UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

UNOLS COUNCIL MEETING

SUMMARY REPORT

February 26-28, 1992

Texas A & M University
Alumni Center
College Station, Texas

UNOLS COUNCIL MEETING REPORT
ALUMNI CENTER
TEXAS A&M UNIVERSITY
COLLEGE STATION, TEXAS
26-28 FEBRUARY 1992

The UNOLS Council met at 1300 hrs, 26 February 1992 at the Alumni Center, Texas A&M University, College Station, Texas. The meeting was preceded by a morning tour of the Ocean Drilling Program facilities on the Texas A&M campus provided by Philip Rabinowitz. Garry Brass, Chair called the meeting to order. Feenan Jennings extended a welcome to the Council from the Texas A&M community. Agenda items were followed except as altered herewith. Attached as Appendix I is a copy of the agenda.

ATTENDEES

UNOLS Council:
Garry Brass, Chair
Tom Johnson, Vice Chair
Peter Betzer
Paul J. Fox
Dennis Hayes
Richard Janke
Feenan Jennings
David Karl
Bob Knox
Mark Langseth
Chuck Nittrouer
Ken Palfrey
Jim Williams

Participants/Observers:
Jack Bash, UNOLS
Tom Cocke, State
Pat Dennis JOI/OP-096
Annette DeSilva, UNOLS
Donald Heinrichs, NSF
Keith Kaulum, ONR
June Keller, ONR
Dick Pittenger, WHOI/JOI
David Yeager, NOAA

APPENDICES

I. UNOLS Council Meeting Agenda, 26-28 Feb '92
II. NSF Reports
III. Research Clearance Summary for 1991
IV. Knauss' ltr of 17 Dec '91
V. Baker's ltr of 24 Feb '92 w/encl
VI. NSF Inspection Review

The minutes of the 16 October 1991 Council meeting were accepted as written.

COMMITTEE REPORTS

RESEARCH VESSEL OPERATORS COMMITTEE:

Jim Williams, RVOC Chair reported on the RVOC activities and the plans for the annual meeting.

The RVOC Safety subcommittee has been working on an update to the UNOLS Safety Standards. A draft change has been prepared and distributed to the RVOC membership for review. The recommended changes should be ready for UNOLS review at the UNOLS Council and Annual meetings in September.

The RVOC meeting will be held in Lewes, Delaware this year on 20-22 October. Agenda items include new generation winches, rescue boats, chartering, trash removal and hazardous materials. Dennis Hayes requested that UNOLS investigate the possibility of attaining a waiver for the need to carry a radioman on ships over 1600 gross tons. This request is in keeping with the Global Maritime Distress and Safety System (GMDSS) Treaty.

ALVIN REVIEW COMMITTEE:

Feenan Jennings, the ARC Chair, requested that his presentation be delayed until after the ARC Subcommittee meeting scheduled for PM 27 February. He did report that a Memorandum of Agreement between Navy and NOAA has been signed for 60 days of academic science participation aboard SEA CLIFF/TURTLE. ARC will aid in reviewing proposals for use of these submersibles.

FLEET IMPROVEMENT COMMITTEE:

Marcus Langseth provided a summary of the Fleet Improvement Committee's activities.

Submersible Support Ship: A discussion ensued concerning the need for UNOLS to look at the process of converting a ship as a submersible support ship to replace ATLANTIS II. WHOI's proposal for AGOR 24/25 indicated that KNORR would be converted as a submersible support ship when WHOI received the new AGOR. FIC in conjunction with the ALVIN Review Committee would be the appropriate groups to look at the conversion process. Because ARC is going through a restructuring it was decided that this tasking would be delayed until the new ARC had been formed.

Arctic Research Vessel: Planning for the Arctic vessel planning continues. An inspection party from this subcommittee will participate in a ten day observation cruise aboard the

Russian ice-cutter SORROKIN in April. The purpose of this visit is to observe the ice cutting capabilities of the THYSSEN/WAAS hull form. A preliminary design proposal has been submitted to NSF for funding. This study will include the investigation of various hull forms.

Coastal Research Vessel: The subcommittee on coastal research vessels has been active. A questionnaire was developed and distributed by telemail. Well attended town meetings were held stimulating significant response and indicating the diversity of the coastal community. Coastal regions were defined and regional coastal teams identified at the fall FIC meeting to develop mission requirements for their respective regions. The complexity of this effort has become obvious and the need to fall back and regroup is appropriate. The present plan is to produce an interim report that will provide a definition for coastal oceanography and inventory the facilities presently involved in this effort. The subcommittee will continue its work by projecting science requirements for ten years and the facilities needed to satisfy these requirements. Further, the subcommittee will look into possible ways that the required facilities will be acquired not limiting the scope to ships but looking at the broader spectrum of facilities such as moored platforms, satellites etc..

FIC Membership: Mark reported that Bob Dinsmore will be rotating off the FIC after serving since its inception. A motion was passed to send Bob a letter of appreciation for his many years of faithful service. Eric Firing was nominated by Mark for Bob's replacement. Garry Brass followed by accepting the nomination and appointing Eric to the FIC.

Miscellaneous: The USCG has expressed an interest in FIC matters and should be invited to the next FIC meeting. It was also suggested to invite them to the June scheduling meeting.

SHIP SCHEDULING COMMITTEE:

Ken Palfrey provided the Council with an update from the Scheduling Committee.

1992 Operations: Ken reported the new assets entering the fleet this year with THOMPSON, VICKERS AND KNORR now operating and MELVILLE to be available in the spring. Two future retirements were confirmed with WASHINGTON leaving service when MELVILLE arrives and RIDGELY WARFIELD moving from a lay-up status to retirement and sale. The 1992 operating year is well underway with most of the schedules healthy.

1993 Operations: The scheduling meetings for 1993 operations are set with the first meetings to be held in Washington DC in mid June. The East/Gulf Scheduling group meeting is planned for 16 June and the West Coast group meeting 17 June. A third day, 18 June has been reserved if a Schedule Review Panel is needed. The joint East/West Scheduling committee will meet on 14 September with the 15th planned for the Schedule Review Panel. Operators are urged to insure that the UNOLS Office receive a copy of each Ship Time Request Form held by that institution. Don Heinrichs predicted the possible reduction in requests for Class I and II ships for 1993 since JGOFS will not have a field program that year.

AGENCY REPORTS

NATIONAL SCIENCE FOUNDATION: Don Heinrichs presented the NSF report from a series of overheads and slides which are included in this report as Appendix II and summarized herewith.

NSF Budget Request: NSF has requested $3.027 billion for FY '93 representing an increase of $453.5 million or 17.6%. Within this budget is a request for $2.211 million for Research and Related Activities which is a 17.9% increase. Ocean Sciences are requesting a 15.4% increase or a total of 206.4 million and within this is a 20.3% increase for $109.3 million for Ocean Science Research Support. Ship Operations are requesting a $3.8 million increase to $34.0 million.

NSF Memo of 1992 Ship Operations Cost: Don Heinrichs provided a discussion memorandum on the 1992 ship operations which is included in Appendix II. The memo presented a sequence of ship costs as received by NSF through the ship proposals. It addressed the "requested support" and the "required support" showing that there is a negotiated difference which hopefully brings the ship costs in line with the funds available. NSF will be looking at what is driving the large ship operations costs. It had originally been estimated that these ships would operate at $4 M. A panel has been formed to study this. The memo breaks down the support over the past three years by funding agencies. It compares the ships cost by class and for the large ships breaks down the cost comparison by line item. These cost comparisons offer an interesting tool for financial management.

NSF Academic Fleet Projections (1993-1998): A handout provided NSF's assessment of the size and makeup of the fleet for the next five years. This shows the large ships increasing from five to six when AGOR 24 comes on-line in 1995 and increasing to seven in 1996 with the arrival of the Arctic research vessel. The chart shows ATLANTIS II retiring when AGOR 25 is delivered in 1997. This is amplified by indicating that KNORR will be equipped as a submersible ship replacing ATLANTIS II. Discussion followed suggesting that the date for KNORR conversion and ATLANTIS II retirement could commence much earlier. MOANA WAVE has been scheduled by ONR to retire in 1997 bringing the intermediate ships from eight to seven at that time. In regional ships, ALPHA HELIX will be retired when the Arctic research ship comes on-line. All of these changes keep the total academic fleet (all sizes) at 27 ships by 1998.

NSF Miscellaneous: NSF is supporting the State Department by not funding PIs who do not complete their post cruise obligations for foreign cruises. Don announced that Dolly Dieter's position expires 1 March 1993 and NSF is sounding out the community for a replacement.

DEPARTMENT OF STATE: Tom Cocke reported on clearance problems at State. The procedure of working with NSF and threatening the withholding of funding for future ship time has been a very effective tool in cleaning up delinquent post cruise reports. Coupled with this procedure and the assistance Tom has been getting from a temporary position, the

clearance procedures have worked smoothly despite an increase in clearance requests from 275 to 333. Haiti is still off the list for clearance and Mexico could be a problem in the future because of the tuna embargo. Tom continues to promote the Foreign Clearance Manual as an excellent reference. Extra copies of this manual are available at the UNOLS Office. Appendix III is a Research Clearance Summary for 1991.

OFFICE OF NAVAL RESEARCH: Keith Kaulum provided the ONR report by first reporting on the KNORR/MELVILLE status. KNORR has completed its post overhaul maintenance period and is presently operating in the Atlantic. From all reports the ship is operating well. MELVILLE is scheduled for delivery on 8 March. It will sail to San Diego to undergo a post overhaul maintenance period before joining the fleet. Both ships are scheduled for a warranty maintenance period six months after delivery. Supplemental funds in the amount of $15 M have been appropriated from Congress to pay for the additional cost incurred during the overhaul of these two ships.

R/V WASHINGTON is scheduled for retirement in May and will likely be transferred to Portugal. THOMPSON is operating on a full JGOFS schedule for 1992 and will return to UW in late spring for a post shipyard warranty period. The funds for AGOR 24 and option for AGOR 25 procurement is in progress. The ship building yard for AGOR 24 should be named in the near future. TAMU has congressional approval to transfer the title of GYRE from the Navy to TAMU.

ALVIN is operated under a three year tripartite Memorandum of Agreement (MOA) between NSF, ONR and NOAA which expires at the end of this year. It is the view of ONR that "business as usual" is not acceptable and that the next MOA must contain language indicating the introduction and evolutionary change from ALVIN to unmanned vehicles (ROV and AUV) for submersible science.

ONR owned ships will decrease from seven (KNORR, MELVILLE, THOMPSON, WASHINGTON, CONRAD, GYRE AND MOANA WAVE) to five (KNORR, MELVILLE, THOMPSON, AGOR 24 AND AGOR 25). CONRAD is already gone and GYRE ownership has been transferred to TAMU. WASHINGTON is to be retired this spring and MOANA WAVE is due to be retired when AGOR 25 comes on line. Between ship conversions and new acquisitions a total of $165 M will have been spent. Yearly ONR science support is expected to remain at the $5 M to $7 M range. Keith suggested that NRL (formerly NORAL) will probably be seeking UNOLS ship time as Navy funding for their own research ships fleet declines.

OCEANOGRAPHER OF THE NAVY: Pat Dennis provided a perspective from the Navy's OP-096. Two new Navy coastal survey ships have been delivered and two more TAG 65 vessels are under construction. Two TAG 60 vessels have been approved for construction and a third could be approved. The Navy has set aside $44.1 M for the construction of AGOR 24. Because of budget cuts the Navy will be reducing its oceanographic fleet to nine or possibly

eight ships. AGOR 25 is still in the 1995 budget. The Navy has 18 TAGOS ships that are to be transferred out of their inventory. Up to eight of these ships could be made available to NOAA however indications are that NOAA will only be interested in two. Pat suggested that FIC should look at the TAGOS hull to determine whether or not it may be useful to replace an intermediate ship.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION: Captain Dave Yeager reported to the Council for NOAA. NOAA received from Congress $33.2 M in 1992 for their ship modernization program. Because there are essentially no funds in the 1993 budget for the modernization plan the 1992 money will be spread over two years. The 1994 budget year should be the first real year of modernization funding. One ship, ALBATROSS IV, has been reactivated on a one year appropriation. An EEZ mapping ship was sent to the Persian Gulf for oil spill assessment. It was felt that this could be done without impairing the EEZ mapping program. The VICKERS arrangement has been a learning experience and overall has been considered in a positive light. More "charter" support for the NOAA programs is expected for the next several years. With new technologies in Differential GPS and increased swath width of mapping survey ship work will need fresh thinking.

NOAA views its mission tasking at 6683 ship days per year, however fiscal constraints suggest that 5000 ship days are more realistic. The NOAA budget for out years (1994 and beyond) is expected to include significant funds for modernization that will not compete with the operational budget. During this transition period NOAA sees about $6.8M per year for "commercial" chartering which includes UNOLS ships and fisheries. In addition to VICKERS, NOAA is using PELICAN AND LONGHORN for 30 days each in 1992. One hundred ship days are being planned for VICKERS in 1993. Additional monies will be available for other UNOLS chartering. In 1994 it is anticipated that one full ship year will be chartered from UNOLS. TAGOS ships from the Navy are considered an interim measure. It is likely that NOAA will take two of these ships.

The VICKERS operation had a rocky start, however now appears to be on track. Good reports are being received. The ship should get its USCG certification when the recently purchased rescue boat is received fulfilling the SOLAS requirement. Ventilation is still a problem but on the bright side the ship is very sea kindly and offers 17 knots of transit speed.

NOAA is looking forward to getting fully involved in the UNOLS scheduling procedure. Future planning calls for smaller NOAA crews and longer operating years. Increased training will be needed to support these operational changes.

UNOLS ISSUES

UNOLS REVIEW: Tom Johnson is chairman of a panel reviewing UNOLS. This panel consists of Tom, Brian Lewis, Dick Pittenger and Bob Wall. Two questionnaires were circulated to the community. Sixty responses were received representing a return rate of about

22%. A first draft of the results of the survey and the panel's discussions has been completed. The survey indicates: 1) UNOLS is doing well, particularly in the ship scheduling business; 2) users are pleased with the quality of services; 3) UNOLS is efficient and the most effective research fleet in the world; 4) UNOLS should have more authority over institutions with respect to ship management; 5) the Council has been weak and ineffective particularly in respect to controlling the size of the UNOLS fleet; 6) UNOLS should take a more aggressive role in representing coastal oceanography interests; 7) a more thorough annual assessment of the fleet is warranted; and 8) UNOLS should be more receptive to non-ship type issues such as satellites, buoys etc.

FUTURE UNOLS FLEET/FLEET COORDINATION: Because of the commonalty of these two subjects, they were combined for discussion. The future size and composition of the UNOLS fleet was a subject of concern in the UNOLS review survey. It also has been a subject of concern with JOI as well as ONR. Dick Pittenger was invited to the Council meeting as Chair of the JOI Academic Fleet Committee to present their views and concerns. Two philosophies prevail. First is that the market place should decide the size and composition of the UNOLS fleet and that being a member of UNOLS does not guarantee federal funding but only qualifies a ship for such funding. The second view is that UNOLS defines a "Federal Fleet" that must be nurtured and maintained. This philosophy suggests that once defined a UNOLS vessel, the federal sponsors should ensure the health of the fleet with adequate funding. Therefore, the fleet should be limited to only those that can be supported. In reality, UNOLS role in either of these philosophies is somewhat limited. UNOLS is an advisory body. As such it does not have the authority to dictate which ships do or do not get funded. In other words it has very little control as to its size. The rules for membership are well defined and accepted by the UNOLS membership as well as the Federal agencies. If a ship "qualifies" UNOLS is obligated to accept it into membership. The Council does intend to exercise its responsibility of advisor.

The Fleet Improvement Committee has been tasked to update the "Fleet Improvement Plan (FIP)" which defines the UNOLS position as to the fleet size and composition that will support the science programs proposed. The updated FIP would define the elements of the Academic Research Fleet. Shiptime availability and usage in the past along with future needs will be identified. Budgetary trends and needs will be addressed. Coastal oceanography interests will be included.

Jim Baker of JOI has written a letter responding to John Knauss' letter of 27 December 1991 (Appendix IV) with an enclosure prepared by JOI Academic Fleet Committee titled "Principles Governing Future National Research Fleet" (Appendix V). The Council considered the principles reasonable and moved to encourage JOI to forward them to the Oceans Study Board. Additionally, the UNOLS Chair was tasked to write a letter to Knauss forwarding the comments and concerns of UNOLS regarding this issue.

RISK MANAGEMENT UPDATE: Jack Bash reported that Dennis Nixon has submitted a proposal to NSF to consolidate all UNOLS vessel Protection and Indemnity insurance packages at the Federal level. Dennis believes that the total cost for insurance will drop dramatically by implementing a fleet group policy. NSF is reviewing the details and legality of this concept.

NSF INSPECTION REVIEW: Jim Williams chaired a panel that reviewed the effectiveness of the NSF Inspection process. The panel report is included as Appendix VI. This report finds the inspection effective, however all UNOLS vessels are not covered in the process. The report sites the lack of community scientific standards and that the follow-up action for the inspection is not complete. Finally the report recommends that a procedure be set up for a UNOLS review of the inspections. The Council looked favorably on the report with the exception of the procedure for UNOLS review. After much discussion it was felt that a UNOLS review would only add another bureaucratic step and would serve little purpose. The report was accepted with the exception of the review recommendation and will be forwarded to NSF.

ALVIN REVIEW COMMITTEE:

A sub-committee of the ALVIN Review Committee met in the late afternoon and evening of 27 February to discuss the tripartite Memorandum of Agreement and to address the charter change needed to support the expanded tasking for the ARC with the submersible science study recommendations. Chairman, Feenan Jennings reported for the ARC.

ALVIN Archive: Woods Hole has been encouraged by ARC to submit a proposal to NSF for funds to preserve film that has been deteriorating in the archive. Woods Hole has been slow to respond to the action while trying to come up with a process for the preservation. Apparently the technology for this effort is moving so fast it is difficult to settle on the best procedure.

Technology Workshop: A technology workshop has been planned to look at new technologies for ALVIN. This has been delayed until the makeup of the new ARC is in place.

Rewrite ARC Charter: The Council has tasked ARC to rewrite its charter and take on a broader tasking including all submersible science issues as addressed in the Submersible Science Study of 1990. Feenan has received inputs from ARC members Doug Nelson, Gary Taghon and Mary Scranton to assist in the charter change. Based on these inputs Feenan will draft a new charter by the end of March and distribute it to the ARC. The ARC will review the draft at its June meeting and have a consensus draft for the Council's July meeting.

Memorandum of Agreement: The ALVIN MOA is due for renewal at the end of 1992. ONR has stated that a renewal of the old language is not acceptable and that the new MOA must include a plan to move toward unmanned submersibles. NSF and members of the ARC believe that unmanned submersibles are not advanced enough to replace the break-through

science now preformed on ALVIN and that splitting the effort would dilute ALVIN support to below an acceptable level. The impasse of these two views will need to be resolved. Jeff Fox and Dick Pittenger will draft comments for the preparation of an MOA by the end of March for review by ARC. The draft comments will then be forwarded to the three agencies by the end of April. Dick feels it is important that the new plan does not exclude other institutions from an opportunity to compete for operating submersible facilities. Tom Johnson will draft a statement to that effect.

Global Expedition for ALVIN: ALVIN operations have been following a pattern over the last several years. This includes what has been referred to as a yo-yo schedule operating from the Mid-Atlantic Ridge to the East Pacific Rise to the Juan de Fuca Ridge. Science requested outside of this pattern cannot seem to generate the critical mass necessary to warrant a pattern change. Notices of intent for global expeditions were distributed in February via telemail and flyer with two responses having been received as of the Council meeting date. The ARC is trying to stimulate the community into breaking the yo-yo and possibly making a global expedition visiting areas not yet explored.

ALVIN/AII Operations: Dick Pittenger gave a detailed report on the uncertain schedule of ALVIN and AII. Because of the very light usage the daily cost of operating has gone out of sight. This makes it more difficult to attract outside users which causes an even higher daily rate. Dick is writing a letter to ONR, NSF and NOAA to outline the problem and suggest three alternative solutions. If a resolution can not be made it will be necessary to lay-up ALVIN.

KNORR/MELVILLE OVERHAUL: Dick Pittenger expanded upon the report given by Keith Kaulum on the KNORR and MELVILLE. Dick reported that a dispute existed between WHOI and the shipyard and that arbitration procedures were being set up.

SAFETY PANEL: The Council decided a UNOLS Council Safety Panel was not needed if the recommendations from the NSF Inspection Panel are accepted and acted on.

TECHNICIAN'S FORUM: Over the years there have been repeated efforts to standardize the technical support aboard UNOLS ships. In the recommendations from the NSF Inspection Panel the need to establish community scientific standards was sited. The Council recognized that the vessel operators have a forum to discuss common problems in the RVOC, however technical support people do not. The Council is not recommending a standard technician organization for each institution but rather a forum whereby the technical support people can exchange ideas and coordinate efforts. A suggestion was made that technical support personnel could meet for a day in conjunction with the annual Marine Technology Society Conference. Suggestions are being solicited from the community at large as to the best approach to this problem. The UNOLS Office will collect the suggestions and formulate a proposal for the Council's review.

Modes of Fleet Acquisition and Operation: The subject first came up at the July 1991 Council meeting. The Council felt that it was very important that UNOLS have a study in hand that has evaluated its acquisition and operational procedures and hopefully will show its superior merits. It was decided to set up a panel to study the issue. Repeated attempts were made to establish a panel but to little avail. George Shor was the only individual who agreed to tackle the problem. Because of George's eminent qualifications and energies the Council recommended that George be asked to set up a panel and conduct the study. Mark will solicit a volunteer from FIC at the April meeting to assist.

MID-LIFE REFIT FOR OCEANUS CLASS: Jack Bash reported that the mid-life refit for the OCEANUS class ships is on track. URI holds a contract with Rodney Lay Inc. to provide the engineering specifications for the refit for all three ships. ENDEAVOR will be the first ship to start the overhaul which is scheduled for October of this year. OCEANUS will follow in 1993 and WECOMA later that year. Each ship is planning for approximately $2 million for the overhaul.

MAURICE EWING: Dennis Hayes provided an update on the activities of EWING sighting its over 500 operating days since acquisition. The ship has recently completed a two month yard period. They have been working away at some of the problems and for the most part are very satisfied. The Hydrosweep system is now operating to specifications. Dennis showed the Council a dramatic bottom map of a fracture zone off New Zealand. Problems associated with the Hydrosweep turned out to be a series of smaller problems which have now been corrected.

CRUISE ASSESSMENT SUMMARY: Jack Bash provided the Council with a preliminary report of the cruise assessments. The final report will be available at the July Council meeting. Cruise Assessment Forms for 1991 are still being received at the UNOLS Office. A greater number of assessment reports were received in 1991 than 1990. Seventy eight percent of the cruises were reported as fully successful with only one percent reported as unsuccessful. Almost 100 days were reported as lost, over half of which were lost to bad weather.

UNOLS MEETING CALENDAR: The calendar of future UNOLS meetings was approved:

Meeting	Dates	Location
FIC	1-2 Apr	Washington, DC
ARC	9-11 Jun	WHOI
Scheduling	16-17 Jun	Washington, DC
UNOLS Council	15-16 Jul	Alton Jones, RI
Scheduling	14 Sep	Washington, DC
Scheduling Review	15 Sep	Washington, DC
UNOLS Council	16 Sep	Washington, DC
UNOLS Annual	17 Sep	Washington, DC
FIC	Fall	TBA
RVOC	20-22 Oct	Lewes, DE
ARC	Dec	San Francisco, CA

The meeting was adjourned at 1130 on 28 February 1992.

UNOLS COUNCIL MEETING AGENDA
26-28 FEBRUARY 1992
ALUMNI CENTER (ROBERTS CONFERENCE ROOM)
TEXAS A&M UNIVERSITY
COLLEGE STATION, TEXAS

Ocean Drilling Program: A tour and presentation by staff of ODP facilities 10:00-12:00 a.m. See map. (Enclosure 1)

1:00 p.m. Alumni Center (Roberts Conference Room)

Call the Meeting: Garry Brass, UNOLS Chair, will call the meeting.

Accept Minutes of 16 October 1991 Council meeting.

COMMITTEE REPORTS

Research Vessel Operators Committee: Jim Williams, Chair, will report on the progress of RVOC action items and advise the Council as to plans for the 1992 RVOC meeting in Lewes, Delaware scheduled for 20-22 October. Action items presently underway include, updating of the UNOLS SAFETY STANDARDS and hazardous waste problems.

ALVIN Review Committee: Feenan Jennings, Chair, will report on the ALVIN Review Meeting in San Francisco. These include an update of the ALVIN program review summary, the Interagency MOA progress, plans for integrating the Submersible Science Subcommittee recommendations into the ARC, a technology workshop and the progress of the archiving proposal.

Fleet Improvement Committee: Mark Langseth, Chair, will report on the progress of action items from the FIC and the plans for the 1-2 April FIC meeting in Washington DC. Action items include, the SOONS report, Coastal Oceanography subcommittee progress, Arctic Research Subcommittee progress, and the review of shipboard laboratory facilities and accommodations. Mark will also identify a candidate for a new FIC member for approval by the Chair.

Ship Scheduling Committee: Ken Palfrey, Chair, will provide the Council with a brief update on the fleet's 1992 schedules and on the plans for developing a fleet schedule for 1993.

AGENCY REPORTS

Agency Reports: Reports from representatives of NSF (D. Heinrichs), ONR (K.Kaulum) and NOAA on funding outlook and special projects. The State Department (T.Cocke) will provide an update on foreign clearance problems. P. Dennis will report the OON.

UNOLS ISSUES

UNOLS Review: Tom Johnson will provide the Council with a report on the progress of the UNOLS Review. The subcommittee of T.Johnson, B.Lewis, R.Pittenger and R.Wall met several times and reviewed 60 plus questionnaires on evaluating UNOLS.

Future UNOLS Fleet: The UNOLS Review questionnaire responses suggest a mandate for UNOLS to assess the research needs, then match these needs to facilities which will dictate the fleet size and makeup. This subject will require considerable discussion including the possible formation of a subcommittee study group. G. Brass will lead the discussion.

Fleet Coordination: JOI, NOAA and FOFCC have been communicating with UNOLS as to the best way to coordinate the role UNOLS may play in working with NOAA and integrating a portion of the NOAA ship time with the academic fleet. D.Pittenger and G. Brass will lead this discussion (See Enclosure 2).

Risk Management Update: J. Bash will review recent developments in fleet insurance.

NSF Inspection Review: J.Williams chaired a subcommittee looking into the effectiveness of the NSF inspection and will report to the Council on the progress of this effort (See Attachment 1).

ALVIN Review Committee's Expanded Tasking: A subcommittee of ARC has been formed to recommend a new charter for ARC that will include the additional responsibilities suggested by the Submersible Science Study. This subcommittee is T.Johnson, P.Fox and F.Jennings. A second subcommittee of P.Fox, F.Jennings, D.Nelson, D.Pittenger and J.Bash has been formed to work with the federal agencies on the Interagency Memorandum of Agreement (MOA) for ALVIN. Because the composition of these two subcommittees is similar and the tasking is interrelated the subcommittees will act as one. They will meet on the evening of 27 Feb and will report their progress to the Council.

Technician's Forum: G. Brass will lead a discussion on the role UNOLS should/could play in the advancement of technology within the UNOLS community.

UNOLS Safety Panel: G. Brass will discuss the need for a UNOLS Safety Panel. If it is the consensus of the Council a panel will be appointed (See Enclosure 3).

Modes of Fleet Acquisition and Operation: Discussion at the past two Council meetings have suggested that a "Modes of Acquisition and Operation" panel be set up to study this issue. Progress has not been forthcoming on this panel and further discussion is warranted (See Enclosure 4).

Ship Construction and Renovation: Discussion on the progress of KNORR's outfitting and MELVILLE's completing refit will be lead by R.Pittenger and J.Williams. The AGOR 24 and 25 building schedule will also be discussed.

VICKERS Update: A VICKERS update will be provided by the NOAA representative.

Mid-life Refit for OCEANUS Class: J. Bash will provide update.

GYRE: GYRE ownership has been shifted from the Navy to TAMU.

Cruise Assessment Summary: A cruise assessment summary will be provided by J.Bash (See attachment 2).

Meeting Schedule:

MEETING	DATES	LOCATION
UNOLS COUNCIL	26-28 FEB	COLLEGE STA. TAMU
FIC	1-2 APR	WASHINGTON, DC
ARC	9-11 JUN	WHOI
SCHEDULING	16-17 JUN	WASHINGTON, DC
UNOLS COUNCIL	15-16 JUL*	ALTON JONES, RI
SCHEDULING	14 SEP	WASHINGTON, DC
SCHEDULING REVIEW	15 SEP	WASHINGTON, DC
UNOLS COUNCIL	16 SEP*	WASHINGTON, DC
UNOLS ANNUAL	17 SEP*	WASHINGTON, DC
FIC	FALL	TBA
RVOC	20-22 OCT	LEWES,DE
ARC	DEC	SAN FRANCISCO, CA

* Subject to the approval of the Council

NSF FY 1993 BUDGET REQUEST

NSF

- Total Request is $3.027 Billion
- Increase of $453.5 Million or 17.6%

	Totals	Increases
Research and Related Activities	$2211.5 M	$336.5 M or 17.9%
U.S. Antarctic Program	163.0 M	75.0 M or 85.2%
Education and Human Resources	479.5 M	14.5 M or 3.1%
Academic Research Facilities & Inst.	33.0 M	no change
Critical Technologies Institute	1.0 M	new program
Salaries, Expenses, IG Office	139.0 M	26.5 M or 23.6%

- Major Research Initiatives

	Totals
Advanced Materials and Processing Program	$318.5 M
High Performance Computing and Communications	262.0 M
Biotechnology	205.6 M
U.S. Global Change Research Program	162.5 M
Multidisplinary Research on the Environment	118.0 M
Advanced Manufacturing	104.5 M

- Education and Human Resources

Precollege Programs	$286.0 M
Undergraduate Programs	146.0 M
Women, Minority, Other Programs	118.0 M
Expt. Program for Competitive Research	20.0 M

NSF FY 1993 BUDGET REQUEST

Geosciences (w/o Antarctic Program)

- Total Request is $472.4 million
- Increase of $68.0 million or 16.8%

	Total	Increases
Atmospheric Sciences	$151.9 M	$24.8 M or 19.5%
Earth Sciences	88.1 M	11.9 M or 15.6%
Ocean Sciences	206.4 M	27.6 M or 15.4%
Arctic Research Program	26.0 M	4.7 M or 22.0%

- Major Increase Categories

	Increases
Disciplinary Research	$40.2 M
Facilities	25.5 M
Education & Human Resources	2.3 M

- Major Program Increases

Global Change Programs	44.0 M
Biotechnology	1.9 M
High Performance Computing	1.7 M
Environmental Studies	5.3 M
Hydrological Science (EAR)	2.5 M

- Major Facility Increases

Research aircraft	2.8 M
Arctic research ship	2.8 M
Global seismic network	2.0 M

NSF FY 1993 BUDGET REQUEST

Ocean Sciences

- Total Request is $206.4 million
- Increase of $27.6 million or 15.4%

	Total	Increases
Ocean Science Research Support (OSRS)	$109.3 M	$18.5 M or 20.3%
Oceanographic Centers & Facilities (OCFS)	59.3 M	7.7 M or 14.9%
Ocean Drilling Program (ODP)	37.8 M	1.4 M or 3.9%

- Budget Increase Highlights

Global Change increase of $21.2 M to $64.1 M 49.4% increase with focus on research and facilities for WOCE, JGOFS, GLOBEC and TOGA-COARE.

Enhanced support for biotechnology research involving the establishment of two small marine biotechnology centers with other NSF divisions. ($1.6 M)

Enhanced support for interdisciplinary projects on ecosystems subject to environmental change. ($0.75 M)

Support for engineering design and initial construction contract for an ice-capable Arctic research vessel ($2.75 M)

All other activities ($1.3 M).

OCEAN SCIENCES DIVISION

	Actual FY 1990	Actual FY 1991	Estimated FY 1992	Requested FY 1993
Ocean Sciences Division	$147.4 M	$164.8 M	$178.8 M	$206.4 M
Ocean Sciences Research	72.9 M	82.1 M	90.8 M	109.3 M
Ocean Drilling Program	32.0 M	35.0 M	36.4 M	37.8 M
Oceanographic Facilities	42.5 M	47.7 M	51.6 M	59.3 M

OCEANOGRAPHIC FACILITIES DETAIL

Operations				
Ship Operations	$ 22.4 M*	$ 26.7 M*	$ 30.2 M*	$ 34.0 M*
ALVIN, Aircraft, etc.	1.4 M	1.8 M	1.3 M	1.5 M
Marine Techs	3.7 M	4.0 M	4.3 M	4.6 M
	27.5 M	32.5 M	35.8 M	40.1 M
Infrastructure				
Science Instruments	$ 1.8 M	$ 1.9 M	$ 4.0 M	$ 4.5 M
Shipboard Equipment	2.1 M	2.2 M		
Ships, Upgrades	3.4 M	3.7 M	3.3 M	6.1 M
UNOLS, Misc.	0.6 M	0.6 M	0.7 M	0.7 M
	7.9 M	8.4 M	8.0 M	11.3 M
Technology, Centers, Reserves				
Technology Development	$ 3.5 M	$ 4.2 M	$ 4.5 M	$ 5.0 M
AMS Center	1.8 M	1.7 M	1.5 M	1.1 M
Cross Directorate/Reserves	1.8 M	0.9 M	1.8 M	1.8 M
	7.1 M	6.8 M	7.8 M	7.9 M

* *Plus $1.0 M from ODP (1990), $1.6 M (1991 and 1992) , $1.5 M (1993)*

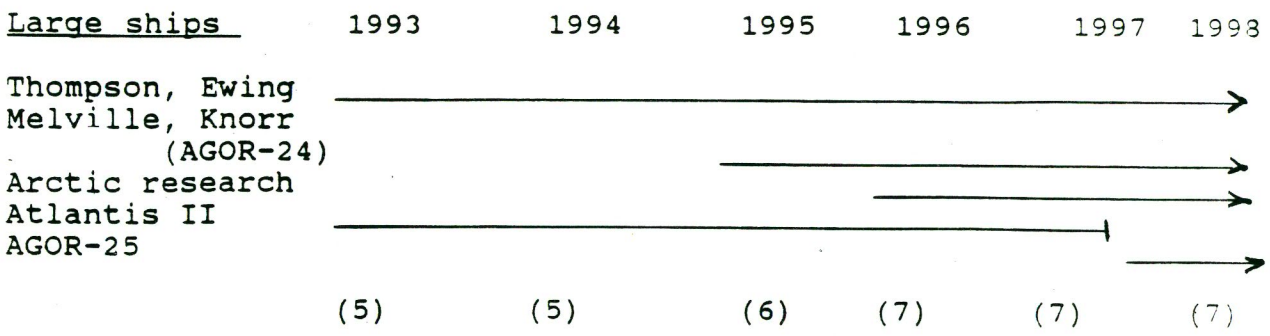
NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

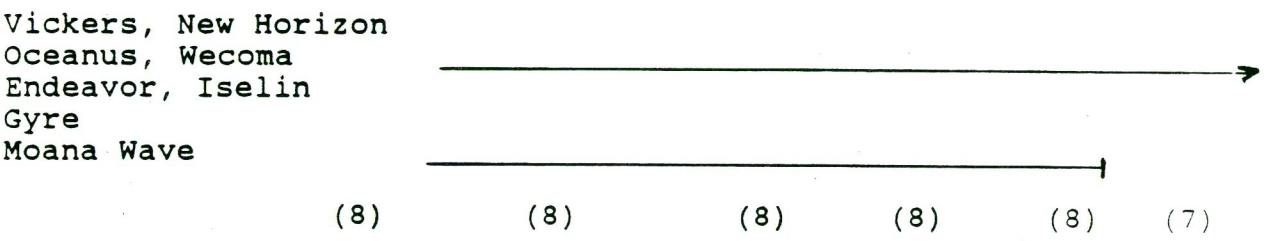
Academic Fleet Projections
(1993-1998)

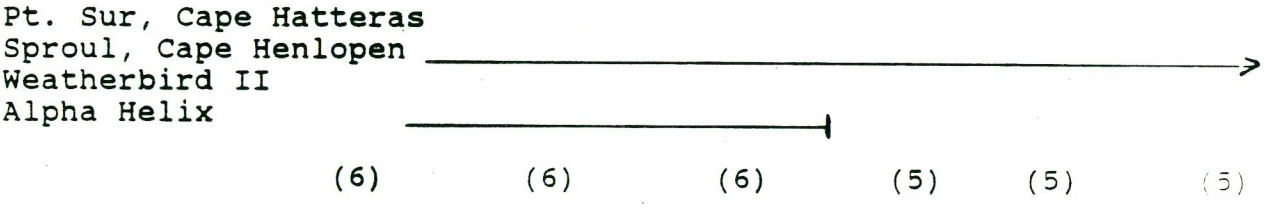
Fleet Models

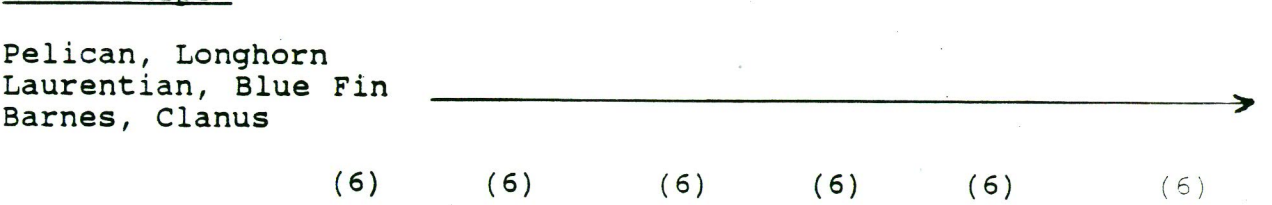
(1) Conventional (NSF/ONR)

. Based on existing academic fleet plus currently identified NSF/ONR new/replacement ships and planned retirements. (Feb. 1992 status)









Special purpose -JSL

S. Johnson, E. Link	(2)	(2)	(2)	(2)	(2)	(2)
TOTAL	27	27	28	28	28	27

Comments/Notes

- Funds to initiate construction contract for Arctic research vessel included in NSF FY 1993 budget request. Major construction in 1994/1995.
- Funds for (AGOR-24) in FY 1992 Navy budget. AGOR-25 funds to be requested in FY 1994 Navy budget.
- Knorr to replace Atlantis II as submersible support vessel in 1998 coincident with AGOR-25 delivery. (WHOI proposal to ONR for AGOR-25 assignment)
- Gyre to be converted from ONR-ship to institution ship in 1992. Texas A&M plans to continue operations.
- Moana Wave to be retired by ONR in 1997.
- Alpha Helix to be retired in 1995 as Arctic research vessel completed.
- No stated plans for local/JSL ships. Assume continuation.

(2) National research fleet (NSF/NOAA/ONR)

- Based on existing academic fleet, NSF/ONR construction/retirement plans plus NOAA fleet replacement additions.

Note: Time lines cannot be drawn since no formal plans or agreements exist. Concepts/proposals outlined only.

Large/Intermediate ships

- Two (or three?) additional large ships be added at Hawaii and Miami (Texas?). Fifty/fifty operations for academic and NOAA research requirements. Moana Wave and Iselin (Gyre?) replaced by the new dual role ships.

- Profile of university-based research fleet changes from 7 large ships/8 intermediate ships to 9 large/ 6 intermediate ships.

Regional/local ships

- Need for next generation coastal research vessels recognized by academic institutions and NOAA. Proposed cooperative construction/ operations actions to meet national research requirements.

- Cape Henlopen/Warfield (retired) replacement in conceptual design phase. Mid-Atlantic focus.

- UNOLS also developing requirements/ approaches for other regions-i.e. west coast, including Alaska, Gulf, and entire eastern coast.

Issues/ Question/ Concerns

UNOLS

- UNOLS Fleet Improvement Plan (May 1990) issued pre-AGOR 24 and 25 assignments. Need for update on large/ intermediate ship balance?
- UNOLS Fleet Improvement Plan includes next-generation coastal vessels in post-2000 time period. General recognition time frame too long. Need for update on capabilities/ requirements and federal approach?
- UNOLS views on National Research Fleet vs. Conventional (NSF/ONR) Fleet. Planning/ advising role?
- UNOLS views on ALVIN future, support vessel, and relation to this submersible science capabilities. Timing.
- UNOLS analysis of institution operations vs. lease/ charter of academic research ships.

NSF

- Fleet management/ operational support for existing and planned ships. Efficient use of academic research fleet requires additional resources from non-NSF source.
- Capital sources for next-generation coastal ships and intermediate ships if NOAA funds not available.
- Fleet profile to meet science requirement over next decades. Too many large ships? New designs? Geographic distribution? National requirements?

ONR/NOAA/USGS/EPA/DOE/MMS

.??????

NSF plans/ studies- 1992

- Large ship costs, staffing and operating procedures.
  Action: Special focus NSF panel will review.

- ALVIN/ AtlantisII/ MOA
  Action: Interagency policy and procedures must be agreed
  Comment: ONR projects declining use of ALVIN, increased ROV use. NOAA management changing, future of NURP. NSF concerns with Atlantis II costs, capabilities and projected lifetime. Major revision to program?

- Arctic research vessel
  Action: Complete preliminary design and initiate construction contract in FY1993.

- Intermediate/ coastal research vessels
  Action: Include capital funds in FY1996-98 long range planning. Coordinate with NOAA plans.

- Operations, inspections, ship scheduling, etc.
  Action: Continue working with UNOLS to improve process and procedures.

NATIONAL SCIENCE FOUNDATION
1800 G STREET N.W.
WASHINGTON, D.C. 20550

DIVISION OF OCEAN SCIENCES
OCEANOGRAPHIC CENTERS AND FACILITIES SECTION

February 21, 1992

TO: UNOLS Council

FROM: D. Heinrichs, SH/OCFS DH

SUBJECT: Discussion memorandum on 1992 Ship Operations

Proposed UNOLS Operations - 1992

Background

- Many statements have been made regarding the $51.9 million requested by UNOLS institutions for 1992 operations.
- Most comments have suffered from a lack of distinction from "requested support" and "required support" to meet operational needs.
- Little attention has been directed to management issues to contain costs.

Material

- Attached tables are developed from NSF ship operations proposals submitted for 1992 operations. Proposals were received in October 1990, except for late Woods Hole Oceanographic Institution submission in November 1990.
- Costs, staffing, etc. are institution requests not negotiated final budgets.
- Major items included are sources of support in 1990 and 1991 with requested amounts for 1992; distinction between classes of research ships and institutional groups; staffing and "fixed cost" variables; and crew cost variables.
- Preliminary tables for revised sources of support and total fleet costs are incomplete owing to the inability of NSF to obtain a timely response from Woods Hole. Total costs at Woods Hole will be less than their preliminary revision.

Comment

- Largest single factor for differences in cost for ships in same class is crew size coupled to institutional compensation policies for overtime/shore leave and fringe benefits. Woods Hole and Lamont have most generous policies, followed by Oregon State, Miami, Washington and Rhode Island, all other institutions below 100% addition to base salaries.

- Shore staff levels vary significantly for large and intermediate ship operations. Highest costs are identified with intermediate ships particularly Iselin, Moana Wave and Wecoma. Cape Hatteras costs high for its class.

- Indirect costs are included as general reference plus some institutions direct charge staff included as indirect at other institutions.

- Insurance costs, shore/miscellaneous expenses, and crew rotation/travel costs (not shown) also vary significantly for various institutions.

Action

- NSF management has negotiated reduced operating costs for most institutions.

- NSF will convene special focus review panel to examine large ship costs, staffing and operating procedures.

- Shore staff support levels (FTE) will be examined for potential savings in future years.

UNOLS Operations Support*
(1990-1992)

All UNOLS	Actual 1990	Estimate 1991	Request 1992	Revised ** 1992
NSF	21,188	27,151	38,133	36,042
ONR	5,545	5,268	4,431	4,257
NOAA	2,535	2,109	4,299	4,340
OTHER	2,514	2,990	2,724	3,582
INST.	2,504	2,061	2,356	2,475
	$34,286	$39,579	$51,943	50,696
Non-JOI				
NSF	4,704	6,040	5,921	5,739
ONR	248	252	188	90
NOAA	1,260	1,407	3,346	3,465
OTHER	1,109	1,559	1,698	2,074
INST.	1,488	1,053	956	1,056
	$8,809	$10,311	$12,109	12,424
JOI Insts				
NSF	16,484	21,111	32,212	30,303
ONR	5,297	5,016	4,243	4,167
NOAA	1,275	702	953	875
OTHER	1,405	1,431	1,026	1,508
INST.	1,016	1,008	1,400	1,419
	$25,477	$29,268	$39,834	38,272
ALVIN				
NSF	948	1,571	1,068	-
ONR	502	159	92	-
NOAA	406	175	578	-
OTHER	64	-	137	-
	$1,920	$1,905	$1,875	-

* Source: NSF Ship Operations proposals (1992).
** Incomplete. Woods Hole revisions not complete.
Totals will be reduced for NSF, ONR, NOAA.

Proposed Ship Operations - 1992

	Ships	Op.days	Costs	Ave
"Class I"	Washington/ Melville.	306	4,018,620	
	Knorr	271	4,911,062	$4.4M
	Thompson	277	4,259,644	285 Days
		854	13,189,326	
"Class II"	Ewing	314	5,115,374	$3.7M
	Atlantis II	208	3,882,736	261 days
	Moana Wave	284	2,912,702	
	Vickers	239	2,813,379	
		1045	14,724,191	
"Class III"	Oceanus	311	2,515,368	
	Wecoma	292	2,575,473	
	Endeavor	203	2,528,152	$2.0M
	Iselin	236	2,491,216	214 days
	Gyre	123	972,000	
	New Horizon	219	2,017,850	
	Seward Johnson	164	1,279,200	
	Edwin Link	164	1,271,400	
		1712	15,650,659	
"Class IV "	Point Sur	193	1,167,694	
	Cape Hatteras	209	1,539,589	$0.9M
	Alpha Helix	136	1,348,121	171 days
	Sproul	158	730,538	
	Cape Henlopen	164	729,538	
	Weatherbird	255	1,045,755	
	Pelican	145	540,000	
	Longhorn	105	315,000	
		1365	7,416,297	
"Class V"	Laurentian	65	275,730	
	Blue Fin	121	199,650	$0.2M
	Barnes	125	226,451	108 days
	Calanus	120	260,640	
		431	962,471	
Total	27	5407	$51,942,944	

Proposed Ship Operations - 1992
Heinrichs Classification

		Op. days	Costs	Ave.
Large	Melville/Wash.	306	4,018,620	$4.4M
	Knorr	271	4,911,062	275 days
	Thompson	277	4,259,644	
	Ewing	314	5,115,374	
	Atlantis II	208	3,882,736	
		1376	22,187,436	
Interm.	Moana Wave	284	2,912,702	$2.6M
	Vickers	239	2,813,379	255 days
	Oceanus	311	2,515,368	(Gyre
	Wecoma	292	2,575,473	omitted)
	Endeavor	203	2,528,152	
	Iselin	236	2,491,216	
	Gyre	123	972,000	
	New Horizon	219	2,017,850	
		1907	18,826,140	
Special purpose				
JSL	Seward Johnson	164	1,279,200	$1.3M
	Edwin Link	164	1,271,400	164 days
		328	2,550,600	
Regional/ open ocean	Point Sur	193	1,167,694	
	Cape Hatteras	209	1,539,589	$1.4M
	Alpha Helix	136	1,348,121	179 days
		538	4,055,404	
Regional	Sproul	158	730,538	$0.8M
	Cape Henlopen	164	726,600	192 days
	WeatherbirdII	255	1,045,755	
		577	2,505,893	
Local	Pelican	145	540,000	
	Longhorn	105	315,000	$0.3M
	Laurentian	65	275,730	114 days
	Blue Fin	121	199,650	
	Barnes	125	226,451	
	Calanus	120	260,640	
		681	1,817,471	
Total	27	5407	$51,942,944	

Proposed Ship Operations - 1992
Heinrichs Classification

	Proposed		Revised *	
	Op. days	Costs	Op. days	Costs
Melville/Wash.	306	4,018,620	283	3,650,173
Knorr	271	4,911,062	271	(4,873,393)
Thompson	277	4,259,644	277	4,036,231
Ewing	314	5,115,374	299	4,733,205
Atlantis II	208	3,882,736	233	(4,084,723)
	1376	22,187,436	1363	($21,377,725)
Moana Wave	284	2,912,702	284	2,829,741
Vickers	239	2,813,379	234	2,691,000
Oceanus	311	2,515,368	314	(2,505,092)
Wecoma	292	2,575,473	299	2,524,105
Endeavor	203	2,528,152	202	2,287,287
Iselin	236	2,491,216	231	2,362,899
Gyre	123	972,000	134	824,000
New Horizon	219	2,017,850	215	2,014,594
	1907	18,826,140	1913	($18,038,718)
Seward Johnson	164	1,279,200	200	1,560,000
Edwin Link	164	1,271,400	163	1,271,400
		328	363	$2,831,400
Point Sur	193	1,167,694	198	1,136,767
Cape Hatteras	209	1,539,589	193	1,383,038
Alpha Helix	136	1,348,121	144	1,389,237
	538	4,055,404	535	$3,909,042
Sproul	158	730,538	165	759,050
Cape Henlopen	164	726,600	180	1,071,000
WeatherbirdII	255	1,045,755	258	986,334
	577	2,505,893	603	$2,816,384
Pelican	145	540,000	110	508,980
Longhorn	105	315,000	105	315,000
Laurentian	65	275,730	65	249,164
Blue Fin	121	199,650	123	179,115
Barnes	125	226,451	125	226,451
Calanus	120	260,640	116	243,716
	681	1,817,471	644	$1,722,426
27	5407	$51,942,944	5413	$50,695,695

* Incomplete. Woods Hole budgets not completed. Totals will be reduced.

Proposed Costs - 1992

Shore staff/Indirect Cost Variables

(Large, Intermediate, Regional Ships)

Large ships	Number*	Cost	Indirect Costs	Total
Washington	4.1	$122.2	$142.2	$264.4
Melville	8.8	$261.6	$304.3	$565.9
Knorr	9.0	$228.8	$540.6	$769.4
Atlantis II	7.4	$186.6	$440.6	$627.2
Ewing	16.0**	$411.7	0	$411.7
Thompson	3.0	$146.5	$374.8	$521.3
Intermediate				
Moana Wave	12.0	$436.82	$277.9	$714.7
Vickers	8.0	$198.4	$269.0	$467.4
Oceanus	4.6	$133.9	$268.9	$382.8
Wecoma	9.0	$315.6	$179.4	$495.0
Endeavor	4.0	$253.7	$352.9	$606.8
Iselin	9.0	$539.1	$270.7	$809.8
New Horizon	6.0	$179.3	$244.2	$403.5
Gyre	-	-	-	-
Regional/open ocean				
Point Sur	3.0	$164.7	$140.2	$304.9
Cape Hatteras	5.0	$204.6	$186.4	$391.0
Apha Helix	5.0	$109.9	$255.8	$365.7
Regional				
Sproul	2.1	$62.1	$81.2	$143.3
Cape Henlopen	3.0	$123.9	0	$123.9
WeatherbirdII	3.0	$88.0	$135.7	$223.7

Local

Not calculated.

*Multiship operations prorated by budget amounts. Number of staff not FTE. ** Includes 10 administrative staff identified with "indirect cost" functions.

Proposed Costs - 1992

Crew Costs Variables
(Large, Intermediate, Regional Ships)

Crew		Ave. Salary	Percent of base salary OT	SL	Combined	Fringe	Total	Total
Large ships								
Washington	(23)	$30.6	32.0	1.5	33.5	21.9	55.4%	$603.[illegible]
Melville	(23)	$32.2	36.8	7.0	43.8	21.9	65.7%	$945.[illegible]
Knorr	(25)	$31.7	75.0	41.0	116.0	76.3	192.3%	$2,313.[illegible]
Atlantis II	(27)	$23.1	83.0	43.7	126.7	79.8	206.5%	$1,903.[illegible]
Ewing	(22)	$39.1	44.4	51.1	95.5	44.5	140.0%	$2,065.[illegible]
Thompson	(22)	$35.0	66.9	12.6	79.5	33.5	113.0%	$1,641.[illegible]
Intermediate								
Moana Wave	(17)	$30.9	27.6	29.2	56.8	25.8	82.6%	$938.[illegible]
Vickers	(14)	$29.8	41.9	-	41.9	17.7	59.6%	$667.[illegible]
Oceanus	(12)	$37.4	50.1	40.3	90.4	65.5	155.9%	$1,149.[illegible]
Wecoma	(14)	$28.5	60.0	-	60.0	60.5	120.5%	$847.[illegible]
Endeavor	(12)	$32.2	60.4	6.2	66.6	33.9	100.5%	$774.[illegible]
Iselin	(13)	$24.7	55.5	7.5	63.0	55.8	118.8%	$702.[illegible]
New Horizon	(12)	$31.8	37.2	5.2	42.4	22.0	64.4%	$628.[illegible]
Gyre	-	-	-	-	-	-	-	
Regional/ open ocean								
Point Sur	(8)	$39.6	32.0	-	32.0	24.4	54.4%	$512.[illegible]
Cape Hatteras	(10)	$36.9	21.1	-	21.1	24.1	45.2%	$535.[illegible]
Alpha Helix	(8)	$31.2	46.8	-	46.8	40.8	87.6%	$469.[illegible]
Regional								
Sproul	(5)	$28.0	32.1	-	32.1	22.1	54.2%	$[illegible]
Cape Henlopen	(9)	$27.7	21.3	-	21.3	36.9	58.2%	$[illegible]
Weatherbird	(7)	$34.2	17.6	8.4	26.0	12.6	38.6%	$[illegible]
Local								

Not calculated.

Large Ship Operations Costs*
(Proposed/Adjusted - 1992)

	EWING	MELVILLE 100%	THOMPSON	KNORR	ATLANTIS II
S&W					
Ship	2,066	1,331	1,641	2,319	1,908
Shore	169	368	146	229	187
	2,235	1,699	1,787	2,548	2,095
R&M					
Repair	130	151	120	150	200
Overhaul	350	401	277	250	400
	480	552	397	400	600
Other					
Fuel	774	515	732	504	229
Food	151	152	295	176	104
Insure	269	32	145	35	61
Stores	194	161	120	208	103
Travel	208	46	112	249	71
Shore	142	164	61	69	56
Misc.	256	107	235	181	136
	1,993	1,177	1,700	1,423	747
Indirect	243	429	375	540	441
Total	$4,951	$3,858	$4,260	$4,911	$3,883
Op. days	314	268	277	271	208
Rate	$15.8k	$14.4k	$15.4k	$18.1k	$18.7k

*MELVILLE proposed costs projected on prorata basis from 71% operations year to 100% operations.

RESEARCH CLEARANCE SUMMARY 01/01/91 TO 12/31/91

CRUISE	SHIP TITLE	COASTAL STATE	START	END
90-096	PERMIT - STINSON	Mexico	01/01/91	01/31/91
90-066	NOAA MALCOLM BALDRIGE	Bahamas Turks and Caicos British Virgin Is. Montserrat Haiti Dominican Republic Netherlands Antilles St. Kitts and Nevis Guadeloupe Martinique French Guiana Dominica St. Lucia Barbados Trinidad and Tobago Guyana Suriname Brazil	01/03/91	02/01/91
90-097	NOAA DELAWARE II	Canada	01/03/91	01/18/91
90-108	R/V COLUMBUS ISELIN	British Virgin Is.	01/08/91	01/26/91
90-117	R/V ABEL J	South Georgia/UK South Georgia/Arg.	01/08/91	01/27/91
90-070	NOAA OREGON II	Mexico	01/09/91	02/20/91
90-087	R/V CORWITH CRAMER	British Virgin Is. Anguilla Netherlands Antilles	01/13/91	02/08/91
90-088	R/V WESTWARD	British Virgin Is. Anguilla Netherlands Antilles St. Martin	01/14/91	02/03/91
90-125	NOAA DELAWARE II	Canada	01/23/91	02/01/91
90-102	R/V COLUMBUS ISELIN	Bahamas Haiti Dominican Republic Turks and Caicos British Virgin Is. Anguilla Montserrat Antigua and Barbuda	01/28/91	02/17/91

CRUISE	SHIP TITLE	COASTAL STATE	START	END
		St. Kitts and Nevis St. Martin Guadeloupe Martinique Saba Dominica		
90-034	PERMIT - COLE	Mexico	02/01/91	03/15/91
90-101	PERMIT - FOSTER/STELLER	Mexico	02/01/91	12/30/91
90-098	NOAA DELAWARE II	Canada	02/06/91	02/21/91
90-094	R/V WESTWARD	British Virgin Is. Montserrat Cayman Islands Saba Bonaire Curacao Aruba Guadeloupe Martinique Dominica St. Lucia St. Vincent Venezuela Haiti Dominican Republic Colombia Jamaica Honduras Mexico	02/12/91	03/25/91
90-093	R/V CORWITH CRAMER	British Virgin Is. Montserrat Cayman Islands Saba Bonaire Curacao Aruba Guadeloupe Martinique Dominica St. Lucia St. Vincent Venezuela Haiti Dominican Republic Colombia Jamaica Honduras	02/14/91	03/27/91

CRUISE	SHIP TITLE	COASTAL STATE	START	END
		Mexico		
91-012	USNS CHAUVENET/HARKNESS	Egypt	03/01/91	12/31/92
91-013	USNS CHAUVENET/HARKNESS	Oman	03/01/91	12/31/93
91-014	USNS CHAUVENET/HARKNESS	Saudi Arabia	03/01/91	12/31/93
91-106	USNS HARKNESS	Diego Garcia	03/01/91	12/31/93
90-113	R/V MOANA WAVE	New Caledonia Papua New Guinea Solomon Islands Micronesia	03/02/91	04/02/91
90-115	R/V OCEANUS	Bermuda Turks and Caicos	03/02/91	03/26/91
91-004	R/V GYRE	Mexico	03/02/91	03/10/91
91-002	NOAA DELAWARE II	Canada	03/04/91	04/19/91
90-082	R/V ATLANTIS II	Mexico	03/06/91	03/24/91
90-080	R/V ROBERT G. SPROUL	Mexico	03/08/91	03/27/91
90-107	R/V ENDEAVOR	Canada Greenland	03/22/91	04/24/91
90-126	R/V COLUMBUS ISELIN	Bermuda	03/29/91	04/05/91
91-010	R/V WESTWARD	Bahamas	03/29/91	04/11/91
90-079	PERMIT - BAYNES	Mexico	03/30/91	05/31/91
90-060	M/V GECO APOLLO	Mexico	04/01/91	06/15/91
90-092	R/V SEWARD JOHNSON	Spain Morocco	04/04/91	04/28/91
91-007	NOAA DISCOVERER	Canada	04/10/91	04/26/91
90-111	R/V COLUMBUS ISELIN	Martinique Dominica St. Lucia St. Vincent Barbados	04/11/91	05/13/91
90-104	R/V CORWITH CRAMER	Turks and Caicos Bermuda Bahamas	04/16/91	05/27/91

CRUISE	SHIP TITLE	COASTAL STATE	START	END
		Dominican Republic		
90-105	R/V WESTWARD	Bermuda Bahamas Canada Turks and Caicos Dominican Republic	04/17/91	05/28/91
90-106	R/V MOANA WAVE	Philippines Papua New Guinea Solomon Islands	04/21/91	05/09/91
91-016	R/V CAPE HATTERAS	Canada	04/21/91	04/30/91
90-120	R/V SEWARD JOHNSON	France	04/29/91	05/11/91
90-109	R/V OCEANUS	Spain Portugal Cape Verde	05/01/91	07/23/91
91-001	R/V THOMAS WASHINGTON	Clipperton Island Mexico	05/01/91	05/18/91
90-112	R/V JOIDES RESOLUTION	Clipperton Island Ecuador	05/05/91	07/05/91
91-029	NOAA DISCOVERER	Canada	05/09/91	05/31/91
91-018	R/V MOANA WAVE	Papua New Guinea	05/11/91	05/19/91
90-100	R/V MAURICE EWING	French Polynesia	05/12/91	06/16/91
90-119	R/V SEWARD JOHNSON	France Spain	05/14/91	05/19/91
91-006	R/V MOANA WAVE	Papua New Guinea	05/23/91	06/12/91
90-116	R/V SEWARD JOHNSON	Madeira Islands Canary Islands	05/24/91	06/18/91
91-008	R/V THOMAS WASHINGTON	French Polynesia Pitcairn Island	05/28/91	09/26/91
91-022	R/V CAPE HATTERAS	Bermuda	05/29/91	05/30/91
91-023	R/V CAPE HATTERAS	Bermuda	06/01/91	06/05/91
91-047	NOAA CHAPMAN	Canada	06/06/91	07/16/91
90-121	R/V COLUMBUS ISELIN	Belize	06/07/91	06/27/91

CRUISE	SHIP TITLE	COASTAL STATE	START	END
91-037	R/V ENDEAVOR	Bahamas Bermuda Dominican Republic Turks and Caicos British Virgin Is. Anguilla Antigua and Barbuda St. Martin	06/08/91	07/28/91
91-024	R/V CAPE HATTERAS	Bermuda	06/10/91	06/11/91
90-122	NOAA MALCOLM BALDRIGE	Bahamas Turks and Caicos British Virgin Is. Montserrat Haiti Dominican Republic Netherlands Antilles St. Kitts and Nevis Guadeloupe Martinique French Guiana Dominica St. Lucia Barbados Trinidad and Tobago Guyana Suriname Brazil	06/12/91	07/04/91
91-025	R/V CAPE HATTERAS	Bermuda	06/12/91	06/15/91
91-005	R/V MOANA WAVE	Papua New Guinea	06/16/91	07/28/91
91-026	R/V CAPE HATTERAS	Bermuda	06/17/91	06/25/91
91-032	R/V OSPREY	Bahamas	06/17/91	08/23/91
90-110	R/V POLAR DUKE	South Georgia/UK South Georgia/Arg.	06/18/91	07/31/91
90-124	F/T CONTINUITY	Soviet Union	06/21/91	08/31/91
91-027	R/V CAPE HATTERAS	Bermuda	06/26/91	06/26/91
91-028	R/V CAPE HATTERAS	Bermuda	06/27/91	06/30/91
91-030	R/V CORWITH CRAMER	Canada St. Pierre/Miquelon	06/27/91	08/07/91
90-123	M/V TIGLAX	Soviet Union	06/30/91	07/15/91

CRUISE	SHIP TITLE	COASTAL STATE	START	END
91-038	R/V CAPE HATTERAS	Canada	07/05/91	07/14/91
91-048	NOAA DISCOVERER	Kiribati	07/07/91	07/27/91
91-045	R/V ATLANTIS II	Canada	07/09/91	07/31/91
91-033	NOAA MALCOLM BALDRIGE	Ascension Island	07/10/91	09/02/91
91-055	R/V JOIDES RESOLUTION	Canada	07/10/91	09/11/91
91-017	R/V WESTWARD	Canada Bermuda St. Pierre/Miquelon	07/11/91	08/21/91
91-034	R/V CAPE HATTERAS	Bermuda	07/16/91	07/30/91
91-068	M/V ARGO MAINE	Canada	07/19/91	08/03/91
91-051	R/V ABEL-J	Canada	07/22/91	08/30/91
91-053	NOAA DELAWARE II	Canada	07/22/91	08/02/91
91-035	R/V THOMAS G. THOMPSON	Cayman Islands Panama	07/23/91	08/21/91
91-042	USSR SOVETSKIY SOYUZ	Soviet Union	07/26/91	08/18/91
91-036	R/V ENDEAVOR	Canada	07/28/91	08/06/91
91-054	NOAA OREGON II	Canada	07/28/91	08/21/91
90-127	NOAA JORDAN/MCARTHUR	Mexico Clipperton Island Guatemala Costa Rica Colombia Ecuador Peru Panama Honduras Nicaragua El Salvador	07/29/91	12/07/91
91-044	R/V OCEANUS	Bermuda	07/29/91	08/22/91
91-058	R/V NEREID	Canada	07/29/91	10/22/91
91-015	R/V MOANA WAVE	Marquesas Island	08/01/91	09/02/91
91-031	R/V SIRIUS	Canada	08/01/91	09/30/91

CRUISE	SHIP TITLE	COASTAL STATE	START	END
91-040	NOAA AIRCRAFT	Mexico	08/01/91	10/31/91
91-003	NOAA MILLER FREEMAN	Soviet Union	08/02/91	08/29/91
91-060	R/V ATLANTIS II	Canada	08/04/91	08/13/91
91-059	M/V SNEAK ATTACK	Canada	08/10/91	09/30/91
91-073	R/V CORWITH CRAMER	Canada	08/12/91	08/25/91
91-039	USCGC POLAR STAR	Soviet Union	08/13/91	10/04/91
91-050	R/V LAURENTIAN	Canada	08/16/91	09/08/91
91-052	R/V LE NOROIT	Micronesia Papua New Guinea	08/16/91	09/10/91
91-062	M/V ISLAND QUEEN	Canada	08/20/91	10/15/91
91-056	R/V CAPTAIN'S LADY	Bahamas	08/21/91	09/15/91
91-009	R/V COLUMBUS ISELIN	Bahamas Turks and Caicos Haiti Jamaica	08/29/91	09/18/91
90-083	NOAA AIRCRAFT	Mexico	09/01/91	09/30/91
91-011	NOAA MALCOLM BALDRIGE	Bahamas Turks and Caicos British Virgin Is. Montserrat Haiti Dominican Republic Netherlands Antilles St. Kitts and Nevis Guadeloupe Martinique French Guiana Dominica St. Lucia St. Vincent Grenada Trinidad and Tobago Guyana Suriname Brazil	09/06/91	09/21/91
91-082	NOAA DELAWARE II	Canada	09/09/91	10/25/91

CRUISE	SHIP TITLE	COASTAL STATE	START	END
91-046	R/V ATLANTIS II	Canada	09/10/91	10/17/91
91-079	NOAA/NMFS AIRCRAFT	Canada	09/16/91	10/25/91
91-020	NOAA SURVEYOR	Soviet Union	09/19/91	11/01/91
91-019	R/V COLUMBUS ISELIN	Brazil	09/22/91	12/08/91
90-118	R/V MAURICE EWING	French Polynesia	09/27/91	10/27/91
90-010	M/V DON JOSE	Mexico	10/01/91	12/31/91
91-049	R/V WESTWARD	Guadeloupe Antigua and Barbuda Bermuda Dominica Martinique St. Lucia Barbados St. Vincent Trinidad and Tobago Grenada Montserrat St. Kitts and Nevis Saba	10/09/91	11/19/91
91-083	M/V BABY MAX	Bahamas	10/09/91	11/08/91
91-076	R/V CORWITH CRAMER	Netherlands Antilles St. Kitts and Nevis Antigua and Barbuda Bermuda Montserrat Guadeloupe Martinique Dominica St. Lucia St. Vincent Grenada Trinidad and Tobago Barbados	10/10/91	11/20/91
91-069	NOAA DISCOVERER	Clipperton Island	10/15/91	11/13/91
91-081	R/V THOMAS G. THOMPSON	Canada	10/27/91	01/13/92
91-086	NOAA DELAWARE II	Canada	11/04/91	11/18/91
91-041	R/V ENDEAVOR	Bahamas	11/16/91	11/27/91
91-043	R/V JOIDES RESOLUTION	Chile	11/17/91	01/13/92

CRUISE	SHIP TITLE	COASTAL STATE	START	END
91-074	R/V WESTWARD	Venezuela Honduras Netherlands Antilles St. Vincent Martinique St. Lucia Grenada Dominican Republic Haiti Jamaica Colombia Mexico	11/26/91	01/06/92
91-075	R/V CORWITH CRAMER	Venezuela Netherlands Antilles Dominican Republic Turks and Caicos Haiti Jamaica Mexico Cayman Islands	11/27/91	01/07/92
91-095	HMBS TRIDENT	Antigua and Barbuda Martinique Guadeloupe Dominica St. Lucia St. Vincent Grenada Barbados	12/01/91	12/31/93
91-087	NOAA DELAWARE II	Canada	12/02/91	12/17/91
91-096	NOAA ALBATROSS IV	Canada	12/02/91	12/20/91
91-088	R/V CAPE HATTERAS	Bahamas	12/03/91	12/13/91
91-021	R/V JOHN V. VICKERS	Mexico	12/07/91	12/08/91
91-061	R/V THOMAS WASHINGTON	Japan	12/07/91	12/27/91
91-057	NOAA SURVEYOR	Chile	12/13/91	04/22/92
91-098	R/V ATLANTIS II	Mexico	12/19/91	01/03/92
91-084	R/V THOMAS WASHINGTON	Micronesia Marshall Island Japan	12/30/91	01/29/92

CRUISE CANCELLATION, DENIALS AND COMMENTS

90-096 PERMIT - STINSON 01/01/91 01/31/91
- Cruise cancelled
- Although the request was made over a year in advance, no response was ever received from Mexico, and the research had to be cancelled.

90-108 R/V COLUMBUS ISELIN 01/08/91 01/26/91
- Request received 2 months late, however, UK clearance was granted at the last minute.

90-117 R/V ABEL J 01/08/91 01/27/91
- Request received with only a month's notice, however, approvals were received from both the UK and Argentina for disputed areas near the South Georgia Islands.

90-070 NOAA OREGON II 01/09/91 02/20/91
- Cruise cancelled
- Although the request was made 6 months in advance for a fully-cooperative project with SEPESCA, the permit was not issued in time to finalize arrangements for research cruise. The research was cancelled.

90-102 R/V COLUMBUS ISELIN 01/28/91 02/17/91
- Request received with only 3 months notice. Approvals for Dominica, Haiti, Dominican Republic, and Antigua and Barbuda were all received late, however, France (4 months notice required) approved at the last minute. All research was conducted as scheduled.

90-034 PERMIT - COLE 02/01/91 03/15/91
- Request denied
- Although request was made 10 months in advance, permit was issued too late for scientist to use. He had to reschedule for 1992.

90-101 PERMIT - FOSTER/STELLER 02/01/91 12/30/91
- This request was made late, and without all material required by Mexico. No response was ever received from Mexico.

90-094 R/V WESTWARD 02/12/91 03/25/91
- All requests were made 5 months in advance. However, Venezuela, Mexico, Colombia, and Haiti all responded late. Research was conducted according to schedule.

90-093 R/V CORWITH CRAMER 02/14/91 03/27/91
- All requests were made 5 months in advance. Venezuela responded one week late, Mexico and Colombia responded 2 weeks late, and Haiti responded nearly a month late. However, all research was conducted according to schedule.

91-012 USNS CHAUVENET/HARKNESS 03/01/91 12/31/92
- U.S. Navy hydrographic survey.

91-013 USNS CHAUVENET/HARKNESS 03/01/91 12/31/93
- U.S. Navy hydrographic survey.

91-014 USNS CHAUVENET/HARKNESS 03/01/91 12/31/93
- U.S. Navy hydrographic survey.

91-106 USNS HARKNESS 03/01/91 12/31/95
- U.S. Navy hydrographic surveys.

91-004 R/V GYRE 03/02/91 03/10/91
- Although this research was fully cooperative with the Mexican Secretaria de Marina, it was not approved by the Mexican Foreign Ministry until two days prior to ship's sailing.

90-082 R/V ATLANTIS II 03/06/91 03/24/91
- Request was made 6 months in advance, however, approval was not given until one week before the research cruise.

90-080 R/V ROBERT G. SPROUL 03/08/91 03/27/91
- Request made 6 months in advance, however, approval was not received until 2 weeks before research cruise.

90-079 PERMIT - BAYNES 03/30/91 05/31/91
- Cruise cancelled
- Although the request was made over 6 months in advance, neither SEDUE or PESCA ever responded. The research was cancelled.

90-060 M/V GECO APOLLO 04/01/91 06/15/91
- Request denied
- Although the request was made a year in advance, the permit was not issued in time to schedule the vessel for the project. The project had to be postponed until 1992.

90-092 R/V SEWARD JOHNSON 04/04/91 04/28/91
- Although requests were made over 6 months in advance, approvals from both Spain and Morocco were received at the very last minute.

90-111 R/V COLUMBUS ISELIN 04/11/91 05/13/91
- Research was not conducted in French waters, because local authorities would not permit research inside the territorial sea of Martinique.

90-104 R/V CORWITH CRAMER 04/16/91 05/27/91
- Request made 5 months in advance, however, both the Dominican Republic and the UK approved at the last minute.

90-105 R/V WESTWARD 04/17/91 05/28/91
- Turks and Caicos and the Dominican Republic were cancelled and Canada added at the last minute.

91-001 R/V THOMAS WASHINGTON 05/01/91 05/18/91
- Cruise cancelled
- Research cancelled due to lack of funding.

90-100 R/V MAURICE EWING 05/12/91 06/16/91
- Request was made 6 months in advance, but after several changes in the schedule, the approval was given at the last minute.

90-119 R/V SEWARD JOHNSON 05/14/91 05/19/91
- Request submitted 2 months late for Spain, however, approval given at last minute.

91-037 R/V ENDEAVOR 06/08/91 07/28/91
- Request received 3 months late, however, all approvals were received prior to start of research.

91-025 R/V CAPE HATTERAS 06/12/91 06/15/91
- Cruise cancelled

90-110 R/V POLAR DUKE 06/18/91 07/31/91
- Requests made to both the UK and Argentina for research in the disputed area near South Georgia Islands.

90-124 F/T CONTINUITY 06/21/91 08/31/91
- Request denied
- Request received with only 5 months notice. Request denied for insufficient notice.

91-042 USSR SOVETSKIY SOYUZ 07/26/91 08/18/91
- Cruise cancelled
- Request made 3 months late. Request denied because of insufficient notice.

90-127 NOAA JORDAN/MCARTHUR 07/29/91 12/07/91
- Cruise cancelled
- Request cancelled by NOAA.

91-040 NOAA AIRCRAFT 08/01/91 10/31/91
- Request for waiver of Mexican 5-day landing notice for flying into Pacific hurricanes.

91-039 USCGC POLAR STAR 08/13/91 10/04/91
- Request denied
- Request received 3 months late. Request denied because of insufficient notice.

91-052 R/V LE NOROIT 08/16/91 09/10/91
- NOAA requested clearances for a French vessel conducting TOGA research.

91-056 R/V CAPTAIN'S LADY 08/21/91 09/15/91
- USGS charter.

91-009 R/V COLUMBUS ISELIN 08/29/91 09/18/91
- Clearance requests for Haiti and Jamaica were cancelled owing to revision to research. No response was received from the Turks and Caicos

Islands. Research conducted in Bahamian waters.

90-083 NOAA AIRCRAFT 09/01/91 09/30/91
- Although this was described by the sponsors, and verified by Mexican support letter, as a cooperative venture under the MEXUS GULF agreement, research request was denied by the government of Mexico, four months after scheduled start of research. The cruise was initially scheduled for 1 October 1990 to 1 February 1991, but had to be rescheduled to 1-30 September 1991. Even though this marine mammal project was now confirmed to be included under the referred joint fisheries agreement, approval was received over a week late for the revised survey period. The research was, however, conducted on a revised basis.

90-010 M/V DON JOSE 10/01/91 12/31/91
- Request denied by Mexico for non-provision of material which had been provided, at least once. Originally scheduled for 10/07/90 to 10/14/90.

D. Wilke decided to pursue this request and submitted additional information clarifying certain points that SEDUE had in reference to this collection.

91-083 M/V BABY MAX 10/09/91 11/08/91
- NOAA charter.

91-076 R/V CORWITH CRAMER 10/10/91 11/20/91
- Request made with only 2 months notice, however, French approval received at last minute.

91-074 R/V WESTWARD 11/26/91 01/06/92
- Request submitted with only 4 months notice. Request denied by Mexico and Colombia due to insufficient notice. No response from Haiti.

91-075 R/V CORWITH CRAMER 11/27/91 01/07/92
- Request submitted with only 4 months notice. Request denied by Mexico due to insufficient notice. No response from Haiti.

91-095 HMBS TRIDENT 12/01/91 12/31/93
- Request denied by France. No response from Dominica.

91-021 R/V JOHN V. VICKERS 12/07/91 12/08/91
- Port call only - Manzanillo

91-098 R/V ATLANTIS II 12/19/91 01/03/92
- Port call only. Cancelled.

SUMMARY OF REQUESTS BY COASTAL STATE FOR
01/01/91 TO 12/31/91

COASTAL STATE	# OF REQUESTS
Anguilla	4
Antigua and Barbuda	5
Aruba	2
Ascension Island	1
Bahamas	14
Barbados	6
Belize	1
Bermuda	17
Bonaire	2
Brazil	4
British Virgin Is.	10
Canada	34
Canary Islands	1
Cape Verde	1
Cayman Islands	4
Chile	2
Clipperton Island	4
Colombia	4
Costa Rica	1
Curacao	2
Diego Garcia	1
Dominica	10
Dominican Republic	11
Ecuador	2
Egypt	1
El Salvador	1
France	2
French Guiana	3
French Polynesia	3
Greenland	1
Grenada	5
Guadeloupe	9
Guatemala	1
Guyana	3
Haiti	9
Honduras	4
Jamaica	5
Japan	2
Kiribati	1
Madeira Islands	1
Marquesas Island	1
Marshall Island	1
Martinique	11
Mexico	20
Micronesia	3
Montserrat	8
Morocco	1
Netherlands Antilles	8
New Caledonia	1
Nicaragua	1
Oman	1
Panama	2
Papua New Guinea	6
Peru	1

Philippines	1
Pitcairn Island	1
Portugal	1
Saba	4
Saudi Arabia	1
Solomon Islands	2
South Georgia/Arg.	2
South Georgia/UK	2
Soviet Union	6
Spain	3
St. Kitts and Nevis	6
St. Lucia	10
St. Martin	3
St. Pierre/Miquelon	2
St. Vincent	8
Suriname	3
Trinidad and Tobago	5
Turks and Caicos	10
Venezuela	4

The Department of State received a total of 123 clearance requests for research to be conducted during the period 01/01/91 - 12/31/91 . They represent 333 requests to 73 foreign governments for U.S. research. Of the 123 clearances requested, 4 were denied and 7 were cancelled.

UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

DEC 27

APPENDIX IV

Dr. D. James Baker, President
Joint Oceanographic Institution, Inc.
1775 Massachusetts Avenue, NW
Washington, DC 20036-2102

Dr. Garrett W. Brass, UNOLS Chair
RSNA/MGG
University of Miami
4600 Rickenbacker Causeway
Miami, Florida 33149

Dear Jim and Gary,

I enjoyed meeting with the JOI Board of Governors in San Francisco at the AGU meeting. Hopefully, the discussion cleared the air a bit. At the conclusion of the meeting, the question arose as to whose court the ball was now in. I volunteered.

From my side I would like NOAA to better cooperate with the academic ocean community on a number of issues including ship operations, fully recognizing that NOAA has both missions and priorities that are not identical with those of the members you represent. The question is how to cooperate. NOAA did respond to a University of Southern California initiative for which we have received some criticism. As Craig Dorman and Dick Pittinger noted in their widely discussed letter, there have been a number of individual initiatives from the academic community, but not one that has received the support of all.

When it comes to ship operations, my preference would be to deal with a person, a committee or an organization that could speak for all of you, but as a former member of that community, I know how difficult it can be for the community to speak with one voice on issues such as this. From my perspective, I would prefer to see one body or representative of bodies such as JOI, UNOLS, and perhaps the Ocean Studies Board, work together to make a plan that is acceptable to the academic community. Although we will be prepared to provide appropriate information for developing

THE ADMINISTRATOR

such a plan, I cannot, of course, guarantee that would meet the needs of NOAA, but I presently believe that our interests are sufficiently congruent that we might arrive at an agreed upon joint plan. I, at least, believe it is worth a try. If a joint proposal is not possible, we will continue with the present ad hoc relationships.

Sincerely,

John A. Knauss

cc: RADM G. Chesbrough, Chair, Federal Oceanographic Fleet Coordination Council
Donald Heinrichs, National Science Foundation
Eric Hartwig, Office of Naval Research
Carl Wunsch, Ocean Studies Board
JOI Board of Governors

JOI Joint Oceanographic Institutions INCORPORATED

APPENDIX V

Suite 800
1755 Massachusetts Ave., NW
Washington, DC 20036-2102 USA

Telephone: (202) 232-3900
Telemail: JOI.INC/Omnet
Telex: 7401433 BAKE UC
FAX: (202) 232-8203

February 24, 1992

Dr. John A. Knauss
Undersecretary for Oceans and Atmosphere
National Oceanic and Atmospheric Administration
Department of Commerce, Room 5128
14th Street and Constitution Avenue, NW
Washington, DC 20230

Dear John:

Thank you for your letter of December 27 and your request for a plan for the management of the research fleet, including NOAA's, that would be representative of the academic community's wishes. The JOI Board of Governors will be pleased to work toward achieving a national consensus on these issues of capitalization, operation, and cost- effectiveness of a fully capable fleet to meet the nation's research needs in the short and long term.

To begin this process, the JOI Academic Fleet Committee met in Seattle on January 10, 1992. The Committee prepared the enclosed set of generally accepted principles, which we will use to guide our efforts. These principles represent our view that the time is ripe to achieve real economy of operations of research vessels on a truly national scale. We believe that the principles provide a sound basis for a plan to optimize the use of this expensive and vitally important facility, which we will call the National Research Fleet. If we can achieve agreement on these or similar principles then comprehensive planning can proceed fruitfully.

We plan to continue the detailed planning effort working in consultation with UNOLS. We appreciate your interest in working with us and we hope to continue the constructive dialogue with you, NSF, and the Navy that has begun already. We look forward to working with you to accomplish our mutual goals.

Yours sincerely,

D. James Baker
President

Principles Governing Future National Research Fleet

Prepared by JOI Academic Fleet Committee
January 10, 1992

1. The NOAA Fleet Improvement Plan offers a unique opportunity for the nation to take stock of the facilities needed to conduct the national ocean science research program and to carefully consider the future of the national research fleet in its entirety. The NOAA Plan highlights the complex nature of the situation in the U.S. with regard to research ships. Sea-going oceanographic research has many common elements, whether performed by academia or government. But the fleet that supports this work is segmented, with little commonality or joint planning. The commonality of research needs demands that the commonality of the research fleet should rise to match that of the research itself. The National Research Fleet must have a composition that is capable of meeting the research needs (as differentiated from operational requirements) of academia, NOAA, Navy (OPNAV and ONR), USGS, DOE, and EPA.

2. The nation's academic fleet is cost-effective, nearly optimally configured, and well-managed with UNOLS providing centralized scheduling and competition, and funding agency oversight ensuring consistent pricing procedures. This paradigm is so successful that it argues that all of the research vessels should be so operated as part of the National Research Fleet. We note that the National Research Fleet does not include functions that agencies regard as "operational" such as hydrographic surveys. It seems feasible and highly desirable that ocean research for NOAA, Navy (OPNAV and ONR), and other agencies including NASA, USGS, DOE, and EPA be conducted by the same National Research Fleet.

3. The NOAA Fleet Improvement Plan shows a strong need for large research ships. Of all the elements of the National Research Fleet, the large ships in UNOLS are in the best shape having just been refit or re-capitalized in recent years. These vessels offer an immediate cost-effective solution to the NOAA large research ship needs. They may also partially serve to fulfill the needs of the Navy (in particular, the OPNAV community) for applied ocean research. The current situation within the academic fleet, with three large class one vessels online and two more in the planning stages (AGOR 24 and 25), makes this an excellent time for NOAA and other agencies to make use of these resources. A collaborative relationship in making use of these resources would allow NOAA to focus its fleet modernization program dollars on its operational fleet while at the same time providing the lead into a new era of National Research Fleet operations.

4. Use of the academic community to operate the National Research Fleet provides a widely distributed resource base for NOAA and other agencies. The diversity of operation expertise, fleet composition, and underlying intellectual resources inherent in the academic environment is capable of keeping NOAA oceanographic research at the cutting edge. We note that operation of vessels of the National Research Fleet widely distributed among academic institutions offers significant cost-sharing opportunities. At least three institutions annually cost-share more than $500,000 each and two more institutions have offered $500,000 each to cost-share operations of ships. Engineering support facilities designing and constructing sea-going instrumentation are significantly cost-shared by three institutions where ready availability of a ship has stimulated the growth and continued existence of such facilities. A few institutions cost-share shipboard scientific equipment. Indirectly, widely distributed operational bases that provide ship access under the home institution's control facilitate the test and development of new instrumentation. The presence of a ship as an experimental platform is a necessary incentive to the scientific and technical inventiveness needed for instrument development.

5. National research facilities are best operated by academic institutions. This follows the logic accepted broadly in various disciplines of science and builds on the long-term experience with the academic research fleet. Some of the world's most productive research efforts are supported in this way, for example, the Stanford Linear Accelerator and the Mauna Kea Observatory. The principle that research facilities are best managed by the scientists they serve, whether from academia, industry, or government laboratories is derived from experience. Academic operation of research vessels, usually under stringent fiscal constraints, has served all research scientists extremely well.

6. We note that the changing world situation has reduced the threat of global war to a large extent. It seems clear that the Navy's (in particular, OPNAV's) applied research needs, which have been fulfilled in the recent past by a dedicated fleet of AGORs supporting its laboratories, might now be accomplished in part by UNOLS vessels.

7. It is timely for NOAA to follow the example set by ONR and the National Science Foundation in playing an active role in supporting the National Research Fleet. We specifically cite the NSF and ONR efforts in the past in procuring research vessels, providing them to academia and then providing the necessary research support and operating capital for them. The size, condition, and effectiveness of the UNOLS fleet is a tribute to the vision and dedication of officials at ONR and NSF.

UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

19 February 1992
FILE: 1025/1020/S

To: Gary Brass

From: Jim Williams

Subj: Review of the NSF Inspection Program

In accordance with a tasking from the UNOLS Council, a review of the NSF Inspection Program was conducted on 28 January 1992. The review panel was composed of R. Hutchinson, D. Nixon, T. Shipley and J. Williams. Participants at various times during the review were E. Dieter, G. Gross, S. Applegarth and R. West. A copy of the tasking memo is at Attachment A.

The findings of the panel, keyed to the issues expressed in the tasking memorandum are as follows:

1. "Is the inspection fulfilling its stated purpose? This is, to assure that the seaworthiness and safety of research vessels supported by NSF meet or exceed the standards set forth by the UNOLS Safety Standards, and applicable requirements of the American Bureau of Shipping, the Code of Federal Regulations and the U. S. Coast Guard, and further ensure that NSF-owned ships as capital assets are being adequately maintained?"

We believe that the NSF inspections are conducted in a very thorough and professional manner, fulfilling that part of the requirement for which they were intended. The inspections have evolved from a one day look at the ship while at the berth, to a two day scenario which includes demonstration of the ship's capabilities underway. In addition to operation of all equipment the crew is also exercised in safety related drills, including the launching and recovery of small boats. The report of the inspection not only discusses the material and operational condition of the ship, it also documents the inventory of equipment installed. Members of the panel agreed that overall, the NSF inspection is more comprehensive than all others, including ABS, USCG and Navy INSURV.

The NSF Inspection Program thus far, has only applied to vessels over sixty five feet in length. Accordingly, the category of vessels sixty five feet and less, involved in oceanography, was not included in the review. However, it should be noted that there are watercraft of one variety or another less than sixty five feet in length involved in oceanographic research, funded by NSF, and operated by UNOLS institutions.

There are some inconsistencies in the overall program:

Navy owned UNOLS vessels are not inspected by the NSF team, except in cases where Bob Dinsmore is included with the INSURV team to look at scientific equipment. This means that THOMAS THOMPSON, KNORR, MELVILLE, WASHINGTON, MOANA WAVE and GYRE have been exempt from the NSF Inspection Program. All of the Navy ships are supposed to be inspected by Navy INSURV every three years, however, there have been occasions where the period has been extended to over four years. THOMPSON, KNORR, MELVILLE and WASHINGTON are inspected by the USCG every year as they are certificated vessels. MOANA WAVE and GYRE are not. A table showing the different levels of inspections for UNOLS vessels is at Attachment B. A table showing the history of ships inspected is at Attachment C. It can be readily seen by looking at these tables that there is a significant difference in the incidence of inspections experienced by the different ships.

Foreign charters funded by NSF are not inspected in the same manner as the NSF owned vessels. Domestic charters funded by NSF obviously do not receive the same scrutiny for safety related issues as the vessels in the inspection program.

The program, as it is presently carried out, has no published guidance from NSF concerning procedures that will be followed by institutions operating NSF owned ships, or utilizing NSF operating grants, following findings of significant safety related discrepancies or being declared unsafe for sea by the inspection party.

RECOMMENDATIONS:

- Include Navy owned UNOLS vessels in the NSF inspection schedule. This could be done in coordination with the operating institution and the Navy sponsor, with the possibility of alternating with INSURV in a two year inspection cycle.

- Develop a check off list of minimum acceptable UNOLS safety standards to be used by inspectors/surveyors prior to charter of any foreign or domestic ship, utilizing NSF funding.

- Develop criteria and publish guidance as to what can be expected by the operating institutions in the event of a finding of unfit for sea, or significant safety related discrepancies, as a result of an inspection of a ship owned by NSF or supported by NSF funds.

2. "Is the inspection fulfilling its stated purpose . . . . . In addition ensure that the inspection examines the scientific capabilities of research vessels in accordance with accepted community standards and expectations."

The NSF inspection includes a detailed scrutiny of the research vessel's scientific outfit and a broad look at the vessel's support facilities. Bob Dinsmore, being included as a member of the inspection party is probably the most knowledgeable person in the oceanographic community today about the overall condition of

scientific equipment and labs onboard all of the UNOLS vessels. Three reports of recent NSF inspections were reviewed. Each contained detailed comment

concerning inventory and condition of installed scientific equipment, in addition to size and condition of shipboard labs and scientific working areas. Bob Dinsmore's report also addresses inventory of shared use equipment and a brief statement about condition of shoreside staging areas, where applicable. Members of the panel are not aware of any documented "community standards" concerning scientific equipment. One might assume that if any standard exists it is in the judgement of Bob Dinsmore that has developed over many years of observing scientific outfit and operations on UNOLS vessels. The panel found this issue particularly cumbersome due to the diversities in mission and size of UNOLS ships and differences of priorities between operating institutions.

The scope and depth of effort spent in the process of inspecting scientific capability of UNOLS ships is good enough. The reports of the inspections reviewed contained detailed information concerning conditions found and recommendations for improvement. A modest change in format would facilitate providing the section on science systems as a separate category of interest for panel review if and when desired.

RECOMMENDATION

If the development of a community standard for scientific capabilities of UNOLS vessels is considered worthwhile, recommend that it be established as a UNOLS task.

3. "Does the inspection provide the UNOLS council appropriate information to provide safety oversight of the UNOLS fleet?"

As far as the ships that are included in the program the quality of the inspections are such that they provide any level of review a comprehensive report on the condition of the ship and a detailed discussion of safety related issues. The findings of the inspection reports also include comment on:

The current status of the vessel's condition as reported by:

- the ABS Survey of Hull and Machinery, where applicable
- the ABS Annual Load Line Inspection, where applicable
- and the U. S. Coast Guard, where applicable

Whether or not the vessel is in compliance with UNOLS Research Vessel Safety Standards, and if significant safety items are noted for attention.

The panel was informed that copies of reports of NSF inspections of UNOLS vessels, and follow-up documentation, are provided to the UNOLS office on an informal basis. It is noted that it would not be difficult to correlate the Cruise Assessment Reports with the inspection reports to further clarify any particular areas of concern about safety related issues.

RECOMMENDATIONS

- Establish a formal mechanism to forward copies of NSF inspection reports, and follow-up documentation, to the UNOLS council, for review as the council sees fit.

- To further document characteristics of the vessel include a copy of the ship condition form, as filled out by the operating institution, with the copy of the inspection report.

4. "Is the format and follow-up action of the inspection adequate in addressing discrepancies?"

The obvious concern of most UNOLS operating institutions about the condition of their vessels must be taken into account when the issue of action to be taken following this type of inspection is contemplated. However, superimposed on the responsibility of the operator's for correction of, in particular, safety related deficiencies is the ultimate responsibility of the owner, and/or the agency funding work on the vessel, for the condition of the vessel. In view of the accountability attached to ownership, and/or funding support the responsibility for oversight becomes obvious. This becomes particularly significant when the issue of exposure to liability is considered. With this in mind it is the opinion of the panel that the degree of follow-up to the results/reports of NSF inspection of UNOLS ships is lacking.

Dennis Nixon, UNOLS Risk Manager has written "The current policy does not complete the loop. Standards exist, vessels are inspected, defects are noted but the authority to prevent a vessel from going to sea is clouded. . . . . without that closing of the loop, development of the UNOLS standards will have been a waste of time and effort and their only use will be to serve as a guide for plaintiff's attorneys."

A method that could be used to organize the reporting of discrepancies, in a manner that would more readily reflect the condition of the vessel for safety related follow-up purposes, would be to establish categories. The categories could be organized into three levels of significance, as indicated below:

Restrictive - A restrictive discrepancy should effectively keep the vessel in port if it pertains to sea worthiness, safety of crew, safety of embarked scientific party or safety of vessel.
Major - Should correct at the earliest opportunity.
Minor - Should correct during next overhaul and/or when funds permit.

This format could be promulgated with the publication by NSF of policy concerning follow-up action expected from institutions operating NSF owned vessels and/or being supported by NSF funds.

Expectations should be established concerning the timing of reports of follow-up action to correction of inspection discrepancies.

As with any inspection program there is always difference of opinion and this should be taken into account with provisions for appeal.

RECOMMENDATION:

Publish policy to make it clear to all UNOLS vessel operators that cruise funding will be withdrawn if a vessel fails to meet safety standards. Include means of appeal. Establish a time table for reporting of follow-up action to inspection discrepancies.

5. "Are changes needed in the inspection program?"

Changes are needed to fulfill the stated purpose of the NSF inspection program. The changes would directly impact the relationship between NSF, the owner of and/or funding agency for the vessels involved, and the operating institutions. This would be primarily in the area of increased accountability for the condition of vessels supported by NSF. In addition, the program needs to be expanded to include all UNOLS vessels to ensure that UNOLS safety standards are being adhered to by all the ships to which the standards apply.

The role of UNOLS in this relationship should remain as oversight. A formal mechanism should be implemented for methodical review and summarization of the reports of NSF inspections for submission to the UNOLS Council.

Attachments: (A) Copy of UNOLS Tasking memo, dated 13 August 1991
(B) Copy of Table of Inspections, UNOLS Vessels
(C) Copy of Ship Inspection History

UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

DATE: August 13, 1991

TO: Distribution

FROM: UNOLS Office

SUBJECT: Review of the NSF Inspection Program

The UNOLS Council has approved for tasking a review of the NSF Inspection Program. A panel as listed below has been appointed to conduct this review. The panel is:

D. DeMaster	NC State
R. Hutchinson	U of Miami
D. Nixon	URI
T. Shipley	UTIG
J. Williams	SIO - Chair

By copy of this letter the panel is tasked to conduct a review of the NSF Inspection Program. The review should address the following questions:

1) Is the inspection fulfilling its stated purpose? This is, "To assure that the seaworthiness and safety of research vessels supported by NSF meet or exceed the standards set forth by the UNOLS Safety Standards, and applicable requirements of the American Bureau of Shipping, the Code of Federal Regulations and the U.S. Coast Guard, and further ensure that NSF-owned ships as capital assets, are being adequately maintained? In addition, ensure that the inspection examines the scientific capabilities of research vessels in accordance with accepted community standards and expectations."

2) Does the inspection provide the UNOLS Council appropriate information to provide safety oversight of the UNOLS fleet?

3) Is the format and follow-up action of the inspection adequate in addressing discrepancies?

4) Are changes needed in the inspection program?

A report from the committee should be completed within six months of receipt of this tasking.

Encl.: (1) NSF ltr dated 1 Apr '91 - NSF Inspection Program
(2) Guidelines for the NSF Ship Inspection of Research Vessels
(3) NSF Ship Condition form
(4) UNOLS Charter

Distribution: Panel
UNOLS Council w/o Encl.
Member Institutions w/o Encl.
RVOC Members w/o Encl.
R. West, D. Heinrichs, G. Gross,
K. Kaulum, C. Andreasen w/o Encl.

TABLE OF INSPECTIONS
UNOLS SHIPS

	ABS L/L INSP	ABS H&M INSP	USCG INSP	NAVY INSURV	NSF INSP		NSF OWNED	NAVY OWNED
Alaska - ALPHA HELIX	Y	Y			Y		Y	
BBS - WEATHERBIRD	Y				Y			
Delaware - CAPE HENLOPEN	Y	Y			Y		Y	
Duke - CAPE HATTERAS	Y	Y			Y		Y	
Hawaii - MOANA WAVE	Y	Y		Y	**			Y
HBOI - EDWIN LINK	Y	Y			Y			
HBOI - SEWARD JOHNSON	Y	Y			Y			
LDGO - EWING	Y	Y	Y		Y			
LUMCON - PELICAN	Y	Y			Y			
Miami - CALANUS					Y		Y	
Miami - ISELIN	Y	Y			Y		Y	
Mich - LAURENTIAN					Y			
MLML - POINT SUR	Y	Y			Y		Y	
OSU - WECOMA	Y				Y		Y	
SIO - MELVILLE	Y	Y	Y	Y	**			Y
SIO - NEW HORIZON	Y	Y			Y			
SIO - ROBERT GORDON SPROUL	Y				Y			
SIO - WASHINGTON	Y	Y	Y	Y	**			Y
Skidaway - BLUE FIN					Y			
TAMU - GYRE	Y	Y		Y	Y			
Texas - LONGHORN					Y			
URI - ENDEAVOR	Y	Y			Y		Y	
USC - VICKERS*	Y	Y			Y			
Washington - BARNES					Y		Y	
Washington - THOMPSON	Y	Y	Y	Y	**			Y
WHOI - ATLANTIS II	Y	Y	Y	***	Y		Y	
WHOI - KNORR	Y	Y	Y	Y	**			Y
WHOI - OCEANUS	Y				Y		Y	

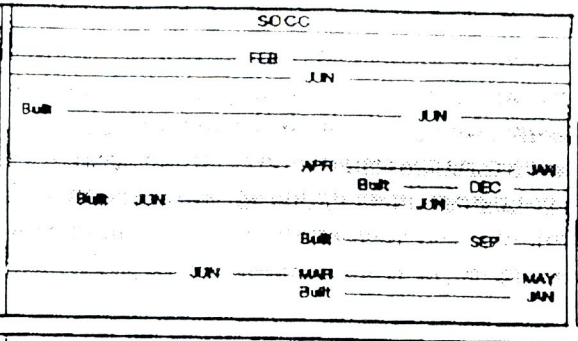
* Pending classification as UNOLS vessel
** Inspected by NSF for scientific outfit only
*** Inspected by INSURV for ALVIN only

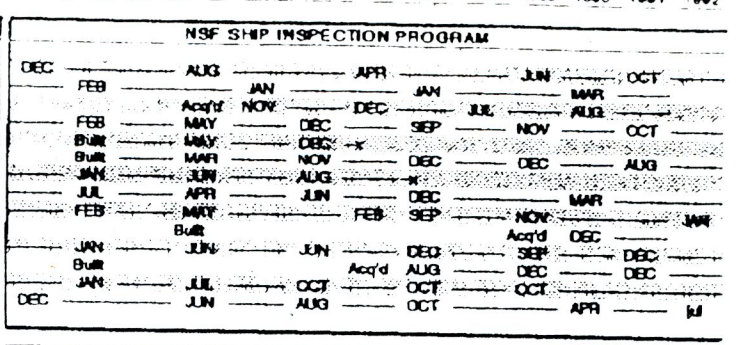
27-Jan-92 R West

SHIP INSPECTION HISTORY

NSF SHIPS

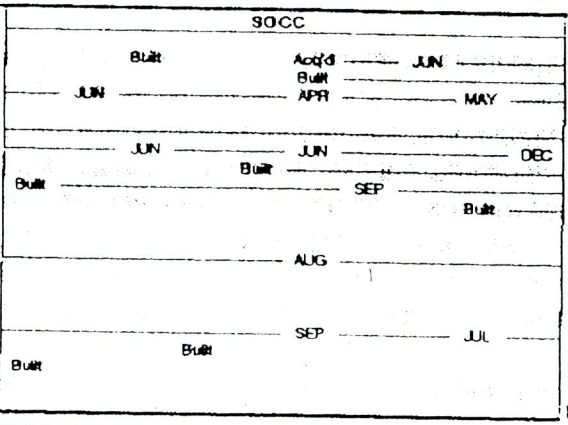
	Ship	Operator	Built	LOA	Class	Disp	Crew	3cl
1	ALPHA HELIX	ALASKA	1988	133	IV	564	9	15
2	ATLANTIS II	WHOI	1983	210	II	2300	35	15
3	BARNES	WASH	1966	85	V	98	2	6
4	CALANUS	MIAMI	1970	68	V	111	2	8
5	CAPE FLORIDA	MIAMI	1981	135	IV	539	9	12
6	CAPE HATTERAS	DUKE U	1981	135	IV	539	10	12
7	CAYUSE	MLML	1988	80	V	173	7	8
8	ENDEAVOR	URI	1978	177	III	972	12	16
9	ISELIN	MIAMI	1972	176	III	830	12	24
10	MAURICE EWING	LDGO	1983	239	II	2577	20	30
11	OCEANUS	WHOI	1975	177	III	980	12	12
12	POINT SUR	MLML	1981	135	IV	539	9	12
13	WARFIELD	JHU	1967	108	IV	162	7	10
14	WECOMA	OSU	1975	177	III	1015	12	16

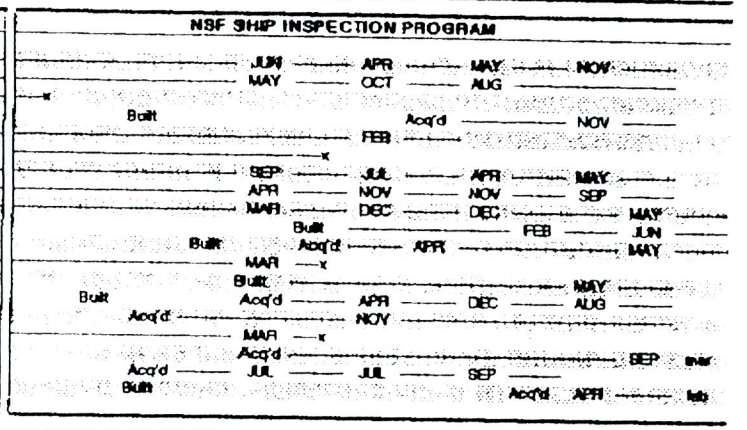




INSTITUTION SHIPS

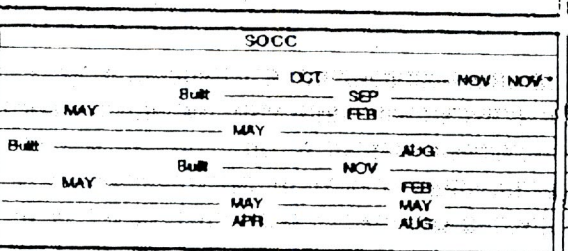
	Ship	Operator	Built	LOA	Class	Disp	Crew	3cl
1	BLUE FIN	SKIDAWAY	1972	72	V	88	4	8
2	CAPE HENLOPEN	DELAWARE	1975	120	IV	178	6	12
3	EASTWARD	DUKE U	1984	118	IV	810	15	15
4	EDWIN LINK	HBOI	1982	171	III	1327	16	14
5	FRED MOORE	TEXAS	1987	187	III	1202	10	23
6	KANA KEOKI	HAWAII	1987	156	II	900	12	16
7	LAURENTIAN	MICHIGAN	1974	80	V	180	7	7
8	LONGHORN	TEXAS	1971	103	IV	200	4	11
9	N HORIZON	SCRIPPS	1978	170	III	1080	12	13
10	PELICAN	LUMCON	1985	105	IV	253	5	13
11	POLAR DUKE	CARNO	1983	219	II	1800	14	26
12	SCRIPPS	SCRIPPS	1966	95	V	287	5	8
13	SEWARD JOHNSON	HBOI	1984	176	III	1174	9	20
14	SPROUL	SCRIPPS	1981	125	IV	500	5	12
15	SUNCOASTER	FIO	1982	110	IV	250	5	12
16	VELERO IV	SO CALIF	1948	110	IV	650	11	12
17	VICKERS	SO CALIF	1973	220				25
18	WEATHERBIRD	BBS	1970	65	V	100	2	4
19	WEATHERBIRD II	BBS	1982	115	IV	250	6	10

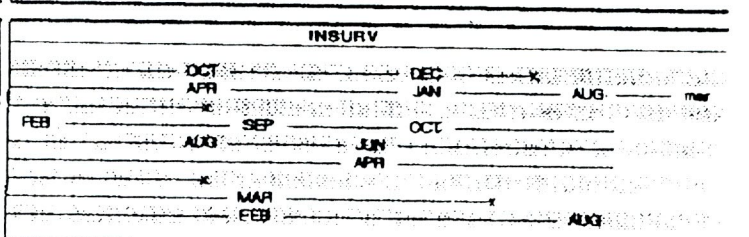




NAVY SHIPS

	Ship	Operator	Built	LOA	Class	Disp	Crew	3cl
1	CONRAD	LDGO	1952	209	II	1425	22	21
2	GYRE	TAMU	1973	182	III	980	10	20
3	HIGH	WASH	1943	85	V	91	2	8
4	KNORR	WHOI	1969	245	II	1915	25	24
5	MELVILLE	SCRIPPS	1969	245	II	2075	23	29
6	MOANA WAVE	HAWAII	1973	213	II	1435	13	19
7	ONAR	WASH	1954	85	V	95	2	8
8	THOMPSON	WASH	1965	209	II	1302	22	22
9	WASHINGTON	SCRIPPS	1965	209	II	1362	23	22





Acq'd: Acquired

* Special research in cooperation w/MarAd

SOCC = Ship Operation Construction and Conversion

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
SOCC										
Per Year	0	3	2	1	4	6	4	7	5	4
Sum Total	0	3	5	6	10	16	22	29	34	38

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
NSF INSPECTION PROGRAM												
Per Year	2	7	0	10	10	8	12	10	8	6	12	9
Sum Total	2	9	9	19	29	37	49	59	67	75	87	96
INSURV												
Per Year	1	0	0	3	3	0	1	3	0	0	2	
Sum Total	1	1	1	4	7	7	8	11	11	11	13	

ATTACHMENT C