

**UNOLS ANNUAL MEETING
OCTOBER 17, 1991**

**American Institute of Architects
1735 New York Avenue N.W.
Washington, D.C.**

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SUMMARY REPORT OF THE UNOLS ANNUAL MEETING

October 17, 1991

American Institute of Architects

1735 New York Avenue NW

Washington, D.C

GENERAL: Issues and items are reported in the order in which they are addressed at the September, 1990 UNOLS Annual Meeting. The published agenda is enclosed as Appendix I.

ATTENDANCE: A list of registered attendants has been compiled from forms submitted at the meeting (Appendix II).

DIRECTORIES: Information from the UNOLS Office which has been included: UNOLS Directory, UNOLS Fleet Ship Scheduling Contacts, UNOLS Fleet Marine Operations Contacts, UNOLS Council/Committees, UNOLS Advisory Council, UNOLS Executive Committee, and Summary of UNOLS Fleet Operations, 1990 -- Operating Days and Sea Days (Appendices III - X).

INTRODUCTION AND WELCOME: Garrett Brass, UNOLS Chair, called the meeting, welcomed UNOLS member representatives and other attendees and presented the agenda.

REPORT FROM UNOLS CHAIR AND COUNCIL: Garry Brass opened his report by noting that over the past year three successful UNOLS Council meetings in Miami, Seattle, and Washington D.C. were held. During this period three vessels, MAURICE EWING, EDWIN LINK and WEATHERBIRD II, were brought into the UNOLS Fleet.

COMMITTEE REPORTS

FLEET IMPROVEMENT COMMITTEE:

Marcus Langseth, Fleet Improvement Committee (FIC) Chair reported on the FIC activities over the past year. Two meetings were held, one in April in New Orleans, and the other this month at the Alton Jones Campus of the University of Rhode Island.

Coastal Ocean Facilities: A subcommittee has been formed to address the facility needs of coastal oceanography. The subcommittee includes D. Wright, Chair; P. Betzer, C. Nittrouer, T. Malone, R. Dinsmore, C. Simonstad, J. Bash (ex-officio) and M. Langseth (ex-officio). To determine the needs of coastal oceanography, the following actions have and will be taken:

- (1) A questionnaire has been posted on the telemail bulletin boards OCEAN and COASTAL.NEWS to gather information from the coastal ocean community regarding their facility needs (Appendix XI).
- (2) Town meetings will be scheduled for 11 November in San Francisco and on 10 December at the fall San Francisco AGU conference to provide an open forum for discussion of coastal facility needs.

- (3) A meeting will be held with Coastal Ocean Processes (CoOP) to seek their input.
- (4) Scientific Mission Requirements (SMR) will be developed for four regions and presented as a strawman at the December AGU town meeting. The four regions are the Eastern seaboard (Georgia to New England), the Gulf Region including the Florida coast, the West Coast including Alaska and the Great Lakes.

The committee will report on the status of the projected needs for new ships or other coastal facilities by Fall 1992.

Arctic Research Vessel: Thirty letters were received in response to the Arctic Vessel conceptual design study. In view of these responses, follow-on actions for the FIC's Small Ice-Capable Ship Subcommittee include: (1) Review and revise mission requirements for an arctic research vessel, (2) Plan a fact-finding trip aboard the Russian vessel SOROKIN to gain first hand information concerning the Thyssen/Waas hull, and (3) Prepare a preliminary design proposal for the arctic research vessel. Unless unforeseen problems are discovered the THYSSEN/WAAS hull design, which is considered an ice cutter, will be the preferred hull form. A video of the THYSSEN/WAAS hull in operation was shown.

Review of Laboratory Facilities and Accommodations on UNOLS Ships - Two studies will be conducted, one will address laboratory conditions and the other will address accommodations. The studies will be directed by Marcus Langseth and Teresa Chereskin respectively. The study on laboratories will focus on fundamentals; such as, number of labs, types, size, utilities (power, water, lighting), communications (intra-ship, ship-to-shore), flexibility (access, modularity) and shared use equipment (computers and sounders). The study on accommodations will address berthing and heads, mess accommodations, amenities (lounges, exercise room) and special features (network communications). Bob Dinsmore will be consulted. The ships from the UNOLS fleet will be compared to vessels of other research fleets. Some suggested vessels include:

	INTERMEDIATE	LARGE
UNOLS	OCEANUS	THOMAS G. THOMPSON
NOAA	MILLER FREEMAN	BALDRIDGE
NON U.S.	SUROIT	METEOR II DARWIN HAKUKO MARU

SOONS Report: A report was drafted by Robert Pinkel, Fred Spiess, Dick Pittenger, and Marcus Langseth titled *"Scientific Opportunities offered by Nuclear Submarines."* Garry Brass sent letters to Dr. Allan Bromley from the Office of Science and Technology Policy and to the Honorable H. Lawrence Garrett, III from the Office of the Secretary, Department of the Navy expressing UNOLS support for efforts to encourage scientific research aboard a nuclear submarine. A response was received from the Assistant Secretary to the Navy, Gerald A. Canns, stating that the submersible NR-1 was designated for this use.

AGOR 24/25 Recommendations: Marcus Langseth sent a letter to ONR recommending modifications based on feedback received from AGOR 23. The Navy has indicated that some minor changes will be accommodated; however, major changes probably will not be possible.

OCEANUS Class Refit: Mid-life refits are scheduled for the three OCEANUS Class vessels, ENDEAVOR, OCEANUS, and WECOMA. The estimated cost per refit is \$2 million. ENDEAVOR is scheduled to start her refit in October of 1992. All ships are scheduled to be completed prior to 1994 when the new admeasurement rules go into effect.

FIC Membership: Bob Dinsmore's term expired. Marcus Langseth will forward names of candidates to Garry Brass for appointment. It was suggested that candidates from the University of Hawaii should be considered since they have not been previously represented on the FIC.

RESEARCH VESSEL OPERATORS COMMITTEE:

Bruce Cornwall, RVOC member, reported on the RVOC Annual Meeting held in September in Victoria, British Columbia, Canada.

RVOC Old Business:

RVOC Newsletter: The Committee agreed that the Vice Chairman should continue to publish at least two issues a year.

Federal Register Monitor: It was agreed that the clipping service provided by Ireland Consulting to monitor the Federal Register is adequate and should be continued.

Small Boat Operations: It was decided that each institute will develop their own qualification standards for small boat operations.

RVOC New Business: Under new business the following items were addressed: the 1991 Salary Survey, RVOC's Safety Committee, Dennis Nixon's role as Risk Manager/Legal Advisor for UNOLS, and pier condition inspections. The "Research Vessel Cruise Assessment" form has been modified and a new assessment form has been developed titled, "Captain's Post Cruise Report". Both forms are included in Appendix XII.

RVOC Invited Speakers: Three speakers were invited to give presentations at the RVOC meeting. Joe Hersey, USCG, presented an overview of the Global Maritime Distress System (GMDSS). Sam Applegarth, ABS Technical Services, provided a report on the history and development of the NSF ship inspection program as it exists today. A presentation was made by Rich Finley, University of Miami, on science information systems; data gathering, and Serial ASCII Integrated Loop (SAIL).

Safety Seminar and Workshop: A safety seminar and workshop was held to review, discuss and make decisions concerning the UNOLS Research Vessel Safety Standards (RVSS), hazardous materials, waste and pollution control, and other issues.

Hazardous Materials Subcommittee Progress Report: An ad hoc committee was formed in April 1991 to address hazardous material issues including safety, inventory control, labeling, transportation, disposal, handling, and training. The committee members include Bruce Cornwall, CBI (Chairman); Linda Goad, U. of Michigan and Bill Hahn, URI.

RVOC recommended that the ad hoc committee prepare a statement to address shipboard hazardous waste and pollution which would include a compendium of information already available on the subject, including, the NOAA Hazardous Waste Manual, NOAA Corps Instruction 6280B, "*Hazardous Materials and Hazardous Waste Policy, Guidance, and Training*" and the RVOC Safety Training Manual Chapter 13, "*Hazardous Materials*." The RVOC membership reviewed the committee's proposed changes to Chapter 9 of the RVSS. A recommendation was made to add a paragraph stating that hazardous scientific materials should be shipped to Department of Transportation regulations. It was also recommended to make "*Explosives*" a stand alone chapter.

Safety Training Manual: The manual has been delivered and is an excellent training and reference document. Congratulations goes out to all those who contributed to its development.

Research Vessel Safety Standards: The three year review cycle of the RVSS by the RVOC Safety Committee started in January. Extensive revisions will be made to Chapter 8, Lifesaving Equipment; and Chapter 12, Communications. The proposed changes will be presented to the UNOLS Council for approval in their winter meeting, with final approval by the UNOLS Council in the Summer, 1992. The revised standards would be published October, 1992. Bill Hahn was selected to chair the RVOC Safety Committee.

RVOC Vice Chairman: Mike Prince was selected by the RVOC membership to be Vice Chairman.

RVOC 1992 Meeting: Will be held in Lewis, De.

ALVIN REVIEW COMMITTEE:

Feenan Jennings provided a report of the ALVIN program status, ARC activities during the year and plans for 1992.

The forecast for 1992 is very gloomy. All proposals recommended by the ARC in June, 1991 were declined in the NSF review. ALVIN/AII has a short schedule of less than 200 days and will return to WHOI in the early part of August. Of the scheduled days, 129 days are funded. NSF has funded 123 days and 6 days are funded privately. Thirty-four days are pending funding; six of these are Navy and 28 are NOAA. There are 27 days of transit in this schedule.

A discussion followed commenting on the possible causes of the decline in ALVIN use. The decline might be caused by a number of reasons. ALVIN requests are difficult to get funded because when compared to other funding requests they are expensive. This year the proposals were just as good as other years, but it basically came down to money. It was suggested that

perhaps ALVIN should go to more exotic locations to attract more proposals. The light 1992 schedule was partially due to ALVIN's commitment to operate in the Mid-Atlantic Ridge; however, the work in this area never materialized.

ALVIN/AII will spend three and half months in the East Pacific including 70 unscheduled days in the port of Manzanillo, Mexico. Fifty days will follow in the Gulf of Mexico. Thirty-five days are scheduled in the Atlantic before ALVIN returns to WHOI for overhaul. ATLANTIS II will continue for the remainder of the year conducting non-ALVIN work..

ALVIN Planning Meeting: An ALVIN planning workshop will be held on Sunday, 8 December, preceding the fall AGU conference in San Francisco. The meeting is open and will be used to gain information on directions of ALVIN during the 1993-1996 period.

SEACLIFF and TURTLE: NOAA/NURP in conjunction with UNOLS will solicit proposals for SEACLIFF and TURTLE for 60 days of non-Navy funded research. NURP announced the request for proposals in early October on the electronic mail bulletin board, OCEAN. ARC will serve in an advisory capacity in this scheduling process. NOAA will provide a \$5 K per day consumable cost for assets.

Submersible Science Subcommittee: The ARC will form a subcommittee to address undersea technology. As part of their tasking they will examine whether the tools of ALVIN are suitable for today's science. A two day workshop will be held to examine ALVIN's capabilities.

ALVIN Archives: The ARC visited the ALVIN archives at WHOI in June. Deterioration of color films has begun and WHOI would like to make new masters before losing data. They would also like to digitize the dive data to have the capability to be more responsive to requests for information.

Memorandum of Agreement (MOA): Don Heinrichs, NSF, pointed out that the MOA expires at the end of the calendar year. The MOA is a tripartite agreement with ONR, NSF, and NOAA. In light of ALVIN funding situation, the MOA will be carefully evaluated. ARC and UNOLS will be working with the funding agencies to review the MOA.

SHIP SCHEDULING COMMITTEE:

Regional Scheduling Meetings: Ken Palfrey reported on the ship scheduling meetings. Two regional meetings, East and West, were held in the Spring. The East Coast meeting was held on 12 June in Atlanta, Ga. and the West Coast meeting was held on 17 June in San Francisco, Ca. The concept of regional meetings was effective. It was evident at these meetings that there is a pent up demand for large ship time.

Ship Time Requests: Ken reported that many ship time request forms are not sent directly to the UNOLS Office and a few fail to get logged into the system. Each operator/scheduler should insure requests for his/her institution get appropriate distribution, including the UNOLS Office.

Fall Scheduling Meeting: The Fall scheduling meeting was held on 4 September in Washington, D.C. The scheduling review committee met the following day. The meetings went smoothly. Letters of guidance have been sent to operating institutions and 75 percent of these institutions have adjusted their schedules accordingly. The present schedule reflects 5600 operating days scheduled with a funding estimate of \$53 million. NSF has funded approximately 4000 days with \$39 million.

Some points of interest which were brought up at the meeting include:

- KNORR has been accepted by WHOI and has a full 1992 schedule.
- MELVILLE will enter into service in the spring and WASHINGTON will be retired.
- VICKERS will be in full operation with a NOAA crew.
- RIDGELY WARFIELD will be tied up as a result of a light schedule.
- ATLANTIS II and ALPHA HELIX have light schedules. ALPHA HELIX has been recommended to extend her operating region.

AGENCY REPORTS

REMARKS FROM FEDERAL FUNDING AGENCIES:

NSF: Don Heinrichs reported on the 1992 NSF estimated budget. To date there is no assigned budget; NSF is operating on a continuum budget. The budget as is looks good, and includes approximately a 10% increase over 1991. Global change is a high priority program.

NSF has experienced some reorganizational changes including the ten month leave of Larry Clark on a "Council on Environmental Quality Fellowship." His work will be covered by Don, assisted by Lisa Rom who has returned to the OCE branch of NSF. Dolly Deiter will stay on with NSF until January, 1993.

ONR: Keith Kaulum reported that the ONR budget is not yet through Congress. No dramatic cuts are anticipated. There is no firm feeling on the funding for 1993 and beyond. There is a lot of concern for the future of research and development funding.

THOMAS THOMPSON (AGOR 23) - THOMPSON completed their 30 day shakedown cruise. The multibeam system worked well. On the whole, all reports were very positive as to its design and operating characteristics. The University of Washington is in the process of writing their scientific equipment trial report. The few problems reported to date include noisy laboratories due to a poor ventilation design, winch related problems, and galley problems. Additionally it has been reported that THOMPSON became tangled in MOCNESS and OBS nets. JGOFS cruises will begin in January. THOMPSON will return to port in the summer for a Post-Service Overhaul.

KNORR - KNORR was delivered to WHOI in mid-October for equipment outfitting and deficiency clean-up.

MELVILLE - Delivery of MELVILLE was scheduled for December 1991, but is expected in February 1992. Scientific equipment will be outfitted and deficiencies will be corrected. The vessel is expected to be available in San Diego two months after delivery. At that time (early spring) WASHINGTON will be retired.

AGOR 24/25 - Solicitations for proposals based on the Statement of Requirements have been sent out. Bids are due by the end of October. The proposals will be evaluated by the end of December. Both Scripps Institution and Woods Hole Oceanographic Institute will be involved in the technical evaluations. AGOR 24 is in the Fiscal Year (FY) 1992 budget and AGOR 25 is in the FY93 budget as an option.

The Oceanography Office of the Navy is responsible for management of the new AGOR ships. They have formed the Joint Operations Office which is comprised of NSF, NAVSEA, and ONR. Michael Zacks is the Project Engineer for AGOR 24/25 in the NAVSEA office, PMS 383, which will oversee the shipbuilding.

CLEARANCES FOR RESEARCH IN FOREIGN JURISDICTIONS: Tom Cocke of the State Department summarized the 1991 clearance experience. The State Department has computerized their clearance monitoring process and as a result the timeliness of clearance requests is improving.

To reduce the backlog of delinquent post cruise obligations, NSF has threatened to hold funding for future ship time research to the Principal Investigators (PI) which do not submit reports. The State Department will send out one reminder to the PI prior to requesting that funding be held.

Areas reporting clearance problems include Mexico, Haiti, and Columbia. Haiti is issuing no clearances at this time. Columbia is requiring a six month advanced notice as a minimum.

UNOLS ISSUES

ISSUES BEFORE UNOLS:

NOAA/USC VICKERS: Doug Hammond, USC, reported that VICKERS is underway with a NOAA crew. The Memorandum of Agreement was signed between USC and NOAA as a demised charter. Dennis Nixon, UNOLS Risk Manager advised in the development of the agreement. USC is looking forward to the arrangement. The agreement will be in effect for one year.

VICKERS has a good schedule for 1992 with 200 days scheduled. There is a NOAA crew of fourteen. The vessel is 200 feet overall, has 27 scientific berths, and has a maximum speed of 16 to 17 knots. The crew was recruited through USC, but they are employees of NOAA. NOAA will pay their salary, but be reimbursed. Scheduling of VICKERS will be identical to the scheduling of any UNOLS vessel.

Coastal Research Vessels: Coastal Oceanography has been getting a lot of attention. A colloquium was held at the UNOLS Council meeting on 16 October to address the facility need of coastal oceanography. The UNOLS Fleet Improvement Committee has been charged to develop Scientific Mission Requirements for coastal oceanography for four coastal regions; East, Gulf, West, and Great Lakes.

Arctic Research Vessel: The FIC's Small Ice-Capable Ship Subcommittee will review and revise mission requirements for an arctic research vessel. They will prepare a preliminary design proposal for an arctic research vessel to meet these requirements. Unless unforeseen problems are discovered the THYSSEN/WAAS hull design, which is considered an ice cutter, will be the preferred hull form.

Review of NSF Inspection Program: A subcommittee has been appointed to review the NSF Ship Inspection program to evaluate whether or not it fulfills the criteria for which it was established. The review will be performed over the next year.

Safety Panel Subcommittee: There is no provision in the UNOLS Charter to form a permanent subcommittee. As a result, an ad hoc committee will be formed by the Council to address safety of the UNOLS fleet.

Risk Management: Dennis Nixon has joined the UNOLS staff to serve UNOLS and its member institutions as a risk manager. He will keep UNOLS informed of relevant developments in the law and provide legal advise. Dennis is currently forming a group insurance policy to cover those UNOLS vessels which show interest. A group policy has the potential to provide better coverage at a lower cost. A telemail message will be sent out in early November with additional information regarding the policy.

SOONS Report: A report was drafted by Robert Pinkel, Fred Spiess, Dick Pittenger, and Marcus Langseth titled "*Scientific Opportunities offered by Nuclear Submarines*". The report expresses UNOLS support for efforts to encourage scientific research aboard a nuclear submarine. The final report will be published in the near future.

Review of UNOLS: An ad hoc committee has been appointed to review UNOLS to determine their effectiveness in meeting the objectives defined in the Charter. The committee consists of Tom Johnson (Chair), Duke University; B. Lewis, University of Washington; R. Pittenger, WHOI and R. Wall, University of Maine. They held their first meeting in September. Two questionnaires polling the community on various aspects of UNOLS have been prepared and will be sent out from the UNOLS Office. Responses to the questionnaires will be reviewed in December at the AGU Fall Conference.

Mid-Atlantic Research Consortium (MARCO): Larry Atkinson reported on the status of MARCO. The purpose of MARCO is to coordinate the use of resources for oceanographic research in the mid-Atlantic. Members of MARCO include: Bermuda Biological Station, William and Mary, Duke, Old Dominion University, University of North Carolina, Rutgers, Stony Brook, University of Delaware and the University of Maryland. They plan on developing

a vessel to replace WARFIELD and CAPE HENLOPEN. MARCO has submitted a proposal to NSF to establish mission requirements and a concept design for a coastal research vessel.

New Cruise Assessment Forms: Two new cruise assessment forms have been developed (Appendix XII), one to be completed by the chief scientist and the other by the ship's master. The forms will be useful in better assessing cruise related safety issues and concerns.

NASA Oceanographic Research: James Acker of NASA, Goddard Space Flight Center, introduced himself to the membership. His position is the Earth Observing System (EOS)-Oceans Scientific/Technical Liaison. One of his main tasks will be to coordinate on-going of planned oceanographic research with the EOS project.

UNOLS MEMBERSHIP VOTES:

Submersible Science Subcommittee: The formation of a Submersible Science Subcommittee was not brought to a membership vote. The UNOLS Council has decided to task the ARC with forming a committee to address undersea technology.

Revision to Annex I of the UNOLS Charter: The revised Ship Scheduling Annex was accepted by the UNOLS membership (Appendix XIII).

New UNOLS Member: Rutgers University was accepted as a UNOLS member institution.

UNOLS ELECTIONS:

A slate of candidates (Appendix XIV) had been prepared for elections to fill five UNOLS Council positions. No nominations were made from the floor. The election results are as follows:

Jeff Fox	At-large, term expires 10/92
Robert Knox	Operating Representative, term expires 10/93
Dennis Hayes	Operating Representative, 3-year term
Richard Jahnke	At-large, 3-year term
Charles Nittrouer	Non-operating Representative, 3-year term

There being no further business the meeting was adjourned.

UNOLS ANNUAL MEETING AGENDA

8:30 A.M., THURSDAY, OCTOBER 17, 1991
AMERICAN INSTITUTE OF ARCHITECTS
WASHINGTON, D.C.

Introduction and Welcome: Garry Brass, UNOLS Chair.

Report from UNOLS Chair and Council: Garry Brass, UNOLS and Council Chair, will report on 1990-1991 activities, current issues and issues continuing into 1991.

COMMITTEE REPORTS

Fleet Improvement Committee: Mark Langseth, Chair, will report on 1990-1991 accomplishments, reports issued and plans for next year. He will provide an update on the polar research vessel design study and the coastal vessel study.

Research Vessel Operators Committee: Jim Williams, Chair, will report on RVOC activities and issues during the year. He will provide a status of the Safety Training Manual and the progress of the Hazardous Material subcommittee.

ALVIN Review Committee: Feenan Jennings, Chair, will provide a status of the ALVIN program status, ARC activities during the year and plans for 1992.

Ship Scheduling Committee: Ken Palfrey, Chair, will report on the scheduling process during 1991, schedules for 1992, costs balanced against expected funds and recommendations from the SSC.

AGENCY REPORTS

Remarks from Federal Funding Agencies: Information from Federal funding agencies (DOE, MMS, NSF, ONR and USGS) on 1991 funding forecasts for 1992 or later, ship operations and science support. ONR will report on construction status of THOMAS G. THOMPSON (AGOR-23), KNORR and MELVILLE renovation, and budgetary status of AGOR-24 and AGOR-25. NSF/DPP will report on their build/lease contract for NATHANIEL B. PALMER, and activities/plans for 1992 and beyond.

Clearances for Research in Foreign Jurisdictions: Tom Cocke, Department of State/Office of Ocean Affairs, will summarize the 1991 clearance experience and note issues and problems.

12:00 - 1:00

Lunch Break

12:00 - 1:00

UNOLS ISSUES

Issues before UNOLS: Various issues of interest to UNOLS Members have arisen during the year. The UNOLS Chair will introduce these issues or elaborate on remarks made earlier:

- NOAA/USC Vickers Arrangement
- Coastal Research Vessels
- ARCTIC research vessel concepts
- Review of NSF Ship Inspection Program
- Safety Panel Subcommittee
- Risk Management
- Mid-Atlantic Research Consortium (MARCO)
- Scientific Opportunities Offered by a Nuclear Submarine
- Review of UNOLS
- New Cruise Assessment Forms

UNOLS Members may wish to raise additional issues.

UNOLS MEMBERSHIP VOTES: The following issues require a membership vote for approval:

- *Submersible Science Committee* - The formation of a Submersible Science Committee (see enclosure 1).
- *Revision to Annex 1 of the UNOLS Charter* - The revised Ship Scheduling Committee Annex (enclosure 2).
- *New UNOLS Members* - Rutgers University has applied for UNOLS membership.

UNOLS Elections: Election for the following UNOLS positions will be held:

- UNOLS Council Member, from among designated representatives of UNOLS Operator Institutions (3-year term).
- UNOLS Council Member, from among designated representatives of UNOLS Non-Operator Institutions (3-year term).
- UNOLS Council Member, at large, affiliated with any Member institution (Full 3-year term).
- UNOLS Council Member, from among designated representatives of UNOLS Operator Institutions (2-year term).
- UNOLS Council Member, at large, affiliated with any Member institution (1-year term).

A call for Nominations was issued in July 1991. The Slate of nominees is enclosed (enclosure 3).

UNOLS Appointments to Committees: The UNOLS Chair will announce new appointments to ARC, FIC, RVOC, and SSC, in accordance with the UNOLS Charter.

Other Business: Other issues, actions or recommendations as might be introduced.

UNOLS

The University National Oceanographic Laboratory System is a planning mechanism for oceanographic facilities. It is a joint effort of the academic community and the federal funding agencies, principally the NSF, ONR, NOAA, DOE, MMS, and USGS.

UNOLS provides for community-wide cooperation and review of the utilization of facilities and opportunities for access to those facilities. It assesses the match of programs to the needs of academic programs and makes recommendations of priorities for replacing or improving the numbers and mix of facilities.

UNOLS serves as a focus for new ideas and requirements for specialized facilities.

UNOLS does not replace direct contact between the investigator and institution's operating facilities. It does, however, serve as a backup and clearinghouse for information and coordination that might not otherwise be available to the researcher and his laboratory.

UNOLS is composed of institutions and laboratories which use or operate and use sea-going facilities and maintain an academic program in the marine sciences. It is composed of the operator institution, several standing committees dealing with ship scheduling, marine operations, their regulations and logistics, fleet improvement and replacement and national facilities. Member institutions' representatives are individuals whose role is to provide oceanographic facility services or use those facilities. Membership does not ensure Federal funding.

UNIVERSITY NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

ANNOUNCEMENT OF AGENDA

UNOLS ANNUAL MEETING

Thursday, October 17, 1991
8:30 a.m.

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

This meeting is open to all investigators, users, operators and sponsors of university oceanographic facilities. It is a public forum for discussing the utilization and scheduling of research vessels and other facilities as well as their support and future planning.

Garrett W. Brass, Chairman

John F. Bash, Executive Secretary

For further information, please contact:

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**UNOLS ANNUAL MEETING
WASHINGTON, D.C. - OCTOBER 17, 1991**

Attendees:

James G. Acker	Goddard Space Flight Center, NASA
Larry P. Atkinson	Old Dominion University
Rodger W. Baier	National Science Foundation
Peter R. Betzer	University of South Florida
W. Thomas Cocke	U.S. Department of State
Bruce K. Cornwall	Johns Hopkins University
Michael J. Dagg	Louisiana Universities Marine Consortium
Linda M. Goad	University of Michigan
Donn S. Gorsline	University of Southern California
Grant Gross	National Science Foundation
William B. Hahn	University of Rhode Island
Douglas E. Hammond	University of Southern California
Dennis E. Hayes	Lamont-Doherty Geological Observatory
Donald F. Heinrichs	National Science Foundation
Feenan D. Jennings	Texas A&M University
Thomas C. Johnson	DUKE/University of South Carolina
David M. Karl	University of Hawaii
Keith W. Kaulum	Office of Naval Research
Robert A. Knox	Scripps Institution of Oceanography
Richard L. Longfield	University of Hawaii
Julie A. Maginnis	Presearch Inc.
Russell E. McDuff	University of Washington
David W. Menzel	Skidaway Institution of Oceanography
Charles A. Nittrouer	State University of New York
John C. Ogden	Florida Institute of Oceanography
Wadsworth Owen	University of Delaware
Ken Palfrey	Oregon State University
Steve Rabalais	Louisiana Universities Marine Consortium
Michael Rawson	Lamont-Doherty Geological Observatory
Gilbert T. Rowe	Texas A&M University
Thomas C. Royer	University of Alaska
Carolyn A. Thoroughgood	University of Delaware
Barrie Walden	Woods Hole Oceanographic Institution
Michael R. Zacks	Naval Sea Systems Command

- ALABAMA MARINE ENVIRONMENTAL SCIENCES CONSORTIUM
Dr. George F. Crozier
- UNIVERSITY OF ALASKA** Dr. Thomas Royer
- BERMUDA BIOLOGICAL STATION Dr. Anthony K. Knapp
- BIGELOW LABORATORY FOR OCEAN SCIENCES
Dr. David Townsend
- BROOKHAVEN NATIONAL LABORATORY Dr. Creighton D. Wirick
- UNIVERSITY OF CALIFORNIA, SAN DIEGO, SCRIPPS
INSTITUTION OF OCEANOGRAPHY** Dr. Robert Knox
- UNIVERSITY OF CALIFORNIA, SANTA BARBARA
Dr. James P. Kennett
- CAPE FEAR TECHNICAL INSTITUTE Mr. Edward Foss
- COLUMBIA UNIVERSITY, LAMONT-DOHERTY
GEOLOGICAL OBSERVATORY** Dr. Dennis Hayes
- UNIVERSITY OF CONNECTICUT Dr. Donald F. Squires
- UNIVERSITY OF DELAWARE** Dr. Carolyn A. Thoroughgood
- DUKE UNIVERSITY/UNIVERSITY OF NORTH
CAROLINA** Dr. Dirk Frankenberg
- FLORIDA INSTITUTE FOR OCEANOGRAPHY Dr. John C. Ogden
- FLORIDA INSTITUTE OF TECHNOLOGY Mr. Jack Morton
- FLORIDA STATE UNIVERSITY Dr. Ya Hsueh
- HARBOR BRANCH OCEANOGRAPHIC INSTITUTION**
RADM John B. Mooney, Jr.
- HARVARD UNIVERSITY Dr. M.E. McElroy
- UNIVERSITY OF HAWAII** Dr. Roy Wilkens
- HOBART & WILLIAM SMITH COLLEGES Mr. Al Roth
- THE JOHNS HOPKINS UNIVERSITY**
- LEHIGH UNIVERSITY Dr. Bobb Carson
- LOUISIANA UNIVERSITIES MARINE CONSORTIUM**
Dr. Paul Sammarco
- UNIVERSITY OF MAINE Dr. Robert E. Wall
- THE MARINE SCIENCE CONSORTIUM Dr. Darlene Richardson
- UNIVERSITY OF MARYLAND Dr. Tom Malone
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Dr. John M. Edmond
- UNIVERSITY OF MIAMI, ROSENSTIEL SCHOOL OF
MARINE & ATMOSPHERIC SCIENCES**
Dr. Garrett W. Brass
- UNIVERSITY OF MICHIGAN, CENTER FOR GREAT
LAKES & AQUATIC SCIENCES** Dr. Theodore C. Moore, Jr.
- MONTEREY BAY AQUARIUM RESEARCH INSTITUTE
Dr. Bruce Robison
- MOSS LANDING MARINE LABORATORIES**
Dr. John H. Martin
- NAVAL POSTGRADUATE SCHOOL Dr. Curtis Collins
- UNIVERSITY OF NEW HAMPSHIRE
Dr. E. Eugene Allmendinger
- NEW YORK STATE UNIVERSITY COLLEGE AT BUFFALO
Dr. Harish Sikka
- STATE UNIVERSITY OF NEW YORK AT STONY BROOK
Dr. Charles A. Nittrouer
- NORTH CAROLINA STATE UNIVERSITY Dr. Leonard Pietrafesa
- UNIVERSITY OF NORTH CAROLINA AT WILMINGTON
Dr. Alan Hulbert
- NOVA UNIVERSITY Dr. Julian P. McCreary
- OCCIDENTAL COLLEGE Dr. John S. Stephens, Jr.
- OLD DOMINION UNIVERSITY Dr. Larry Atkinson
- OREGON STATE UNIVERSITY** Dr. Douglas Caldwell
- UNIVERSITY OF PUERTO RICO Dr. M.L. Hernandez-Avila
- UNIVERSITY OF RHODE ISLAND** Dr. Paul J. Fox
- RUTGERS UNIVERSITY Dr. Frederick Grassle
- 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
- UNIVERSITY OF SOUTHERN CALIFORNIA**
Dr. Cornelius W. Sullivan
- UNIVERSITY SYSTEM OF GEORGIA, SKIDAWAY
INSTITUTE OF OCEANOGRAPHY** Dr. David W. Menzel
- UNIVERSITY OF TEXAS** Dr. Robert S. Jones
- TEXAS A&M UNIVERSITY** Dr. Gilbert Rowé
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- UNIVERSITY OF WISCONSIN AT MADISON Dr. Anders W. Andren
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Dr. David E. Edgington
- UNIVERSITY OF WISCONSIN AT SUPERIOR Dr. Mary Balcer
- WOODS HOLE OCEANOGRAPHIC INSTITUTION**
RADM Richard Pittenger

SHIP SCHEDULING CONTACT

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

Rev. (11/91)

OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	NO. of SCIENTISTS	OWNER	SHIP SCHED. CONTACT
University of Hawaii SOEST (HIG) 2525 Correa Rd. Honolulu, HI 96819	MOANA WAVE	210/64	1973/1984	19	NAVY	Dr. Roy Wilkens Ship Scheduler PHONE: (808) 956-5228 FAX: (808) 956-2538 TELEMAIL: R.WILKENS
University of Alaska Institute of Marine Science Fairbanks, AK 99775	ALPHA HELIX	133/41	1966	15	NSF	Dr. Thomas Royer Chair, Ship Committee PHONE: (907) 474-7835 FAX: (907) 474-7204 TELEMAIL: T.ROYER
University of Washington School of Oceanography, WB-10 Seattle, WA 98195	T. G. THOMPSON C.A. BARNES	274/84 66/20	1991 1966/1984	26 6	NAVY NSF	Dr. Arthur Nowell Director PHONE: (206) 543-6487 FAX: (206) 543-6073 TELEMAIL: K.JEFFERS
Oregon State University College of Oceanography Newport, OR 97365	WECOMA	177/54	1975	20	NSF	Capt. Kennard M. Palfrey Marine Superintendent PHONE: (503) 867-0224 FAX: (503) 867-3733 TELEMAIL: OSU.SHIPS
Moss Landing Marine Laboratories PO Box 450 Moss Landing, CA 95039	POINT SUR	135/41	1981	12	NSF	Mr. Michael Prince Marine Superintendent PHONE: (408) 633-3534 FAX: (408) 633-4580 TELEMAIL: MLML.SHIPS
University of Southern California Hancock Institute for Marine Studies 820 South Seaside Avenue, Terminal Island, CA 90731	VICKERS	220/67	1973/1989	25	USC	Mr. Don Newman, Mgr. Marine Support Facility PHONE: (213) 743-8977 830-4570 FAX: (213) 830-6328 TELEMAIL: R.PIEPER
University of California, San Diego Scripps Institution of Oceanography La Jolla, CA 92093-0210	MELVILLE T. WASHINGTON NEW HORIZON R.G. SPROUL	279/86 209/64 170/52 125/38	1989/1990-91 1965 1978 1981/1985	35 22 13 12	NAVY NAVY U.C U.C.	Ms. Rose M. Dufour Ship Scheduler(s) Code A-010 PHONE: (619) 534-2841 FAX: (619) 535-1817 TELEMAIL: SCRIPPS.INST
University of Michigan Center for Great Lakes & Aquatic Sciences 2200 Bonisteel Boulevard Ann Arbor, MI 48109-2099	LAURENTIAN	80/24	1974	8	U.M.	Dr. Linda Goad Marine Superintendent PHONE: (313) 763-5393 FAX: (313) 747-2748 TELEMAIL: T.MOORE
Texas A&M University Department of Oceanography PO Box 1675 Galveston, TX 77553	GYRE	182/55	1973/80	23	NAVY	Capt. Dean Letzring Mgr. Marine Operations PHONE: (409) 740-4469 FAX: (409) 740-4458 TELEMAIL: RV.GYRE
University of Texas Marine Science Institute Port Aransas, TX 78373	LONGHORN	105/32	1971/1988	12	U.T.	Mr. John Thompson Assoc. Director, Admin. PHONE: (512) 749-8760 FAX: (512) 749-8777

OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	NO. of SCIENTISTS	OWNER	SHIP SCHED. CONTACT
Louisiana Universities Marine Consortium Marine Research & Education Center Star Route Box 541 (Cocodrie) Chauvin, LA 70344	PELICAN	105/32	1985	15	LUMCON	Mr. Steve Rabelais Marine Ops. Supervisor PHONE: (504) 851-2808 FAX: (504) 851-2874 TELEMAIL: LUMCON
Harbor Branch Oceanographic Institution 5600 Old Dixie Highway Ft. Pierce, FL 34946	SEWARD JOHNSON EDWIN LINK	176/54 168/51	1984 1982/1988	20 20	H.B. H.B.	Mr. Tim Askew Marine Operations PHONE: (407) 465-2400 x262 FAX: (407) 465-2116 TELEMAIL: HBOI.SHIPS
University of Miami, RSMAS Marine Department 4600 Rickenbacker Causeway Miami, FL 33149	COLUMBUS ISELIN CALANUS	170/52 64/20	1972 1971	16 6	U.M. U.M.	Mr. Ronald Hutchinson Marine Operations PHONE: (305) 361-4880 FAX: (305) 365-0840 TELEMAIL: R.HUTCHINSON
University System of Georgia Skidaway Institute of Oceanography P.O. Box 13687 Savannah, GA 31416-0687	BLUE FIN	72/22	1972/1975	8	U.G.	Mr. Lee Knight Assist. Director, Operations PHONE: (912) 356-2486 FAX: (912) 358-2751 TELEMAIL: D.MENZEL
Duke/UNC Oceanographic Consortium Duke University Marine Laboratory Beaufort, NC 28516	CAPE HATTERAS	135/41	1981	12	NSF	Mr. Quentin Lewis Marine Superintendent PHONE: (919) 728-3372 FAX: (919) 728-2514 TELEMAIL: DUKE.UNC
Johns Hopkins University Chesapeake Bay Institute 4800 Atwell Road Shady Side, MD 20764	R. WARFIELD	108/32	1967	10	JHU	Mr. Bruce Cornwall Marine Superintendent PHONE: (301) 867-7550 x246 FAX: (301) 269-5785 TELEMAIL: CHESAPEAKE.BAY
University of Delaware College of Marine Studies 700 Pilottown Road Lewes, DE 19958	CAPE HENLOPEN	120/37	1976	12	U.D.	Mr. Wadsworth Owen Director, Marine Operations PHONE: (302) 645-4320 FAX: (302) 645-4006 TELEMAIL: W.OWEN
Lamont-Doherty Geological Observatory Columbia University Palisades, NY 10964	MAURICE EWING	239/73	1983/1990	32	L-DGO	Mr. Michael Rawson Marine Sci. Coordinator PHONE: (914) 359-2900 x367 FAX: (914) 359-6817 TELEMAIL: M.RAWSON
University of Rhode Island Graduate School of Oceanography Narragansett, RI 02882	ENDEAVOR	177/54	1976	16	NSF	Mr. William Hahn Marine Superintendent PHONE: (401) 792-6203 FAX: (401) 792-6574 TELEMAIL: RHODE.ISLAND
Woods Hole Oceanographic Institution Woods Hole, MA 02543	KNORR ATLANTIS II OCEANUS DSRV ALVIN	279/85 210/84 177/54 25.8	1970/1989 1983 1975 1964	34 *29 12 2	NAVY WHOI NSF NAVY	Mr. Donald Moller Marine Ops. Admin. PHONE: (508) 548-1400 x2277 FAX: (508) 457-2185 TELEMAIL: D.MOLLER or WOODS.HOLE

*20 Scientists (includes one medic), plus 9 ALVIN group

MARINE OPERATIONS CONTACT

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

Rev. (10/91)

OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	CREW	NO. of SCI.	OWNER	MARINE OPS. CONTACT
University of Hawaii Marine Center #1 Sand Island Road Honolulu, HI 96819	MOANA WAVE	210/64	1973/1984	16	19	NAVY	Capt. J.W. Coste Marine Superintendent PHONE: (808) 847-2661 FAX: (808) 848-5451
University of Alaska Institute of Marine Science Fairbanks, AK 99701	ALPHA HELIX	133/41	1966	9	15	NSF	Mr. Thomas Smith Marine Superintendent PHONE: (907) 224-5261 FAX: (907) 224-3392
University of Washington School of Oceanography, WB-10 Seattle, WA 98195	T. G. THOMPSON C.A. BARNES	274/84 66/20	1991 1966/1984	22 2	26 6	NAVY NSF	Capt. William Jeffers Marine Superintendent PHONE: (206) 543-5062 FAX: (206) 543-6073
Oregon State University College of Oceanography Newport, OR 97365	WECOMA	177/54	1975	13	20	NSF	Capt. Kennard M. Palfrey Marine Superintendent PHONE: (503) 867-0224 FAX: (503) 867-3733
Moss Landing Marine Laboratories PO Box 450 Moss Landing, CA 95039	POINT SUR	135/41	1981	9	12	NSF	Mr. Michael Prince Marine Superintendent PHONE: (408) 633-3534 FAX: (408) 633-4580
University of Southern California Hancock Institute for Marine Studies 820 South Seaside Avenue Terminal Island, CA 90731	VICKERS	220/67	1973/1989	14	25	USC	Mr. Don Newman, Mgr. Marine Support Facility PHONE: (213) 743-6977 830-4570 FAX: (213) 830-6328
University of California, San Diego Scripps Institution of Oceanography La Jolla, CA 92093-0210	MELVILLE T. WASHINGTON NEW HORIZON R.G. SPROUL	279/86 209/64 170/52 125/38	1969/1990-1 1965 1978 1981/1985	23 23 12 5	35 22 13 12	NAVY NAVY U.C U.C.	Capt. Jim Williams Marine Facilities Code P-005 PHONE: (619) 225-9600 FAX: (619) 534-1635
University of Michigan Center for Great Lakes & Aquatic Sciences 2200 Bonisteel Boulevard Ann Arbor, MI 48109-2099	LAURENTIAN	80/24	1974	6	8	U.M.	Dr. Linda Goad Marine Superintendent PHONE: (313) 763-5393 FAX: (313) 747-2748
Texas A&M University Department of Oceanography PO Box 1675 Galveston, TX 77553	GYRE	182/55	1973/1980	10	23	NAVY	Capt. Dean Letzring Manager, Marine Ops. PHONE: (409) 740-4469 FAX: (409) 740-4456
University of Texas Marine Science Institute Port Aransas, TX 78373	LONGHORN	105/32	1971/1986	4	12	U.T.	Mr. John Thompson Assoc. Director, Admin. PHONE: (512) 749-6760 FAX: (512) 749-6777
Louisiana Universities Marine Consortium Marine Research & Education Center Star Route Box 541 (Cocodrie) Chauvin, LA 70344	PELICAN	105/32	1985	5	15	LUMCON	Mr. Steve Rabalais Marine Ops. Supervisor PHONE: (504) 851-2808 FAX: (504) 851-2874
Harbor Branch Oceanographic Institution 5600 Old Dixie Highway Ft. Pierce, FL 34946	SEWARD JOHNSON EDWIN LINK	176/54 168/51	1984 1982/1988	10 10	20 20	H.B. H.B.	Mr. Tim Askew Marine Operations PHONE: (407) 465-2400 x262 FAX: (407) 465-2116

OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	CREW	NO. of SCI.	OWNER	MARINE OPS. CONTACT
University of Miami, RSMAS Marine Department 4600 Rickenbacker Causeway Miami, FL 33149	COLUMBUS ISELIN	170/52	1972	12	16	U.M.	Mr. Ronald Hutchinson Marine Operations PHONE: (305) 361-4880 FAX: (305) 365-0840
	CALANUS	64/20	1971	2	6	U.M.	
University System of Georgia Skidaway Institute of Oceanography P.O. Box 13687 Savannah, GA 31416-0687	BLUE FIN	72/22	1972/1975	5	8	U.G.	Mr. Lee Knight Assist. Director, Operations PHONE: (912) 356-2486 FAX: (912) 356-2751
Duke/UNC Oceanographic Consortium Duke University Marine Laboratory Beaufort, NC 28516	CAPE HATTERAS	135/41	1981	10	12	NSF	Mr. Quentin Lewis Marine Superintendent PHONE: (919) 728-3372 FAX: (919) 728-2514
Johns Hopkins University Chesapeake Bay Institute 4800 Atwell Road Shady Side, MD 20764	R. WARFIELD	106/32	1967	11	10	JHU	Mr. Bruce Cornwall Marine Superintendent PHONE: (301)867-7550 x246 FAX: (301) 269-5785
University of Delaware College of Marine Studies 700 Pilottown Road Lewes, DE 19958	CAPE HENLOPEN	120/37	1976	7	12	U.D.	Mr. Wadsworth Owen Director, Marine Operations PHONE: (302) 645-4320 FAX: (302) 645-4006
Lamont-Doherty Geological Observatory Columbia University Palisades, NY 10964	MAURICE EWING	239/73	1983/1990	18	32	L-DGO	Capt. Paul Ljunggren Marine Superintendent PHONE: (914)359-2900 x367 FAX: (914) 359-6817
University of Rhode Island Graduate School of Oceanography Narragansett, RI 02882	ENDEAVOR	177/54	1976	12	16	NSF	Mr. William Hahn Marine Superintendent PHONE: (401) 792-6203 FAX: (401) 792-6574
Woods Hole Oceanographic Institution Woods Hole, MA 02543	KNORR	279/85	1970/1989	25	34	NAVY	Capt. Joe Coburn Manager, Marine Ops. PHONE: (508)548-1400x227 FAX: (508) 457-2185
	ATLANTIS II	210/64	1963	27	*29	WHOI	
	OCEANUS	177/54	1975	12	12	NSF	
	DSRV ALVIN	25.8	1964		2	NAVY	

*20 Scientists (includes one medic), plus 9 ALVIN group

UNOLS COUNCIL/COMMITTEES

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(409) 845-1811	Feenan Jennings, TAMU, (Chair, ARC)	10/88-10/9X
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(503) 867-0224	Ken Palfrey, OSU, (Chair, Ship Scheduling)	10/90-10/9X
(619) 534-1643	Jim Williams, Scripps, (Chair, RVOC)	10/88-10/9X

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(916) 752-6183	Douglas Nelson, UC Davis	7/87-6/92
(516) 632-8735	Mary Scranton, SUNY, Stony Brook	7/87-6/93
(503) 737-3972	Gary Taghon, OSU	7/89-6/92
(615) 576-0427	Karen Von Damm, ORNL	7/90-6/93
(508) 548-1400 x 2597	Richard Pittenger, WHOI, (ex-officio)	6/91-XXXX

RESEARCH VESSEL OPERATORS' COMMITTEE (RVOC)

(619) 534-1643	Jim Williams, Scripps, (Chair)	10/88-10/92
(408) 633-3534	Michael Prince, MLML, (V-Chair)	9/91-10/93

FLEET IMPROVEMENT COMMITTEE (FIC)

(914) 359-2900 x 518	Marcus Langseth, L-DGO, (Chair)	10/90-10/93
(813) 893-9630	Peter Betzer, U South Florida	10/90-10/93
(619) 534-6368	Teresa Chereskin, Scripps	10/90-10/93
(408) 755-8657	Kenneth Johnson, MLML	10/89-10/92
(503) 737-4524	Charles Miller, OSU	10/90-10/93
(907) 474-7835	Thomas Royer, U Alaska	10/89-10/92
(804) 642-7267	L. Donelson Wright, VIMS	10/90-10/93
(305) 361-4690	Garry Brass, U Miami, (ex-officio)	10/90-10/9X

UNOLS ADVISORY COUNCIL

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1977-1988. Increased membership in the Advisory Council to eight - five from Member Institutions, and three from Associate Member Institutions.

Rev. 10/91

1971-1972

	Expires	
J.V. Byrne, OSU, Chair	5/75	
D.W. Menzel, SKIO	5/74	
R.A. Ragotzkie, U/WISC	5/73	
H.M. Stommel, MIT	5/74	
W.S. Wooster, SIO	5/73	
J.P. Craven, U/HAWAII	5/75	
C.L. Drake, DARTMOUTH	(resigned)	
A.E. Maxwell, WHOI, ex-officio	UNOLS CH	
J.M. Savage, USC, ex-officio	UNOLS V-CH	

1975-1976

	Expires	
R.C. Dugdale, BIGELOW, Chair	5/77	
P.L. Parker, U/TEXAS	7/76	
A.F. Richards, LEHIGH	7/76	
T.K. Treadwell, TAMU	5/78	
D. Hood, U/ALASKA	5/76	
F. Webster, WHOI	5/77	
J.A. Knauss, URI, ex-officio	UNOLS CH	
G.G. Shor, SIO, ex-officio	UNOLS V-CH	

1972-73

	Expires	
J.V. Byrne, OSU, Chair	5/75	
D.W. Menzel, SKIO	5/74	
R.A. Ragotzkie, U/WISC	5/73	
A.F. Richards, LEHIGH	5/73	
H.M. Stommel, MIT	5/74	
W.S. Wooster, SIO	5/73	
J.P. Craven, U/HAWAII	5/75	
A.E. Maxwell, WHOI, ex-officio	UNOLS CH	
J.M. Savage, USC, ex-officio	UNOLS V-CH	

1976-1977

	Expires	
R.C. Dugdale, BIGELOW, Chair	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	UNOLS CH	
F. Webster, WHOI, ex-officio	UNOLS V-CH	

1973-1974

	Expires	
J.V. Byrne, OSU, Chair	5/75	
J.P. Craven, U/HAWAII	5/75	
D.W. Menzel, SKIO	5/74	
R.A. Ragotzkie, U/WISC	5/74	
A.F. Richards, LEHIGH	5/76	
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)	
A.E. Maxwell, WHOI, ex-officio	UNOLS CH	
J.M. Savage, USC, ex-officio	UNOLS V-CH	

1977-1978

	Term	
G.H. Keller, OSU, Chair	7/76-6/80	
D. Frankenberg, UNC, V-Chair	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	
W.S. Wooster, U/WA, ex-officio	7/76-6/78 UNOLS CH	
F. Webster, WHOI, ex-officio	7/76-6/78 UNOLS V-CH	

1974-1975

	Expires	
J.V. Byrne, SIO, Acting Chair	5/75	
P.L. Parker, U/TEXAS	7/76	
A.F. Richards, LEHIGH	7/76	
W.S. Richardson, NOVA U, Chair	(deceased)	
R.J. Wold, U/WISC	(resigned)	
R.C. Dugdale, U/WA	5/76	
J.P. Craven, U/HAWAII	5/76	
J.A. Knauss, URI, ex-officio	UNOLS CH	
G.G. Shor, SIO, ex-officio	UNOLS V-CH	

1978-1979

	Term	
G.H. Keller, OSU, Chair	7/76-6/80	
R.T. Barber, DUKE, V-Chair	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.	7/78-6/81	
J.R. Schubel, SUNY/STONY BROOK	7/77-6/81	
J.M. Zeigler, VIMS	7/78-6/81	
T.K. Treadwell, TAMU, ex-officio	7/78-6/79 UNOLS CH	
A.F. Richards, LEHIGH, ex-officio	7/78-6/79 UNOLS V-CH	

UNOLS ADVISORY COUNCIL

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

1977-1988. Increased membership in the Advisory Council to eight - five from Member Institutions, and three from Associate Member Institutions.

1979-1980

	Term
G.C. Anderson, U/WA, Chair	7/78-6/81
J.R. Schubel, SUNY/SB, V-Chair	7/77-6/80
G.H. Kaller, OSU	7/76-6/80
B.H. Robison, UCSB	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. Zeigler, VIMS	7/78-6/81
T.K. Treadwell, TAMU, ex-officio	7/78-6/80 UNOLS CH
J.H. Martin, MLML, ex-officio	7/79-6/80 UNOLS V-CH

1980-1981

	Term
G.C. Anderson, U/WA, Chair	7/78-6/81
H.T. Rossby, URI, V-Chair	7/78-6/82
B.H. Robison, UCSB	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

	Term
B.H. Robison, UCSB, Chair	7/79-6/82
H.T. Rossby, URI, V-Chair	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

1982-83

	Term
B.H. Robison, UCSB, Chair	7/82-6/85
J.R. Curray, SIO, V-Chair	7/82-6/85
R.W. Corell, UNH	7/81-6/84
D.S. Gorsline, USC	7/81-6/84
R.L. Larson, URI	7/82-6/85
C.B. Miller, OSU	7/80-6/83
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

	Term
C.B. Miller, OSU, Chair	7/80-6/86
H.B. Stewart, Jr., Old Dominion U, V-Chair	7/83-6/86
R.W. Corell, UNH	7/81-6/84
R.P. Dinsmore, WHOI	7/83-6/86
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, SIO, ex-officio	7/83-6/84 UNOLS V-CH

1984-1985

	Term
C.B. Miller, OSU, Chair	7/80-6/86
H.B. Stewart, Jr., Old Dominion U, V-Chair	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

	Term
C.B. Miller, OSU, Chair	7/80-6/86
T. Malone, U/MD, V-Chair	7/84-6/87
R.P. Dinsmore, WHOI	7/83-6/86
C.J. Lorenzen, U/WA	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 U	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

	Term
J.H. Martin, MLML, Chair	7/85-6/88
T. Malone, U/MD, V-Chair	7/84-6/87
R.P. Dinsmore, WHOI	7/83-6/86
P.J. Fox, URI	10/86-6/87
R.A. Knox, SIO	7/86-6/89
K.C. MacDonald, UCSB	7/86-6/89
A.E. Maxwell, U/TX, Austin	7/84-6/87
C.S. Yantsch, Bigelow	10/86-6/88
G.H. Kaller, 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

UNOLS ADVISORY COUNCIL

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

1977-1988. Increased membership in the Advisory Council to eight - five from Member Institutions, and three from Associate Member Institutions.

1987-1988

	Term
J.H. Martin, MLML, Chair	7/85-10/88
T. Malone, U/MD, V-Chair	7/84-10/90
R.P. Dinsmore, WHOI	7/83-10/89
R.A. Knox, SIO	7/86-10/89*
T.C. Johnson, Duke/UNC	7/87-10/90
A.E. Maxwell, U/TX, Austin	7/84-10/90
J.P. Kennett, UCSB	7/87-10/89
C.S. Yentsch, Bigelow	10/86-10/88
G.H. Keller, OSU, ex-officio	7/86-10/88 UNOLS CH
J. Langfelder, HBOI	10/87-10/89 UNOLS V-CH
resigned 4/88	

1990-1991

	Term
G.W. Brass, U/Miami, Chair	10/90-10/92
T.C. Johnson, Duke/UNC, V-Chair	10/87-10/92
L.P. Atkinson, Old Dominion U	10/88-10/91
P. Betzer, U/S FL	10/89-10/92
D.S. Gorsline, USC	2/91-10/91
P.J. Fox, URI	10/88-10/91
G.D. Grice, WHOI *	10/90-10/93
D.M. Karl, U/Hawaii	10/90-10/93
W.D. Nowlin, TAMU *	10/89-10/92
F.D. Jennings, TAMU, ex-officio	10/88-10/9X ARC CH
M.G. Langseth, L-DGO, ex-officio	10/90-10/9X FIC CH
K.M. Palfrey, OSU, ex-officio	10/90-10/9X SSC CH
J.G. Williams, SIO, ex-officio	10/88-10/9X ROVC CH

* Resigned 10/91

UNOLS COUNCIL

In October 1988, the Advisory Council was reconstituted as the UNOLS Council

1988-1989

	Term
G.H. Keller, OSU, Chair	7/86-10/90
T.C. Johnson, Duke/UNC, V-Chair	10/87-10/90
L.P. Atkinson, Old Dominion U	10/88-10/91
G.W. Brass, U/MIAMI	10/88-10/91
R.P. Dinsmore, WHOI	7/83-10/89
P.J. Fox, URI	10/88-10/91
J.P. Kennett, UCSB	10/87-10/89
R.A. Knox, SIO	7/86-10/89
T.C. Malone, U/MD	7/84-10/90
A.E. Maxwell, U/TX, Austin	7/84-10/90
F.D. Jennings, TAMU, ex-officio	10/88-10/9X ARC CH
W.D. Nowlin, TAMU, ex-officio	10/89-10/9X FIC CH
G.G. Shor, Jr., SIO, ex-officio	10/89-10/9X SSC CH
J.G. Williams, SIO, ex-officio	10/88-10/90 RVOC CH

1991-1992

	Term
G.W. Brass, U/Miami, Chair	10/90-10/92
T.C. Johnson, Duke/UNC, V-Chair	10/87-10/92
P. Betzer, U/S FL	10/89-10/92
P.J. Fox, URI	10/88-10/92
D.E. Hayes, L-DGO	10/91-10/94
R. Jahnke, Skidaway	10/91-10/94
D.M. Karl, U/Hawaii	10/90-10/93
R.A. Knox, Scripps	10/91-10/92
C.A. Nittrouer, State U/NY	10/91-10/94
F.D. Jennings, TAMU, ex-officio	10/88-10/9X ARC CH
M.G. Langseth, L-DGO, ex-officio	10/90-10/9X FIC CH
K.M. Palfrey, OSU, ex-officio	10/90-10/9X SSC CH
J.G. Williams, SIO, ex-officio	10/88-10/9X ROVC CH

1989-1990

	Term
G.H. Keller, OSU, Chair	7/86-10/90
T.C. Johnson, Duke/UNC, V-Chair	10/87-10/90
L.P. Atkinson, Old Dominion U	10/88-10/91
P. Betzer, U/S FL	10/89-10/92
G.W. Brass, U/MIAMI	10/88-10/91
P.J. Fox, URI	10/88-10/91
T.C. Malone, U/MD	7/84-10/90
A.E. Maxwell, U/TX, Austin	7/84-10/90
W.D. Nowlin, TAMU	10/89-10/92
F.D. Jennings, TAMU, ex-officio	10/88-10/9X ARC CH
D.S. Gorsline, USC, ex-officio	10/89-10/9X FIC CH
M. Rawson, L-DGO, ex-officio	10/89-10/9X SSC CH
J.G. Williams, SIO, ex-officio	10/88-10/90 RVOC CH

UNOLS Chairman and Vice-Chairman
 Advisory Council Chairman and Vice-Chairman and Executive Secretary
 (Executive Committee consists of UNOLS Chairman and Vice-Chairman,
 Advisory Council Chairman 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 1979-1980

T. K. Treadwell, TAMU	UNOLS CH.
J. H. Martin, MLML	UNOLS V-CH.
G. C. Anderson, U/WA	A/C CH.
J. R. Schubel, SUNY/SB	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 CH.
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.
H. B. Stewart, OLD DOM	A/C V-CH.
W. D. Barbee, UNOLS	E/S

May 1984-1985

F. Webster, U/DEL	UNOLS CH.
R. W. Corell, U/NH	UNOLS V-CH.
C. B. Miller, OSU	A/C CH.
H. B. Stewart, OLD DOM	A/C V-CH.
W. D. Barbee, UNOLS	E/S

May 1985-1986

F. Webster, U/DEL	UNOLS CH.
R. W. Corell, U/NH	UNOLS V-CH.
C. B. Miller, OSU	A/C CH.
T. Malone, U/MD	A/C V-CH.
W. D. Barbee, UNOLS	E/S

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

May 1986-Oct 1987

G. H. Keller, OSU	UNOLS CH.
R. W. Corell, U/NH *	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

Oct 1987-Sept 1988

G. H. Keller, OSU	UNOLS CH.
J. Langfelder, HBR.BR.	UNOLS V-CH.
J. H. Martin, MLML	A/C CH.
T. Malone, U/MD	A/C V-CH.
W. D. Barbee, UNOLS	E/S

In 1988 the UNOLS Charter was revised,
 the Executive Committee was redefined
 to include the UNOLS Chair, Vice-Chair
 and two members elected from the
 UNOLS Council.

Sept 1988-1989

G. H. Keller, OSU	UNOLS CH.
T. C. Johnson, DUKE/UNC	UNOLS V-CH.
R. A. Knox, SCRIPPS	UNOLS Council
A. E. Maxwell, U/TX	UNOLS Council

Sept 1989-1990

G. H. Keller, OSU	UNOLS CH.
T. C. Johnson, DUKE/UNC	UNOLS V-CH.
G. W. Brass, U/MIAMI	UNOLS Council
W. D. Knowlin, TAMU	UNOLS Council

Sept 1990-1991

G. W. Brass, U/Miami	UNOLS CH.
T. C. Johnson, DUKE/UNC	UNOLS V-CH.
K. M. Palfrey, OSU	UNOLS Council
L. P. Atkinson, OLD DOM	UNOLS Council

Oct 1991-1992

G. W. Brass, U/Miami	UNOLS CH.
T. C. Johnson, DUKE/UNC	UNOLS V-CH.
K. M. Palfrey, OSU	UNOLS Council
D. M. Karl	UNOLS Council

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1990 -

CRUISE DAYS PROFILES

AGENCY	PHYS. OCEAN	ACCOUS-TICS	CHEM. OCEAN	BIOL. OCEAN	ENVIR. ECOL	FISH. INVST	CLIM. METEO	GEOLO GEOPH	MAP. CHRTG	OCEAN ENGIN	TRAIN-ING	TRANS. NONSCI	POLL. ASSESS	OTHER	TOTAL
National Science Foundation	482.00	.00	264.00	812.00	.00	.00	.00	504.00	9.00	.00	.00	.00	.00	327.00	2398.00
Office of Naval Research	247.00	.00	59.00	81.00	.00	.00	.00	160.00	.00	.00	.00	.00	.00	83.00	630.00
U.S. Geological Survey	.00	.00	1.00	.00	.00	.00	.00	1.00	.00	.00	.00	.00	.00	1.00	3.00
Bureau of Land Management/Minerals Mgmt. Service	11.00	.00	.00	7.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	18.00
National Oceanic and Atmospheric Administration	5.00	.00	41.00	120.00	.00	.00	.00	26.00	.00	.00	.00	.00	.00	17.00	209.00
Department of Energy (ERDA)	35.00	.00	42.00	9.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	86.00
Other Federal	5.00	.00	.00	4.00	.00	.00	.00	9.00	8.00	.00	.00	.00	.00	9.00	35.00
State/Municipal	35.66	.00	127.66	60.18	.00	.00	.00	65.00	.00	.00	.00	.00	3.00	115.00	406.50
Other/Private	4.00	.00	3.00	.00	.00	.00	.00	137.50	.00	.00	.00	.00	1.50	134.50	280.50

TOTALS	824.66	0.00	537.66	1093.18	0.00	0.00	0.00	902.50	17.00	0.00	0.00	0.00	4.50	686.50	4066.00
PERCENT	20.28	0.00	13.22	26.89	0.00	0.00	0.00	22.20	0.42	0.00	0.00	0.00	0.11	16.88	100.00

CRUISE DAYS PROFILES

INSTITUTION	PHYS. OCEAN	ACCOUS- TICS	CHEM. OCEAN	BIOL. OCEAN	ENVIR. ECOL	FISH. INVST	CLIM. METEO	GEOLO GEOPH	MAP. CHRTG	OCEAN ENGIN	TRAIN- ING	TRANS. NONSCI	POLL. ASSESS	OTHER	TOTAL -----
University of Hawaii	86.00	.00	5.00	.00	.00	.00	.00	192.00	.00	.00	.00	.00	.00	.00	283.00
University of Alaska	52.00	.00	22.00	35.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	109.00
University of Washington	9.00	.00	19.00	97.00	.00	.00	.00	6.00	.00	.00	.00	.00	.00	23.00	154.00
Oregon State University	143.00	.00	39.00	.00	.00	.00	.00	14.00	.00	.00	.00	.00	.00	43.00	239.00
Scripps Institution of Oceanography	81.66	.00	131.66	132.68	.00	.00	.00	183.00	.00	.00	.00	.00	.00	116.00	645.00
Texas A & M University	5.00	.00	38.00	84.00	.00	.00	.00	21.00	.00	.00	.00	.00	4.50	63.50	216.00
University of Texas	57.00	.00	.00	42.00	.00	.00	.00	48.00	.00	.00	.00	.00	.00	1.00	148.00
University of Miami, RSMAS	114.00	.00	36.00	89.00	.00	.00	.00	77.00	9.00	.00	.00	.00	.00	47.00	372.00
University of Georgia, Skidaway	9.00	.00	16.00	40.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.00	71.00
Duke University/University of North Carolina	28.00	.00	.00	91.00	.00	.00	.00	39.00	.00	.00	.00	.00	.00	17.00	175.00
Johns Hopkins University	4.00	.00	10.00	93.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	107.00
University of Delaware	25.00	.00	24.00	1.00	.00	.00	.00	9.00	.00	.00	.00	.00	.00	.00	59.00
Lamont-Doherty Geological Observatory	.00	.00	4.00	.00	.00	.00	.00	160.00	.00	.00	.00	.00	.00	37.00	201.00
University of Rhode Island	103.00	.00	40.00	53.00	.00	.00	.00	12.00	.00	.00	.00	.00	.00	13.00	221.00
Woods Hole Oceanographic Institution	26.00	.00	92.00	159.00	.00	.00	.00	88.00	.00	.00	.00	.00	.00	67.00	432.00
University of Michigan	3.00	.00	.00	41.00	.00	.00	.00	5.00	.00	.00	.00	.00	.00	4.00	53.00
Moss Landing Marine Laboratory	73.00	.00	6.00	48.00	.00	.00	.00	31.00	.00	.00	.00	.00	.00	19.00	177.00
Louisiana Universities Marine Consortium	6.00	.00	3.00	81.50	.00	.00	.00	17.50	8.00	.00	.00	.00	.00	5.00	121.00
Harbor Branch Oceanographic Institution	.00	.00	52.00	6.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	225.00	283.00

TOTALS	824.66	.00	537.66	1093.18	.00	.00	.00	902.50	17.00	.00	.00	.00	4.50	686.50	4066.00
PERCENT	20.28	0.00	13.22	26.89	0.00	0.00	0.00	22.20	0.42	0.00	0.00	0.00	0.11	16.88	100.00

CRUISE DAYS PROFILES

VESSEL	PHYS. OCEAN	ACCOUS-TICS	CHEM. OCEAN	BIOL. OCEAN	ENVIR. ECOL	FISH. INVST	CLIM. METEO	GEOLO GEOPH	MAP. CHRTG	OCEAN ENGIN	TRAIN-ING	TRANS. NONSCI	POLL. ASSESS	OTHER	TOTAL
EWING	.00	.00	4.00	.00	.00	.00	.00	160.00	.00	.00	.00	.00	.00	37.00	201.00
MOANA WAVE	86.00	.00	5.00	.00	.00	.00	.00	192.00	.00	.00	.00	.00	.00	.00	283.00
ATLANTIS II	.00	.00	35.00	130.00	.00	.00	.00	84.00	.00	.00	.00	.00	.00	26.00	275.00
T. WASHINGTON	17.00	.00	27.00	4.00	.00	.00	.00	160.00	.00	.00	.00	.00	.00	85.00	293.00
WECOMA	143.00	.00	39.00	.00	.00	.00	.00	14.00	.00	.00	.00	.00	.00	43.00	239.00
ENDEAVOR	103.00	.00	40.00	53.00	.00	.00	.00	12.00	.00	.00	.00	.00	.00	13.00	221.00
OCEANUS	26.00	.00	57.00	29.00	.00	.00	.00	4.00	.00	.00	.00	.00	.00	41.00	157.00
SEWARD JOHNSON	.00	.00	36.00	6.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	134.00	176.00
GYRE	5.00	.00	38.00	84.00	.00	.00	.00	21.00	.00	.00	.00	.00	4.50	63.50	216.00
NEW HORIZON	10.66	.00	84.66	104.68	.00	.00	.00	20.00	.00	.00	.00	.00	.00	13.00	233.00
ISELIN	77.00	.00	24.00	45.00	.00	.00	.00	77.00	9.00	.00	.00	.00	.00	47.00	279.00
EDWIN LINK	.00	.00	16.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	91.00	107.00
POINT SUR	73.00	.00	6.00	48.00	.00	.00	.00	31.00	.00	.00	.00	.00	.00	19.00	177.00
CAPE MATTERAS	28.00	.00	.00	91.00	.00	.00	.00	39.00	.00	.00	.00	.00	.00	17.00	175.00
ALPHA HELIX	52.00	.00	22.00	35.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	109.00
ROBERT G. SPROUL	54.00	.00	20.00	24.00	.00	.00	.00	3.00	.00	.00	.00	.00	.00	18.00	119.00
CAPE MENLOPEN	25.00	.00	24.00	1.00	.00	.00	.00	9.00	.00	.00	.00	.00	.00	.00	59.00
WARFIELD	4.00	.00	10.00	93.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	107.00
PELICAN	6.00	.00	3.00	81.50	.00	.00	.00	17.50	8.00	.00	.00	.00	.00	5.00	121.00
LAURENTIAN	3.00	.00	.00	41.00	.00	.00	.00	5.00	.00	.00	.00	.00	.00	4.00	53.00
LONGHORN	57.00	.00	.00	42.00	.00	.00	.00	48.00	.00	.00	.00	.00	.00	1.00	148.00
BLUE FIN	9.00	.00	16.00	40.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.00	71.00
CLIFFORD A. BARNES	9.00	.00	19.00	97.00	.00	.00	.00	6.00	.00	.00	.00	.00	.00	23.00	154.00
CALANUS	37.00	.00	12.00	44.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	93.00

TOTALS	824.66	.00	537.66	1093.18	.00	.00	.00	902.50	17.00	.00	.00	.00	4.50	686.50	4066.00
PERCENT	20.28	0.00	13.22	26.89	0.00	0.00	0.00	22.20	0.42	0.00	0.00	0.00	0.11	16.88	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1990 -

OPERATIONAL DAYS CHARGED BY SPONSOR

INSTITUTION	MATL SCI. FNDTN	OFF. NAVAL RES.	U.S. GEOL. SURV.	MIN. MGMT. SERV.	MATL. OCEAN. ATM AD.	DEPT. OF ENERGY	OTHER FEDER. FUNDS	STATE OR MUNIC.	PRIV/ FORGN. FUNDS	TOTAL -----
University of Hawaii	170.00	.00	.00	.00	.00	.00	.00	.00	113.00	283.00
University of Alaska	105.00	.00	.00	.00	.00	.00	.00	1.00	3.00	109.00
University of Washington	129.00	1.00	2.00	.00	2.00	.00	.00	15.00	5.00	154.00
Oregon State University	190.00	49.00	.00	.00	.00	.00	.00	.00	.00	239.00
Scripps Institution of Oceanography	415.00	102.00	.00	.00	20.00	36.00	18.00	54.00	.00	645.00
Texas A & M University	119.00	26.00	.00	.00	.00	.00	.00	67.00	4.00	216.00
University of Texas	.00	53.00	.00	.00	40.00	.00	.00	55.00	.00	148.00
University of Miami, RSMAS	326.00	22.00	.00	11.00	13.00	.00	.00	.00	.00	372.00
University of Georgia, Skidaway	51.00	.00	.00	.00	.00	20.00	.00	.00	.00	71.00
Duke University/University of North Carolina	142.00	9.00	.00	.00	.00	14.00	.00	10.00	.00	175.00
Johns Hopkins University	107.00	.00	.00	.00	.00	.00	.00	.00	.00	107.00
University of Delaware	35.00	10.00	.00	.00	.00	12.00	2.00	.00	.00	59.00
Lamont-Doherty Geological Observatory	115.00	86.00	.00	.00	.00	.00	.00	.00	.00	201.00
University of Rhode Island	135.00	83.00	.00	.00	.00	.00	3.00	.00	.00	221.00
Woods Hole Oceanographic Institution	215.00	92.00	1.00	.00	92.00	.00	.00	25.00	7.00	432.00
University of Michigan	25.00	.00	.00	.00	.00	.00	.00	28.00	.00	53.00
Moss Landing Marine Laboratory	79.00	81.00	.00	.00	.00	.00	.00	13.00	4.00	177.00
Louisiana Universities Marine Consortium	28.00	.00	.00	7.00	35.00	4.00	12.00	17.50	17.50	121.00
Harbor Branch Oceanographic Institution	12.00	16.00	.00	.00	7.00	.00	.00	121.00	127.00	283.00

TOTALS	2398.00	630.00	3.00	18.00	209.00	86.00	35.00	406.50	280.50	4066.00
PERCENT	58.98	15.49	0.07	0.44	5.14	2.12	0.86	10.00	6.90	100.00

OPERATIONAL DAYS CHARGED BY SPONSOR

VESSEL	LENGTH	NATL SCI. FNDTN	OFF. NAVAL RES.	U.S. GEOL. SURV.	MIN. MGMT. SERV.	NATL. OCEAN. ATM AD.	DEPT. OF ENERGY	OTHER FEDER. FUNDS	STATE OR MUNIC.	PRIV/ FORGN. FUNDS	TOTAL -----
EWING	239 FT	115.00	86.00	.00	.00	.00	.00	.00	.00	.00	201.00
MOANA WAVE	210 FT	170.00	.00	.00	.00	.00	.00	.00	.00	113.00	283.00
ATLANTIS II	210 FT	119.00	69.00	.00	.00	78.00	.00	.00	2.00	7.00	275.00
T. WASHINGTON	209 FT	224.00	63.00	.00	.00	.00	.00	.00	6.00	.00	293.00
WECOMA	177 FT	190.00	49.00	.00	.00	.00	.00	.00	.00	.00	239.00
ENDEAVOR	177 FT	135.00	83.00	.00	.00	.00	.00	3.00	.00	.00	221.00
OCEANUS	177 FT	96.00	23.00	1.00	.00	14.00	.00	.00	23.00	.00	157.00
SEWARD JOHNSON	176 FT	12.00	16.00	.00	.00	7.00	.00	.00	99.00	42.00	176.00
GYRE	174 FT	119.00	26.00	.00	.00	.00	.00	.00	67.00	4.00	216.00
NEW HORIZON	170 FT	105.00	33.00	.00	.00	20.00	29.00	9.00	37.00	.00	233.00
ISELIN	170 FT	271.00	8.00	.00	.00	.00	.00	.00	.00	.00	279.00
EDWIN LINK	168 FT	.00	.00	.00	.00	.00	.00	.00	22.00	85.00	107.00
POINT SUR	135 FT	79.00	81.00	.00	.00	.00	.00	.00	13.00	4.00	177.00
CAPE MATTERAS	135 FT	142.00	9.00	.00	.00	.00	14.00	.00	10.00	.00	175.00
ALPHA MELIX	133 FT	105.00	.00	.00	.00	.00	.00	.00	1.00	3.00	109.00
ROBERT G. SPROUL	125 FT	86.00	6.00	.00	.00	.00	7.00	9.00	11.00	.00	119.00
CAPE MENLOPEN	120 FT	35.00	10.00	.00	.00	.00	12.00	2.00	.00	.00	59.00
WARFIELD	106 FT	107.00	.00	.00	.00	.00	.00	.00	.00	.00	107.00
PELICAN	105 FT	28.00	.00	.00	7.00	35.00	4.00	12.00	17.50	17.50	121.00
LAURENTIAN	80 FT	25.00	.00	.00	.00	.00	.00	.00	28.00	.00	53.00
LONGHORN	80 FT	.00	53.00	.00	.00	40.00	.00	.00	55.00	.00	148.00
BLUE FIN	72 FT	51.00	.00	.00	.00	.00	20.00	.00	.00	.00	71.00
CLIFFORD A. BARNES	65 FT	129.00	1.00	2.00	.00	2.00	.00	.00	15.00	5.00	154.00
CALANUS	64 FT	55.00	14.00	.00	11.00	13.00	.00	.00	.00	.00	93.00

TOTALS		2398.00	630.00	3.00	18.00	209.00	86.00	35.00	406.50	280.50	4066.00
PERCENT		58.98	15.49	0.07	0.44	5.14	2.12	0.86	10.00	6.90	100.00

PROJECT PERSON-DAYS AT SEA BY SPONSOR

VESSEL	LOA	TOTAL DAYS CHARGED	NATL SCI. FNDTH	OFF. NAVAL RES.	U.S. GEOL. SURV.	MIN. MGMT. SERV.	NATL. OCEAN. ATM AD.	DEPT. OF ENERGY	OTHER FEDER. FUNDS	STATE OR MUNIC.	PRIV/ FORGN. FUNDS	TOTAL -----
EWING	239 FT	201.00	2045.00	2052.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4097.00
MOANA WAVE	210 FT	283.00	2846.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1843.00	4689.00
ATLANTIS II	210 FT	275.00	2189.00	1397.00	0.00	0.00	2329.00	0.00	0.00	90.00	231.00	6236.00
T. WASHINGTON	209 FT	293.00	3012.00	957.00	0.00	0.00	0.00	0.00	0.00	120.00	0.00	4089.00
WECOMA	177 FT	239.00	1683.00	1010.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2693.00
ENDEAVOR	177 FT	221.00	1735.00	1255.00	0.00	0.00	0.00	0.00	24.00	0.00	0.00	3014.00
OCEANUS	177 FT	157.00	1100.00	219.00	4.00	0.00	139.00	0.00	0.00	276.00	0.00	1738.00
SEWARD JOHNSON	176 FT	176.00	120.00	120.00	0.00	0.00	0.00	0.00	0.00	921.00	420.00	1581.00
GYRE	174 FT	216.00	2146.00	338.00	0.00	0.00	0.00	0.00	0.00	1098.00	27.50	3609.50
NEW HORIZON	170 FT	233.00	1083.00	477.00	0.00	0.00	340.00	391.00	63.00	485.00	0.00	2839.00
ISELIN	170 FT	279.00	4552.00	68.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4620.00
EDWIN LINK	168 FT	107.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	510.00	1009.00	1519.00
POINT SUR	135 FT	177.00	794.00	659.00	0.00	0.00	0.00	0.00	0.00	292.00	26.00	1771.00
CAPE MATTERAS	135 FT	175.00	1700.00	63.00	0.00	0.00	0.00	182.00	0.00	130.00	0.00	2075.00
ALPHA MELIX	133 FT	109.00	1109.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00	39.00	1162.00
ROBERT G. SPROUL	125 FT	119.00	1356.00	28.00	0.00	0.00	0.00	58.00	75.00	148.00	0.00	1665.00
CAPE MENLOPEN	120 FT	59.00	523.00	100.00	0.00	0.00	0.00	86.00	12.00	0.00	0.00	721.00
WARFIELD	106 FT	107.00	943.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	943.00
PELICAN	105 FT	121.00	343.00	0.00	0.00	46.00	321.00	16.00	93.00	121.50	58.50	999.00
LAURENTIAN	80 FT	53.00	175.00	0.00	0.00	0.00	0.00	0.00	0.00	263.00	0.00	438.00
LOWHORN	80 FT	148.00	0.00	364.00	0.00	0.00	620.00	0.00	0.00	620.00	0.00	1604.00
BLUE FIN	72 FT	71.00	194.00	0.00	0.00	0.00	0.00	98.00	0.00	0.00	0.00	292.00
CLIFFORD A. BARNES	65 FT	154.00	865.00	3.00	6.00	0.00	9.00	0.00	0.00	356.00	43.00	1282.00
CALANUS	64 FT	93.00	379.00	51.00	0.00	55.00	86.00	0.00	0.00	0.00	0.00	571.00

TOTALS		4066.00	30892.00	9161.00	10.00	101.00	3844.00	831.00	267.00	5444.50	3697.00	54247.50
PERCENT			56.95	16.89	0.02	0.19	7.09	1.53	0.49	10.04	6.82	100.00

UNOLS CRUISE PARTICIPANTS AND AFFILIATIONS

SHIP	SCI	TECH	GRAD	STU/OBS	TOTAL :	ASSOC	NON-UNOLS	FED	FRGM	TOTAL
EWING	77	128	19	10	234 :	0	34	41	1	78
MOANA WAVE	46	94	33	33	206 :	5	57	0	21	83
ATLANTIS II	259	139	46	18	462 :	40	80	24	75	218
T. WASHINGTON	47	112	49	40	248 :	16	38	0	17	77
WECOMA	44	63	43	14	164 :	10	5	8	1	24
ENDEAVOR	121	66	41	11	239 :	34	17	6	3	61
OCEANUS	99	94	17	19	229 :	9	34	17	12	72
SEWARD JOHNSON	96	16	46	39	197 :	56	68	33	9	164
GYRE	79	159	63	31	332 :	13	26	19	13	71
NEW HORIZON	92	142	47	29	310 :	15	33	8	18	74
ISELIN	123	108	74	69	374 :	64	21	18	134	233
EDWIN LINK	42	56	8	29	135 :	17	90	7	5	115
POINT SUR	127	123	250	134	634 :	223	160	5	1	389
CAPE MATTERAS	86	66	64	23	239 :	75	59	5	6	145
ALPHA HELIX	34	30	21	18	103 :	1	24	1	1	27
ROBERT G. SPROUL	99	116	49	27	291 :	5	65	9	3	82
CAPE MENLOPEN	79	20	38	21	158 :	23	4	16	7	50
WARFIELD	72	142	60	10	284 :	142	10	9	1	162
PELICAN	117	92	21	2	232 :	10	71	14	0	95
LAURENTIAN	37	22	49	119	227 :	4	77	1	2	84
LONGHORN	63	43	30	5	141 :	3	7	9	0	19
BLUE FIN	32	54	12	44	142 :	0	39	0	0	39
CLIFFORD A. BARNES	79	122	83	206	490 :	3	47	14	0	64
CALANUS	37	16	35	6	94 :	15	5	7	1	28

TOTALS	1987	2023	1198	957	6165 :	783	1071	271	331	2456
PERCENT	32.2	32.8	19.4	15.5	100.0 :	12.7	17.4	4.4	5.4	39.8

SEA DAY PROFILES

AGENCY	PHYS. OCEAN	ACCOUS- TICS	CHEM. OCEAN	BIOL. OCEAN	ENVIR. ECOL	FISH. INVST	CLIM. METEO	GEOLO GEOPH	MAP. CHRTG	OCEAN ENGIN	TRAIN- ING	TRANS. NONSCI	POLL. ASSESS	OTHER	TOTAL -----
National Science Foundation	462.00	.00	259.00	783.00	.00	.00	.00	468.00	9.00	.00	.00	.00	.00	306.00	2287.00
Office of Naval Research	203.00	.00	54.00	76.00	.00	.00	.00	147.00	.00	.00	.00	.00	.00	82.00	562.00
U.S. Geological Survey	.00	.00	1.00	.00	.00	.00	.00	1.00	.00	.00	.00	.00	.00	1.00	3.00
Bureau of Land Management/Minerals Mgmt. Service	11.00	.00	.00	7.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	18.00
National Oceanic and Atmospheric Administration	5.00	.00	40.00	115.00	.00	.00	.00	26.00	.00	.00	.00	.00	.00	16.00	202.00
Department of Energy (ERDA)	35.00	.00	42.00	9.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	86.00
Other Federal	5.00	.00	.00	4.00	.00	.00	.00	9.00	8.00	.00	.00	.00	.00	9.00	35.00
State/Municipal	35.66	.00	117.66	59.18	.00	.00	.00	64.00	.00	.00	.00	.00	3.00	104.00	383.50
Other/Private	4.00	.00	3.00	.00	.00	.00	.00	125.50	.00	.00	.00	.00	1.50	127.50	261.50

TOTALS	760.66	0.00	516.66	1053.18	0.00	0.00	0.00	840.50	17.00	0.00	0.00	0.00	4.50	645.50	3838.00
PERCENT	19.82	0.00	13.46	27.44	0.00	0.00	0.00	21.90	0.44	0.00	0.00	0.00	0.12	16.82	100.00

SEA DAY PROFILES

DATE: 06/01/91

INSTITUTION	PHYS. OCEAN	ACCOUS- TICS	CHEM. OCEAN	BIOL. OCEAN	ENVIR. ECOL	FISH. INVST	CLIM. METEO	GEOLO GEOPH	MAP, CHRTG	OCEAN ENGIN	TRAIN- ING	TRANS. NONSCI	POLL. ASSESS	OTHER	TOTAL -----
University of Hawaii	86.00	.00	5.00	.00	.00	.00	.00	173.00	.00	.00	.00	.00	.00	.00	264
University of Alaska	50.00	.00	22.00	35.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	107
University of Washington	9.00	.00	19.00	97.00	.00	.00	.00	6.00	.00	.00	.00	.00	.00	23.00	154
Oregon State University	126.00	.00	34.00	.00	.00	.00	.00	14.00	.00	.00	.00	.00	.00	43.00	217
Scripps Institution of Oceanography	83.66	.00	131.66	133.68	.00	.00	.00	176.00	.00	.00	.00	.00	.00	113.00	638
Texas A & M University	5.00	.00	38.00	79.00	.00	.00	.00	21.00	.00	.00	.00	.00	4.50	62.50	210
University of Texas	18.00	.00	.00	41.00	.00	.00	.00	47.00	.00	.00	.00	.00	.00	1.00	107
University of Miami, RSMAS	114.00	.00	36.30	88.00	.00	.00	.00	75.00	9.00	.00	.00	.00	.00	47.00	369
University of Georgia, Skidaway	9.00	.00	16.00	39.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.00	70
Duke University/University of North Carolina	28.00	.00	.00	82.00	.00	.00	.00	35.00	.00	.00	.00	.00	.00	17.00	162
Johns Hopkins University	4.00	.00	9.00	90.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	103
University of Delaware	25.00	.00	24.00	1.00	.00	.00	.00	9.00	.00	.00	.00	.00	.00	.00	59
Lamont-Doherty Geological Observatory	.00	.00	4.00	.00	.00	.00	.00	140.00	.00	.00	.00	.00	.00	29.00	173
University of Rhode Island	96.00	.00	36.00	50.00	.00	.00	.00	11.00	.00	.00	.00	.00	.00	12.00	205
Woods Hole Oceanographic Institution	25.00	.00	91.00	144.00	.00	.00	.00	80.00	.00	.00	.00	.00	.00	60.00	400
University of Michigan	3.00	.00	.00	41.00	.00	.00	.00	5.00	.00	.00	.00	.00	.00	4.00	53
Moss Landing Marine Laboratory	73.00	.00	6.00	48.00	.00	.00	.00	31.00	.00	.00	.00	.00	.00	18.00	176
Louisiana Universities Marine Consortium	6.00	.00	3.00	79.50	.00	.00	.00	17.50	8.00	.00	.00	.00	.00	5.00	119
Harbor Branch Oceanographic Institution	.00	.00	42.00	5.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	205.00	252

TOTALS	760.66	.00	516.66	1053.18	.00	.00	.00	840.50	17.00	.00	.00	.00	4.50	645.50	3838
PERCENT	19.82	0.00	13.46	27.44	0.00	0.00	0.00	21.90	0.44	0.00	0.00	0.00	0.12	16.82	100

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1990 -

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SEA DAY PROFILES

DATE: 06/01/91

VESSEL	PHYS. OCEAN	ACCOUS-TICS	CHEM. OCEAN	BIOL. OCEAN	ENVIR. ECOL	FISH. INVST	CLIM. METEO	GEOLO GEOPH	MAP. CHRTG	OCEAN ENGIN	TRAIN-ING	TRANS. NONSCI	POLL. ASSESS	OTHER	TOTAL
EWING	.00	.00	4.00	.00	.00	.00	.00	140.00	.00	.00	.00	.00	.00	29.00	174
MOANA WAVE	86.00	.00	5.00	.00	.00	.00	.00	173.00	.00	.00	.00	.00	.00	.00	264
ATLANTIS II	.00	.00	34.00	115.00	.00	.00	.00	76.00	.00	.00	.00	.00	.00	20.00	245
T. WASHINGTON	17.00	.00	27.00	4.00	.00	.00	.00	152.00	.00	.00	.00	.00	.00	81.00	281
WECOMA	126.00	.00	34.00	.00	.00	.00	.00	14.00	.00	.00	.00	.00	.00	43.00	217
ENDEAVOR	96.00	.00	36.00	50.00	.00	.00	.00	11.00	.00	.00	.00	.00	.00	12.00	205
OCEANUS	25.00	.00	57.00	29.00	.00	.00	.00	4.00	.00	.00	.00	.00	.00	40.00	155
SEWARD JOHNSON	.00	.00	29.00	5.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	123.00	157
GYRE	5.00	.00	38.00	79.00	.00	.00	.00	21.00	.00	.00	.00	.00	4.50	62.50	210
NEW HORIZON	10.66	.00	84.66	104.68	.00	.00	.00	20.00	.00	.00	.00	.00	.00	13.00	233
ISELIN	77.00	.00	24.00	45.00	.00	.00	.00	75.00	9.00	.00	.00	.00	.00	47.00	277
EDWIN LINK	.00	.00	13.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	82.00	95
POINT SUR	73.00	.00	6.00	48.00	.00	.00	.00	31.00	.00	.00	.00	.00	.00	18.00	176
CAPE HATTERAS	28.00	.00	.00	82.00	.00	.00	.00	35.00	.00	.00	.00	.00	.00	17.00	162
ALPHA HELIX	50.00	.00	22.00	35.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	107
ROBERT G. SPROUL	56.00	.00	20.00	25.00	.00	.00	.00	4.00	.00	.00	.00	.00	.00	19.00	124
CAPE MENLOPEN	25.00	.00	24.00	1.00	.00	.00	.00	9.00	.00	.00	.00	.00	.00	.00	59
WARFIELD	4.00	.00	9.00	90.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	103
PELICAN	6.00	.00	3.00	79.50	.00	.00	.00	17.50	8.00	.00	.00	.00	.00	5.00	119
LAURENTIAN	3.00	.00	.00	41.00	.00	.00	.00	5.00	.00	.00	.00	.00	.00	4.00	53
LONGHORN	18.00	.00	.00	41.00	.00	.00	.00	47.00	.00	.00	.00	.00	.00	1.00	107
BLUE FIN	9.00	.00	16.00	39.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.00	70
CLIFFORD A. BARNES	9.00	.00	19.00	97.00	.00	.00	.00	6.00	.00	.00	.00	.00	.00	23.00	154
CALANUS	37.00	.00	12.00	43.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	92

TOTALS	760.66	.00	516.66	1053.18	.00	.00	.00	840.50	17.00	.00	.00	.00	4.50	645.50	3838
PERCENT	19.82	0.00	13.46	27.44	0.00	0.00	0.00	21.90	0.44	0.00	0.00	0.00	0.12	16.82	100

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1990 -

SEA DAYS CHARGED BY SPONSOR

INSTITUTION	NATL SCI. FMDTH	OFF. NAVAL RES.	U.S. GEOL. SURV.	MIN. MGMT. SERV.	NATL. OCEAN. ATM AD.	DEPT. OF ENERGY	OTHER FEDER. FUNDS	STATE OR MUNIC.	PRIV/ FORGN. FUNDS	TOTAL -----
University of Hawaii	163.00	.00	.00	.00	.00	.00	.00	.00	101.00	264.00
University of Alaska	103.00	.00	.00	.00	.00	.00	.00	1.00	3.00	107.00
University of Washington	129.00	1.00	2.00	.00	2.00	.00	.00	15.00	5.00	154.00
Oregon State University	173.00	44.00	.00	.00	.00	.00	.00	.00	.00	217.00
Scripps Institution of Oceanography	407.00	102.00	.00	.00	20.00	36.00	18.00	55.00	.00	638.00
Texas A & M University	113.00	26.00	.00	.00	.00	.00	.00	67.00	4.00	210.00
University of Texas	.00	14.00	.00	.00	39.00	.00	.00	54.00	.00	107.00
University of Miami, RSMAS	323.00	22.00	.00	11.00	13.00	.00	.00	.00	.00	369.00
University of Georgia, Skidaway	50.00	.00	.00	.00	.00	20.00	.00	.00	.00	70.00
Duke University/University of North Carolina	129.00	9.00	.00	.00	.00	14.00	.00	10.00	.00	162.00
Johns Hopkins University	103.00	.00	.00	.00	.00	.00	.00	.00	.00	103.00
University of Delaware	35.00	10.00	.00	.00	.00	12.00	2.00	.00	.00	59.00
Lamont-Doherty Geological Observatory	95.00	78.00	.00	.00	.00	.00	.00	.00	.00	173.00
University of Rhode Island	125.00	77.00	.00	.00	.00	.00	3.00	.00	.00	205.00
Woods Hole Oceanographic Institution	198.00	82.00	1.00	.00	87.00	.00	.00	25.00	7.00	400.00
University of Michigan	25.00	.00	.00	.00	.00	.00	.00	28.00	.00	53.00
Hess Landing Marine Laboratory	78.00	81.00	.00	.00	.00	.00	.00	13.00	4.00	176.00
Louisiana Universities Marine Consortium	26.00	.00	.00	7.00	35.00	4.00	12.00	17.50	17.50	119.00
Harbor Branch Oceanographic Institution	12.00	16.00	.00	.00	6.00	.00	.00	98.00	120.00	252.00

TOTALS	2287.00	562.00	3.00	18.00	202.00	86.00	35.00	383.50	261.50	3838.00
PERCENT	59.59	14.64	0.08	0.47	5.26	2.24	0.91	9.99	6.81	100.00

SEA DAYS CHARGED BY SPONSOR

VESSEL	LENGTH	NATL SCI. FNDTN	OFF. NAVAL RES.	U.S. GEOL. SURV.	MIN. MGMT. SERV.	NATL. OCEAN. ATM AD.	DEPT. OF ENERGY	OTHER FEDER. FUNDS	STATE OR MUNIC.	PRIV/ FORGN. FUNDS	TOTAL ---
EWING	239 FT	95.00	78.00	.00	.00	.00	.00	.00	.00	.00	173.00
MOANA WAVE	210 FT	163.00	.00	.00	.00	.00	.00	.00	.00	101.00	264.00
ATLANTIS II	210 FT	103.00	60.00	.00	.00	73.00	.00	.00	2.00	7.00	245.00
T. WASHINGTON	209 FT	213.00	62.00	.00	.00	.00	.00	.00	6.00	.00	281.00
WECOMA	177 FT	173.00	44.00	.00	.00	.00	.00	.00	.00	.00	217.00
ENDEAVOR	177 FT	125.00	77.00	.00	.00	.00	.00	3.00	.00	.00	205.00
OCEANUS	177 FT	95.00	22.00	1.00	.00	14.00	.00	.00	23.00	.00	155.00
SEWARD JOHNSON	176 FT	12.00	16.00	.00	.00	6.00	.00	.00	81.00	42.00	157.00
GYRE	174 FT	113.00	26.00	.00	.00	.00	.00	.00	67.00	4.00	210.00
NEW HORIZON	170 FT	105.00	33.00	.00	.00	20.00	29.00	9.00	37.00	.00	233.00
ISELIN	170 FT	269.00	8.00	.00	.00	.00	.00	.00	.00	.00	277.00
EDWIN LINK	168 FT	.00	.00	.00	.00	.00	.00	.00	17.00	78.00	95.00
POINT SUR	135 FT	78.00	81.00	.00	.00	.00	.00	.00	13.00	4.00	176.00
CAPE MATTERAS	135 FT	129.00	9.00	.00	.00	.00	14.00	.00	10.00	.00	162.00
ALPHA HELIX	133 FT	103.00	.00	.00	.00	.00	.00	.00	1.00	3.00	107.00
ROBERT G. SPROUL	125 FT	89.00	7.00	.00	.00	.00	7.00	9.00	12.00	.00	124.00
CAPE HENLOPEN	120 FT	35.00	10.00	.00	.00	.00	12.00	2.00	.00	.00	59.00
WARFIELD	106 FT	103.00	.00	.00	.00	.00	.00	.00	.00	.00	103.00
PELICAN	105 FT	26.00	.00	.00	7.00	35.00	4.00	12.00	17.50	17.50	119.00
LAURENTIAN	80 FT	25.00	.00	.00	.00	.00	.00	.00	28.00	.00	53.00
LONGHORN	80 FT	.00	14.00	.00	.00	39.00	.00	.00	54.00	.00	107.00
BLUE FIN	72 FT	50.00	.00	.00	.00	.00	20.00	.00	.00	.00	70.00
CLIFFORD A. BARNES	65 FT	129.00	1.00	2.00	.00	2.00	.00	.00	15.00	5.00	154.00
CALANUS	64 FT	54.00	14.00	.00	11.00	13.00	.00	.00	.00	.00	92.00

TOTALS		2287.00	562.00	3.00	18.00	202.00	86.00	35.00	383.50	261.50	3838.00
PERCENT		59.59	14.64	0.08	0.47	5.26	2.24	0.91	9.99	6.81	100.00

Posted: Wed, Oct 2, 1991 8:13 AM PDT

Msg: IGJB-4937-8145

From: D.WRIGHT.VIMS

To: ocean, coastal.news, nearshore

CC: g.brass, unols.fic, cosc.list, d.heinrichs, m.reeve,
t.spence, b.haq, t.kinder

Subj: UNOLS Coastal Vessels

RESEARCH PLATFORM NEEDS FOR COASTAL OCEANOGRAPHY

Foreseeing long-term increases in interest and activity in coastal marine science, the UNOLS Fleet Improvement Committee (FIC) has accepted the task of evaluating the future research vessel and facility requirements for coastal ocean research programs by the U.S. academic community. To begin the evaluation and planning process, the FIC has established a subcommittee. Your input is required to enable this subcommittee to carry out its charge in a way that adequately represents the needs of the community.

The National Science Foundation has recently initiated multidisciplinary research programs in coastal oceanography such as: Land-Margin Ecosystem Research (LMER), Global Ocean Ecosystems Dynamics (GLOBEC), and Coastal Ocean Processes (CoOP). In addition to the NSF programs, recent NOAA initiatives include a major Coastal Ocean Program (COP) while the Ecological Research Division of the Department of Energy is supporting interdisciplinary studies of the Dynamics of Continental Margins. Additional coastal research activities are in progress or planned by ONR, EPA, USGS, MMS, NASA, and the U.S. Army Corps of Engineers.

Given the projected level of coastal oceanographic research, it seems clear that a new generation of research vessels and other research platforms (e.g. moorings, aircraft, drilling rigs, etc.) capable of working effectively in the coastal realm and of accommodating the needs of relatively large interdisciplinary scientific teams will be required. We also recognize that, with a few exceptions, the existing vessels that are available for coastal studies are inadequate. The notion that ships are primarily the tools of "blue-water" oceanographers and that coastal oceanographers are best served by small, shallow draft boats is, for the most part, obsolete. The coastal community needs modern and sophisticated vessels with adequate accommodation and lab space for large teams.

Over the coming year, our subcommittee must assess the needs of the coastal oceanography community, define scientific mission requirements, and draft a report summarizing the outcome of our survey and offering recommendations for addressing the identified needs. Because coastal ocean problems and environments vary geographically, we envision that whereas some mission requirements may be universal, others are likely to be regionally specific. We thus expect our report to embody regional considerations; however, we would hope that our report would assist in the design of a vessel or vessels, capable of operating in the widest possible range of

coastal environments, including regions outside of U.S. waters. It is important to note here that at least one regional consortium, the Middle Atlantic Research Consortium for Oceanography (MARCO) has been formed and is well along in assessing the vessel requirements of oceanographers operating in the coastal waters of the Middle Atlantic region. Our subcommittee has a direct liaison with MARCO and expects to benefit from the experience attained by MARCO.

At this stage, we are offering two mechanisms for obtaining your thoughts and suggestions: (1) direct reply via e-mail or mail to this request; and (2) a "town meeting" at the forthcoming AGU Fall Meeting in San Francisco in December, probably in conjunction with the planned Coastal Ocean Processes (CoOp) town meeting. You will be notified in the near future (on these bulletin boards) of the time and place of the joint meeting once it has been scheduled. In addition, we hope to be able to hold a number of workshops as part of the FIC study.

All of your thoughts and suggestions on this subject will be welcomed. For starters, however, you might consider some of the following questions in formulating your responses.

- (1) What is the nature of and source of support for your ongoing and anticipated coastal ocean research?
- (2) How large are the teams involved and to what extent are they interdisciplinary?
- (3) What platforms (ships, boats, COE Field Research Facility, moorings, aircraft) are you currently using?
- (4) Do you have access to existing platforms and are they adequate for your research needs?
- (5) What are the most significant deficiencies of the platforms available to you?
- (6) What, in rough order of priority, would you consider to be the most important attributes of a coastal research vessel capable of meeting the research needs of the 21st century ?

We also invite your input as to more explicit mission requirements of a new generation coastal research vessel. To provide you with a "straw" example illustrating the kind of information required, the UNOLS "Scientific Mission Requirements for Small General-Purpose Oceanographic Research Ships" drafted July, 1988 is available on request. Please note that this set of mission requirements is provided solely for the purpose of indicating the criteria that must be considered; they are not the proposed set of requirements for the future vessel. Edit, change as you see fit.

The subcommittee membership is as follows: D. Wright (Subcommittee Chair), P. Betzer, R. Dinsmore, T. Malone, C. Nittrouer, C. Simenstad, M. Langseth (UNOLS FIC Chair), J. Bash (UNOLS Executive Secretary).

Please communicate your responses to Don Wright.

OMNET: D.WRIGHT.VIMS

FAX: 804/642-7250

PHONE: 804/642-7267

MAIL: Virginia Institute of Marine Science

College of William and Mary

Gloucester Point, Virginia 23062

Alternatively, you may give your contributions directly to any of the other members of the subcommittee.

RESEARCH VESSEL CRUISE ASSESSMENT
By Chief Scientist

1. PI/Chief Scientist: _____	2. Ship: _____
3. PI/Chief Scientist Institution: _____	4. General Type of Work: _____
5. Cruise, Expedition, Leg No., and/or Project Name: _____	Procedures Employed: _____
6. Area of Operations: _____	7. Dates of Cruise: _____
8. Days Total: _____	9. Days Transit: _____
10. Days Stations: _____	11. Days Underway Surveying: _____
12. Was Cruise Successful in Terms of Your Scientific Project? (Please circle best choice):	
Fully	Partially
Marginally—Successful	Unsuccessful

13. What ship did you request if not this one? _____
14. Were you given adequate advance information by the operating institution concerning equipment and technician services provided? Yes No
15. Work lost because of weather: Days: _____ Stations: _____
16. Work lost because of ship, ship's scientific equipment or ship's personnel: Days: _____ Stations: _____
17. Work lost because of user provided scientific equipment: Days: _____ Stations: _____
18. Factors adversely affecting cruise success (include percentage estimate if possible):
Main engine _____ Electric power _____ Officers & Crew _____ Other _____
Ship's Technicians _____ Pre-cruise liaison _____ Scientific equipment _____
19. Please circle equipment used:
Crane or A-frame Winches ADCP Computers Other electronics Other (specify)

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

21. Comments, details of problems, suggestions, and praise, if appropriate, for both successful and unsuccessful cruises.
(Use other side and additional pages as necessary).

CAPTAIN'S POST CRUISE REPORT

1. Cruise, Expedition, Leg No., and/or Project Name: _____	
2. Dates of Cruise: _____	Length: _____ days _____ miles
3. Captain's Name: _____ Sr Tech's Name: _____	4. PI/SIC: _____
5. Ship: _____ Operating Institution: _____	
6. Areas of Operation: _____	7. General Type of Work: _____

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

If not, what were the factors involved?

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

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

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

Excellent Good Average Below Average Very Poor

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

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

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

Excellent Good Average Below Average Very poor

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

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

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

ANNEX I
TO THE CHARTER

Ship Scheduling Committee

1. An important facet of the UNOLS' activities is the provision of a mechanism to coordinate the use of available facilities. The coordination of ship schedules is the most obvious area where immediate benefit might be gained. An underlying principle of UNOLS is that control of facility operations and scheduling remain the responsibility of the operating institution, with the understanding that UNOLS and UNOLS operating institutions will make serious efforts to assure that ships and facilities are fully available to all federally-funded users. To assure that ships and facilities are broadly available and that their use is effectively scheduled and coordinated, it is critically important that records of ship-time requests, ships and facilities available, the funding status of proposed ship use and tentative schedules be broadly disseminated in a timely fashion. It will be a responsibility of the UNOLS Council to assess and report on the effectiveness of facility utilization.
2. A Ship Scheduling Committee is maintained in UNOLS. The UNOLS Chair shall appoint a Ship Scheduling Committee Chair and Vice Chair from among UNOLS operator institutions, and usually in accordance with nominations from within the Committee. Normally the Chair and Vice Chair will be from opposite coasts (Atlantic/Gulf and Pacific). Terms of office will be for two years. The purpose of the Committee is to serve as a mechanism for the development and coordination of ship schedules in order to assure the most effective, efficient and economic utilization of ships and associated facilities. The Ship Scheduling Committee has its own terms of reference. Membership consists of representatives from each UNOLS operator institution. Representatives of NSF, ONR, NOAA and other sponsoring agencies shall be included regularly as observers.

The Ship Scheduling Committee may establish subcommittees to meet and function on a regional basis, reporting then to the main committee.
3. The Ship Scheduling Committee, supported by the UNOLS Office shall pursue an annual process of schedule development. The process is executed so as to assure effective ship and facility support to federally-funded investigators, efficient and economic operating schedules for individual ships and the UNOLS fleet and

to provide timely information for fleet management to funding agencies, UNOLS ship operators and the research vessel user community. Procedures for schedule development include:

- collection of ship-time requests both at the operating institutions and at the UNOLS Office.
- exchange of ship-time requests and summaries among all UNOLS institutions and the UNOLS Office,
- development of tentative ship schedules by operating institutions and dissemination among all institutions and the UNOLS Office,
- meetings to consolidate knowledge of science project funding status, to compile institution estimates of operating costs, to coordinate schedules and to make recommendations concerning fleet management.

4. **Ship-time requests** are ordinarily solicited and collected by individual operating institutions. In addition, prospective investigators are required to submit an NSF-UNOLS Ship Time Request Form as a part of their Research Proposals to NSF or to notify ONR, NOAA or other sponsoring agencies of their ship time requirements. Whenever practical, requests are filled using the ship requested by the investigator. Institutions encourage submission of ship-time requests as early as practical, hopefully in January or February, prior to the operating year, although experience is that some requests will not be received until spring. Ship-time requests shall also be submitted to the UNOLS Office; these requests will be sent to all operating institutions. The UNOLS Office maintains a central file of ship-time requests for each year. The file should be accessible, to allow operators, program managers and ship users ease and flexibility of use. Successful implementation of a central ship-time request file requires that all operating institutions submit all of their ship-time requests promptly, that electronic communications be used and that a computer database system be employed. The central file of ship-time requests will be the principal mechanism for the exchange of ship-time requests.
5. **Tentative schedules** are generated by each UNOLS institution for their ships. Tentative schedules are generated as soon as operators have a basis in credible ship-time requests (routinely in the spring). Tentative schedules are exchanged with support from the UNOLS Office among operative institutions, program managers and the user community. The exchange of tentative schedules is to provide information and to

prompt negotiations to eliminate double bookings, assure accommodation of all funded science, enhance effectiveness of facility support and to improve the efficiency and economy of the overall fleet schedule. These negotiations are a critical part of the UNOLS scheduling process.

6. **Meetings of the Ship Scheduling Committee** are held as necessary, at least annually. The number and dates for meetings may be influenced by institutions' efficiency in developing and exchanging ship-time requests and tentative schedules. Practically, the timing for meetings is dictated by the flow of ship-time requests and of their science funding decisions and by the submission date for Ship Operations Proposals. A late spring regional meeting should be scheduled after most ship-time requests have been compiled and some funding decisions have been announced. The meeting should be early enough to refine tentative schedules thereby forming a basis for Ship Operations Proposals and for other aspects of fleet management. An early fall meeting is necessary to finalize ship operating schedules and to accommodate fleet operating costs to the total funding available and to the needs of sponsored science projects. Additional scheduling meetings as necessary are encouraged among regional groups and consortia of operators. These regional meetings are to prompt exchange of information on ship-time requests and tentative schedules and to promote negotiation among operators and users.

7. **The Ship Scheduling Committee** will, as a part of each meeting report, with the input of the Federal sponsoring agencies, make comprehensive recommendations regarding effective utilization of the UNOLS fleet based on criteria for ship scheduling, the ship needs of sponsored science programs and other aspects of ship management. Recommendations should include the need for additions to or deletions from the UNOLS fleet, temporary periods out of service for individual ships, or modification to schedules for individual ships or groups of ships. Recommendations should be reached through an open process, and transmitted to the UNOLS Council.

Originally adopted:	Sep 22, 1971, Palisades, NY
Amended and readopted:	May 16, 1974, Washington, DC
Amended and readopted:	May 13, 1977, Washington, DC
Readopted:	Oct 21, 1981, Washington, DC
Readopted:	May 25, 1984, Washington, DC
Amended and readopted:	Oct 23, 1987, Washington, DC
Readopted:	Oct 28, 1988, Washington, DC
Readopted:	Sep 15, 1989, Washington, DC
Amended:	Oct 17, 1991, Washington, DC

BALLOT

UNOLS COUNCIL ELECTIONS

October 17, 1991

The UNOLS Nominating Committee has assembled the following slate of candidates for the UNOLS Council positions to be filled at the 1991 Annual Meeting. This election will be held in accordance with the UNOLS Charter as adopted September, 1989. One representative from each UNOLS institution is eligible to vote. Please vote for only one candidate to fill each position. Vitae is included on backside.

UNOLS COUNCIL SLATE

AT-LARGE (term expires 10/92) - individual affiliated with any UNOLS Member Institution:

Donn Gorsline
Univ. of Southern California

Jeff Fox
Univ. of Rhode Island

OPERATING REPRESENTATIVE (term expires 10/93) - from among designated representatives of Member Operator institutions:

Robert Knox
Scripps

Richard Pittenger
Woods Hole Oceanographic Inst.

OPERATING REPRESENTATIVE (3-year term) - from among designated representatives of Member Operator institutions:

Dennis Hayes
Lamont-Doherty Geol. Observatory

Carolyn Thoroughgood
Univ. of Delaware

AT-LARGE (3-year term) - individual affiliated with any UNOLS Member Institution:

Gregory Cutter
Old Dominion University

Richard Jahnke
Skidaway Inst. of Oceanography

NON-OPERATING REPRESENTATIVE (3-year term) - from among designated representatives of Member Non-Operator institutions:

Charles Nittrouer
State Univ. of NY at Stony Brook

Robert Wall
University of Maine

VITAE

- Donn Gorsline** W. & D. Zinsmeyer Professor of Marine Geology
Department of Geological Sciences, University of Southern California, Los Angeles
Marine Geology
- Paul J. Fox** Research Professor, Graduate School of Oceanography,
University of Rhode Island, Narragansett, RI
Marine Geology and Geophysics, Crustal and Plate Dynamics
- Robert Knox** Director, Physical Oceanography Research Division & Research Oceanographer
Scripps Institute of Oceanography, University of California, San Diego
Physical Oceanography; Global and equatorial ocean circulation and acoustic
remote sensing
- Richard Pittenger** Associate Director for Marine Operations
Woods Hole Oceanographic Institution, Woods Hole, MA
Underwater Acoustics, Global change
- Dennis Hayes** Associate Director Lamont-Doherty Geological Observatory
Lamont-Doherty Geological Observatory, Columbia University, Palisades, NY
Marine Geology, Bathymetry, Topography, High latitude Geology
- Carolyn Thoroughgood** Dean, College of Marine Studies
University of Delaware, Newark, DE
Marine and Biochemistry; academic and research program administration
- Gregory Cutter** Associate Professor of Oceanography
Old Dominion University, Norfolk, VA
Chemical Oceanography
- Richard Jahnke** Professor of Oceanography
Skidaway Institute of Oceanography, Savannah, GA
Seafloor Processes, Geochemistry
- Charles Nittrouer** Professor and Associate Director for Research
Marine Sciences Research Center, State University of New York, Stony Brook, NY
Geological oceanography, continental margin, sedimentology
- Robert Wall** Director of the Center for Marine Studies and Sea Grant Director
University of Maine, Orono, ME
Geophysics