UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

SUMMARY REPORT OF THE OCTOBER 31, 1986

UNOLS SEMIANNUAL MEETING
AMERICAN INSTITUTE OF ARCHITECTS
1735 New York Avenue NW
Washington, DC

CONTENTS

APPENDICES

Summary Report of UNOLS Semiannual Meeting
October 31, 1986

American Institute of Architects
1735 New York Avenue NW
Washington, DC

General: Issues and items are reported in the order in which they were addressed at the October, 1986 Semiannual meeting. Exceptions to the order in the published agenda (Appendix I) are noted.

A list of registered attendees has been compiled from forms completed at the meeting (Appendix II). Information made available from the UNOLS Office included: UNOLS Directory, Ship Scheduling Contacts, Marine Operations Contacts, Advisory Council and Executive Committee membership 1971-1987 and a revised *Summary of UNOLS Vessel Fleet Operations - 1985* (Appendices II-VIII).

Introduction and Welcome: **UNOLS Chairman George Keller** called the meeting to order, welcomed attendees and presented the agenda.

Chairman's Report: As preamble to his report George Keller stated his intent to participate throughout a broad range of UNOLS and UNOLS committee activities. He cited his participation in the recent RVOC meeting.

The report was a development of the themes of the **UNOLS Chairman's Message** from UNOLS News, Vol. 3., No. 3 (Appendix IX).

UNOLS traditionally has concentrated on coordinating an effective utilization of ships in the academic research fleet. That focus will continue, but with an increasing emphasis on advising Federal agencies and, as appropriate, congressional committees concerning facilities and programs for academic research in oceanography. During UNOLS' fifteen years, participating institutions have provided and operated facilities constituting the most effective ocean research fleet in the world. Although a smaller number of ships is now operated than had been earlier, today's vessels are better equipped and more capable to support today's research. *UNOLS' goal must continue to be: Provide more capable and cost effective facilities for the support of academic research in oceanography.*

The promotion of effective use of ships and facilities is especially difficult in the 1980's. There has not been enough money to support fully the academic enterprise for ocean research. Within budget strictures, more money for

ships and facilities means less for science. Imbalances wherein ship availability has exceeded funded science needs have been a resulting problem not easily solved. The resulting lay-ups (recently, 1-1/2 to 2 ships years per year) have been painful and wasteful. (Lay-ups may cost $1 million in 1987.) *UNOLS must make hard recommendations that will result in a more efficient mode of fleet management.* But at the same time that the fleet must be tailored to meet limited short-term requirements, it must be prepared to meet the expanded ocean science program anticipated for the 1990's. *A part of the charge to the Fleet Improvement Committee will be to assess core fleet needs and recommend a fleet to address those needs.*

If UNOLS and the ocean community are to be effective in addressing both the short term problems of funding shortfalls, underutilization and lay-ups and the longer-term problem of developing improved fleet capability, they must develop an effective, unified voice. If UNOLS arguments are to be persuasive, means must be found to quantify fleet effectiveness, and sharper scheduling practices must be developed. (Highly centralized scheduling is not the answer.)

UNOLS will continue, especially through the Fleet Improvement Committee, to define the fleet make-up and capability best for both near term and long-term support of ocean research. Ship scheduling will be improved so that efficient fleet schedules and lay-up decisions can be reached in timely fashion. Communications, both within UNOLS and throughout the ocean community, will be emphasized to help achieve a unified presence.

Another issue for UNOLS is that of a polar research vessel/ice breaker available for academic research. This issue has emerged in Navy discussions concerning their research vessel acquisition and in discussions in NSF's Division of Polar Programs. UNOLS will provide a focal point for a UNOLS-DPP interface concerned with operating standards, etc. for POLAR DUKE and other polar research vessels that DPP might acquire.

The recent Chairman's letter to heads of UNOLS institutions invited comment on UNOLS activities and recommendations for continuing efforts. Responses were received from many Member and Associate Member institutions. If there was a theme common to responses it was that UNOLS should concentrate closely on ship operations and shipboard matters. There was a distinct minority view that UNOLS should broaden its concern to include advanced technology facilities, e.g., satellite observations, remote ocean stations, robotics. UNOLS will examine these various issues for appropriate response, taking care to preserve their traditional emphasis on facilities and operational matters.

Advisory Council Report: Chairman John Martin reported that the Advisory Council will continue through the next year to

work toward improved UNOLS fleet policies and strategies that would provide more effective service to ocean research; and toward ship scheduling that would result in more efficient expenditure of federal facilities support funds. The Council will work closely with the Fleet Improvement Committee and with the Chairmen, East and West Coast Ship Scheduling Groups on these issues and on the central issue of achieving a match between science requirements and facilities availability.

During 1986-1987 the Advisory Council will also:

- review UNOLS membership, ships in the UNOLS fleet and provide recommendations;

- review the UNOLS charter and make recommendations on renewal or modification;

- review operation of the UNOLS Office and make recommendations for renewal;

- work with RVOC to provide information and recommendations concerning shared use equipment and marine technicians; and

- work with the UNOLS Chairman and Executive Committee on matters of broad UNOLS interest.

Although the 1980's have been a time of continuing budget strictures and of critical fleet management problems, federally-sponsored global initiative programs give promise of stronger support. Programs such as TOGA, WOCE, GOFS and Ridge Crest Processes should provide strong science funding and need for ships and facilities.

The current Advisory Council has a strong membership of competent scientists. Council membership notwithstanding, UNOLS will be better served if there is a continuing input of ideas, issues and recommendations from the membership at large.

Fleet Replacement Committee, Fleet Improvement Committee: The central charge to UNOLS' Fleet Replacement Committee had been to conduct a study and produce a report, **A Plan for Improved Capability of the University Oceanographic Research Fleet.** That report is available, as an Executive Summary, three principal volumes and eight additional volumes on individual ship design concepts. In addition to producing the Plan, which emphasizes early replacement of large ships, the FRC worked closely with ONR, to provided support for the Navy's preliminary design process for research vessels. (The FRC Plan Executive Summary is Appendix X of the Summary Report of the June 4, 1986 UNOLS Semiannual Meeting.)

UNOLS had determined at their June, 1986 meeting that although the Fleet Replacement Committee had completed its charge, UNOLS fleet improvement remained a compelling issue, and the FRC should be re-constituted and continued as the **Fleet Improvement Committee.** The Fleet Improvement Committee has been formed: Worth Nowlin, TAMU, Chairman, T.K. Treadwell, TAMU, Executive Secretary, four members from the predecessor FRC and four new members.

George Keller had delivered a charge to the FIC: amplify and update the UNOLS Fleet Improvement Plan, especially reexamining the mix and number of ships required; refine science mission requirements; prepare conceptual designs for smaller vessels; consider alternatives to new construction; carry two of the conceptual designs for large vessels to a more detailed design stage; and serve as liaison and information source for Federal agency representatives working on ship acquisition and fleet improvement. FIC objectives, approach and calendar are in Appendix X.

In addition, the FIC will serve UNOLS for guidance and advice on new ship acquisition developments such as polar research vessels, etc.

Fleet improvement will continue to be a central issue for UNOLS.

ALVIN Review Committee: Robert Corell, ALVIN Review Committee chairman reported on an assessment of the ALVIN program, on advanced planning and workshops, on ALVIN operations status, on near- term operations and on a proposed assessment and projection of ocean science trends relative to research submersible systems.

The **ALVIN Prospectus,** summarizing 1986 ALVIN program status and long-range planning efforts, was in distribution. Highlights from the Prospectus will appear in UNOLS News, Vol. 3, No. 4.

An **ALVIN Planning Workshop** will be held again in December, 1986 at the winter AGU meeting in San Francisco. Invitations to notify of intent to use ALVIN (in 1989 and beyond) have been mailed to about 600 prospective ALVIN users. The **ALVIN Flyer,** announcing opportunities for ALVIN research during 1988, will be distributed early in 1987.

The ARC, in June, 1986, provided **1987 ALVIN schedule recommendations** to funding agencies and individual time requestors. ALVIN/ATLANTIS II would take up their 1986 work off southern California, work off Hawaii and in the central Pacific enroute to several months work in Mariana-Bonin regions. On return to the eastern Pacific, several projects would be scheduled off Washington-Oregon and the 1987 season would end off California.

A schedule for 1988 will be recommended based on several earlier successful requests still pending together with new requests recommended at the May, 1987 ARC review meeting. Requests will be considered mainly for the eastern Pacific. ALVIN will probably be scheduled for overhaul in late 1988.

NOAA, NSF and ONR, (ALVIN funding agencies), have renewed their agreement to support DSV ALVIN. (The agreement is included as Appendix III in the report for the October 29, 1986 UNOLS Advisory Council Meeting.) The Agreement covers 1987-1989.

At their June, 1986 meeting UNOLS members endorsed recommendations of the Special ALVIN Study Committee, of the ARC and of the Advisory Council that a major submersible science study be completed during 1987. The ARC chairman made a presentation on **Concepts and Background for a UNOLS-Sponsored SUBMERSIBLE SCIENCE STUDY - 1987** (Appendix XI) that would fulfill the June recommendations. The study would be funded through UNOLS, be conducted by an ad hoc committee of about eight members and be completed during 1987. Objectives would be to assess trends and patterns of ocean science research that would benefit from submersible systems, and to develop a comprehensive submersible science facilities plan to satisfy those science requirements. *The UNOLS membership endorsed the study plan as presented.*

In a general discussion of the ALVIN program and other elements of submersible facilities to support ocean research, UNOLS members noted a recent workshop on low-cost submersibles and their impact on ocean science, organized by the University of Rhode Island, a similar workshop to be held at the winter AGU Meeting in San Francisco, and a study and report on undersea research commissioned by NOAA and chaired by Feenan Jennings, TAMU. Reports will be available, and valuable to the UNOLS study.

RVOC: Dolly Dieter, RVOC chair, reported on the busy, successful RVOC meeting held in Vera Cruz, Mexico during October, 1986. RVOC members were hosted by Admiral Lopez-Lira on behalf of the Minister of the Navy, Mexico. Hospitality was warm and sincere. The impression was that the interaction between UNOLS marine operators and Mexican officials should benefit future research clearance/permit efforts.

A very full agenda included a report on efforts to update the winch manual (that resulted from winch and wire seminars conducted by URI).

The RVOC commended Lee Stevens for the **Handbook for International Operations of U.S. Scientific Research Vessels.**

New business included an alert on new SOLAS requirements concerning thermal recovery capsules, a warning concerning shipment of chemical reagents (arising from a letter written by John Edmond), the need for more thorough safety, orientation and indoctrination training for crews and science parties and a UNOLS accident reporting system.

Short reports were heard on updating UNOLS Safety Standards, on PT. SUR operations from its new base, Moss Landing Marine Laboratories, on medical advisory services and on efforts (in cooperation with the Advisory Council) to gain some consistency among various shared-use equipment policies.

Workshops were held on winches and deck equipment and on marine liability. Reports were made on new winches acquired at the University of Miami, University of Rhode Island, Lamont-Doherty Geological Observatory, and NOAA (Seattle). Emphasis was on means for accommodating dynamic loads, on the use of synthetic cable (e.g., kevlar) and, generally, capability to support heavy (or deep) casts. Selected winch, winch instrumentation and marine crane vendors also made presentations.

The workshop on marine liability emphasized the liabilities of operating research vessels, reviewed lawsuits by participants on research cruises, reviewed operator responsibilities in port and other matters.

The RVOC elected Jack Bash, URI, as chair and Jim Williams to complete the term as secretary.

Following the meeting, Dolly Dieter and Jack Bash, past chair and chair, RVOC, met in Mexico City with key officials from several government agencies concerning clearances for research in Mexican waters. The RVOC (UNOLS) representatives had been briefed for the meeting by NSF and State representatives. The meeting was a valuable exchange for both sides. It was clear that successful applications for research clearance in Mexican waters will require: timely submission of the application, regard for Mexican prerogatives, involvement of Mexican scientists, where possible, and timely data sharing.

In his remarks for Department of State, William Erb, DOS gave special thanks to Dolly Dieter and Jack Bash for their efforts to ease the clearance situation with Mexico.

In an addition to the agenda, **Robert Corell reported on June 24, 1986 hearings held by the House Merchant Marine and Fisheries Committee, Oceanography Subcommittee on the Federal Oceanographic Fleet and on UNOLS testimony for those hearings.** The hearings, chaired by Barbara Mikulski, Oceanography Subcommittee Chair, emphasized the NOAA fleet (HMMFC has oversight over NOAA) but were arranged to

establish a context including the UNOLS fleet and other elements of the total Federal fleet. The Subcommittee also heard from academic community oceanographers who projected ocean science trends and needs for research vessel support. A **General Overview of the Status and Trends in Oceanography** was provided by a panel: Dr. Robert Ballard, W.H.O.I., Dr. Robert Corell, UNH, and Dr. Ferris Webster, U. Delaware and Chairman, UNOLS. Dr. Webster's testimony emphasized the role of academic institutions in U.S. oceanography, historical contributions by those institutions and by the UNOLS fleet, and needs to modernize and improve the UNOLS fleet for the 1990's and beyond.

A second panel described to the Subcommittee **Specific Research Areas Requiring Vessel Support.** Reports from federal agencies funding research vessel acquisition and operation on **Agency Plans for Maintaining the Federal Oceanographic Fleet** were heard from NOAA, NSF, ONR and USCG.

The Subcommittee Hearings Report is in press.

Remarks from Federal Funding Agencies. Keith Kaulum, ONR, introduced to the meeting several key people from ONR: Eric Hartwig, Gene Silva, Geoff Whiting and Bill McCluskey, and Pat Dennis, Oceanographer's Office.

Mr. Kaulum reported on the status of the Navy's solicitation of an operator for AGOR-23, on plans to renovate AGOR-14 and 15 (KNORR and MELVILLE), on the design and procurement processes for AGOR-23 and on program milestones for AGS research vessels. Appendix XII includes reproductions of the slides used: AGX Program Milestones, for AGOR-23, Point Design, SWATH profile, capabilities and seakeeping, the AGOR-23 acquisition approach and solicitation approach, a Monohull profile, seakeeping comparison, and comparison to existing AGORs, AGOR-23 requirements and Program milestones.

Mr. Kaulum described the process for selection of an operating institution for AGOR-23. The process included a schedule for issuing on RFP, for proposals and selection. Criteria for eligible institutions were described. Proposals would be evaluated on technical and scientific justification, on a plan to retire an AGOR-3 and plans and cost estimates for vessel outfitting and operation. ONR would establish an interagency selection committee.

Don Heinrichs, NSF discussed the 1986 status of ocean facilities management in NSF and gave forecasts for 1987. Details of **Oceanographic Facilities Support** estimates for 1987, differing modestly from those made earlier (UNOLS News, Vol. 3, No. 3, October, 1986), are shown below:

NSF BUDGET ESTIMATES
($ MILLION)

OCEANOGRAPHIC FACILITIES SUPPORT

	Actual 1985	Actual 1986	Estimate 1987
Operations			
Ship Operations	**23.8**	**23.8**	**27.3**
ALVIN, Aircraft, etc.	**2.9**	**1.6**	
Marine Technicians	**2.4**	**2.5**	**2.7**
	29.1	**27.9**	**30.0**
Acquisition and Development			
Science Instruments	**1.8**	**1.6**	**1.9**
Shipboard Equipment	**1.7**	**1.4**	**1.8**
Technology Development	**1.6**	**1.7**	**2.3**
UNOLS, Ship Constr., Misc.	**0.7**	**0.9**	**0.7**
	5.8	**5.6**	**6.7**
OFS TOTAL	**34.9**	**33.5**	**36.7**
Other NSF Support, Ship Operations			
Ocean Drilling Program	0.1	2.1	1.8
DPP, Antarctic Operations	?	0.8	0.2
TOTAL Anticipated 1987		26.7	27.0

During 1986, research vessel needs of all NSF-funded science projects were met; there remained an excess of available ship time in the UNOLS fleet. This led to inactive status for WECOMA, CAYUSE and OSPREY as well as sparse schedules for several other ships. The ALVIN resumed operations after a successful major overhaul, and had a very heavy schedule. Dialogs were initiated with UNOLS to improve ship scheduling procedures and maintenance and operations decisions. OCFS is pleased with their interactions with UNOLS. Coordination has become more active with Navy concerning operations, new ship construction and long-term fleet planning.

In 1987, available shiptime will continue to exceed science project requirements. This will result in inactive status for KNORR, and perhaps other UNOLS ships. (See Ship Scheduling below.) DSV ALVIN, continuing under heavy demand from NSF projects, will work in the Western Pacific. OCFS will increase their emphasis on safety issues and follow-up to fleet inspection reports. New procedures will be implemented with UNOLS for scheduling, maintenance and operation decisions.

The NSF/OCE Long-Range Plan (LRP) is being updated, for completion in early 1987. The LRP includes sections on ship

operations (requirements), ship construction and ocean technology. **The existing UNOLS fleet cannot meet all of the projected field requirements. The LRP outlines options.** OCFS is consulting with UNOLS and with federal agencies. Both the Advisory Council and the Fleet Improvement Committee are asked to comment on the LRP. Dr. Heinrichs' remarks are detailed in Appendix XIII.

Albert F. Betzel, NSF/DPP reported to the meeting on recent events affecting DPP ocean research operations in the Antarctic. The USCG GLACIER had been scheduled (along with POLAR SEA) for logistics and research use. In a recent drydocking the GLACIER was found to have deteriorated such that it could no longer be operated as an icebreaker (and would not be operated in 10/10 ice coverage). The Coast Guard outlined three options: decommission, operate as an ice-strengthened vessel or upgrade/repair at an estimated $20 M cost. NSF declined to support the upgrade/repair option. If the CG decides to decommission GLACIER (likely) there would be no ice breaker support for Antarctic operations until mid to late 1990's. As a result, NSF/DPP is now actively searching for a research icebreaker to buy or lease for first use in early 1988.

In response to a question on potential DPP use of the MELVILLE, Mr. Betzel said that no specific use was foreseen.

John Albright, NOAA, report on 1986 fleet operations and projections for 1987. In 1986 NOAA operated 23 vessels for 3600 days at sea. (Sea days were below the usual total because of budget strictures and other factors.) Highlights in 1986 were: the OCEANOGRAPHER was reactivated to support ocean research in the Pacific, SEA BEAM was installed on the DISCOVERER (then operating off California), and the MT MITCHELL was sent from AMC, Norfolk, VA to Alaska for charting surveys.

NOAA/Office of Marine Operations plans were for a 22 ship operation totaling 4,000 sea days in 1987. These ship operations would support mapping, charting and assessment, 39%, fisheries 46% and research projects 15%. Uncertainties resulting from the levels supported by DOC, OMB and recent congressional actions could have great impact.

During 1987, funds are expected for a swath sounding system designed for use in 1,000 meters or less. Wire drag procedures are nearly phased out. **Robert Rowland reported that, as in recent years, USGS marine research investigation will be concentrated in GLORIA mapping (through the contract with U.K.'s IOS).** This contract will extend through 1991. No USGS use of UNOLS ships is foreseen at least until then.

Hawley Thomas, Minerals Management Services provided a program note for the MMS' Environmental Studies in FY-1987

(Appendix XIV). Proposed funding is for $22.96M, distributed: Alaska $8.9M, Atlantic $1.9M, Gulf $3.7M and Pacific $5.6M. Ship requirements are for physical and biological studies.

William Erb, Department of State, reported that NOAA had assigned one person to work at COS/OES on research clearances and that U.S.G.S., Navy and NOAA would be sponsoring a SEA GRANT intern to work there.

Mr. Erb noted that in recent years a key of the U.S. policy on marine research has been that no jurisdiction is exerted over foreign investigators' research within U.S. EEZ. A quid pro quo in marine research policy has been hoped for. Success of the policy (or need for modification) is frequently re-examined.

Richard West, NSF/OCFS, reported on the NSF Ship Inspection Program. The program was initiated in December, 1980 *to assess the capabilities and condition of NSF-owned research vessels and to improve their reliability.* The program has changed and developed since then, and ***there has been a definite improvement in the condition of inspected research vessels.*** A report on the NSF Ship Inspection Program with history, record, guidelines and a schedule for inspections in 1986 is appended to the report of the **UNOLS Advisory Council Meeting, August 27-28, 1986** (distributed earlier).

In connection with the Ship Inspection Program, Dr. West made two awards:

> **To E.R. Dieter and the crew of the R/V ALPHA HELIX for their exceptionally high standards in crew training and ship maintenance.**
>
> **To Robertson P. Dinsmore, John Humble and Samuel Applegarth for their important contributions to the NSF Ship Inspection Program.**

The UNOLS membership endorsed the awards by ovation.

Ship Scheduling Group Meetings. Chairmen Robertson P. Dinsmore and George Shor, Jr. reported on the Group meetings held October 30. A report on the meeting was distributed separately and is Appendix XV.

The meeting was an effective one, with strong participation from all operators. *An effective schedule was reached for 1987. The schedule accommodates all funded science and is efficient for those ships operating, but will result in lay-ups.* Almost all duplicate bookings had been eliminated prior to the meeting.

Cost, funding and Schedule Summaries for 1986 are tabulated below. The fleet will total about 4,300 days in 1986, the lowest years' total during the 1980's

Costs, funding and Schedule Summaries for 1987 are also tabulated below. *Total costs have nearly closed with estimates of total funding available. A total of 4,937 days are scheduled, about 400 days more than the average for the 1980's, and more than 600 days over the 1986 total.* Total days of operation will undoubtedly decline due to adverse funding decisions, etc., but the estimates are better than similar ones in earlier years.

Operations costs have been reduced dramatically from those advanced in June, 1986, although they are still higher than for 1986 operations.

	1987 Outlook Oct., 1986	June, 1986	1986
Costs			
NSF	$29.75 M	$35.0	(26.4)
Navy	5.4	3.6	(3.4)
Other	3.8	3.1	(4.4)
Total	38.9	41.6	(34.1)

Anticipated Funding:

	1987	1986
NSF	27.7	(25.0)
Navy	5.4	(3.4)
Other	3.8	(4.4)
Total	36.9	(32.8)

The projected shortfall of $2.0M is still signficant but reduced remarkably from the shortfall of $9.7M projected in June, 1986. The $2.0M represents a lay-up of at least one large ship for a year or 2 to 3 intermediates.

SUMMARY OF 1987 COST PROJECTIONS
$ Millions

	OP DAYS	COSTS NSF	ONR	OTHER	TOTAL
OCTOBER, 1986 PROJECTIONS					
East	2633	15.173	3.480	2.506	21.159
West	2304	14.578	1.890	1.330	17.798
Total	4937	29.751	5.370	3.836	38.957
(Anticipated)	-	(27.7)	(5.37)	(3.84)	(36.9)
Projected Shortfall		2.0	-	-	2.0
JUNE, 1986 PROJECTIONS					
East	3211	18.532	2.469	1.473	22.473
West	2545	16.443	1.081	1.620	19.144
Total	5756	34.975	3.550	3.093	41.617
(Anticipated)		25.9	3.6	3.1	32.6
Projected Shortfall		9.1	-	-	9.1
MARCH, 1986 PROJECTIONS					
East	3203	18.474	2.927	1.677	23.078
West	2589	17.461	1.270	1.427	20.159
Total	5792	35.935	4.197	3.104	43.237
(Anticipated)		26.2	4.2	3.1	33.5
Projected Shortfall		9.7	-	-	9.7

PROFILES OF FUNDING CYCLES
$ Million

	OP DAYS	NSF	ONR	OTHER	TOTAL	SHORT FALL
1984	4816	23.1	4.0	7.0	34.6	-
1985	4769	25.9	4.1	5.8	35.8	-

1986 COST PROJECTIONS

	OP DAYS	NSF	ONR	OTHER	TOTAL	SHORT FALL
March 1985	5700	32.0	5.4	3.8	41.2	-
May 1985	5757	32.2	5.8	4.8	42.8	-
Anticipated		(26.0)	(4.2)	(3.8)	(34.6)	(8.2)
October 1985	5310	31.2	4.8	5.8	41.8	-
(Anticipated)		(25.5)	(4.8)	(5.8)	(36.1)	(5.7)
March 1986	4502	26.6	5.0	3.3	34.9	-
(Anticipated)		(25.0)	(5.0)	(3.3)	(33.3)	(1.6)
June 1986	4370	26.4	4.3	3.3	33.8	-
(Anticipated)		(25.0)	(4.3)	(3.3)	(32.6)	(1.2)
October 1986	4300	26.4	3.4	4.4	34.1	-
(Anticipated)		(25.0)	(3.4)	(4.4)	(32.8)	(1.3)

East Coast Ship Schedules for 1987 indicate that portion of the fleet is not fully utilized. KNORR, GYRE, CAPE HATTERAS, CAPE HENLOPEN and WARFIELD schedules are modest (90-160 days/ship, with some science funding still uncertain). *Some partial lay-ups among these ships appear inevitable unless more funded requirements appear.* In contrast, the FRED H. MOORE has a strong, solidly funded schedule for the first time, and both CONRAD and ATLANTIS II have excessively high schedules.

West Coast Ship Schedules for 1987 are somewhat stronger. Both MOANA WAVE and ALPHA HELIX have schedules that will be operationally taxing. Most ship schedules are strong or at least viable. WASHINGTON and MELVILLE schedules are lighter than desired but can be conducted efficiently. Uncertainty in Antarctic operations could have impact on MELVILLE in late 1987 and early 1988. OSPREY advanced no schedule and will continue in lay-up.

Costs of lay-ups. There was consensus that lay-ups resulting from scheduling decisions cannot be fully cost efficient. Cost inefficiencies can be avoided by planning lay-ups to coincide with major overhauls or renovations. So far, advanced planning is not good enough to achieve such efficiency.

The Scheduling Groups noted that ONR and NSF do not have agreement on how to fund lay-up costs, especially in 1987. The Groups hope and urge that these agencies reach agreement promptly.

The need to improve the UNOLS Ship Scheduling Process was a major concern during the meeting. *The Ship Scheduling Groups reached consensus on the following:*

1. *Regional and consortium scheduling meetings, at which scientific users can meet with ship schedulers are useful and should be used more extensively.*

2. *The February/March East/West Scheduling Meetings serve no useful purpose, and should be dispensed with. Instead, interchange of strawman schedules at this time should be done by mail/telemail.*

3. *Scheduling meetings concurrent with UNOLS meetings should be continued, with dates chosen to be shortly after results are known from NSF panel actions.*

4. *An interactive data bank, preferably using telemail for access, should be established under the auspices of UNOLS, to contain all ship requests, to include sufficient information to define P.I.'s preference and requirements, and to indicate status of proposal submission/funding.*

5. *The present decentralized system of scheduling, despite inefficiencies, is a better system than any centralized system we can envision. It should be retained and improved, not replaced.*

Bob Dinsmore, chairman of the East Coast Group called for election of a new chairman, and declined to stand for re-election. Mike Rawson, L-DGO was selected as East Coast Group Chairman, beginning with the cycle for 1988. He joins his West Coast Group counterpart, George Shor, Jr.

UNOLS Business.

Elections to fill Advisory Council vacancies due to unexpired terms. Two vacancies on the Advisory Council had resulted from elected members withdrawing. A slate of candidates had been nominated and circulated to UNOLS members (Appendix XVI). The results of elections:

For Advisory Council - Member Representation (one year remaining of an unexpired term):

Paul J. Fox, University of Rhode Island,

and for Advisory Council - Associate Representation (two years remaining of an unexpired term):

Charles S. Yentsch, Bigelow Laboratory for Ocean Sciences.

UNOLS Office. UNOLS Member institutions had been advised that the grant supporting the UNOLS Office would expire during 1988. There would, therefore, be opportunity for relocating the Office, presently at the University of Washington. George Keller, Chairman, announced that UNOLS would follow an open process in reaching their recommendation on location of the Office beyond 1988. Selection of the host institution would be in accordance with the UNOLS Charter and would include:

- Solicitation of UNOLS Member institutions for interest in hosting the Office,

- Solicitation of preliminary proposals from those Member institutions with interest,

- Evaluation of preliminary proposals by a Selection Committee formed by the UNOLS Chairman and Advisory Council. The Selection Committee would have representation from UNOLS and from sponsoring agencies. Their recommendation would go to UNOLS for consideration by the membership, and, if endorsed, be forwarded to NSF and other funding agencies.

It was noted that the University of Washington was interested in again hosting the UNOLS, and would again propose, with William D. Barbee as candidate for UNOLS Executive Secretary.

UNOLS Charter. The need to consider the UNOLS Charter for re-adoption during 1987 was noted. There were no changes suggested, nor other discussion.

Commendation: Chairman George Keller asked that UNOLS commend E.R. Dolly Dieter for her efforts as Chairperson, Research Vessel Operator's Council, over the past four years. The UNOLS membership commended her by acclamation.

George Keller closed the meeting by noting several problems facing UNOLS: recent erosion of UNOLS fleet support from civil mission agencies, the need to improve the scheduling process so that available ship operations funds are expended efficiently (and not wasted on ill-planned lay-ups or marginal schedules). He noted also some positive factors: Global scale programs are gaining support both among agencies and Congress. Facility (ship) acquisitions are being implemented (ONR). Agency global science programs (as in NSF's Long Range Program) are being developed rapidly. *These are interesting times, with many positive notes and challenges.*

There being no further business, the UNOLS Semiannual Meeting was adjourned.

UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

SEMIANNUAL MEETING AGENDA

0830, Friday, October 31, 1986

American Institute of Architects
Board Room
1735 New York Avenue NW
Washington, D.C.

INTRODUCTION AND WELCOME - *Dr. George H. Keller, UNOLS Chairman*

CHAIRMAN'S REPORT - *Dr. George H. Keller*

UNOLS ADVISORY COUNCIL - *Dr. John Martin, Advisory Council Chairman will report on the Council's agenda for 1986-1987 and on recent activities.*

UNOLS FLEET IMPROVEMENT COMMITTEE - *Report on and discussion of reconstitution of the Fleet Committee and charge to the Committee for 1986-1987.*

UNOLS ALVIN REVIEW COMMITTEE - *Dr. Robert Corell will report on ALVIN program status, ARC activities and advanced planning.*

RESEARCH VESSEL OPERATOR'S COUNCIL - *Ms. E.R. Dieter will report on the RVOC annual meeting (Oct. 8-10) and RVOC activities.*

REMARKS FROM FEDERAL FUNDING AGENCIES - *Update forecasts on Fiscal Year 87/88 fleet and ship support and ocean science funding; other matters of interest -- NSF, ONR, MMS, NOAA, USGS, and DOE.*

12:00 - 1:00 p.m. LUNCH 12:00 - 1:00 p.m.

REGIONAL SHIP SCHEDULING GROUPS, JOINT MEETING - *A joint report from Captain Robertson P. Dinsmore and Dr. George Shor, Jr. on recommended schedules for 1987 and 1987 ship use; development of improved UNOLS ship scheduling procedures.*

UNOLS BUSINESS - *Issues and items for UNOLS membership consideration, discussion and action:*

1. Elections to fill Advisory Council vacancies due to unexpired terms: Membership representation, 1 year remaining, and Associate represenatation, 2 years remaining. A slate of candidates will be presented.

2. UNOLS Office. The grant supporting the UNOLS Office expires during 1988. The UNOLS Chairman will lead a discussion of office functions, etc. to determine a course of action to be implemented.

3. UNOLS Charter. The UNOLS Charter will be due for readoption/revision at the Spring, 1987 Semiannual meeting. Changes concerning the ship scheduling process are being developed and are expected to be submitted for Membership approval at that time. If other changes are desired, they should be introduced now so that they can be acted on at the Spring, 1987 meeting.

OTHER BUSINESS - *Issues and recommendations as may be introduced by the Advisory Council, committees, sponsors or the membership.*

The order of items on the agenda may be rearranged so that the meeting can move toward a hoped-for mid afternoon adjournment.

ATTENDANCE

Appendix II

UNOLS SEMIANNUAL MEETING
Washington, DC - Oct. 31, 1986

Mr. Sunit K. Addy
National Science Foundation
1800 G. Street NW
Washington, DC 20550
(202) 357-7312

Commander John Albright
National Ocean Survey
National Oceanic & Atmospheric Administration
Rockville, MD 20852
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Dr. E. Eugene Allmendinger
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Marine Superintendent
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Associate Dean
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OES/OMS Rm. 5801
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Institute of Marine Sciences
University of Alaska
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Captain John Dudley
Marine Superintendent
Lamont-Doherty Geological Observatory
Columbia University
Palisades, NY 10964-0190
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Vice President Contracts & Grants
Texas A&M Research Foundation
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Associate Director of Operations
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Vice President for Research
and Graduate Studies
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(503) 754-3437

Mr. Henry Kennedy
Deputy Director
ITT Antartic Services, Inc.
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Mr. Wes Lovaas
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ONR Detachment
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of Oceanography
University System of Georgia
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Naval Postgraduate School
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Manager Oceanography Technical
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Commander Geoffrey Whiting
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MEMBERS

UNIVERSITY OF ALASKA
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UNIVERSITY OF DELAWARE
Dr. Carolyn A. Thoroughgood

DUKE/UNIVERSITY OF NORTH CAROLINA
Dr. Dirk Frankenberg

UNIVERSITY OF HAWAII
Dr. Charles E. Helsley

THE JOHNS HOPKINS UNIVERSITY
Dr. Lawrence Harding

COLUMBIA UNIVERSITY, LAMONT-DOHERTY GEOLOGICAL OBSERVATORY
Dr. Dennis E. Hayes

UNIVERSITY OF MIAMI, ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE
Dr. John C. Van Leer

UNIVERSITY OF MICHIGAN, GREAT LAKES AND MARINE WATERS CENTER
Dr. Robert G. Wetzel

MOSS LANDING MARINE LABORATORIES
Dr. John H. Martin

OREGON STATE UNIVERSITY
Dr. Douglas Caldwell

UNIVERSITY OF RHODE ISLAND
Dr. James J. Griffin

UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY
Dr. George G. Shor, Jr.

UNIVERSITY SYSTEM OF GEORGIA SKIDAWAY INSTITUTE OF OCEANOGRAPHY
Dr. David W. Menzel

UNIVERSITY OF SOUTHERN CALIFORNIA
Dr. Robert Douglas

UNIVERSITY OF TEXAS
Dr. Arthur E. Maxwell

TEXAS A & M UNIVERSITY
Captain T. K. Treadwell

UNIVERSITY OF WASHINGTON
Dr. Brian Lewis

WOODS HOLE OCEANOGRAPHIC INSTITUTION
Dr. George Grice

ASSOCIATE MEMBERS

UNIVERSITY OF ALABAMA
Dr. George F. Crozier

BERMUDA BIOLOGICAL STATION
Dr. Anthony K. Knapp

BIGELOW LABORATORY FOR OCEAN SCIENCES
Dr. Charles S. Yentsch

BROOKHAVEN NATIONAL LABORATORY

UNIVERSITY OF CALIFORNIA, SANTA BARBARA
Dr. Bruce H. Robison

CAPE FEAR TECHNICAL INSTITUTE
Mr. Edward Foss

UNIVERSITY OF CONNECTICUT
Dr. Donald F. Squires

FLORIDA INSTITUTE FOR OCEANOGRAPHY

FLORIDA INSTITUTE OF TECHNOLOGY
Mr. Jack Morton

FLORIDA STATE UNIVERSITY
Dr. Ya Hsueh

HARBOR BRANCH OCEANOGRAPHIC INSTITUTION
Dr. Jay Langfelder

HARVARD UNIVERSITY
Dr. Alan Robinson

HOBART & WILLIAM SMITH COLLEGES
Mr. F. Richard Wilkins

LEHIGH UNIVERSITY
Dr. Bobb Carson

LOUISIANA UNIVERSITIES MARINE CONSORTIUM
Dr. Donald F. Boesch

UNIVERSITY OF MAINE
Dr. Bernard J. McAlice

MARINE SCIENCE CONSORTIUM
Dr. Robert W. Hinds

UNIVERSITY OF MARYLAND
Dr. Ian Morris

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Dr. John M. Edmond

NAVAL POSTGRADUATE SCHOOL
Dr. Steven R. Ramp

UNIVERSITY OF NEW HAMPSHIRE
Professor E. Eugene Allmendinger

NEW YORK STATE UNIVERSITY COLLEGE AT BUFFALO

NEW YORK STATE UNIVERSITY AT STONY BROOK
Dr. J.R. Schubel

NORTH CAROLINA STATE UNIVERSITY
Dr. Robert H. Weisberg

UNIVERSITY OF NORTH CAROLINA AT WILMINGTON
Dr. Robert Y. George

NOVA UNIVERSITY
Dr. Julian P. McCreary

OCCIDENTAL COLLEGE
Dr. John S. Stephens, Jr.

OLD DOMINION UNIVERSITY
Dr. William M. Dunstan

UNIVERSITY OF PUERTO RICO
Dr. Thomas Tosteson

SAN DIEGO STATE UNIVERSITY
Dr. Clive Dorman

SEA EDUCATION ASSOCIATION
Dr. Susan E. Humphris

UNIVERSITY OF SOUTH CAROLINA
Dr. Robert Thunell

UNIVERSITY OF SOUTH FLORIDA
Dr. Peter R. Betzer

VIRGINIA INSTITUTE OF MARINE SCIENCE
Dr. John M. Ziegler

WALLA WALLA COLLEGE
Dr. Lawrence McCloskey

UNIVERSITY OF WISCONSIN AT MADISON
Dr. Robert A. Ragotzkie

UNIVERSITY OF WISCONSIN AT MILWAUKEE
Dr. David N. Edgington

UNIVERSITY OF WISCONSIN AT SUPERIOR
Ms. Mary Balcer

THE UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM
LIST OF RESEARCH VESSELS (>20M) OPERATED BY UNOLS INSTITUTIONS

Appendix IV
10/86

OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	NUMBER OF SCIENTISTS	OWNER	SHIP SCHEDULING CONTACT
University of Hawaii Hawaii Institute of Geophysics 2525 Correa Road Honolulu, Hawaii 96822	MOANA WAVE	213/65	1973/1984	20	NAVY	Mr. J. Frisbee Campbell Scientific Coordinator for Marine Operations (808) 948-7654
University of Alaska Institute of Marine Science Fairbanks, Alaska 99701	ALPHA HELIX	133/41	1966	15	NSF	Dr. Thomas Royer Associate Professor (907) 474-7835
University of Washington School of Oceanography, WB-10 Seattle, Washington 98195	T.G. THOMPSON C.A. BARNES	209/64 66/20	1965 1966/1984	22# 6	NAVY NSF	Dr. Brian T.R. Lewis Director (206) 543-6487
Oregon State University College of Oceanography Newport, OR 97365	WECOMA	177/54	1975	16	NSF	Ms. Mary Jo Gutierrez Ship Scheduler (503) 754-4447
Moss Landing Marine Laboratories P.O. Box 223 Moss Landing, California 95039	POINT SUR	135/41	1981	12	NSF	Mr. Michael Prince Ship Scheduler (408) 633-3304
University of Southern California Inst. for Marine & Coastal Studies 820 South Seaside Avenue Terminal Island, California 90731	VELERO IV	110/34	1948/1972	12	USC	Mr. Don Newman, Mgr. Marine Support Facility (213) 830-4570
University of California, San Diego Scripps Institution of Oceanography La Jolla, California 92093	MELVILLE T. WASHINGTON NEW HORIZON R.G. SPROUL	245/75 209/64 170/52 125/38	1969 1965 1978 1981/1985	29 22 13 12	NAVY NAVY U.C. U.C.	Dr. George Shor, Jr. Ship Scheduler Code A-010 (619) 452-2840
University of Michigan Great Lakes & Marine Waters Center 2200 Bonisteel Boulevard Ann Arbor, Michigan 48109	LAURENTIAN	80/24	1974	8	U.MI.	Dr. Linda Sicko Goad Marine Superintendent (313) 763-5393
Texas A & M University Department of Oceanography College Station, Texas 77843	GYRE	182/54	1973	21	NAVY	Mr. Wes Lovaas Marine Operations Officer (409) 845-7211
The University of Texas 700 The Strand Galveston, Texas 77550	FRED MOORE	165/50	1967	20	U.T.	Mr. William H. Mitchell Marine Superintendent (409) 761-2276
University of Miami, RSMAS Oceanographic Facility 1620 Port Boulevard Miami, Florida 33132	ISELIN CALANUS	170/52 64/20	1972 1971	16 6	U.M. U.M.	Mr. Ronald Hutchinson Marine Operations (305) 373-3830
University System of Georgia Skidaway Institute of Oceanography P.O. Box 13687 Savannah, Georgia 31416-0687	BLUE FIN	72/22	1972/1975	8	U.G.	Dr. David W. Menzel Director (912) 356-2480
Duke/UNC Oceanographic Consortium Duke University Marine Laboratory Beaufort, North Carolina 28516	CAPE HATTERAS	135/41	1981	12	NSF	Captain Eric B. Nelson Marine Superintendent (919) 728-3372
The Johns Hopkins University Chesapeake Bay Institute Shady Side, Maryland 20764	R. WARFIELD	106/32	1967	10	J.H.U.	Mr. Bruce Cornwall Marine Superintendent (301) 867-7550, Ext. 246
University of Delaware College of Marine Studies 700 Pilottown Road Lewes, Delaware 19958	CAPE HENLOPEN	120/37	1976	12	U.D.	Mr. Wadsworth Owen Dir. of Marine Operations (302) 645-4320
Lamont-Doherty Geological Observatory Columbia University Palisades, New York 10964	CONRAD	209/64	1962	23	NAVY	Dr. Michael Rawson Marine Science Coordinator (914) 359-2900
University of Rhode Island Graduate School of Oceanography Narragansett, Rhode Island 02882	ENDEAVOR	177/54	1976	16	NSF	Mr. John F. Bash Marine Superintendent (401) 792-6203
Woods Hole Oceanographic Institution Woods Hole, Massachusetts 02543	KNORR ATLANTIS II OCEANUS DSRV ALVIN	245/75 210/64 177/54 25.8	1970 1963 1975 1964	24 29* 12 2	NAVY WHOI NSF NAVY	Ms. Barbara Martineau Marine Ops Administrator (617) 548-1400, Ext. 2450

*20 Scientists (includes one medic)
Plus 9 ALVIN group

#Includes one Marine Technician

Marine Operations Contacts for

THE UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM
LIST OF RESEARCH VESSELS (>20M) OPERATED BY UNOLS INSTITUTIONS

Appendix V

10/86

OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	CREW	NUMBER OF SCIENTISTS	OWNER	MARINE OPERATIONS CONTACT
University of Hawaii Hawaii Institute of Geophysics 2525 Correa Road Honolulu, Hawaii 96822	MOANA WAVE	213/65	1973/1984	16	20	NAVY	Captain J. W. Coste Marine Superintendent (808) 847-2661
University of Alaska Institute of Marine Science P.O. Box 730 Seward, Alaska 99664	ALPHA HELIX	133/41	1966	9	15	NSF	Ms. E. R. Dieter Assoc. Dir. for Mar. Ops (907) 224-5261
University of Washington School of Oceanography, WB-10 Seattle, Washington 98195	T.G. THOMPSON	209/64	1965	22	22#	NAVY	Captain William Jeffers Marine Superintendent (206) 543-5062
	C.A. BARNES	66/20	1966/1983	2	6	NSF	
Oregon State University College of Oceanography Newport, OR 97365	WECOMA	177/54	1975	12	16	NSF	Captain Ken Palfrey Marine Superintendent (503) 867-3011
Moss Landing Marine Laboratories P.O. Box 223 Moss Landing, California 95039	POINT SUR	135/41	1981	9	12	NSF	Mr. Michael Prince Ship Scheduler (408) 633-3304
University of Southern California Marine Support Facility 820 South Seaside Avenue Terminal Island, CA 90731	VELERO IV	110/34	1948/1972	11	12	USC	Mr. Don Newman, Mgr. Marine Support Facility (213) 743-6977
University of California, San Diego Scripps Institution of Oceanography La Jolla, California 92093	MELVILLE	245/75	1969	23	29	NAVY	Capt. Jim Williams Marine Facilities Code P-005 (619) 225-9600
	T. WASHINGTON	209/64	1965	23	22	NAVY	
	NEW HORIZON	170/52	1978	12	13	U.C.	
	ROBERT SPROUL	125/38	1981/1985	5	12	U.C.	
University of Michigan Great Lakes & Marine Waters Center 2200 Bonisteel Boulevard Ann Arbor, Michigan 48109	LAURENTIAN	80/24	1974	6	8	U.MI.	Dr. Linda Sicko Goad Marine Superintendent (313) 763-5393
Texas A & M University Department of Oceanography College Station, Texas 77843	GYRE	182/54	1973	11	21	NAVY	Mr. Wes Lovaas Marine Operations Officer (409) 845-7211
The University of Texas 700 The Strand Galveston, Texas 77550	FRED MOORE	165/50	1967	10	20	U.T.	Mr. William H. Mitchell Marine Superintendent (409) 761-2276
University of Miami, RSMAS Oceanographic Facility 1620 Port Boulevard Miami, Florida 33132	ISELIN	170/52	1972	12	16	U.M.	Mr. Ronald Hutchinson Operations Manager (305) 373-3830
	CALANUS	64/20	1971	2	6	U.M.	
University System of Georgia Skidaway Institute of Oceanography P.O. Box 13687 Savannah, Georgia 31416-0687	BLUE FIN	72/22	1972/1975	5	8	U.G.	Dr. David W. Menzel Director (912) 356-2480
Duke/UNC Oceanographic Consortium Duke University Marine Laboratory Beaufort, North Carolina 28516	CAPE HATTERAS	135/41	1981	10	12	NSF	Captain Eric B. Nelson Marine Superintendent (919) 728-3372
The Johns Hopkins University Chesapeake Bay Institute Shady Side, Maryland 20764	R. WARFIELD	106/32	1967	11	10	J.H.U.	Mr. Bruce Cornwall Marine Superintendent (301) 867-7550, Ext. 246
University of Delaware College of Marine Studies 700 Pilottown Road Lewes, Delaware 19958	CAPE HENLOPEN	120/37	1976	7	12	U.D.	Mr. Wadsworth Owen Dir. of Marine Operations (302) 645-4320
Lamont-Doherty Geological Observatory Columbia University Palisades, New York 10964	CONRAD	209/64	1962	23	23	NAVY	Captain John Dudley Marine Superintendent (914) 359-2900, Ext. 245
University of Rhode Island Graduate School of Oceanography Narragansett, Rhode Island 02882	ENDEAVOR	177/54	1976	12	16	NSF	Mr. John F. Bash Marine Superintendent (401) 792-6203
Woods Hole Oceanographic Institution Woods Hole, Massachusetts 02543	KNORR	245/75	1970	25	24	NAVY	Donald A. Moller Marine Ops Coordinator (617) 548-1400, Ext. 2277
	ATLANTIS II	210/64	1963	27	29*	WHOI	
	OCEANUS	177/54	1975	12	12	NSF	
			Totals	317	396		

*20 Scientists (includes one medic)
Plus 9 ALVIN group
#Includes one marine technician

UNOLS ADVISORY COUNCIL Rev 5/87

1971-1976. Comprised of four members from Member Institutions and three from Associate Members Institutions

1977. Charter Revision at Annual Meeting increased membership in the Advisory Council to eight - five from Member Institutions, and three from Associate Member Institutions. Three year term.

1971-1972	
J. V. Byrne, OSU, Chairman	
D. W. Menzel, SKIO	
R. A. Ragotzkie, U/WISC.	
H. M. Stommel, MIT	
W. S. Wooster, SIO	
J. P. Craven, U/HAWAII	
C. L. Drake, DARTMOUTH (resigned 1972)	

1973-1974	Expires
J. V. Byrne, OSU, Chairman	5/75
J. P. Craven, U/HAWAII	5/75
D. W. Menzel, SKIO	5/74
A. F. Richards, LEHIGH	5/76
R. A. Ragotzkie, U/WISC	5/74
H. M. Stommel, MIT	5/74
P. L. Parker, U/TEXAS	7/76
R. C. Dugdale, U/WA	7/76
R. Colwell, U/MARYLAND (Interim Appointee)	

1974-1975	
J. V. Byrne, SIO, Acting Chairman	5/75
P. L. Parker, U/TEXAS	7/76
A. F. Richards, LEHIGH	7/76
W. S. Richardson, NOVA U, Ch (deceased)	
R. J. Wold, U/WISC (resigned)	
R. C. Dugdale, U/WA	5/76
J. P. Craven, U/HAWAII	5/76

1975-1976	
R. C. Dugdale, BIGELOW, Chairman	5/77
P. L. Parker, U/TEXAS	7/76
A. F. Richards, LEHIGH	7/76
T. K. Treaadwell, TAMU	5/78
D. Hood, U/ALASKA	5/76
F. Webster, WHOI	5/77

1976-1977	
R. C. Dugdale, BIGELOW, Chairman	5/77
R. T. Barber, DUKE	5/79
D. Frankenberg, UNC	5/79
M. G. Gross, JHU	5/78
G. H. Keller, OSU	5/77
J. H. Martin, MLML	5/79
T. K. Treadwell, TAMU	5/78
W. S. Wooster, U/WA, ex-officio	
F. Webster, WHOI, ex-officio	

1977-1978	
G. H. Keller, OSU, Chairman	7/76-6/80
D. Frankenberg, UNC, V-Chairman	7/76-6/79
R. T. Barber, DUKE	7/76-6/79
R. L. Fisher, SIO	7/77-6/80
M. G. Gross, JHU	7/75-6/80
J. H. Martin, MLML	7/76-6/79
J. R. Schubel, SUNY	7/77-6/80
T. K. Treadwell, TAMU	7/75-6/78
F. Webster, WHOI, ex-officio	7/76-6/78
W. S. Wooster, U/WA, ex-officio	7/76-6/78

1978-1979	Term
G. H. Keller, OSU, Chairman	7/76-6/80
R. T. Barber, DUKE, V-Chairman	7/76-6/79
G. C. Anderson, U/WA	7/78-6/81
R. L. Fisher, SIO	7/77-6/80
J. H. Martin, MLML	7/76-6/79
W. B. F. Ryan, L-DGO	7/78-6/81
J. R. Schubel, SUNY/STONY BROOK	7/77-6/81
J. M. Zeigler, VMS	7/78-6/81

1979-1980	
G. C. Anderson, U/WA, Chairman	7/78-6/81
J. R. Schubel, SUNY/SB, V-Chairman	7/77-6/80
G. H. Keller, OSU	7/76-6/80
B. H. Robison, USCB	7/79-6/82
H. T. Rossby, URI	7/79-6/82
W. B. F. Ryan, L-DGO	7/78-6/81
R. L. Fisher, SIO	7/77-6/80
J. M. Ziegler, VIMS	7/78-6/81
T. K. Treadwell, TAMU, ex-officio	7/78-6/80 CH
J. H. Martin, MLML, ex-officio	7/79-6/80 V-CH

1980-1981	Term
G. C. Anderson, U/WA, Chairman	7/78-6/81
H. T. Rossby, URI, V-Chairman	7/79-6/82
B. H. Robison, USCB	7/79-6/82
C. B. Miller, OSU	7/70-6-83
W. B. F. Ryan, L-DGO	7/78-6/81
W. M. Sackett, U/S FL	7/80-6/83
D. W. Spencer, WHOI	7/80-6/83
J. M. Zeigler, VIMS	7/78-6/81
T. K. Treadwell, TAMU, ex-officio	7/79-6/81 UNOLS CH
J. H. Martin, MLML, ex-officio	7/79-6/81 UNOLS V-CH

1981-1982	
B. H. Robison, UCSB, Chairman	7/79-6/82
H. T. Rossby, URI, V-Chairman	7/79-6/82
R. W. Corell, UNH	7/81-6/84
J. R. Curray, SIO	7/81-6/83
D. S. Gorsline, USC	7/81-6/84
C. B. Miller, OSU	7/80-6/83
W. M. Sackett, U/S FL	7/80-6/83
J. C. Van Leer, U/MIAMI	7/80-6/83
D. W. Spencer, WHOI ex-officio	7/81-6/82 UNOLS CH
D. Frankenberg, UNC, ex-officio	7/81-6/82 UNOLS V-CH

1982-1983	
B. H. Robison, UCSB, Chairman	7/82-6/85
J. R. Curray, SCRIPPS, V-Chairman	7/82-6/85
R. W. Corell, UNH	7/81-6/84
D. S. Gorsline, USC	7/81-6/84
W. B. Sackett, U/S FL	7/80-6/83
J. C. Van Leer, U/MIAMI	7/80-6/83
D. W. Spencer, WHOI, ex-officio	7/82-6/83 UNOLS CH
D. Frankenberg, UNC, ex-officio	7/82-6/83 UNOLS V-CH

1983-1984

C. B. Miller, OSU, Chairman	7/80-6/86	
H. B. Stewart, Jr., OLD DOM., V-Ch	7/83-6/86	
R. W. Corell, UNH	7/81-6/84	
D. S. Gorsline, USC	7/81-6/85	
R. Larson, URI	7/82-6/85	
B. H. Robison, UCSB	7/79-6/85	
J. C. Van Leer, U/MIAMI	7/81-6/84	
F. Webster, U/DEL, ex-officio	7/83-6/84	UNOLS CH
J. R. Curray, SCRIPPS, ex-officio	7/83-6/84	UNOLS V-CH

1984-1985

C. B. Miller, OSU, Chairman	7/80-6/86	
H. B. Stewart, Jr., OLD DOM., V-Ch	7/83-6/86	
R. P. Dinsmore, WHOI	7/83-6/86	
D. S. Gorsline, USC	7/81-6/84	
B. H. Robison, UCSB	7/79-6/85	
A. E. Maxwell, U/TX, Austin	7/84-6/87	
C. J. Lorenzen, U/WA	7/84-6/87	
T. Malone, U/MD	7/84-6/87	
F. Webster, U/DEL, ex-officio	7/83-6/84	UNOLS CH
R. W. Corell, UNH, ex-officio	7/84/6/85	UNOLS V-CH

1985-1986

C. B. Miller, OSU, Chairman	7/80-6/86	
T. Malone, UMD, V-Chairman	7/84-6/87	
R. P. Dinsmore, WHOI	7/83-6/86	
C. J. Lorenzen, UWA	7/84-6/87	
J. H. Martin, MLML	7/85-6/88	
A. E. Maxwell, U/TX, Austin	7/84-6/87	
C. N. Mooers, NPS	7/85-6/88	
H. B. Stewart, Jr., OLD DOMINION	7/83-6/86	
F. Webster, U/DEL, ex-officio	7/83-6/86	UNOLS CH
R. W. Corell, UNH, ex-officio	7/81-6/86	UNOLS V-CH

1986-1987

J. H. Martin, MLML, Chairman	7/85-6/88	
T. Malone, UMD, Vice Chairman	7/84-6/87	
R. P. Dinsmore, WHOI	7/83-6/89	
R. A. Knox, Scripps	7/86-6/89	
P. J. Fox, URI	10/86-6/87	
K. C. MacDonald, UCSB	7/86-6/89	
A. E. Maxwell, U TX/Austin	7/84-6/87	
C. S. Yentsch, Bigelow	10/86-6/87	
G. H. Keller, OSU, ex-officio	7/86-6/88	UNOLS CH
R. W. Corell, UNH, ex-officio	7/84-1/87	UNOLS V-CH *

* resigned 1/87

Appendix VII

UNOLS Chairman and Vice-Chairman
Advisory Council Chairman and Vice-Chairman and Executive Secretary
(Executive Subcommittee consists of UNOLS Chairman and Vice-Chairman, Advisory Council Chaiman and Executive Secretary)

May 1971-1972	
A.E. Maxwell, WHOI	UNOLS CH
J. M.Savage, USC	UNOLS V-CH.
J. V. Byrne, OSU	A/C Ch.
R. P. Dinsmore, UNOLS	E/S
May 1972-1973	
A. E. Maxwell, WHOI	UNOLS CH.
J. M. Savage, USC	UNOLS V-CH.
J. V. Byrne, OSU	A/C CH.
R. P. Dinsmore, UNOLS	E/S
May 1973-1974	
A. E. Maxwell, WHOI	UNOLS CH.
J. M. Savage, USC	UNOLS V-CH.
J. V. Byrne, OSU	A/C CH.
R. P. Dinsmore, UNOLS	E/S
May 1974-1975	
J. A. Knauss, URI	UNOLS CH.
G. C. Shor, SIO	UNOLS V-CH.
R. C. Dugdale, BIGELOW	A/C CH.
R. P. Dinsmore, UNOLS	E/S
May 1975-1976	
J. A. Knauss, URI	UNOLS CH.
G. C. Shor, SIO	UNOLS V-CH.
R. C. Dugdale, BIGELOW	A/C CH.
R. P. Dinsmore, UNOLS	E/S
May 1976-1977	
W. S. Wooster, U/WA	UNOLS CH.
T. F. Webster, WHOI	UNOLS V-CH.
R. C. Dugdale, BIGELOW	A/C CH.
T. R. Stetson, UNOLS	E/S
May 1977-1978	
W. S. Wooster, U/WA	UNOLS CH.
T. F. Webster, WHOI	UNOLS V-CH.
G. H. Keller, OSU	A/C CH.
D. Frankenberg, UNC	A/C V-CH.
T. R. Stetson, UNOLS	E/S
May 1978-1979	
T. K. Treadwell, TAMU	UNOLS CH.
A. F. Richards, LEHIGH	UNOLS V-CH.
G. H. Keller, OSU	A/C CH.
R. T. Barber, DUKE	A/C V-CH.
T. R. Stetson, UNOLS	E/S
May 1980-1981	
T. K. Treadwell, TAMU	UNOLS CH.
J. H. Martin, MLML	UNOLS V-CH.
G. C. Anderson, U/WA	A/C CH.
H. T. Rossby, URI	A/C V-CH.
T. R. Stetson, UNOLS	E/S
May 1981-1982	
D. W. Spencer, WHOI	UNOLS CH.
D. Frankenberg, UNC/CH	UNOLS V-CH.
B. H. Robison, UCSB	A/C
H. T. Rossby, URI	A/C V-CH.
T. R. Stetson, UNOLS	E/S
May 1982-1983	
D. W. Spencer, WHOI	UNOLS CH.
D. Frankenberg, UNC/CH	UNOLS V-CH.
B. H. Robison, UCSB	A/C CH.
J. R. Curray, SCRIPPS	A/C V-CH.
W. D. Barbee, UNOLS	E/S
May 1983-1984	
F. Webster, U/DEL	UNOLS CH.
J. R. Curray, SCRIPPS	UNOLS V-CH.
C. B. Miller, OSU	A/C CH.
W. D. Barbee, UNOLS	E/S
May 1985-1986	
F. Webster, U/DEL	UNOLS CH.
R. W. Corell, UNH	UNOLS V-CH.
C. B. Miller, OSU	A/C CH.
T. Malone, U/MD	AC V-CH.
W. B. Barbee, UNOLS	E/S
May 1986-1987	
G. H. Keller, OSU	UNOLS CH.
R. W. Corell, UNH *	UNOLS V-CH.
J. H. Martin, MLML	A/C CH
T. Malone, U MD	A/C V-CH
W. D. Barbee, UNOLS	E/S

* resigned 1/29/87

App. VIII

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1985 -

CRUISE DAYS PROFILES

REVISED 10/21/86

AGENCY	PHYS OCEAN	ACCOU STICS	CHEM OCEAN	BIOL OCEAN	ENVIR ECOL	FISH INVST	CLIM METEO	GEOLO GEOPH	MAP CHRTG	OCEAN ENGRG	TRAIN ING	TRANS NONSCI	TOTAL
NATL SCIENCE FNDTN	694.0	.00	310.00	1274.00	73.00	21.00	11.00	915.00	.00	3.00	1.00	105.50	3407.50
OFF. NAVAL RESEARCH	119.0	.00	17.00	55.00	.00	.00	.00	211.50	.00	68.00	.00	8.00	478.50
U.S. GEOL. SURVEY	.0	.00	.00	.00	.00	.00	.00	38.00	.00	.00	.00	.00	38.00
MINERALS MNGT. SER.	26.0	.00	7.00	69.00	.00	.00	.00	61.00	.00	.00	.00	.00	163.00
NATL OCEAN/ATMOSPH	14.0	.00	.00	1.00	.00	.00	.00	30.00	.00	.00	.00	.00	45.00
DEPT. OF ENERGY	62.0	.00	12.00	60.00	.00	.00	.00	21.00	.00	.00	.00	.00	155.00
OTHER FEDERAL	.0	.00	4.00	12.00	.00	.00	.00	19.00	.00	22.00	.00	.00	57.00
STATE/MUNICIPAL	44.0	.00	26.00	63.00	16.00	1.00	.00	47.00	.00	1.00	38.00	11.00	247.00
OTHER/PRIVATE	18.0	.00	3.00	6.00	.00	.00	.00	135.00	.00	.00	.00	16.00	178.00
TOTALS	977.00	.00	379.00	1540.00	89.00	22.00	11.00	1477.50	.00	94.00	39.00	140.50	4769.00
PERCENT	20.49	.00	7.95	32.29	1.87	.46	.23	30.98	.00	1.97	.82	2.95	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1985 -

UNOLS OFFICE

CRUISE DAYS PROFILES

10/21/86

INSTITUTION	PHYS OCEAN	ACCOU STICS	CHEM OCEAN	BIOL OCEAN	ENVIR ECOL	FISH INVST	CLIM METEO	GEOLO GEOPH	MAP CHRTG	OCEAN ENGRG	TRAIN ING	TRANS NONSCI	TOTAL
UNIV. HAWAII	38.00	.00	.00	.00	.00	.00	.00	225.00	.00	.00	.00	38.00	301.00
UNIV. ALASKA	44.00	.00	5.00	102.00	.00	.00	.00	.00	.00	.00	2.00	.00	153.00
UNIV. WASHINGTON	196.00	.00	46.00	116.00	.00	.00	.00	50.00	.00	.00	.00	17.00	425.00
OREGON STATE UNIV.	34.00	.00	7.00	88.00	54.00	.00	.00	30.00	.00	.00	.00	.00	213.00
SCRIPPS INST. OCEAN	183.00	.00	60.00	219.00	.00	.00	.00	298.00	.00	45.00	2.00	28.00	835.00
UNIV. SO. CALIF.	.00	.00	14.00	67.00	.00	.00	.00	4.00	.00	.00	.00	.00	85.00
TEXAS A&M UNIV.	64.00	.00	65.00	12.00	.00	.00	.00	88.00	.00	.00	30.00	.00	259.00
UNIV. TEXAS	.00	.00	.00	.00	.00	.00	.00	44.00	.00	.00	.00	.00	44.00
UNIV. MIAMI, RSMAS	47.00	.00	60.00	222.00	.00	.00	.00	40.00	.00	.00	1.00	.00	370.00
UNIV GA., SKIDAWAY	32.00	.00	44.00	49.00	.00	.00	.00	5.00	.00	.00	.00	.00	130.00
DUKE UNIV/UNC	24.00	.00	.00	127.00	9.00	.00	11.00	61.00	.00	.00	1.00	.00	233.00
JOHNS HOPKINS UNIV.	24.00	.00	.00	87.00	.00	21.00	.00	.00	.00	.00	.00	.00	132.00
UNIV. DELAWARE	73.00	.00	18.00	70.00	.00	.00	.00	.00	.00	.00	.00	.00	161.00
LAMONT-DOHERTY GEOL	.00	.00	.00	.00	.00	.00	.00	354.50	.00	.00	.00	4.50	359.00
UNIV. RHODE ISLAND	110.00	.00	10.00	80.00	.00	.00	.00	21.00	.00	.00	.00	18.00	239.00
WOODS HOLE OCEAN	96.00	.00	45.00	215.00	.00	.00	.00	255.00	.00	49.00	.00	35.00	695.00
UNIV. MICHIGAN	.00	.00	.00	23.00	.00	.00	.00	.00	.00	.00	1.00	.00	24.00
MOSS LANDING MAR LAB	12.00	.00	5.00	63.00	26.00	1.00	.00	2.00	.00	.00	2.00	.00	111.00
TOTALS	977.00	.00	379.00	1540.00	89.00	22.00	11.00	1477.50	.00	94.00	39.00	140.50	4769.00
PERCENT	20.49	.00	7.95	32.29	1.87	.46	.23	30.98	.00	1.97	.82	2.95	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1985 -

UNOLS OFFICE

CRUISE DAYS PROFILES

10/21/86

VESSEL	PHYS OCEAN	ACCOU STICS	CHEM OCEAN	BIOL OCEAN	ENVIR ECOL	FISH INVST	CLIM METEO	GEOLO GEOPH	MAP CHRTG	OCEAN ENGRG	TRAIN ING	TRANS NONSCI	TOTAL
MELVILLE	37.00	.00	38.00	103.00	.00	.00	.00	35.00	.00	45.00	.00	13.00	271.00
KNORR	37.00	.00	5.00	41.00	.00	.00	.00	65.00	.00	28.00	.00	9.00	185.00
ATLANTIS II	.00	.00	.00	69.00	.00	.00	.00	184.00	.00	21.00	.00	13.00	287.00
CONRAD	.00	.00	.00	.00	.00	.00	.00	354.50	.00	.00	.00	4.50	359.00
T. G. THOMPSON	196.00	.00	.00	21.00	.00	.00	.00	39.00	.00	.00	.00	16.00	272.00
T. WASHINGTON	40.00	.00	.00	.00	.00	.00	.00	186.00	.00	.00	.00	15.00	241.00
ENDEAVOR	110.00	.00	10.00	80.00	.00	.00	.00	21.00	.00	.00	.00	18.00	239.00
OCEANUS	59.00	.00	40.00	105.00	.00	.00	.00	6.00	.00	.00	.00	13.00	223.00
WECOMA	34.00	.00	7.00	88.00	54.00	.00	.00	30.00	.00	.00	.00	.00	213.00
GYRE	64.00	.00	65.00	12.00	.00	.00	.00	88.00	.00	.00	30.00	.00	259.00
MOANA WAVE	38.00	.00	.00	.00	.00	.00	.00	225.00	.00	.00	.00	38.00	301.00
ISELIN	4.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.00
NEW HORIZON	64.00	.00	22.00	44.00	.00	.00	.00	65.00	.00	.00	.00	.00	195.00
FRED H. MOORE	.00	.00	.00	.00	.00	.00	.00	44.00	.00	.00	.00	.00	44.00
CAPE FLORIDA	31.00	.00	43.00	140.00	.00	.00	.00	4.00	.00	.00	.00	.00	218.00
CAPE HATTERAS	24.00	.00	.00	127.00	9.00	.00	11.00	61.00	.00	.00	1.00	.00	233.00
ALPHA HELIX	44.00	.00	5.00	102.00	.00	.00	.00	.00	.00	.00	2.00	.00	153.00
ROBERT G. SPROUL	42.00	.00	.00	72.00	.00	.00	.00	12.00	.00	.00	2.00	.00	128.00
CAPE HENLOPEN	73.00	.00	18.00	70.00	.00	.00	.00	.00	.00	.00	.00	.00	161.00
VELERO IV	.00	.00	14.00	67.00	.00	.00	.00	4.00	.00	.00	.00	.00	85.00
WARFIELD	24.00	.00	.00	87.00	.00	21.00	.00	.00	.00	.00	.00	.00	132.00
CAYUSE	12.00	.00	5.00	63.00	26.00	1.00	.00	2.00	.00	.00	2.00	.00	111.00
BLUE FIN	32.00	.00	44.00	49.00	.00	.00	.00	5.00	.00	.00	.00	.00	130.00
CLIFFORD BARNES	.00	.00	46.00	95.00	.00	.00	.00	11.00	.00	.00	.00	1.00	153.00
CALANUS	12.00	.00	17.00	82.00	.00	.00	.00	36.00	.00	.00	1.00	.00	148.00
LAURENTIAN	.00	.00	.00	23.00	.00	.00	.00	.00	.00	.00	1.00	.00	24.00
TOTALS	977.00	.00	379.00	1540.00	89.00	22.00	11.00	1477.50	.00	94.00	39.00	140.50	4769.00
PERCENT	20.49	.00	7.95	32.29	1.87	.46	.23	30.98	.00	1.97	.82	2.95	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1985 -

UNOLS OFFICE

OPERATIONAL DAYS CHARGED BY SPONSOR

10/21/86

INSTITUTION	NATL SCI. FNDTN	OFF. NAVAL RES.	U.S. GEOL SURV.	BUR. LAND MNGMT	NATL OCEAN ATMOS	DEPT OF ENRGY	OTHER FEDER FUNDS	STATE OR MUNIC	PRIV/ FORGN FUNDS	TOTALS
UNIV. HAWAII	189.00	.00	.00	9.00	2.00	.00	.00	11.00	90.00	301.00
UNIV. ALASKA	148.00	.00	.00	.00	.00	.00	.00	2.00	3.00	153.00
UNIV. WASHINGTON	361.00	40.00	2.00	.00	.00	.00	4.00	18.00	.00	425.00
OREGON STATE UNIV.	197.00	17.00	.00	7.00	.00	.00	.00	.00	.00	213.00
SCRIPPS INST. OCEAN	490.00	181.00	.00	.00	3.00	11.00	36.00	114.00	.00	835.00
UNIV. SO. CALIF.	81.00	.00	.00	.00	.00	.00	.00	4.00	.00	85.00
TEXAS A&M UNIV.	115.00	12.00	36.00	52.00	.00	.00	.00	44.00	.00	259.00
UNIV. TEXAS	25.00	.00	.00	.00	.00	.00	.00	11.00	8.00	44.00
UNIV. MIAMI, RSMAS	305.00	24.00	.00	.00	10.00	30.00	.00	1.00	.00	370.00
UNIV CA., SKIDAWAY	61.00	.00	.00	.00	1.00	63.00	5.00	.00	.00	130.00
DUKE UNIV/UNC	172.00	.00	.00	24.00	.00	27.00	.00	10.00	.00	233.00
JOHNS HOPKINS UNIV.	132.00	.00	.00	.00	.00	.00	.00	.00	.00	132.00
UNIV. DELAWARE	116.00	.00	.00	26.00	1.00	.00	.00	.00	18.00	161.00
LAMONT-DOHERTY GEOL	242.50	65.50	.00	.00	.00	.00	.00	.00	51.00	359.00
UNIV. RHODE ISLAND	190.00	11.00	.00	.00	.00	24.00	12.00	2.00	.00	239.00
WOODS HOLE OCEAN	509.00	110.00	.00	45.00	28.00	.00	.00	1.00	2.00	695.00
UNIV. MICHIGAN	24.00	.00	.00	.00	.00	.00	.00	.00	.00	24.00
MOSS LANDING MAR LAB	60.00	16.00	.00	.00	.00	.00	.00	29.00	6.00	111.00
TOTALS	3407.50	478.50	38.00	163.00	45.00	155.00	57.00	247.00	178.00	4769.00
PERCENT	71.5	10.0	.8	3.4	.9	3.3	1.2	5.2	3.7	100.0

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1985 -

UNOLS OFFICE

OPERATIONAL DAYS CHARGED BY SPONSOR

10/21/86

VESSEL	LOA	NATL SCI. FNDTN	DEF. NAVAL RES.	U.S. GEOL SURV.	BUR. LAND MNGMT	NATL OCEAN ATMOS	DEPT OF ENRGY	OTHER FEDER FUNDS	STATE OR MUNIC	PRIV/ FORGN FUNDS	TOTALS
MELVILLE	245FT	222.00	22.00	.00	.00	3.00	.00	22.00	2.00	.00	271.00
KNORR	245FT	99.00	86.00	.00	.00	.00	.00	.00	.00	.00	185.00
ATLANTIS II	210FT	238.00	18.00	.00	.00	28.00	.00	.00	1.00	2.00	287.00
CONRAD	209FT	242.50	65.50	.00	.00	.00	.00	.00	.00	51.00	359.00
T.G. THOMPSON	209FT	232.00	40.00	.00	.00	.00	.00	.00	.00	.00	272.00
T. WASHINGTON	209FT	88.00	120.00	.00	.00	.00	.00	14.00	19.00	.00	241.00
ENDEAVOR	177FT	190.00	11.00	.00	.00	.00	24.00	12.00	2.00	.00	239.00
OCEANUS	177FT	172.00	6.00	.00	45.00	.00	.00	.00	.00	.00	223.00
WECOMA	177FT	187.00	19.00	.00	7.00	.00	.00	.00	.00	.00	213.00
CYRE	174FT	115.00	12.00	36.00	52.00	.00	.00	.00	44.00	.00	259.00
MOANA WAVE	174FT	189.00	.00	.00	9.00	2.00	.00	.00	11.00	90.00	301.00
ISELIN	170FT	2.00	2.00	.00	.00	.00	.00	.00	.00	.00	4.00
NEW HORIZON	170FT	97.00	24.00	.00	.00	.00	11.00	.00	63.00	.00	195.00
FRED H. MOORE	165FT	25.00	.00	.00	.00	.00	.00	.00	11.00	8.00	44.00
CAPE FLORIDA	135FT	183.00	5.00	.00	.00	.00	30.00	.00	.00	.00	218.00
CAPE HATTERAS	135FT	172.00	.00	.00	24.00	.00	27.00	.00	10.00	.00	233.00
ALPHA HELIX	133FT	148.00	.00	.00	.00	.00	.00	.00	2.00	3.00	153.00
ROBERT G. SPROUL	125FT	83.00	15.00	.00	.00	.00	.00	.00	30.00	.00	128.00
CAPE HENLOPEN	120FT	116.00	.00	.00	26.00	1.00	.00	.00	.00	18.00	161.00
VELERO IV	110FT	81.00	.00	.00	.00	.00	.00	.00	4.00	.00	85.00
WARFIELD	106FT	132.00	.00	.00	.00	.00	.00	.00	.00	.00	132.00
CAYUSE	80FT	60.00	16.00	.00	.00	.00	.00	.00	29.00	6.00	111.00
BLUE FIN	72FT	61.00	.00	.00	.00	1.00	63.00	5.00	.00	.00	130.00
CLIFFORD BARNES	65FT	129.00	.00	2.00	.00	.00	.00	4.00	18.00	.00	153.00
CALANUS	64FT	120.00	17.00	.00	.00	10.00	.00	.00	1.00	.00	148.00
LAURENTIAN	80FT	24.00	.00	.00	.00	.00	.00	.00	.00	.00	24.00
TOTALS		3407.50	478.50	38.00	163.00	45.00	155.00	57.00	247.00	178.00	4769.00
PERCENT		71.5	10.0	.8	3.4	.9	3.3	1.2	5.2	3.7	100.0

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1985 -

PROJECT PERSON-DAYS AT SEA BY SPONSOR

10/21/86

VESSEL	LOA	TOTAL DAYS CHRGD	NATL SCI. FNDTN	OFF. NAVAL RES.	U.S. GEOL. SURV.	BUR. LAND MNGMT	NATL OCEAN ATMOS	DEPT. OF ENRGY	OTHER FEDER FUNDS	STATE OR MUNIC	PRIV/ FORGN FUNDS	TOTALS
MELVILLE	245	271.00	4430.00	616.00	.00	.00	48.00	.00	572.00	38.00	.00	5704.00
KNORR	245	185.00	1448.00	1721.00	.00	.00	.00	.00	.00	.00	.00	3169.00
ATLANTIS II	210	287.00	5281.00	432.00	.00	.00	700.00	.00	.00	.00	50.00	6463.00
CONRAD	209	359.00	3452.00	990.00	.00	.00	.00	.00	.00	.00	862.00	5304.00
T.G. THOMPSON	209	272.00	3680.00	352.00	.00	.00	.00	.00	.00	.00	.00	4032.00
T. WASHINGTON	209	241.00	1256.00	1816.00	.00	.00	.00	.00	112.00	190.00	.00	3374.00
ENDEAVOR	177	239.00	1958.00	148.00	.00	.00	.00	357.00	108.00	12.00	.00	2583.00
OCEANUS	177	223.00	1630.00	42.00	.00	540.00	.00	.00	.00	.00	.00	2212.00
WECOMA	177	213.00	2786.00	295.00	.00	91.00	.00	.00	.00	.00	.00	3172.00
GYRE	174	259.00	1626.00	.00	540.00	624.00	.00	.00	.00	342.00	.00	3132.00
MOANA WAVE	174	301.00	2800.00	.00	.00	144.00	98.00	.00	.00	129.00	1551.00	4722.00
ISELIN	170	4.00	16.00	16.00	.00	.00	.00	.00	.00	.00	.00	32.00
NEW HORIZON	170	195.00	1203.00	402.00	.00	.00	.00	176.00	.00	843.00	.00	2624.00
FRED H. MOORE	165	44.00	275.00	.00	.00	.00	.00	.00	.00	237.00	120.00	632.00
CAPE FLORIDA	135	218.00	2111.00	60.00	.00	.00	.00	310.00	.00	.00	.00	2481.00
CAPE HATTERAS	135	233.00	2309.00	.00	.00	288.00	.00	316.00	.00	137.00	.00	3050.00
ALPHA HELIX	133	153.00	1555.00	.00	.00	.00	.00	.00	.00	26.00	24.00	1605.00
ROBERT G. SPROUL	125	128.00	665.00	150.00	.00	.00	.00	.00	.00	281.00	.00	1096.00
CAPE HENLOPEN	120	161.00	1095.00	.00	.00	180.00	22.00	.00	.00	.00	98.00	1395.00
VELERO IV	110	85.00	805.00	.00	.00	.00	.00	.00	.00	28.00	.00	833.00
WARFIELD	106	132.00	904.00	.00	.00	.00	.00	.00	.00	.00	.00	904.00
CAYUSE	080	111.00	555.00	84.00	.00	.00	.00	.00	.00	335.00	48.00	1022.00
BLUE FIN	072	130.00	79.00	.00	.00	.00	1.00	224.00	35.00	.00	.00	339.00
CLIFFORD BARNES	065	153.00	475.00	.00	6.00	.00	.00	.00	13.00	481.00	.00	975.00
CALANUS	064	148.00	656.00	84.00	.00	.00	40.00	.00	.00	10.00	.00	790.00
LAURENTIAN	080	24.00	127.00	.00	.00	.00	.00	.00	.00	.00	.00	127.00
TOTALS		4769.00	43177.00	7208.00	546.00	1867.00	909.00	1383.00	840.00	3089.00	2753.00	61772.00
PERCENT			69.9	11.7	.9	3.0	1.5	2.2	1.4	5.0	4.5	100.0

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1985 -

UNOLS CRUISE PARTICIPANTS AND AFFILIATIONS

10/21/86

SHIP	SCI	TECH	GRAD	STU/OBS	TOTAL	ASSOC	NON-UNOLS	FED	FRGN	TOTAL
MOANA WAVE	87	99	31	47	264	0	9	4	32	45
ALPHA HELIX	47	35	28	9	119	14	22	0	1	37
T. G. THOMPSON	29	80	23	2	134	5	5	5	2	17
CLIFFORD BARNES	46	59	97	251	453	0	1	2	0	3
WECOMA	46	51	39	35	171	21	17	3	22	63
MELVILLE	50	92	64	16	222	27	9	1	10	47
ROBERT G. SPROUL	44	56	65	30	195	7	16	0	2	25
NEW HORIZON	67	100	34	27	228	2	17	3	9	31
T. WASHINGTON	36	61	53	9	159	7	13	1	7	28
VELERO IV	64	21	28	12	125	42	7	0	0	49
GYRE	40	62	20	1	123	19	24	14	0	57
FRED H. MOORE	9	23	4	33	69	0	0	0	0	0
ISELIN	6	1	1	0	8	0	0	0	0	0
CAPE FLORIDA	76	56	38	2	172	33	31	8	1	73
CALANUS	53	18	24	9	104	49	7	6	0	62
BLUE FIN	76	110	34	3	223	0	0	0	0	0
CAPE HATTERAS	164	79	86	40	369	106	37	5	6	154
WARFIELD	74	106	19	51	250	85	18	0	0	103
CAPE HENLOPEN	45	100	58	23	226	21	37	2	0	60
CONRAD	77	104	23	14	218	0	15	5	13	33
ENDEAVOR	59	47	18	12	136	12	8	4	5	29
ATLANTIS II	106	151	42	10	309	25	45	3	23	96
KNORR	61	80	13	4	158	17	15	3	5	40
OCEANUS	45	82	22	3	152	21	45	1	1	68
LAURENTIAN	16	3	22	5	46	0	0	0	0	0
CAYUSE	67	51	138	90	346	8	94	8	0	110
TOTALS	1490	1727	1024	738	4979	521	492	78	139	1230
PERCENT	29.9	34.7	20.6	14.8	100.0	10.5	9.9	1.6	2.8	24.7

UNOLS Chairman's Message-George Keller

We all are readily aware that times have changed in respect to ocean science funding, as well as in research emphasis and needs. Changes are expected, but in the case of the academic ocean research community program, needs have suffered due to inadequate growth in funding levels. In the early 1970's when UNOLS came on the scene, its role of coordinating research vessel use and increasing communications among the UNOLS members was a relatively easy task. Today, with funding limitations and an academic fleet larger than can be supported within the context of the ocean science program, the task and responsibility of UNOLS is considerably more difficult and of greater importance to the community. A number of circumstances have brought us to where we are today with terms such as "shortfalls" and "lay-ups" becoming very much a part of our vocabulary.

A number of the ocean related federal agencies fund the academic oceanographic community, through UNOLS, for the purpose of establishing closer coordination and more effective use of the vessels and associated activities. For this support, these agencies expect to receive meaningful advice on issues dealing with the research fleet and related activities. As times get tough, this task becomes tougher. Although some hard decisions have been made by the UNOLS Advisory Council, and strong recommendations have gone forth to the funding agencies in a number of cases, there is a need, in my opinion, for the community to bite some hard bullets in the near future, owing to the circumstances we face. If the ocean science program of this country is to move ahead, greater unity in the community must be attained on a number of major issues. The immediate problem of course, is funding shortfall and its impact on the overall ocean science program, including the research fleet. With our fleet accounting for about 37 percent of the overall program funding cost, innovation and perhaps some tough decisions are called for to make this part of the program as effective and cost efficient as possible. This is not a new charge to the community (UNOLS), but it takes on much greater significance in times such as we are in today. We urgently need to come forth with some meaningful short and long-range plans for an effective fleet, both in regard to the needs of the science program and ship costs. This can only happen in a significant way if greater unity is shown by the community in addressing this issue, and if to a certain degree, individual institutional biases give way to the needs of the community as a whole. Granted this is a pretty tall order, but we can look around at various science areas such as astronomy, and to some degree atmospheric science, where unity or near unity has allowed those communities to achieve goals that would probably not have been reached had they not pulled together. So, it can be done.

In 1987, UNOLS needs to bring greater focus on such issues as the optimum size and capabilities of the research fleet for the 1990's and beyond, a more effective ship scheduling process and greater efficiency in the management and operation of the fleet.

To accomplish this, the UNOLS Fleet Replacement Committee (FRC) is being reconstituted as the Fleet Improvement Committee (FIC). Its charge is to first re-address the issue of fleet size and capability for the short and long term. Our current mode of annual lay-ups is not cost efficient. This is an intolerable situation when funds are short, and there exists so many needs within the overall ocean science program.

The FIC will update the plan put forth by the FRC earlier this year in accordance with new information and changing circumstances. It will further evaluate the conceptual designs developed for the larger class research vessels and bring two of them that show particular promise to the preliminary design stage.

The Committee will also focus attention on the smaller class vessels that were not considered in the FRC study. This effort will include the roles, scientific mission requirements, number of vessels and conceptual designs. As appropriate, the committee will serve in a liaison and resource mode for federal agencies on behalf of the academic community in matters pertaining to new ship construction and upgrading.

It has become clear that the UNOLS ship scheduling process needs to be overhauled and modernized. More efficient means of sharing information must be developed, not only for the operators, but for the users as well. Our current mode of operation does not provide firm decisions on lay-ups to the operators in a timely manner, thus these lay-ups are inefficient, both in regard to vessel maintenance and cost savings. We cannot continue in this manner with the funding needs being what they are in the science program as a whole.

In the sense of needing to make the UNOLS fleet as cost efficient as possible, yet meeting the requirements of the science programs, fleet policies and strategies for managing and operating the vessels need to be considered. The Advisory Council has initiated an analysis of current and alternative mechanisms for managing and operating the UNOLS fleet as well as for funding and supporting the fleet. Included in this effort will be consideration of management strategies and mechanisms to match the UNOLS fleet to the needs of the ocean research program. This latter activity will be tied into the assessment of the ship scheduling process.

In July, I wrote to leaders and/or representatives of UNOLS institutions seeking comments on UNOLS effectiveness or ineffectiveness in servicing the ocean research community and what activities it could improve upon. Many of the comments I have made here stem from responses I have received. I believe that the community has good knowledge of the problems it faces, but it is the proposed solutions that vary greatly.

The majority of the responses felt that UNOLS should stick primarily to ship and shipboard related issues. There were, however, a number that suggested that UNOLS broaden its scope to include various types of facilities and operational modes required for future ocean research, such as satellites and satellite ground stations, seafloor facilities, robotic craft and navigation facilities.

The need to have the laboratory directors or deans more involved in UNOLS was pointed out in a number of responses. This may well happen as issues such as vessel lay-ups, decommissionings, and new vessels entering the fleet come to a head.

A number of people questioned whether UNOLS should continue to deal in an across-the-board manner with the UNOLS community. Clearly, the problems and concerns of the large vessel operator are quite different from those of the small vessel operator or the user, and the reverse is also true. Could UNOLS be more responsive to these three areas by more direct attention to their respective needs? This is a good question, and one to be addressed in 1987. I do think UNOLS needs to insure a strong communications and coordination link between all these parties.

As times get tough, the tough get going. We face some difficult problems in the near future, but if tackled effectively by the community, we should emerge stronger for our actions. UNOLS can make a difference if it has the support of the community. I invite your comments on these and any other issues you might wish to discuss.

UNOLS FLEET IMPROVEMENT COMMITTEE

Objectives:

1. Amplify and update the UNOLS Improvement Plan. This will require continuing reassessment of number and mix of ships, required sources, program planning, vessel availability, results of committee studies, and so forth.

2. Continue to refine science mission requirements, including specifically the roles and requirements for smaller vessels and innovative platforms.

3. Initiate and carry through conceptual designs for smaller vessels.

4. Consider alternatives to new construction for meeting science mission requirements.

   a) Refits and improvements to existing UNOLS vessels may have them more capable and economical, and extend their service life.

   b) There are numerous relatively new vessels in the merchant fleet which might be converted to form one or more classes of research vessels. Many of these are owned by the Federal government.

5. Carry two of the new conceptual designs for large vessels into more detailed design phases (perhaps full preliminary design).

6. Serve as liaison activity and information source for Federal agency representatives working in matters of planning or funding for new construction and upgrading of UNOLS vessels.

Approach:

The committee would have responsibility for overall directions. They would assume total responsibility for objectives (1), (2), (5), and (6).

Subcommittees might be established to carry through objectives (3) and (4) under the overall guidance of the parent committee. This would allow broader representation by experts from the community in carrying out the somewhat diverse tasks.

The Executive Secretary would staff the committee. He would have specific responsibility for tracking, initiating and the contracted design studies.

Calendar:

31 October 1986 - UNOLS Decision on committee membership.

December 1986 or January/February 1987 - First meeting of committee.

March 1987 - Committee review of draft proposal.

April/May 1987 - Submit proposal to NSF/ONR.

10/22/86

Concepts and Background for a UNOLS-Sponsored SUBMERSIBLE SCIENCE STUDY - 1987 to assess Research Subersible Requirements for the 1990's and Beyond

BACKGROUND

The ALVIN Review Committee of UNOLS, in August of 1977, initiated a planning effort to assess current and future requirements for submersible supported science. The effort, supported by the National Science Foundation (NSF), the U.S. Navy (through the Office of Naval Research - ONR), and the National Oceanic and Atmospheric Administration (NOAA), resulted in a major assessment of U.S. submersible facility and support requirements. The report, Submersible Science Study, was published in 1982. It provided a framework for establishing the specialized facilities and equipment essential to the ocean sciences. Since that time, the ALVIN program has moved from the limited capabilities of the R/V Lulu supported effort, to the world-wide capabilities now available on the R/V ATLANTIS II system. Major scientific and operational upgrades have similarly expanded the capabilities of the AlLVIN/ATANTIS II System. Further, the NOAA Undersea Research Program has substantially changed to make submersible/ROV/diving facilities support more available to the U.S. ocean science community.

In September of 1985, the ALVIN Review Committee of UNOLS, in concert with the three agencies providing the core support for the ALVIN program, initiated a study (Conducted by the Special ALVIN Study Committee chaired by Dr. Dirk Frankenberg) of the total ALVIN program to "gain an objective and critical overview of the total ALVIN program" about twenty years after the inception of ALVIN operations and shortly after the new support vessel A II commenced operations. The Committee, in its final report entitled, "ALVIN '86, A Report on the Program"s Status", recommended that "another Submersible Science Study be conducted". It suggested that "The major focus of this study should be on the scientific questions that can best be addressed through use of modern submersible technology, and the need for beginning the planning process that could lead to development of

a submersible with deeper diving capability than ALVIN by the early 1990's." Further, an about to be released NOAA Study, suggests that the U.S. should esablish a program of submersible development and operations that support a broad range of depths of operations, from "shallow" to 6000-7000 meters and eventially to support operations to the deepest depths of the oceans (approximately 10,000 meters). Other science advisory committees, such as the National Advisory Commitee on the Oceans and Atmsphere, have recommmeded the development of 6000 meter submersible science capability for the U.S. Ocean Science research programs.

Therefore, it was out of this context that the UNOLS membership, at its May 1986 Semi-Annual Meeting, charged the ALVIN Review Committee through its Chairman, to draft a plan to conduct a study of the broad scientific program requirements that can best be served by research submersibles and related technologies, e.g. ROV's and autonmous underwater systems. This document provides a draft for the UNOLS membership, of such a study.

PROPOSAL

It is recommended that the UNOLS membership adopt a plan, a draft of which is outlined below, to establish a Study Committee (the suggested title for the study is SUBMERSIBLE SCIENCE STUDY-the 1990's and Beyond) to assess those priority and central scientific research questions (for the 1990's and beyond) that can best be supported through the use of research submersibles (manned and unmanned ROVs and autonomous systems), and to propose planning and funding mechanisms that can provide deeper scientific diving capabilites the early 1990's. It is suggested that this study, conducted under the sponsorship of UNOLS, with support and funding provided by the three federal agencies now providing core support to the ALVIN program (i.e., NSF, ONR, and NOAA). The framework and details for this study are outlined in subsequent sections of this draft document.

THE OBJECTIVES OF THE STUDY

The central objectives for the proposed study, in summary, are twofold:

- o Assess trends, patterns, and directions for the academically-based ocean science research programs that can best be served by submersible systems, both manned and unmanned. The assessment should cover the full range of depth requirements needed by the science.

- o Develop a comprehensive submersible science facilities plan which satisfies the science reuirements identified above, including the rationale for such facilities, and possible funding and management arrangements.

SCOPE OF THE STUDY

The range of issues emcompassed by the study is conceived with the intention that the Committee's recommendations will lead to

scientific capabilities consistent with the needs to address significant and high priority ocean scientific questions. The study should be realistic, pragmatic, and specific to the requirements of a national effort that maintains the pre-eminence of U.S. ocean science and related fields. The Committee should consider but not limit its agenda to:

1. Assess and Project Ocean Science Trends:

The study should assess the trends and patterns for ocean science and technology research programs for the next decade or two, and then identify those submersible systems (both manned and unmanned) which are best able to support those projected science programs. The review, whenever possible, should rely upon a number of existing assessments and long range plans. The committee is expected to assess these trends in light of submersible systems capabilities and the likelihood that they can significantly and productively impact the ocean sciences research programs in the U.S., and the projected federal agengcy requirements for academically-based programs.

2. Review and Recommend Submersible Systems for Science:

The Committee should review the trends and patterns in submersible technology (those systems generally considered to be submersibles, i.e. manned submersibles, unmanned ROV's, and autonomous underwater vehicles and platforms) that can lead to improved science-capable submersible systems and which are mostly likely to meet the scientific needs and requirements outlined in (1.). The Committee is expected to consider a broad range of system possibilities, and to recommend specific systems, capabilities, and equipment, with a time schedule, which best meets the science requirements and are seen as a cost-effective strategy given funding mechanisms and constraints. The study should encompass existing submersible science programs, such as the ALVIN, Navy's Sea Cliff, Turtle, NR-1 and other deep submergence assest, the existing NOAA/NURP Program and the recently completed recommendations for a submersible science program within NOAA. In short, the study of submersible systems recommended should recognize and compliment all existing and projected federally supported submersible science efforts.

3. Prepare and Recommend a Funding Plan:

The Committee should outline and project capital, operating, and maintainence/overhaul costs, and suggests mechanism and strategies for the financial support of all recommended systems. The recommended funding strategies should outline roles and mechnaisms for federal agencies, institutional arrangements, and procedures to acquire science-capable syste ms and cost- effective aquisition

and operations.

4. Prepare and Recommended an Implementation Plan:

The Committee should develop and recommend an implementation plan which details specific actions items, schedules, management strategies, and oversight review procedures.

5. Assess and Recommend Stratgies for Federal Agency Needs:

In addition to the focus on academically-based science needs and submersible programs to meet those needs, the Committee should consider the needs of all Federal agencies with ocean science programs, and recommend, where appropriate, ways of combining those needs with the recommended submersible science programs for research in U.S. universities and research institutions.

CONDUCT OF THE STUDY

STUDY SPONSOR:

It is proposed that the study be conducted under the sponsorship of UNOLS, organized by the ALVIN Review Committee, with the endorsement and concurrence of NSF, NOAA, and ONR.

DURATION OF STUDY:

To be completed by the Semi-Annual UNOLS Meeting in the Fall of 1987.

COMMITTEE SIZE AND MEMBERSHIP:

It is recommended that the ARC, with the concurrence of the UNOLS Executive Committee and the Funding Agencies, appoint an eight member Committee with an appoiinted Chair. The Committee and its study are an effort of UNOLS. The membership of the Committee should be broadly representative, and as a minimun should include representatives the ocean sciences, submersible operations and technology, and federal agencies. The three federal agencies currently funding the ALVIN program should be invited to appoint liaison representatives to the study, along with any other Federal agency that demonstrates substantive interest in cooperating in future federally supported submersible science programs.

FUNDING OF THE STUDY:

The study is to be supported by the UNOLS Office, and any necessary augmentation of financial support necessary for the conduct of the study, should be negotiated between

the UNOLS Office, the three funding agencies, and any other agency joining in the sponsorship of the study.

STUDY FINDINGS AND REPORT:

The Committee shoud prepare an interum report for the May 1987 Semi-Annual Meeting, and prepare a final report to UNOLS for the Fall 1987 Semi-Annual Meeting. The UNOLS membership, with the advice and counsel of its Advisory Committee, should review the final report, and working with the study committee, UNOLS should forward specific recommendations to the funding Agencies and the ocean science community.

DATA AND BACKGROUND INFORMATION:

It is recommended that the UNOLS Office and the three ALVIN funding agencies provide the Committee with copies of all recent studies that relate to the subject of this effort.

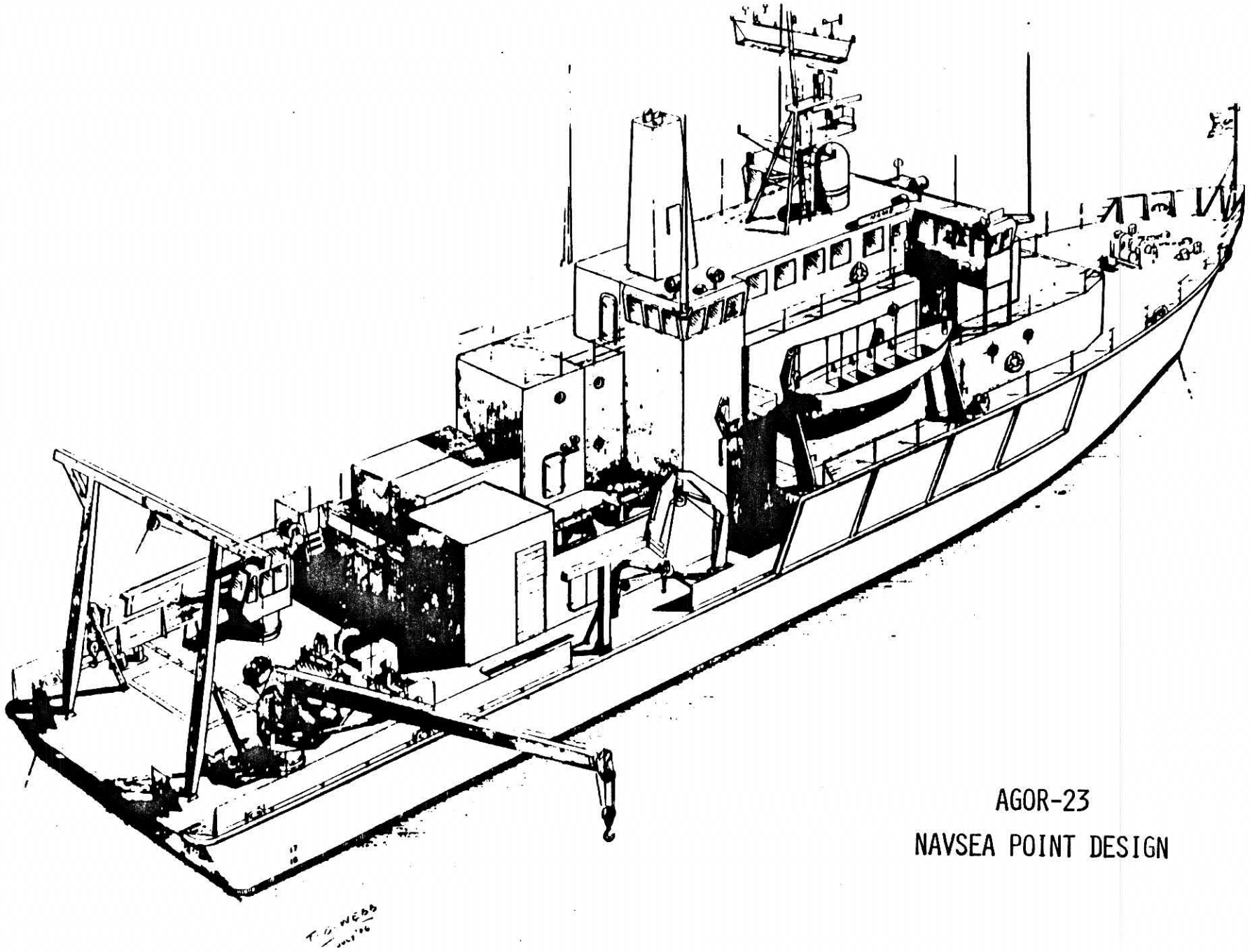
END OF DRAFT

AGX PROGRAM MILESTONES

DRAFT

Start TOR	Sept 1986
Submit TOR for Signature (Complete by Dec 86)	Oct 1986
Start OR	Nov 1986
Feasibility Study	Dec 1986
Submit OR for Signature (Complete by Aug 87)	Mar 1987
Start Point Designs	May 1987
Start Development of Top Level Requirements (TLR)	May 1987
Start Preparation of RFP	June 1987
Start Development of COR	June 1987
Issue Preliminary Draft TLR	Aug 1987
Issue Draft TLR	Sept 1987
Issue PIL	Sept 1987
Draft AP	Sept 1987]
Draft TLR to OPNAV	Oct 1987
Industry Briefing	Oct 1987
Point Designs Frozen	Oct 1987
Issue CBD Synopsis	Dec 1987
AP Approved	Dec 1987
Complete Development of COR	Dec 1987
Issue RFP (QII FY 88)	Feb 1988
Proposals Due	Aug 1988
Source Selection	Aug-Dec 1988
Award (QI FY 89)	Dec 1988

DRAFT



AGOR-23

NAVSEA POINT DESIGN

AGOR-14 & 15 OVERHAUL PROGRAM PLAN

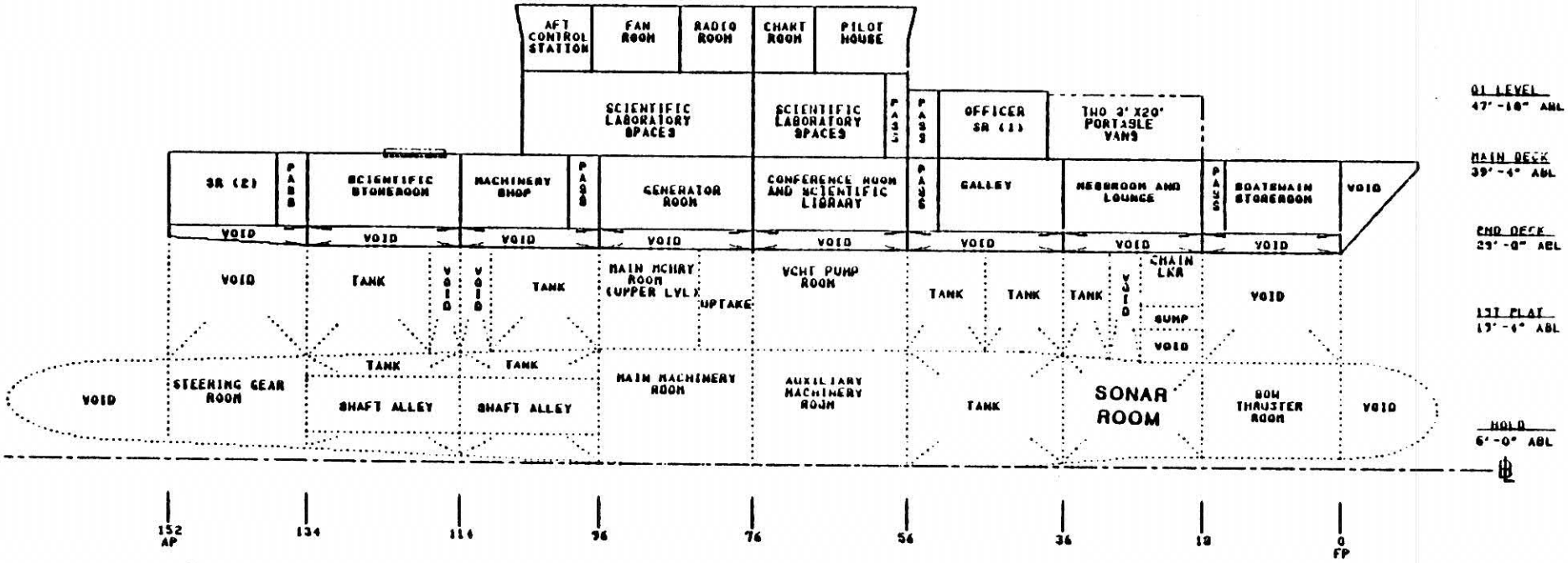
	Action	Period	Remarks
1.	Complete Concept & Technical Studies	OCT - DEC 86	WHOI Contract using consultants.
2.	Decision Workshop to Fix Overhaul Elements.	JAN 87	Participation by WHOI, SIO, NSF, ONR, UNOLS, Consultants.
3.	Preliminary Design Study ($200K est. cost)	FEB - JUL 87	Contract with WHOI who will use Naval Architect consultants.
4.	Request Proposals for Final Design and Overhaul.	JUN 87	To WHOI and SIO only.
5.	Review Proposals for Final Design and Overhaul for one or both ships.	AUG - SEP 87	ONR, NSF task group with UNOLS Rep.
6.	Fund Proposal	OCT 87	This may be incrementally funded contract for both ships (FY-88 & 89).
7.	Begin Overhaul (1st ship)	OCT 88	
8.	Complete Overhaul & Shakedown.	OCT 89	

AGOR 23 SWATH

LOA 185 FT

LBP	152 FT	DRAFT	18.3 FT
BEAM	61FT	DEPTH	39.3 FT

FULL LOAD DISPLACEMENT 2,173 L.T.



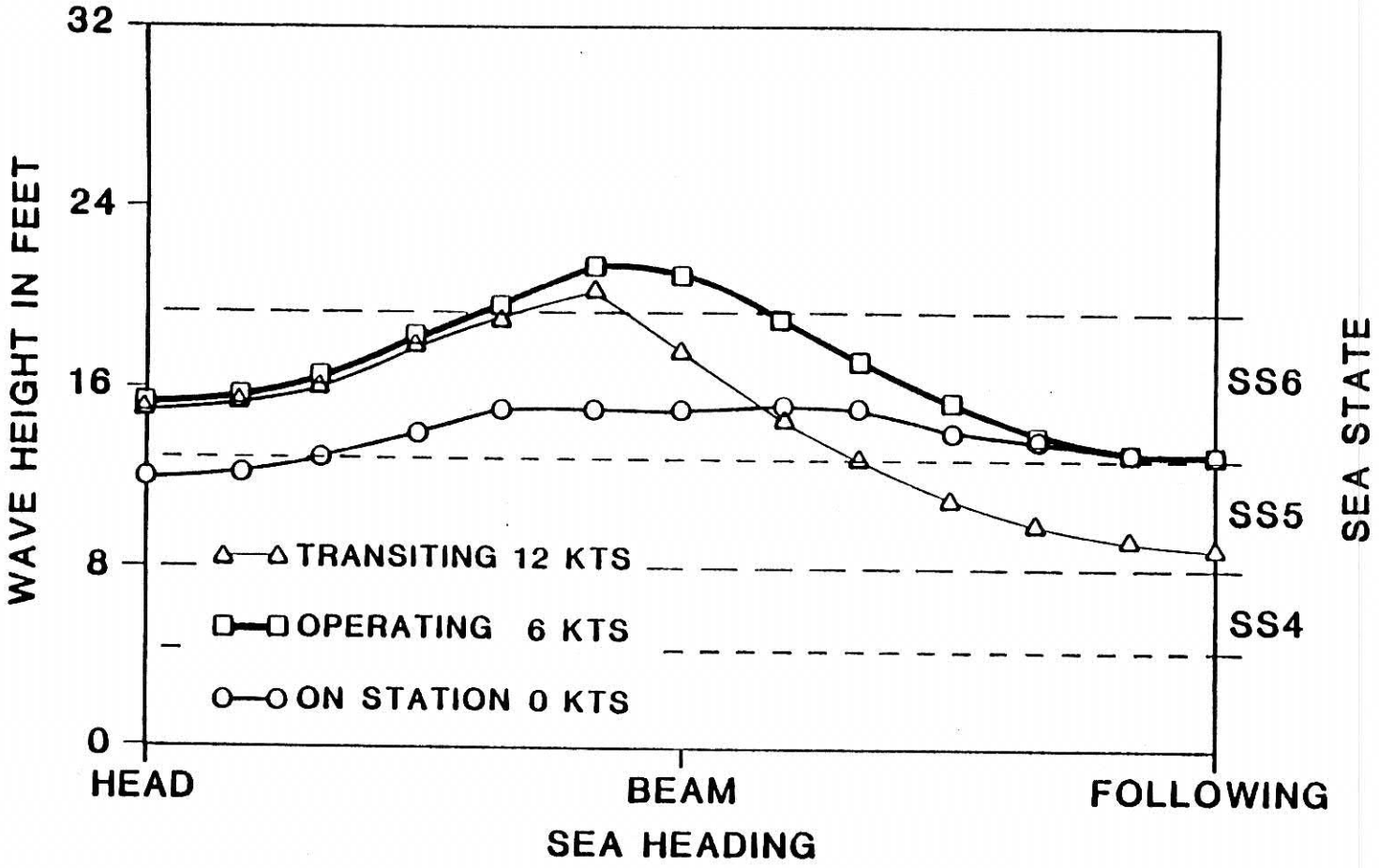
INBOARD PROFILE

AGOR 23 SWATH CAPABILITY

• COST	$33M
• SEAKEEPING (ON STATION)	0 KTS/SWH 14'/BH
• SEAKEEPING (SLOW SPEED)	6 KTS/SWH 20'/BH
• ACOUSTIC	3.5, 12 AND 36, 50–500 KHZ UP TO 12 KTS, SS4
• STATIONKEEPING	300 FT RAD/WIND 27 KTS/ CURRENT 2 KTS/SS5/BH
• SEAKEEPING (TRANSIT)	12 KTS/SWH 9'/AH [15 KTS]
• SUSTAINED SPEED	12 KTS [15]
• LAB AREA	1,300 FT2 [4,000]
• ACCOMMODATIONS	15 SCIENTISTS, 15 CREW, PLUS 10 IN 2 DECK VANS [30 SCI, 20 CRW]
• SCIENTIFIC STOWAGE	5,600 FT3 [15,000]
• ENDURANCE	4,000 NM AT 12 KTS, PLUS 15 DAYS AT 3 KTS, PLUS 5% RESERVE [8000, 15, 29, 10%]
• WORKING DECK AREA	2,770 FT2 [3,500]
• TOWING	10,000 LBS AT 5 KTS, 25,000 LBS AT 2.5 KTS

[ ] = DESIGN REQUIREMENT

AGOR 23 SWATH SEAKEEPING



AGOR-23

ACQUISITION APPROACH

- COMMERCIAL STANDARDS (USCG CERTIFIED/ABS CLASSED)
- NAVSEA DEVELOPED CIRCULAR OF REQUIREMENTS (COR)
- ISSUE REQUEST FOR PROPOSAL (RFP) WITH COR (SOLICITATION PACKAGE)
- IN RESPONSE TO COR, SHIPBUILDERS TO DEVELOP COMPETITIVE CONTRACT DESIGNS AS PROPOSALS FOR THE DETAIL DESIGN AND CONSTRUCTION/ CONVERSION OF THE AGOR 23
- COMPETITIVE AWARD TO SINGLE OFFEROR
- AWARD OF A FIRM FIXED PRICE CONTRACT
- POST DELIVERY INSTALLATION OF IDENTIFIED GOVERNMENT EQUIPMENT AT ACADEMIC INSTITUTION

AGOR-23

SOLICITATION PACKAGE (COR/RFP)

- COR WILL OUTLINE/STATE THE MINIMUM REQUIREMENTS
- ALL PROPOSALS MUST MEET THESE REQUIREMENTS (GO/NO GO)
- RFP WILL LIST TECHNICAL PROPOSAL REQUIREMENTS AND OUTLINE EVALUATION FACTORS
- INCLUDED IN THE SOLICITATION PACKAGE WILL BE A LIST OF ENHANCEMENTS (CHARACTERISTICS/CAPABILITIES/FEATURES)
- THESE ENHANCEMENTS EXCEED THOSE REQUIREMENTS SET FORTH IN THE COR
- OFFERORS HAVE OPTION OF EXCEEDING COR REQUIREMENTS BY SELECTING FROM ENHANCEMENTS TO ADD TO THEIR DESIGN
- OFFERORS CAN ADD ENHANCEMENTS UNTIL COST CAP IS MET
- PROPOSED ENHANCEMENTS WILL BE SCORED. ENHANCEMENTS WILL BE LISTED IN DESCENDING ORDER OF RELATIVE IMPORTANCE. THE GREATER THE NUMBER OF ENHANCEMENTS, AND THE HIGHER THEY APPEAR ON THE LIST THE HIGHER WILL BE THE ASSIGNED SCORE
- THE ENHANCED SCORES WILL BE COMBINED WITH THE TOTAL PRICE TO DETERMINE THE TECHNICAL AND COST COMBINATION MOST ADVANTAGEOUS TO THE GOVERNMENT. TECHNICAL WILL WEIGH SUBSTANTIALLY MORE THAN COST.

COMPARISON OF AGOR 23 TO EXISTING AGORs & T-AGOS-13

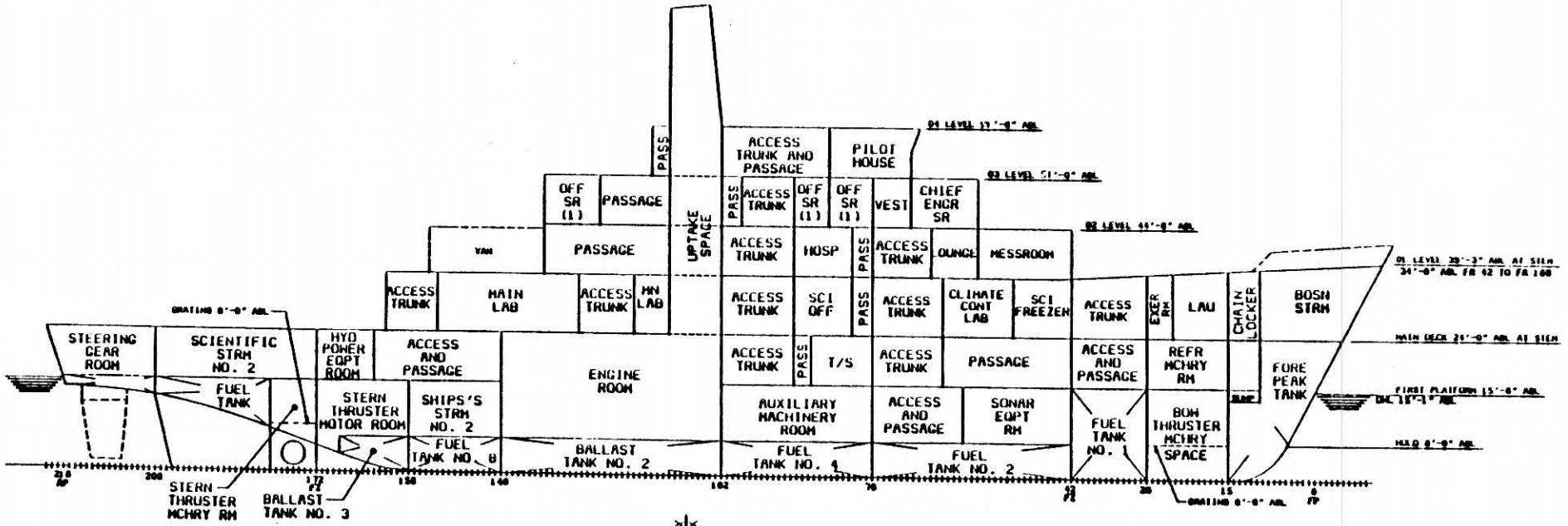
Category	Monohull AGOR 23	T-AGOS 13	AGOR 3	AGOR 14
LBP (feet)	216	194	196	220
Beam (feet)	49	43	37	46
Depth (feet)	24	20.0	21.5	25.0
Draft (feet)	15.7	15.1	15.3	16.3
F.L. Displacement (LT)	2468	2201.5	1425	2214
Total Lab Area (square feet)	3110	1386	1450	2620
Total Accommodations	50	33	36	50
Scientist Accomodations	30	12	14	25
Main Weather Deck Area (sq ft)	3500	2600	1960	3920
Installed SHP	1670	1600	1000	2400
Installed Ship Service KW	2140	2400	600	600
Type of Propulsor(s)	Single Screw Open Props.	Twin Screw Screw Open	Single Screw Open Prop.	Two Cycloidals
Gross Scientific Storeroom Volume (cubic feet)	15,900	3000	3,130	6,530
Endurance (nm)	12,100 nm at 11.5 kts	3,000 nm at 11.0 kts	8,500 nm at 10 kts	10,000 nm at 10 kts
Sustained Speed (knots)	11.5	11.0	12	11
Fuel Load (LT)	569	606.7	238	403
Scientific Stores and Transient Load (LT)	147	--	40	167
Bow Thruster Size (hp)	390	550	175	None
Stern Thruster Size (hp)	320	None	None	None

AGOR 23 MONOHULL

LOA 232 FT

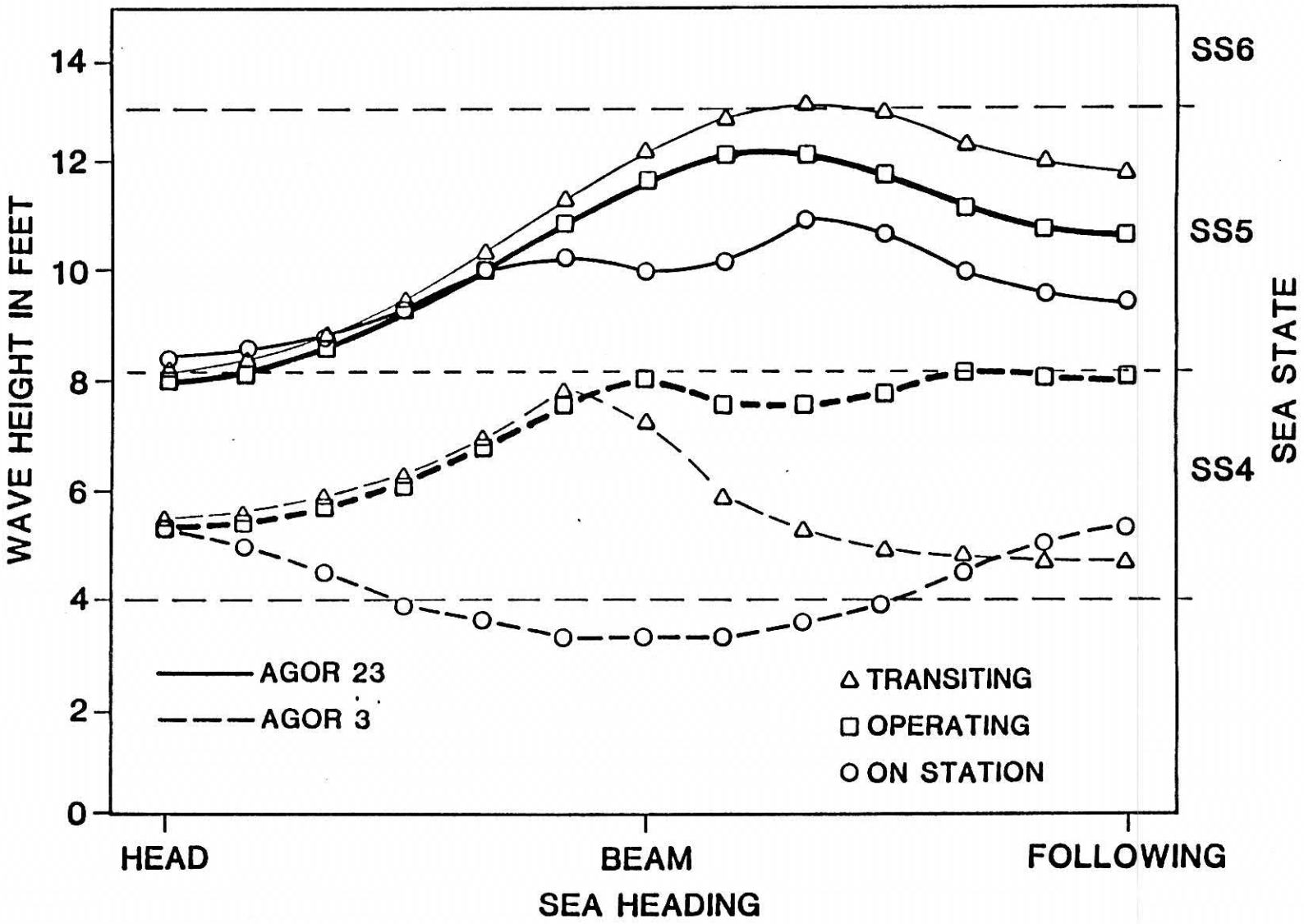
LBP	216 FT	DRAFT	15.6 FT
BEAM	49 FT	DEPTH	24 FT

FULL LOAD DISPLACEMENT 2,452 L.T.



INBOARD PROFILE

SEAKEEPING COMPARISON
AGOR 3 AND AGOR 23 MONOHULL



AGOR-23 REQUIREMENTS

CHARACTERISTICS	MINIMUM REQUIREMENT	ENHANCED REQUIREMENT
1. SEA KEEPING (ON STATION)	● 0 KTS/SWH 12'/B.H.	● 0 KTS/SS5(SWH 8')/B.H.
2. SEA KEEPING (SLOW SPEED)	● 6 KTS/SWH 12'/B.H.	● 6 KTS/SS6(SWH 20')/B.H.
3. ACOUSTIC CHARACTERISTICS AND SYSTEMS	● NO INTERFERENCE WITH OPERATION OF HULL MOUNTED SYSTEMS AT 3.5, 12 AND 36, AND 50-300 KHz UP TO 12 KTS AT SS4(SWH 8').	● SAME
4. STATION KEEPING	● 300 FT RADIUS/B.H./WIND 27 KTS/CURRENT 2 KTS/SS5(SWH 12').	● SAME
	● NO TRACKLINE CAPABILITY	● TRACKLINE WITHIN 300' AT 2.5 KTS/B.H./WIND 27 KTS/CURRENT 2 KTS/SS5(SWH 12')
5. SEA KEEPING (TRANSIT)	● 12 KTS SWH/8'	● 15 KTS/SS4(SWH 8')/A.H.
6. SUSTAINED SPEED (CALM WATER)	● 12 KTS	● 15 KTS
7. LABORATORY AREA	● 3,200 FT² TOTAL. ● 2,000 FT² (3 LABS) CONTIGUOUS TO WORK DECK.	● 4,000 FT² TOTAL. ● 3 LAB AREAS (2700 FT² TOTAL) CONTIGUOUS TO WORKING DECKS.

SYMBOLS: A.H. = ALL HEADINGS
B.H. = BEST HEADINGS
SWH = SIGNIFICANT WAVE HEIGHT

AGOR-23 REQUIREMENTS

CHARACTERISTICS	MINIMUM REQUIREMENT	ENHANCED REQUIREMENT
8. ACCOMMODATIONS	● 30 SCIENTIFIC ● 20 CREW (MIN) ● 10 SINGLE AND REMAINDER ● DOUBLE STATEROOMS ● 10 ADDITIONAL IN 2 DECK VANS. ● LIBRARY/CONFERENCE ROOM ● SCIENCE OFFICE. ● MESS/LOUNGE AREA	● SAME
9. SHIP CONTROL	● GOOD VISIBILITY OF WORKING DECK AREAS FROM BRIDGE CONTROL STATION.	● SAME
	● CONTINUOUSLY VARIABLE 0-6 KNOTS (ELECTRIC) 5-12 KNOTS (DIESEL)	● CONTINUOUSLY VARIABLE SPEED 0-15 KNOTS. (NO SYSTEM SWITCH)
10. INTEGRATED ELECTRIC DRIVE	● PERMITTED	● REQUIRED
11. SCIENTIFIC STORAGE	● 13,000 FT³ TOTAL IN 3 LOCATIONS. 35 TONS TOTAL	● 15,000 FT³ TOTAL IN 2-4 LOCATIONS. 135 TONS TOTAL
12. ENDURANCE	● 8,000 NM AT 12 KTS PLUS 29 DAYS AT 3 KTS ON STATION WITH 10 PERCENT RESERVE	● 8,000 TO 12,000 NM AT 12 KTS PLUS 29 DAYS AT 3 KTS WITH 10 PERCENT RESERVE

AGOR-23 REQUIREMENTS

CHARACTERISTICS	MINIMUM REQUIREMENT	ENHANCED REQUIREMENT
13. WORKING AREA DECK	● TOTAL FANTAIL WORKING AREA OF 3400 FT² INCLUDING A MINIMUM 12'x100' CONTIGUOUS AREA ON ONE SIDE.	● 3500 FT² TOTAL FANTAIL WORKING DECK AREA INCLUDING A MINIMUM 12'x100' CONTIGUOUS AREA ON ONE SIDE.
	● 2 VANS (SEE ITEM 8 ABOVE)	● DECK AREA FOR 4 VANS (8'x20') ON MAIN UPPER DECK WITH DIRECT ACCESS TO SHIP INTERIOR.
	● 100 TONS DISPOSABLE LOAD.	● 100 TONS DISPOSABLE LOAD.
	● NO CENTERWELL (SWATH)	● CENTERWELL 15'x30' (SWATH ONLY).
14. TOWING CAPABILITY	● 10,000 LBS AT 5 KTS ● 20,000 LBS AT 2.5 KTS	● SAME
15. MARINE GEOLOGY & GEOPHYSICAL MISSION	● NONE	● ELECTRIC POWER FOR 600 HP COMPRESSOR
16. ELECTRONIC I.C. SYSTEM	● NONE	● SERVING ALL OPERATING SPACES, LABS, PUBLIC SPACES, WORKING DECK STATIONS AND VAN STATIONS.

AGOR 23 PROGRAM MILESTONES

Start Point Designs	1 December 1985 (actual)
Start development TLR	1 December 1985 (actual)
Start development COR	6 January 1986 (actual)
Issue preliminary draft TLR	18 March 1986 (actual)
Forward draft TLR to OP 006	12 May 1986 (actual)
Issue PIL	1 May 1986 (actual)
Industry Briefing	29 May 1986 (actual)
Point Designs frozen	30 May 1986 (actual)
AP approved (by SEA 90)	30 July 1986 (actual)
AP forwarded to ASN(S&L)	4 August 1986 (actual)
CBD synopsis released	7 August 1986 (actual)
ASN (S&L) issue PEM	27 August 1986 (actual)
Working SCIB Meeting	2 Sept 1986 (actual)
Sign TLR	26 Sept 86 (est)
Command Review COR	29 Sept 86 (est)
Sign COR	30 Sept 86 (est)
Issue Solicitation (RFP/COR)	~~18 Oct 86 (est)~~ (MID NOV.)
Proposals due	15 April 87 (est)
Source Selection Complete	July 87 (est)
Award	Aug 87 (est)
Start Construction/Conversion	Oct 88 (est)
Delivery	Feb 90 (est)
IOC	1991

ENCLOSURE(1)

Selection of AGOR-23 Operating Institution

In a presentation to the UNOLS meeting, October 3, 1986 an ONR representative outlined their scheme for selecting the operating institution for AGOR-23.

1. A schedule was advanced that would have an RFP issued in November, 1986. The Circular of Requirements and RFP for acquisition of AGOR-23 would be available. Proposals would be due in February, 1987, with selection in April to correspond, roughly, with close of the AGOR-23 solicitation.

2. Eligible institutions would be U.S. academic oceanographic research institutions with operating experience and facilities. They should be or be eligible to be UNOLS members.

3. Proposal should include and would be evaluated on technical and scientific justification, a plan for retirement of an AGOR-3 class UNOLS R/V, plan and cost estimates for participating in AGOR-23 acquisition, trials, installation of equipment and outfitting and an operations plan and budget.

4. ONR will establish a selection committee chaired by the Associate Director, Environmental Sciences, ONR. Membership would include ONR (4), NSF (2), UNOLS (1), and Oceanographer's Office (1).

NSF REPORT
UNOLS SEMIANNUAL MEETING
OCTOBER 1986

OCEANOGRAPHIC FACILITIES SUPPORT

Budget Summary Operations	Actual 1985	Actual 1986	Estimate 1987
Ship Operations	23.8	23.8	
ALVIN Aircraft, Misc.	2.9	1.6	27.3
Marine Technicians	2.4	2.5	2.7
	29.1	27.9	30.0
Acquisition and Development			
Science Instruments	1.8	1.6	1.9
Shipboard Equipment	1.7	1.4	1.8
Technology Development	1.6	1.7	2.3
UNOLS, Ship Const., Misc.	0.7	0.9	0.7
	5.8	5.6	6.7
TOTAL	$34.9M	$33.5M	$36.7M

Other NSF Support -- Ship Operations

Ocean Drilling Program	.1	2.1	1.8
DPP Antarctic Operations	?	0.8	0.2

FY 1986:

- Research cruise requirements met for all NSF-funded projects.
- Available ship time in academic fleet continued to exceed requirements for funded projects.
- Inactive status for R/V WECOMA, R/V CAYUSE and R/V OSPREY. Short schedules for several other ships.
- DSRV ALVIN resumed operations after successful major upgrade of submersible capabilities. Heavy schedule.
- Initiation of dialog with UNOLS and operations on new procedures to improve scheduling, maintenance and operations decisions. OCFS is pleased with their interactions with UNOLS and UNOLS institutions.
- Available shiptime continues to exceed science project requirements.

- Inactive status projected for R/V KNORR and several other ships. Short schedules for some ships.

- DSRV ALVIN in heavy demand for NSF projects. First use in western Pacific (6 legs). NSF operations costs up.

- Increased attention to safety issues and follow-up actions in NSF ship inspection program.

- Implement new procedures in conjunction with UNOLS re. improved scheduling, maintenance and operations decisions.

- Maintain close liaison with new UNOLS Fleet Improvement Committee examining research needs in the 1990's. Plus UNOLS Advisory Council Study of Policies and Strategies for the 1990's.

- Continue/improve coordination with Navy and other agencies.

R/V CAYUSE Status: Letters of interests.

- UNOLS -- Center for Marine Science of University of Southern Mississippi; Skidaway Institute of Oceanography; Bigelow Laboratory for Association for Research on the Gulf of Maine.

- Federal -- EPA and NOAA

- Other -- Private laboratory (1); Three telephone calls.

NSF/OCE Long-Range Plan Update:

- Update LRP scheduled for completion in early 1987.

- Includes sections on ship operations, ship construction and ocean technology.

- Existing academic research fleet cannot meet all projected field program requirements. Plan will discuss options.

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
WASHINGTON, DC 20240

OCT 28 1986

THE MINERALS MANAGEMENT SERVICE (MMS) ENVIRONMENTAL STUDIES ARE AWARDED IN THE FORM OF CONTRACTS, USUALLY BY COMPETITIVE PROCUREMENT, TO PRIVATE COMPANIES OR, IN A FEW CASES, AS INTERAGENCY AGREEMENTS TO OTHER FEDERAL AGENCIES. THE COORDINATION AND DIRECTION OF RESEARCH VESSELS FOR STUDIES IS NOT A FUNCTION OF THE MMS HEADQUARTERS. VESSELS ARE SELECTED BY EACH POTENTIAL VENDOR, BASED ON THE SUITABILITY OF THE VESSEL AND OPERATION COST, AT THE REGIONAL LEVEL AND APPROVED BY THE MMS HEADQUARTERS LEVEL. COORDINATED USE OF THE SELECTED VESSEL BY MULTIPLE VENDORS IS INITIATED AT THE REGIONAL LEVEL. COST SHARING FOR SHIPTIME WITH OTHER FEDERAL AGENCIES IS ONGOING.

THE PROPOSED ENVIRONMENTAL STUDIES FUNDING FOR FY-87 IS $22,965,000. THIS, AND CONSEQUENTLY REGIONAL DISTRIBUTIONS, MAY CHANGE IF DEFICT REDUCTION MEASURES ARE IMPLEMENTED.

THE PROPOSED REGIONAL FUNDING DISTRIBUTIONS ARE:

ALASKA, $8.9 MILLION.
ATLANTIC, $1.9 MILLION.
GULF OF MEXICO, $3.7 MILLION.
PACIFIC, $5.6 MILLION.
WASHINGTON OFFICE, 2.8 MILLION.

THESE ARE SUBJECT TO CHANGE THROUGHOUT THE YEAR.

REGIONAL STUDIES REQUIRING RESEARCH VESSELS ARE PHYSICAL AND BIOLOGICAL OCEANOGRAPHY PROJECTS. THE BIOLOGICAL PROJECTS THROUGHOUT THE REGIONS REPRESENT OVER 50% OF THE TOTAL STUDY EFFORT. INFORMATION ABOUT A SPECIFIC STUDY IS PROVIDED IN REGIONAL STUDIES PLANS PREPARED ANNUALLY BY THE REGIONAL OFFICE.

QUESTIONS ON THE ENVIRONMENTAL STUDIES PROGRAM SHOULD BE DIRECTED TO DR. DON V. AURAND, CHIEF, BRANCH OF ENVIRONMENTAL STUDIES AT (202) 343-7744.

UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

East Coast Ship Scheduling Group
West Coast Ship Scheduling Group
Report of Joint Meeting
October 30, 1986
Conference Rooms A and B
American Institute of Architects
1735 New York Avenue N.W.
Washington, D.C.

East and West Regional Ship Scheduling Groups met separately (8:30 a.m.) and jointly (1 p.m.) at the American Institute of Architects, Washington, D.C. The separate meetings were chaired by Robertson P. Dinsmore (East) and George Shor, Jr. (West).

Notification of and information on the meetings, including an agenda (Appendix I) were distributed by UNOLS Office letter dated October 3, 1986. Although material was collected from individual institutions for 1986 schedules, operations and agency support, that material was not reviewed during the meetings. *Most of the meeting was devoted to: reaching an effective fleet schedule for 1987 that accommodated all funded science projects and was comprised of efficient schedules for individual ships and to examine all suggestions for improving the UNOLS ship scheduling process.*

Schedules, Costs and Funding for 1986. Estimates for 1986 operating days and costs are attached (Appendix II). These estimates were not reviewed during meetings. Comparison with similar estimates made June 3, 1986 reveals: days of operation have been decreased from 4,370 to 4,300 (the lowest total in the 1980's), although most individual ship cost estimates were less than in June, inclusion of cost for WECOMA resulted in NSF and total cost estimates nearly the same as in June.

Ship Schedules, operating costs and agency support for 1987. Schedules for 1987 occupied nearly all of the individual meetings and a significant part of the joint meeting.

Efforts to achieve efficient schedules for 1987 were effective and cooperative. Most duplicate bookings had already been eliminated; the few remaining were quickly resolved. Schedules advanced for individual ships were credible (i.e., based almost entirely on already-funded science projects).

Realistic cost estimates were advanced, and total costs had nearly closed with estimates of total funding available. (See tables below and Appendix III).

A total of 4,937 days are scheduled, about 400 days more than the average for the 1980's, and more than 600 days over the 1986 total. The days finally operated during 1987 will doubtless be less than currently estimated but that reduction will be less than the similar reduction in earlier years. (See, for example estimates for 1986 made in October, 1985: 5,310 days at a cost of $41.8 M.)

East Coast Ship Schedules. The East Coast portion of the UNOLS fleet is not fully utilized. *KNORR, GYRE, CAPE HATTERAS, CAPE HENLOPEN AND WARFIELD project poor schedules (90-160 days/ship, and in some instances based on science projects not securely funded). Some partial lay ups among these ships appear inevitable unless more funded requirements appear.*

In contrast, the FRED H. MOORE has a strong solidly funded schedule for the first time. CONRAD and ATLANTIS II have excessively high schedules.

West Coast Ship Schedules. Schedules for West Coast ships are somewhat stronger. Few duplicate bookings were advanced, and these few were known in advance and quickly resolved. A few additional adjustments were necessary during the meeting; they were made to accommodate all funded P.I.'s.

Both MOANA WAVE and ALPHA HELIX have heavy schedules that will be operationally taxing. The NEW HORIZON, WECOMA and POINT SUR have strong schedules. THOMPSON, SPROUL, and BARNES are viable. WASHINGTON and MELVILLE schedules are lighter than desired, but nevertheless can be

conducted efficiently. (e.g., without undue rise in daily rates). The non-availability of an icebreaker for Antarctic programs could have impact on MELVILLE's schedule in late 1987 and early 1988. OSPREY advanced no schedule; the ship conversion will continue.

In summary, excellent progress has been made in achieving a realistic UNOLS fleet schedule for 1987. In the summaries of **1986 and 1987 cost projections** that follow:

Operation days have been reduced to a realistic level (although still above 1986 levels, and subject to further modest reduction).

October 1986 projection:	4,937 days
June 1986 projection:	5,756 days
Anticipated for 1986:	4,300 days.

Operations costs have been reduced dramatically from those advanced in June, 1986, although they are still higher than for 1986 operations.

	1987 Outlook Oct., 1986	June, 1986	1986
Costs			
NSF	$29.75 M	$35.0	(26.4)
Navy	5.4	3.6	(3.4)
Other	3.8	3.1	(4.4)
Total	38.9	41.6	(34.1)

Anticipated Funding:

	1987	1986
NSF	27.7	(25.0)
Navy	5.4	(3.4)
Other	3.8	(4.4)
Total	36.9	(32.8)

The $27.7m optimistically anticipated from NSF includes recently-received increases in oceanographic facilities support together with about $2.0m from the Ocean Drilling Program and the Division of Polar Programs. The Navy projection includes funds anticipated from all Navy sources, not just ONR. It, too, is optimistic.

These schedules and costs would result in a shortfall of $2.0m. This is still significant, but reduced remarkably from the shortfall of $9.7m projected at June, 1986 meetings. (It is also much less than the $5.7m shortfall projected for 1986 operations in October, 1985.) Such a projected shortfall should be manageable. The NSF share of operating costs should be reducible through elimination from

schedules of some unfunded science projects and through negotiations to reduce individual operations proposals. The $2.0 M shortfall represents about one Class I or II ship laid up for a full year, or two ships laid up for shorter periods. Alternatively, the $2.0 M could be accommodated by laying up three or more smaller ships for 1/2 year or more.

SUMMARY OF 1987 COST PROJECTIONS
$ Millions

	OP DAYS	COSTS NSF	ONR	OTHER	TOTAL
OCTOBER, 1986 PROJECTIONS					
East	2633	15.173	3.480	2.506	21.159
West	2304	14.578	1.890	1.330	17.798
Total	4937	29.751	5.370	3.836	38.957
(Anticipated)	-	(27.7)	(5.37)	(3.84)	(36.9)
Projected Shortfall		2.0	-	-	2.0
JUNE, 1986 PROJECTIONS					
East	3211	18.532	2.469	1.473	22.473
West	2545	16.443	1.081	1.620	19.144
Total	5756	34.975	3.550	3.093	41.617
(Anticipated)		25.9	3.6	3.1	32.6
Projected Shortfall		9.1	-	-	9.1
MARCH, 1986 PROJECTIONS					
East	3203	18.474	2.927	1.677	23.078
West	2589	17.461	1.270	1.427	20.159
Total	5792	35.935	4.197	3.104	43.237
(Anticipated)		26.2	4.2	3.1	33.5
Projected Shortfall		9.7	-	-	9.7

PROFILES OF FUNDING CYCLES
$Million

	OP DAYS	NSF	ONR	OTHER	TOTAL	SHORT FALL
1984	4816	23.1	4.0	7.0	34.6	-
1985	4769	25.9	4.1	5.8	35.8	-

1986 COST PROJECTIONS

	OP DAYS	NSF	ONR	OTHER	TOTAL	SHORT FALL
March 1985	5700	32.0	5.4	3.8	41.2	-
May 1985 Anticipated	5757	32.2 (26.0)	5.8 (4.2)	4.8 (3.8)	42.8 (34.6)	- (8.2)
October 1985 (Anticipated)	5310	31.2 (25.5)	4.8 (4.8)	5.8 (5.8)	41.8 (36.1)	- (5.7)
March 1986 (Anticipated)	4502	26.6 (25.0)	5.0 (5.0)	3.3 (3.3)	34.9 (33.3)	- (1.6)
June 1986 (Anticipated)	4370	26.4 (25.0)	4.3 (4.3)	3.3 (3.3)	33.8 (32.6)	- (1.2)
October 1986 (Anticipated)	4300	26.4 (25.0)	3.4 (3.4)	4.4 (4.4)	34.1 (32.8)	- (1.3)

Costs of Lay ups. Although it is not really a scheduling matter, the costs of lay ups and how to cope with those costs became the subject of urgent discussion. There was consensus that lay ups that result from scheduling decisions cannot be fully cost efficient. One way to avoid cost inefficiencies is to plan for lay ups to coincide with major overhauls or renovations. To date, advanced planning is not good enough to achieve such efficiency.

The Groups noted that ONR and NSF do not have agreement on how to fund lay up costs, especially in 1987. Scheduling Groups hope and urge that those agencies reach agreement concerning lay up costs.

Improving UNOLS Ship Scheduling. The need to improve UNOLS ship scheduling and some suggestions for improvements had been circulated to UNOLS members (letters from R.P. Dinsmore). The Ship Scheduling Groups discussed suggested improvements and other factors noted in member-reactions.

The Ship Scheduling Groups reached clear consensus on the following:

1. *Regional and consortium scheduling meetings, at which scientific users can meet with ship schedulers are useful and should be used more extensively.*

2. *The February/March East/West scheduling meetings serve no useful purpose, and should be dispensed with. Instead, interchange of strawman schedules at this time should be done by mail/telemail.*

3. *Scheduling meetings concurrent with UNOLS meetings should be continued, with dates chosen to be shortly after results are known from NSF panel actions.*

4. *An interactive data bank, preferably using telemail for access, should be established under the auspices of UNOLS, to contain all ship requests, to include sufficient information to define P.I.'s preference and requirements, and to indicate status of proposal submission/funding.*

5. *The present decentralized system of scheduling, despite inefficiencies, is a better system than any centralized system we can envision. It should be retained and improved, not replaced.*

There were some dissents, both to individual elements and the overall thrust of the Groups' consensus opinion.

Selection of Chairman. Bob Dinsmore, chairman of the East Coast Group called for election of a new chairman, and declined to stand for reelection. The East Coast Group selected Mike Rawson, L-DGO as their new chairman, effective for the 1988 cycle. Chairmen are now:

East Coast - Mike Rawson, Lamont
West Coast - George shor, Scripps.

UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

AGENDA
East and West Coast Ship Scheduling Meetings
October 30, 1986

INDIVIDUAL MEETINGS

Individual meetings will concentrate on 1987 ship schedules, costs and recommendations if any. Assemble "regional fleet" schedules, cost data and unfilled 1987 Ship Time Requests (if any) for later coordination in **JOINT MEETING.**

1. **Assemble institution inputs on 1986 ship schedules, operations and agency support. No review unless problems arise.**

2. **Review, discuss and summarize 1987 ship schedules, operations and costs, and agency support.**

   Update and Assemble 1987 ship schedule information. Update by ship 1987 Cost Projections. (See forms provided. Also, please provide the three estimates requested for various levels of operation in 1987).

3. **Assemble any unfilled 1987 Ship Time Requests, compare to tentative schedules and adjust.**

4. **1987 Schedules, Costs and Recommendations for Joint Meeting.**

5. **Combine East and West Coast Information for 1986 without review.**

6. **Combine and adjust East and West Coast Ship Schedules, operating cost and agency support information for 1987.** Assemble unfilled 1986 Ship Time Requests. Produce workable fleet schedule that fills all funded ship time requirements within funding anticipated.

   This will also lead to formulation of any group recommendations for 1987 ship operations.

7. The remainder of the meeting will be in development of a more useful, effective process for UNOLS Ship Scheduling. Starting point for discussions and group action will be suggestions made by Chairmen Dinsmore and Shor (see Dinsmore letters, Sept 4, 86), responses and input from UNOLS members.

8. Recommendations for UNOLS

DATE 30 October 1986

1986 ESTIMATES

	1985 OP DAYS	1985 COSTS	1986 OPS DAYS	1986 NSF $K	1986 ONR $K	1986 OTHER $K	1986 TOTAL $K
ATLANTIS II	287	3,226	219	1,607	446	905	2,958
KNORR	185	2,423	163	963	1,075	0	2,038
CONRAD	359	3,264	292	2,839	353	108	3,300
OCEANUS	223	1,515	218	780	546	91	1,417
ENDEAVOR	240	1,679	235	1,449	203	NUSC 53	1,705
GYRE	259	1,850	300	1,200	0	600	1,800
ISELIN	LAID UP	619	177	1,587	18	0	1,605
CAPE HENLOPEN	159	731	151	534	64	142	740
CAPE HATTERAS	245	1,396	225	1,080	0	MMS 156 STATE 58 214	1,294
CAPE FLORIDA RSMAS PORTION	218	944	33	214	0	0	214
WARFIELD	132	506	125	571	0	0	571
BLUE FIN	130	203	136	80	0	DOE 95	175
LAURENTIAN	24	163	70	177	0	17	194
CALANUS	148	227	147	248	30	0	278
MOORE	44	471	18	0	0	290	290
TOTAL	2,653	19,217	2,509	13,329	2,735	2,515	18,579

DATE 30 October, 1986

1986 ESTIMATES

	1985 OP DAYS	1985 COSTS	1986 OPS DAYS	1986 NSF $K	1986 ONR $K	1986 OTHER $K	1986 TOTAL $K
MELVILLE	271	2,988	241	2,361	108	UC 131 Oth. 148	2,748
WASHINGTON	241	2,608	200	2,275	12	UC 47	2,333
NEW HORIZON	195	1,479	236	1,057	113	DOE 163 UC 333	1,666
ROBT. G. SPROUL	128	562	149	437	102	DOE 28 UC 20	587
VELERO IV/OSPREY	85	383	0	250		125	375
POINT SUR	111	450	135	259	50	CNOC 347 OTH. 88	744
CAYUSE/LAY UP & TRANSFER				147		CNOC 40	187
WECOMA	213	1,666	0	867	0	0	867
THOMPSON	271	2,600	248	2,124	326	0	2,450
BARNES	150	206	135	187	0	19	206
ALPHA HELIX	153	1,497	188	186 days 1,484	0	Alaska 2 days 14	1,331 *(1)
MOANA WAVE	310	2,168	259	1,620	0	378	1,998
WEST TOTAL	2,128	16,607	1,791	13,068	711	1,881	15,492 *(1)
EAST	2,653	19,217	2,509	13,329	2,735	2,515	18,579
TOTAL	4,781	35,824	4,300	26,397	3,446	4,396	34,071 *

*(1) Approximately 170 K carry over.

DATE 30 October 1986

1987 COST PROJECTIONS

	1986 COSTS NSF	1986 COSTS	1986 OP DAYS	1987 OP DAYS	PROJECTED 1987 COSTS NSF	NAVY	OTHER	TOTAL
2. ATLANTIS II	1,607	2,958	219	305	2,841	169	NOAA 390	3,400
KNORR	963	2,038	163	162	1,907	554	USGS 31	2,492
CONRAD	2,839	3,300	292	350	2,163	1,133	TBA 309	3,605
OCEANUS	780	1,417	218	236	1,188	586	0	1,774
ENDEAVOR	1,449	1,705	235	216	897	532	TBA 233	1,662
2. GYRE	1,200	1,800	300	103	754*	183**	STATE 400	1,337
ISELIN	1,587	1,605	177	205	1,269	201	DOE 252	1,722
3. CAPE FLORIDA (RSMAS)	214	214	33				STATE **	
CAPE HENLOPEN	534	740	151	72	260	100	360	720
CAPE HATTERAS	1,080	1,294	225	157	921	0	DOE 153 STATE 73	1,147
WARFIELD	571	571	125	89	409	0	0	409
BLUE FIN	80	175	136	190	90	0	DOE 100	190
LAURENTIAN	177	194	70	60	168	0	NOAA 85	253
CALANUS	248	278	147	206	333	22	0	355
MOORE	0	290	18	282	1,973	0	STATE 74 INDUS. 46	2,093
TOTAL	13,329	18,579	2,509	2,633	15,173	3,480	2,506	21,159

* Incl. 154 '86 Carry over.
** Lay up costs.
2. Adjusted for schedule changes made 10/30/86.
3. 1986 cost of RSMAS only.

DATE 30 October 1986

1987 ESTIMATES

	1986 COSTS NSF	1986 COSTS	1986 OP DAYS	1987 OP DAYS	PROJECTED 1987 COSTS NSF	NAVY	OTHER	TOTAL
MELVILLE	2,361	2,748	241	212	2,414	132	0	2,546
*1. WASHINGTON	2,275	2,333	200	230	2,237	405	UC 95	2,737
*1. NEW HORIZON	1,057	1,666	236	263	1,099	175	DOE 189 UC 297 NASA 14	1,774
*1. ROBT. G. SPROUL	437	587	149	172	430	65	DOE 30 UC 130	655
OSPREY	250	375	0	0	Lay up 400	0	0	400 *
*1. POINT SUR *2. CAYUSE	259 147	744 187	135 0	236	736	CNOC 359 ONR 54	Oth. 124	1,273
WECOMA	867	867	0	255	1,261	396	0	1,657
THOMPSON	2,124	2,450	248	240	2,472	0	0	2,472
BARNES	187	206	135	145	195	0	20	215
ALPHA HELIX	1,484	1,331	188	219	1,535	0	14	1,549
MOANA WAVE	1,620	1,998	259	332	1,799	304	AID 396 HIG 21	2,520
TOTAL	13,068	15,492	1,791	2,304	14,578	1,890	1,330	17,798
EAST COAST	13,329	18,579	2,509	2,633	15,173	3,480	2,506	21,159
FLEET TOTAL	26,397	34,071	4,300	4,937	29,751	5,370	3,836	38,957

*1. Adjusted for schedule changes 10/30/86.
*2. CAYUSE Lay up (and C.F.-P.S. transfer).

UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

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October 1986

UNOLS NOMINATING COMMITTEE

The Nominating Committee has assembled the following slate of candidates for Advisory Council lapsed positions to be filled at the October 1986 Semiannual Meeting.

THE SLATE

For Advisory Council - Member Representation
(For One Year remaining of an unexpired term)

Paul J. Fox	University of Rhode Island
Marcus G. Langseth	Lamont-Doherty Geological Observatory, Columbia University

For Advisory Council - Associate Member Representation
(For Two Years remaining of an unexpired term)

Robert S. Carney	Louisiana State University
Charles S. Yentsch	Bigelow Laboratory for Ocean Sciences