UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

UNOLS COUNCIL MEETING

SUMMARY REPORT

September 30, 1993

National Trust for Historic Preservation
1785 Massachusetts Avenue, NW
Washington, DC

SUMMARY REPORT

UNOLS COUNCIL MEETING

September 30, 1993
NATIONAL TRUST FOR HISTORIC PRESERVATION
1785 MASSACHUSETTS AVENUE, N.W.
WASHINGTON, DC

The UNOLS Council met on September 30, 1993 at the National Trust for Historic Preservation at 1785 Massachusetts Avenue, Washington D.C. The meeting was called to order by Garry Brass, UNOLS Chair, at 8:30 a.m. The participants are listed in Appendix I and the meeting agenda is included as Appendix II. These minutes reflect the order in which items were addressed.

APPENDICES

I. Attendance List
II. Agenda
III. RVTEC Overheads
IV. RVTEC Technician Exchange Policy Statement
V. SeaNet Slides
VI. NSF Funding/Budget Summaries
VII. NOAA Coastal Ocean Science Plans
VIII. USCG Arctic Vessel and Fleet Plans
IX. Sea Diver Specifications
X. Proposed Annex V to UNOLS Charter
XI. Guidelines for Chartering Non-UNOLS Vessels
XII. Scheduling Procedure Revisions
XIII. 1992 UNOLS Cruise Statistics
XIV. Slate of Council Candidates

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

COMMITTEE REPORTS

RESEARCH VESSEL OPERATORS COMMITTEE - Mike Prince, RVOC Chair, gave the RVOC report. The action item to modify the guidelines for chartering non-UNOLS vessels has been completed and will be reviewed before the Council. The RVOC Annual Meeting will be hosted by Dean Letzring at the Texas A&M facility in Galveston, TX on October 26-28. It will differ from previous meetings in that it will include three workshops to address specific issues:

1) Crew Compensation Structure
   - Benefit rates will be examined, as well as, how costs are determined. Innovative practices will be identified.
2) Future needs of research vessels
   - Do the ships of today meet the science needs?
   - The paper on lay-up schedules will be reviewed.
3) Environmental Issues
   - Control of Pollution and Hazardous Material
   - The Oil Pollution Act of 1990

Representatives from three major winch manufacturers will be invited to speak. The last day of the meeting will be a round table discussion by the operators. Next year's meeting is scheduled to be held in Savannah, Georgia.

Dolly reported that many requests are coming in from other agencies for the UNOLS *Research Vessel Safety Standards*.

DEEP SUBMERGENCE SCIENCE Committee - Jeff Fox, DESSC Chair, provided the report for DESSC. ALVIN has been functioning extremely well. Eighty dives have been successfully completed since correction of the problems encountered during the Karsen cruise in the Spring. New pressure compensation motor controllers were installed; they had been rebuilt by the manufacturer. These new controllers,however, failed during the Orange cruise. Fortunately old controllers were on hand and were installed with little dive time lost.

During a NOAA cruise this year, a new vent site was discovered in the Juan de Fuca Ridge area. As a result, twelve dives have been added to this year's ALVIN schedule to study the event.

Jeff identified three areas of interest/concern to the DESSC: (1) The DESSC recognizes the importance of scheduling engineering dives and encourages agency support of these dives. Engineering dives are needed after ALVIN and ATLANTIS II's yard period for check out of numerous items including imaging improvements. (2) The second area of concern for DESSC is ALVIN's certification for an increase in depth capability to 4500 meters. This will increase the deep sea capability by 12 percent. However, to obtain the depth increase, new motor controller cannisters will be needed. All other items are expected to be certifiable. It is estimated to take four months to manufacture and cost approximately $56K. Before any modifications are made, official notification of the depth increase certification by NAVSEA is needed. (3) The third area of concern to the DESSC is the title transfer of ATLANTIS II's multibeam system from the University of Rhode Island to Woods Hole. With the transfer, WHOI will need to provide a system operator and maintain the system. Written agency support is needed to support this plan. Four or five programs scheduled for early next year will require the system.

A robust schedule is on line for next year's ALVIN operations. Based on proposal pressure, DESSC recommended the following operational plan: In 1994, there is strong community

support for operations in the traditional ALVIN arenas of Northern East Pacific Rise, the Pacific coast and Juan de Fuca. The science is mature and much of the work is associated with time series studies. In 1995, proposal pressure again indicates interest for ALVIN use in the traditional arenas. DESSC recommends operations in winter/early spring on the Mid-Atlantic Ridge (MAR), to be followed by a strong program in Juan de Fuca. The MAR work is associated with other programs such as FARA and ODP. In late 1995, a foray to Southern EPR is recommended based on proposal pressure and a collaborative effort with Japan. Following the Southern EPR work, ALVIN would enter an overhaul period while KNORR is converted to a support ship for the submersible and ROVs. This plan is contingent on the sale of ATLANTIS II, funding scenarios, and KNORR's utilization.

Beyond 1995, there is a strong response from the community to take ALVIN out of the traditional regions to the Western Pacific and Tethyan Region. A late 1996 time frame is being considered for a Western Pacific program. Any plans for expeditions to remote regions will be based on proposal pressure and logistical restraints. DESSC has alerted the community to the possible absence of ALVIN for work in the traditional arenas while a global program is pursued. Planning of time series work should consider facility availability. They have encouraged the use of ROVs to perform deep submergence tasks when feasible. Don Heinrichs pointed out that the present MOA for the Deep Submergence Facility addresses ROVs and should be used as a means for transition. DESSC is encouraged to address this issue.

FLEET IMPROVEMENT COMMITTEE - Marcus Langseth, FIC Chair, reported on FIC activities. The FIC met in July to focus on the Fleet Improvement Plan. A first draft of the plan should be ready for circulation to the Council after the next FIC meeting planned for 14-15 October.

Coastal Subcommittee - The Coastal Subcommittee met to finish up the Coastal Workshop Report. Overviews and summaries of the workshop are being presented before a number of forums: A summary of the report will appear in EOS. At the Marine Technology Society Conference in Long Beach, CA in September, Jack Bash presented an overview of the meeting and a summary of the results. Tom Malone will speak at EPS on coastal facilities. Don Wright plans to report on the Coastal Workshop at the UNOLS Annual meeting.

FIC Liaison - A FIC liaison to the DESSC has been appointed. Ken Johnson will serve in this position.

KNORR Conversion Subcommittee - A subcommittee has been formed to oversee plans for the KNORR conversion to support ship for submersibles and ROVs. The committee includes two DESSC members, two FIC representatives, and two representatives at large. Ken Johnson will chair the subcommittee. Other members include: Peter Betzer, Jeff Fox, Richard Lutz, Fred Spiess, and Karen VonDamm. Peter Betzer reported that the subcommittee had a one day meeting in Woods Hole on KNORR. The Committee was concerned that in accommodating the submersible crew, only 20 science berths would be left on the vessel. Naval architects are looking into the possible addition of six to eight berths. It is the intent to

maintain the vessel as general purpose. The effects of stern slamming on submersible launching operations will be investigated. The subcommittee plans to review the engineering designs for the conversion when completed.

Arctic Research Vessel (ARV) - Model tests of the ARV hull design are being conducted in Hamburg, Germany and will continue into October. Ice breaking operations are being simulated. The design is exceeding performance expectations with the nozzles staying clear of ice. There is some problem with ice in the stern when backing up. It is being redesigned and will be retested. Marcus will show a video of the ice tests during the break. The design which combines features of the ODEN and TYSSEN/WAAS hull appears to be the most efficient to date.

SHIP SCHEDULING COMMITTEE - Ken Palfrey provided the report for the Ship Scheduling Committee. The 1993 schedule is being carried out. A meeting was held in Washington, DC at the beginning of this month to coordinate the 1994 UNOLS ship operations. MELVILLE and THOMPSON schedules appear healthy. THOMPSON will operate in the Indian Ocean in the fall for JGOFS field work. MELVILLE is scheduled for WOCE work in the Southern Ocean. KNORR's schedule is solid in the first half of the year, but light in second half. KNORR is working with NUWC for additional ship time. They will not know until October if this will be funded. There is some softness in the schedules of the intermediate vessels on the East coast. ENDEAVOR has a schedule of approximately 200 days. The GYRE schedule shows approximately 100 days, while COLUMBUS ISELIN has 173 days. OCEANUS is being recommended for no operations following its mid life refit. The West coast intermediates are also showing signs of lightness in their schedules, however, MOANA WAVE and ALPHA HELIX schedules look fine.

RESEARCH VESSEL TECHNICAL ENHANCEMENT COMMITTEE - Rich Findley reported on the RVTEC Annual Meeting held at Scripps on 19-21 September, see Appendix III for highlights. Fifteen of the nineteen UNOLS Operator Institutions had representatives at the meeting. Tim Pfeiffer was elected as the new Vice Chair. The by-laws were approved for submission to the UNOLS membership for adoption as Annex V of the UNOLS Charter. Subcommittee activities included organization of technician/equipment databases and technician exchange/training programs. The RVTEC endorsed a statement that addresses technician exchange policies, see Appendix IV.

Rich reported that two mini workshops were held to address CTD and ADCP technologies. Bob Millard and Jim Swift were invited to speak on CTDs. Bob Millard has agreed to provide post processing/calibration software to RVTEC. The RVTEC membership list was added to the WOCE standards mailing list. Teri Chereskin and Eric Firing were invited to speak on ADCPs. It was noted that a clearinghouse needs to be established for collected data. Discussions also indicated the need for standard setups. It was also recommended the 3D GPS systems become part of system installations.

The RVTEC addressed the need for data standards. They will investigate the data formats, net CDF and HDF, and select a desired format. For storage, it was decided to consider CD ROM: ISO 9660. Implementing data standards throughout the fleet will be useful to the ship technicians. Investigators will still have the option to request whatever data format they are comfortable with.

Ellen Kappel, JOI; Rex Buddenberg, JOI; and Andy Moffei, WHOI made a presentation on a proposal to install SeaNet in the UNOLS fleet. The talk addressed the installation of shipboard LANs for support of SeaNet. RVTEC recommended that all ships in the UNOLS fleet be equipped, and as a result costs should be minimized to be affordable to all.

RVTEC plans to establish an Internet FTP site to hold the technician database, the equipment database, and various software.

ARV MODEL TESTS - During the break a video of the ARV model tests in Hamburg, Germany was shown.

SEANET PRESENTATION - Ellen Kappel of the Joint Oceanographic Institution (JOI) provided a report on the status of the proposal to install SeaNet on the UNOLS Fleet, her slides are included as Appendix V. The goal of SeaNet is to establish high-speed data communication transfers between: ship/shore, ship/ship, shore/buoy, ship/buoy, etc. It would be more than just e-mail. It would allow real-time data distribution. The need for this effort has been identified in recent NSF and NRC reports. JOI was selected as an unbiased organization to coordinate this effort. The scope is beyond ships and could extend internationally. Ellen provided the history of the SeaNet concept and development efforts. Presently, JOI is assembling all the pieces of SeaNet. They are ensuring that this is what UNOLS wants and needs. They are working with NSF to secure funding. They still need to identify an Internet provider to set up an Internet link and explore satellite options. These options include Geosynchrononous Earth Orbit (GEO) and Low Earth Orbits (LEO) Satellites. Shipboard equipment needed for SeaNet includes computers and associated communications hardware and software.

A demonstration of SeaNet is proposed for JGOFS operations in the Indian Ocean. Funding for support of SeaNet is still being investigated.

AGENCY REPORTS

NATIONAL SCIENCE FOUNDATION. Don Heinrichs provided a series of slides for the NSF report. A copy of these slides are included as Appendix VI. Don's first two slides are an analysis of where the funding support is coming from by agency and where they are being spent by ship size. The 1994 projected figures are based on the UNOLS estimates from the fall scheduling meeting. Schedule B was used for ISELIN and a 300 day EWING schedule was assumed. In 1994, there is a big jump in support from other sources. ARPA funding is

driving this support. In 1993, we see that large ships are using approximately 45 percent of the total support (this does not include MOANA WAVE). Institutional support primarily comes from four institutions: University of Washington, Scripps, Harbor Branch, and Texas A&M. His next slide presents a utilization study of the UNOLS fleet and predicts the needed project increases for full utilization by ship class. The East Coast Intermediates appear to be a problem, operating significantly under capacity.

The budget projection for 1994 and indicates a 5.5% increase in the Ocean Sciences Division budget and a 4.6% increase for the Oceanographic Facilities. In the last two slides Don shows where the support has or will be going. Capital facilities for 1993 included funding for preliminary design for the Arctic research vessel, mid-life refit for ENDEAVOR, the start of mid-life refit for OCEANUS and WECOMA, and the final amortization payment for EWING. In 1994, NSF has been directed by Congress to postpone acquisition of the Arctic research vessel; funds are planned to complete the mid-life refit of OCEANUS and WECOMA. In 1993 operations, ENDEAVOR was out-of-service and VICKERS ceased operations midyear. Don also presented two concerns: the operators feel pinched on maintenance support and NSF is concerned with the crew compensation for several institutions. In 1994, OCEANUS will be out of service and the major Indian Ocean programs begin. Don provided a glimpse at long range NSF planning. These include the acquisition of the Arctic research vessel, response to the UNOLS Fleet Improvement Plan, a review/update of NSF requirements analysis and the retirement of ATLANTIS II along with the KNORR refit for DSF operations. On the management side, NSF plans to increase interagency/international coordination; continue constrained total fleet operations funds; examine Coastal and Arctic facilities requirements; monitor large ship operations costs and look at the role of the intermediate ship.

STATUS OF INTERAGENCY PLANNING FOR COASTAL OCEAN SCIENCE - Don Scavia, NOAA, reported on interagency plans for setting a new course for U.S. Coastal Ocean Science, see Appendix VII. The plans are divided into two phases. Phase I inventories federal programs and Phase II establishes the strategic framework. The Subcommittee on U.S. Coastal Ocean Science (SUSCOS) has been given the directive to assess the policy-relevant coastal ocean science needs, inventory current Federal programs in coastal ocean science, and establish a framework for developing a coordinated approach to coastal ocean science. The coastal ocean zone is of high national importance; population densities are high and economic activity is great. In developing a national goal for the coastal zone, SUSCOS identified the national concerns for these regions. They inventoried federal science efforts and identified ten agencies with interests in these areas. Forty-eight scientific reports were reviewed and over 50 major research needs were identified. The national goal is: "To establish improved prediction capabilities for coastal ocean systems that link physical processes, biogeochemical cycles, and the interactions of living components." Don presented a pie chart showing how federal funding is divided among the various environmental regimes. Also shown were the critical research areas of emphasis.

In Phase II, SUSCOS outlined four strategic issues to define policy-relevant science needs. They need to develop a multi-agency strategic plan to achieve the National Goal. The four strategic issues were: 1) Protecting coastal ecosystem health, 2) Sustaining use of coastal

resources, 3) Protecting life and property, and 4) National security. Development products and the national benefits for each issue are being identified.

Don reported that Phase I is near completion and the next draft of Phase II should be ready in a few weeks. The report will most likely go for review and printing in the November/December time frame.

OFFICE OF NAVAL RESEARCH. Keith Kaulum provided the ONR report by first giving the membership an update on AGOR-24 which is under construction at Halter Marine. The first round of changes have been incorporated in the plans which include additional berthing for eight. A second round of changes is still under consideration. The AGOR-25 option is presently in limbo. The KNORR INSURV has been completed and the INSURV for MELVILLE is scheduled for mid October. Keith reported that the 1994 ONR budget should be about the same as their 1993 budget. This budget does not include overhaul money for FLIP which has been dropped from the budget.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. Scott McKellar presented the report for NOAA. In 1994, NOAA will begin conversion of two additional T-AGOS ships, RELENTLESS and TITAN. The first two NOAA T-AGOS, ADVENTUROUS and WORTHY will be operated by NOAA for USGS. NOAA anticipates level funding in Fleet maintenance for 1994. The Fleet Replacement and Modernization (FRAM) budget is still undecided. The budget has not yet gone to Conference at the time of the meeting. (During the meeting word was received that Congress had appropriated an additional $47M for the construction of AGOR-26 which was originally planned for their 1995 budget.) Funding for charting is down. In 1993/94 chartering funds came from the FRAM budget. $8M was requested, however, $4M was allocated. The FRAM Review Committee then reduced the $4M to $350K. Fleet Replacement and Modernization funding has been as follows: 1992 - $33.2M, 1993 - $28.5M and 1994 - $77M.

UNITED STATES COAST GUARD. LCDR Robert Garrett provided the US Coast Guard report. He informed the Council that the Coast Guard's 1994 budget is presently on the Hill and is likely to be reduced by 10%. The Polar Science Division took a 50% decrease in funding from $4 M to $2 M which will be absorbed by reducing icebreaker operations by 45 days. LCDR Garrett reported on the improvements in FY93 science support on their two active icebreakers. A summary of these improvements are listed in Appendix VIII. Improvements planned for 1994, funds permitting, are also included in this Appendix. Reimbursement costs for science use of an icebreaker are approximately $16,410/day which includes the icebreaker, helicopters and 100% fuel costs. The two active icebreakers are scheduled for a total of 330 days in 1994, 334 in 1995 and 290 in 1996. The USCG plans for 180 days of maintenance per year for each icebreaker. The FY94-FY96 schedule for POLAR SEA and POLAR STAR are included in Appendix VIII.

The Coast Guard has invited a group of scientist to a 14 October meeting to review the design specifications of the new icebreaker which is presently under construction at Halter Marine. Invited from the academic community and Federal Agencies are Garry Brass, Curt Cochran, Dolly Dieter, Keith Kaulum, Gil Rowe and Jim Swift. Continued academic participation is considered vital if this ship is to be an effective science platform. A delivery date of 1997 is planned.

OCEANOGRAPHER OF THE NAVY. The Oceanographer of the Navy report was given by Pat Dennis. Pat reported that the last of the Navy lab research ships, BARTLETT has been taken from the fleet. The labs are working with ONR for cost sharing of their ship needs. The present formula is ONR 75% and NRL 25%. This is likely to change to 50/50 for the out years. NRL is looking to UNOLS for their ship needs.

Pat reported that the TAG 39 and TAG 40 will be off line soon. They are not appropriate for Navy's new mission. Three Navy ships are in construction or planned: AGOR 24 and 25, and TAG 60. PATHFINDER, TAG 60, will be launched on October 10th.

UNOLS ISSUES

New Funding Paradigm for Support of National Deep Submergence Assets - Jeff Fox reported on the status of developing a new funding paradigm for support of national deep submergence assets. The subcommittee of Jeff, David Karl, and Bob Wall have been discussing the matter by conference call. A meeting is scheduled following the Council meeting with David Duane of NOAA/NURP. If a new funding paradigm is developed, NURP might be a candidate to serve as a centralized federal support agency. However, major reconfiguration of NURP would have to take place before this can be considered. Jeff pointed out that the Congressional Committee on Merchant Marine and Fisheries recognized the recommendation that DESSC be designated the oversight committee to any such program. They also recognized the need for a central Federal Agency. There are still many issues, questions, and concerns that need to be addressed before going forth. The subcommittee will continue their efforts in investigating this paradigm.

UNOLS Vessel at University of Hawaii - Dave Karl reported that he is not in a position to bring the recommendation of the University of Hawaii to UNOLS regarding their position of a UNOLS Vessel at Hawaii. Garry Brass will have to write to Barry Raleigh directly to obtain the U. Hawaii position.

It was recommended that University of Hawaii be the site of the winter UNOLS Council Meeting. Garry will request that they host the next meeting. As an alternative site, the University of Miami was recommended.

It was reported that an NSF inspection has been requested for the vessel, KAIMIKAI-O-KANOLA, (KOK), which is to be homeported in Hawaii. The vessel is five years old and 226

feet LOA. It has been converted to be a submersible support platform. The vessel will be owned by the State of Hawaii.

APPLICATION TO BECOME A UNOLS VESSEL - Harbor Branch Oceanographic Institution has requested to include their R/V SEA DIVER in the UNOLS Fleet, see Appendix IX. They have modified their vessel to make it more general purpose. SEA DIVER is 113 feet LOA and will most likely serve to meet regional needs. Past operational support for the vessel has included Florida Sea Grant. The vessel was inspected in the early part of this week. The Council approved the application for SEA DIVER to enter the UNOLS Fleet contingent on official notification of successfully completing the NSF inspection.

Adoption of Annex V - Rich Findley presented the RVTEC By-Laws for approval to be included as Annex V in the UNOLS Charter, see Appendix X. The Council approved the By-Laws and will recommend their addition to the UNOLS Charter as Annex V at the Annual Meeting.

Hull Insurance on Non-Federal Vessels - Garry reported that the UNOLS recommendation regarding hull insurance on non-UNOLS vessels was rejected by the funding agencies.

Guidelines for Chartering non-UNOLS Vessels - Mike Prince highlighted the modifications to the guidelines, noting that much of the responsibility lies with the principle investigator, see Appendix XI. The Council voted to approve the guidelines and noted that they will lead to increased safety in the fleet.

Scheduling Procedure Revision - Ken Palfrey explained that the scheduling process has become very efficient over the years due to electronic communications. As a result, revisions to the scheduling process are proposed, see Appendix XII. In June, only a review would be performed, followed by recommendations by the Review Group. The September meeting would be a full review, but participation by the small vessel institutions would not be mandatory. However, representatives from all institutions would be encouraged to attend the annual meeting. The Council recommended that the revised procedure be implemented for a year on a trial basis.

***Oceanographic Ships fore and aft* Update** - Stewart Nelson has submitted a proposal to update his book, *Oceanographic Ships fore and aft*. The book would bear the UNOLS name and be a document of all U.S. research vessels. The Council was concerned that the book would quickly become outdated. There was no motion by the Council to support the proposal.

Russian Manuscript - A letter proposal to publish a manuscript of Russian equipment and instrumentation was received by Texas A&M and forwarded to the UNOLS Council. The manuscript is over 400 pages long. The Council decided not to undertake the publishing of the document.

Opportunity on a Nuclear Submarine - Marcus Langseth reported that the scientific opportunity on the nuclear submarine was a success. Ted De Laca, a scientist who rode the sub, is scheduled to speak at the UNOLS Annual Meeting. Fifteen surface stations had

originally been planned prior to the cruise, however they were able to achieve 21 surface stations. Academia and Navy hope to maintain an ongoing relationship. There was caution, however, to be aware of any major funding implications that may result from these types of operations.

Radio Officer/GPS - There is no change in the status of the requirements for having a Radio Officer on board since the last meeting. The Memorandum of Agreement for use of GPS with the P-code removed is still awaiting signature by DOD. There will be a trial period for Navy owned vessels.

Ship Refits - Ken Palfrey reported on the OCEANUS Class refits. ENDEAVOR is presently at Pederson Shipyard undergoing overhaul. The Pederson Yard looks very clean and efficient. A November 16th delivery date is expected. The new stern looks great.

Bids for OCEANUS will be opened on October 1. WECOMA bids have been opened and were approximately double the budgeted $2M. Oregon State University is presently looking into options, which might include reducing the scope of work.

1992 Cruise Reports - 1992 Cruise statistics for the UNOLS Fleet have been compiled and were made available at the meeting, see Appendix XIII.

Ship's Crew Support - Ken Palfrey discussed a letter received from Bob Weller regarding support from the ship's crew during a cruise on WECOMA. Ken explained that the crew needs to support the ship. The amount of time that the ship's crew should spend supporting science needs to be better defined.

UNOLS Council Membership - The nominating committee of Peter Betzer (Chair), Dennis Hayes and Dick Pittenger provided a slate for the elections at the Annual Meeting, See Appendix XIV.

Membership Dues - Garry Brass recommended that a UNOLS membership dues structure be implemented. The purpose of the dues is to have a small sum of money that can be used for discretionary spending on such things as flowers for deceased persons, farewell gifts for retiring members, wine and cheese socials at our annual meetings and other such expenses. The Council recommended that $100.00 per annum for operating institutions and $50.00 per annum for non-operating institutions be requested. Dues would be payable as of 1 January each calendar year starting 1994. An accounting of the funds will be made at each Annual Meeting itemizing the yearly expenses. The Council's recommendation will be put before the membership at the Annual Meeting.

Calendar for UNOLS Meetings - The University of Hawaii was recommended as the site for the winter Council Meeting. The University of Maine was recommended to host the summer Council Meeting. Schedule dates will be established via telemail.

The meeting was adjourned at 5:15 p.m.

APPENDIX I

UNOLS COUNCIL MEETING ATTENDEES

Tim Askew	HBOI
John Bash	UNOLS
Peter Betzer	U So Florida
Garry Brass	RSMAS
Patrick Dennis	JOI/Navy Support
Annette DeSilva	UNOLS
Dolly Dieter	NSF/OCE
Richard Findley	UM/RSMAS
Paul J. Fox	GSO/URI
LCDR Robert Garrett	USCG/G-N10
Dennis Hayes	L-DEO
Donald Heinrichs	NSF/OCFS
Robert Jones	BBSR
Ellen Kappel	JOI
David Karl	SOEST/U Hawaii
Keith Kaulum	ONR
Bob Knox	SIO/UCSD
Marcus Langseth	L-DEO
Scott McKellar	NOAA
Dennis Nixon	URI/UNOLS
Ken Palfrey	OSU
Dick Pittenger	WHOI
Mike Prince	MLML
Steve Ramberg	ONR
Lisa Rom	NSF
Don Scavia	NOAA
Martha Scott	NSF
Robert Wall	U Maine
Richard West	NSF

APPENDIX II

UNOLS COUNCIL MEETING
8:30 a.m. - September 30, 1993
National Trust for Historic Preservation
1785 Massachusetts Avenue, Washington, D.C.

Call the Meeting: Garry Brass, UNOLS Chair, will call the meeting to order at 0830 Sept. 30, 1993.

Accept Minutes of July, 1993 Council Meeting.

9:00 a.m. - COMMITTEE REPORTS

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

DEep Submergence Science Committee - Jeff Fox, Chair, will report on the status of the 1993 ALVIN operations along with DESSC's recommendations for operations in 1994 and beyond and technical improvements for ALVIN.

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

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

Research Vessel Technical Enhancement Committee - Rich Findley will report on the RVTEC meeting held at Scripps in San Diego on 19-21 September.

11:00 a.m. - SeaNet PRESENTATION: Ellen Kappel of JOI, will review a proposal to introduce a new communications link named SeaNet.

11:30 a.m. - AGENCY REPORTS: Reports from representatives of NSF (D.Heinrichs), ONR (K.Kaulum), NOAA (W. Stubblefield), and USCG (L. Jendro) on funding outlooks and special projects. The State Department (T. Cocke) will provide an update on foreign clearance problems. Pat Dennis of the Oceanographer of the Navy Office will report on OON matters. USGS (J. Morton) discussion on T-AGO vessel.

12:00 noon - LUNCH

1:00 p.m. - AGENCY REPORTS (Continued)

1:30 p.m. - STATUS OF INTERAGENCY PLANNING FOR COASTAL OCEAN SCIENCE - Don Scavia, NOAA, will speak on this topic.

1:45 p.m. - UNOLS ISSUES

New Funding Paradigm for Support of National Deep Submergence Assets - Jeff Fox will report on the status of efforts to formulate views on developing a new funding paradigm for support of national deep submergence assets.

UNOLS Vessel at Hawaii - Dave Karl will review the University of Hawaii's recommendations/position regarding placement of a UNOLS vessel at Hawaii.

Request to Become a UNOLS Vessel - HBOI has submitted an application for R/V Sea Diver to become a UNOLS vessel, see Enclosure 1.

Adoption of Annex V - Rich Findley will present the RVTEC By-Laws for Council Approval. The approved By-Laws will be presented to the membership for adoption as Annex V of the UNOLS Charter.

Hull Insurance on Non-Federal Vessels - Garry Brass will discuss correspondences to and from Grant Gross regarding hull insurance on non-Federal UNOLS vessels, Enclosure 2.

Guidelines for Chartering non-UNOLS Vessels - Mike Prince has modified the cover letter to the Guidelines for Chartering non-UNOLS Vessels, Enclosure 3. The paper is resubmitted for Council approval.

Scheduling Procedure Revisions for UNOLS Vessels - Ken Palfrey and Dennis Hayes will report on ideas for revising the scheduling procedures for UNOLS Vessels.

Oceanographic Ships *fore and aft* Update - Stewart Nelson has submitted a proposal to update and publish a revision to his book. The proposal, if approved by the Council, would be submitted as a supplement to the UNOLS proposal, Enclosure 4.

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

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

Ship Refits/Construction - Ken Palfrey and Jack Bash will update the Council on the status of Midlife refits for the Oceanus class ships. Keith Kaulum and Bob Knox will report on the progress of the construction of AGOR 24.

1992 Cruise Reports - Cruise Statistics for 1992 operations will be provided.

UNOLS Council Membership - The terms of David Karl and Bob Knox are expiring, both are eligible for second terms. The nominating committee of Peter Betzer (Chair), Dennis Hayes and Dick Pittenger have provided a slate of candidates for the elections at the Annual Meeting, Enclosure 5.

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

Calendar for UNOLS Meetings - In setting the calendar, it is reminded that the last target date for NSF proposals requiring shiptime is 1 May 1994.

Meeting Schedule and Dates to be Set:

MEETING	DATES	LOCATION
FIC	14-15 Oct	L-DEO, Palisades, NY
RVOC	26-28 Oct	Galveston, TX
DESSC	5 Dec	San Francisco, CA
UNOLS AGU Booth	6-10 Dec	San Francisco, CA
UNOLS Council	Jan-Feb 1994	Someplace Warm
" "	July 1994	Open
" "	Sep-Oct 1994 (with Annual)	Washington, DC
UNOLS Annual	Sep-Oct 1994	Washington, DC
Ship Scheduling	Late June ?, 1994	Washington, DC
" "	Sep-Oct 1994 (with Annual)	Washington, DC
Fleet Improvement Committee	Will set their own 2 meetings	
RVOC	Sep-Oct 1994- will set own date	
RVTEC	Sep-Oct 1994- will set own date	
DESSC	June ?, 1994	Woods Hole, MA
"	Will set own date	Open

* Dates are tentative, Workshops are subject to funding and/or membership approval

Adjournment

APPENDIX III

RVTEC

Attendance

- ✓ 15 of the 19 UNOLS Operator Institutions
- ✓ Representitives Missing: Alaska, Duke, Skidaway & UT

Organizational Business

- ✓ New Vice Chair: Tim Pfeiffer
- ✓ Approved bylaws for submission to UNOLS

Subcommittee Work

- ✓ Technician/equipment databases
- ✓ Technician exchange/training

Mini-workshops

✓ CTDs -- Invited speakers: Bob Millard, Jim Swift

- Millard to provide post processing/calibration software.
- Record keeping and traceability, communications, meta data.
- Added RVTEC member list to WOCE standards mailing list.

✓ ADCPs -- Invited speakers: Terri Chereskin, Eric Firing

- Should be on all the time
  - Clearinghouse needs to be established
  - Standard setups
  - 3D GPS systems should become part of installation.

Data Standards

✓ CD ROM: ISO 9660

✓ Data formats

- netCDF
- HDF

SeaNET Presentation

- ✓ Shipboard LANs
  - Install fiber any time you have overheads down
- ✓ Recommendation that all ships in UNOLS fleet be equipped -- cost containment would therefore be **critical**

INTERNET FTP site

- ✓ Tech database
- ✓ Equipment database
- ✓ Software
  - netCDF, HDF
  - Millard CTD software

APPENDIX IV

RESEARCH VESSEL TECHNICAL ENHANCEMENT COMMITTEE

TECHNICIAN EXCHANGE POLICY STATEMENT

"In order to achieve the stated purpose of fostering activities that will lead to enhanced technical support for sea-going scientific programs, RVTEC recommends that all member institutions develop programs for training and skills enhancement of technical personnel. Each program should include at a minimum a statement of purpose, identify mechanisms for funding and fields of interest in which training will be focused, and provide time tables for personnel training.

Each program shall be structured around the particular fields of interest inherent to that institution's scientific goals and programs, and strive to develop expertise critical to the advancement of oceanographic science.

RVTEC shall act in an advisory capability in the development of each institution's program and review the final policy for redundancy of training efforts within RVTEC institutions, or programs that are not within the stated purpose of RVTEC."

APPENDIX V

What is SeaNet?

Bringing the Internet to sea

Ultimate goal:

High-speed data communications, interconnectivity of oceanographic research platforms ---more than just e-mail

ship/shore
ship/ship
shore/buoy
ship/buoy
etc.

Why SeaNet?

- Real-time data distribution
- Maximize the efficiency of the ships
- Interconnectivity of research platforms
- Establish a system (equipment and protocols) that is common to all platforms

The need for this effort has been identified in recent reports:

NSF workshop (Ocean Sciences Planning Workshop on High Performance Computing and Communications)

> **There is a need to modernize and extend the existing communications network to allow dissemination of geophysical and oceanographic data in a near-real-time basis.**
>
> **An integrated program to develop standards, data compression methods, and demonstration projects for a wide variety of geophysical and oceanographic data should be undertaken. Existing e-mail connections to oceanographic ships should be extended to provide teleconferencing and the remaining TCP/IP protocols for data and information transfer....**

National Research Council report: "National Collaboratories: Applying Information Technology for Scientific Research."

> **Real-time access to all data as they are collected in the ocean has the potential to revolutionize field work. Data analysis and publication would no longer wait for the recovery of the instruments. Model testing and development could be carried out in parallel with the field work, perhaps guiding revisions to sampling strategies, rather than waiting for the release of data that usually postdates instrument recovery by one or more years.....**

Why JOI?

1. **Needed an unbiased organization to focus on building a "common use" facility, eventually to be used by the international oceanographic community.**

2. **JOI instead of UNOLS because the scope is beyond ships.**

History

SeaNet is the idea of Bob Heinmiller (Omnet) , Andrew Maffei (WHOI), and Jim Baker (NOAA)

ShipNet Concept

Original idea was to connect only ships and implement ShipService (an e-mail service) as a first step. NSF response at the time was luke-warm.

MTS 91

Paper on ShipNet delivered by Maffei and Heinmiller in New Orleans

SeaNet Concept

ShipNet concept was expanded to envision buoys and other remote platforms as part of the network. This was dubbed SeaNet. Idea was presented to Craig Dorman and others at WHOI by Heinmiller and Maffei.

Dorman called Jim Baker and asked if JOI would like to take this on. Since it required collaboration from all JOI Institutions, it seemed better that an organization like JOI take on the task.

SeaNet Committee

JOI Institution membership to start (always saw other national and international representatives in the future)

Met twice
February 1992: SeaNet Committee planning meeting
August 1992: Committee meeting. Discussion of ideas with committee members.

History Cont'd

SeaNet Proof of Concept

Maffei designed and implemented a 56 kbaud circuit running the Internet (TCP/IP) protocols and connecting the ship to the Internet ashore for a one-month period. This network connection was used to show the potential of such a connection in enhancing the science done on board research vessels. (The effort was funded by an internal WHOI grant to Maffei and Ken Stewart of WHOI's Deep Submergence Lab)

Kappel took over from Baker in Sept 1992

Discussed SeaNet with Garry Brass
Discussed SeaNet with NSF Networking, OCE
Hired Rex Buddenberg to provide technical input (JOI funds)
- **Flesh out SeaNet concept**
- **Survey of technology**
  - **Hardware**
  - **Satellite options**
- **Business plan**

UNOLS RV TEC meeting, September 1993
UNOLS Council meeting, September 1993

Where are we now?

Assembling all the pieces of SeaNet

- **Ensure this is something UNOLS wants**
- **Working with NSF to secure funding**
- **Need to identify an Internet provider to set up Internet link**
- **More fully explore satellite options**

What is necessary to implement SeaNet?

Shipboard

Computer (Sun Workstation, e.g.) and associated communications hardware and software for management and router capabilities

Satellite options

GEO (Geosynchronous Earth Orbit)

- INMARSAT
- parabolic, steered antenna
- doesn't yet speak Internet, but this may be changing
- expensive
- but known quantity

LEO (Low Earth Orbits)

- Advantage over GEOs of about 25 db of power (because they are closer)--move to omni antenna and get away from steering requirements. Also, if we want to include buoys in SeaNet (and, we do), won't do it with an INMARSAT-A rig....
- Also don't (yet) speak Internet--with two exceptions
- Clearly need to explore further. Will compete with INMARSAT

Navy??????

What do we propose at this time?

- Demonstration of SeaNet
  - JGOFS in Indian Ocean
    Late 1994/1995
- How will we pay for it?

  Not fully worked out yet, but....

  NSF (Lisa Rom's shop)
  hardware (computers, antennae) for
  Knorr, Melville, Thompson

  (may need to buy a new INMARSAT
  Standard-A radio for one of the ships to
  support 56 kbaud data rates)

  NOAA?
  hardware for Baldwin

  NSF Networking?
  software development, Internet link

APPENDIX VI

ACADEMIC FLEET OPERATIONS SUPPORT

(1990-1994)

UNOLS TOTALS	ACTUAL 1991	ESTIMATE 1992	ESTIMATE 1993	PROJECTED 1994
NSF	26,179	35,664	30,869	33,953
ONR	5,211	4,061	7,248	3,362
NOAA	2,490	4,199	3,415	1,681
OTHER	3,129	3,140	2,388	5,095
INST	2,117	2,089	2,200	2,075
	$39,126	$49,153	$46,120	$46,166

* **Data Sources**

- o 1991 - 1993 NSF Ship Operations Proposals (1993)
- o 1994 UNOLS Scheduling Estimates (Sept. 1993)

ACADEMIC FLEET OPERATIONS SUPPORT

(by SHIP CLASS - 1993)

	LARGE	INTER	REGION	LOCAL	HBOI	TOTAL	SHARE
NSF	15,903	8,773	4,977	982	234	30,869	66.90%
ONR	3,004	3,815	352	77	0	7,248	15.70%
NOAA	494	1,276	75	439	1,131	3,415	7.40%
OTHER	480	335	1,077	356	140	2,388	5.20%
INST	710	456	267	120	647	2,200	4.80%
	$ 20,591	$ 14,655	$ 6,748	$ 1,974	$ 2,152	$ 46,120	
Percent	44.60%	31.80%	14.60%	4.30%	4.70%		
Averages	$ 4.1 M	$ 2.0 M	$ 1.1M	$0.3M	$1.1M		
	266 days	200 days	173 days	123 days	138 DAYS		
	($15,470)	($9,700)	($6,460)	($2,680)	($7,800)		

1993/1994 FIELD PROJECT SUPPORT
(REQUIRED PROJECTS FOR 100% OPERATIONS)

	Estimated use in 1993	Available time in 1994	Project Increases for full use-1994
Large Ships			
• Global	1331 days	1400 days	5.2%
Intermediates			
• West Coast	827 days	743 days	-10.2%
• East/Gulf	573 days	1013 days	76.8%
Regional/Open Ocean			
• West Coast	364 days	430 days	18.1%
• East Coast	226 days	230 days	1.8%
Regional			
• S. California	132 days	200 days	51.5%
• Chesapeake Bay	164 days	200 days	22.0%
• Bermuda	151 days	200 days	32.4%
Local			
• Local	737 days	960 days	30.3%
JSL/ROV			
• Submersibles	276 days	360 days	30.4%
Totals	4781 days	5736 days	20.0%

OCEAN SCIENCES DIVISION

	FY 1992	FY 1993	Estimated FY 1994
Ocean Sciences Division	$177.5 M	$ 177.7 M	$ 187.4 M
Ocean Sciences Research	90.0 M	93.3 M	98.4 M
Ocean Drilling Program	36.3 M	36.3 M	38.7 M
Oceanographic Facilities	51.2 M	48.1 M	50.3 M

OCEANOGRAPHIC FACILITIES DETAIL

Operations			
Ship Operations	31.1 M*	29.4 M*	32.4 M
ALVIN, Aircraft, etc.	0.9 M	1.4 M	1.5 M
Marine Techs	4.3 M	4.2 M	4.6 M
	$ 36.3 M	$ 35.0 M	$ 38.5 M
Infrastructure			
Science Instruments	1.7 M	1.3 M	2.0 M
Shipboard Equipment	2.8 M	2.1 M	2.5 M
Ships, Upgrades	2.9 M	7.2 M	3.3 M
UNOLS, Misc.	0.6 M	0.5 M	0.7 M
	$ 8.0 M	$ 11.1 M	$ 8.5 M
Technology, Centers, Reserves			
Technology Development	4.4 M	-	-
AMS Center	1.2 M	1.0 M	1.5 M
Cross Directorate/Reserves	1.3 M	1.0 M	1.8 M
	$ 6.9 M	$ 2.0 M	$ 3.3 M

*Plus $1.6 M from ODP (1992 and 1993), $1.5 M (1994)

UNOLS Annual Meeting - 1993
(NSF Report)

Capital Facilities

1993

- Preliminary design Arctic Research Vessel
- Mid-life refit of ENDEAVOR, start OCEANUS and WECOMA
- Final amortization payment for EWING

1994

- Postpone acquisition of Arctic Research Vessel
- Complete OCEANUS and WECOMA mid-life refits
- Acquisition of title to EWING

Operations

1993

- ENDEAVOR out-of-service; VICKERS stops operation
- Operator concerns re. maintenance support
- NSF concerns re. ship crew compensation levels for several institutions

1994

- OCEANUS out-of-service
- Major Indian Ocean programs begin (WOCE, JGOFS, ONR Arabian Sea, RIDGE)
- Changing support base -- NSF, Other

UNOLS ANNUAL MEETING - 1993
(NSF REPORT)

Long-Range Plans

1995 and beyond

- Acquisition of Arctic Research Vessel
- Respond to updated UNOLS Fleet Improvement Plan
- Review/update NSF requirements analysis
- Retire ATLANTIS II and refit KNORR for DSF operations

Management

1994 and beyond

- Increased interagency/international coordination
- Continued constrained total fleet operations funds
- Coastal and Arctic facilities requirement
- Large ship operations -- costs and number
- Role of intermediate ship

APPENDIX VII

Setting a New Course for U.S. Coastal Ocean Science

Phase I: Inventory of Federal Programs
Phase II: The Strategic Framework

Prepared by:

Subcommittee on U.S. Coastal Ocean Science
Committee on Earth and Environmental Science
Federal Coordinating Council on Science,
Engineering, and Technology

Date: September 30, 1993

OBJECTIVES OF SUSCOS

The directive given by FCCSET to SUSCOS was:

- To assess the policy-relevant coastal ocean science needs
- Inventory current Federal programs in coastal ocean science
- Establish a framework for developing a coordinated approach to coastal ocean science

IMPORTANCE OF THE COASTAL OCEAN SECTOR

POPULATION GROWTH

- 46% of Americans live in the coastal zone, 14% of the Nation's land area.
- Over the past 30 years, 46% of residential and 40% of commercial/industrial development have occurred in the coastal zone.

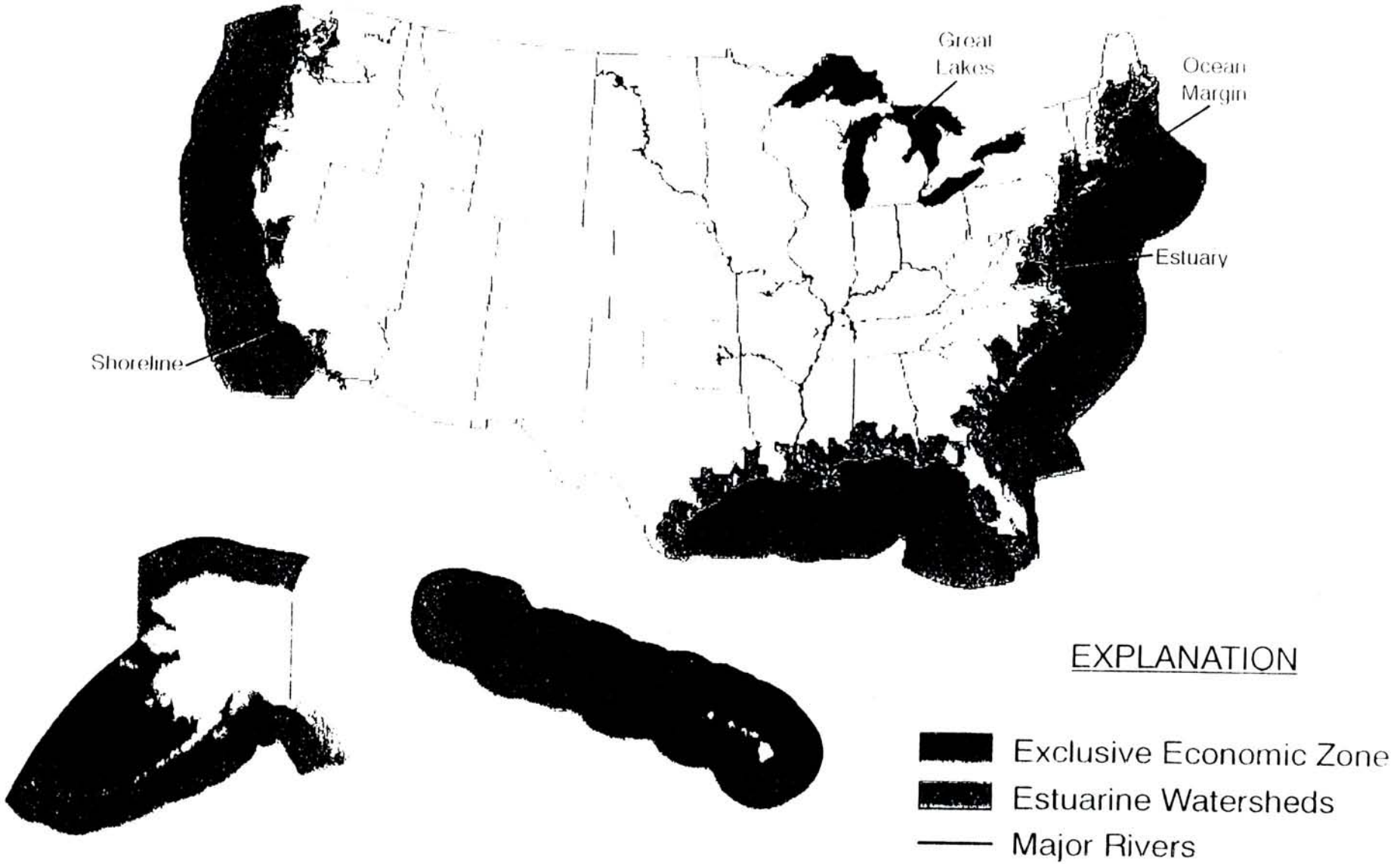
ECONOMIC ACTIVITY

- In 1985, the coastal zone contributed 31.7%, $1.27 trillion to the Nation's Gross National Product.
- From 1978 to 1985, coastal GNP outpaced the U.S. GNP as a whole by approximately 10%.
- Recreational and commercial fishing industries account for more than $30 billion annually.
- 99.8% of U.S. international commerce is shipped through coastal waters.

MANAGEMENT OF THE COASTAL ENVIRONMENT

The suite of issues associated with coastal growth, economic development, and ecosystem management makes the coastal environment a proving ground for policies promoting sustainable development and the protection of biodiversity.

U.S. Coastal Ocean Environment



SUSCOS: IDENTIFYING NATIONAL COASTAL OCEAN SCIENCE GOAL

IDENTIFY NATIONAL CONCERNS

- Environmental Quality
- Coastal Habitat Conservation
- Protection of Life and Property
- Utilization of Non-living Coastal Resources
- Conservation and Use of Living Coastal Resources
- National Security

INVENTORY FEDERAL SCIENCE EFFORTS (FY 91-93)

DOA	DOD	DOI	DOT	NASA
DOC	DOE	DOS	EPA	NSF

IDENTIFY RESEARCH NEEDS

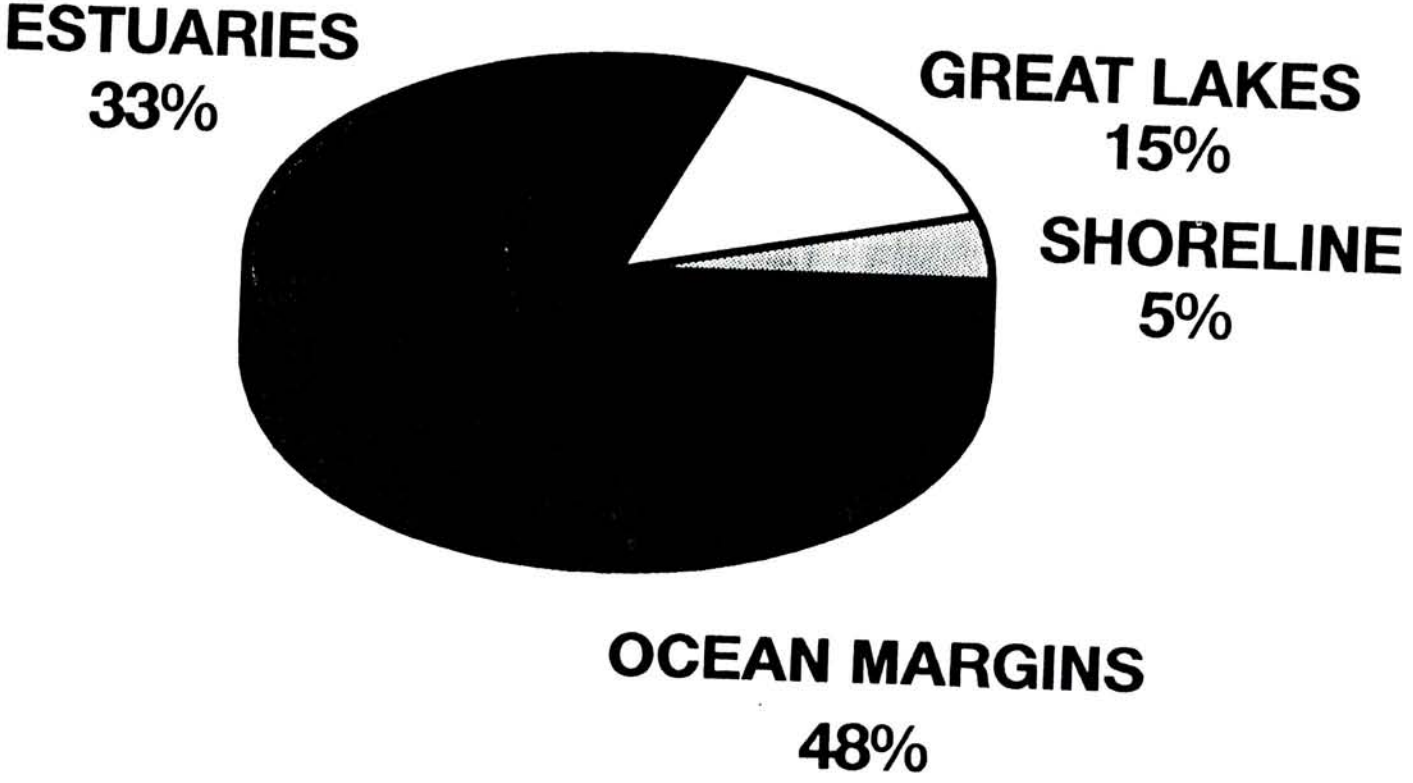
Reviewed 48 Scientific Reports to define research gaps
Identified over 50 major research needs

NATIONAL GOAL

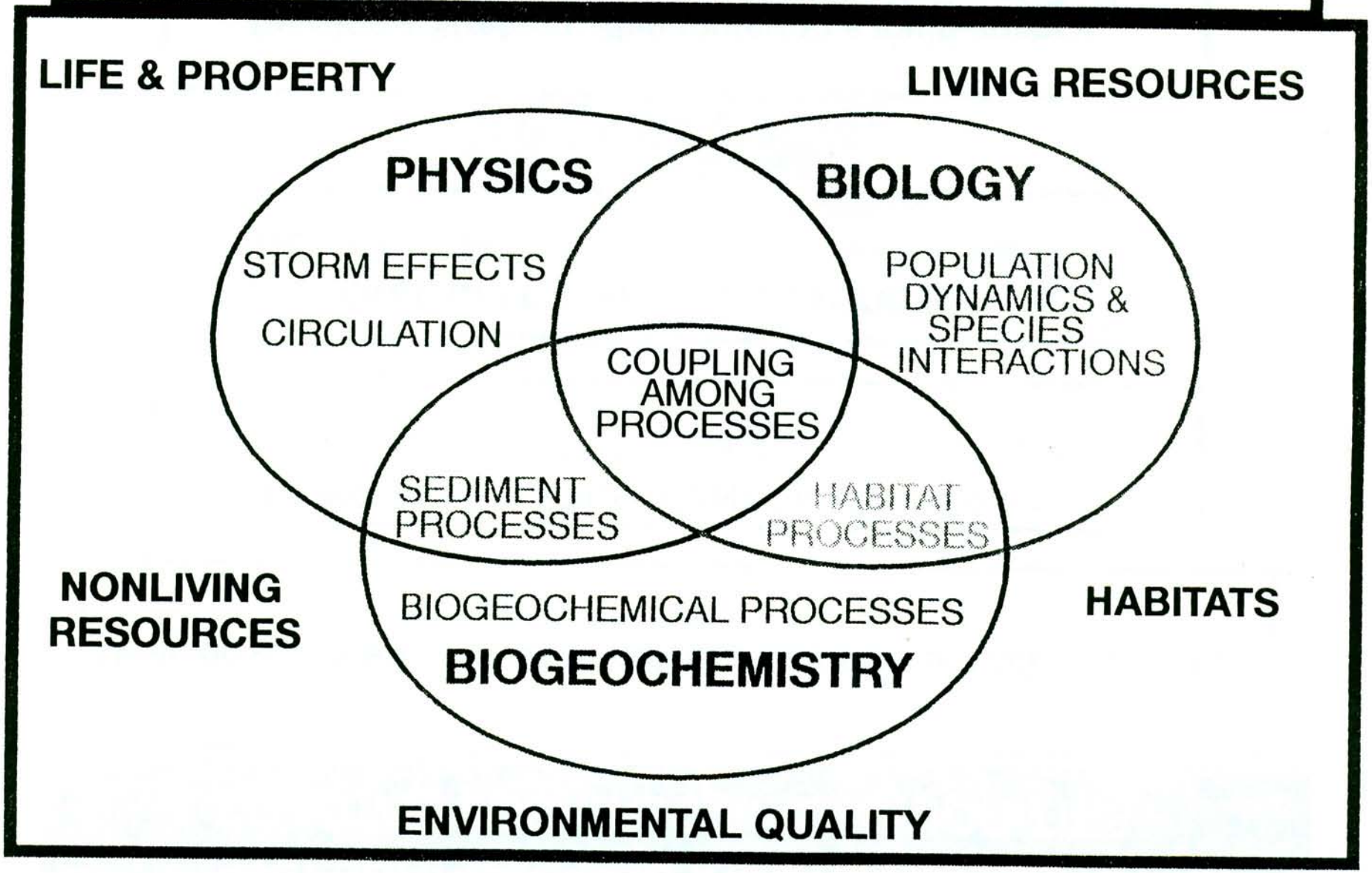
To establish improved prediction capabilities for coastal ocean systems that link physical processes, biogeochemical cycles, and the interactions of living components.

FEDERAL FUNDING OF COASTAL OCEAN SCIENCE FY 91-93

ENVIRONMENTAL REGIMES



CRITICAL RESEARCH AREAS OF EMPHASIS



SUSCOS: PROCESS FOR IDENTIFYING NATIONAL COASTAL OCEAN SCIENCE PRIORITIES

Outlined 4 Strategic Issues to define policy-relevant science needs.

COMMON CHALLENGE: MANAGE FOR CHANGE

Prevent it Mitigate it Adapt to it

SCIENCE NEEDS TO MANAGE ECOSYSTEMS

Observe → Understand → Predict change

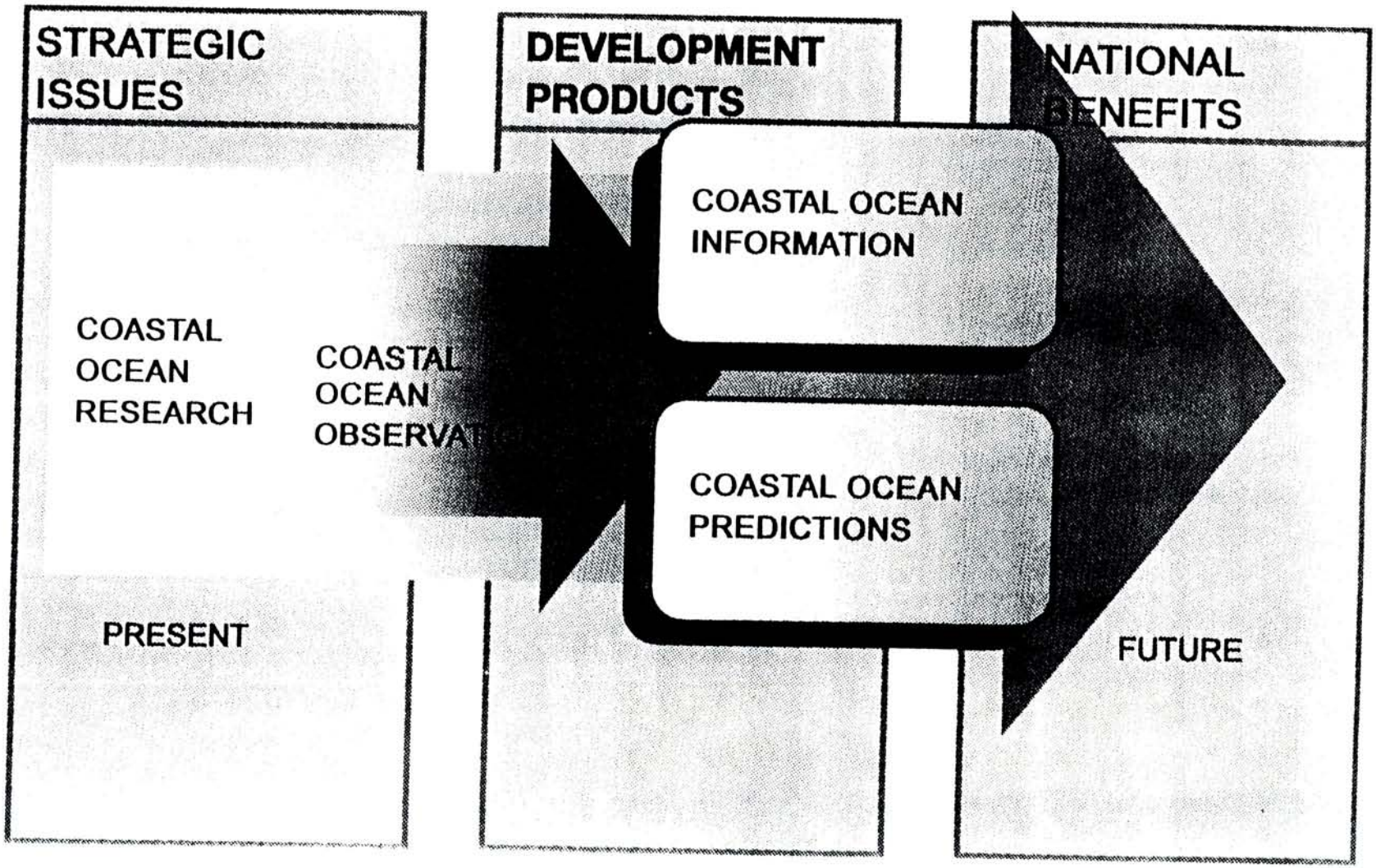
DELIVER RESULTS

Develop a Strategic Plan requiring a multi-agency, interdisciplinary effort to achieve the National Goal.

FRAMEWORK FOR COASTAL OCEAN SCIENCE

STRATEGIC ISSUES	DEVELOPMENT PRODUCTS	NATIONAL BENEFITS
Protecting Coastal Ecosystem Health	Assessments of: - Resource & Habitat Change - Land Use Impact	Reduced Litigation, Better Resource Mngmnt., Emergency Preparedness
Sustaining use of Coastal Resources	Ecosystem Health Models	Increased Fishery Yields & Jobs
Protecting Life and Property	Cumulative Impact Assessment Methodology	Reduced By-catch
National Security	Tides, Wind/Wave Observations & Predictions	Minimized Risk to Life and Property
	3-D Circulation & Temperature Prediction	Improved Search & Rescue
		Safer Port Operations, Accurate Storm Warnings

FRAMEWORK FOR COASTAL OCEAN SCIENCE



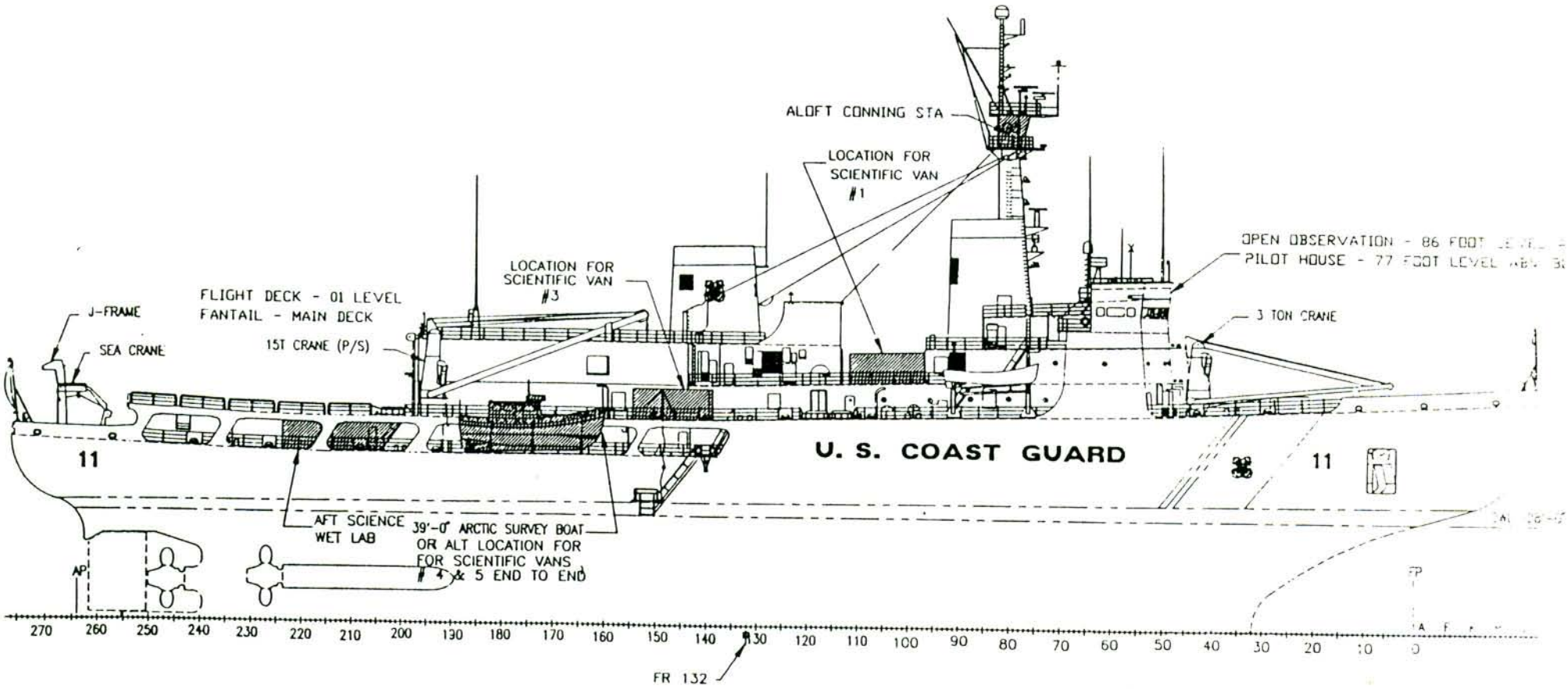
APPENDIX VIII

USCG ICEBREAKER FY93 SCIENCE SUPPORT IMPROVEMENTS

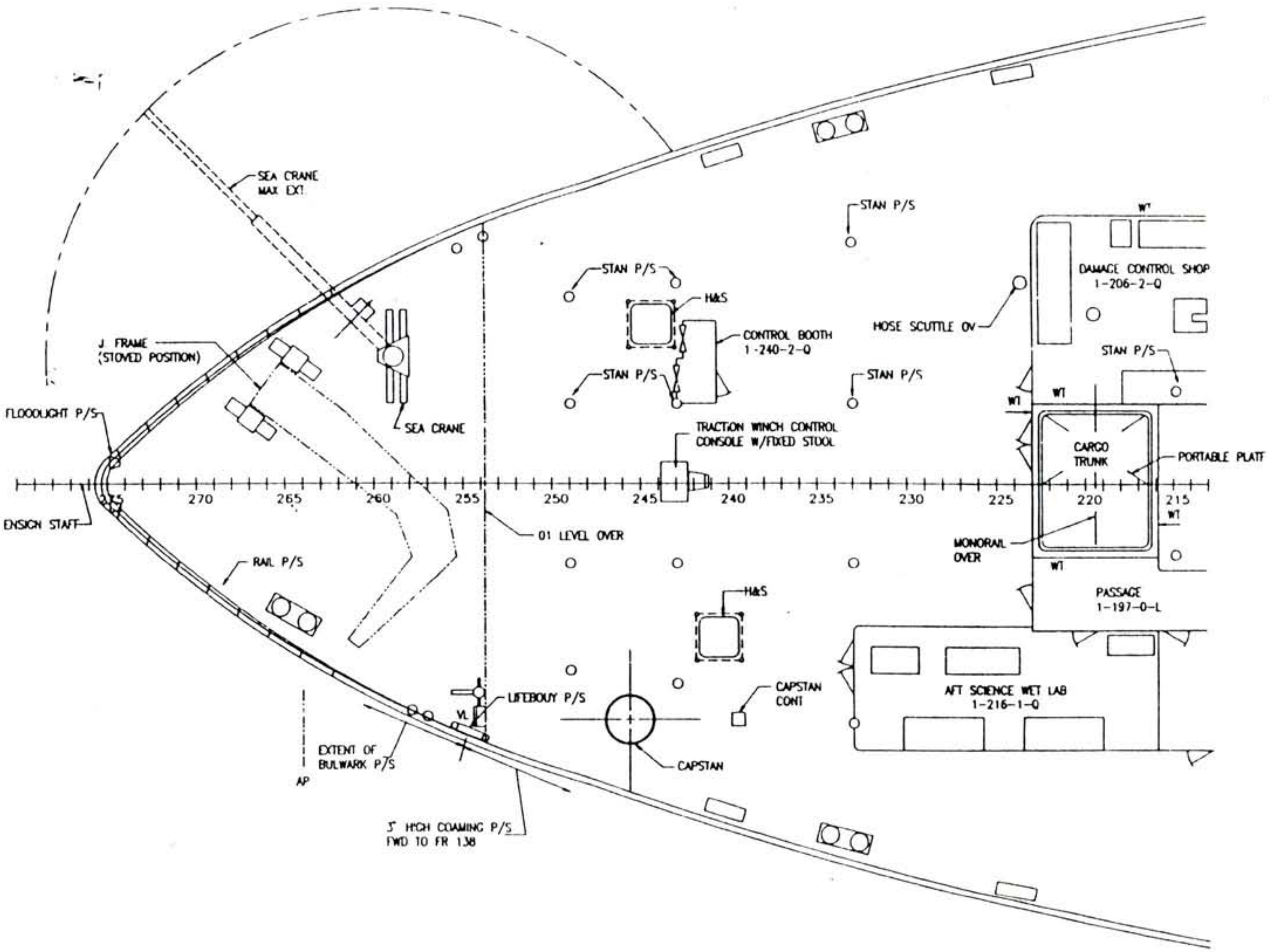
- 7 METER RIGID HULL INFLATABLE / DIESEL POWERED
- TERRESCAN SATELLITE RECEIVER
- "COAST GUARD VIDEO TRANSMISSION SYSTEM"
- SEABIRD CTD
- CRREL ICE THICKNESS SENSOR

USCG ICE OPERATIONS
FY94 PROPOSED SCIENCE SUPPORT IMPROVEMENTS
(PENDS BUDGET APPROVAL)

- DIGITAL VIDEO / FAX E-MAIL CAPABILITY
- NAVIGATION DISPLAY SYSTEM IN LABS
- .680" WIRE, DRUM, SHEAVES FOR CORING WINCH
- INSTALL UNISTRUT SYSTEM IN DRYLAB
- CRREL ICE THICKNESS SENSOR DELIVERY
- THERMOSALINOGRAPH
- ACOUSTIC DOPPLER CURRENT PROFILER (ADCP)
- 4 ADDITIONAL SCIENCE VANS
- ROTATING ACCOMMODATION LADDER



OUTBOARD PROFILE
ACAD FILE A-0001



FANTAIL MAIN DEC
ACAD FILE A NICBA

USCG ICEBREAKER REIMBURSEMENT COSTS

Approximate cost: $16,410/Day

ICEBREAKER	$5,323
HELICOPTERS	$2,687
100% FUEL COST	$8,400 (AVERAGE)

FUEL @ $.70/GAL

NORMAL USE: TRANSIT 13,400 GAL/DAY

OPAREA 11,800 GAL/DAY

USCG ICEBREAKER FY94 – 96 SCHEDULE

DATES		MISSION	AREA	SPONSOR	SHIP
NOV 94	–MAY 95	DEEP FREEZE	ANTARCTICA	NSF	POLAR SEA
AUG 94	–OCT 94	ICE TRIALS	WEST ARCTIC	USCG	POLAR STAR
JUL 94	–OCT 94	DEEP ARCTIC PROBE	ARCTIC	NSF	POLAR SEA
NOV 95	–APR 96	DEEP FREEZE	ANTARCTICA	NSF	POLAR STAR
JUN 95	–OCT 9	IAOE 95	EAST ARCTIC	NSF/ONR	POLAR SEA
JUL 96	–SEP 96	T B D	T B D	T B D	POLAR STAR
NOV 96	–APR 97	DEEP FREEZE	ANTARCTICA	NSF	POLAR STAR

USCG ICEBREAKER POLAR SCIENCE UPGRADES

- OCEANOGRAPHIC WINCHES
- CORING / TRAWLING WINCH
- OVERBOARDING CRANES (J-FRAMES)
- LARGER OCEANOGRAPHIC LABORATORY
- OCEANOGRAPHIC STAGING LABORATORY
- GEOLOGY LABORATORY
- LARGER BIOLOGY LABORATORY
- VAN TIEDOWN SYSTEM
- IMPROVED COMMUNICATIONS FACILITIES
- SENIOR SCIENTIST STATEROOM

APPENDIX IX

HARBOR BRANCH
OCEANOGRAPHIC INSTITUTION, INC.

MARINE OPERATIONS

5600 OLD DIXIE HIGHWAY
FORT PIERCE, FLORIDA 34946

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

August 26, 1993

John F. Bash
Executive Secretary
UNOLS
P.O. Box 392
Saunderstown, RI
02874

Dear Jack:

Responding to your letter of 10 August 1993, I have compiled R/V SEA DIVER schedules for the years 1989-1993 with dates and funding source. In addition, I have included a 1994 Proposed Schedule in the standard UNOLS format. As you can see from the schedule, there were a few lean years, and in fact, the vessel was pretty much inactive in 1989 and 1991. This was due to her dedicated ROV support vessel status. There was very little demand for the ROV and the vessel was not configured for any other work.

I am also enclosing several information sheets on R/V SEA DIVER for you to distribute as necessary. The new information sheets show the SEA DIVER in her new configuration.

Harbor Branch Oceanographic Institution, Inc. meets all the requirements under Number 6, Requirements for Becoming a UNOLS Vessel of the Guidelines for Requesting/Becoming a UNOLS vessels, including:

a. Operating the vessel for research purposes (see attached U.S. Coast Guard Letter of Designation as a Research Vessel).

b. Cruise Schedules for the past several years (see attached).

c. Proposed 1994 Operations Schedule, including user charges (see attached).

d. Vessel is scheduled for an ABSTECH inspection Sept. 29-30, 1993.

e. Vessel is capable of operation under the UNOLS Research Vessel Safety Standards.

f. Vessel is available to all federally funded users.

g. Vessel is maintained to accommodate the needs of the academic oceanographic programs.

h. The Operating Institution (HBOI) currently participates in the UNOLS scheduling process with our other vessels, SEWARD JOHNSON and EDWIN LINK and handles ship-use requests in consultation with the UNOLS office. This practice will continue with R/V SEA DIVER upon acceptance into the UNOLS fleet.

i. HBOI currently submits cruise reports and assessments according to UNOLS uniform practice for R/V SEWARD JOHNSON and R/V EDWIN LINK and will do so for R/V SEA DIVER upon acceptance.

j. HBOI currently adheres to cost accounting and performance standards according to UNOLS uniform procedures.

k. HBOI fully funds our research vessel operations through internal grants and various outside funding agencies.

l. N/A. HBOI is already a qualified UNOLS member institution.

If you have any questions or need additional information, please do not hesitate to contact my office. I will be at the Council Meeting to represent Harbor Branch when the Research Vessel SEA DIVER application is brought before the committee.

Sincerely,

Tim Askew
Director, Marine Operations

TA:pk

cc: Rick Herman

U.S. Department of Transportation

United States Coast Guard

Commanding Officer
U.S. Coast Guard MSO Miami
Claude Pepper Federal Bldg
5th Floor

51 S.W. 1st Ave.
Miami, FL 33130-1608
Staff Symbol: MSOMIAMI
Phone: (305) 536-4520

16711
April 10, 1992

Harbor Branch Oceanographic Institution, Inc.
5600 Old Dixie Highway
Fort Pierce, Florida 34946

LETTER OF DESIGNATION AS OCEANOGRAPHIC RESEARCH VESSELS:
FLORIDA NUMBERS: R/V SEWARD JOHNSON, FL 3788EH
R/V EDWIN LINK, FL 0889FU
R/V SEA DIVER, FL 8402BP

Gentlemen:

A review of the employment of the above listed vessels has been made by this office. Based on the information submitted, it is determined that these vessels, as presently employed meet the requirements of Title 46, United States Code Section 2101 [18] (Title 46 Code of Federal Regulations Part 3) for oceanographic research vessels and is so classified. This classification is valid provided that the vessels are employed exclusively in Oceanography, Limnology or both, or exclusively in oceanographic research.

This precludes the above vessels from the carriage of freight, passengers, towing, salvage, testing of navigational/sonar equipment archaeological studies or any other studies not exclusively in oceanographic or limnological research or instruction.

Being classified as oceanographic research vessels under the provisions of 46 USC 2101 (18), the vessels are exempt from the inspection laws of the United States, but subject to the requirements of 46 CFR Parts 24 through 26 (uninspected vessels). Oceanographic vessels, by legal opinion are considered merchant vessels of the United States and subject to the manning requirement of 46 USC 8104.

Should these vessels be operated in a manner which deviate from exclusive oceanographic research operations, this letter becomes null and void. The vessels may then be in violation of the vessel inspection statutes and, thus, subject to inspection by the Coast Guard.

This designation remains valid until April 9, 1994 provided that the operating conditions remain essentially unchanged from the time of designation. It is incumbent on the owner/operator

APR 16 1992

16711
April 10, 1992

LETTER OF DESIGNATION AS OCEANOGRAPHIC RESEARCH VESSELS:
FLORIDA NUMBERS: **R/V SEWARD JOHNSON, FL 3788EH**
R/V EDWIN LINK, FL 0889FU
R/V SEA DIVER, FL 8402BP

to request a renewal of this classification and/or notify the cognizant Officer in Charge, Marine Inspection of any change of the employment of these vessels.

A request for renewal of this designation should be made not later than February 1, 1994.

Sincerely,

G. M. WILLIAMS
Captain, U. S. Coast Guard
Officer in Charge, Marine Inspection

Copy: **COMDT (G-MVI)**
CCGD7 (m)

R/V SEA DIVER

Year	Dates	Funding Source	# of days
1989	6-8 February	HBOI	3 days
	20 February-4 March	Navy (Tracor)	13 days
	23 May	HBOI	1 day
	10-21 December	Navy (Racal)	12 days
			29 days
1990	6-21 June	Navy (Racal)	16 days
	6-8 July	Navy (Argotech)	3 days
	15 July - 26 Oct.	HBOI	104 days
			123 days
1991	20-26 February	HBOI	7 days
	17-28 April	Navy (NUSC)	12 days
	14-17 May	HBOI	4 days
	9-15 July	Navy (NORAL)	7 days
			30 days
1992	24-25 February	HBOI	2 days
	9-13 March	HBOI	5 days
	25 March	HBOI	1 day
	30-31 March	HBOI	2 days
	1-3 April	HBOI	3 days
	27-30 April	HBOI	4 days
	21-26 June	HBOI	6 days
	12-21 July	HBOI	10 days
	10-28 August	HBOI	19 days
	6-18 October	Navy	13 days
			65 days
1993	17-29 March	HBOI	12 days
	13-24 May	HBOI	12 days
	25 May	Private	1 day
	26-27 May	HBOI	2 days
	1-4 June	HBOI	4 days
	7-16 June	NOAA	11 days
	18-20 June	Navy (Harris)	3 days
	21 June - 1 July	Navy (Hughes)	10 days
	4-5 July	Smithsonian	2 days
	6 July - 27 Aug.	NOAA	53 days
	1-5 Sept.	Navy	5 days
	7-10 Sept.	HBOI	4 days
	29-30 Sept.	HBOI	2 days
	11-15 Oct.	HBOI	5 days
	1-4 Nov.	HBOI	4 days
	8-17 Nov.	NOAA	10 days
	18-22 Nov.	Navy	5 days
	25 Nov. - 23 Dec.	Navy	28 days
			173 days

POC: Tim Askew
Harbor Branch Oceanographic Institution, Inc.
5600 U.S. 1 North
Ft. Pierce, FL 34946
Telephone: 407-465-2400, ext. 262
Fax: 407-465-2116
Telemail: HBOI.SHIPS
Telex: 522886

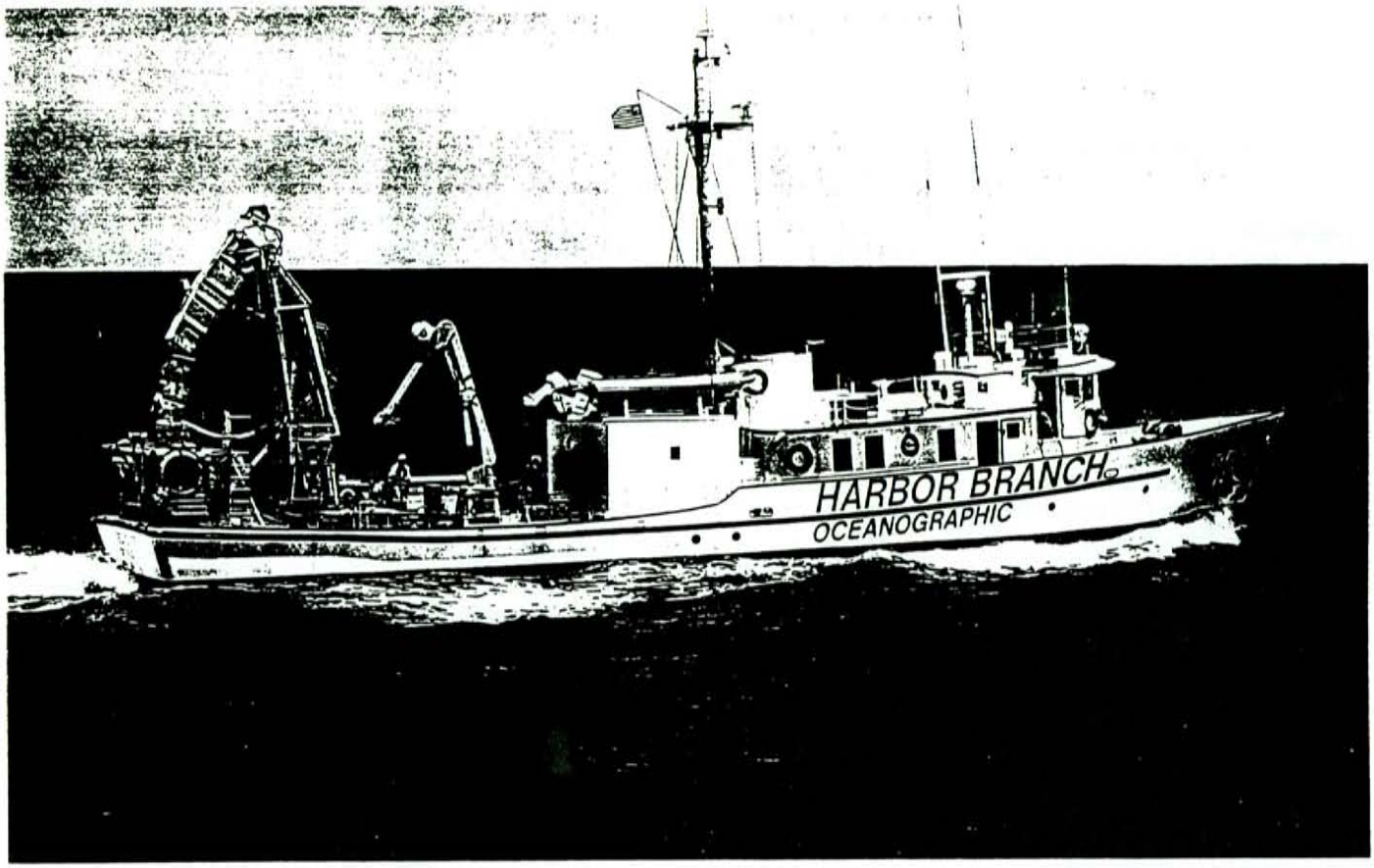
R/V SEA DIVER
PROPOSED 1994 SCHEDULE
DATE ISSUED: AUGUST 19, 1993

CRUISE DATES	MAP INDEX/AREA/ PURPOSE	P.I./INSTITUTION/ PROPOSAL NO.	PORTS	DAYS/AGENCY/ STATUS
1/03 1/31	/FT. PIERCE MAINTENANCE	SHIP OPS	FT. PIERCE FT. PIERCE	/HBOI/
2/01 2/14	NA9/FLORIDA BIOLOGY	LAPOINTE/HBOI	FT. PIERCE FT. PIERCE	14/SFWMD/P
3/01 3/24	NA9/ATLANTIC ACOUSTIC RESEARCH	TBA/INDUSTRY	FT. PIERCE FT. PIERCE	24/NAVY/P
4/11 4/15	NA9/BAHAMAS MIDWATER BIOLOGY	FRANK/HBOI	FT. PIERCE FT. PIERCE	5/HBOI/F
5/01 5/11	NA9/GULF OF MEXICO GEOLOGY	TBA/UNCW	FT. PIERCE FT. PIERCE	11/NOAA/P
5/17 7/15	GL4/GREAT LAKES BIOGEOCHEMISTRY	LEE/UCAP	FT. PIERCE ----------	60/NOAA/P
7/16 8/15	NA6/NJ COAST BIOGEOCHEMISTRY	DELUCA/RUTGERS	SANDY HOOK FT. PIERCE	31/NOAA/P
8/18 8/31	NA9/ATLANTIC BIOLOGY	LAPOINTE/HBOI	FT. PIERCE FT. PIERCE	14/SEAGRANT/P
9/07 9/10	NA9/BAHAMAS MIDWATER BIOLOGY	FRANK/HBOI	FT. PIERCE FT. PIERCE	4/HBOI/F
10/01 10/24	NA9/ATLANTIC ACOUSTIC RESEARCH	TBA/INDUSTRY	FT. PIERCE FT. PIERCE	24/NAVY/P
11/01 11/04	NA9/BAHAMAS MIDWATER BIOLOGY	FRANK/HBOI	FT. PIERCE FT. PIERCE	4/HBOI/F
11/07 12/31	/FT. PIERCE	OPEN FOR ASSIGNMENT		

1994	NSF	NAVY	OTHER	TOTAL	
Ship Days	0	48	143	191	3800*
Cost $K	0	182.4	543.4	725.8	

*All costs are based on ship only.
Submersibles not included in ship rates.

R/V SEA DIVER



R/V SEA DIVER is a 113-foot veteran of archaeological and oceanographic voyages. Designed by famed inventor Edwin A. Link and built in 1959, with a steel double-hull, she has a full range of 5,000 miles and accommodates 18. Twin 3406 Cat. engines give her a cruising speed of 10 knots. A bow thruster provides increased maneuverability. Extensive modifications completed in 1993, including extending the stern 14 feet with the option of installing a 5 ton A-frame or a 10 ton articulating crane for launch and recovery of submersibles, give the vessel much greater versatility.

R/V SEA DIVER is the smallest of three Harbor Branch owned research vessels that are operated by experienced personnel, expert at launch and recovery procedures, and supported by in-house ocean engineers.

Typical applications of R/V SEA DIVER include manned/unmanned submersible support, towed systems support, surface oceanography and hydrographic applications, deployment and retrieval of moored devices, and diving support with optional recompression chamber.

Length Overall	113 feet	Fuel Consumption	36 gal./hour, normal cruise
Length between perpendiculars	102.5 feet	Potable Water	3,200 Gal. with Reverse Osmosis Unit
Beam, Overall	23 feet	Galley Messing	6
Draft	8 feet 6 inches	Speed	10 knots
Displacement (weight)	188.66 Short Tons	Range	5000 nautical miles
Gross Tonnage	174.6 Registered Tons	Year Built	1959
Fuel Capacity	10,500 Gal.	Year Converted	1992

HARBOR BRANCH HAS A SPECIAL FLEET TO MEET YOUR NEEDS

Owned and Operated by Harbor Branch Oceanographic Institution, Inc.

Contact Director, Marine Operations – 407-465-2400 ext. 262/271

FAX – 407-465-2116

Classification:
American Bureau of Shipping: Hull and Machinery

Normal Complement:
6 ship's crew
12 other (including sub crew, if required)

Berthing Accommodations:
18 air conditioned berths

Propulsion:
(2) 3406-TA Cat. Diesels (1800 rpm) 375 shp each

Generators:
(2) GM 471 Diesel Generators, 75 kw. each
440, 208 & 110 VAC 3-phase

Navigation Equipment:
Compasses:
Sperry Magnetic Compass
Sperry Mark 37 Gyrocompass with 2 repeaters
Sperry Auto-Pilot
Radars:
Furuno Color 1411 with North-Up capability
Furuno b/w 8050D with North-Up capability
Lorans:
(2) Northstar 800X GPS with 820 Processor and Magnavox MX200 GPS

Acoustical Systems:
Straza ATM 504-14 Underwater Telephone
Trackpoint II Tracking System

Communication Equipment:
JRC 45A SATCOM
(2) VHFs
(3) ICOM hand held VHFs
SEA 222 single-side band
Furuno/Skanti-TRP 8258S SSB Transceiver
NECODE-Encoder/Decoder Model 321 AR

Sounding Equipment:
Data Marine Digital 1000'
SIMRAD EQ50

Miscellaneous:
Aldin Faxmate II Weather Facsimile Recorder
Aldin Navtek receiver AE900
Simrad L 1550 VHF auto-digital direction finder

Deck Equipment:
Deck hydraulic cargo crane – 1-ton capacity
Articulating crane – 10-ton capacity
A-frame – 5-ton capacity
Aft Quarter Capstans (2)
Anchor windlass, 2 wildcats
Avon Rigid Hull Inflatable – 17 ft.; 50 h.p. outboard
Boston Whaler – 13 ft.; 30 h.p. outboard

Laboratories:
Wet/Dry Lab (16' x 12'), Portable
(1) Refrigerator
(2) Freezers
Fume Hood
Fresh water/sea water
UPS-Sola 320 watt capacity
Environmental Lab (8' x 8'), Portable
A/C compressor

Compressor room with dive locker
(2) Mako high-pressure air compressors (5000 psi)
(1) Haskell gas-transfer pump (O_2)
(2) Delmonox air filters
(1) High Pressure Air Bank (6000 cu. ft.)
(1) High Pressure Oxygen Bank (6000 cu. ft.)

Optional Equipment:
Winches:
SEA • MAC Model 3540 EHCLWR
Towing, trawling, coring with optional 14 conductor slipring, drum capacity up to 5,000 feet of .625 wire.
SMATCO Model HCSR-2-100 Hydraulic Storage Reel/Tow Winch; capacity up to 5,300 feet of 2" wire.
Recompression Chamber:
48" double lock; weight-7000 lbs; steel; working pressure-190 psi
60" double lock; weight-5600 lbs; aluminum; working pressure-100 psi
Note: These recompression chambers can be installed when necessary to support scuba operations.

APPENDIX X

ANNEX V
TO THE CHARTER

RESEARCH VESSEL TECHNICAL ENHANCEMENT COMMITTEE

A. PURPOSE

1. The purpose of the Research Vessel Technical Enhancement Committee shall be to promote the scientific productivity of research programs that make use of research vessels and oceanographic facilities and to foster activities that will lead to enhanced technical support for sea-going scientific programs.

B. MEMBERSHIP

1. Membership in the RVTEC shall be extended to UNOLS member institutions.

2. Participation shall be open to technical and scientific personnel at UNOLS and non-UNOLS organizations.

C. REPRESENTATION

1. Each institutional UNOLS representative may designate a representative to RVTEC.

2. RVTEC will meet at least once per year.

3. The place and time of the next RVTEC annual meeting will be designated at the close of the previous RVTEC meeting.

4. Each member institution shall be notified of the next annual meeting by the Vice Chairperson of the Committee at least 90 days prior to the next annual meeting.

5. Each UNOLS member institution shall be entitled to one vote on matters at RVTEC meetings. However, matters may be submitted for vote by the Chairperson at other times. These matters will be voted on by mail or electronic mail, and votes will be collected for a period of two weeks.

6. A simple majority of the UNOLS operator institutions must be represented to establish a quorum.

D. OFFICERS

1. The Research Vessel Technical Enhancement Committee shall have a Chairperson and a Vice Chairperson. The Chairperson and Vice Chairperson will be elected by majority vote at the Annual Meeting and subject to confirmation by the UNOLS Chair. Their terms of office shall be two years. The Chairperson and Vice Chairperson shall be elected in alternate years.

2. The Chairperson shall represent the Committee in all matters stipulated in the purpose of these bylaws and in all matters deemed necessary in the interest of the Committee. The Chairperson shall implement the programs enumerated by the Committee and shall conduct the Annual Meeting and whatever special meetings are deemed necessary by the Chairperson or the members.

3. The Vice Chairperson, who shall function as Chair in the absence of the Chair, shall be responsible for recording the business of the Committee and for dissemination of information through a newsletter or other media as stipulated in these bylaws to all members of the Committee.

4. If the Chairperson or Vice Chairperson are unable to fulfill their duties of office, the Chairperson shall appoint a successor to act with authority until the succeeding Annual Meeting.

E. WORKING GROUPS AND PANELS

1. Upon the recommendation of the Chairperson, and with a majority vote of the Committee, various working groups and panels, as necessary to the work of the Committee, may be constituted. The duration of action of such working groups and panels shall be stipulated at the time of inception.

F. MEETINGS

1. A general meeting of the Committee shall be held at least once yearly. The Chairperson shall preside over this Annual Meeting. The business of this meeting shall encompass reports of any active working groups and panels, and discussions of project and actions of the Committee. Research Scientists and others from the marine community may also be included on the agenda. Workshops for projects of general concern are encouraged.

2. Passage of projects and actions shall be by vote, in accordance with the voting procedures set forth in Section C, REPRESENTATION, paragraph 5.

3. The various working groups and panels shall each meet at least once yearly.

G. FINANCES

1. UNOLS will provide limited funding for the Committee to include the following:

   a. Travel expenses for the Chairperson and Vice Chairperson for meetings once a year;

   b. Travel expenses for the Chairperson to attend UNOLS Meetings;

   c. Meeting facilities, when required;

   d. Travel and meeting expenses for panels, workshops, or the Annual Meeting when appropriate.

Adopted:

APPENDIX XI

DRAFT # 4, 9/4/93

Chartering non-institutional vessels by UNOLS institutions

When a UNOLS institution charters a vessel not operated by that institution for marine research the guidelines given in chapter 17 of the UNOLS Research Vessel Safety Standards must be followed. When federal funding for ship support from NSF, ONR and other agencies are involved then it is mandatory that the vessel be physically examined prior to chartering to verify the vessel's safety, material condition and crew competency in accordance with the UNOLS Research Vessel Safety Standards. This process should take place as early as possible so that any necessary corrections can be made in a timely manner. If possible, potential vessels should be inspected as soon as they are tentatively scheduled. Waiting until the last minute puts an undo hardship on everyone involved. The Principal Investigator, institution contracting office and institution marine office all have a responsibility to ensure that only vessels that are safe and suitable for a project are chartered.

Inspected vessels that possess a current U.S. Coast Guard, SOLAS or U.S. Navy INSERV inspection certificate have been physically inspected by competent marine personnel and such inspections may be used to satisfy the Chapter 17 UNOLS Research Vessel Safety Standard's Inspection. Certain large projects or those involving international co-operation may require a contract inspection by a team such as the NSF/ABSTECH team. Small vessels, carrying less than six scientists, that possess a current U.S. Coast Guard safety inspection performed under the Federal Boating Safety Act of 1971 or the Commercial Fishing Industry Vessel Safety Act of 1988 may also satisfy this inspection requirement if these safety requirement are considered sufficient for the expected area of operation and mission by the chartering institution's marine staff.

Any other non-inspected vessel that fails to meet the above criteria, should be physically inspected by the chartering institution's Marine Superintendent (or equivalent) or other competent marine personnel such as another member of the marine staff, a marine surveyor, marine architect, etc. that the marine superintendent might designate. The purpose of this inspection is to insure the proposed vessel meets UNOLS Research Vessel Safety Standards and is otherwise suited for the intended purpose. Attached is a set of guidelines to be used in conducting these inspections. Discrepancies should be corrected prior to entering into a charter agreement and vessels that do not meet the standards should not be chartered.

Draft #4 9/4/93

Guidelines for Inspection of Chartered, Non UNOLS Vessels per Chapter 17 of UNOLS R/V Safety Standards

Check each category listed below as appropriate for the charter mission and operating area. Ensure necessary equipment is aboard and operates properly.

Bridge and Navigation Equipment:
_____Compass, deviation table posted
_____Auto pilot
_____LORAN/GPS/TRANSIT/OMEGA
_____Depth Sounder
_____Radar
_____Navigation Lights, task lights, day shapes, signal flags.
_____Ships Bell
_____Whistle or Sound Device
_____Emergency Alarm
_____Pyrotechnics Expiration Date Not Exceeded?_____
_____Navigational Charts and Publications

Communications Equipment:
_____Radios, VHF and/or SSB
_____INMARSAT or Teletype
_____Cellular Phone
_____Emergency Radio with backup battery or power
_____EPIRBs, battery expiration date

Documentation:
_____Check terms of Charter Agreement
_____Ensure vessel can be legally chartered based on certificate of inspection, letter of designation or limitation of charter to less than 6 persons.
_____Ensure documentation, ownership, inspection certificate, load line certificate and stability letter are current and appropriate for planned mission.
_____Ensure Master's license is current and appropriate for vessel being chartered or that the operator is otherwise qualified for the mission.
_____Ensure crew size and credentials are appropriate for charter's mission.
_____Ensure appropriate insurance coverage is in effect for charter duration.

Life Saving Equipment:
_____PFDs, properly marked, good condition, accessible to passengers.
_____Immersion Suits
_____Inflatable Life Rafts Inspection Date Current?_____
_____Lifering Buoys
_____Rescue Boats

Fire Fighting Equipment:
_____Fixed and Portable Fire Extinguishers Inspection Dates Current?_____
_____Smoke and Fire Detectors
_____Fire Stations and Hoses
_____Self Contained Breathing Apparatus
_____Fire and Damage Control Locker
_____Emergency Stations Bill
_____Remote shut downs for Galley stove, other equipment

Draft #4, 9/4/93

Guidelines for Inspection of Chartered, Non UNOLS Vessels per Chapter 17 of UNOLS R/V Safety Standards

Exterior Decks and Equipment:

_____Anchors and Associated Equipment
_____Watertight Doors and Hatches
_____Freeing Ports
_____Loose equipment, gear properly stored
_____Through hulls, sea valves, etc.
_____Deck Vents
_____Cargo and Weight Handling Equipment (Safe Work Load posted & tested)
_____Deck Surfaces Non-Skid
_____Life Lines and Safety Chains
_____Deck lighting, adequate
_____Condition of small boats and motors
_____Proper storage of gasoline

Engineering:

_____Gas Engines - Check flame arrestor, vents, gas hoses and no sparking devices in bilges.
_____Diesel Engines - Check oil and exhaust leaks, starting system, maintenance and hours since last overhaul.
_____Inspect overall cleanliness and condition of engine spaces.
_____Inspect batteries, battery box ventilation and emergency power sources.
_____Check emergency lights.
_____Check bilge and ballast systems and pumps.
_____Check fueling system and pumps.
_____Check refrigeration systems.
_____Check fire pump.
_____Check engine room fire suppression capability.
_____Check all manifolds for saltwater, fuel, etc.
_____Check condition of switchboards, wiring and auxiliary generators.
_____Check belts, other exposed moving parts for condition and shrouds
_____Alarms, oil pressure, water temp, high bilge water, fire

Miscellaneous:

_____First Aid Kits and Medical Supplies
_____Damage Control Equipment
_____Emergency Steering
_____General Appearance and Cleanliness
_____Oil Pollution Placard and other required notices are posted.
_____Sanitary System Operations
_____Assess vessel's overall stability.
_____Assess vessel's overall ability to perform charter mission. Include laboratory and deck space, berthing and feeding capability, scientific equipment and winches, etc.
_____Ensure the operator plans to file a float plan (cruise plan) with a sailing list of all POB's, communications plan and loss communications procedures.

APPENDIX XII

PROPOSED TRIAL CHANGES TO UNOLS SHIP SCHEDULING MEETINGS

BACKGROUND: The annual UNOLS Ship Scheduling process has become highly efficient due in a large part to the hard work and effective consultation of and among the institutional schedulers. The present day rapid communications capability available through fax and electronic mail has also served to further enhance the process. It appears possible to reduce the number of Ship Scheduling Committee meetings each year and reduce the number of participants in each, thus conserving travel funds without detriment to the scheduling process.

FIRST ANNUAL MEETING: It has been customary to hold separate Atlantic and Pacific (Indian) Ocean scheduling meetings each year to review preliminary schedules in the presence of science program managers at Washington, D.C. These meetings have usually taken place during late June over two consecutive days. This year we reduced the meeting to two half-day sessions on the same day. It appears the preliminary scheduling meeting with the expected attendance of all UNOLS schedulers may no longer serve the useful purpose it did in the past. It is proposed therefore to eliminate this first committee meeting on a trial basis. In lieu of this June meeting a UNOLS schedule review meeting would be held at Washington during late June. Participants would be the Scheduling Committee Chair and Vice Chair, UNOLS Executive Secretary (with staff support), representatives of NSF, Navy and NOAA (including concerned science program managers). A preliminary report of this meeting with guidance to schedulers would still be published by E-Mail with a formal UNOLS report to follow by mail.

ANNUAL FULL UNOLS SCHEDULING MEETING: It has also been customary to hold in conjunction with the fall, annual UNOLS meeting a full Ship Scheduling Committee meeting, in a single one day session, usually in September, as required by the Charter. The continued attendance by the schedulers for the smaller UNOLS vessels (less than 100') and for those vessels who exclusively operate regionally under straight forward schedules may no longer be necessary or economical. Thus it is proposed that attendance at the fall Scheduling Committee meeting be optional for these schedulers.

QUALIFIER: For these new procedures to work it will be essential, nay MANDATORY, that each scheduler post on the appropriate electronic bulletin board the best and most up-to-date schedule and cost figures for each UNOLS vessel. Preliminary annual schedules shall be posted not later than 1 June. Best final schedules shall be posted by 1 September. At this stage, schedules with multiple options serve little useful purpose and are strongly discouraged. Late or missing schedules compromise the process and place schedule endorsements by UNOLS in considerable jeopardy, nay at EXTREME RISK.

APPENDIX XIII

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

CRUISE DAY PROFILES

AGENCY	PHYS. OCEAN	ACOUS-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	724.00	.00	866.00	750.00	.00	10.00	.00	854.00	52.00	.00	.00	.00	.00	212.00	3468.00
Office of Naval Research	258.00	3.00	73.00	23.00	.00	.00	.00	54.00	.00	17.00	18.00	.00	.00	25.00	471.00
U.S. Geological Survey	5.00	.00	.00	.00	.00	.00	.00	30.00	.00	.00	.00	.00	.00	.00	35.00
Bureau of Land Management/Minerals Mgmt. Service	50.00	.00	1.00	43.00	.00	.00	6.00	14.00	.00	.00	.00	.00	.00	.00	114.00
National Oceanic and Atmospheric Administration	16.00	.00	58.00	87.00	13.00	.00	.00	14.00	.00	.00	6.00	.00	6.00	24.00	224.00
Department of Energy (ERDA)	5.00	.00	9.00	1.00	.00	.00	.00	6.00	.00	.00	.00	.00	.00	.00	21.00
Other Federal	17.00	.00	2.00	8.00	.00	.00	.00	.00	1.00	.00	.00	.00	1.00	6.00	35.00
State/Municipal	22.00	.00	19.00	104.00	.00	9.00	.00	41.00	.00	.00	23.00	.00	4.00	137.00	359.00
Other/Private	53.00	.00	15.00	55.00	.00	.00	4.00	5.00	.00	.00	2.00	.00	19.00	32.00	185.00
TOTALS	1150.00	3.00	1043.0	1071.00	13.00	19.00	10.00	1018.0	53.00	17.00	49.00	.00	30.00	436.00	4912.00
PERCENT	23.41	.06	21.23	21.80	.26	.39	.20	20.72	1.08	.35	1.00	.00	.61	8.88	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

CRUISE DAY PROFILES

INSTITUTION	PHYS. OCEAN	ACOUS-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	177.00	.00	.00	34.00	.00	.00	.00	42.00	.00	15.00	.00	.00	.00	11.00	279.00
University of Alaska	49.00	.00	37.00	49.00	.00	.00	10.00	.00	.00	.00	1.00	.00	.00	.00	146.00
University of Washington	7.00	.00	213.00	77.00	.00	10.00	.00	2.00	.00	.00	12.00	.00	.00	44.00	365.00
Oregon State University	121.00	.00	43.00	45.00	.00	.00	.00	40.00	.00	.00	.00	.00	.00	21.00	270.00
Scripps Institution of Oceanography	63.00	3.00	44.00	139.00	.00	.00	.00	273.00	1.00	2.00	1.00	.00	.00	64.00	590.00
Texas A & M University	15.00	.00	13.00	22.00	.00	.00	.00	22.00	.00	.00	.00	.00	.00	58.00	130.00
University of Texas	1.00	.00	43.00	21.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11.00	76.00
University of Miami, RSMAS	120.00	.00	34.00	80.00	.00	.00	.00	76.00	.00	.00	.00	.00	.00	1.00	311.00
University of Georgia, Skidaway	5.00	.00	17.00	63.00	.00	1.00	.00	.00	.00	.00	.00	.00	22.00	.00	108.00
Duke University/University of North Carolina	10.00	.00	18.00	61.00	.00	.00	.00	111.00	.00	.00	.00	.00	.00	.00	200.00
University of Delaware	32.00	.00	120.00	11.00	.00	.00	.00	7.00	.00	.00	.00	.00	.00	.00	170.00
Lamont-Doherty Earth Observatory	.00	.00	.00	.00	.00	.00	.00	216.00	52.00	.00	.00	.00	.00	33.00	301.00
University of Rhode Island	76.00	.00	50.00	33.00	.00	.00	.00	40.00	.00	.00	.00	.00	.00	.00	199.00
Woods Hole Oceanographic Institution	370.00	.00	117.00	53.00	.00	.00	.00	130.00	.00	.00	.00	.00	.00	93.00	763.00
University of Michigan	1.00	.00	.00	28.00	.00	.00	.00	.00	.00	.00	.00	.00	4.00	22.00	55.00
Moss Landing Marine Laboratory	59.00	.00	4.00	85.00	.00	.00	.00	.00	.00	.00	28.00	.00	.00	1.00	177.00
Louisiana Universities Marine Consortium	18.00	.00	34.00	110.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.00	169.00
Harbor Branch Oceanographic Institution	24.00	.00	23.00	160.00	13.00	8.00	.00	59.00	.00	.00	7.00	.00	4.00	61.00	359.00
Bermuda Biological Station for Research	2.00	.00	233.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.00	244.00
TOTALS	1150.00	3.00	1043.0	1071.00	13.00	19.00	10.00	1018.0	53.00	17.00	49.00	0.00	30.00	436.00	4912.00
PERCENT	23.41	0.06	21.23	21.80	0.26	0.39	0.20	20.72	1.08	0.35	1.00	0.00	0.61	8.88	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

CRUISE DAY PROFILES

VESSELS	PHYS. OCEAN	ACOUS-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
KNORR	141.00	.00	74.00	.00	.00	.00	.00	32.00	.00	.00	.00	.00	.00	24.00	271.00
MELVILLE	.00	.00	.00	.00	.00	.00	.00	139.00	1.00	.00	.00	.00	.00	30.00	170.00
T.THOMPSON	7.00	.00	182.00	39.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	37.00	265.00
EWING	.00	.00	.00	.00	.00	.00	.00	216.00	52.00	.00	.00	.00	.00	33.00	301.00
MOANA WAVE	177.00	.00	.00	34.00	.00	.00	.00	42.00	.00	15.00	.00	.00	.00	11.00	279.00
ATLANTIS II	53.00	.00	.00	53.00	.00	.00	.00	50.00	.00	.00	.00	.00	.00	23.00	179.00
T. WASHINGTON	.00	.00	.00	.00	.00	.00	.00	105.00	.00	.00	.00	.00	.00	.00	105.00
WECOMA	121.00	.00	43.00	45.00	.00	.00	.00	40.00	.00	.00	.00	.00	.00	21.00	270.00
ENDEAVOR	76.00	.00	50.00	33.00	.00	.00	.00	40.00	.00	.00	.00	.00	.00	.00	199.00
OCEANUS	176.00	.00	43.00	.00	.00	.00	.00	48.00	.00	.00	.00	.00	.00	46.00	313.00
SEWARD JOHNSON	24.00	.00	23.00	59.00	13.00	.00	.00	34.00	.00	.00	6.00	.00	4.00	51.00	214.00
GYRE	15.00	.00	13.00	22.00	.00	.00	.00	22.00	.00	.00	.00	.00	.00	58.00	130.00
NEW HORIZON	32.00	.00	35.00	87.00	.00	.00	.00	18.00	.00	.00	.00	.00	.00	3.00	175.00
ISELIN	108.00	.00	33.00	60.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	201.00
EDWIN LINK	.00	.00	.00	101.00	.00	8.00	.00	25.00	.00	.00	1.00	.00	.00	10.00	145.00
POINT SUR	59.00	.00	4.00	85.00	.00	.00	.00	.00	.00	.00	28.00	.00	.00	1.00	177.00
CAPE HATTERAS	10.00	.00	18.00	61.00	.00	.00	.00	111.00	.00	.00	.00	.00	.00	.00	200.00
ALPHA HELIX	49.00	.00	37.00	49.00	.00	.00	10.00	.00	.00	.00	1.00	.00	.00	.00	146.00
ROBERT G. SPROUL	31.00	3.00	9.00	52.00	.00	.00	.00	11.00	.00	2.00	1.00	.00	.00	31.00	140.00
CAPE HENLOPEN	32.00	.00	120.00	11.00	.00	.00	.00	7.00	.00	.00	.00	.00	.00	.00	170.00
WEATHERBIRD II	2.00	.00	233.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	9.00	244.00
PELICAN	18.00	.00	34.00	110.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.00	169.00
LAURENTIAN	1.00	.00	.00	28.00	.00	.00	.00	.00	.00	.00	.00	.00	4.00	22.00	55.00
LONGHORN	1.00	.00	43.00	21.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11.00	76.00
BLUE FIN	5.00	.00	17.00	63.00	.00	1.00	.00	.00	.00	.00	.00	.00	22.00	.00	108.00
CLIFFORD A. BARNES	.00	.00	31.00	38.00	.00	10.00	.00	2.00	.00	.00	12.00	.00	.00	7.00	100.00
CALANUS	12.00	.00	1.00	20.00	.00	.00	.00	76.00	.00	.00	.00	.00	.00	1.00	110.00
TOTALS	1150.00	3.00	1043.0	1071.00	13.00	19.00	10.00	1018.0	53.00	17.00	49.00	.00	30.00	436.00	4912.00
PERCENT	23.41	.06	21.23	21.80	.26	.39	.20	20.72	1.08	.35	1.00	.00	.61	8.88	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992

OPERATIONAL DAYS CHARGED BY SPONSOR

INSTITUTION	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
University of Hawaii	220.00	59.00	.00	.00	.00	.00	.00	.00	.00	279.00
University of Alaska	102.00	.00	.00	6.00	.00	.00	.00	1.00	37.00	146.00
University of Washington	308.00	13.00	1.00	.00	.00	.00	.00	43.00	.00	365.00
Oregon State University	229.00	41.00	.00	.00	.00	.00	.00	.00	.00	270.00
Scripps Institution of Oceanography	457.00	50.00	5.00	17.00	4.00	.00	8.00	49.00	.00	590.00
Texas A & M University	51.00	.00	.00	15.00	.00	.00	.00	64.00	.00	130.00
University of Texas	14.00	.00	.00	.00	30.00	.00	.00	32.00	.00	76.00
University of Miami, RSMAS	277.00	19.00	.00	.00	6.00	.00	8.00	1.00	.00	311.00
University of Georgia, Skidaway	72.00	.00	.00	.00	2.00	6.00	3.00	6.00	19.00	108.00
Duke University/University of North Carolina	166.00	.00	14.00	.00	.00	6.00	.00	14.00	.00	200.00
University of Delaware	141.00	3.00	.00	10.00	.00	.00	4.00	.00	12.00	170.00
Lamont-Doherty Earth Observatory	259.00	40.00	.00	.00	.00	.00	.00	.00	2.00	301.00
University of Rhode Island	151.00	34.00	.00	14.00	.00	.00	.00	.00	.00	199.00
Woods Hole Oceanographic Institution	588.00	116.00	15.00	.00	26.00	.00	.00	18.00	.00	763.00
University of Michigan	28.00	.00	.00	.00	.00	.00	.00	27.00	.00	55.00
Moss Landing Marine Laboratory	79.00	64.00	.00	.00	3.00	.00	10.00	10.00	11.00	177.00
Louisiana Universities Marine Consortium	34.00	.00	.00	52.00	64.00	9.00	2.00	8.00	.00	169.00
Harbor Branch Oceanographic Institution	58.00	32.00	.00	.00	89.00	.00	.00	86.00	94.00	359.00
Bermuda Biological Station for Research	234.00	.00	.00	.00	.00	.00	.00	.00	10.00	244.00
TOTALS	3468.00	471.00	35.00	114.00	224.00	21.00	35.00	359.00	185.00	4912.00
PERCENT	70.60	9.59	.71	2.32	4.56	.43	.71	7.31	3.77	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

OPERATIONAL DAYS CHARGED BY SPONSOR

VESSELS	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
KNORR	279 FT	271.00	.00	.00	.00	.00	.00	.00	.00	.00	271.00
MELVILLE	279 FT	137.00	22.00	.00	.00	.00	.00	1.00	10.00	.00	170.00
T. THOMPSON	274 FT	227.00	7.00	.00	.00	.00	.00	.00	31.00	.00	265.00
EWING	239 FT	259.00	40.00	.00	.00	.00	.00	.00	.00	2.00	301.00
MOANA WAVE	210 FT	220.00	59.00	.00	.00	.00	.00	.00	.00	.00	279.00
ATLANTIS II	210 FT	146.00	7.00	.00	.00	26.00	.00	.00	.00	.00	179.00
T. WASHINGTON	209 FT	94.00	9.00	.00	.00	.00	.00	.00	2.00	.00	105.00
WECOMA	177 FT	229.00	41.00	.00	.00	.00	.00	.00	.00	.00	270.00
ENDEAVOR	177 FT	151.00	34.00	.00	14.00	.00	.00	.00	.00	.00	199.00
OCEANUS	177 FT	171.00	109.00	15.00	.00	.00	.00	.00	18.00	.00	313.00
SEWARD JOHNSON	176 FT	36.00	32.00	.00	.00	89.00	.00	.00	2.00	55.00	214.00
GYRE	174 FT	51.00	.00	.00	15.00	.00	.00	.00	64.00	.00	130.00
NEW HORIZON	170 FT	130.00	13.00	.00	.00	.00	.00	1.00	31.00	.00	175.00
ISELIN	170 FT	192.00	9.00	.00	.00	.00	.00	.00	.00	.00	201.00
EDWIN LINK	168 FT	22.00	.00	.00	.00	.00	.00	.00	84.00	39.00	145.00
POINT SUR	135 FT	79.00	64.00	.00	.00	3.00	.00	10.00	10.00	11.00	177.00
CAPE HATTERAS	135 FT	166.00	.00	14.00	.00	.00	6.00	.00	14.00	.00	200.00
ALPHA HELIX	133 FT	102.00	.00	.00	6.00	.00	.00	.00	1.00	37.00	146.00
ROBERT G. SPROUL	125 FT	96.00	6.00	5.00	17.00	4.00	.00	6.00	6.00	.00	140.00
CAPE HENLOPEN	120 FT	141.00	3.00	.00	10.00	.00	.00	4.00	.00	12.00	170.00
WEATHERBIRD II	115 FT	234.00	.00	.00	.00	.00	.00	.00	.00	10.00	244.00
PELICAN	105 FT	34.00	.00	.00	52.00	64.00	9.00	2.00	8.00	.00	169.00
LAURENTIAN	80 FT	28.00	.00	.00	.00	.00	.00	.00	27.00	.00	55.00
LONGHORN	80 FT	14.00	.00	.00	.00	30.00	.00	.00	32.00	.00	76.00
BLUE FIN	72 FT	72.00	.00	.00	.00	2.00	6.00	3.00	6.00	19.00	108.00
CLIFFORD A. BARNES	65 FT	81.00	6.00	1.00	.00	.00	.00	.00	12.00	.00	100.00
CALANUS	64 FT	85.00	10.00	.00	.00	6.00	.00	8.00	1.00	.00	110.00
TOTALS		3468.00	471.00	35.00	114.00	224.00	21.00	35.00	359.00	185.00	4912.00
PERCENT		70.60	9.59	.71	2.32	4.56	.43	.71	7.31	3.77	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

PROJECT PERSON-DAYS AT SEA BY SPONSOR

VESSELS	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
KNORR	279 FT	5206.00	.00	.00	.00	.00	.00	.00	.00	.00	5206.00
MELVILLE	279 FT	2648.00	32.00	.00	.00	.00	.00	19.00	210.00	.00	2909.00
T. THOMPSON	274 FT	7220.00	105.00	.00	.00	.00	.00	.00	674.00	.00	7999.00
EWING	239 FT	3894.00	880.00	.00	.00	.00	.00	.00	.00	36.00	4810.00
MOANA WAVE	210 FT	2933.00	957.00	.00	.00	.00	.00	.00	.00	.00	3890.00
ATLANTIS II	210 FT	2462.00	126.00	.00	.00	440.00	.00	.00	.00	.00	3028.00
T. WASHINGTON	209 FT	859.00	91.00	.00	.00	.00	.00	.00	8.00	.00	958.00
WECOMA	177 FT	2497.00	908.00	.00	.00	.00	.00	.00	.00	.00	3405.00
ENDEAVOR	177 FT	1511.00	251.00	.00	210.00	.00	.00	.00	.00	.00	1972.00
OCEANUS	177 FT	1550.00	855.00	160.00	.00	.00	.00	.00	153.00	.00	2718.00
SEWARD JOHNSON	176 FT	434.00	184.00	.00	.00	937.00	.00	.00	.00	416.00	1971.00
GYRE	174 FT	960.40	.00	.00	300.00	.00	.00	.00	767.80	.00	2028.20
NEW HORIZON	170 FT	1358.00	178.00	.00	.00	.00	.00	10.00	369.00	.00	1915.00
ISELIN	170 FT	2852.00	90.00	.00	.00	.00	.00	.00	.00	.00	2942.00
EDWIN LINK	168 FT	183.00	.00	.00	.00	.00	.00	.00	824.00	296.00	1303.00
POINT SUR	135 FT	876.00	621.00	.00	.00	24.00	.00	100.00	183.00	59.00	1863.00
CAPE HATTERAS	135 FT	1727.00	.00	14.00	.00	.00	72.00	.00	148.00	.00	1961.00
ALPHA HELIX	133 FT	1058.00	.00	.00	74.00	.00	.00	.00	14.00	360.00	1506.00
ROBERT G. SPROUL	125 FT	906.00	58.00	79.00	188.00	.00	.00	39.00	36.00	43.00	1349.00
CAPE HENLOPEN	120 FT	1165.00	15.00	.00	60.00	.00	.00	28.00	.00	84.00	1352.00
WEATHERBIRD II	115 FT	1214.00	.00	.00	.00	.00	.00	.00	.00	28.00	1242.00
PELICAN	105 FT	335.50	.00	.00	686.75	712.50	126.00	42.00	86.00	.00	1988.75
LAURENTIAN	80 FT	196.00	.00	.00	.00	.00	.00	.00	287.00	.00	483.00
LONGHORN	80 FT	54.00	.00	.00	.00	139.00	.00	.00	416.00	.00	609.00
BLUE FIN	72 FT	175.00	.00	.00	.00	7.00	18.00	20.00	44.00	98.00	362.00
CLIFFORD A. BARNES	65 FT	203.00	30.00	4.00	.00	.00	.00	.00	103.00	.00	340.00
CALANUS	64 FT	545.00	46.00	.00	.00	36.00	.00	47.00	17.00	.00	691.00
TOTALS		37167.90	5395.00	257.00	1518.75	2295.50	216.00	286.00	4129.80	1420.00	52685.95
PERCENT		70.55	10.24	.49	2.88	4.36	.41	.54	7.84	2.70	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

UNOLS CRUISE PARTICIPANTS AND AFFILIATIONS

VESSELS	SCI	TECH	GRAD	STU/ OBS	TOTAL	NON-OPER UNOLS	NON-UNOLS	FED	FRGN	TOTAL
KNORR	63.00	101.00	10.00	10.00	184.00	8.00	12.00	1.00	14.00	35.00
MELVILLE	31.00	116.00	27.00	48.00	222.00	15.00	44.00	2.00	29.00	90.00
T.THOMPSON	93.00	110.00	53.00	12.00	268.00	50.00	14.00	15.00	1.00	80
EWING	59.00	89.00	8.00	4.00	160.00	2.00	9.00	.00	14.00	25
MOANA WAVE	97.00	197.00	74.00	51.00	419.00	29.00	47.00	15.00	18.00	109
ATLANTIS II	262.00	250.00	59.00	34.00	587.00	107.00	81.00	10.00	143.00	341
T. WASHINGTON	15.00	30.00	5.00	4.00	54.00	1.00	.00	.00	.00	1
WECOMA	89.00	118.00	56.00	53.00	316.00	4.00	35.00	7.00	14.00	60
ENDEAVOR	85.00	49.00	29.00	3.00	166.00	18.00	18.00	7.00	6.00	49
OCEANUS	90.00	84.00	24.00	6.00	204.00	1.00	38.00	25.00	6.00	70
SEWARD JOHNSON	139.00	36.00	47.00	77.00	299.00	66.00	118.00	43.00	5.00	232
GYRE	71.00	106.00	78.00	31.00	286.00	15.00	25.00	7.00	6.00	53
NEW HORIZON	74.00	105.00	60.00	23.00	262.00	44.00	17.00	14.00	11.00	86
ISELIN	97.00	64.00	45.00	10.00	215.00	59.00	20.00	4.00	20.00	103
EDWIN LINK	136.00	24.00	62.00	16.00	238.00	37.00	78.00	13.00	20.00	148
POINT SUR	144.00	90.00	264.00	28.00	524.00	208.00	57.00	21.00	3.00	289
CAPE HATTERAS	71.00	66.00	71.00	14.00	222.00	75.00	50.00	10.00	.00	135
ALPHA HELIX	71.00	57.00	33.00	14.00	175.00	9.00	52.00	1.00	30.00	92
ROBERT G. SPROUL	89.00	173.00	48.00	30.00	340.00	8.00	55.00	32.00	2.00	97
CAPE HENLOPEN	249.00	51.00	26.00	30.00	356.00	193.00	34.00	5.00	.00	232
WEATHERBIRD II	175.00	287.00	21.00	66.00	549.00	2.00	33.00	3.00	4.00	42
PELICAN	117.00	111.00	54.00	40.00	322.00	41.00	77.00	14.00	12.00	144
LAURENTIAN	52.00	29.00	28.00	113.00	222.00	22.00	88.00	1.00	1.00	112
LONGHORN	25.00	22.00	75.00	35.00	157.00	3.00	30.00	4.00	.00	37
BLUE FIN	52.00	89.00	18.00	7.00	166.00	6.00	4.00	.00	7.00	17
CLIFFORD A. BARNES	53.00	34.00	56.00	49.00	192.00	.00	1.00	.00	.00	1
CALANUS	24.00	10.00	35.00	36.00	105.00	12.00	3.00	15.00	.00	30
TOTALS	**2523.00**	**2498.00**	**1366.00**	**844.00**	**7210.00**	**1035.00**	**1040.00**	**269.00**	**366.00**	**2710.00**
PERCENT	**34.99**	**34.65**	**18.95**	**11.71**	**100.00**	**38.19**	**38.38**	**9.93**	**13.51**	**100.00**

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

SEA DAY PROFILES

AGENCY	PHYS. OCEAN	ACOUS-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	659.00	.00	775.50	708.50	.00	10.00	.00	787.50	45.00	.00	.00	.00	.00	188.00	3173.50
Office of Naval Research	234.00	3.00	66.00	21.00	.00	.00	.00	50.00	.00	18.00	16.00	.00	.00	24.00	432.00
U.S. Geological Survey	7.00	.00	.00	.00	.00	.00	.00	30.00	.00	.00	.00	.00	.00	.00	37.00
Bureau of Land Management/Minerals Mgmt. Service	52.00	.00	1.00	41.00	.00	.00	6.00	11.50	.00	.00	.00	.00	.00	.00	111.50
National Oceanic and Atmospheric Administration	16.00	.00	54.00	83.00	12.00	.00	.00	11.00	.00	.00	6.00	.00	5.00	22.00	209.00
Department of Energy (ERDA)	5.00	.00	9.00	1.00	.00	.00	.00	6.00	.00	.00	.00	.00	.00	.00	21.00
Other Federal	18.00	.00	2.00	8.00	.00	.00	.00	.00	1.00	.00	.00	.00	1.00	6.00	36.00
State/Municipal	22.00	.00	16.00	98.00	.00	8.00	.00	38.00	.00	.00	23.00	.00	4.00	135.00	344.00
Other/Private	51.00	.00	15.00	46.00	.00	.00	4.00	5.00	.00	.00	1.00	.00	19.00	25.00	166.00
TOTALS	1064.00	3.00	938.50	1006.50	12.00	18.00	10.00	939.00	46.00	18.00	46.00	.00	29.00	400.00	4530.00
PERCENT	23.49	.07	20.72	22.22	.26	.40	.22	20.73	1.02	.40	1.02	.00	.64	8.83	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

SEA DAY PROFILES

INSTITUTION	PHYS. OCEAN	ACOUS-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	165.00	.00	.00	34.00	.00	.00	.00	39.00	.00	15.00	.00	.00	.00	10.00	263.00
University of Alaska	48.00	.00	37.00	49.00	.00	.00	10.00	.00	.00	.00	1.00	.00	.00	.00	145.00
University of Washington	7.00	.00	207.00	73.00	.00	10.00	.00	2.00	.00	.00	12.00	.00	.00	43.00	354.00
Oregon State University	107.00	.00	37.00	35.00	.00	.00	.00	35.00	.00	.00	.00	.00	.00	17.00	231.00
Scripps Institution of Oceanography	67.00	3.00	42.00	137.00	.00	.00	.00	259.00	1.00	3.00	1.00	.00	.00	60.00	573.00
Texas A & M University	15.00	.00	13.00	22.00	.00	.00	.00	22.00	.00	.00	.00	.00	.00	58.00	130.00
University of Texas	1.00	.00	42.00	19.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11.00	73.00
University of Miami, RSMAS	115.00	.00	33.00	72.00	.00	.00	.00	63.00	.00	.00	.00	.00	.00	1.00	284.00
University of Georgia, Skidaway	5.00	.00	17.00	63.00	.00	1.00	.00	.00	.00	.00	.00	.00	22.00	.00	108.00
Duke University/University of North Carolina	9.00	.00	17.00	57.00	.00	.00	.00	106.00	.00	.00	.00	.00	.00	.00	189.00
University of Delaware	32.00	.00	119.00	11.00	.00	.00	.00	7.00	.00	.00	.00	.00	.00	.00	169.00
Lamont-Doherty Earth Observatory	.00	.00	.00	.00	.00	.00	.00	195.00	45.00	.00	.00	.00	.00	29.00	269.00
University of Rhode Island	74.00	.00	45.50	33.00	.00	.00	.00	35.00	.00	.00	.00	.00	.00	.00	187.50
Woods Hole Oceanographic Institution	322.00	.00	103.00	48.00	.00	.00	.00	119.00	.00	.00	.00	.00	.00	83.00	675.00
University of Michigan	1.00	.00	.00	28.00	.00	.00	.00	.00	.00	.00	.00	.00	4.00	21.00	54.00
Moss Landing Marine Laboratory	57.00	.00	4.00	85.00	.00	.00	.00	.00	.00	.00	26.00	.00	.00	1.00	173.00
Louisiana Universities Marine Consortium	18.00	.00	34.00	101.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.00	160.00
Harbor Branch Oceanographic Institution	20.00	.00	20.00	139.50	12.00	7.00	.00	57.00	.00	.00	6.00	.00	3.00	51.00	315.50
Bermuda Biological Station for Research	1.00	.00	168.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.00	177.00
TOTALS	1064.00	3.00	938.50	1006.50	12.00	18.00	10.00	939.00	46.00	18.00	46.00	.00	29.00	400.00	4530.00
PERCENT	23.49	.07	20.72	22.22	.26	.40	.22	20.73	1.02	.40	1.02	.00	.64	8.83	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

SEA DAY PROFILES

VESSELS	PHYS. OCEAN	ACOUS-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
KNORR	121.00	.00	66.00	.00	.00	.00	.00	32.00	.00	.00	.00	.00	.00	23.00	242.00
MELVILLE	.00	.00	.00	.00	.00	.00	.00	131.00	1.00	.00	.00	.00	.00	30.00	162.00
T. THOMPSON	7.00	.00	176.00	35.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	36.00	254.00
EWING	.00	.00	.00	.00	.00	.00	.00	195.00	45.00	.00	.00	.00	.00	29.00	269.00
MOANA WAVE	165.00	.00	.00	34.00	.00	.00	.00	39.00	.00	15.00	.00	.00	.00	10.00	263.00
ATLANTIS II	49.00	.00	.00	48.00	.00	.00	.00	41.00	.00	.00	.00	.00	.00	19.00	157.00
T. WASHINGTON	.00	.00	.00	.00	.00	.00	.00	103.00	.00	.00	.00	.00	.00	.00	103.00
WECOMA	107.00	.00	37.00	35.00	.00	.00	.00	35.00	.00	.00	.00	.00	.00	17.00	231.00
ENDEAVOR	74.00	.00	45.50	33.00	.00	.00	.00	35.00	.00	.00	.00	.00	.00	.00	187.50
OCEANUS	152.00	.00	37.00	.00	.00	.00	.00	46.00	.00	.00	.00	.00	.00	41.00	276.00
SEWARD JOHNSON	20.00	.00	20.00	52.00	12.00	.00	.00	34.00	.00	.00	5.00	.00	3.00	42.00	188.00
GYRE	15.00	.00	13.00	22.00	.00	.00	.00	22.00	.00	.00	.00	.00	.00	58.00	130.00
NEW HORIZON	31.00	.00	34.00	86.00	.00	.00	.00	13.00	.00	.00	.00	.00	.00	3.00	167.00
ISELIN	103.00	.00	32.00	59.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	194.00
EDWIN LINK	.00	.00	.00	87.50	.00	7.00	.00	23.00	.00	.00	1.00	.00	.00	9.00	127.50
POINT SUR	57.00	.00	4.00	85.00	.00	.00	.00	.00	.00	.00	26.00	.00	.00	1.00	173.00
CAPE HATTERAS	9.00	.00	17.00	57.00	.00	.00	.00	106.00	.00	.00	.00	.00	.00	.00	189.00
ALPHA HELIX	48.00	.00	37.00	49.00	.00	.00	10.00	.00	.00	.00	1.00	.00	.00	.00	145.00
ROBERT G. SPROUL	36.00	3.00	8.00	51.00	.00	.00	.00	12.00	.00	3.00	1.00	.00	.00	27.00	141.00
CAPE HENLOPEN	32.00	.00	119.00	11.00	.00	.00	.00	7.00	.00	.00	.00	.00	.00	.00	169.00
WEATHERBIRD II	1.00	.00	168.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.00	177.00
PELICAN	18.00	.00	34.00	101.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.00	160.00
LAURENTIAN	1.00	.00	.00	28.00	.00	.00	.00	.00	.00	.00	.00	.00	4.00	21.00	54.00
LONGHORN	1.00	.00	42.00	19.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	11.00	73.00
BLUE FIN	5.00	.00	17.00	63.00	.00	1.00	.00	.00	.00	.00	.00	.00	22.00	.00	108.00
CLIFFORD A. BARNES	.00	.00	31.00	38.00	.00	10.00	.00	2.00	.00	.00	12.00	.00	.00	7.00	100.00
CALANUS	12.00	.00	1.00	13.00	.00	.00	.00	63.00	.00	.00	.00	.00	.00	1.00	90.00
TOTALS	1064.00	3.00	938.50	1006.50	12.00	18.00	10.00	939.00	46.00	18.00	46.00	.00	29.00	400.00	4530.00
PERCENT	23.49	.07	20.72	22.22	.26	.40	.22	20.73	1.02	.40	1.02	.00	.64	8.83	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

SEA DAYS CHARGED BY SPONSOR

INSTITUTION	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
University of Hawaii	207.00	56.00	.00	.00	.00	.00	.00	.00	.00	263.00
University of Alaska	102.00	.00	.00	6.00	.00	.00	.00	1.00	36.00	145.00
University of Washington	297.00	13.00	1.00	.00	.00	.00	.00	43.00	.00	354.00
Oregon State University	196.00	35.00	.00	.00	.00	.00	.00	.00	.00	231.00
Scripps Institution of Oceanography	434.00	51.00	7.00	19.00	4.00	.00	9.00	49.00	.00	573.00
Texas A & M University	51.00	.00	.00	15.00	.00	.00	.00	64.00	.00	130.00
University of Texas	14.00	.00	.00	.00	29.00	.00	.00	30.00	.00	73.00
University of Miami, RSMAS	250.00	19.00	.00	.00	6.00	.00	8.00	1.00	.00	284.00
University of Georgia, Skidaway	72.00	.00	.00	.00	2.00	6.00	3.00	6.00	19.00	108.00
Duke University/University of North Carolina	156.00	.00	14.00	.00	.00	6.00	.00	13.00	.00	189.00
University of Delaware	140.00	3.00	.00	10.00	.00	.00	4.00	.00	12.00	169.00
Lamont-Doherty Earth Observatory	231.00	36.00	.00	.00	.00	.00	.00	.00	2.00	269.00
University of Rhode Island	144.00	32.00	.00	11.50	.00	.00	.00	.00	.00	187.50
Woods Hole Oceanographic Institution	523.00	99.00	15.00	.00	23.00	.00	.00	15.00	.00	675.00
University of Michigan	28.00	.00	.00	.00	.00	.00	.00	26.00	.00	54.00
Moss Landing Marine Laboratory	79.00	60.00	.00	.00	3.00	.00	10.00	10.00	11.00	173.00
Louisiana Universities Marine Consortium	27.00	.00	.00	50.00	64.00	9.00	2.00	8.00	.00	160.00
Harbor Branch Oceanographic Institution	54.50	28.00	.00	.00	78.00	.00	.00	78.00	77.00	315.50
Bermuda Biological Station for Research	168.00	.00	.00	.00	.00	.00	.00	.00	9.00	177.00
TOTALS	3173.50	432.00	37.00	111.50	209.00	21.00	36.00	344.00	166.00	4530.00
PERCENT	70.06	9.54	.82	2.46	4.61	.46	.79	7.59	3.66	100.00

UNOLS RESEARCH VESSELS FLEET OPERATIONS - 1992 -

UNOLS OFFICE

SEA DAYS CHARGED BY SPONSOR

DATE: 9/23/93

VESSELS	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
KNORR	279 FT	242.00	.00	.00	.00	.00	.00	.00	.00	.00	242.00
MELVILLE	279 FT	129.00	22.00	.00	.00	.00	.00	1.00	10.00	.00	162.00
T. THOMPSON	274 FT	216.00	7.00	.00	.00	.00	.00	.00	31.00	.00	254.00
EWING	239 FT	231.00	36.00	.00	.00	.00	.00	.00	.00	2.00	269.00
MOANA WAVE	210 FT	207.00	56.00	.00	.00	.00	.00	.00	.00	.00	263.00
ATLANTIS II	210 FT	130.00	4.00	.00	.00	23.00	.00	.00	.00	.00	157.00
T. WASHINGTON	209 FT	92.00	9.00	.00	.00	.00	.00	.00	2.00	.00	103.00
WECOMA	177 FT	196.00	35.00	.00	.00	.00	.00	.00	.00	.00	231.00
ENDEAVOR	177 FT	144.00	32.00	.00	11.50	.00	.00	.00	.00	.00	187.50
OCEANUS	177 FT	151.00	95.00	15.00	.00	.00	.00	.00	15.00	.00	276.00
SEWARD JOHNSON	176 FT	36.00	28.00	.00	.00	78.00	.00	.00	2.00	44.00	188.00
GYRE	174 FT	51.00	.00	.00	15.00	.00	.00	.00	64.00	.00	130.00
NEW HORIZON	170 FT	122.00	13.00	.00	.00	.00	.00	1.00	31.00	.00	167.00
ISELIN	170 FT	185.00	9.00	.00	.00	.00	.00	.00	.00	.00	194.00
EDWIN LINK	168 FT	18.50	.00	.00	.00	.00	.00	.00	76.00	33.00	127.50
POINT SUR	135 FT	79.00	60.00	.00	.00	3.00	.00	10.00	10.00	11.00	173.00
CAPE HATTERAS	135 FT	156.00	.00	14.00	.00	.00	6.00	.00	13.00	.00	189.00
ALPHA HELIX	133 FT	102.00	.00	.00	6.00	.00	.00	.00	1.00	36.00	145.00
ROBERT G. SPROUL	125 FT	91.00	7.00	7.00	19.00	4.00	.00	7.00	6.00	.00	141.00
CAPE HENLOPEN	120 FT	140.00	3.00	.00	10.00	.00	.00	4.00	.00	12.00	169.00
WEATHERBIRD II	115 FT	168.00	.00	.00	.00	.00	.00	.00	.00	9.00	177.00
PELICAN	105 FT	27.00	.00	.00	50.00	64.00	9.00	2.00	8.00	.00	160.00
LAURENTIAN	80 FT	28.00	.00	.00	.00	.00	.00	.00	26.00	.00	54.00
LONGHORN	80 FT	14.00	.00	.00	.00	29.00	.00	.00	30.00	.00	73.00
BLUE FIN	72 FT	72.00	.00	.00	.00	2.00	6.00	3.00	6.00	19.00	108.00
CLIFFORD A. BARNES	65 FT	81.00	6.00	1.00	.00	.00	.00	.00	12.00	.00	100.00
CALANUS	64 FT	65.00	10.00	.00	.00	6.00	.00	8.00	1.00	.00	90.00
TOTALS		3173.50	432.00	37.00	111.50	209.00	21.00	36.00	344.00	166.00	4530.00
PERCENT		70.06	9.54	.82	2.46	4.61	.46	.79	7.59	3.66	100.00

APPENDIX XIV

OCTOBER, 1993

UNOLS COUNCIL ELECTIONS

The UNOLS Nominating Committee has assembled the following slate of candidates for the UNOLS Council positions to be filled at the Annual Meeting. This election will be held in accordance with the UNOLS Charter as readopted September 1992. The current membership of the Council and a UNOLS Directory are attached.

Nominations are invited from the floor during the Annual Meeting. Such nominations may be made only by designated representatives of UNOLS institutions, and must be accompanied by the nominee's concurrence and qualifications. The nominee must meet the requirements of the UNOLS Council position he/she is nominated to fill.

UNOLS COUNCIL SLATE

COUNCIL MEMBER (3 year term) - representative from UNOLS Operator Member Institution:

Robert Knox	Scripps, University of California, San Diego
Thomas Royer	University of Alaska

COUNCIL MEMBER (3 year term) - individual affiliated with any UNOLS Member Institution:

David Karl	University of Hawaii
Nancy Marcus	Florida State University

VITAE

Robert Knox

Associate Director, SIO Ship Operations and Marine Technical Support
Research Oceanographer, Physical Oceanography Research Division, Scripps Institution of Oceanography, University of California, San Diego
Physical Oceanography; Global and equatorial ocean circulation and acoustic remote sensing.

Thomas Royer

Professor of Marine Science, Institute of Marine Science, University of Alaska
Physical Oceanography; Circulation of North Pacific Ocean and Air/Sea Interactions.

David Karl

Professor of Oceanography, Department of Oceanography, SOEST, University of Hawaii
Biological Oceanography; Bio-geochemical cycling, Marine microbiology and Ecology of deep-sea hydrothermal vents.

Nancy Marcus

Professor of Oceanography, Department of Oceanography, Florida State University
Director of FSU Marine Laboratory
Biological Oceanography; Ecology of Zooplankton

UNOLS COUNCIL

1992-1993

Member	Term
G.W. Brass, U/Miami, Chair	10/90-10/94
P. Betzer, U/So Fl, V-Chair	10/90-10/94
D.E. Hayes, L-DEO	10/91-10/94
R. Janke, Skidaway	10/91-10/94
D.M. Karl, U/Hawaii	10/90-10/93
R. Knox, SIO	10/91-10/93
C.A. Nittrouer, SUNY Stony Brook	10/91-10/94
R. Pittenger, WHOI	09/92-09/95
R. Wall, U/Maine	09/92-09/95
R. Findley, U/Miami, ex-officio	10/92-10/9X RVTEC CH
P.J. Fox, URI, ex-officio	07/92- 10/9X DESSC CH
M.G. Langseth, L-DEO, ex-officio	10/90-10/9X FIC CH
K.P. Palfrey, OSU, ex-officio	10/90-10/9X SSC CH
M. Prince, MLML, ex-officio	10/88-10/9X RVOC CH

Terms Expiring:

Robert Knox
David Karl