has had sufficient time to respond to their notification.

Jack Bash reported that the UNOLS Office has recently been contacted by EPA and MMS regarding use of UNOLS vessels. EPA is interested in learning more about the procedures for scheduling time on UNOLS ships. Jack has offered to meet with their representatives to review UNOLS guidelines for scheduling. MMS has requested 1993 ship time for the Santa Barbara Channel. Unfortunately, it will be very difficult for a UNOLS ship to accommodate their request at this late stage. Jack informed MMS of the guidelines for scheduling UNOLS vessels and encouraged them to participate in our scheduling process in the future.

RESEARCH VESSEL TECHNICAL ENHANCEMENT COMMITTEE: Rich Findley reported on plans for the RVTEC Annual Meeting to take place at Scripps prior to the MTS Conference in Long Beach. On Sunday, September 19, there will be an informal meeting. The actual meeting is scheduled for September 20 and 21. Three working groups are being formed to address: (1) New instrumentation; (2) Technician sharing and training; and (3) Database of available equipment. Speakers are being invited to discuss ADCP and CTD systems. Eric Firing and Bob Millard have already agreed to attend to speak on ADCP and CTDs, respectfully. Ellen Kappel and/or other representatives from JOI will give a presentation on their proposal to install SeaNet on UNOLS vessels. A tour of the Scripps marine facility and vessel, NEW HORIZON, will be given.

In other RVTEC issues, Dave Epp, NSF program manager, has requested that a RVTEC subcommittee be formed to look at and compare multibeam data formats. There are now a number of manufacturers for multibeam systems and there is a need for common software that would be compatible with all system hardware. A suggested subcommittee would include a representative from each of the multibeam operator institutions. The council was unclear of the actual tasking for the subcommittee and the source of support for such a subcommittee. **The Council recommended that a funding supplement be submitted to NSF to support the efforts of the subcommittee.**

On a final note, the third issue of the RVTEC newsletter is being distributed.

BLUE RIBBON PANEL STATUS: Don Heinrichs and Keith Kaulum reported that NSF and ONR do not plan to convene a blue ribbon panel at this time. They don't feel that the panel can effectively make recommendations regarding ship lay-ups. Accurate funding projections are not possible. Don stated that the agency was better able to take up the responsibilities of the panel. The blue ribbon panel might be better suited for looking at solutions to funding shortfalls and providing recommendations.

AGENCY REPORTS

NATIONAL SCIENCE FOUNDATION: Don Heinrichs gave the report for NSF. The midlife refits for the three OCEANUS intermediate vessels are underway. A grant has been awarded to URI for $ 2.4 million to support the refit cost. Proposals are pending to WHOI and OSU. By summer of 1994, all three refits are scheduled to be complete.

NSF is in the process of closing out the cooperative agreement for procuring EWING from L-DEO.

The NSF budget request for 1994 is still before Congress. NSF had requested an 18 percent increase from 1993; however, they will most likely receive between six and nine percent, ten percent tops. Level funding will present a serious problem for ship operations.

Some personnel realignments, have been made at NSF. A fifth program area has been added, Ocean Technology Development. Lisa Rom has been assigned the Program Manager for the Marine Technician Program and Oceanographic Instrumentation. Dolly Dieter's IPA runs out in February, 1994. Until they find a replacement, NSF will look for another IPA to fill her position.

Don presented a number of overhead charts showing academic fleet operations support in recent years and projections for 1994, see appendix VI. From 1990 through 1993, NSF was the dominant funding agency for fleet operations support. In 1993, ONR's (Navy) support rose significantly to $7.248 M. Support for large ship operations in 1993 was up slightly from 1992; however, intermediate support dropped. This was in part due to ENDEAVOR being laid up and VICKERS dropping out of the fleet. Annual budget requests in May of 1993

averaged $4.1M for large ships with an operating year of 266 days for an average day rate of $15,470. The intermediate vessels had an annual average of $2.0M requested per ship for 200 operating days per year and a day rate of $9,700. Cost projections for fleet operations in 1994 are estimated at $54.6 M. This is based on the assumptions that VICKERS will be out of service and, as a result of their refits, OCEANUS and WECOMA will be available for reduced schedules. A major project funding increase is needed to fully utilize East and Gulf intermediate vessels.

For 1994, the distribution of requests for funds by agency differed from last year, but the overall total is not very different. NSF will probably fund between $32 and $34 million. ONR funding support for 1994 appears low.

OFFICE OF NAVAL RESEARCH: Keith Kaulum provided the report for ONR. There have been a number of personnel changes within ONR. Admiral Mark Palaez replaces Admiral Miller. The Deputy CNR has been designated as Fred Saalfield. Beneath him is the Science Directorate headed by Bruce Robinson and the Technology Directorate headed by Arthor Bisson. Gordan Hamilton remains acting head of the Ocean Sciences Division and Gene Silva now heads the Engineering Division. Both Divisions fall under the Science Directorate.

ONR anticipates no dramatic changes in funding levels within Ocean Sciences. Personnel changes were made in various ocean science divisions. Dave Evans was replaced by Lou Goodman in Physical Oceanography. Eric Shulenburger replaced Mary Altalo in Biology, and Steve Ackleson now manages the Ocean Optics Program. Moshen Badiey is now the permanent Acoustics Program Manager.

Some big ONR field programs ending this year included the Subduction program and the SRP program which is an acoustic project using 60 days on KNORR. Rick Spinrad is chairing a committee to look at new ways of funding field research and getting programs into the field.

It looks as if there will be very low ONR ship use in 1994. It could be even worse if they are unable to fund the Arabian Sea program. Last year was a record year for ONR support, $9.0 M, including non-UNOLS ships, ALVIN, and techs. Of this, $660 K was for NRL users. For 1994, approximately $1 million in NRL/ONR funding was expected, but will be less because a long cruise on EWING could not be accommodated. Eric Hartwig of NRL has set up a funding arrangement for up to $450 K per year for cost sharing with ONR. The points of contact for these funds are Norman Cherkis at NRL and Pat Dennis at ONR.

OCEANOGRAPHER OF THE NAVY: Pat Dennis reported on the status of Navy-owned research vessels. GYRE has been approved for transfer and will most likely be transferred to Texas A&M in the next month. BARTLETT is scheduled to go off line in ten days and subsequently will be transferred to Morocco. MAURY, a 500-foot survey ship for deep ocean work, went off line in April. Operating costs for this vessel were approximately $14 million per year. A TAG 60 ship, PATHFINDER, will be launched in October and delivered next year. Construction costs were approximately $62 million. AGOR 25 is still in the Navy budget and an option in the present contract for construction of AGOR 24. After the Navy is through

with its fleet modernization effort, there will be three newly constructed AGORs and eight TAG 60 vessels.

NATIONAL OCEANOGRAPHIC AND ATMOSPHERIC ADMINISTRATION: Captain Martin Mulhern gave the report for NOAA. He extended regrets from Admiral Stubblefield for not being able to attend the meeting. Since the last Council meeting, Dr. D. James Baker has been confirmed as Under Secretary of Commerce for Oceans and Atmosphere (Administrator of NOAA), Douglas Hall as Assistant Secretary/Deputy Administrator, Diana Josephson as Deputy Under Secretary, and Dr. Kathryn Sullivan as Chief Scientist.

Marty reported that NOAA has been communicating with UNOLS in their ship scheduling. Jack Bash has been invited and has attended the NOAA Fleet Allocation Council meetings, as well as the Fleet Allocation Working Group. Cooperation is increasing, but because of the changing program requirements, budget, and schedule of the fleet modernization program, projected NOAA ship time on UNOLS vessels in 1994 appears very low with only about 25 days at sea, excluding NOAA/NURP cruises. In 1993 NOAA had 115 days on VICKERS and 83 additional days on other UNOLS vessels apart from NOAA/NURP cruises.

NOAA's Fleet Modernization program received $33.2 million in FY 1992 and $30 million in FY 1993. For FY 1994, the House has approved funding for $23.1 million, but the Senate numbers are still to come. At these funding levels, by the end of FY 1994 the NOAA Ship DELAWARE II, a fisheries vessel, will undergo a major Repair-To-Extend (RTE) its life. There will be a conversion of a former Navy T-AGOS vessel for oceanographic mooring support, and ALBATROSS IV and TOWNSEND CROMWELL will undergo extended repairs. Both routine and critical maintenance costs now are included in the Fleet Modernization Program budget. Preliminary studies of modern ship systems are being performed. Other activities include development of an economic model to compare government and contractor ownership and/or operation, and designs for conversion of Navy T-AGOS vessels for NOAA survey use, for the RTE of OCEANOGRAPHER, and for replacement of NOAA's fisheries vessel, JOHN N. COBB.

AGOR 26 is formally planned for construction in the 1995/96 time frame. The option for this construction expires at the end of FY1996.

In the FY 1994 budget approved by the House, NOAA's marine operations funding is steady. NOAA has developed a NOAA-wide Strategic Plan for 1995-2005, which projects a requirement for the Fleet Modernization Program to bring NOAA's days-at-sea up to 6,240.

Marty reported that NOAA is presently involved in a number of engineering projects. Night vision scopes obtained through a U.S. Army contract are being distributed to all ships. They are relatively small and cost only $1,000 each. They are useful for tracking marine mammals at night, other mission support, and assisting in navigation. Two GPS receivers to achieve Precise Positioning Service (PPS) have been purchased for MALCOLM BALDRIGE and DISCOVERER, under an Interagency Agreement with the DOD covering access and use of the PPS version of GPS. Differential GPS is being used on all charting ships and launches and all NOAA ships will eventually be equipped with DGPS. High speed computer modems are

being investigated. A Shipboard Automated Maintenance Management (SAMM) system borrowed from Military Sealift Command has been implemented on several NOAA vessels. The response has been very positive. Off-the-shelf Electronic Chart Systems to assist in navigation and mission support have been installed on four vessels for evaluation, as part of efforts to identify ways to reduce crew size. A bulletin board system is being developed that would include ship schedules. A shipboard waste management study has been performed by an outside contractor.

UNOLS ISSUES

Garry Brass reported that he has sent a letter of sympathy for John Martin on behalf of the Council.

CRUISE ASSESSMENT AND CAPTAIN'S REPORT SUMMARIES: Jack Bash provided a summary of the 1992 cruise assessments and captain's reports received by the UNOLS Office. The preliminary 1992 cruise assessment summary is provided as Appendix VII. The number of assessments being submitted has increased each year. Jack noted that since 1990 the reported lost time has increased significantly:

	Weather	*Ship*	*Science*	*Total Op. Days Lost*
1990	11	25	13	49
1991	61	24.5	29	114.5
1992	90.5	59.25	23.5	166

There was some concern that this increase in lost time may be due to the reduction in maintenance support. It was pointed out that in 1992 two major hurricanes took place and may have contributed to the increased loss in science time. Additionally, over the years the complexity of science operations has increased, adding to potential lost days.

1992 was the first year in which the Captain's Post Cruise Reports were utilized. The Report Summary is included in Appendix VIII. Several captain's have used this report to highlight safety problems. The reports appears to be useful on a local level. Marine operators can get an idea of what is occurring at sea. It was interesting to note that there is not a close correlation between the Captain's Report and the Cruise Assessment reports that are completed by the scientists. **Jack requested that the RVOC re-examine the Captain's Report to see if it can be more effective. It was also requested to change the title of the report to include "Technicians".**

UNOLS CORRESPONDENCES: Garry Brass reported that he has written two letters, one to Senator Stevens and the other to Jim Baker of NOAA, see Appendix IX. The letter to Senator Stevens was in regard to scientific use of a nuclear submarine in the Arctic. He explained the importance of Arctic research and usefulness of a submarine as a research platform. However, Garry points out in his letter that costs for operations of a nuclear submarine are extremely high and should not be funded out of current operations budgets. Additionally, there will be added costs for new science to be carried out using a sub. Garry recommends that any additional costs associated with research and operations aboard the Navy's submarines should be separately appropriated.

Keith Kaulum expressed ONR's concern that any modifications made to the submarine to support science will be very expensive and are of more concern than the additional science costs. NSF and ONR both warned that a science plan would need to be established before venturing into this area.

The letter to Jim Baker expressed the concern of UNOLS that there are research vessels in the Great Lakes that are presently underutilized. The addition of another vessel by NOAA is unnecessary and thus a waste of taxpayer's money. Secondly, Garry explained that the provision, by NOAA, of a support ship for PISCES in Hawaii could potentially cause difficulties for UNOLS. Such a vessel is not included in the UNOLS fleet plans for the future. The NOAA vessel, KAIMIKAI-O-KANOLA, (referred to as KOK) is not a general purpose vessel and to try to reconfigure it as such would most likely be quite difficult. KOK will be inspected by ABSTECH later this year.

There was a lengthy discussion by the Council on this topic and the fact that when MOANA WAVE is retired the University of Hawaii will be left without a UNOLS vessel. The geographic distribution of major oceanographic science initiatives indicates a need for a vessel in Hawaii. Don Heinrichs stated that NSF will try to schedule HOTS work on UNOLS vessels, and will only use KOK when UNOLS cannot accommodate HOTS. The Council recommended that the University of Hawaii issue a statement of their position in this matter. **Dave Karl will provide a letter from his university to UNOLS with their recommendations.**

On a final note, Garry invited Jim Baker to be the keynote speaker at the UNOLS Annual Meeting.

HULL INSURANCE ON NON-FEDERAL VESSELS: Garry Brass began the discussion on hull insurance by explaining that there are ships in the UNOLS fleet that are privately owned. The operators of these vessels need a means for protection of their private interests in these ships. Garry suggested using the indirect cost rate to cover hull insurance cost for these vessels. One other solution suggested, was to allow these charges to be put in direct costs. These ships are put at risk when used for Federal Government use. A concern was voiced that private charters are allowed to incorporate insurance costs into their rates, so why shouldn't the same rules apply for non-federal UNOLS vessels. NSF and ONR have made a policy decision to go into effect on 1 January 1994 that will not allow direct cost reimbursement for hull insurance. **Garry Brass will write a letter on behalf of UNOLS regarding this matter.**

RESPONSIBILITIES OF CHIEF SCIENTISTS: A subcommittee of Dennis Hayes, Chair; Dennis Nixon and Joe Coburn was formed to investigate and outline the responsibilities of Chief Scientists in relation to safety issues while at sea. The subcommittee has begun discussing this complicated issue, but realized that it would be difficult to reach any conclusions. Dennis Nixon is very hesitant to respond to the committee's tasking. Lamont-Doherty Earth Observatory (Dennis Hayes' institution) and the University of Rhode Island (Dennis Nixon's university) are presently involved in litigation. Any recommendations they make might be applied to the legal case at hand.

Under present law, the Ship's Captain is responsible for all actions on the vessel. Ship equipment is the responsibility of the operating institution as well as equipment brought on board by the P.I. There is a great deal of overlap and fogginess on this issue. It was decided that the subcommittee should not go any further and they were thanked for their efforts. **Tasking was assigned to RVOC add general guidelines to the Safety Standards for Chief Scientists.**

RESTRICTIONS FOR BECOMING A UNOLS VESSEL: Garry Brass discussed imposing temporary restrictions on becoming a UNOLS Vessel during these tight fiscal times. It was suggested that a vessel should only be welcomed into the fleet if the operator can show evidence of a source of operating funds, or they can show that they are replacing a vessel already in the fleet.

APPLICATION TO BECOME A UNOLS VESSEL: Harbor Branch Oceanographic Institution has requested to include their R/V SEA DIVER in the UNOLS Fleet, see Appendix X. They have modified their vessel to make it more general purpose. SEA DIVER is 113 feet LOA and will most likely serve to meet regional needs.

The Council requested that the guidelines for becoming a UNOLS vessel be sent to Harbor Branch. They can submit their application for membership to the Council at their fall meeting. The vessel will most likely be accepted into the fleet, conditional on the successful completion of an ABSTECH inspection.

The Council discussed requirements for small ships in the UNOLS Fleet. Since these vessels are often used to meet regional needs, there are rarely scheduling conflicts with other UNOLS vessels. It was suggested to absolve small ship operators from having to attend the UNOLS scheduling meetings. **Dennis Hayes and Ken Palfrey were tasked to review and determine how smaller UNOLS vessel can be relieved of scheduling responsibilities.**

OPPORTUNITY ON THE NUCLEAR SUBMARINE: In January, Garry Brass met with the Navy in San Diego. The Navy offered an opportunity to the academic community to collect data from a nuclear submarine. Data collected would be open to public domain.

Marcus Langseth chaired a steering committee to coordinate the scientific effort for this opportunity. He reported that the steering committee is made up of five scientists representing five different disciplines. They developed a science plan to collect data in ice dynamics, geology, physical oceanography, chemical oceanography and meteorology. The submarine assigned by the Navy for this cruise is a 637 (Sturgeon) Class attack submarine. It can operate anywhere outside of the EEZ above 400 feet from the seafloor, at a maximum speed of 20 knots. The committee has suggested a trackline for the cruise. The Navy has invited five volunteers from the scientific community to ride the submarine during this cruise, provided they hold a secret clearance. The riders have been selected by the committee.

The submarine will leave from Groton, CT in August with an expected cruise length of 42 days. Approximately 20 days will be spent under the ice. The submarine data collection

capabilities include bathymetry, CTD, water samples, ice bottom profiler, and side scan sonar (that points up). Fifteen surfacing stations are planned for CTD casts and water sampling. To accommodate necessary science equipment, the Navy has removed five torpedoes from the sub and they plan on releasing their navigational information at the end of the cruise.

A shore based research contingency has formed to access the data collected. A preliminary science report will be put out to the community shortly after the end of the cruise. Planning for another cruise in 1994 is not in the works; however, if the Navy presents another opportunity an adhoc effort will be initiated. Serious planning will be put towards a 1995 nuclear submarine opportunity.

SEANET UPDATE: Garry Brass reported that JOI has been coordinating an effort to introduce the new communications link named SeaNet to the UNOLS Fleet. JOI plans on submitting a funding proposal in December for the system. They will send representatives to the RVTEC and Council meetings in the fall to review their proposal and plans for the system.

RADIO OFFICER/GPS: Garry reported that there are presently two bills being prepared by Senator Inouye's staff, one requiring a radio officer and one not. Dick Pittenger is continuing his efforts in trying to get an exception for the UNOLS fleet that would allow them to operate without a radio officer on board. Radio Officers are no longer required by International agreement, but remain a requirement in the Communications Act of 1934. There would be a considerable cost saving realized by not carrying a radio officer.

Efforts for obtaining access to the P-code for GPS are continuing and look promising. Dick Pittenger and Garry Brass met with Senator Kennedy's staff to discuss the issue and were well received. Woods Hole, working with ONR, was able to get access to a receiver for removing the P-code for a recent cruise on KNORR. The system received very high praise from the scientists participating on that cruise. Dolly Dieter of NSF is working on a Memorandum of Agreement with DOD which would allow UNOLS ships to carry a receiver that will remove the dithering from GPS.

MIDLIFE REFIT FOR OCEANUS CLASS SHIPS: Ken Palfrey and Jack Bash reported on the status of mid-life refits for the intermediates. ENDEAVOR's refit is underway and was contracted to Peterson Shipyard in Wisconsin. Peterson was the original builder of the vessel. The refit should be completed in early October. A shipyard manager has been hired by URI to be onsite and oversee the project.

Pre-qualified shipyard lists are being compiled for the refits of OCEANUS and WECOMA, scheduled to begin in October. Peterson Shipyard will be a pre-qualified bidder for both vessels. WECOMA would require a 90-day transit to get to Peterson.

In general, the refits for all three ships are similar, but there are some differences. All will undergo a major reconfiguring of the pilot house and stacks. This is expected to cost approximately $900,000. Budgets may not allow for all requested improvements and priorities will need to be established.

CONSTRUCTION OF AGOR 24: Keith Kaulum and Bob Knox reported on the construction of AGOR 24. Fabrication of modules for AGOR 24 has begun at the Halter Marine Shipyard. NAVSEA has committed $1.5 million for change orders and has submitted the first batch to the shipyard. They cannot submit additional change orders until cost estimates for the first batch are received from the yard. If the first batch of change orders does not exceed $1.5 million, additional change orders will be submitted. The piping systems and fresh water systems for AGOR 24 will be copper nickle or plastic as applicable. This is to avoid any future corrosion problems. NAVSEA has been very cooperative in the selection process of a multibeam system for the vessel. Due to shallow water depth at their pier facility, Scripps cannot accommodate a two-foot pod on the ship bottom. The selected system will have a 120° capability and will be more capable than those available a few years ago. AGOR 24 is scheduled to be delivered three years from January 1993. AGOR 25 will also take three years to complete once the option for construction is exercised.

READOPTION OF ANNEX II AND IV OF THE UNOLS CHARTER: The revisions to Annex II and IV of the Charter were reviewed, see Appendix XI. Annex II addresses National Oceanographic Facilities. It was modified to reflect the new responsibilities and structure of the DESSC committee which oversees ALVIN and WHOI ROVs. Annex IV represents the terms for the Fleet Improvement Committee. It was modified to allow FIC to include liaisons from other UNOLS Committees in their membership. The Council moved to adopt the revisions to Annex II and Annex IV of the UNOLS Charter.

APPROVAL OF NOMINATIONS TO COMMITTEES: Tom Royer and Ken Johnson have agreed to serve a second term on FIC. The Council approved their nominations to the Committee.

Karen Von Damm has agreed to serve a second term on DESSC. Nominations were made to fill three vacant slots on the committee. Dan Orange of MBARI has been selected to replace Casey Moore and Bob Collier of OSU has been nominated to replace Mary Scranton. The DESSC Committee increased their membership last year so that they could include a representative from the engineering/technology discipline. This year they have recommended filling that position with Jim Bellingham from MIT Sea Grant. His background is in AUVs. The Council approved all nominations to the DESSC Committee.

UNOLS OFFICE REVIEW: The UNOLS Charter specifies that the UNOLS Office should be reviewed every three years. The Council agreed that operations are moving along smoothly and that no changes are necessary at this time. The Council passed a motion encouraging the UNOLS Office to proceed with submittal of another three year proposal.

MEMBERSHIP DUES: The Council discussed the need for membership dues for UNOLS. A pool of dedicated funds would make it easier for UNOLS to pursue their interests. Ideas for dues structures included a $50.00 fee for non-operators and a $100.00 fee for operators. Another idea was to charge registration fees to the UNOLS Annual Meeting. Garry asked that the Council think about this for the next meeting.

UNOLS BOOTH AT AGU: The UNOLS Office plans on having a booth at the AGU Fall meeting on December 6-13. Each UNOLS Committee is being asked to prepare displays and

send representatives to the booth. DESSC plans to have a video of various imaging capabilities for submersibles and ROVs. The Council recommended that the booth include a sign up list for people who want to be added to the UNOLS mailing list and a check list of available UNOLS reading material.

UNOLS COUNCIL MEMBERSHIP: **A nominating committee of Peter Betzer, Chair; Dick Pittenger and Dennis Hayes was appointed to prepare a slate of candidates to replace those Council members completing terms.** The terms of David Karl and Bob Knox are expiring, both are eligible for second terms and have agreed to be nominated if asked.

ANNUAL MEETING: The UNOLS Annual Meeting is scheduled for October 1 in Washington, DC. Jim Baker, NOAA, has been asked and accepted to be the key note speaker. Don Heinrichs suggested that a useful agenda item would be to address the question "Where is science going?" Garry asked the Committee Chairs to report on events that have occurred over the entire year.

AWARDS: Before adjourning, Bob Knox reported that an award is being established in the name of Jim Williams to honor those at Nimitz Marine Facility that have demonstrated extraordinary skills and initiatives in their operations. Bob Knox can be contacted for more details about the award. Mike Prince announced that an award is also being established in the name of John Martin. Details will be forthcoming.

The meeting was adjourned at 3:25 p.m. on July 16, 1993.

APPENDIX I

UNOLS COUNCIL MEETING PARTICIPANTS

UNOLS Council:

Garry Brass, Chair	University of Miami/UNOLS
Peter Betzer, V-Chair	University of South Florida
Richard Findley	University of Miami/RSMAS/ RVTEC
Jeff Fox	GSO/University of Rhode Island/ DESSC
Dennis Hayes	Lamont-Doherty Earth Observatory
David Karl	SOEST/University of Hawaii
Bob Knox	Scripps
Marcus Langseth	Lamont-Doherty Earth Observatory/ FIC
Chuck Nittrouer	SUNY Stoney Brook
Ken Palfrey	Oregon State University/ SSC
Mike Prince	Moss Landing Marine Labs/ RVOC
Robert Wall	University of Maine

Other Participants:

Jack Bash	UNOLS
Patrick Dennis	JOI (Navy Support)
Annette DeSilva	UNOLS
Donald Heinrichs	NSF/OCE
Keith Kaulum	ONR Code 3213
Captain Martin Mulhern	NOAA

APPENDIX II

UNOLS COUNCIL MEETING AGENDA
8:30 a.m. - July 15 & 16, 1993
Guin Library, Building 109
Hatfield Marine Center
Newport, Oregon

Call the Meeting: Garry Brass, UNOLS Chair, will call the meeting to order at 0830 July 15, 1993.

Accept Minutes of January, 1993 Council Meeting.

COMMITTEE REPORTS

Research Vessel Operators Committee: Mike Prince, Chair, will report on the progress of RVOC action items and on the upcoming RVOC Annual meeting in Galveston, Texas scheduled for 26-28 October.

DEep Submergence Science Committee: Jeff Fox, Chair, will report on the DESSC meeting held in June at Woods Hole. This will include a review of the 1993 ALVIN operations along with DESSC's recommendations for operations in 1994 and beyond, new Terms of Reference and technical improvements for ALVIN. Other DESSC Issues of discussion will include Jeff's Testimony on the State of Deep Submergence Science and new funding paradigms.

Fleet Improvement Committee: Marcus Langseth, Chair, will report on the Fleet Improvement Committee activities. These include the outcome of the Coastal Workshop, Arctic Research Vessel design status, Fleet Improvement Plan update, and the ATLANTIS II/KNORR Conversion Subcommittee.

Ship Scheduling Committee: Ken Palfrey, Chair, will update the Council on the 1993 ship schedules and the status of the fleet's schedule for 1994.

Research Vessel Technical Enhancement Committee: Rich Findley will report on the plans for the upcoming RVTEC meeting in San Diego in September.

AGENCY REPORTS

Agency Reports: Reports from representatives of NSF (D.Heinrichs), ONR (K.Kaulum), NOAA (W. Stubblefield), and USCG (L. Jendro) on funding outlooks and special projects. The State Department (T. Cocke) will provide an update on foreign clearance problems. Pat Dennis of the Oceanographer of the Navy Office will report on OON matters.

UNOLS ISSUES

UNOLS Correspondences: Garry Brass will discuss his recent correspondences to Senator Stevens and Jim Baker, see Enclosures (1) and (2).

Hull Insurance on Non-Federal Vessels: Garry Brass will lead a discussion on the issue of hull insurance for non-federal UNOLS vessels.

Responsibilities of Chief Scientists: Dennis Hayes will report of the finding of the subcommittee formed to investigate and outline the responsibilities of Chief Scientists in relation to safety issues while at sea.

Blue Ribbon Panel Status: Discussion on the status of any plans to convene a blue ribbon panel as recommended by UNOLS to the funding agencies.

Restrictions for Becoming a UNOLS Vessel: Garry Brass will discuss imposing temporary restrictions on becoming a UNOLS Vessel during these tight fiscal times. The restrictions would require the operator to provide evidence of financial support for the vessel.

Opportunity on the Nuclear Submarine. Marcus Langseth will provide an update of the research opportunity on the Navy's Nuclear Submarine.

SeaNet Update: JOI has been coordinating an effort to introduce the new communications link named SeaNet. Garry Brass will provide an update of their progress.

Radio Officer/GPS: Dick Pittenger will provide an update on the Radio Officer requirement on vessels over 1000 gross tons. He will also discuss the status of obtaining access to the P code for GPS.

Midlife Refit for Oceanus Class Ships: Ken Palfrey and Jack Bash will update the Council on the status of Midlife refits for the Oceanus class ships.

Construction of AGOR 24: Keith Kaulum and Bob Knox will report on the progress of the construction of AGOR 24.

Readoption of Annex II and IV of the UNOLS Charter. Annex II and IV of the UNOLS Charter require readoption, see Enclosure (3).

Approval of Nominations to Committees: Approval of nominations for new and expiring positions for FIC and DESSC.

UNOLS Office Review: As required by the Charter, the UNOLS Chair, with the UNOLS Council, will review UNOLS Office performance and activities on three-year intervals (or at intervals controlled by the duration of funding grants).

UNOLS Council Membership: A nominating committee will be appointed by the UNOLS Chair to prepare a slate of candidates to replace those Council members completing terms. The nominating committee will consist of three members, two from UNOLS Operator institutions and one from an institution other than an operator. Enclosure (4) provides a full description of the duties of the nominating committee. The terms of David Karl and Bob Knox are expiring, both are eligible for second terms. Enclosure (5) lists all past UNOLS Council members and their years in service.

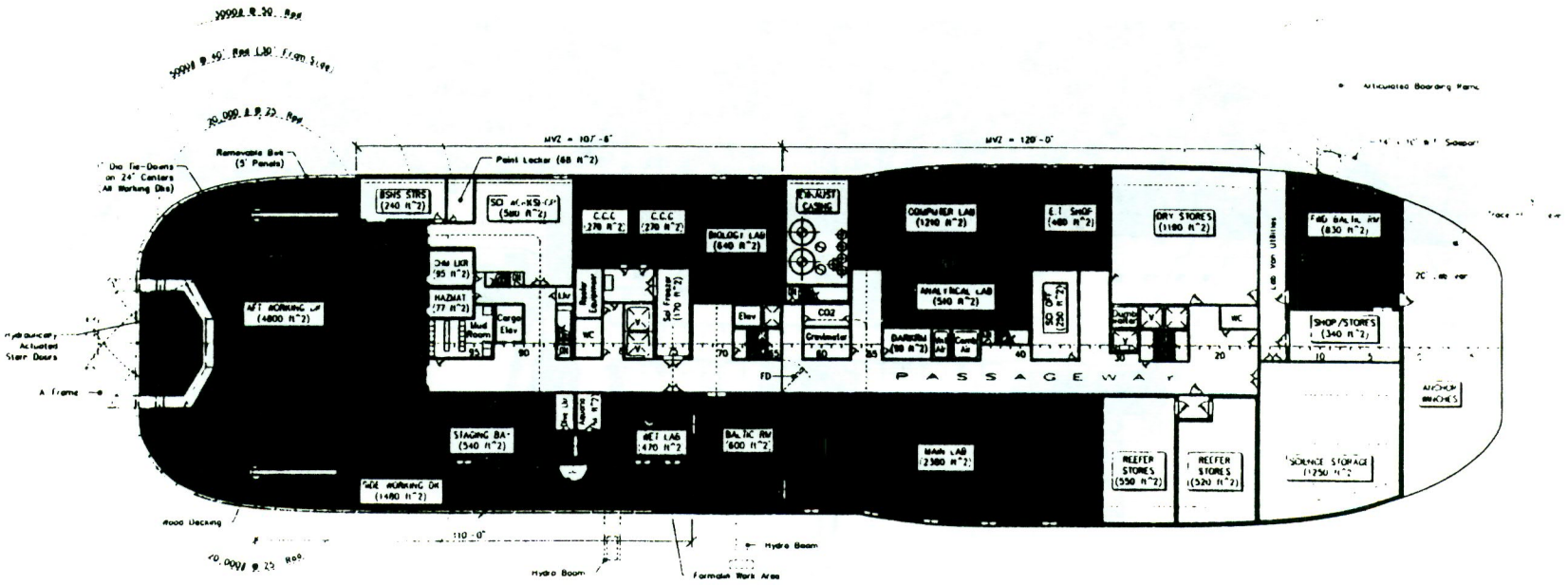
Membership Dues: A discussion on the need for UNOLS membership dues.

UNOLS Booth at AGU: UNOLS is considering having a booth at the fall AGU meeting. Discuss recommendations for displays.

Annual Meeting: Garry Brass will briefly discuss plans for the UNOLS Annual Meeting scheduled for October 1.

A reception will be held on Thursday evening, July 15, from 5:00 - 7:00 p.m. at the Hatfield Marine Science Center.

APPENDIX III



MAIN DECK

LAB/WORK AREA EXPOSED TO WEATHER

LAB/WORK AREA PROTECTED FROM WEATHER


RESEARCH

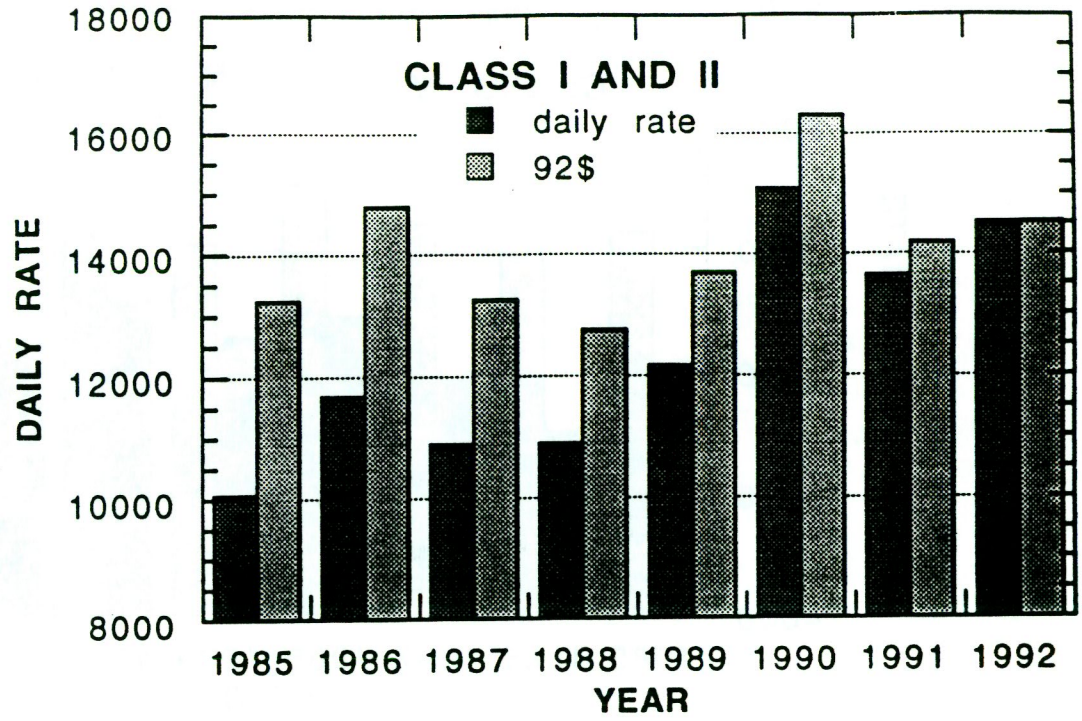
APPENDIX IV

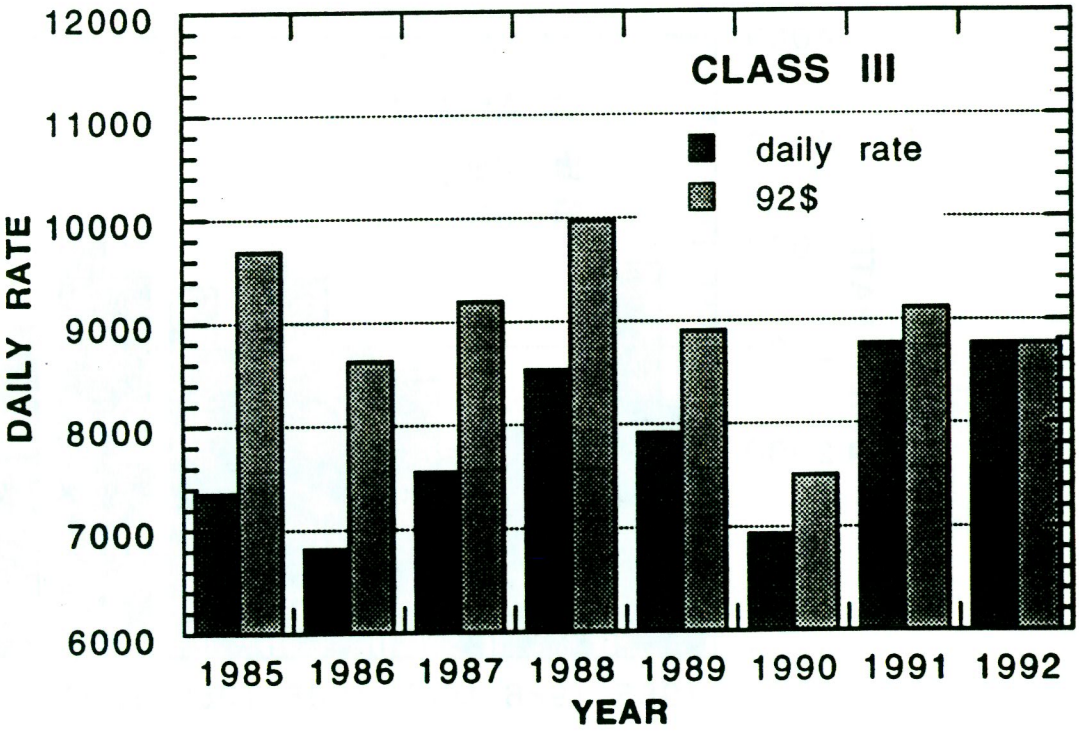
TABLE 1A CLASS I & II (OPTIMUM SHIP YEAR 275 DAYS)

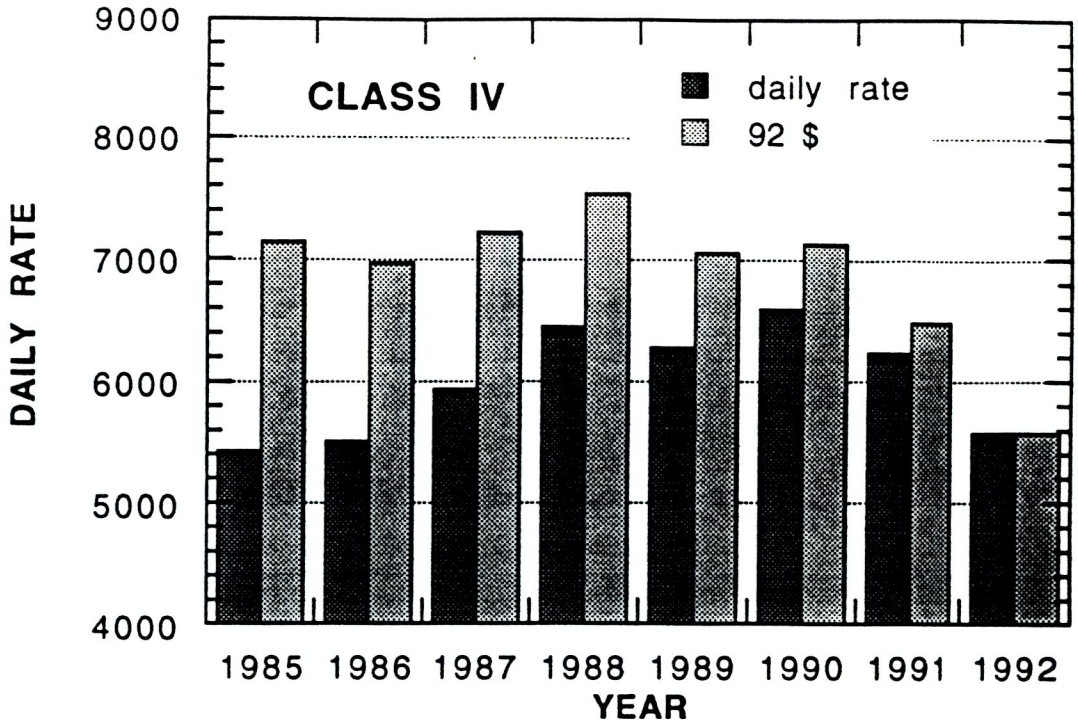
No. ships	Year	Days used	Days available	%use	Total cost thousands	Average daily rate	Adj. to 92 $ 4% inflater
7	1985	1916	1925	99.5	$19,277	$10,061	$13,240
7	1986	1612	1925	83.7	$18,832	$11,682	$14,782
7	1987	1771	1925	92.0	$19,285	$10,889	$13,249
7	1988	1964	1925	102.0	$21,401	$10,897	$12,748
5	1989	1093	1375	79.5	$13,294	$12,163	$13,682
4	1990	1052	1100	95.6	$15,865	$15,081	$16,311
5	1991	1279	1375	93.0	$17,436	$13,633	$14,178
5.8	1992	1595	1604	99.4	$23,161	$14,521	$14,521

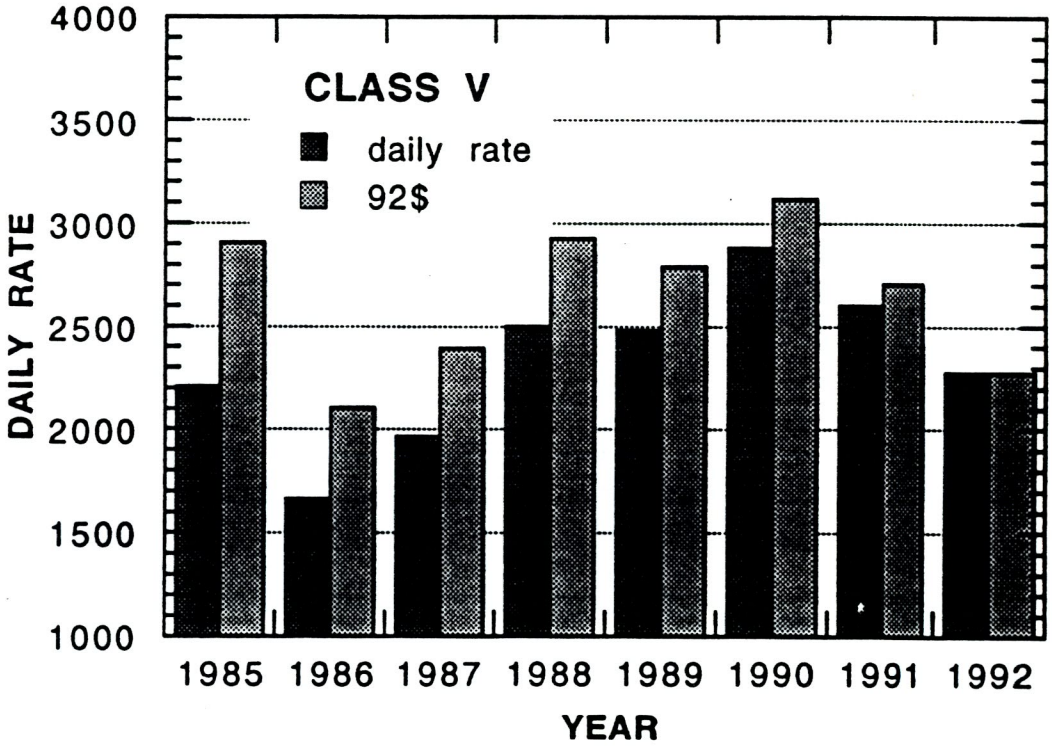
TABLE 1B Class III (OPTIMUM YEAR 250 DAYS)

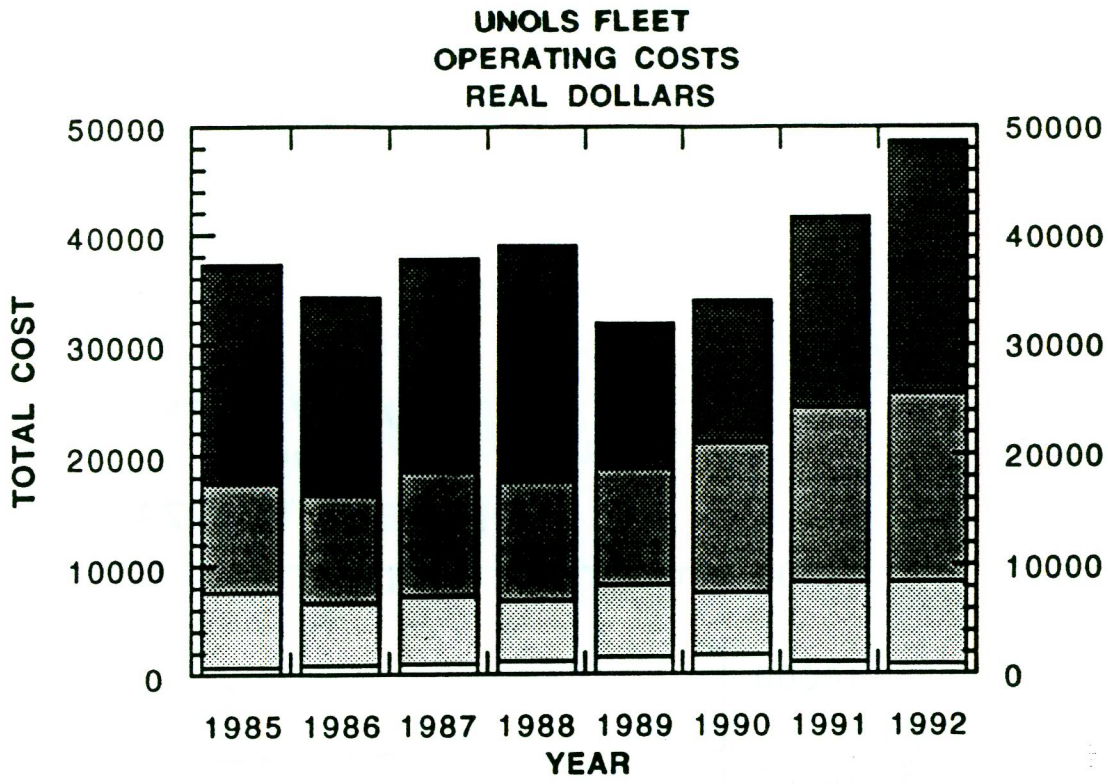
No. ships	Year	Days used	Days available	%use	Total cost thousands	Average daily rate	Adj. to 92$ 4% inflater
7	1985	1177	1750	67.3	$8,660	$7,358	$9,682
6	1986	1191	1500	79.4	$8,112	$6,811	$8,618
7	1987	1499	1750	85.7	$11,320	$7,552	$9,188
7	1988	1272	1750	72.7	$10,842	$8,524	$9,971
6	1989	1281	1500	85.4	$10,136	$7,913	$8,901
8	1990	1628	2000	81.4	$11,291	$6,936	$7,501
8	1991	1700	2000	85.0	$14,897	$8,763	$9,113
8	1992	1675	2000	83.8	$14,681	$8,765	$8,765

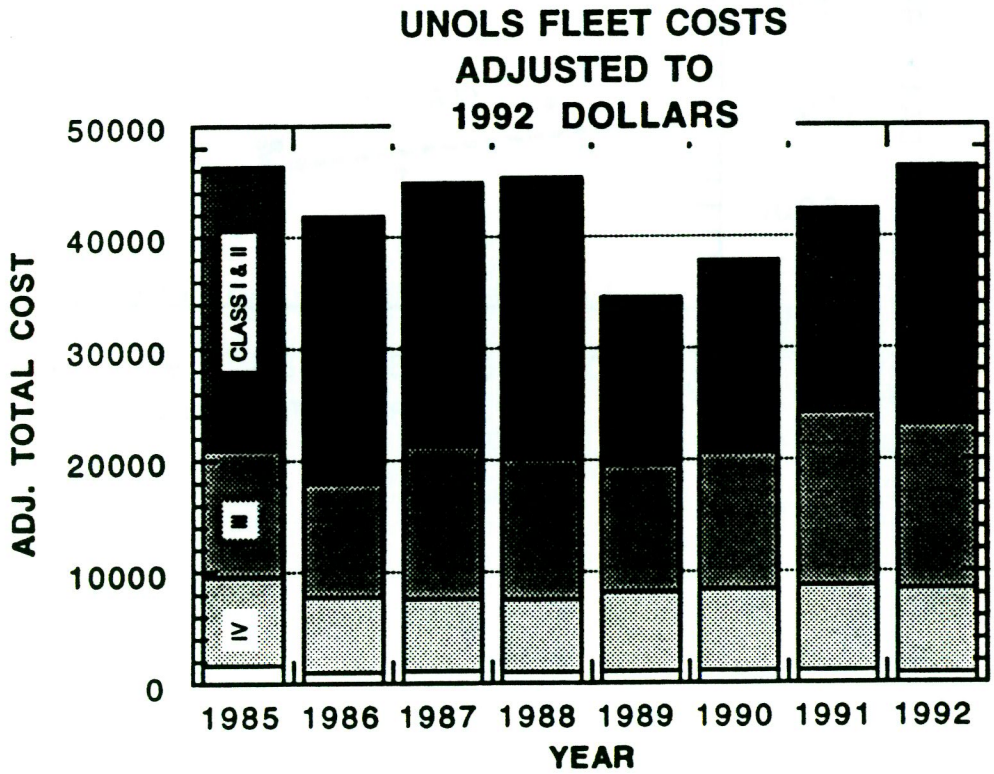

CLASS I AND II
daily rate
92$
DAILY RATE
18000
16000
14000
12000
10000
8000
1985 1986 1987 1988 1989 1990 1991 1992
YEAR

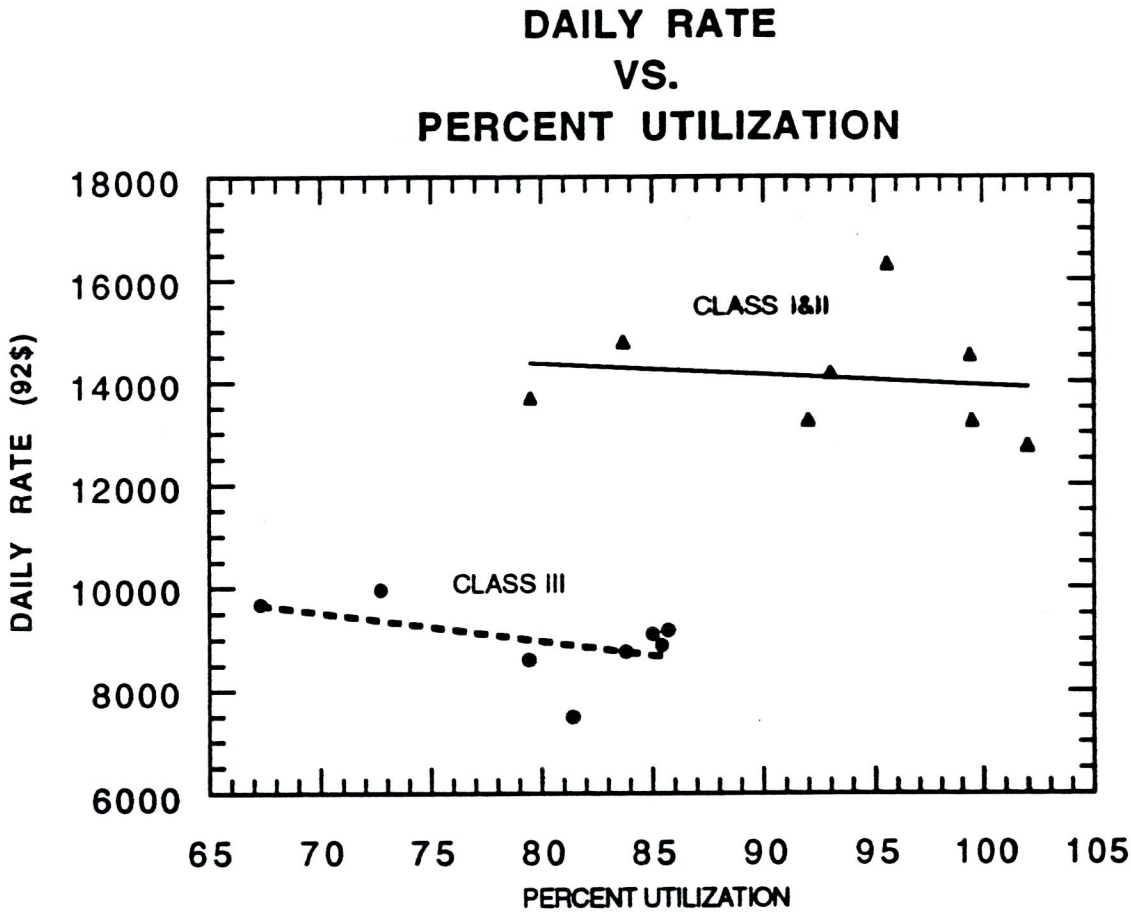

CLASS III
daily rate
92$
DAILY RATE
12000
11000
10000
9000
8000
7000
6000
1985 1986 1987 1988 1989 1990 1991 1992
YEAR


CLASS IV
daily rate
92 $
DAILY RATE
9000
8000
7000
6000
5000
4000
1985 1986 1987 1988 1989 1990 1991 1992
YEAR


CLASS V
daily rate
92$
DAILY RATE
4000
3500
3000
2500
2000
1500
1000
1985 1986 1987 1988 1989 1990 1991 1992
YEAR


UNOLS FLEET
OPERATING COSTS
REAL DOLLARS
TOTAL COST
50000
40000
30000
20000
10000
0
1985 1986 1987 1988 1989 1990 1991 1992
YEAR


UNOLS FLEET COSTS
ADJUSTED TO
1992 DOLLARS
ADJ. TOTAL COST
50000
40000
30000
20000
10000
0
CLASS I & II
III
IV
1985 1986 1987 1988 1989 1990 1991 1992
YEAR


DAILY RATE
VS.
PERCENT UTILIZATION
DAILY RATE (92$)
18000
16000
14000
12000
10000
8000
6000
CLASS I&II
CLASS III
65
70
75
80
85
90
95
100
105
PERCENT UTILIZATION

APPENDIX V

JOINT FIC/DESSC
KNORR CONVERSION OVERSIGHT COMMITTEE

Members

Ken Johnson, Chairman (FIC)
Peter Betzer (FIC)
Jeff Fox (DESSC)
Karen Von Damm (DESSC)
Fred Spiess
Richard Lutz

Will meet on KNORR at WHOI September 22.

APPENDIX VI

ACADEMIC FLEET OPERATIONS SUPPORT
(1990-1993)

UNOLS TOTAL	ACTUAL 1990	ACTUAL 1991	ESTIMATE 1992	ESTIMATE 1993
NSF	21,188	26,179	35,664	30,869
ONR	5,545	5,211	4,061	7,248
NOAA	2,535	2,490	4,199	3,415
OTHER	2,514	3,129	3,140	2,388
INST	2,504	2,117	2,089	2,200
	$34,286	$39,126	$49,153	$46,120

* SOURCE: Revised NSF Ship Operations Proposals (1993) / Spring 1993

NSF 93-6A

1992/1993 FLEET OPERATIONS SUPPORT

(HEINRICHS CLASSIFICATION)

'ONSOR	LARGE SHIPS		INTERMEDIATES		ALL REGIONALS	
	1992	1993	1992	1993	1992	1993
SF	17,659	15,903	11,882	8,773	4,898	4,977
NR	1,279	3,004	2,591	3,815	110	352
OAA	515	494	1,872	1,276	34	75
THER	198	480	681	335	1,567	1,077
IST	701	710	334	456	196	267
	$20,352	$20,591	$17,360	$14,655	$6,805	$6,748

'ONSOR	LOCAL SHIPS		JSL/ROV SHIPS		ALVIN SUPPORT	
	1992	1993	1992	1993	1992	1993
SF	773	982	452	234	1,100	1,389
NR	81	77	0	0	82	396
OAA	351	439	1,427	1,131	394	318
THER	312	356	382	140	0	17
IST	328	120	530	647	0	0
	$1,845	$1,974	$2,791	$2,152	$1,576	$2,120

1993 SHIP OPERATIONS BUDGET REQUESTS

(HEINRICHS CLASSIFICATION)

	October 1992		May 1993		
LARGE SHIPS	**DAYS**	**COSTS**	**DAYS**	**COSTS**	**Average**
THOMPSON	307	4,174	273	3,876	$4.1M
KNORR	282	4,156	282	4,111	266 days
MELVILLE	300	4,553	301	4,654	$15,470/day
EWING	275	4,700	221	3,900	
ATLANTIS II	262	4,353	254	4,050	
	1,426	$21,936	1,331	$20,591	
INTERMEDIATE					
VICKERS	207	2,588	127	1,524	$ 2.0M
MOANA WAVE	262	2,845	262	2,687	200 days
OCEANUS	152	1,577	184	1,497	$9,700/day
WECOMA	196	2,336	197	2,040	(7 ships)
ENDEAVOR		1,201		1,075	
ISELIN	214	2,197	220	2,326	
GYRE	103	822	169	1,350	
NEW HORIZON	226	2,088	241	2,156	
	1,360	$15,654	1,400	$14,655	
SPECIAL PURPOSE					
S. JOHNSON	186	1,451	186	1,451	$1.1M
E. LINK	90	702	90	702	138 days
	276	$2,153	276	$2,153	$7800 / day

1993 SHIP OPERATIONS BUDGET REQUEST
(continued)

REGIONAL OPEN OCEAN	OCTOBER 1992 DAYS	OCTOBER 1992 COSTS	MAY 1993 DAYS	MAY 1993 COSTS	Average
POINT SUR	205	1,206	197	1,153	$ 1.3M
CAPE HATTERAS	228	1,407	226	1,354	197 days
ALPHA HELIX	163	1,576	167	1,505	$ 6800 / day
	596	$4,189	590	$4,012	
REGIONAL					
SPROUL	146	742	132	710	$0.9M
CAPE HENLOPEN	164	1,046	164	977	149 / days
WEATHERBIRD	163	1,226	151	1,049	$6120 day
	473	$3,014	447	$2,736	
LOCAL					
PELICAN	169	612	228	751	$0.3M
LONGHORN	52	208	52	208	123 days
LAURENTIAN	104	378	84	366	$2680 / day
BLUE FIN	182	237	177	235	
BARNES	67	122	61	117	
CALANUS	136	299	135	297	
	708	$1,856	737	$1,974	
TOTAL FLEET	4839	$48,802	4781	$46,121	

1993 ACADEMIC FLEET OPERATIONS SUPPORT
OCTOBER 1992 TO MAY 1993

SPONSOR	LARGE SHIPS		INTERMEDIATE		ALL REGIONALS	
	Oct.	May	Oct.	May	Oct	May
NSF	16,679	15,903	10,337	8,773	5,660	4,977
ONR	3,684	3,004	1,043	3,815	364	352
NOAA	814	494	2,937	1,276	102	75
OTHER	133	480	890	335	769	1,077
INST	721	710	478	456	264	267
	$22,031 ($21,936)	$20,591	$15,685 ($15,654)	$14,655	$7,159 ($7,203)	$6,748

SPONSOR	LOCAL SHIPS		JSL/ROV SHIPS		ALVIN SUPPORT	
	Oct.	May	Oct.	May	Oct.	May
NSF						
ONR	980	982	234	234	1,131	1,389
NOAA	70	77	-	-	377	396
OTHER	247	439	1,131	1,131	384	318
INST	272	356	140	140	69	17
	80	120	647	647	0	0
	$1,649	$1,974	$2,152	$2,152	$1,961	$2,120

1994 SHIP OPERATIONS COST PROJECTONS

(100%) FLEET OPERATIONS

ASSUMPTIONS

* VICKERS Out - of - service
* OCEANUS and WECOMA available for 9 months following mid - lifes
* All other ships available for full year operations
* Inflation adjustment for 1993 to 1994 of 4%
* Optimal operations: 1993 base

* Large ships	280 days	$4.3M
* Intermediate ships	270 days	$2.7M
* Regional/Open Ocean	230 days	$1.5M
* Regional ships	200 days	$1.2M
* Local Ships	160 days	$0.4M
* JSL/ROV ships	180 days	$1.4M

Results

* Desired funds	Reg. 1994	Est. 1993	Difference/%
* Large ships	22.4	20.6	1.8 + 8.7%
* Intermediate Ships	18.3	14.7	3.6 + 24.5%
* Regional/open ocean	4.7	4.0	0.7 + 17.5%
* Regional ships	3.7	2.7	1.0 + 37.0%
* Local ships	2.5	2.0	0.5 + 25.0%
* JSL/ROV ships	3.0	2.1	0.9 + 54.8%
	$54.6M	~~$46.M~~ $46.1 M	$8.5M + 18.4%

1992/1993/ 1994 Request (UNOLS June 1993 Scheduling Meeting)

(HEINRICHS CLASSIFICATION)

ONSOR	LARGE SHIPS			INTERMEDIATES			ALL REGIONALS		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
NSF	17,659	15,903	24,760	11,882	8,773	11,800	4,898	4,977	6,410
ONR	1,279	3,004	400	2,591	3,815	1,100	110	352	520
NOAA	515	494	270	1,872	1,276	100	34	75	60
OTHER	198	480	230	681	335	1,330	1,567	1,077	790
OST	701	710	720	334	456	540	196	267	30
	$20,352	$20,591	# 26,380	$17,360	$14,655	#14,870	$6,805	$6,748	#7810

ONSOR	LOCAL SHIPS			JSL/ROV SHIPS			TOTAL 1994
	1992	1993	1994	1992	1993	1994	
NSF	773	982	650	452	234	520	# 44,140
ONR	81	77	40	0	0	—	# 2,060
NOAA	351	439	80	1,427	1,131	880	# 1,390
OTHER	312	356	120	382	140	—	# 2,470
OST	328	120	40	530	647	650	# 1,980
	$1,845	$1,974	# 930	$2,791	$2,152	#2050	# 52,040

APPENDIX VII

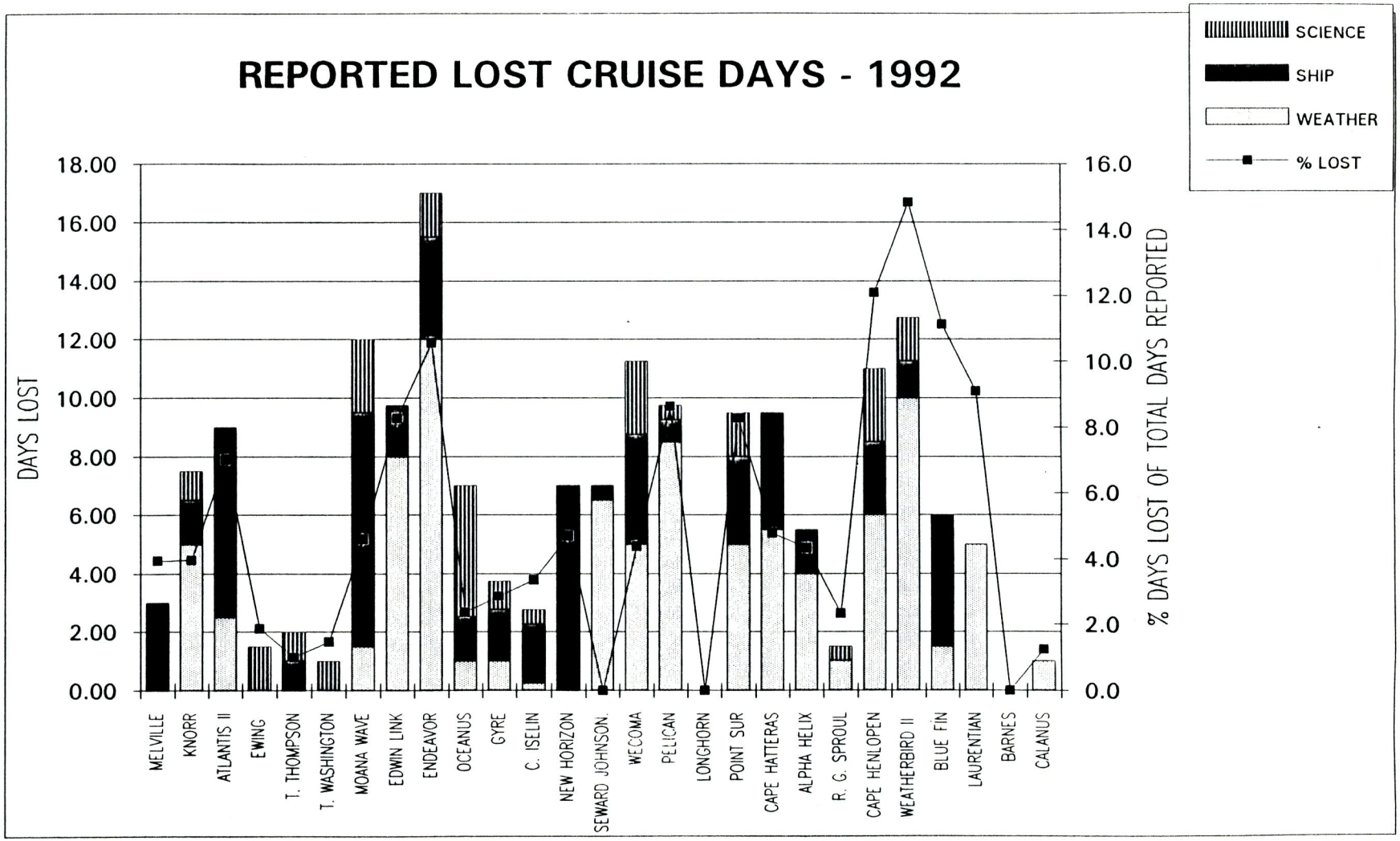
1992 CRUISE ASSESSMENT SUMMARY

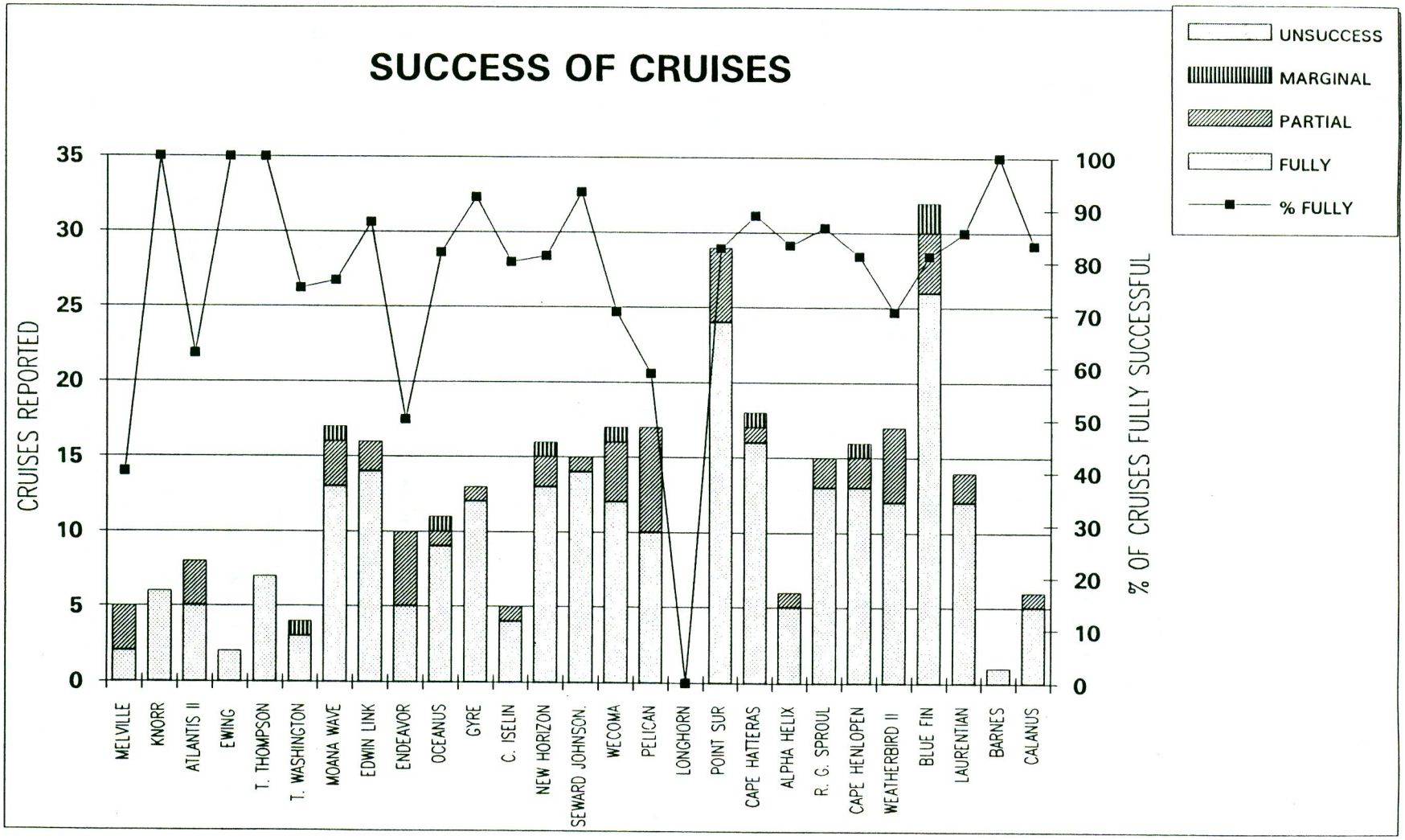
Date Compiled: July 13, 1993

SHIP	OPER DAYS	DAYS REPORTED	OTAL (1 CRUISES	RPTS RECVD	% RPTS RECVD	REPORTED LOST TIME (2)					SUCCESS					COMMENTS			
						WEA.	SHIP	SCI.	TOTAL	%	F	P	M	U	%	KUDOS	%	CORR	%
MELVILLE	170	76	8	5	63	0.00	3.00	0.00	3.00	3.9	2	3	0	0	40	3	60	2	40
KNORR	284	189	8	6	75	5.00	1.50	1.00	7.50	4.0	6	0	0	0	100	3	50	2	33
ATLANTIS II	189	128	10	8	80	2.50	6.50	0.00	9.00	7.0	5	3	0	0	63	5	63	6	75
EWING	304	80	7	2	29	0.00	0.00	1.50	1.50	1.9	2	0	0	0	100	1	50	0	0
T. THOMPSON	266	201	10	7	70	0.00	1.00	1.00	2.00	1.0	7	0	0	0	100	5	71	5	71
T. WASHINGTON	105	68	4	4	100	0.00	0.00	1.00	1.00	1.5	3	0	1	0	75	4	100	0	0
MOANA WAVE	279	261	18	17	94	1.50	8.00	2.50	12.00	4.6	13	3	1	0	76	14	82	5	29
EDWIN LINK	143	118	18	16	89	8.00	1.75	0.00	9.75	8.3	14	2	0	0	88	15	94	3	19
ENDEAVOR	198	161	12	10	83	12.00	3.50	1.50	17.00	10.6	5	5	0	0	50	8	80	2	20
OCEANUS	321	295	12	11	92	1.00	1.50	4.50	7.00	2.4	9	1	1	0	82	11	100	4	36
GYRE	137	131	14	13	93	1.00	1.75	1.00	3.75	2.9	12	1	0	0	92	10	77	6	46
C. ISELIN	199	82	10	5	50	0.25	2.00	0.50	2.75	3.4	4	1	0	0	80	4	80	0	0
NEW HORIZON	175	149	20	16	80	0.00	7.00	0.00	7.00	4.7	13	2	1	0	81	11	69	2	13
SEWARD JOHNSON.	208	163	15	15	100	6.50	0.50	0.00	0.00	0.0	14	1	0	0	93	12	80	1	7
WECOMA	270	257	17	17	100	5.00	3.75	2.50	11.25	4.4	12	4	1	0	71	11	65	10	59
PELICAN	172	113	26	17	65	8.50	0.75	0.50	9.75	8.6	10	7	0	0	59	7	41	7	41
LONGHORN	73	0	15	0	0	0.00	0.00	0.00	0.00	0.0	0	0	0	0	0	0	0	0	0
POINT SUR	177	115	42	29	69	5.00	3.00	1.50	9.50	8.3	24	5	0	0	83	25	86	4	14
CAPE HATTERAS	199	199	18	18	100	5.50	4.00	0.00	9.50	4.8	16	1	1	0	89	15	83	1	6
ALPHA HELIX	146	127	7	6	86	4.00	1.50	0.00	5.50	4.3	5	1	0	0	83	5	83	5	83
R. G. SPROUL	148	64	23	15	65	1.00	0.00	0.50	1.50	2.3	13	2	0	0	87	14	93	1	7
CAPE HENLOPEN	170	91	31	16	52	6.00	2.50	2.50	11.00	12.1	13	2	1	0	81	15	94	0	0
WEATHERBIRD II	244	86	61	17	28	10.00	1.25	1.50	12.75	14.8	12	5	0	0	71	13	76	7	41
BLUE FIN	108	54	62	32	52	1.50	4.50	0.00	6.00	11.1	26	4	2	0	81	2	6	3	9
LAURENTIAN	55	55	14	14	100	5.00	0.00	0.00	5.00	9.1	12	2	0	0	86	7	50	3	21
BARNES	100	1	52	1	2	0.00	0.00	0.00	0.00	0.0	1	0	0	0	100	0	0	0	0
CALANUS	110	81	13	6	46	1.00	0.00	0.00	1.00	1.2	5	1	0	0	83	6	100	0	0
TOTALS	4950	3345	547	323	74	90.25	59.25	23.50	166.00	5.0				0	0		0		0
TOTALS FOR 1991			512	333	62	61.00	24.50	29.00	114.50		263	62	2	4	79				

Notes: (1) Total cruises represent total science cruises.
(2) Statistics are based on days reported.

PRELIMINARY


REPORTED LOST CRUISE DAYS - 1992
SCIENCE
SHIP
WEATHER
% LOST
DAYS LOST
% DAYS LOST OF TOTAL DAYS REPORTED
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
MELVILLE
KNORR
ATLANTIS II
EWING
T. THOMPSON
T. WASHINGTON
MOANA WAVE
EDWIN LINK
ENDEAVOR
OCEANUS
GYRE
C. ISELIN
NEW HORIZON
SEWARD JOHNSON
WECOMA
PELICAN
LONGHORN
POINT SUR
CAPE HATTERAS
ALPHA HELIX
R. G. SPROUL
CAPE HENLOPEN
WEATHERBIRD II
BLUE FIN
LAURENTIAN
BARNES
CALANUS


SUCCESS OF CRUISES
UNSUCCESS
MARGINAL
PARTIAL
FULLY
% FULLY
CRUISES REPORTED
% OF CRUISES FULLY SUCCESSFUL
0
5
10
15
20
25
30
35
0
10
20
30
40
50
60
70
80
90
100
MELVILLE
KNORR
ATLANTIS II
EWING
T. THOMPSON
T. WASHINGTON
MOANA WAVE
EDWIN LINK
ENDEAVOR
OCEANUS
GYRE
C. ISELIN
NEW HORIZON
SEWARD JOHNSON
WECOMA
PELICAN
LONGHORN
POINT SUR
CAPE HATTERAS
ALPHA HELIX
R. G. SPROUL
CAPE HENLOPEN
WEATHERBIRD II
BLUE FIN
LAURENTIAN
BARNES
CALANUS

SHIP	BRIEF SUMMARY OF ASSESSMENT COMENTS (Positive//Negative Comments)
MELVILLE:	Excellent support, Captain, crew and techs (3)// Cable trays dangerous; stern slamming; winch speed problems.
KNORR:	Fine crew, helpful (3)// Need light over stern, ready stowage for work vests; stern slamming.
ATLANTIS II:	Outstanding support, cooperative spirit (6)// Need pilot training; flammable storage; generator repair, slow winch.
EWING:	Officers, crew and tech staff superb.
THOMPSON:	Excellent support Capt and crew (5)// Tanker fueling caused delays; holding tanks inadequate; internal & external communications inadequate; alarm needed in lab; sleeping vans should be temporary.
WASHINGTON:	Very good condition for age, important contribution to ocean research (4).
MOANA WAVE:	Capt and crew provided excellent support (13)// Better info from port office; mooring winch needs brake; more lighting boat deck; sewage odor.
EDWIN LINK:	Well organized top notch crew and staff (15)// Cold room problem; GPS w/o differential.
ENDEAVOR:	Capt and crew excellent, great tech support (8)// Evaps failed; winch problems (2); radar problem.
OCEANUS:	Capt and crew helpful and skillful (11)// Role of Bosun uncertain; sewage odors (2); more bunk space needed for science party.
GYRE:	Great crew, helpful & friendly (10)// Safety comments (6) life raft case broken, toilet odor (2), lost power, weak communications.
COLUMBUS ISELIN:	Captain and crew excellent (4).
NEW HORIZON:	Capt and crew excellent (11)// Crane and capstan malfunctioned; portable air compressor installed w/o mounts.
SEWARD JOHNSON:	Excellent facility, ship and sub crew professional (12)// Winch and A frame not sufficient for coring.
WECOMA:	Officers and crew outstanding (11); great food// Failed air conditioner; sewage odor (2); CTD winch broke; deep sea winch problem; door in lab dangerous (3); more fire and boat drills needed; air tugger problem.
PELICAN:	Crew exceptional (7)// Electronics not fully operational (2) sewage odor; anti-slip needed on ladder; need good Avon and dive ladder.
LONGHORN:	No reports received.
POINT SUR:	Professional crew, supportive (25); excellent food (7)// Safety line too tight; hard hats for deck ops.
CAPE HATTERAS:	Outstanding support, great crew, excellent galley (15)// sewage odor.
ALPHA HELIX:	Fine crew performance(4)// rough ride, small; ADCP problem; engine problem.
SPROUL:	Ship and crew excellent (14)// leak in galley.
CAPE HENLOPEN:	Excellent cruise, good crew (15).
WEATHERBIRD II:	Capt and crew helpful (12)// Cable at eye level; need non skid in van; tight lab space; poor comms between bridge and winch ops; hydro wire across deck;problem with comms ship to shore.
BLUE FIN:	Good crew (2)// Engine breakdown; winch failure maintenance concern.
LAURENTIAN:	Great crew (7)// Need level wind; need dumb waiter; O2 sensor on CTD.
BARNES:	No comment.
CALANUS:	Successful beyond expectation, excellent cooperation (6).

APPENDIX VIII

CAPTAIN'S POST CRUISE REPORT SUMMARY

This will be the first summary of the Captain's Post Cruise Reports and is subject to format change as comments are received. The report was not made mandatory but seems to have been used in a large percent of the cruises.

It may be appropriate to re-look at the questions in the form to get more meaningful information. It appears the form is used by Captains to let their Marine Offices know of things they see as important. This may be a secondary use but also valuable. A copy of the form is appended to identify the categories below. The questions 11 and 12 were not included in this report since all of the responses save one were answered yes.

SHIP (Total Cruises)	CRUISE REPORTS RECEIVED	OBJECTIVES MET		ORGANIZATION					COMMUNICATION				
		YES	NO	E	G	A	B	P	E	G	A	B	P
MELVILLE (8)	1	1	0	1	0	0	0	0	1	0	0	0	0
KNORR (8)	8	8	0	5	2	0	0	0	5	2	1	0	0
ATLANTIS II(10)	12	10	0	0	6	0	0	0	0	5	1	0	0
EWING (7)	7	7	0	3	3	0	1	0	3	3	1	0	0
THOMPSON (10)	7	7	0	3	4	0	0	0	3	-4	0	0	0
WASHINGTON (5)	2	2	0	1	0	1	0	0	1	0	1	0	0
MOANA WAVE (18)	18	14	4	1	9	6	2	0	3	9	5	1	0
EDWIN LINK (18)	17	17	0	10	6	1	0	0	9	6	0	0	0
ENDEAVOR (12)	9	8	1	4	2	2	1	0	4	2	2	1	0
OCEANUS (12)	12	12	0	4	8	0	0	0	8	4	0	0	0
GYRE (14)	14	14	0	11	3	0	0	0	11	3	0	0	0
COLUMBUS ISELIN (10)	5	5	0	3	1	1	0	0	4	1	1	0	0
NEW HORIZON (20)	18	17	1	2	8	8	0	0	2	6	10	0	0
SEWARD JOHNSON (15)	15	15	0	8	5	1	0	0	9	6	0	0	0
WECOMA (17)	17	16	1	1	6	7	2	0	3	8	5	1	0
PELICAN (26)	3	3	0	2	1	0	0	0	2	1	0	0	0
LONGHORN (15)	2	2	0	2	0	0	0	0	2	0	0	0	0
POINT SUR (42)	40	39	0	13	21	6	0	0	10	26	2	1	0
CAPE HATTERAS (18)	18	16	2	5	7	5	0	0	7	8	3	0	0
ALPHA HELIX (7)	4	4	0	1	3	0	0	0	0	3	1	0	0
SPROUL (23)	23	22	1	7	9	5	0	2	9	11	1	1	1
CAPE HENLOPEN (31)	None Submitted												
WEATHERBIRD II (61)	49	44	5	14	23	11	0	0	15	22	10	1	0
BLUE FIN (62)	48	46	2	9	7	29	2	1	8	13	27	0	0
LAURENTIAN (14)	14	14	0	11	2	1	0	0	11	3	0	0	0
BARNES (52)	1	1	0	1	0	0	0	0	1	0	0	0	0
CALANUS (13)	6	5	1	4	2	0	0	0	3	3	0	0	0
	370	**349**	**18**	**26**	**138**	**84**	**8**	**3**	**134**	**149**	**70**	**6**	**1**

KEY: E = Excellent
G = Good
A = Average
B = Below Average
P = Very Poor

UNIVERSITY-NATIONAL OCEANOGRAHIC LABORATORY SYSTEM

An association of institutions
For the coordination and support
of university oceanographic facilities

UNOLS Office
P.O. Box 392
Saundertown, R.I. 02874

CAPTAIN'S POST CRUISE REPORT

1. Cruise, Expedition, Leg No., and/or Project Name: _____

2. Dates of Cruise: _____ Length: _____ days _____ miles

3. Captain's Name: _____
   Sr Tech's Name: _____

4. PI/SIC: _____

5. Ship: _____
   Operating Institution: _____

6. Areas of Operation: _____
   _____

7. General Type of Work: _____
   _____

8. In Captain's and Senior Technician's judgement, were published operational objectives of shipboard phase of project achieved? ❑ Yes ❑ No

   If not, what were the factors involved?

   Ship's propulsion _____
   Electric power _____
   Crew _____
   Techs _____
   Scientific party and equipment _____
   Ship's scientific equipment _____
   Other _____
   _____
   _____
   _____

9. Work days lost due to weather: _____
   Work days lost due to ship's crew: _____
   Work days lost due to Scientific equipment: _____

10. Organization of scientific party (planning, use of time, making needs known in advance, sufficient people, etc.)

    Excellent *Good* *Average* *Below Average* *Very Poor*

11. Did Chief Scientist have reasonable expectations for the ship? ❑ Yes ❑ No

12. Did Chief Scientist have reasonable expectations for the cruise? ❑ Yes ❑ No

13. Communications/liaison between scientific party and techs/crew:

    Excellent *Good* *Average* *Below Average* *Very poor*

14. Date that safety briefing was conducted for scientific party and crew: _____/_____/_____/

15. List safety related problems recommended for follow-up:

    _____
    _____

16. Comments by both Captain and Senior Technician are encouraged. (Details of problems, suggestions; and praise where applicable).

    _____
    _____
    _____
    _____

Please forward this form to the UNOLS office via the operating institution's Marine Office. These evaluations will be used to assist operating institutions and funding agencies in their efforts to improve the quality of research vessel operations.

CAPTAIN'S POST CRUISE REPORT COMMENTS

MELVILLE - MELVILLE'S captain submitted only one assessment report for the year. This report praised the science party.

KNORR - KNORR Captains used this report to remark about problems with the ship including the stern pounding and noise in the lab. Their comments also remarked about the working relationships with the science party. In one report the captain spoke of poor communication between the science party and the crew/techs and another of a long and grueling cruise.

ATLANTIS II - The comments for the twelve cruises reported by ATLANTIS II were very brief but spoke of electrical problems on five separate occasions. Four comments were that all went well with the cruise.

EWING - The EWING's comments were a short critique of each of the six cruises reported including both positive and problem areas. Two safety issues were noted.

THOMPSON - Comments from THOMPSON's Captain related to safety issues in six of the seven reports. Communication problems were cited three times.

WASHINGTON - The two reports from WASHINGTON addressed science problems, one with streamer damage and the other not planning for adverse weather.

MOANA WAVE - Four of the eighteen reports from MOANA WAVE dealt with safety issues as related to the science party. The other comments referred to science party activity citing both positive and constructive events.

EDWIN LINK - The EDWIN LINK's Captain chose to make remarks on only two of the seventeen reports. One was critical of the science party for lack of advanced planning and the other related to lost time due to Hurricane Andrew.

ENDEAVOR - Six of the nine reports from ENDEAVOR'S Captain were "at-a-boys". One of these also cited a collapsed tow boom assembly. One report referred to science being executed on a moment to moment basis with this cruise being rated below average for both organization and communications.

OCEANUS - The comments from OCEANUS' Captain were brief but addressed both "well done" and corrective remarks citing one safety problem and referring to the sewage vent problem twice.

GYRE - GYRE'S Captain made safety comments on nine of the fourteen reports. Most of the safety issues referred to the science party not wearing life jackets or the proper clothing. Five safety comments related to saltwater piping, firemain and fire nozzle problems. Most comments also included a "well done".

ISELIN - ISELIN reports numbered nine. Two of these were safety issues and one referred to a science party that was too small to safely do the work.

NEW HORIZON - Only four of the eighteen reports from NEW HORIZON'S Captain contained remark. Two of these were kudos, one referred to work vests not being worn and the forth referred to an air compressor malfunction.

SEWARD JOHNSON - Brief comments were made on eight of the fifteen reports submitted by the Captain of SEWARD JOHNSON. Six of these reports were "well done" comments, one made reference to disembarking the cook and one was a safety issue with respect to the J-frame.

WECOMA - Eighteen reports were submitted from the WECOMA'S Captains. Brief comments were included on ten of these with one referring to a safety issue in connection with the CTD operation. Five reports were "well done" remarks while one referred to a need for better pre-cruise planning by the science party.

PELICAN - Only three reports were submitted by the Captain of PELICAN. Two of these reports were kudos and one made reference to a distilled water problem with the science party.

LONGHORN - The two reports from LONGHORN included comments in praise of the science party.

POINT SUR - Forty reports were received from the POINT SUR. Comments were included on twenty two of these reports, sixteen of which were a "well done" to the science party. Two safety issues were indicated, one relating to checking out equipment and the second with the handling of hazardous material. Two comments dealt with communications problems between the science party and crew and three with organizational problems of the science party.

CAPE HATTERAS - Eighteen reports were submitted by CAPE HATTERAS with only four of them containing comments. One of these comments was a "well done" for the science party and the remaining three referred to problems with scientific equipment.

ALPHA HELIX - The ALPHA HELIX Captain provide four reports. One report commented on the need for firearms when near polar bears. Three comments referred to difficult operating conditions and one was a "well done" for the science party.

SPROUL - Twenty three reports were made available by the Captain of SPROUL. All but one of these reports contained comments and most of these were praise for the science party. Two safety comments were made, one referring to the fouling of a ROV umbilical in the props and the second with the operation of the winch while deploying equipment. One of the cruises was graded poor for both organization and communications and another was graded below average for communications and poor for organization.

CAPE HENLOPEN - No reports were submitted.

WEATHERBIRD II - A total of forty-nine reports were submitted by the Captain's of WEATHERBIRD II. Comments were included on thirteen of these reports. Four of these comments were safety issues, CTD wire running across the deck, RAD van needs new floor, proper footwear for science party and the need for a firm support for the boom. Five comments were a "well done" to the science party, three referred to equipment problems and one comment referred to a communication problem between the science party and the crew.

BLUE FIN - BLUE FIN completed forty-eight Captain's assessments reports for the year of 1992. Twenty nine brief comments were included in these reports. Seven of these comments made reference to a drive train problem on the ship. Positive comments were made for fifteen of the cruises usually, "cruise went well". Equipment problems were the subject of two reports and bad weather for three.

LAURENTIAN - All fourteen of the LAURENTIAN cruises included a Captain's assessment report. Only two comment were included on these reports and they referred to a good cruise.

BARNES - Only one Captain's assessment report was submitted by the BARNES' Captain. This report contained the brief comment " 6 hour cruise".

CALANUS - Six reports were received from CALANUS. Four comments were included of which three referred to excellent cruises. One comment reported poor post cruise clean up by the science party.

APPENDIX IX

UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

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

RSMAS-MGG, Univ. of Miami
4600 Rickenbacker Cswy
Miami, FL 33149

Senator Ted Stevens
522 Hart Senate Office Building
Washington, DC 20510

21 June 1993

Dear Senator Stevens,

The University-National Oceanographic Laboratory System (UNOLS) is an association of academic institutions with interests in oceanographic research. Our role is to advise those agencies funding oceanographic research on the needs for facilities, particularly ships, for marine research and to coordinate the activities of the University based research fleet. I have enclosed a copy of our information brochure.

Some time ago the UNOLS Fleet Improvement Committee (FIC) produced a study of the potential use of a nuclear submarine for scientific research. This report, entitled the SOONS Report, has had a slow but very important effect on the Navy submarine community. A copy of this report is also enclosed. In February of this year I was invited to a meeting at the Navy Arctic Submarine Laboratory in San Diego to discuss the possibility of a scientific cruise in the Arctic Ocean this Fall. I offered the auspices of UNOLS to conduct the scientific planning and the result has been a fruitful and exciting plan for scientific data collection. I am enclosing a copy of the current draft of the science plan for your information.

The potential for the advancement of scientific data collection and analysis in the Arctic, using a nuclear submarine, is simply enormous. No other kind of research platform can do what a nuclear submarine is capable of. Aircraft have limited range and endurance and can carry only very small scientific payloads. Icebreakers, though extremely useful and capable of carrying large multi-disciplinary science parties, are sometimes limited in endurance and are generally limited in speed. In addition they are often restricted in the places they can go to by the dynamics of the polar ice pack. The nuclear submarine has its own limitations but its freedom of movement and endurance in the Arctic is superior to any other potential research platform.

With the conversion of this defense technology to the needs of the marine science community an entirely new horizon opens up for the study of many vital problems in the Arctic. The submarine is, for example, easily capable of studies of ocean heat exchange and its resulting ocean circulation in the winter, when icebreaker and even air operations are virtually impossible. The nuclear submarine is capable of bringing scientists into the region to study the effect of the long polar seasons, both summer and winter on biological activity in the arctic. With its ability

PHONE (305) 361-4690, FAX (305) 361-4632, INTERNET GBRASS@RSMAS.MIAMI.EDU, OMNET G.BRASS

to survey specific regions, the nuclear submarine will allow geologists and geophysicists to study the development of geologic structures in the Arctic Basin; structural studies which may yield information of great value in the search for natural resources in the region. Marine chemists will be able to exploit the capabilities of a nuclear submarine to sample chemical species polluting the arctic ocean and to study such phenomena as the results of spring thaw and fall freeze-up on the dispersion of pollutants from rivers; studies which cannot be conducted from other platforms. Studies from the nuclear submarine using bottom penetrating sonic/seismic systems will show the distribution of deep sea sediments and allow geologists to reconstruct the pathways of transport and dispersal of sediments and their associated pollutants and will also constitute the essential site surveys which will allow the directed sampling of these sediments by drilling and/or coring from other platforms.

George Newton has written to you suggesting an appropriation for the application of a Navy submarine to scientific research. I heartily support this suggestion with the following *caveats*:

1. The operating costs of a nuclear submarine are substantially beyond the capabilities of any of the Federal Agencies supporting oceanographic research. In addition, there is no way for a civilian agency to operate a nuclear submarine. As a consequence, the responsibility for the operation of the vessel must remain within the operational Navy. If it is deemed necessary for other agencies to provide some of the operating costs, their budgets must be augmented in order to cover these costs. The costs of nuclear submarine operations are so large that any attempt to see them funded out of current ship operations budgets would destroy a whole array of vital ongoing programs. It will also be necessary to supplement funding agency budgets in order to support the costs of the new <u>science</u> to be carried out using the submarine. As in the case of operational costs, asking funding agencies to support new science programs out of existing funds will simply result in the catastrophic termination of important ongoing projects. My estimate of the additional costs for the increased level of research funding involved is $3 to $3.5 million mostly at NSF and ONR, based on a ratio of $30,000 to $35,000 of science money per day of ship time, the ratio which currently applies at NSF, and Georges estimate of around 100 science days, but you should really rely on the agencies to spell out the science budgets necessary for this program. NOAA's National Undersea Research Program may also have a role to play but, at least for the moment, their policy is to fund facilities availability but not science costs.

2. The opportunity for research aboard a Navy nuclear submarine should remain open to the civilian research community at large. A system of expeditionary coordination will be required which will involve the funding agencies, the operational agency and the scientific community. There are precedents for such an interagency planning operation. UNOLS, in collaboration with NOAA has created such a system for the use of the Navy deep submersibles *Seacliff* and *Turtle* and we are exploring such a system for scheduling the deployment of the new Coast Guard icebreaker and the UNOLS Arctic Research Vessel in collaboration with the U.S. Coast Guard. We would be happy to continue to develop such a scheduling system to include the use of a Navy submarine as well. It is vital that this system be open to all interested scientists and that funding agencies, especially the National Science Foundation, NOAA and the Office of Naval Research, participate in this planning system so that there is some assurance that these agencies are prepared to support the science planned for the expedition. They are unlikely to do so if, as noted above, parts of the enormous operational costs are likely to be assigned to them.

We in UNOLS believe that the use of a Navy nuclear submarine for scientific purposes, particularly in the Arctic can be a great benefit of the reduced level of tension in world affairs and will be a flagship program in defense conversion. We are prepared to lend our resources in support of this program and will be happy to answer any questions you may have about UNOLS, oceanographic research in the Arctic or the upcoming submarine cruise.

Sincerely,

Garrett W. Brass
Chair, UNOLS

UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

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of university oceanographic facilities

RSMAS-MGG, Univ. of Miami
4600 Rickenbacker Cswy
Miami, FL 33149

Dr. D. James Baker
Undersecretary for Oceans and Atmospheres
National Oceanic and Atmospheric Administration
Department of Commerce, Room 5128
14th Street and Constitution Avenue, N.W.
Washington, DC 20230

29 June 1993

Dear Jim

On behalf of UNOLS let me congratulate you on your appointment. I am sure that the members of UNOLS are pleased to see one of our own in charge at NOAA. Please feel free to call on UNOLS for any assistance that we can provide in the future. Of course you know that I will be happy to help wherever I can.

There are two items of interest to UNOLS that I would like to alert you to. The first of these is the planning for a new ship for the NOAA Great Lakes Environmental Research Laboratory. There are currently three research vessels on the Great Lakes; *Laurentian*, a UNOLS vessel, and two EPA vessels including *Lake Ranger* which has recently received an multi-million dollar lab upgrade. We have investigated the utilization of these vessels and come to the conclusion that there is already a substantial surplus of ship time in the Great Lakes. UNOLS views the addition of a fourth vessel in the Great Lakes as an unnecessary addition and, frankly, a waste of the taxpayer's money. I realize that a little skill in writing specifications can justify almost any ship by requiring capabilities not available on other vessels. UNOLS hopes that your review of the acquisition of this vessel, especially during today's difficult budget climate will be rigorous and that it will keep an eye on the more pressing needs of NOAA fleet modernization.

The other item which I mentioned to you during your recent visit to Miami is the situation regarding NOAA funded ships in Hawaii. The provision, by NOAA, of a vessel dedicated to the support of the submersible PICES is likely to cause difficulties for UNOLS. We believe that this vessel is the responsibility of NOAA alone and do not expect and will frown upon any attempt to make this into a UNOLS vessel without at the same time bringing into the UNOLS operating system sufficient funds to cover her costs both for operations and outfitting. UNOLS works diligently to plan the future of the fleet. We are forced to depend upon agencies to uphold their commitment to the UNOLS fleet planning process.

I would like to remind you that you were gracious enough to accept my invitation to address the UNOLS Annual Meeting in Washington on Friday, the first of October. Jack Bash, the Executive Secretary of UNOLS will communicate further with you on the meeting arrangements. The timing is flexible as the meeting will go on for the entire morning and at least the earlier half of the afternoon.

Once again, congratulations on your new appointment. It was a pleasure to see you and Emily in Miami. Next time you will have to find a way to spend a little more time with us.

Sincerely,

Garrett W. Brass
Chair, UNOLS

APPENDIX X

HARBOR BRANCH
OCEANOGRAPHIC INSTITUTION, INC.

MARINE OPERATIONS

5600 OLD DIXIE HIGHWAY
FORT PIERCE, FLORIDA 34946

(407) 465-2400
(407) 567-7196
TELEX 52-2886
FAX (407) 465-2116

June 30, 1993

Dr. Garrett W. Brass, UNOLS Chairman
University of Miami
Rosenstiel School of Marine
& Atmospheric Sciences
4600 Rickenbacker Causeway
Miami, FL 33145

Dear Garry:

Harbor Branch Oceanographic Institution, Inc. is making a formal request to include the Research Vessel SEA DIVER in the UNOLS fleet. I have tentatively scheduled the SEA DIVER for an NSF Ship Inspection with Dick West on 28-29 Sept. 1993. I had hoped to have inspection results prior to the UNOLS Council Meeting on Sept. 30, however this will not be possible.

The number of scientists requesting to utilize the Research Vessel SEA DIVER is increasing, primarily due to the recent change in operational capabilities. Previously, SEA DIVER was a dedicated ROV support vessel, which resulted in minimal use of the vessel and a limited ability to support other types of research. R/V SEA DIVER was modified by adding 14 feet to the stern increasing the LOA to 113', installing a submersible handling system (articulating crane) for launch and recovery of the recently acquired PC 1204 shallow water (1,000 fsw) submersible, a 12' x 16' portable wet/dry lab, and an 8' x 8' portable environmental lab, making the SEA DIVER an extremely desirable, low-cost research platform. In addition, we have retained the A-frame launch and recovery system, utilized to support small to medium towed systems, surface oceanography, hydrographic applications, and deployment and retrieval of moored devices. The A-frame and the articulating crane are interchangeable within one day, depending on mission requirements.

Our present daily rate for the vessel is $3,500 and the projected daily rate for 1994 is $3,700. This does not include the submersible. The majority of funded ship time is NOAA-NURP and Navy. The 1993 schedule has 194 funded days and should remain the same or better for 1994.

Thank you for your consideration in this matter. If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

Tim Askew

Tim Askew
Director, Marine Operations

TA:pk
cc: Dr. Emma Dieter, NSF
Dr. Richard West, NSF
Jack Bash, UNOLS
Rick Herman, HBOI

APPENDIX XI

ANNEX II
TO THE CHARTER

National Oceanographic Facilities

1. **In addition to regular institutional UNOLS facilities, there may be identified National Oceanographic Facilities,** defined as those facilities, specialized and otherwise, that are made available for the use of qualified scientists from any institution and the use of which shall be recommended by a UNOLS Review Committee.

2. **A research vessel or other research facility may be designated** a National Oceanographic Facility upon the approval of the UNOLS membership after review by the UNOLS Council, with the concurrence of the owner and operator of the facility and with reasonable assurance of support. National Oceanographic Facilities may be multi- or special-purpose facilities and may be designated for the entire annual operating period or any significant period thereof.

3. **The purpose of National Oceanographic Facilities is:**

   - To provide oceanographic vessel and other facility support to scientists who do not operate or have available the required facilities.

   - To provide for the support and use in academic research of specialized and unique facilities.

4. **An oversight committee** for each facility is established for the purpose of:

   a. Considering proposals for use of the asset,
   b. Recommending programs to be scheduled,
   c. Assessing the needs of the user community and
   d. Making appropriate recommendations for improvements of the facility.

   The Chair and members of the Committee are appointed by the UNOLS Chair, from nominations made by the Committee, and in consultation with the UNOLS Council. Members serve for terms of three years on a rotating basis, for no more than two consecutive terms. Each institution operating a National Oceanographic Facility may designate an ex-officio member(s) in addition to those members appointed by UNOLS. With the Council's concurrence, standing committees of UNOLS may also designate ex-officio members as appropriate to the oversight committee.

5. **In recommending the allocation of facility time,** the oversight committee act primarily on the logistical factors of the proposed research and its appropriate usage of the individual facility.

6. **Operational scheduling of the facility is the function of the operating institution.** The time frame for scheduling generally is in accordance with Annex I of the UNOLS Charter.

7. **Information and announcements** advertising the availability of a National Oceanographic Facility are a joint function of the operating institution and the UNOLS Office.

8. **Receipt, acknowledgment, collating and structuring of requests** for facility use will be the function of the operating institution in consultation with the UNOLS Office.

9. **An annual report** on the use of each National Oceanographic Facility is prepared by the appropriate institution in cooperation with the Review Committee and the UNOLS Office.

10. **Requests for funding** the operation of the facility are the responsibility of the operating institution.

11. **If a National Oceanographic Facility ceases to meet the criteria** above, especially with respect to being specialized or unique, recommendation may be made by the UNOLS Council to the funding agencies that such designation be discontinued. Each National Oceanographic Facility is reviewed by the UNOLS Council at least once each three years.

Approved and adopted:	May 5, 1972, College Station, TX
Readopted:	May 17, 1974, Washington, DC
Amended and readopted:	May 13, 1977, Washington, DC
Readopted	Oct 21, 1981, Washington, DC
Amended:	Oct 26, 1983, Washington, DC
Readopted:	May 25, 1984, Washington, DC
Readopted:	Oct 23, 1987, Washington, DC
Readopted:	Oct 28, 1988, Washington, DC
Readopted:	Sep 15, 1989, Washington, DC

ANNEX IV
TO THE CHARTER

Fleet Improvement Committee

1. **Introduction.** One UNOLS objective is to assess the match between facilities to support academic oceanographic research and the oceanographic research program needs, and then to make recommendations for replacing, modifying or improving the number and mix of facilities. It has long been recognized that maintenance of a fleet of modern, capable research vessels is essential to the outstanding success of the U.S. program in academic oceanographic research. **A Fleet Improvement Committee (FIC),** is established to address this UNOLS objective.

2. **Purpose.** The Fleet Improvement Committee works to assure the continuing excellence of the UNOLS fleet, to improve the capability and effectiveness of individual ships and to assure that the number, mix and overall capability of ships in the UNOLS fleet match the science requirements of academic oceanography in the U.S. To this purpose, the Committee maintains the currency of a dynamic **UNOLS Fleet Improvement Plan.** The plan, updated periodically, includes:

- Assessment of the number and mix of ship capabilities needed in the UNOLS fleet,

- Development of science mission requirements for all size/capability-classes of research ships,

- Definition of roles and the need for innovative research platforms,

- Consideration of means for acquiring the needed vessels, including new construction, modification to existing UNOLS ships, conversions, private acquisition and leasing,

- Development of conceptual or preliminary plans for ships to fill the needs identified, and

- Development of a schedule for improvement and replacement of vessels so as to assure continuing fleet excellence.

The Fleet Improvement Committee will serve as a **liaison and planning activity as well as an information source** for federal agency representatives concerning long range planning, and funding for design, construction or renovation of vessels for the UNOLS fleet.

3. **Organization.** The Chair and eight additional members of the Fleet Improvement Committee are appointed by the UNOLS Chair with recommendations from the UNOLS Council, from UNOLS institutions. Those appointed should be experienced in ship operations and from institutions which are either operators or users of UNOLS research vessels. The Chair and at

least three other members will be from UNOLS operator institutions, at least two members will be from institutions other than operators, and two members may be from any UNOLS institution. The FIC Chair is, ex-officio, a member of the UNOLS Council. Terms for all members are three years, for no more than two consecutive terms.

Two members of the FIC will serve as liasons with two other standing committees of UNOLS: the Research Vessel Operators Committee and the Deep Submersible Science Committee.

Adopted: Oct 28, 1988, Washington, DC
Readopted: Sep 15, 1989, Washington, DC