UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

UNOLS Annual Meeting

Summary Report

17 September 1998

National Science Foundation, Room 1235
4201 Wilson Boulevard
Arlington, VA

UNOLS ANNUAL MEETING REPORT
Room 1235
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Thursday 17 September 1998

INTRODUCTION - The UNOLS Annual meeting was held in Room 1235 of the National Science Foundation on 17 September 1998. The items of the agenda, ***Appendix I,*** were addressed in the order as reported below. Ken Johnson, UNOLS Chair, called the meeting to order at 0830. The participants of the meeting are listed in ***Appendix II.***

ACCEPTING MINUTES - The minutes from the 18 September 1997 Annual meeting were accepted as written.

KEYNOTE ADDRESS:

Dr. Garrett W. Brass, Executive Director for the Arctic Research Commission, provided the UNOLS Annual Meeting Keynote address on the future of Arctic oceanography. His viewgraphs are included as ***Appendix III.*** Garry opened with a polar projection of the Arctic and explained that the Arctic region is very sensitive to global change. Change is currently being recognized in salinity levels, temperature and the Bering Sea ecosystem. The Arctic has been studied by ships, submarines, aircraft, ice camps and buoys. Access is remote and expensive. The U.S. Navy has made a major contribution to the science effort by making available a nuclear submarine for two months each year in a program named SCICEX. The program started in 1993 with a test cruise then restarted in 1995 under a five-year agreement. This will end in 1999 and, with the retirement of the 637 Sturgeon Class submarine in 2000, the program will likely not continue. Understanding the

bathymetry of the Arctic floor is critical. This year's program included a hull mounted SWATH mapping system to provide multi-channel data. Garry noted that the SCICEX work areas must remain outside of the other countries' EEZs since the work is being conducted from Navy subs.

Aircraft science operations are limited and helicopter operations provide even fewer opportunities. Ice camps have been used in the past with SHEBA completing this year. The future for sustained study of the Arctic rests in icebreakers. HEALY will be on line in the near future to provide access to the Arctic Ocean. The UNOLS Arctic Icebreaker Coordinating Committee has been working closely with the Coast Guard to facilitate scientific access to Arctic science. This committee needs to transition into an expeditionary planning mode.

The Congressional budget for 1999 has included $24M in the NSF budget for Arctic science. If this is signed into law it will make a major difference in being able to work in the Arctic and should provide funding for 200 days of icebreaker time at approximately $20k per day. This funding is new and the cost of Arctic science will not impact the funds available for lower latitude science. The future of submarine science is less clear at this time.

COMMITTEE REPORTS

Research Vessel Operators' Committee (RVOC) - Paul Ljunggren, RVOC Chair, provided the report. Last year the RVOC Annual meeting was held at WHOI and attracted 48 institutions and organizations. Presentations were given on SeaNet as well as a study by The Glosten Associates on regulatory changes and how they affect new construction. Traditional presentations were given by the Safety Committee, along with reports on medical standards, risk management and special reports from other countries' ship operators. The 1998 meeting will be hosted by the University of Hawaii on 4-6 November. Special presentations will be given on the Ship Inspection Program by Jamestown Marine Services and on fleet medical assistance by Medical Advisory Systems. A report on STCW Awareness Training and International Safety Management Code (ISM) by ABS Marine Services is planned. Other activities include a report by the Safety Committee, a review of amendments to the Safety Standards, along with the traditional meeting reports. An election of officers will be held.

DEep Submergence Science Committee (DESSC) - Mike Perfit, outgoing DESSC Chair, provided the report for DESSC. Patty Fryer has been appointed as new DESSC Chair. Robert Embly will be joining DESSC as a new member. ATLANTIS came on line last year and has been operating continuously with a very demanding schedule. It is proving to be an excellent support platform for deep submergence operations. The tethered vehicles have also been in heavy demand. DESSC pushed for expeditionary planning and is now seeing the fruits of that effort with funded programs in the Southern East Pacific Rise, Hawaii and the Indian Ocean. The traditional time series submersible programs continue to be funded also. The community needs to address the issue of how

to pursue expeditionary type research while still supporting the needs of time series programs. NSF is addressing this issue. They have assembled an internal group to review multi-year deep submergence programs. The committee includes Don Heinrichs, Dolly Dieter, Dave Epp, Phil Taylor, and Bruce Malfait.

The DESSC will be looking ahead at long term facilities needs, which include a more robust ROV, and how to best utilize SEA CLIFF. A workshop is being planned for 1999 to address future planning. They hope to identify the community's future science objectives and needs and well as determining what tools will be required to support the science needs.

SEACLIFF was decommissioned in June and transferred (with some support equipment) to WHOI in early August. It is currently in storage at Otis AFB on Cape Cod. The federal agencies have funded an engineering study to be undertaken by WHOI to assess the potential uses of SEACLIFF and costs involved. The results of this study will be made available to the federal agencies and DESSC.

Upgrades to ATLANTIS, ALVIN and Jason continue. All are well integrated and fully employed. WHOI has drafted an "Archiving Policy" that documents the obligations WHOI and PI's have with regard to oceanographic data and samples, as well as visual and digital information obtained using the vehicles and sensors of the National Deep Submergence Facility. DESSC hopes to have the policy approved by the federal agencies and in place in the near future.

Mike presented a series of viewgraphs on ATLANTIS, ALVIN and ROV work in 1998 and the future, see ***Appendix VI.*** The 1998 ATLANTIS geographic work sites were presented as well as a list of the platforms used to support the ROV operations in 1998. A list of funded ALVIN and ROV work for 1999 and beyond was provided. The list is extensive and includes work in the traditional regions as well as the southern East Pacific Rise, Indian Ocean, Hess Deep, Gulf of Alaska, Mid-Atlantic Ridge, Hawaii and the Gulf of Mexico. NOAA NURP use of the National Facility is up in 1998 and is planned to be up in 1999 according to schedules in place at the time of the meeting. Maps showing the work locations and tentative cruise track were displayed. In addition, Mike presented a list of proposed programs for ALVIN and the ROVs for 1999 and beyond. It appears that demand for the vehicles remains high.

Fleet Improvement Committee (FIC) - The FIC report was given by Larry Atkinson, FIC Chair. The FIC is working on Science Mission Requirements (SMRs) to assure new vessels coming on line meet the expectations of seagoing scientists. Two Subcommittees of FIC are currently working on a set of SMRs for an ALPHA HELIX replacement and an East Coast coastal vessel. The ALPHA HELIX replacement SMRs call for a fisheries oceanography capability. Jim Meehan of NOAA/NMFS is a member of the subcommittee working on the SMRs. The SMRs also call for this ship to be ice strengthened. A draft plan is currently under review. The East Coast coastal vessel plans under development include a requirement to carry more scientists, and to handle ROVs and AUVs. The ship

is envisioned to be intermediate in size. FIC has been involved in the review of AGOR 26, the SWATH replacement for MOANA WAVE. The Committee is available to review plans of smaller vessels that may be under consideration throughout the community.

Ship Scheduling Committee (SSC) - Outgoing Chair, Don Moller, provided the presentation for the SSC. Mike Prince has been elected the new chair and Joe Ustach vice chair. The Ship Schedule Review Group met in June to review the draft schedules for 1999. The full Ship Scheduling Committee met this week to firm up the schedules. The major unresolved issue is the funding by NOAA of the GLOBEC and ECOHAB programs, which affect five ship schedules. One ship, KNORR, is scheduled for lay up in 1999. The Intermediate ships have less than optimal schedules.

The SSC approved a change in the scheduling process, which is considered, needed to address the instant communications and the new partnering with NOAA and NAVO. This procedure will delay the posting of draft schedules until late June to allow for more funding information to be known. Prior to the first draft schedule, lists of potential cruises will be distributed by the schedulers. The summer meeting will be held in early July and will be a plenary session with the entire SSC. A meeting of the Ship Scheduling Review Group will follow this. The fall meeting will consist of only the review group. This modestly revised process is designed to smooth out some of the communications problems and produce schedules that are less speculative. The new scheduling strategy will be tried in 1999 for the 2000 ship schedule planning.

Don presented a series of viewgraphs included as ***Appendix V,*** which present the Fleet charge days from 1995 to 1999. ATLANTIS and EWING both are showing full schedules in 1999. Don showed the Fleet charge days by agency. In 1998, the "other" days are high, in part due to the private work scheduled on EWING. A map was presented showing the large ship work areas in 1999. All large ship programs are in the Pacific with the exception of one program in the Atlantic. EWING will support this program.

Research Vessel Technical Enhancement Committee (RVTEC) - John Freitag, RVTEC Chair, provided the report for this committee. RVTEC was established in 1993 to coordinate technical activities and to encourage exchange of equipment and personnel. They maintain listings on the RVTEC website, which inventories the equipment and personnel in the UNOLS Fleet. RVTEC will hold its annual meeting on 19 October followed by the International Marine Technician (IMARTECH) symposium on 20-22 October hosted by Scripps. The meeting is expected to attract over 100 participants from around the world. Marine technicians from the UK, Japan, Australia, Spain, the Netherlands, South Africa, France, Canada and the Canary Islands have already registered. Eight workshops with 30 presentations are planned, as well as an exhibit session at the SIO Birch Aquarium and a tour of MELVILLE.

The RVTEC meeting will include regular business, elections for Chair, Committee reports and selection of a location for next year's RVTEC meeting.

Other RVTEC activity includes its work with the Coast Guard in setting up science systems testing for their icebreaker HEALY.

Arctic Icebreaker Coordinating Committee (AICC) - The AICC report was presented by the AICC Chair, Jim Swift. Jim's viewgraphs are included as ***Appendix VI.*** The AICC is charged with providing scientific oversight on Arctic marine science support on US vessels, primarily those of the US Coast Guard. A goal is to match the science operations aboard Coast Guard Icebreakers with those of UNOLS ships. The Committee is also working on a framework for expeditionary planning. The AICC has been involved in coordinating the science that has gone aboard the Polar Icebreakers for their Science of Opportunity (SOO) cruises this year. Much of this effort was accomplished through the UNOLS homepage utilizing on-line request forms.

MICHAEL HEALY is the newest Coast Guard Icebreaker. It is scheduled for delivery in the summer of 1999. The ship is 420' in length and is planning 240 days of operation per year. It will be homeported in Seattle and the first ice passage is expected in late 1999. Ship shakedown and science systems testing will be conducted in 2000 with the first funded science operations expected in 2001. The AICC and the Coast Guard are expecting international cooperation during Arctic operations.

FEDERAL AGENCY REPORTS

National Science Foundation (NSF) - The NSF report was presented by Don Heinrichs. Don announced the impending retirement of Dick West on 3 October. Dick's programs will be split between Dolly, Sandy and Don for the short run. Reorganization is in order and a replacement will be recruited.

Don provided viewgraphs, which are included as ***Appendix VII.*** The NSF budget request includes an 11.8% increase for OCE. Under the requested budget, the Ocean Sciences Research Support section would receive $127.5M or a 13.7% increase, the Facilities section would receive $56.96M or a 9% increase and the Ocean Drilling Program would receive a 10% increase to $45.93M. Don reviewed the Ocean Sciences priorities in 1999. A continuing resolution is likely until the budget is signed, only then will the actual budget be known.

Don reported that a big activity of the year has been the NSF Academic Research Fleet Review. The Committee, headed by Dr. Roland Schmitt, has met twice so far. The first meeting, held in June at NSF, was primarily to provide the committee with background information on UNOLS and NSF programs associated with the Fleet. The second meeting was held in September at Scripps Institution of Oceanography. The committee visited ATLANTIS and REVELLE and received briefings on science drivers including future trends. They also heard from other research ship operations such as NOAA, OPP, NAVO, Canadian Coast Guard and the UK NERC program. A third meeting is scheduled for the University of Rhode Island on 2-3 December. The Committee will hear the report

of financial consultant Bill Humphreys. Much of the third meeting will be a closed session to begin writing up the report. The Committee's report should be out in the early part of 1999.

Don presented view graphs showing the both the total and NSF ship days by class for the period 1988-1998. The total days show a modest increase while the NSF use shows a downward trend.

Also presented were a series of graphs depicting the NSF proposal requests, awards and declines over the same ten-year period. Separate graphs were included for total requests, requests by discipline and requests for both sea-going proposals and non-sea going proposals. The four large disciplinary programs in the NSF Ocean Sciences Research Section - Physical Oceanography, Biological Oceanography, Marine Geology and Geophysics, and Chemical Oceanography collectively, represent approximately 85% of the research funds in the division. The number of awards for proposals with ship requests over the ten-year period was reasonably constant. The overall success rates for the four disciplinary proposals and success rates for proposals with ship requests and without ship requests are all approximately 25% for 1998. Over the ten-year period, it appears that the success rate is showing a slightly downward trend. These graphs are included in ***Appendix VII.*** *[Also included in that Appendix is a subsequent analysis of the same data by program and by seagoing/non-seagoing proposals, showing some success-rate biases in favor of non-seagoing proposals in certain disciplinary programs.]*

Office of Naval Research (ONR) – Sujata Millick presented the ONR report. Ocean Science funding is expected to be $75M for 6.1, $10-15M for 6.2 and $10M for NOPP. ONR provides an 80/20 split for sea going projects with 80% of ship costs provided from Facilities and 20% from the science programs. In the past, the facilities budget has been roughly $4.5 M to $5M. The 1999 facilities budget is expected to be approximately $5.6 M. The added $600K is to support ship time for 6.2 programs. This will be a new type of work for the UNOLS Fleet. Andy Silver will be returning to work with the Navy labs with Tim Pfeiffer to be his replacement.

Naval Oceanographic Office (NAVO) - Commander Jim Trees provided the report for NAVO. His viewgraphs are included as *Appendix VIII.* Jim's viewgraphs reflect the NAVO operations accomplished using UNOLS ships. This includes gravity surveys, physical oceanography observations and Fleet training area work. NAVO will be using 431 days of UNOLS ship time in 1998 and anticipates using 460 days in 1999. The 1998 and 1999 work will be done using eight ships from seven institutions. Funding each year to support the NAVO operations has been $7.5M. Jim reports this to be a very successful program. 1999 could potentially be the last year for NAVO work on UNOLS ships. Various UNOLS member representatives commented on the success of the partnership between UNOLS. It was suggested that efforts should be made to continue the partnership.

Oceanographer of the Navy (OON) - Pat Dennis gave the OON report. The Navy's newest oceanographic ship of the TAG 60 class is TAG 64 and is named BRUCE HEEZEN. The ship was launched in January. TAG 65 is in the 1999 budget and should start construction at the end of the year. Pat announced that Norm Cherkis is retiring from NRL.

National Oceanic and Atmospheric Administration (NOAA) – Commander Beth White gave the NOAA presentation. Dave Evans has been named the new administrator for OAR. Alan Thomas has moved to the Office of Global Change. Louisa Koch will fill Dave Evans' position as the Deputy for OAR. Scott Gudes has been named Deputy Undersecretary for NOAA. OAR expects to be providing $2.6-3M in funding for UNOLS charters in 1999. This number could double in 2000 if the requested budget is funded.

United States Coast Guard (USCG) - Jon Berkson provided the report for the USCG. HEALY is now scheduled for delivery 30 June 1999. The first planned funded science is scheduled for 2001. Plans call for the systems testing trials to be conducted in four phases. Phase 1 will be open water testing to include SeaBeam tests; Phase 2 will be a transit; Phase 3 is to test the ice breaking efficiency of the ship and Phase 4 will be the high latitude science testing. The USCG has established a new web site for HEALY <http://www.uscg.mil/hq/g-a/healy/>. A 30-meter coring arrangement has been funded for HEALY. Both Polar Sea and Polar Star have deployed to the Arctic this year. Polar Star provided support for the SHEBA program. OMB has instructed that the Coast Guard seek full reimbursement for conducting science on HEALY. This ruling is being questioned and is yet to be resolved.

Department of State (DOS) - Elizabeth Maruschak has been hired to work with Tom Cocke and provided the presentation for DOS. She is presently working part time but expects to work full time with support from NOAA and ONR. Liz will be working on communications including increased use of the Web.

AGOR 26 Construction Report - Robert Hinton, now employed by the University of Hawaii, provided a report on the status of AGOR 26. His viewgraphs are included as ***Appendix IX***. The AGOR 26 project has been funded for $45M to build a SWATH vessel. Robert provided an organizational chart showing all of the parties involved in the project. Lockheed Martin has teamed with Ingalls Shipyard to design and build the ship. The process includes Phase I for ship design and Phase II for construction. Phase I is in progress. The design process started with the UNOLS FIC Science Mission Requirement statement. A web site has been established, known as the Vault, which provides a status of the design. A matrix showing the SWATH's capabilities was provided. The University of Hawaii identified eleven mission descriptions for research in the central Pacific. These missions were also put into a matrix and the requirements needed to match the missions were identified. Lockheed/Martin has developed a notional concept layout to meet the SMRs. The current design has a displacement of 2370 LT. To meet the requirement for range, a variable draft has been recommended. The FIC met in Sunnyvale over the

summer to review Lockheed/Martin's progress on the design. Robert invited the community to provide their input on the notional design.

Robert provided a table showing a comparison of specifications for AGOR 24, UNOLS SWATH '97 SMRs, RFP desired capabilities, Lockheed/Martin design, and the KAIYO design. Initial cost estimates from Ingalls for construction of the SWATH are high. Lockheed/Martin plans to see if any other yards might be interested in bidding on the construction. They believe that there are yards that can build the ship and remain within budget. Robert noted that the big cost drivers are not related to the SMRs. The major cost driver for the ship is the size needed to meet the Sea State requirements. By reducing the ship's size, the mission of the ship would be limited to near-island operations.

The ship is scheduled for delivery in 2001 and ready for operations by the end of that year.

SeaNet Update - Ellen Kappel provided a review of the SeaNet project. Ellen's view graphs are included as ***Appendix X***. The purpose of SeaNet is to extend the Internet to the oceanographic fleet. It has the ability to transfer large data files through batching. The program was funded by ONR with NOPP funds. The two-year funding, which began on August 1, 1997, was awarded to a consortium consisting of Joint Oceanographic Institutions, WHOI, L-DEO, Naval Post Graduate School, and OMNET. The first ships to be outfitted with SeaNet are ATLANTIS, EWING, MELVILLE, PELICAN and SEWARD JOHNSON. These ships were selected by a review committee from eight proposals. The review committee consisted of two people from RVOC, one person from RVTEC and one person from NOAA's Internet at Sea group.

Ellen reviewed the SeaNet installation status and schedule. In September, SeaNet was partially installed on ATLANTIS for beta testing of the system. The official turn-on of the SeaNet system is planned for January 1999.

COMSAT will provide OMNET with detailed, electronic billing information for each SeaNet unit. OMNET will bill for all INMARSAT use that goes through SeaNet. The first year of operation will be paid through the NOPP grant, however, dummy bills will be sent out to develop a budgeting track record. OMNET will be able to itemize billing by project, individual or account.

UNOLS Charter Revision - The UNOLS Charter requires a quorum of two thirds of the membership for a vote on charter revisions. A quorum did not exist at the meeting necessitating a mail vote for changing the Charter. The proposed revisions to the Charter will be mailed to the UNOLS member representatives along with a ballot for voting.

Application for Membership- Two institutions and two consortiums applied for UNOLS membership. The two institutions applying, University of California Santa Cruz and University of Minnesota Duluth were approved as UNOLS Members. The two consortium membership applications, Southern California Marine Institute and New Jersey Marine Sciences Consortium were deferred. The reason for deferral revolved around the

UNOLS Charter revision, which could not be voted on due to a lack of a quorum. The proposed revisions to the Charter address the issue of membership by consortia. Both consortium applications will be re-evaluated after the Charter revisions have been accepted or rejected.

It was noted that the application form for becoming a UNOLS member is too brief. It was recommended that it be revised to require the applicant to provide additional information about their institution and marine programs.

UNOLS Elections - The Nominating Committee (Dennis Hansell, Chair; Peter Lonsdale; and Clare Reimers) offered the following slate for election to the UNOLS Council:

UNOLS Council Chair (2 year term)	Dr. Robert Knox
UNOLS Council Vice Chair (2 year term)	Dr. Thomas Royer
UNOLS Council Member (3 year term) At Large	Dr. Eric Firing Dr. Thomas Lee Dr. Marsh Youngbluth
UNOLS Council Member (3 year term) Non operator	Dr. James Bauer Mr. Alessandro Bocconcelli Dr. Charles Flagg

Special Council Slate (In the event that a Council Member is elected as Chair or Vice Chair thereby vacating his/her seat as a Council Member)

Dr. William Bryant
Dr. Timothy Cowles
Dr. Daniel Fornari
Dr. John Tochko

There were no nominations from the floor. UNOLS member representatives present at the meeting voted. Elected were:

UNOLS Chair	Dr. Robert Knox
UNOLS Vice Chair	Dr. Thomas Royer
UNOLS Council Member (At large)	Dr. Thomas Lee
UNOLS Council Member (Non operator)	Dr. Charles Flagg
Special Slate	Dr. Timothy Cowles

Appreciation to the outgoing Council members, Mike Perfit, Don Moller, Dick Pittenger and Bob Wall, was expressed for their dedication to UNOLS activities over the years.

ISSUES BEFORE UNOLS:

NSF Academic Fleet Review – Ken Johnson gave a brief recap of the review. Don Heinrichs gave a full report earlier in the meeting.

National Ocean Conference – Ken Johnson reported that he and Jack attended the National Ocean Conference held in June in Monterey. It was well attended and brought the attention of the highest levels of Government with the President attending.

UNOLS Town Hall Meeting and Future Public Outreach Plans – Ken reported that a UNOLS Town Hall meeting was held in February at the Ocean Sciences meeting in San Diego. The meeting was lightly attended, but those who did attend provided interesting comments and input.

There was discussion on how UNOLS could increase public outreach programs. It was suggested that customer surveys be implemented on a regular basis. Since NSF has plans to conduct a survey as part of their academic fleet review, it was decided to wait until the results are available before conducting a new survey.

NOPP Status/CORE Activities – Terry Schaff gave a brief summary of the status of NOPP and other CORE issues of interest to UNOLS. The 1999 NOPP funds look to be on track. They will include $7.5M to support fleet operations for NAVO programs. A request for proposals for the remaining funds is expected to be sent out in the next few weeks.

Terry continued by reporting that the National Oceans Act recommends a Presidential Commission on the ocean. It is expected that the commission's study will cost $4M and will last approximately a year and a half. They will look at the existing laws and policies of the seas. They will have a very broad mandate. The commission has not been identified. CORE has been contacting their membership for suggestions.

NOAA Fisheries Needs - The Southwest Fisheries of NOAA/NMFS has opened discussions with WHOI and SIO investigating the possibility of whether KNORR and or MELVILLE could being outfitted for fisheries work to do their AMLR work off Antarctic. Southwest Fisheries is looking for a five-year commitment of 70-100 days per year for this project. Negotiations are continuing. The program has the potential to offer a healthy partnering between academia and NOAA fisheries programs.

SEA CLIFF – SEA CLIFF has been decommissioned and delivered to WHOI. See comments in the DESSC report above for additional details.

ATV Plans – ATV will not be retired in 1998. It will remain with the Navy's SEBDEVRON 5.

Improvements to UNOLS Ship Scheduling Process - In addition to the plans to modify the scheduling process as discussed in the SSC report, UNOLS has also upgraded the Ship Time Request Form. It will soon be linked to a world chart that will archive each request accessible through a block at the geographic location where the work is to be performed. Further, a ship scheduling web format is under construction. This form, when submitted by the ship schedulers will develop cruise tracks that are displayed on a world chart. All of these changes are scheduled to come on-line in the next six months.

RVOC Safety Video - An RVOC safety video has been produced and is being distributed to each of the UNOLS institutions operating ships. The video is designed to provide an orientation for the science parties prior to each cruise.

USCG Regulations and their impact on Crewing Requirements and Ship Construction - UNOLS is awaiting a report from Glosten Associates on the new USCG and international regulations and how these impact crew requirements and new ship construction. The report has been briefed to both the RVOC and FIC. The new changes will require an increase in training and management oversight; however, additional crewing is probably not a requirement.

AGOR Z-Drive Thruster Update - Dan Schwartz provided an update on the gear problems of the AGOR Z-drives. Historical data suggests that the SCR electric motors can emit transients that spike up the torque on the gear. Some currently installed gears are considered to be at a moderate risk for failure. These gears had been purchased from a subcontractor that is no longer used. Spare gears are available for the AGORs in an event of a failure. New gears have a higher standard of quality testing by the factory. KNORR is presently operating with a de-rated starboard system until new gears are installed. There is a new technique, laser scanning, available for checking the z-drive lubricating oil for debris. The laser scanning is very sensitive to zinc, metals, etc that might be in the oil and should be able to send out warning signals well in advance of a failure.

New Ship Construction - AGOR 26 is currently in the design phase as reported by Robert Hinton. The shipyard has been selected for construction of Skidaway's new ship, **SAVANNAH**. SAVANNAH will replace BLUE FIN. The ship should be ready for operation in 2000. The design has been selected for the **CALANUS** replacement. Model tests have been completed and the final design should be completed by the end of September. The design calls for a catamaran. A bid package for construction of this ship is expected out in October.

In other, non-UNOLS ship news, Florida Institute of Oceanography has plans for the replacement of **SUN COASTER**. The University of Connecticut will soon complete construction of their new research vessel, **CONNECTICUT**. **BLUE HERON**, at the University of Minnesota, Duluth, has been operating successfully and may apply to be a UNOLS vessel. WHOI has been working on a design for a 120' SWATH vessel. Model testing analysis is completed. The ship is designed to operate in a Sea State 5. Funds have yet to be identified for its construction.

UNOLS Dues - Jack Bash reported that the balance of UNOLS dues for 1997 was $3,803.86. Dues collected for 1998 were $1400. Funds expended to date in 1998 were $1104.53. The current balance is $4,099.33.

UNOLS Office Transfer - The UNOLS Office is scheduled to transfer from the University of Rhode Island on 30 April 2000. The Chair will solicit "letters-of-intent" from UNOLS Operating institutions. Responses are due by 30 October 1998. The Chair will invite proposals from interested institutions in the fall and will appoint an evaluation committee from non-conflicting members of UNOLS. Proposals will be due in winter 1999. An evaluation period will follow. The evaluation committee will forward their recommendations to the UNOLS Chair by 30 April 1999. In June/July the Council will forward their recommendation to the membership for concurrence. The successful institution will be notified by 6 August 1999. The UNOLS Office will be established at the new host institution 1 May 2000.

Appointments - Ken Johnson announced the Committee appointments made in 1998:

AICC:	None
DESSC:	Patty Fryer (DESSC Chair), Bob Embly
SSC:	Mike Prince (SSC Chair), Joe Ustach (Vice Chair)
RVOC:	None
RVTEC:	None
FIC:	Chris Measures

Farewell and Thanks - Jack Bash presented Ken Johnson with a long glass on behalf of the UNOLS Community and thanked him for his years of service as UNOLS Chair.

Adjournment - The meeting was adjourned at 1530.

APPENDIX I

UNOLS ANNUAL MEETING

8:30 A.M., Thursday, 17 September 1998
National Science Foundation, Room 1235
4201 Wilson Boulevard
Arlington, VA

Introduction and Welcome: Ken Johnson, UNOLS Chair will call the meeting to order and report on 1997-1998 activities, current issues and issues continuing into 1999.

Accept Minutes of the 1997 Annual Meeting.

KEYNOTE ADDRESS - Dr. Garrett W. Brass, Executive Director for the Arctic Research Commission, will address the future of Arctic funding.

COMMITTEE REPORTS

Research Vessel Operators' Committee (RVOC) - Paul Ljunggren, Chair, will review the activities of RVOC for 1997-1998 and plans for the 4-6 November Annual RVOC meeting.

DEep Submergence Science Committee (DESSC) - Mike Perfit, Outgoing Chair, will report on the DESSC activities, 1998 ATLANTIS/ALVIN/ROV operations, and equipment/instrumentation upgrades and improvements for the National Deep Submergence Facility. He will also report on deep submergence operations planned for 1999 and beyond.

Fleet Improvement Committee (FIC) - Larry Atkinson, Chair, will report on the FIC activities in 1998 and plans for the upcoming year including an update on development of Science Mission Requirements.

Ship Scheduling Committee (SSC) - Don Moller, Chair, will review the recommendations of the September Ship Scheduling and Schedule Review meetings. He will summarize the UNOLS ship operation plans and total days for 1999.

Research Vessel Technical Enhancement Committee (RVTEC) - John Freitag, Chair, will report on plans for the RVTEC Annual Meeting scheduled for 19 October and the 1998 International Marine Technician (INMARTECH '98) scheduled for 20-22 October at Scripps Institution of Oceanography.

Arctic Icebreaker Coordinating Committee (AICC) - Jim Swift, Chair, will report on the activities of the AICC in 1998 including the status of science modifications for the USCG Ice Breaker HEALY. He will also review Science of Opportunity operations performed in 1998 and those planned for the future.

FEDERAL AGENCY and CORE REPORTS

Federal Agency Reports - Information from Federal Agencies (DOS, MMS, NAVO, NOAA, NOO, NRL, NSF, ONR, USCG and USGS) on 1998 activities and forecasts for 1998 and beyond.

Consortium for Oceanographic Research and Education - A report on CORE activities of interest to UNOLS will be provided.

12:00 - 1:00 pm Lunch Break 12:00 -1:00 pm

AGOR 26 Construction Report - Robert Hinton of the University of Hawaii will review the status of the AGOR 26 design process and provide information on the vessel's construction plans.

SeaNet Update - Ellen Kappel of the Joint Oceanographic Institution will provide a progress report on the SeaNet project and review plans for its installation onto the selected UNOLS vessels.

Issues Before UNOLS: Various issues of interest to UNOLS Members have arisen during the year. The UNOLS Chair will introduce these issues for discussion:

- NSF Academic Research Fleet Review
- National Ocean Conference
- UNOLS Town Hall Meeting and Future Public Outreach Plans
- NOPA - Status and Outlook
- NOAA's Fishery Needs
- SEA CLIFF Retirement and Future Uses
- ATV Retirement Plans
- Improvements to the UNOLS Ship Scheduling Process
- RVOC Safety Video
- USCG Regulations and their Impact on Crewing Requirements and Ship Construction
- AGOR Z-Drive Thruster Update
- New Ship Construction - Replacement plans for BLUE FIN and CALANUS
- UNOLS Dues Accounting
- UNOLS Office Transfer

UNOLS Members may wish to raise additional issues.

UNOLS Membership Votes: The following issues require a membership vote for approval:

- **UNOLS Charter Revision** - Clare Reimers will review proposed revisions to the UNOLS Charter. A membership vote is required for adoption of the proposed revisions. Enclosed is a copy of the present UNOLS Charter ***(enclosure 1)*** as well as a copy of the proposed revised Charter ***(enclosure 2)***.
- **Application for UNOLS Membership** - The University of California at Santa Cruz has applied for UNOLS Membership. A copy of their application is included in ***enclosure 3***.
- **Application for UNOLS Membership** - Southern California Marine Institute has applied for membership as a UNOLS Institution. A copy of their application is included in ***enclosure 3***.
- **Application for UNOLS Membership** - The New Jersey Marine Sciences Consortium has applied for membership as a UNOLS Institution. A copy of their application is included in ***enclosure 3***.
- **Application for UNOLS Membership** - The University of Minnesota, Duluth has applied for membership as a UNOLS Institution. A copy of their application is included in ***enclosure 3***.

UNOLS Elections: Elections for the following UNOLS Council positions will be held (the slate of nominees is attached as ***enclosure 4***):

- **UNOLS Council Chair,** (2-year term) Operator representative, from among designated UNOLS Operating Institutions.
- **UNOLS Council Vice-Chair,** (2-year term) At-large, affiliated with any Member Institution.
- **UNOLS Council Member,** (3-year term) At-large, affiliated with any Member Institution.
- **UNOLS Council Member,** (3-year term) Non-Operator representative, from among designated UNOLS Non-Operator Institutions.

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

Adjournment

APPENDIX II

Annual Meeting - Sep. 17, 1998

NAME	AFFILIATION	TELEPHONE	FAX	EMAIL ADDRESS
Tim Askew	HBOI	(561) 465-2400 x262	(561) 2116	taskew@hboi.edu
Larry Atkinson	ODU	(757) 683-4926	(757) 683-5550	atkinson@ccpo.odu.edu
John Bash	UNOLS	(401) 874-6825	(401) 874-6167	unols@gso.uri.edu
Jonathan Berkson	USCG	(202) 267-1457	(202) 267-4222	berkson@comdt.uscg.mil
Garry Brass	ARC	(703) 525-0111	(703) 525-0114	g.brass@arctic.gov
Norman Cherkis	NRL	(202) 404-1103	(202) 767-0167	cherkis@qur.nrl.navy.mil
W. Elizabeth Clarke	NMFS	(301) 713-2363		Elizabeth.Clarke@noaa.gov
Cynthia Decker	CORE	(202) 232-3900x265	(202) 332-9751	cdecker@brook.edu
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John Freitag	URI	(401) 874-6579	(401) 874-6578	jfreitag@gso.uri.edu
Linda Goad	U of Michigan	(734-763-5393	(734) 647-2748	lgoad@umich.edu
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Dennis Hansell	BBSRI	(441) 297-1880 x210	(441) 297-8143	dennis@bbsr.edu
Dennis Hayes	LDEO	(914) 365-8470	(914) 365-8156	deph@ldeo.columbia.edu
Frank Herr	ONR	(703) 696-4125	(703) 696-2007	herrf@onr.navy.mil
Don Heinrichs	NSF	(703) 306-1576	(703) 306-0390	dheinric@nsf.gov
Robert Hinton	U of Hawaii	(408) 530-4432		rmhinton@worldnet.att.net
Ken Johnson	MLML	(408) 755-8657	(408) 753-2826	johnson@mlml.clastate.edu
Ellen Kappel	JOI	(301) 229-2709	(301) 229-2709	ekappel@brook.edu
Robert Knox	SIO/UCSD	(619) 534-4729	(619) 535-1817	rknox@ucsd.edu
Richard Lambert	NSF	(703) 306-1580	(703) 306-0390	
Paul Ljunggren	LDEO	(914) 365-8845	(914) 359-6817	pwl@ldeo.columbia.edu
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Russ McDuff	U of Washington	(206) 543-3058	(206) 543-6073	mcduff@ocean.washington.edu

Sujata Millick	ONR	(703) 696-4530	(703) 696-2007	millics@onrhq.onr.navy.mil
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Charles Myer	NSF/OPP	(703) 306-1029	(703) 306-0648	cmyers@nsf.gov
Michael Perfit	U of Florida	(352) 392-2128	(352) 392-9294	perfit@geology.ufl.edu
Timothy Pfeiffer	U of Delaware	(302) 645-4341	(302) 645-4006	pfeiffer@udel.edu
Richard Pittenger	WHOI	(508) 289-2597	(508) 457-2185	rpittenger@whoi.edu
David Powell	U of Miami	(305) 361-4832	(305) 361-4174	dpowell@rsmas.miami.edu
Barbara Prezelin	U CA, SB	(805) 893-2879	(805) 893-4724	barbara@icess.ucsb.edu
Mike Prince	MLML	(831) 633-3534	(831) 633-4580	prince@mlml.calstate.edu
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Steve Rabalais	LUMCON	(504) 851-2808	(504) 851-2874	srabalais@lumcon.edu
Don Robertson	Naval Sea Systems Comm.	(703) 602-3510	(703) 602-5606	robertson_don@hq.navsea.navy.mil
Tom Royer	ODU	(757) 683-5547	(757) 683-5550	royer@ccpo.odu.edu
Daniel Schwartz	U of Washongton	(206) 543-5062	(206) 543-6073	schwartz@ocean.washington.edu
Edwin Shaar, Jr.	Texas A&M	(409) 862-3290	(409) 845-6331	eshaar@ocean.tamu.edu
Tom Shipley	U of Texas	(512) 471-0430		tom@utig.ig.utexas.edu
Alexander Shor	NSF/ODP	(703) 306-1585x7239	(703) 306-0390	ashor@nsf.gov
James Swift	UCSD	(619) 534-3387	(619) 534-7383	jswidt@ucsd.edu
Brian Taylor	U of Hawaii	(808) 956-6649	(808) 956-5154	taylor@soest.hawaii.edu
John Tochko	Johns Hopkins	(301) 953-6000 x4515	(301) 956-5928	john.tochko@jhuapl.edu
Joe Ustach	Duke	(252) 504-7579	(252) 504-7651	joeu@duncoc.ml.duke.edu
Robert Wall	U of Maine	(207) 799-7734		
Denis Wiesenburg	Stennis Space Center	(228) 688-3177	(228) 688-1121	denis@sunfish.st.usm.edu
Gordon Wilkes	NAVOCEANO	(228) 688-4376	(228) 688-4078	wilkesg@navo.navy.mil
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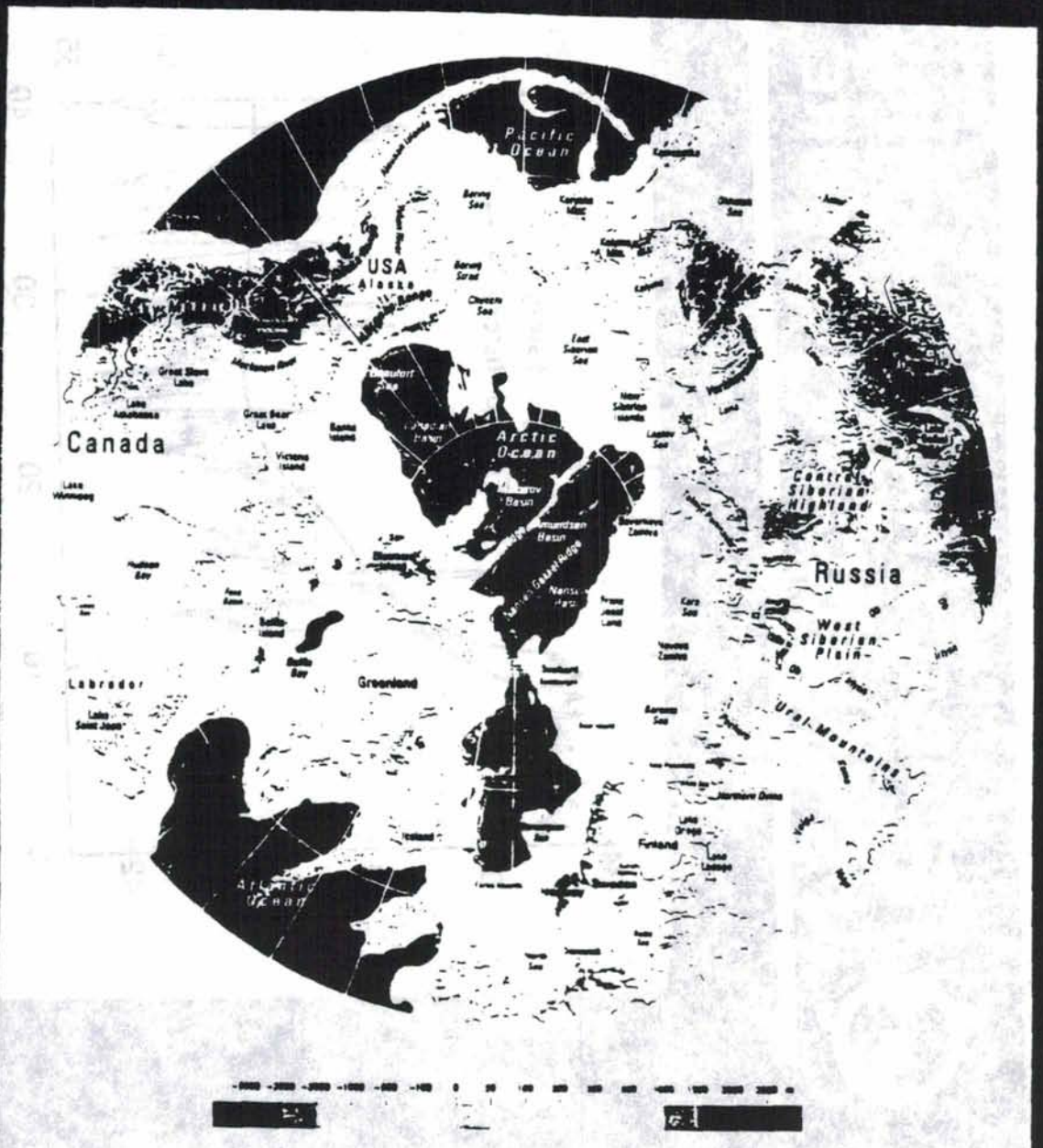
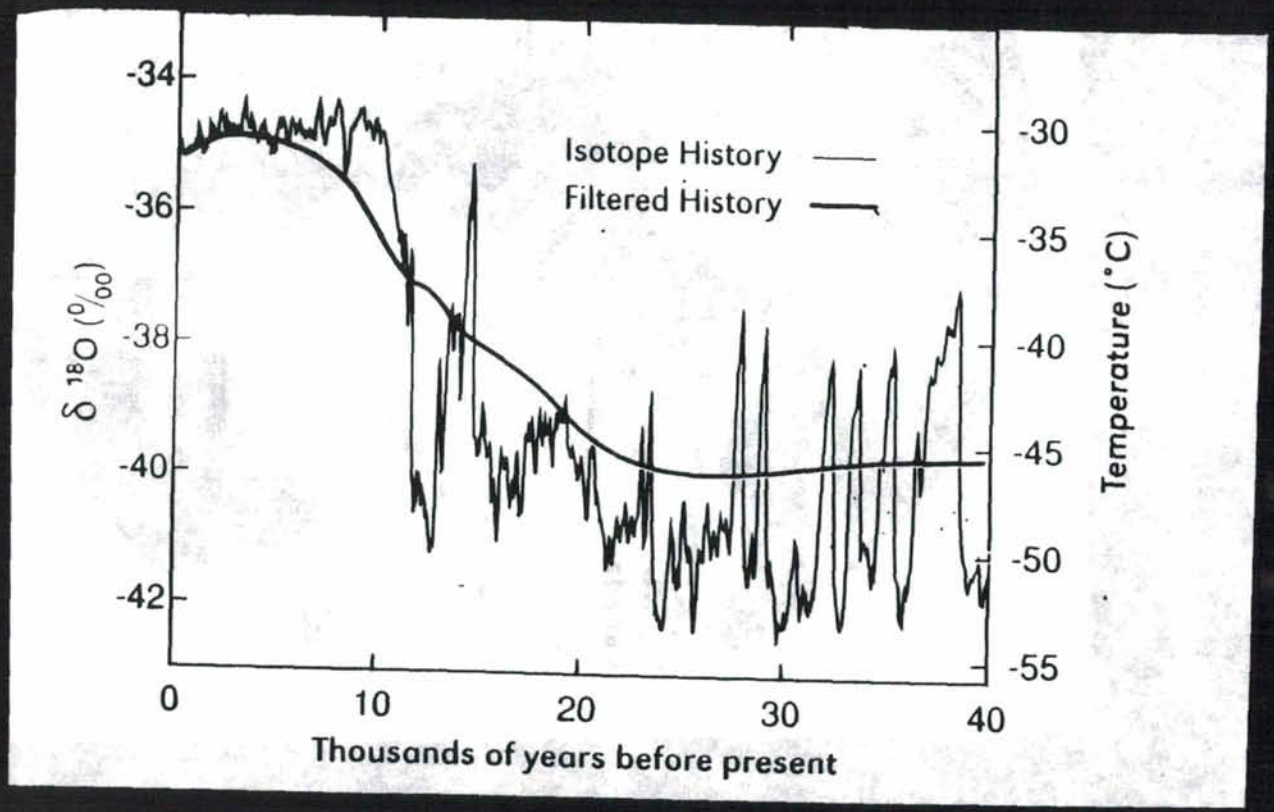
APPENDIX III

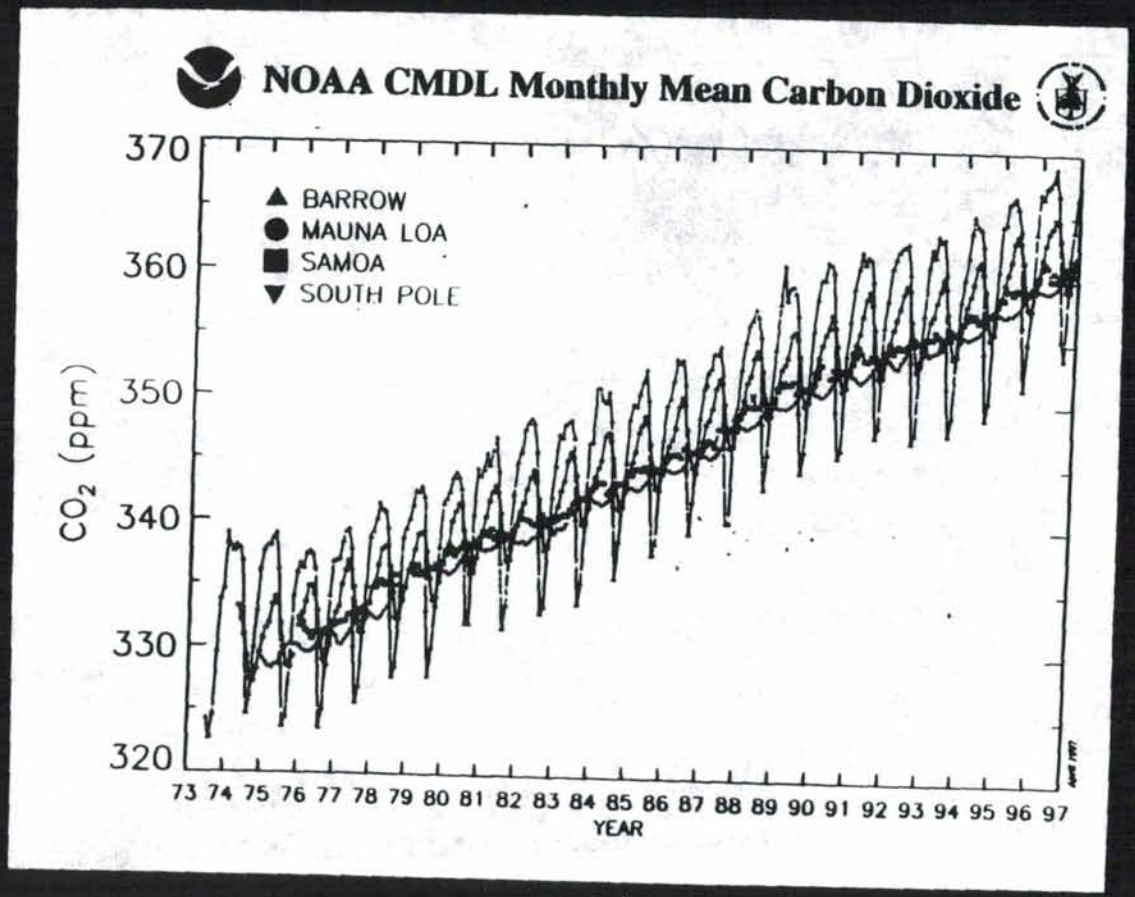
THE ARCTIC


Pacific Ocean
USA
Alaska
Canada
Arctic Ocean
Russia
Greenland
Labrador
Atlantic Ocean

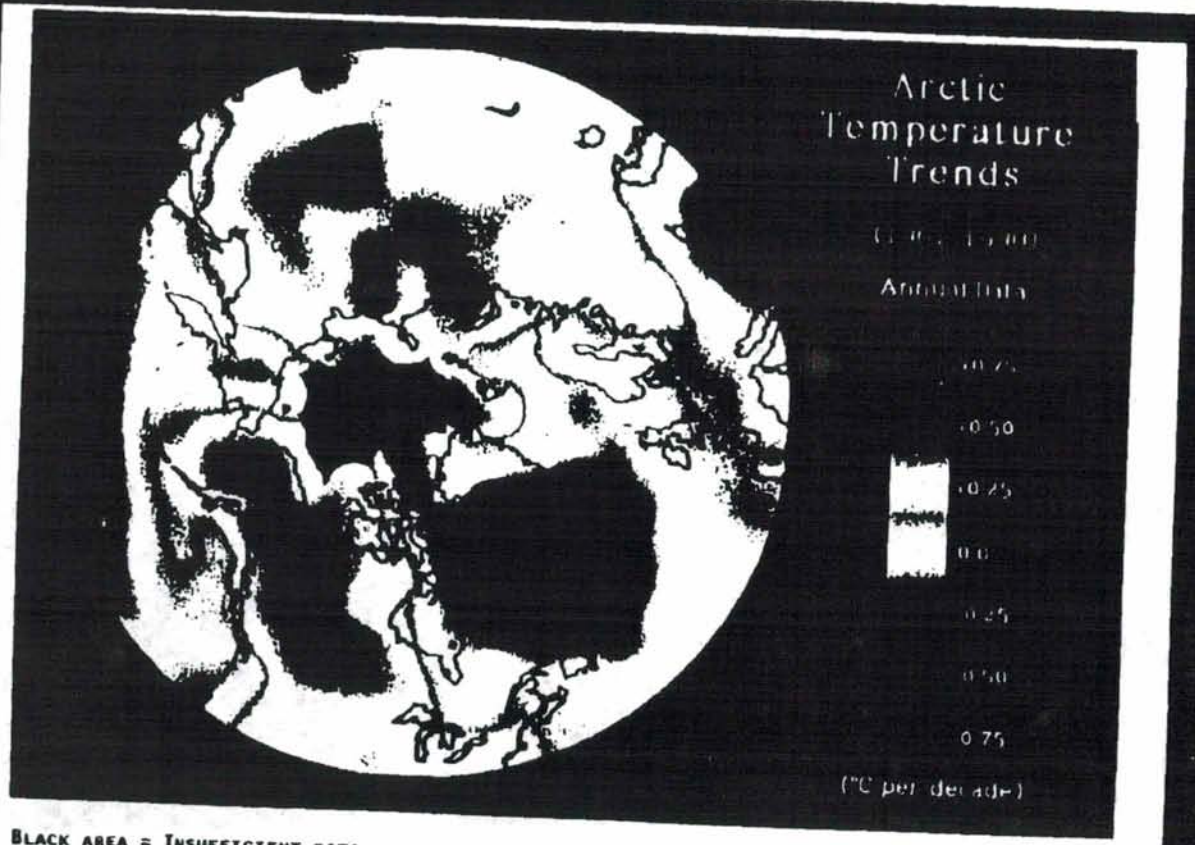
GLOBAL CHANGE IN THE ARCTIC
THE GREENLAND ICE CORE RECORD



GLOBAL CHANGE IN THE ARCTIC

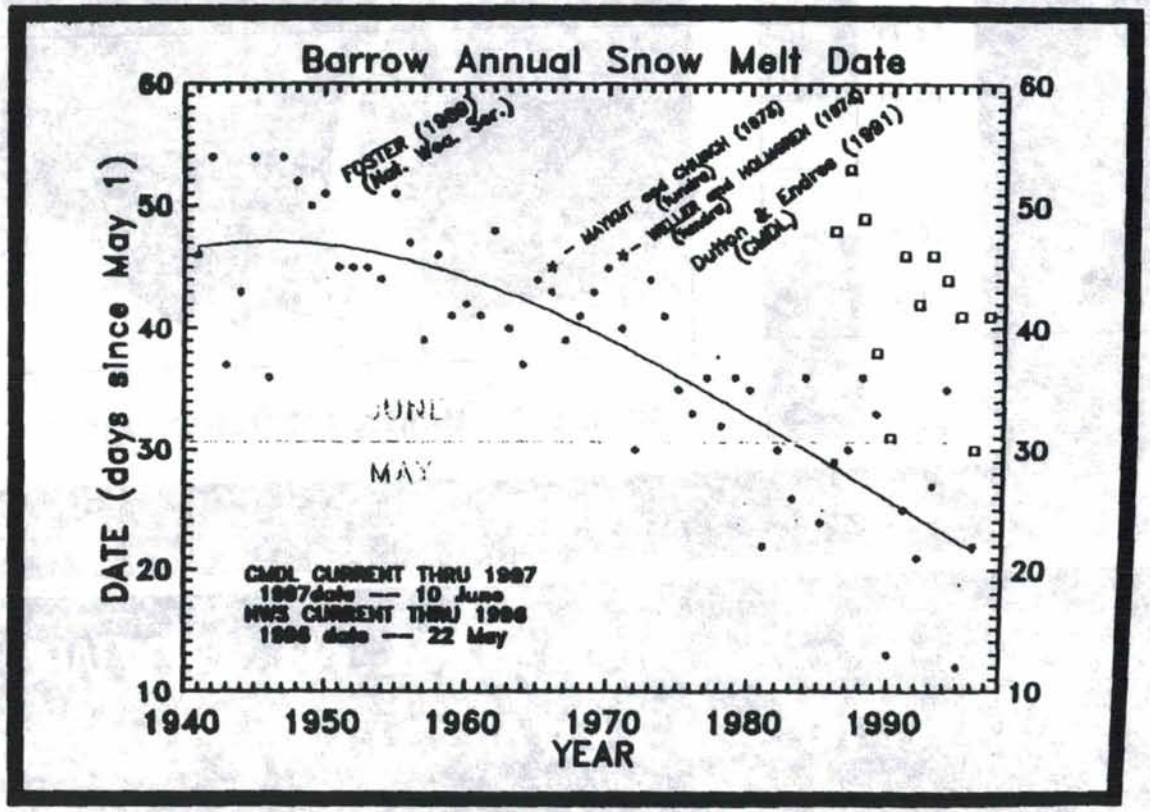


ARCTIC CLIMATE CHANGE
DECADAL RATES OF TEMPERATURE CHANGE



BLACK AREA = INSUFFICIENT DATA

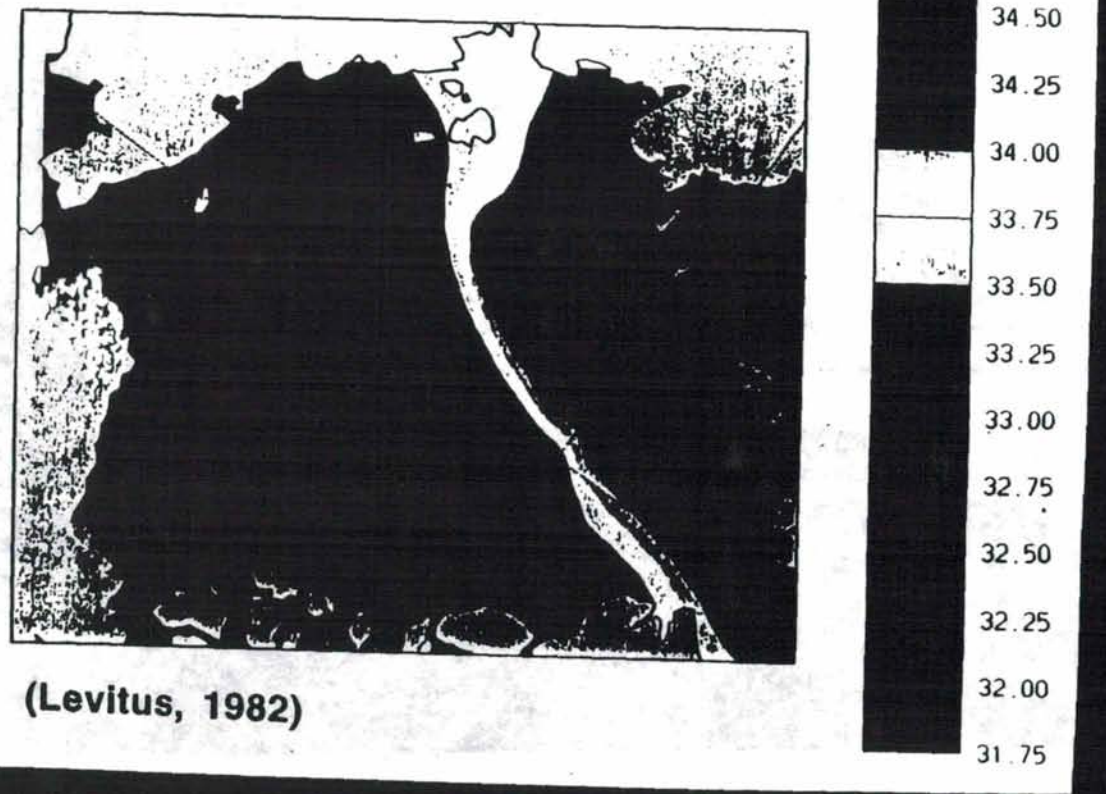
GLOBAL CHANGE IN THE ARCTIC



THE ATLANTIC WATER SALINITY ANOMALY IN THE ARCTIC OCEAN

Data from before 1982

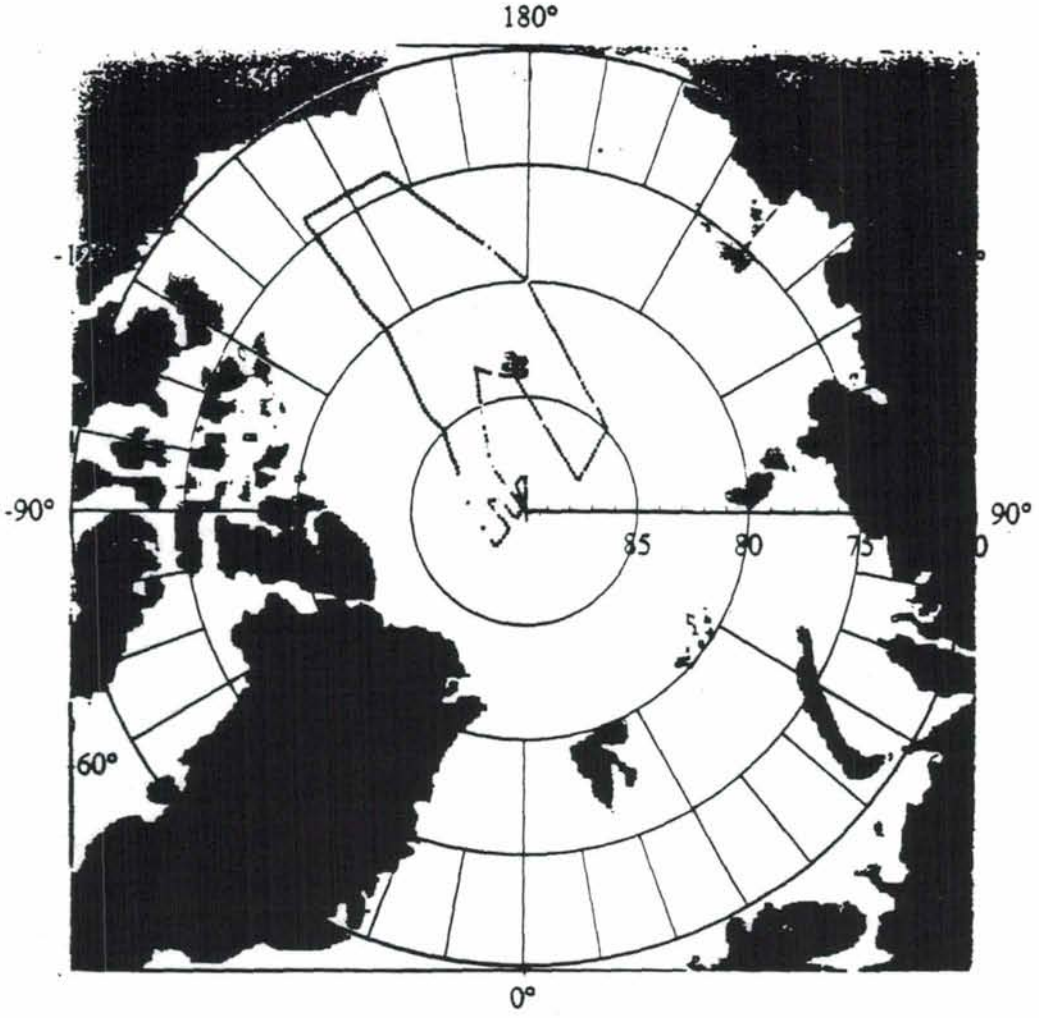
Arctic Climatological Salinity at 100 m



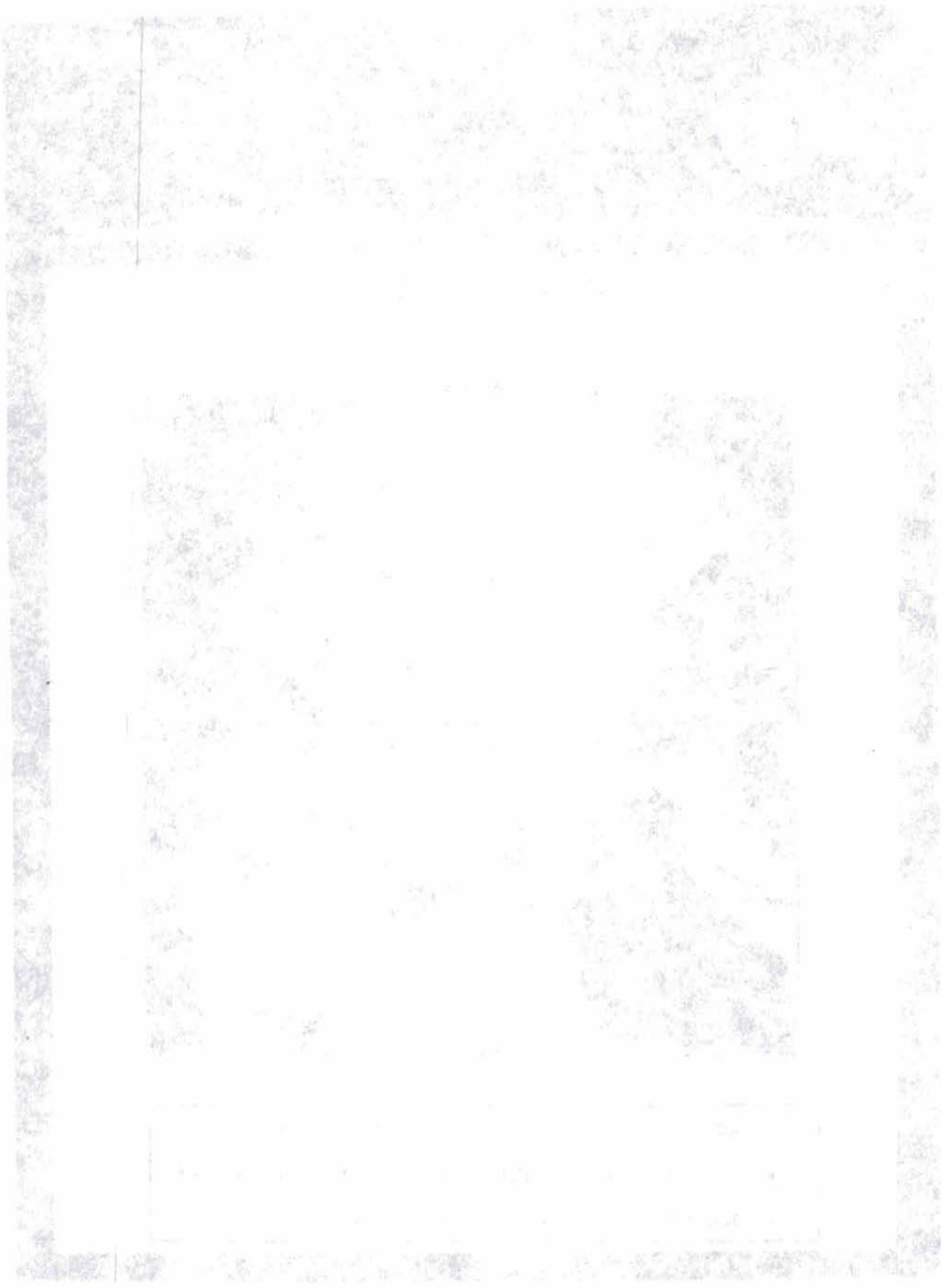
(Levitus, 1982)

ATLANTIC WATER SCICEX DATA

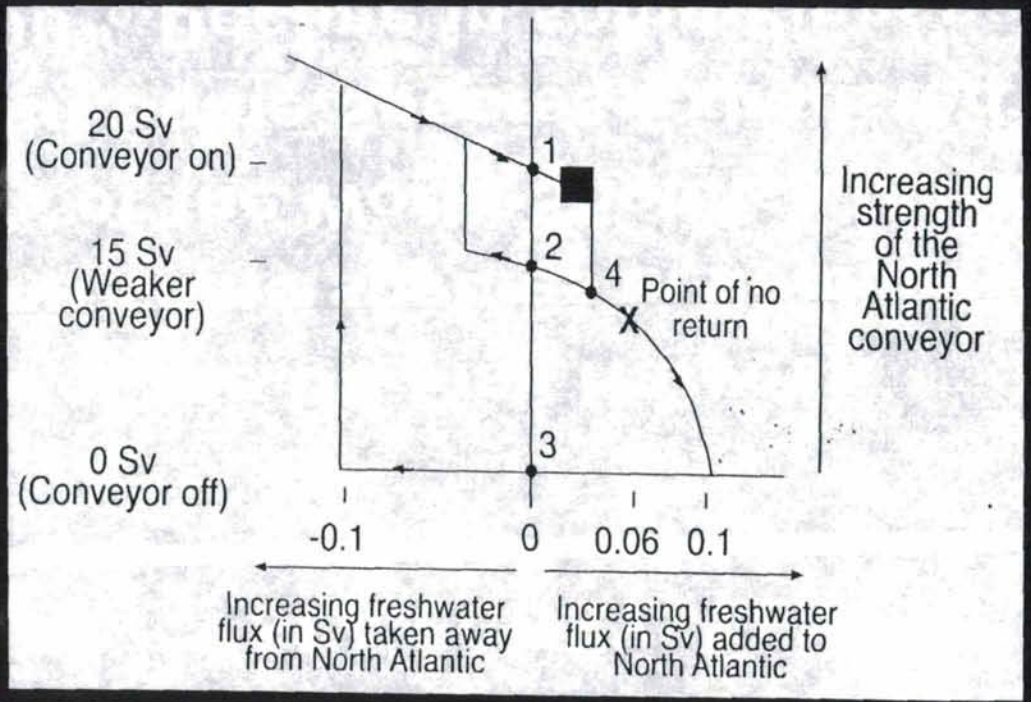
SCICEX'93 Sail CTD Salinity



■ <32.0	■ 32.5-32.75	33.25-33.5	■ 34.0-34.25
■ 32.0-32.25	■ 32.75-33.0	■ 33.5-33.75	■ 34.25-34.5
■ 32.25-32.5	■ 33.0-33.25	■ 33.75-34.0	



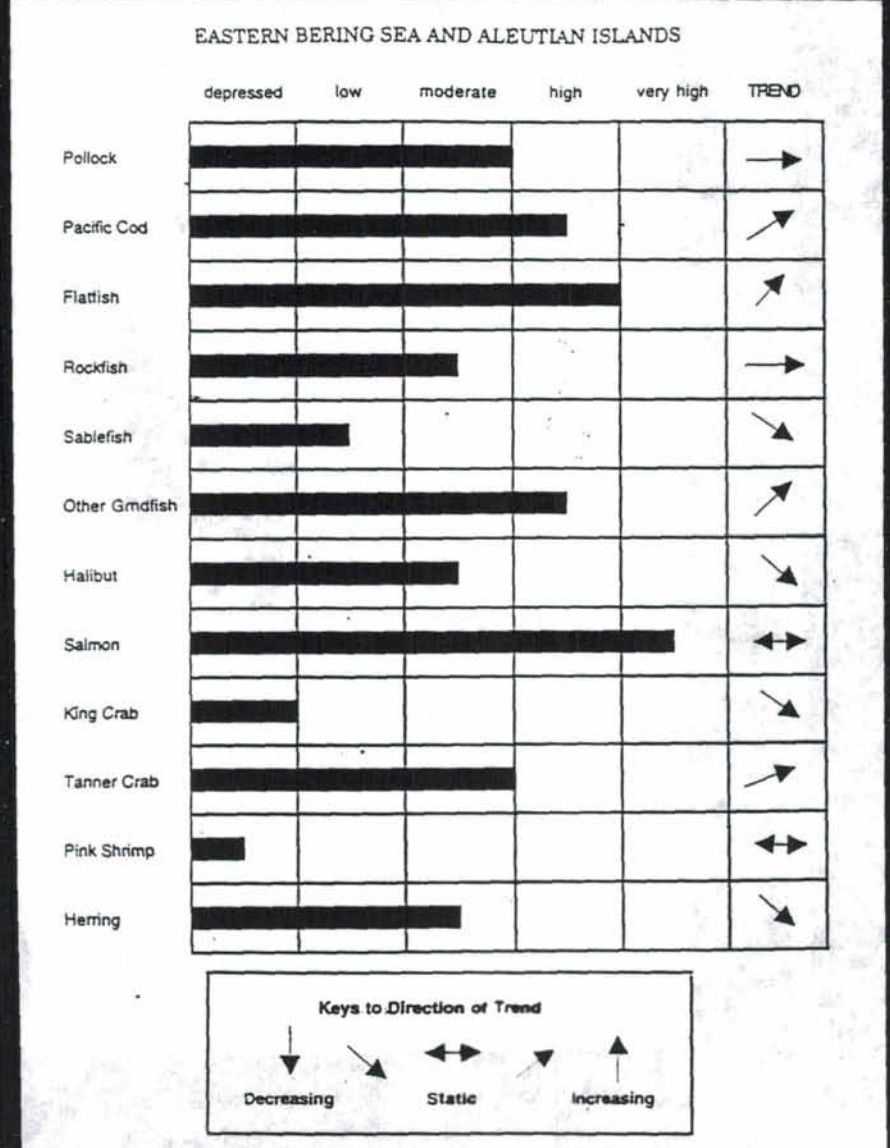
Regime Shifts in the Ocean Conveyor Belt



PROBLEMS IN THE BERING SEA ECOSYSTEM

- 56% of the US Fish Harvest
  but some species in decline
- 2-5% of the World Shellfish Market
  but Some Species Exhausted
- 50-90% Decline in some Pinneped Species
  (Steller's Sea Lion and Harbor Seals)
- Major Declines in Some Sea Birds

STATUS OF THE BERING SEA FISHERY



1995 TOTAL CATCH 2,000,000 mt

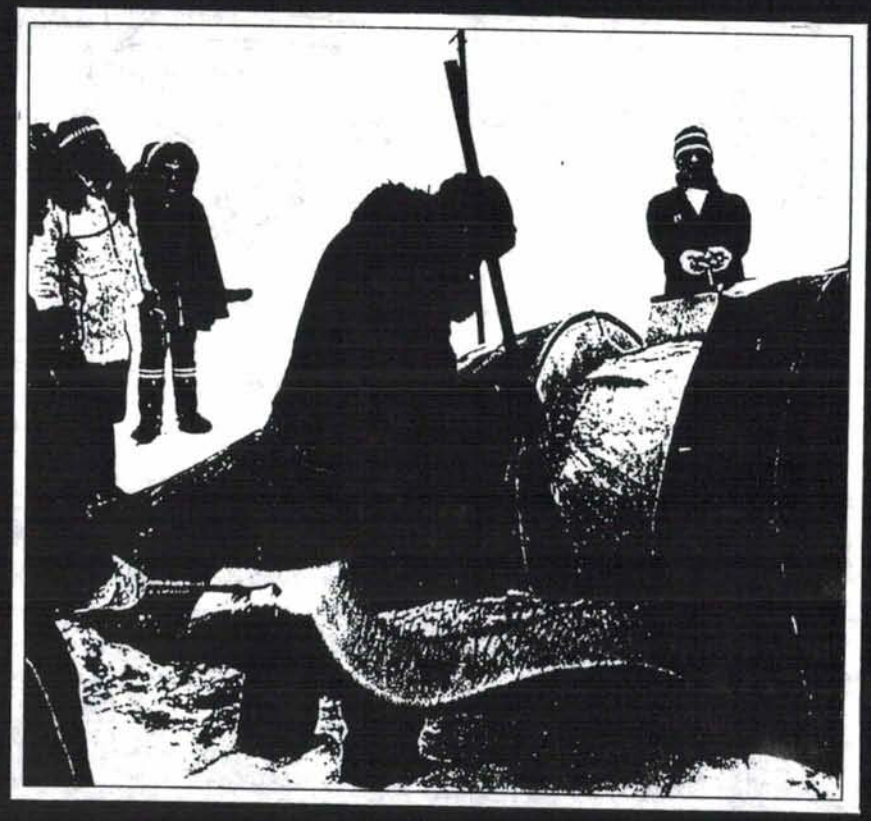
POLLOCK CATCH 1,300,000 mt

ARCTIC WILDLIFE

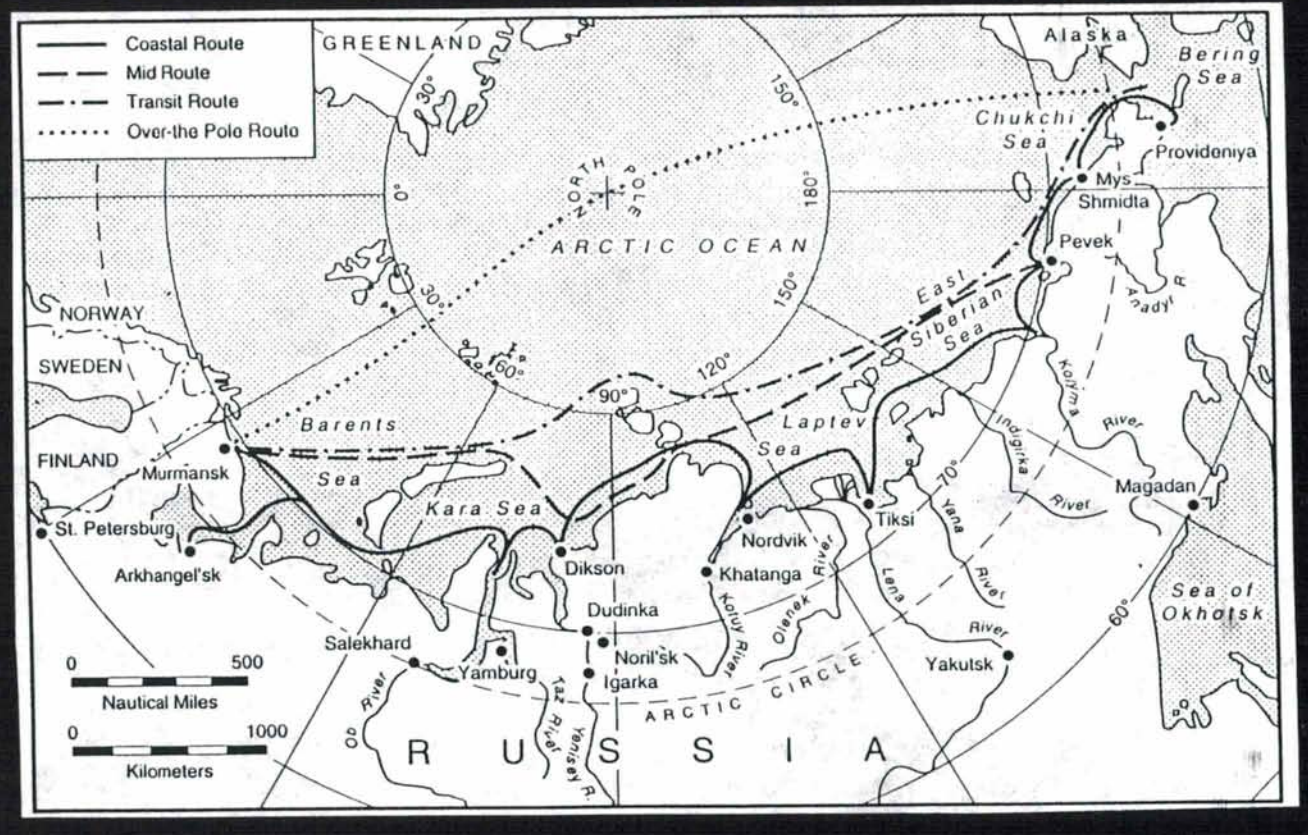
Ursus maritimus

NATIVE PEOPLE OF THE ARCTIC

Inuit whalers butcher a Bowhead

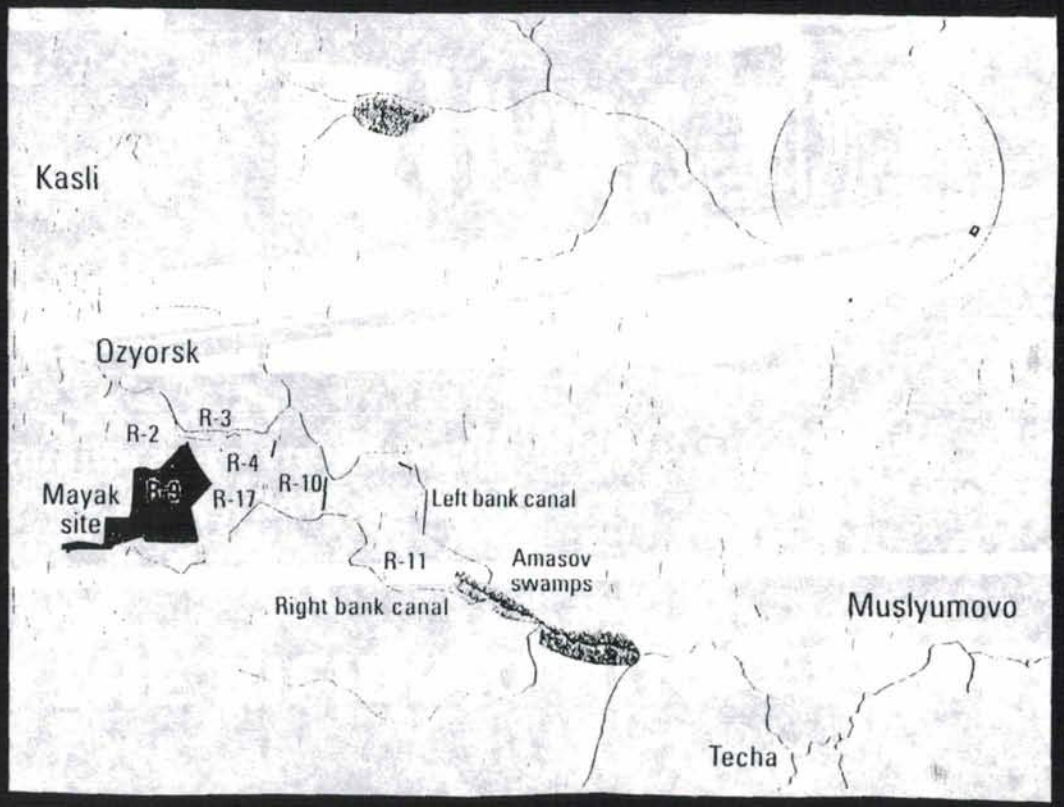


THE NORTHERN SEA ROUTE



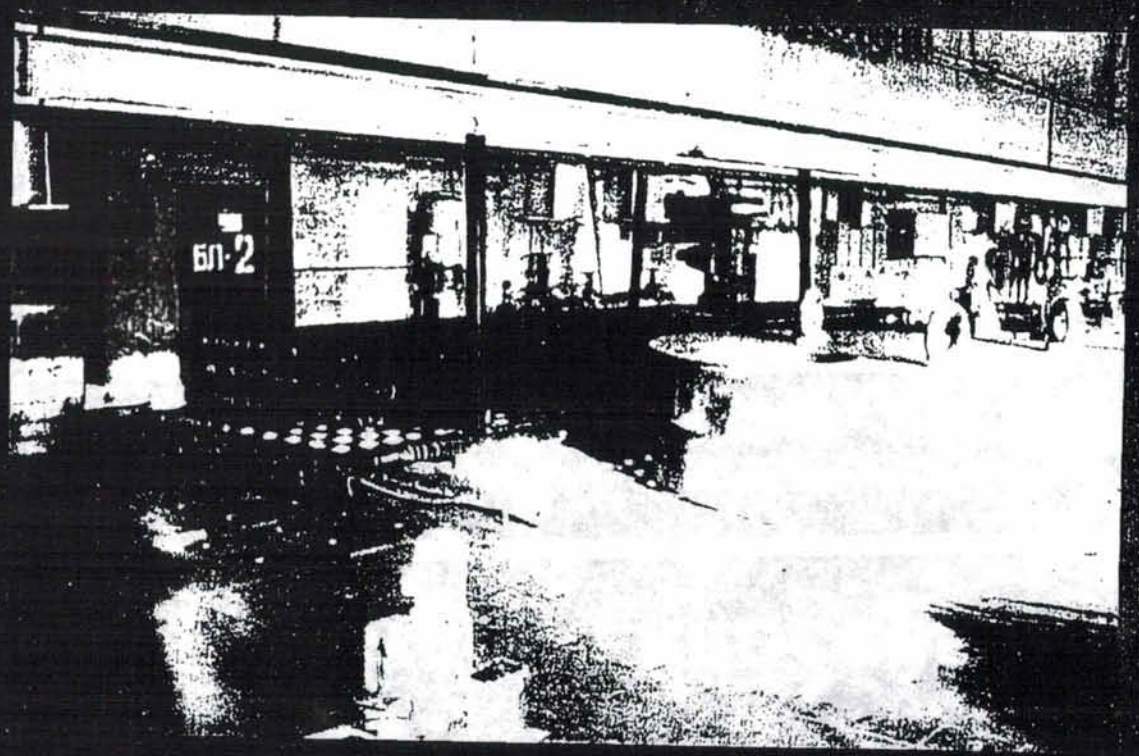
THE MAYAK REPROCESSING SITE

Lake Karachay (shown in red) contains 2 billion curies of radwaste

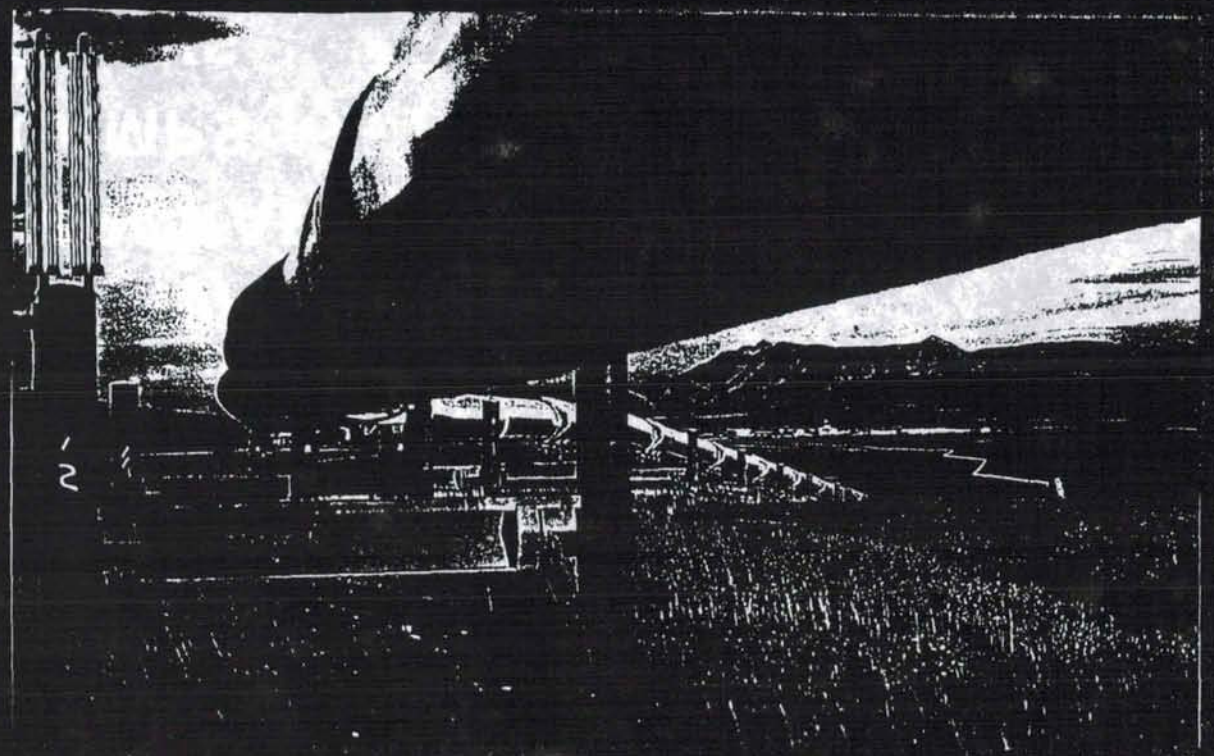


THE BILIBINO NUCLEAR REACTOR

The large concrete reactor cover is at right
Highlights are sunlight streaming in through the windows



THE TRANS ALASKA PIPELINE

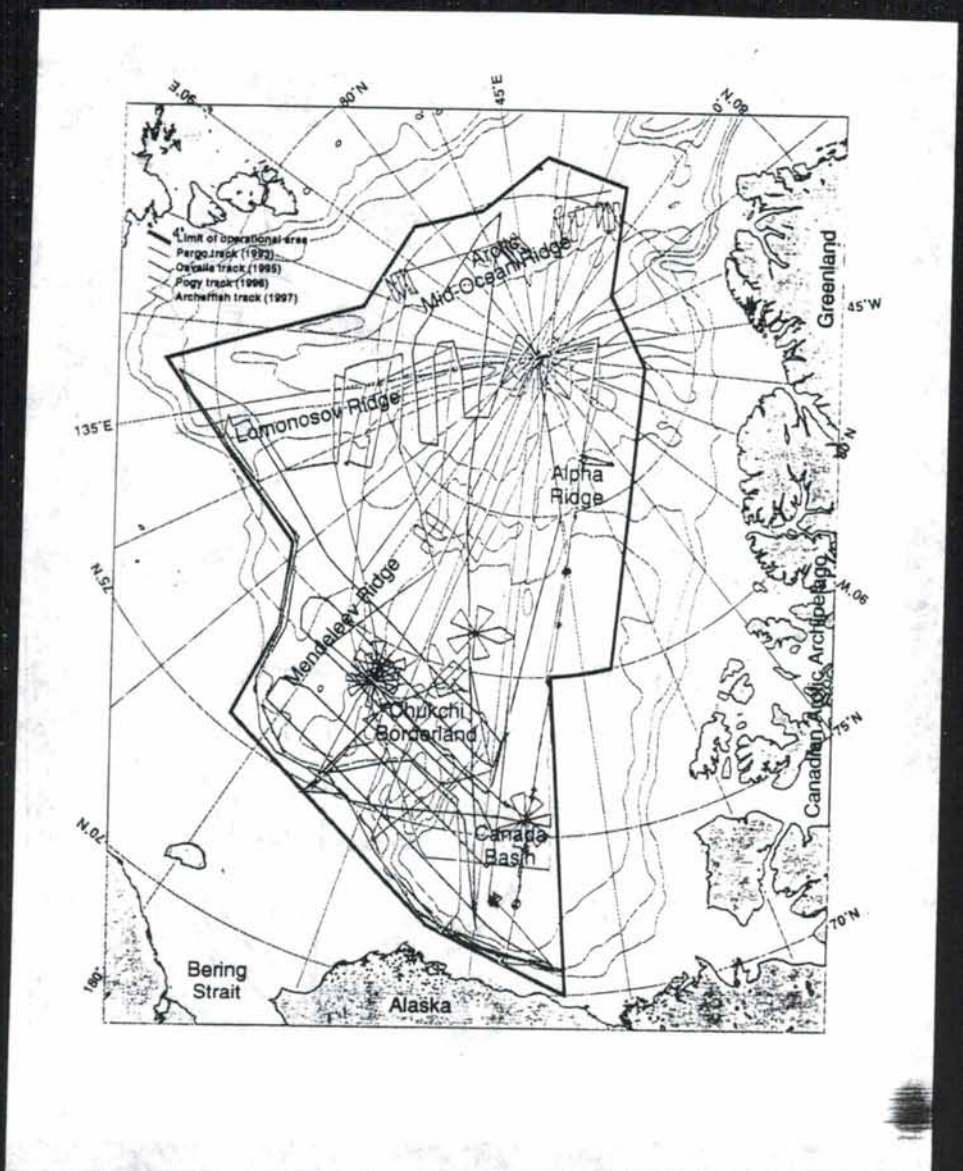


ARCTIC RESEARCH LOGISTICS

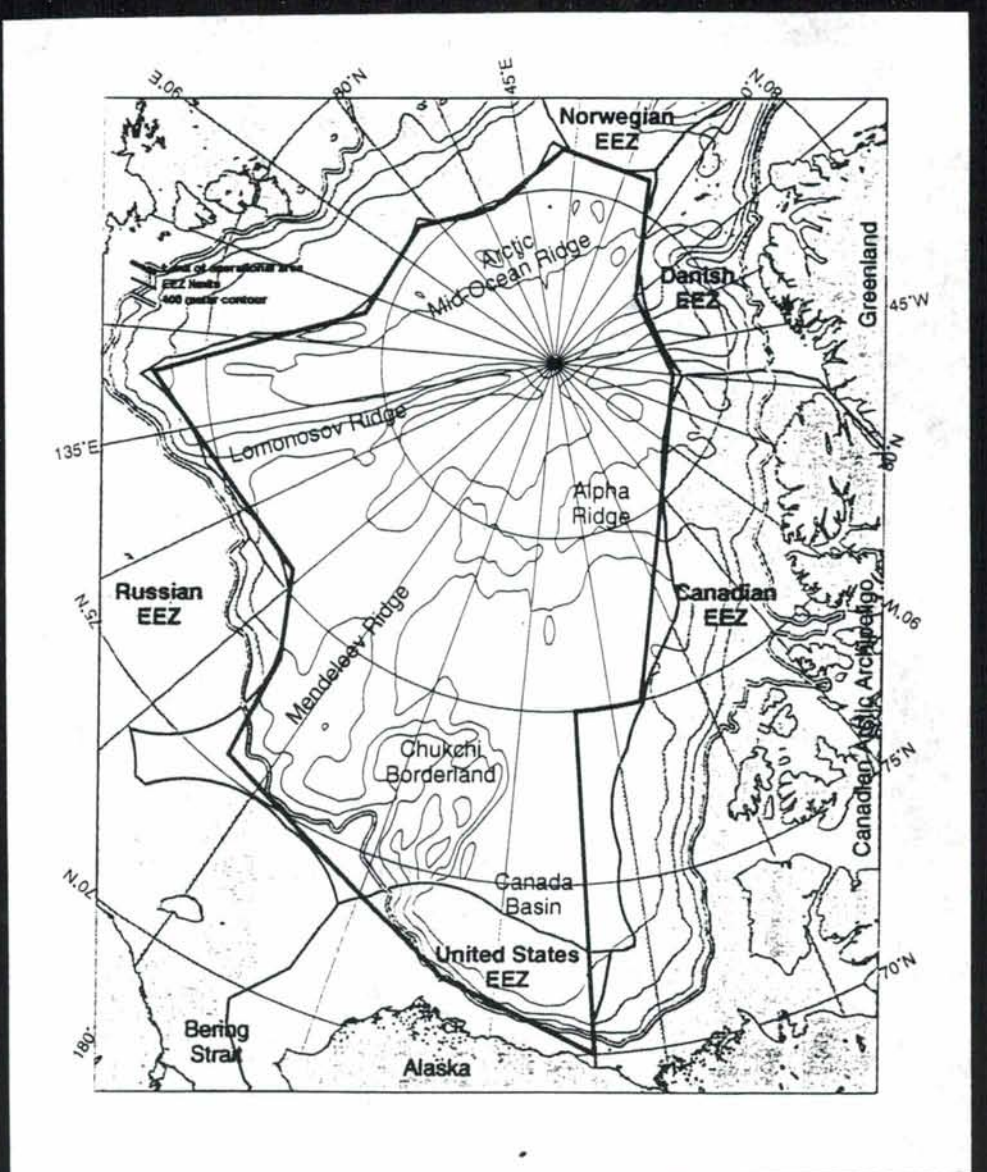
- ICEBREAKERS
- SUBMARINES
- AIRCRAFT
- CAMPS (on ice and on land)
- BUOYS
- SATELLITES

----- ALL ARE EXPENSIVE

SCICEX CRUISE TRACKS AS OF 1997

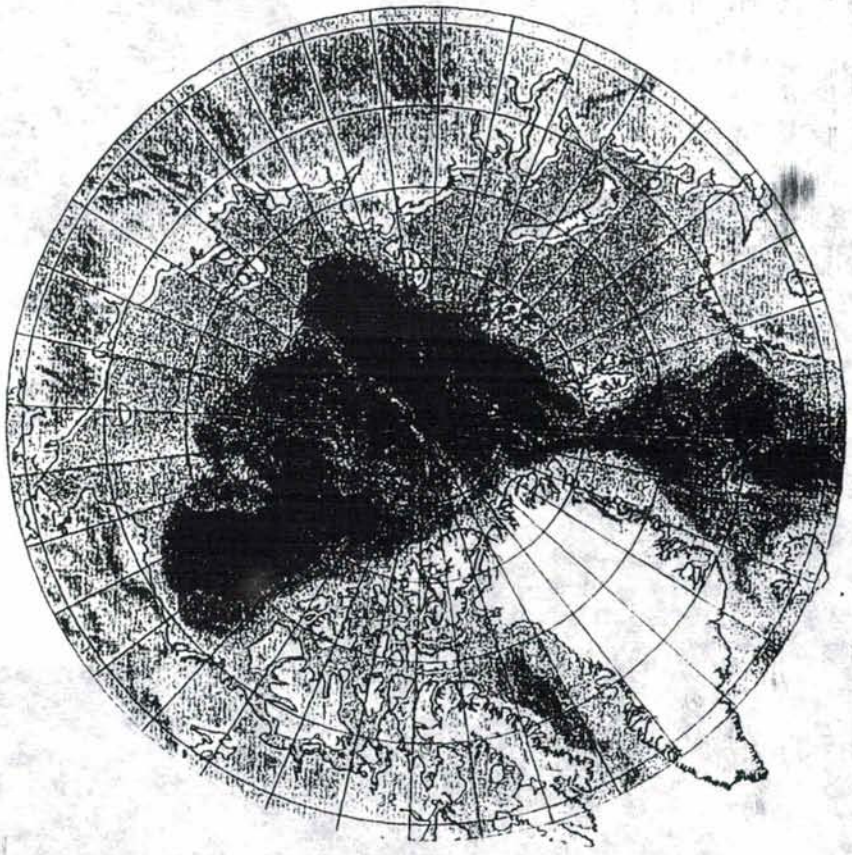


EEZs AND THE SCICEX OPERATING AREA

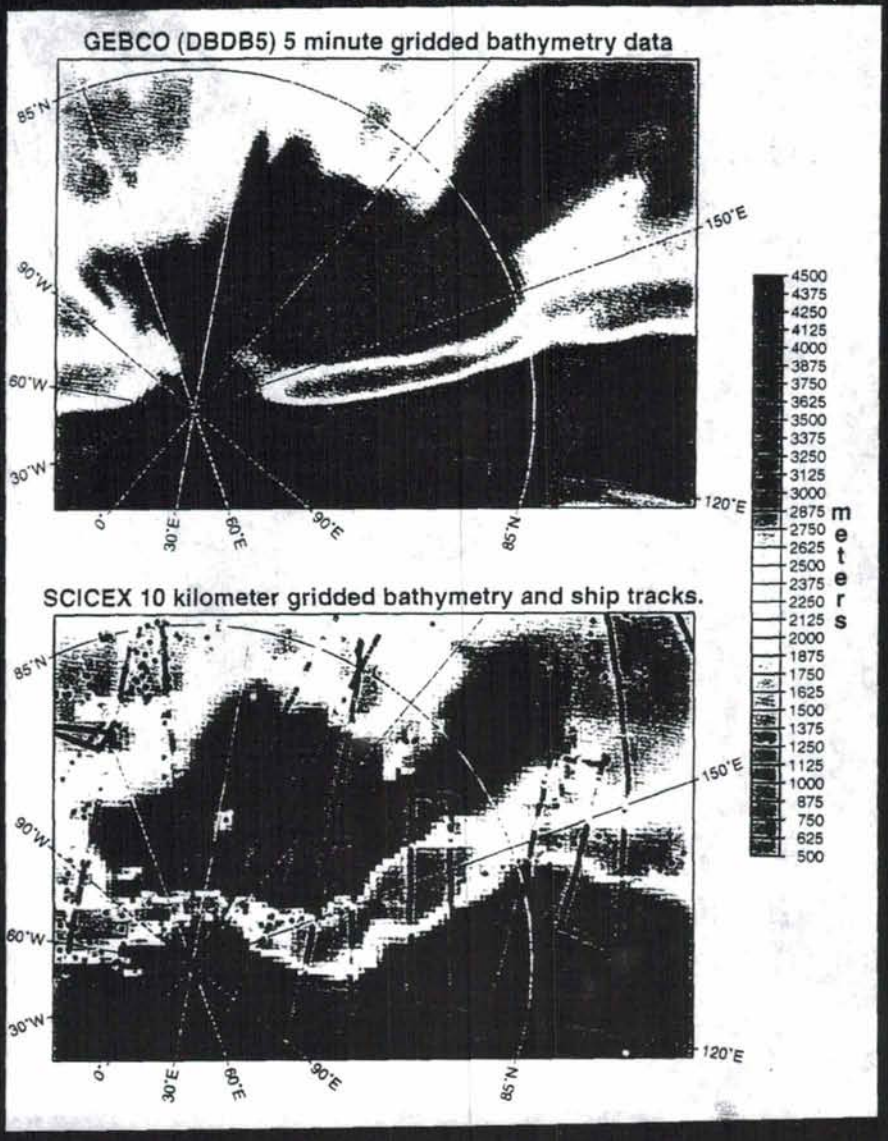


SENATOR (NOW VP) GORE AT THE NORTH POLE

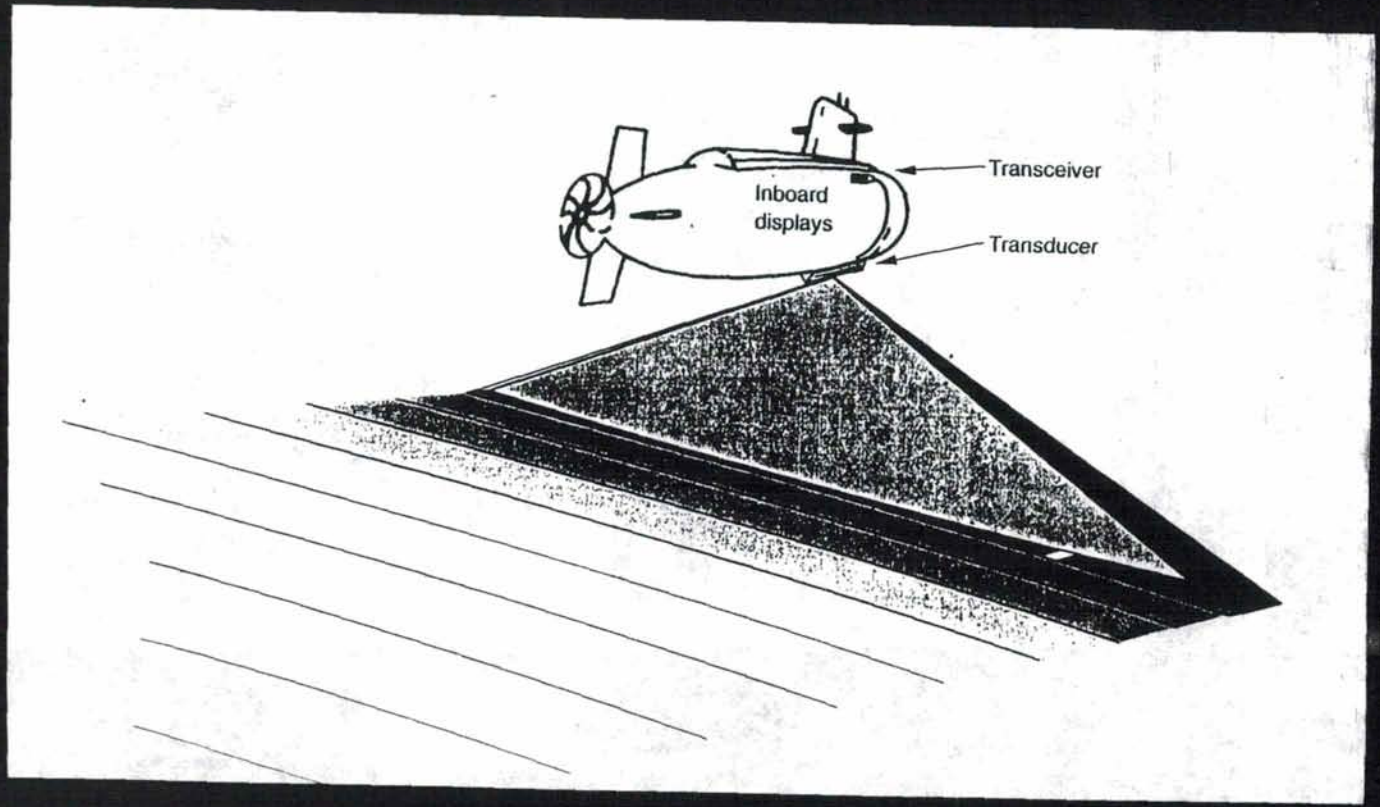
ARCTIC OCEAN BATHYMETRY



SCICEX DATA REFINES GEBCO BATHYMETRY

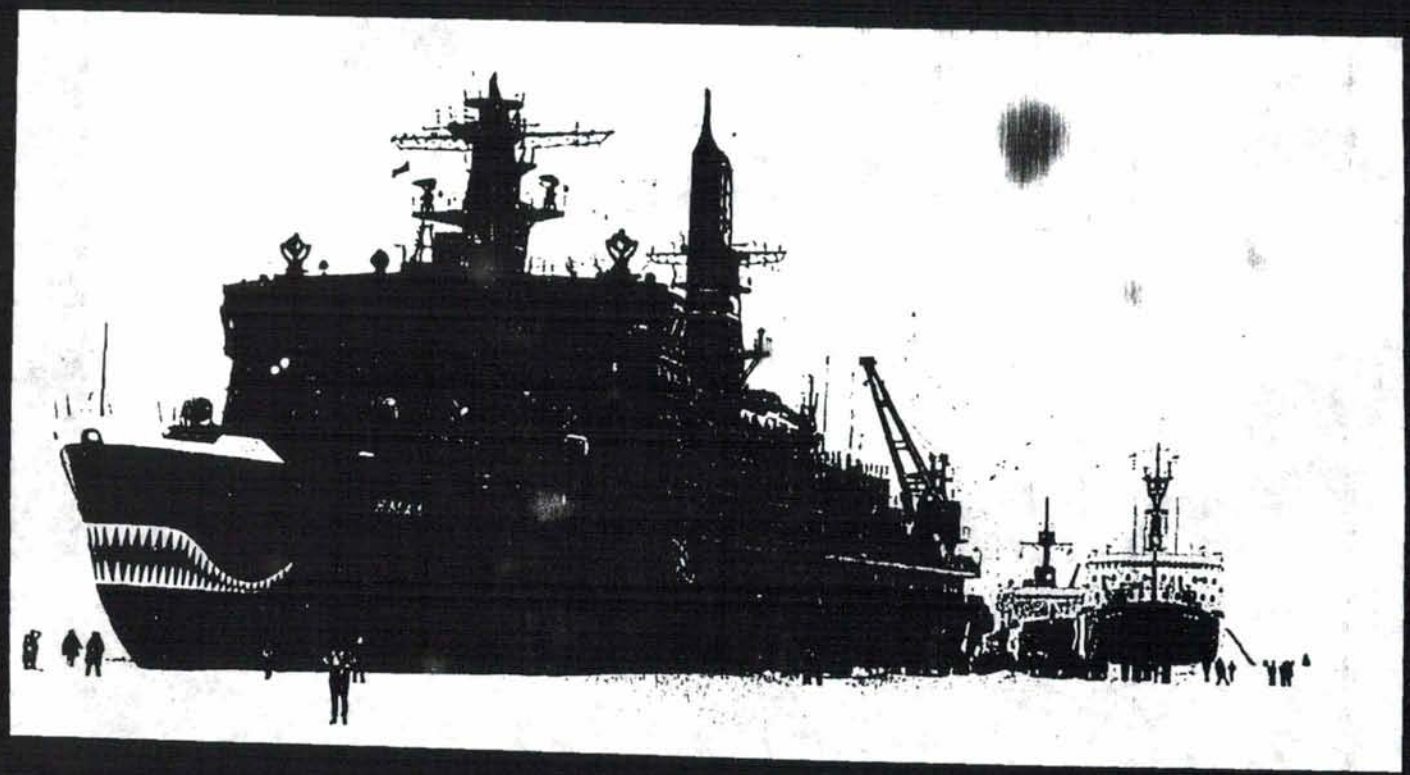


THE SCAMP SYSTEM MOUNTED ON A SUBMARINE



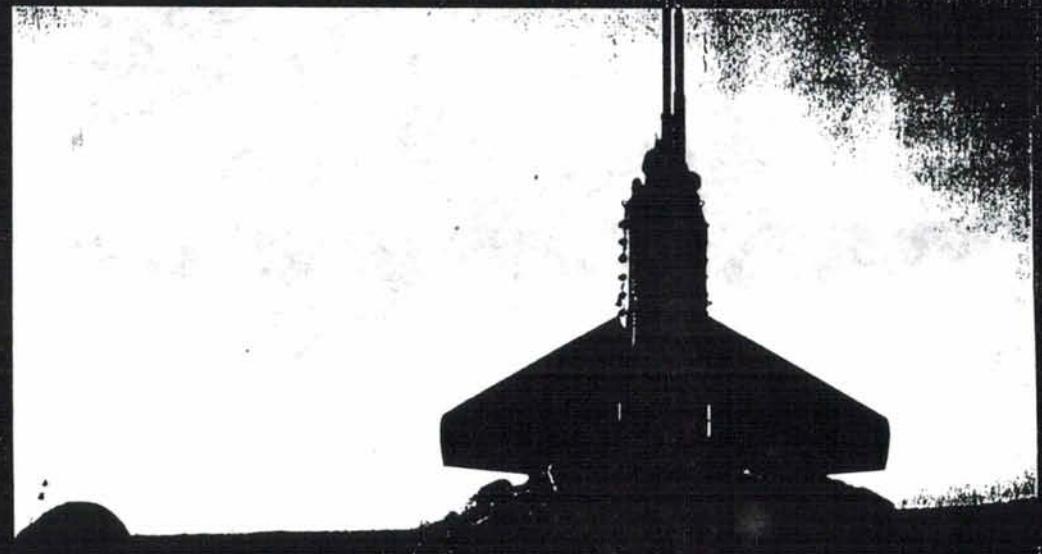
A TWIN OTTER RESUPPLYING A SUBMARINE IN THE ARCTIC

YAMAL, LOUIS ST. LAURENT AND POLAR SEA NORTH POLE 23 AUGUST 1994



THE US COAST GUARD ICEBREAKER HEALY

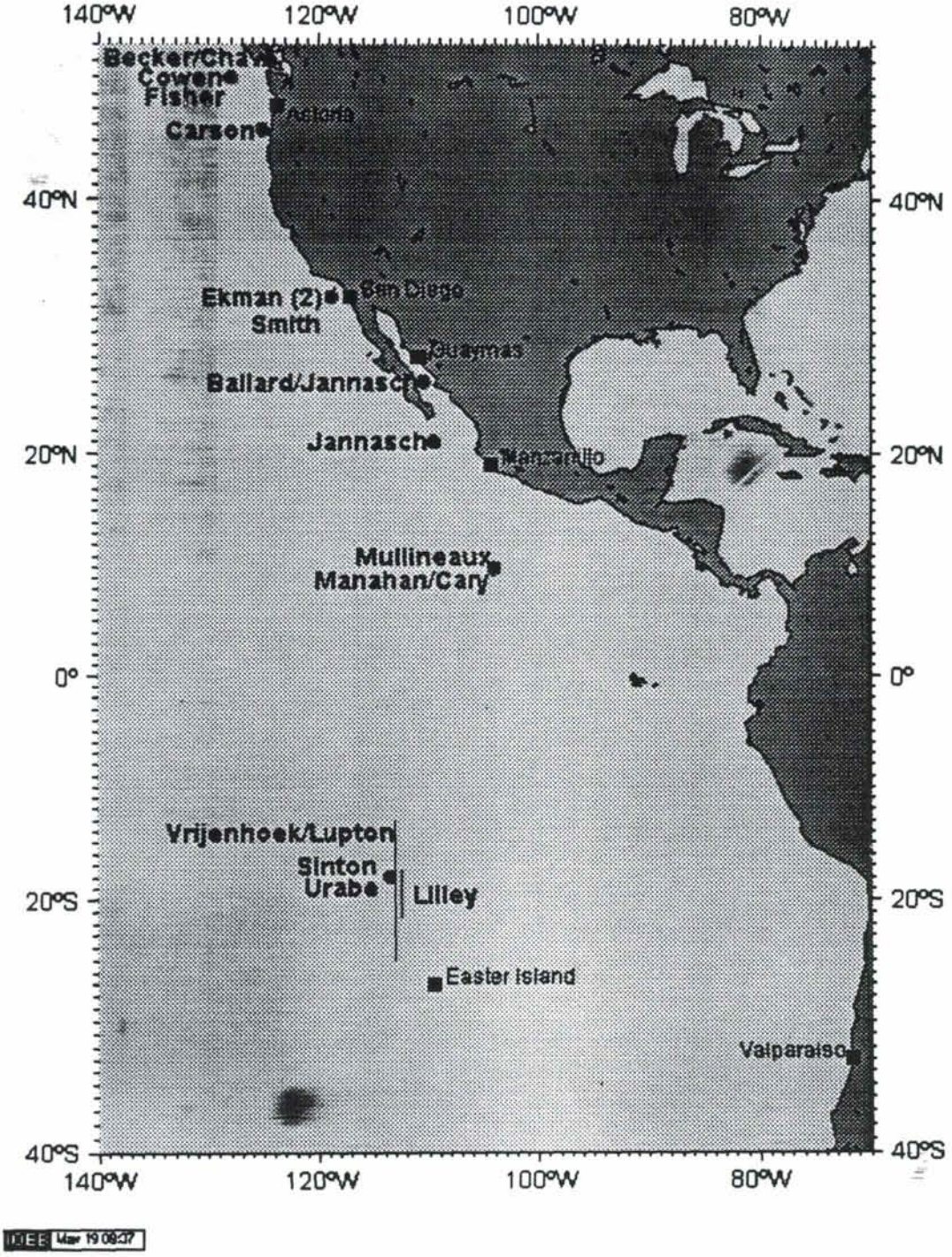
A 637 CLASS SSN SURFACED THROUGH THE ICE



APPENDIX IV

1998 ATLANTIS Work Sites

Click on an invesigator's name to see the cruise synopsis, or click on a port to see agent information



REMOTELY OPERATED VEHICLES
1998 SCHEDULE

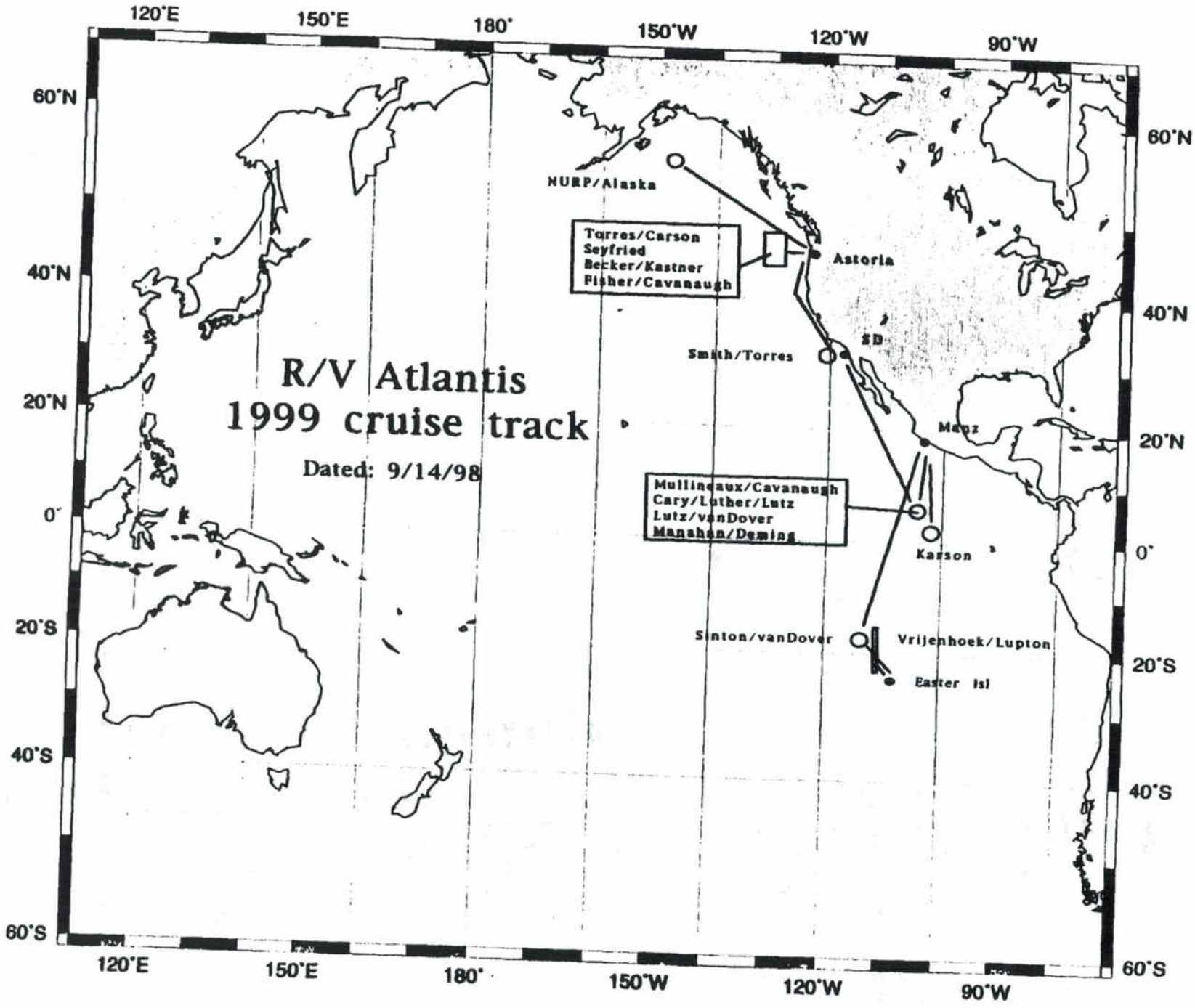
CRUISE DATES	MAP INDEX/AREA/ PURPOSE	P.I./INSTITUTION/ PROPOSAL NO.	PORTS	DAYS/AGENCY/ STATUS/ CLEARANCE
R/V MELVILLE				
05	EPR,28S-32S/	Hey,R/UH/	Easter Isl	43/NSF/F
13 Apr	DSL-120 Ops.- 29 DOS		Papeete	Chile
R/V ATLANTIS				
18 Apr	NP13/Guaymas Basin/	Ballard/C.Explor/	Guaymas	7/ONR/F
24 Apr	Jason Ops.- 7 DOS	ONR/Jason Project	Guaymas	Mexico
R/V THOMPSON				
10 Aug	NP9/Juan de Fuca Rdg/	Chadwick,W/OSU	Seattle	9/NSF/F
18 Aug	Jason	OCE-9633261	At Sea	
19 Aug	NP9/Juan de Fuca Rdg/	Stakes,D/MBARI	At Sea	4/MBARI/F
22 Aug	DSL-120 Survey		Seattle	
27 Aug	NP12	Chave,A/WHOI/	Seattle	28/NSF/F
21 Sep	Jason	OCE-9724491	Honolulu	
26 Sep	NP12/Off Hawaii/	Smith,D/WHOI/	Honolulu	39/NSF/F
31 Oct	DSL-120,Argo-II	OCE-9618226	Honolulu	

1999 and BEYOND
FUNDED *Alvin* & ROV DIVE PROGRAMS
(Sorted by Dive Site)

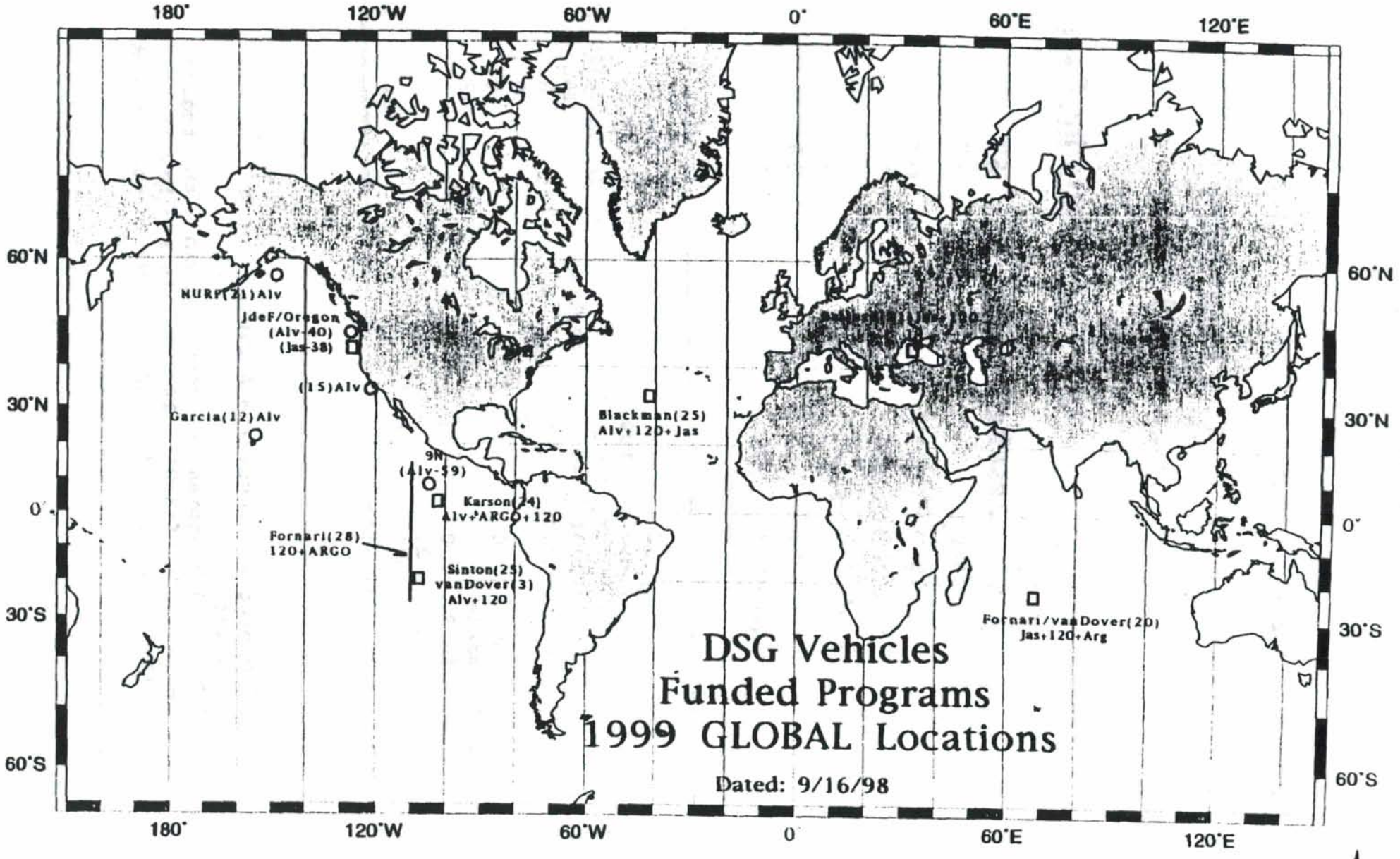
Year	Program	Agency	Vehicle(s)	Days on Sta.	
			Southern EPR		
1999	Lupton,etal (F)	NURP	*Alvin*	10	(begin 1998)
1999	Vrijenhoek (F)	NSF	*Alvin*	14	(begin 1998)
1999	Sinton (F)	NSF	*Alvin* & DSL-120	25	
1999	vanDover (F)	NSF	*Alvin*	3	
			9 North, EPR		
1999	Luther (F)	NSF	*Alvin*	8	(LEXEN)
1999	Cary (F)	NSF	*Alvin*	4	*
1999	Lutz (F)	NSF	*Alvin*	20	*
1999	Manahan (F)	NSF	*Alvin*	8	*
1999	Mullineaux (F)	NSF	*Alvin*	10	*
1999	vanDover (F)	NSF	*Alvin*	3	
1999	Cavanaugh (F)	NURP	*Alvin*	3	
2000	Lutz (F)	NSF	*Alvin* & Jason	23	*
2000	Manahan (F)	NSF	*Alvin*	8	*
2000	Luther (F)	NSF	*Alvin*	8	* (LEXEN)
			California Coast		
1999	Smith/Torres (F)	NURP	*Alvin*	15	*
1999	Eng'r Dives	3 agency	*Alvin* & Jason	3	
			Juan de Fuca		
1999	Becker (F)	NSF	*Alvin*	7	*
1999	Carson,B (F)	NSF	*Alvin*	4	*
1999	Cavanaugh (F)	NURP	*Alvin*	3	
1999	Deming (F)	NSF	*Alvin*	5	
1999	Fisher (F)	NSF	*Alvin*	10	*
1999	Kastner (F)	NSF	*Alvin*	5	*
1999	Seyfried (F)	NSF	*Alvin*	4	
1999	Torres,M (F)	NSF	*Alvin*	12	
1999	Chadwick (F)	NSF	Jason	6	*
1999	Cowen (F)	NSF	Jason	10	* (LEXEN)
1999	Embley (F)	NURP	Jason	20	
2000	Carson,B (F)	NSF	*Alvin*	3	*
2000	Kastner (F)	NSF	*Alvin*	5	
			Other Regions		
1999	Fornari (F)	NSF	DSL-120	28	(20N-25S,EPR)
1999	Fornari/vDover (F)	NSF	DSL-120 & Jason	20	(Indian Ocean)
1999	Karson (F)	NSF	*Alvin* & ARGO+120	24	(Hess Deep)
1999	NURP/Alaska (F)	NURP	*Alvin*	21	(G of Alaska)
2000	Blackman (F)	NSF	*Alvin*,Jason,DSL-120	25	(MAR,30N)
2000	Garcia (F)	NSF	Alvin	12	(Hawaii)
2000	MacDonald (F)	MMS	*Alvin* or Jason	10	(G of Mexico)

* Indicates 2nd or 3rd year of Time Series

9/16/98 - DAM


120°E
150°E
180°
150°W
120°W
90°W
60°N
40°N
20°N
0°
20°S
40°S
60°S
NURP/Alaska
Torres/Carson
Seyfried
Becker/Kastner
Fisher/Cavanaugh
Astoria
SD
Smith/Torres
Mayz
Mullineaux/Cavanaugh
Cary/Luther/Lutz
Lutz/vanDover
Manahan/Deming
Karson
Sinton/vanDover
Vrijenhoek/Lupton
Easter Isl
R/V Atlantis
1999 cruise track
Dated: 9/14/98

WHOI / Moller


180°
120°W
60°W
0°
60°E
120°E
60°N
30°N
0°
30°S
60°S
NURP(21)Alv
JdeF/Oregon
(Alv-40)
(Jas-38)
(15)Alv
Garcia(12)Alv
Blackman(25)
Alv+120+Jas
9N
(Alv-59)
Karson(24)
Alv+ARGO+120
Fornari(28)
120+ARGO
Sinton(25)
vanDover(3)
Alv+120
Fornari/vanDover(20)
Jas+120+Arg
DSG Vehicles
Funded Programs
1999 GLOBAL Locations
Dated: 9/16/98

WHOI / Molle

Dated: 03 September 1998

R/V ATLANTIS
1999

Area	Operating Days
Southern East Pacific Rise	67
Hess Deep	37
Northern East Pacific Rise	106
Oregon Margin	23
Gulf of Alaska	37
Juan de Fuca	43
California Coast	19

	TOTAL	1999 ATLANTIS FUNDED	PENDING	1999 ALVIN+ARGO+120 DIVES TOTAL
NSF=	272	272	0	166
ONR=	0	0	0	0
NURP=	0	0	0	3
NURP/Alaska=	67	67	0	42
OTHER=	0	0	0	0
MAINTENANCE=	26	-	-	-
TOTAL=	365	339	0	211

Unscheduled programs Requiring ALVIN
FUNDED programs:

ENG'R - 3 Agencies - 3dos - Alvin - any region
GARCIA - OCE-9633404 - 12dos - Alvin - Hawaii
BLACKMAN - OCE-9618213 - 25dos - Alvin+Jason - M.A.R.

REMOTELY OPERATED VEHICLES
1999 SCHEDULE

CRUISE DATES	MAP INDEX/AREA/ PURPOSE	P.I./INSTITUTION/ PROPOSAL NO.	PORTS	DAYS/AGENCY/ CLEARANCE
R/V ATLANTIS				
25 JAN	SP3/EPR,18S/	SINTON/HAW/	EASTER ISL.	42/NSF/F
	ALVIN+120 OPS.- 25 DOS	OCE-9633398	- - -	
	SP3/EPR,18S/	VANDOVER/WM.MARY/	- - -	3/NSF/F
06 MAR	ALVIN OPS.- 3 DIVES	OCE-9811410	MANZANILLO	
12 MAR	NP13/HESS DEEP/	KARSON,J/DUKE/	MANZANILLO	37/NSF/F
12 APR	ALVIN+ARGO - 24 DOS	OCE-9633725	MANZANILLO	
**** R/V TBD ****				
04 JUN	NA8/MED/BLACK SEA/	BALLARD/C.EXPLOR/	TBD	26/ONR/F
30 JUN	JASON/120 - 22 DOS	ONR/JASON PROJECT	TBD(ISTANBUL)	
xx JUL	NA8/MED. SEA/	BALLARD/C.EXPLOR/	TBD	30/PRIV/P
xx JUL	DSL-120 OPs.	PRIVATE FUNDS	TBD	
R/V THOMPSON				
24 Aug	NP9/JUAN DE FUCA Rdg/	CHADWICK,W/OSU	SEATTLE	9/NSF/F
01 Sep	JASON OPS.- 6 DOS	OCE-9633261	ASTORIA	
02 Sep	NP9/JUAN DE FUCA	COWEN,J/UH	ASTORIA	15/NSF/F
16 Sep	JASON OPS.- 10 DOS	OCE-9714286(LEXEN)	SEATTLE	
(TO BE SCHEDULED - R/V THOMPSON)				
xx Sep	NP9/JUAN DE FUCA	EMBLEY,R/NOAA	SEATTLE	25/NOAA/P
xx Sep	JASON OPS.- 22 DOS	- - -	SEATTLE	
**** R/V MELVILLE (2000) ****				
xx FEB	NP13/25N-25S EPR	FORNARI,D/WHOI/	MANZANILLO	44/NSF/F
xx MAR	ARGO/120 OPS. - 28 DOS	OCE98-11504	PAPEETE/EASTER ISLAND	
**** R/V ATLANTIS (2000) ****				
xx AUG	NA7/MAR-30N/	BLACKMAN/SIO/	TBD	40/NSF/F
xx SEP	ALVIN+JASON- 25 DOS	OCE-9618213	TBD	
**** TO BE SCHEDULED ****				
xx xxx	IN3/CENT.INDIAN RIDGE/FORNARI/VAN DOVER		TBD	--/NSF/F
xx xxx	JASON/ARGO/120 - 20 DOS	OCE-9712358	TBD	

1999 and BEYOND

proposed *Alvin* & ROV DIVE PROGRAMS

(Sorted by Dive Site)

Year	Program	Agency	Vehicle(s)	Days on Sta.		Total Days on Sta.
			Southern EPR			
1999	Naar	NSF	*Alvin* & DSL-120	21		
2000	vanDover	NSF	*Alvin*	8		29
			9 North. EPR			
1999	Cary	NSF	*Alvin*	8		
1999	Cochran	NSF	*Alvin*	30		
1999	Gregg	NSF	*Alvin*	3		
1999	Schouten	NSF	DSL-120 & Jason	25		
1999	Tolstoy	NSF	*Alvin*	8		
99/00	KIM	NSF	ALVIN	20		
2000	Tolstoy	NSF	Jason	4		98
			California Coast			
1999	Levin	NSF	*Alvin*	26		
1999	Rathburn	NSF	*Alvin*	13		39
			Juan de Fuca			
1999	Delaney	NSF	*Alvin* & Jason	30		
1999	Johnson	NSF	*Alvin*	29	(ROBE)	
1999	Johnson	NSF	*Alvin*	7		
1999	Lilley	NSF	*Alvin*	6		
1999	Rona	NSF	Jason	12		
1999	Schaeffer	NSF	*Alvin*	2		86
			Other Regions			
1999	Ballard	ONR	Jason,DSL-120,ARGO	21	(Black Sea)	
1999	Clift	NSF	*Alvin*	36	(Marianas)	
1999	Davis/Galagher	NSF	Jason	14	(GLOBEC)	
1999	Fryer	NSF	DSL-120	?	(Marianas)	
1999	Rona	NSF	*Alvin* & Jason	21	(MAR-15N)	
1999	Smith,D.	NSF	DSL-120	25	(Hess Deep)	
1999	Staudigel	NSF	*Alvin*	5	(any vent)	
1999	Tucholke	NSF	*Alvin*,DSL-120,ARGO	21	(MAR-23N)	
99/00	Orange	NSF	ALVIN, DSL-120, JASON	38	(W. AUSTRALIA)	
2000	Chave	NSF	ALVIN	9	(MAR-TAG)	
2001	Chave	NSF	ALVIN	7	(MAR-TAG)	
2000	Silver	NSF	Jason	30	(New Guinea)	227

479 DAYS

APPENDIX V

Charge/Operating Days
(1995-1996-1997-1998-1999)

	1995 Total	1996 Total	1997 Total	1998 Total	1999 Proj't
A-II / Atlantis	319	93 *	185 *	273 *	339
Ewing	310	315	273	245 *	323
Knorr	350	279	284	265	0 *
Melville	297	297	308	216 *	252
Revelle		80 *	288	316	277
Thompson	333	246	214	277	272
Edwin Link	175 *	186	214	141	79
Endeavor	228	147	201	158 *	234
Gyre	122	219	184	121	111
Moana Wave	195	144	202	169	170
New Horizon	240	174 *	259	241	191
Oceanus	187	168	209	238	195
Seward Johnson	271	304	284	265	213
Wecoma	145	198	199	226	174
Alpha Helix	144	73	118	172	135
Cape Hatteras	175	0	221	205	151
Cape Henlopen	198	185	206	195	186
Longhorn	72	130	46	63	49
Pelican	182	201	206	231	231
Pt. Sur	164	118 *	188	193	184
Sea Diver	180	132	105 *	133	48
Sproul	145	155	182	157	137
Weatherbird	154	167	151	132	136
Days	4586	4011	4733	4646	4087
Barnes	77	86	126	119	110
Bluefin	75	96	82	95	136
Calanus	48	50	111	174	138
Laurentian	91	72	44	148	215
Urraca	0	0	0	173	109
Grand Total Days	4877	4315	5098	5355	4795

* Overhaul or partial service

Note: Based on data available on 11 Sept. '98

9/16/98 - DAM

LARGE SHIP CHARGE DAYS
(by Agency & Year)

	1995	1996	1997	1998	1999
NSF Days	1371	1124	1018	920	814
%	85.2	85.8	65.6	57.8	55.4
ONR Days	84	20	88	53	166
%	5.2	1.5	5.7	3.3	11.3
NOAA Days	20	25	89	49	182
%	1.2	1.9	5.7	3.1	12.4
NAVO Days	0	0	184	212	252
%	0	0	11.8	13.3	17.2
OTHER Days	134	141	173	358	49
%	8.3	10.8	11.2	22.5	3.5
TOTAL Days	1609	1310	1552	1592	1463

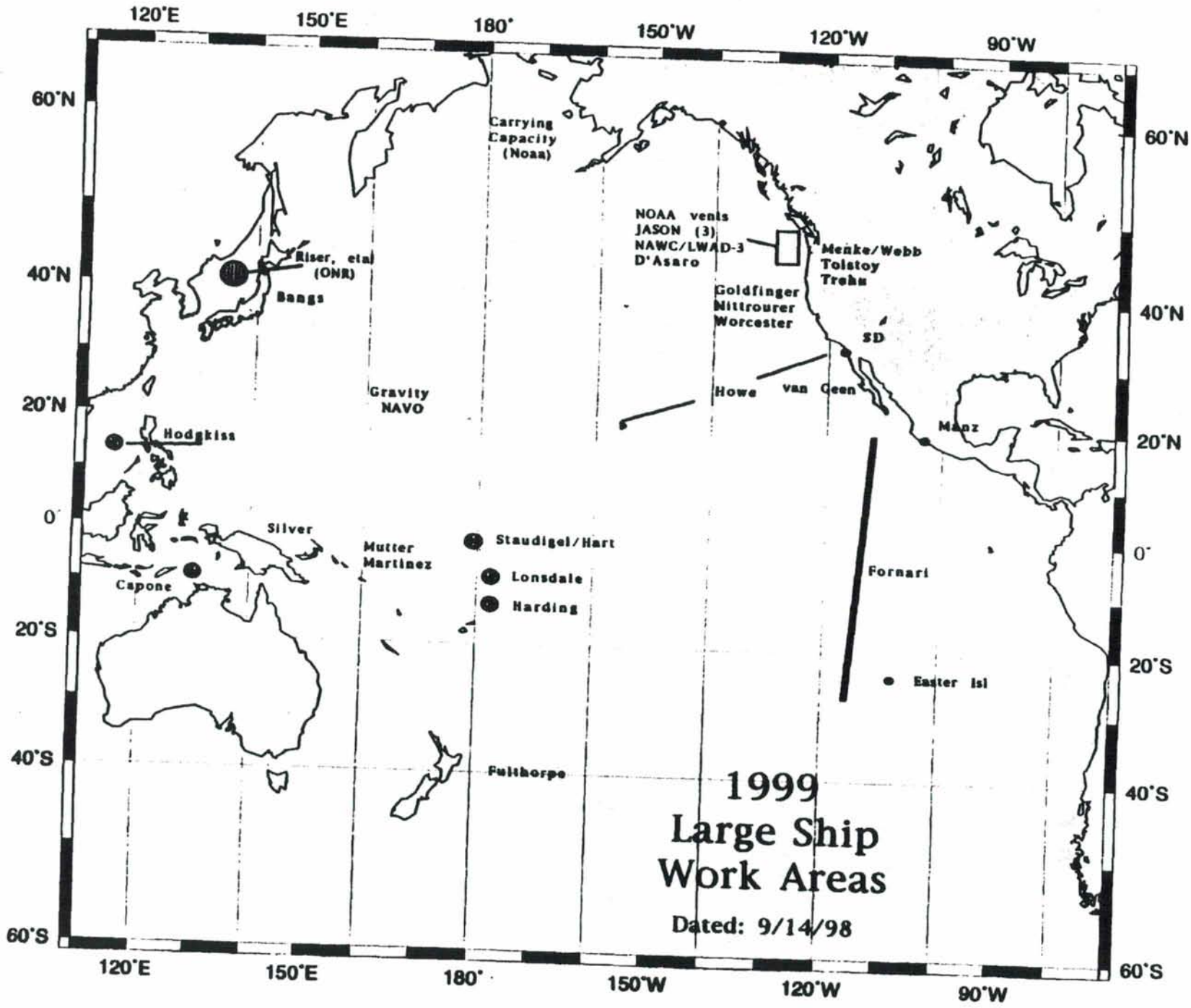
9/16/98 - DAM

UNOLS FLEET CHARGE DAYS

(by Agency & Year)

		1995	1996	1997	1998	1999
NSF	Days	3249	2738	2909	2670	2409
	%	66.6	63.5	57.1	49.9	50.2
ONR	Days	403	454	499	430	652
	%	8.3	10.5	9.8	8.0	13.6
NOAA	Days	354	145	378	612	446
	%	7.3	3.4	7.4	11.6	9.3
NAVO	Days	0	0	373	468	474
	%	0	0	7.3	8.7	9.9
OTHER	Days	872	978	937	1166	814
	%	17.9	22.6	18.4	21.8	17.0
TOTAL	Days	4877	4315	5096	5355	4795

9/16/98 - DAM


120°E
150°E
180°
150°W
120°W
90°W
60°N
40°N
20°N
0°
20°S
40°S
60°S
Carrying Capacity (Noaa)
NOAA vents
JASON (3)
NAWC/LWAD-3
D'Asaro
Menke/Webb
Tolstoy
Treha
Goldfinger
Nittrourer
Worcester
SD
Howe
van Geen
Manz
Riser, et al (ONR)
Bangs
Gravity NAVO
Hodgkiss
Silver
Mutter
Martinez
Staudigel/Hart
Lonsdale
Harding
Capone
Fornari
Easter Isl
Fulthorpe
1999
Large Ship
Work Areas
Dated: 9/14/98

WHOI / Moller

APPENDIX VI

UNOLS Arctic Icebreaker Coordinating Committee

- Scientific oversight of Arctic polar science support on US vessels
- 8 members from academic community
- Supported by NSF and US Coast Guard
- Ties to agencies supporting Arctic research from vessels
- Ties to science organizations concerned with Arctic research from vessels

AICC Business

- USCG Arctic ship scheduling & "user experience" modeled on UNOLS
- Science-of-opportunity guidelines
- Technical support oversight
- Logistics coordination of Arctic icebreaker science missions
- Expeditionary planning
- Oversee science aspects of HEALY construction and outfitting

USCGC HEALY

- "A modern polar research vessel designed to be operated by the US Coast Guard for the US polar science community"
- 420/82/28 feet; 15,332 tons; 30,000 HP; twin screw; classic bow; 4.5'ice @ 3 knots; crew of 75 (includes 14 in helo group)
- Science outfitting similar to new AGORs; labs ca. 4000 sq. ft.; 35/50 berths

AICC Recommendations for HEALY

- increase area and bench space in labs
- improve traffic flow
- fantail staging area
- choices for vans
- lab temp control
- seawater temp monitor/control
- area for incubations
- reduce/move science freezer
- stowage for on-ice equipment
- relocate dive locker
- work area visibility
- portable lab freezers and refrigerators
- portable con station

APPENDIX VII

NSF Budget Request - FY 1999

(figures in millions)

	FY 1998	FY 1999	Increase	Percent
Research and Related Activities				
Biological Sciences*	370.82	416.52	45.70	12.3%
Computation and Information Sciences	307.17	329.64	22.47	7.3%
Engineering	357.97	400.55	42.58	11.9%
Geosciences	455.11	507.31	52.20	11.5%
Math & Physical Sciences	715.71	792.03	76.32	10.7%
Social & Behavioral Sciences	130.66	150.26	19.60	15.0%
Polar Sciences	228.53	244.96	16.43	7.2%
Critical Tech. Institute	2.73	2.73	0.00	0.0%
	$2,568.70	**$2,844.00**	**$275.30**	**10.7%**
Education & Human Resources	**$632.50**	**$683.00**	**$50.50**	**8.0%**
Major Research Equipment**	**$109.00**	**$94.00**	**($15.00)**	**-13.8%**
Administration/Operations	**$141.80**	**$152.00**	**$10.20**	**7.2%**
NSF Total	**$3,452.00**	**$3,773.00**	**$321.00**	**9.3%**

*BIO includes $40.0M for Plant Genome Research

**MRE includes $31.0M for MPS projects, $42.0M for Polar Sciences projects, and $21.0M for GEO projects

NSF Budget Request - FY 1999

(figures in millions)

	FY 1998	FY 1999	Increase	Percent
Geosciences				
Atmospheric Sciences*	153.82	170.22	16.40	10.7%
Earth Sciences	95.13	106.70	11.57	12.2%
Ocean Sciences	206.16	230.39	24.23	11.8%
	$455.11	**$507.31**	**$52.20**	**11.5%**

	FY 1998	FY 1999	Increase	Percent
Ocean Sciences				
Ocean Sciences Research Support	112.15	127.50	15.35	13.7%
Oceanographic Centers & Facilities	52.26	56.96	4.70	9.0%
Ocean Drilling Program	41.75	45.93	4.18	10.0%
	$206.16	**$230.39**	**$24.23**	**11.8%**

*MRE account includes $21.0M for Polar Cap Observatory

NSF Ocean Sciences Priorities - FY1999

Ocean Sciences Research Support - $127.50 M

- enhanced support for individual investigator research projects
- expanded support for interdisciplinary studies of Life in Extreme Environments (LExEn)
- increased support for coastal ocean process studies
- increased support for field programs in earth system history and ecosystems research
- expanded modeling and data assimilation efforts for ocean circulation and ocean flux studies
- joint effort with Earth Sciences for more focused studies of continental margins
- continue long term process studies of deep ocean systems and amplify efforts to develop new technologies and instrument systems for "seafloor observatory" capabilities
- additional funds for projects of significance to society in partnerships with national consortia such as National Oceanographic Partnership Program (NOPP) or with international funding agencies such as the European Union.

NSF Ocean Sciences Priorities - FY1999

Oceanographic Centers and Facilities - $56.96 M

- provide support for academic research fleet at level to ensure required ship time and capabilities are provided to satisfy research project requirements
- enhance technical and shared-use instrumentation support for research projects to reduce burdens on sea-going scientists
- continue maintenance and ship-improvement programs for modern and efficient academic research fleet.

Ocean Drilling Program - $45.93 M

- enhance operational support to ensure research project requirements are met
- complete refit of the JOIDES Resolution
- enhance support for research project awards with focus on earth system history and continental margin studies.

Academic Research Fleet Operations and Management Review

Context

- National Science Board reviewed request for continuation of Oceanographic Research Vessel and Submersible Operations awards for 5 years in November, 1997.
- Operations awards were approved for a shorter duration -- 2 years, 1998 and 1999.
- NSF staff are to review and report back on the cost-effectiveness of the present and possible alternative methods of managing ship operations
- Review procedures will follow principles outlined in NSB Resolution concerning Competition, Recompetition, and Renewal of NSF Awards for facilities operations (NSB 97-224).

Academic Research Fleet Operations and Management Review

Action

- Establish Academic Research Fleet Operations Review Panel
  - Six to eight members
  - Academic, industry, and government representatives

- Provide a comprehensive and balanced evaluation of science support services and capabilities, ship operations, and size and organizational structure for the support of the academic research fleet.

- Recommend actions by NSF to ensure the most cost-effective means of organizing and managing the research fleet for support of research requirements.

Academic Research Fleet Operations and Management Review

Terms of Reference

1) Review and evaluate the current and projected research vessel fleet required for research sponsored by the National Science Foundation within a national framework that includes research requirements of other federal agencies, state and local governments, and private sources.

   This review should be done in the context of environmental and geoscience research, in general, and the specific contributions the Academic Research Fleet provides to the research enterprise as a whole.

   Specific issues include:

   - Do the capabilities and operating modes of the academic ships meet research requirements?
   - Are the number of ships overall, and distribution within size categories, consistent with the level of research support and type of seagoing research projects expected in the future?
   - Are specialized capabilities required to meet research priorities adequately included in the overall fleet profile?

Academic Research Fleet Operations and Management Review

Terms of Reference

2) Review and evaluate overall management structure of the Academic Research Fleet; review and evaluate existing capabilities and services provided by the operating organizations; and review and evaluate possible future changes in academic fleet operations to ensure optimal operations of the academic fleet to support research requirements.

The review context should include consideration of the distributed ownership of the fleet, cost sharing for both capital acquisition and operations and requirements of multiple research sponsors who participate in scientific, operational and financial support.

Specific issues include:

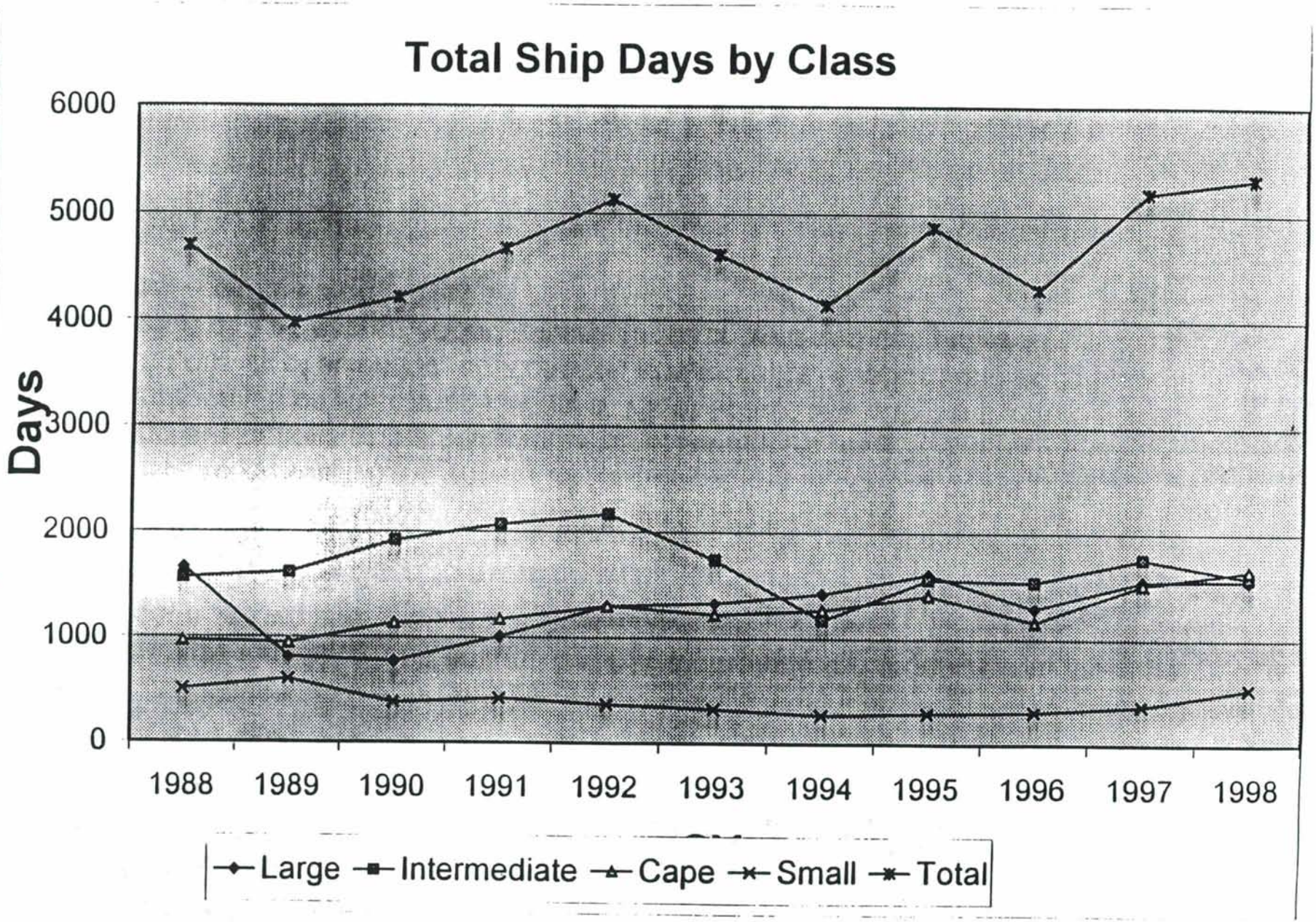
- Are organizational arrangements and structures appropriate?
- Can the Academic Research Fleet system be managed in a more cost-effective manner?
- Should elements of the research fleet be recompeted?

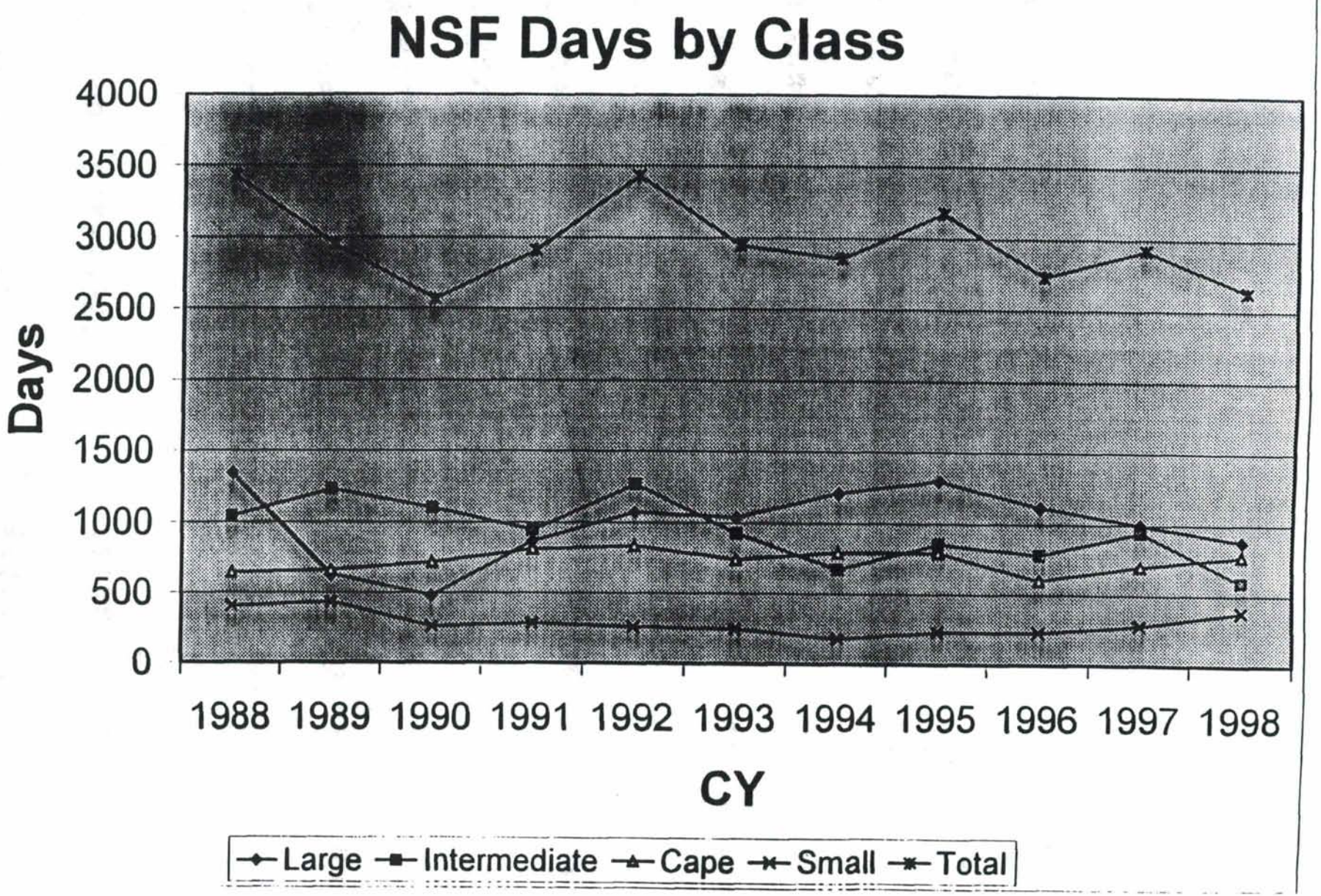
Academic Research Fleet Operations and Management Review

Terms of Reference

3) Provide recommended actions by NSF to improve the organization, management, and cost effective operation of the Academic Research Fleet in support of scientific capabilities required to maintain world leadership in ocean and environmental science research.

The recommendations should be formulated in the context of the results of the review and evaluations of the first two terms of reference. Key elements include providing a perspective on Academic Research Fleet operations within a national context, relevance and quality of scientific, educational, and technical support; and benefits and added value of any recommended actions for peer reviewed competition or recompetition of research fleet components.


Total Ship Days by Class
Days
6000
5000
4000
3000
2000
1000
0
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
Large
Intermediate
Cape
Small
Total


NSF Days by Class
Days
4000
3500
3000
2500
2000
1500
1000
500
0
1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998
CY
Large
Intermediate
Cape
Small
Total

NSF TOTAL DAYS

Ship	Length		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Melville	279		145	148 m/l	m/l		137	241	302	256	291	200	154
Knorr	279		280 m/l	m/l	m/l		271	167	218	350	267	153	190
Thompso	274	-				0	231	223	146	215	171	62	131
Revelle	274	-									1	233	128
Atlantis	274	-										157	202
Ewing	239	-			111	300	190	221	292	180	311	192	76
A II	210		254	194	147	247	146	183	253	296	78 o/s		
Conrad	208		275	58 o/s									
Thompso	208		121 o/s										
Washingt	208		269	229	224	320	94 o/s						
		Sub Total	1344	629	482	867	1069	1035	1211	1297	1119	997	881
Vickers	220				10	86	55	115 o/s					
M.Wave	210		281	285	166	218	223	183	142	171	105	179	111
Johnson	204		12	0	12	12	36	31	50	81	208	179	124
Wecoma	185		169	157	190	154	229	135	75	70	103	116	70
Endeavor	184		144	193	134	67	150 m/l		127	191	78	117	0
Gyre	182		10	91	118	7	51	23	49	0	0	9	31
Oceanus	177		148	227	96	51	171	87 m/l		124	71	155	161
N.Horizon	170		104	67	105	89	130	170	175	193	148	143	60
Iselin	170		164	172	271	228	197	159	4 o/s				
Link	168		7	37	0	34	24	21	51	22	68	43	37
		Sub Total	1039	1229	1102	946	1266	924	673	852	781	941	594
P.Sur	135		41	60	79	49	79	93	119	110	46	81	121
Hatteras	135		137	178	146	187	168	168	130	133 l/u		120	111
Helix	133		194	115	105	109	102	129	145	89	27	71	139
Sproul	125		121	83	101	121	96	30	64	78	79	118	65
Henlopen	120		30	101	35	136	125	128	117	167	158	84	106
Wbird II	115	--			225	193	215	99	140	151	144	130	134
Sea.Diver	113	--							8	30	57	6	18
Warfield	106		111	107 o/s									
Pelican	105		9	16	28	0	34	56	29	0	23	54	62
Longhorn	105		0	0	0	15	14	39	39	36	70	4	6
Urraca	96	-									0	38	15
		Sub Total	643	660	719	810	833	742	791	794	604	706	777
Laurentia	80		46	46	25	50	28	56	59	79	46	35	140
BlueFin	72		51	37	51	25	72	53	26	72	94	68	76
Calanus	68		116	94	55	72	85	91	50	22	28	76	90
Barnes	66		60	70	129	139	75	46	46	57	61	101	72
WBI	65		130	186 o/s									
		Sub Total	403	433	260	286	260	246	181	230	229	280	378
		Total	3429	2951	2563	2909	3428	2947	2856	3173	2733	2924	2630

Total Days

Ship	Length		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Melville	279		207	224	m/l	m/l	170	306	303	297	297	308	216
Knorr	279		303	m/l	m/l	m/l	271	278	253	350	269	284	266
Thompso	274					83	277	282	255	333	246	214	277
Revelle	274										71	288	316
Atlantis	274											185	272
Ewing	239				198	300	299	221	310	310	315	273	215
A II	210		343	223	281	292	179	247	306	319	93	o/s	
Conrad	208		352	103	o/s								
Thompso	208		128	o/s									
Washingt	208		331	260	293	336	105	o/s					
		Sub Total	**1664**	**810**	**772**	**1011**	**1301**	**1334**	**1427**	**1609**	**1291**	**1552**	**1562**
Vickers	220				10	86	226	203	o/s				
M.Wave	210		300	295	283	269	278	249	215	195	144	202	169
Johnson	204		12	0	177	220	211	136	88	271	305	290	281
Wecoma	185		226	218	239	212	270	220	84	145	198	199	226
Endeavor	184		224	259	220	196	201	m/l	130	228	147	201	158
Gyre	182		133	163	212	220	129	159	148	122	219	184	144
Oceanus	177		230	252	157	213	313	189	m/l	187	168	209	245
N.Horizon	170		216	169	233	207	175	239	241	240	174	259	221
Iselin	170		217	222	279	239	206	221	21	o/s			
Link	168		7	37	107	206	157	122	247	175	186	214	141
		Sub Total	**1565**	**1615**	**1917**	**2068**	**2166**	**1738**	**1174**	**1563**	**1541**	**1758**	**1585**
P Sur	135		141	163	177	155	177	174	185	164	118	188	193
Hatteras	135		204	190	180	228	216	194	173	175	l/u	221	205
Helix	133		198	155	109	112	146	167	163	144	73	118	172
Sproul	125		159	117	135	181	140	146	111	145	155	182	164
Henlopen	120		57	121	64	159	170	157	170	198	185	195	195
Wbird II	115				238	204	225	109	144	154	167	153	134
Sea Diver	113								138	180	134	105	133
Warfield	106		112	107	o/s								
Pelican	105		93	89	121	93	168	224	134	182	201	203	244
Longhorn	105		0	0	111	44	58	53	53	72	130	46	63
Urraca	96											112	147
		Sub Total	**964**	**942**	**1135**	**1176**	**1300**	**1224**	**1271**	**1414**	**1163**	**1523**	**1650**
Laurentia	80		58	57	53	83	59	62	83	91	72	44	148
BlueFin	72		72	61	71	49	108	96	59	75	96	82	95
Calanus	68		137	160	101	127	110	106	54	48	50	111	167
Barnes	66		80	108	154	157	87	60	72	77	86	126	119
WBI	65		154	211	0/s								
		Sub Total	**501**	**597**	**379**	**416**	**364**	**324**	**268**	**291**	**304**	**363**	**529**
			4694	3964	4203	4671	5131	4620	4140	4877	4299	5196	5326
		Total											

RESULTS FROM SHIP DATA QUERIES

Overview:

Data were queried from two separate data bases the IBM/NSF data base and the Access/OCE panel data bases for the four disciplinary OCE programs (BO, CO, MGG, and PO). The IBM system was queried based on SPDE code entered under the subsection I. Data with codes containing A (Large Ship-primary user) and C (Small Ship-primary user) were returned under this query. Data for the overall number of proposal for each fiscal year, as well as, success rate were gathered using the Executive Information System (EIS). The data covers the period between fiscal year 1988 to fiscal year 1996.

For the Access data bases, data were queried from each separate access file for each program and panel. Data from the various panels, both special panels (e.g. GLOBEC, JGOFS, MESH) and core panels, were combined under one spreadsheet for each program. Data for ship time were based on the information entered under the ship request form in the Access data base. Program Managers provided a detailed list of proposals which have been awarded or declined over the last three to four years. These two data bases were then combined to determine the success rates of proposal with and without ship request, as well as, trends in the number of ship request. Access data covers the period between fiscal year 1996 (1995 for some programs) to fiscal year 1998. In all graphs, data retrieved from the IBM system (1988-1995) are indicated by filled symbols and solid lines. Data retrieved from the Access data base (1996-1998) are indicated by unfilled symbols and dashed lines.

The major difference between the two data bases is that the IBM uses proposals, where as, Access uses projects (treats collaborative proposals as one project) as the basic unit. Generally, the number of projects is 10 – 15 % lower than the number of proposals.

NOTE:

The proposal, award and success rate data in this report only track the four large disciplinary program areas in the Ocean Sciences Research Section -- Physical Oceanography, Biological Oceanography, Marine Geology and Geophysics and Chemical Oceanography. Collectively these programs represent approximately 85% of the "research funds" in the division.

The Oceanographic Technology and Interdisciplinary Cooperation (OTIC) program and Education and Human Resources (EHR) program in the research section and the Ocean Drilling Program (ODP) grants program are not included. OTIC was transfered to the research section from the facilities section in 1993 with an expansion of scope and the EHR program was established from ongoing distributed activities in 1997. They and the ODP grants program do not have historical "data bases" equivalent to those used for these statistics.

Figure 1: Overall trends in ship requests-total number of proposals with ship requests (Total), number of awards with ship requests (Awards), and number of declines with ship requests (Declines). Data retrieved from the IBM system (1988-1995) are indicated by filled symbols. Data retrieved from the Access data base (1996-1998) are indicated by unfilled symbols.

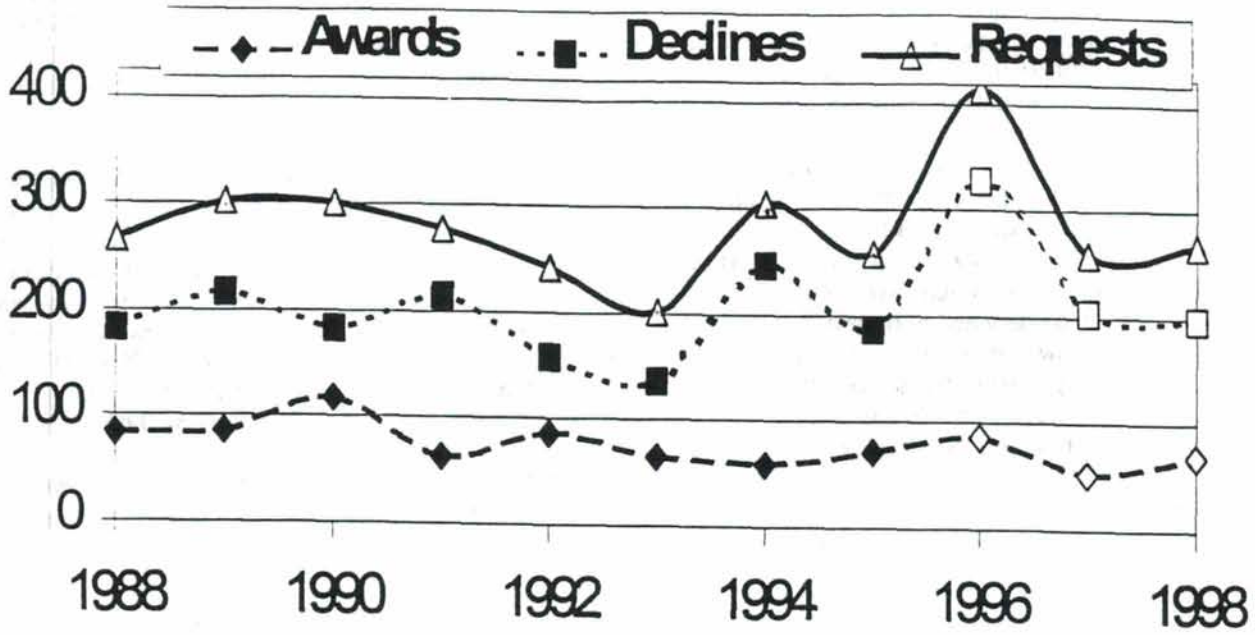


Fig 2. Number of proposals with ship request by program. Data retrieved from the IBM system (1988-1995) are indicated by filled symbols. Data retrieved from the Access data base (1996-1998) are indicated by unfilled symbols.

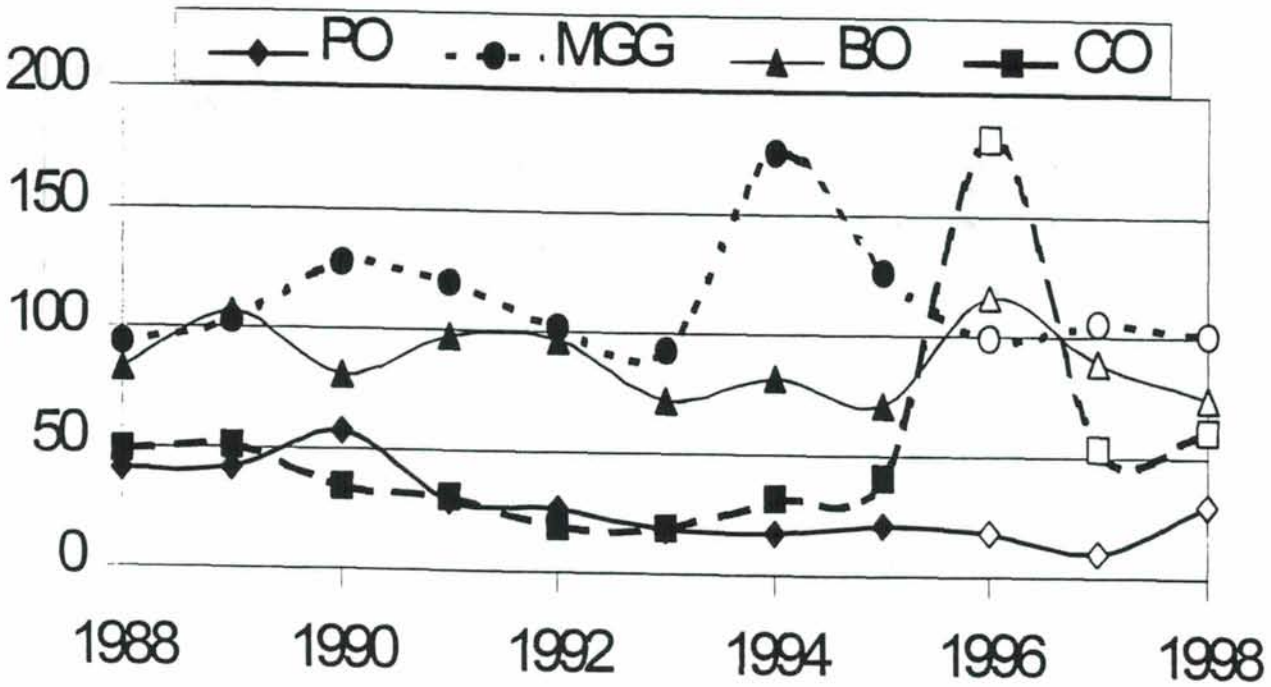


Fig 3. Overall success rates for the four disciplinary programs and success rates for proposal with ship requests. Data retrieved from the IBM system (1988-1995) are indicated by filled symbols. Data retrieved from the Access data base (1996-1998) are indicated by unfilled symbols.

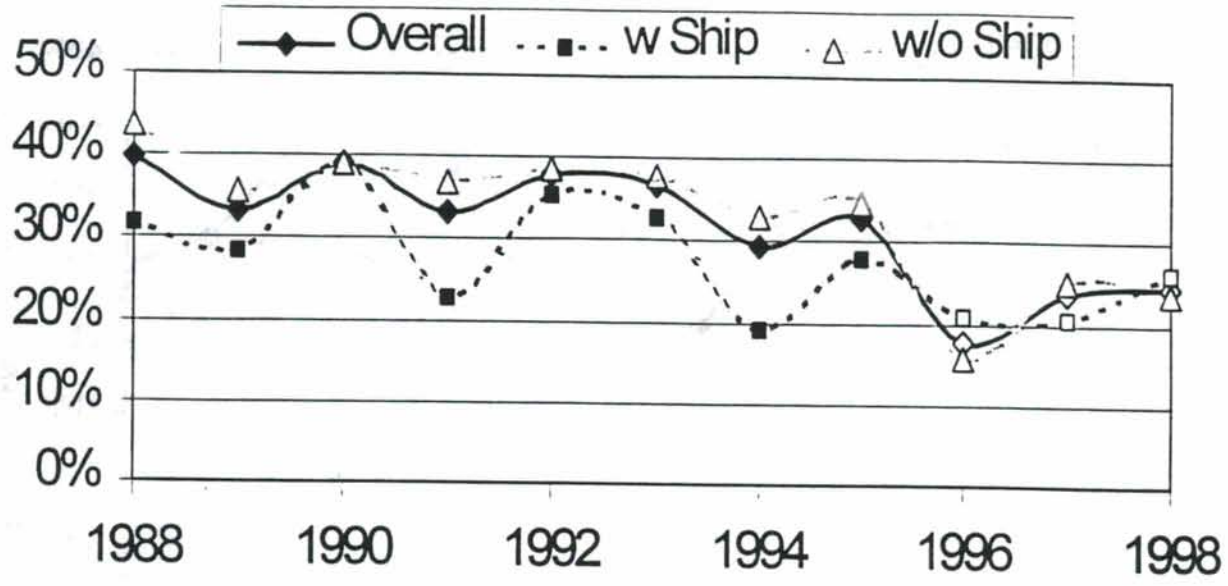


Fig 4. Total number of OSRS proposals and the percent of those proposals requesting ship time. Data retrieved from the IBM system (1988-1995) are indicated by filled symbols. Data retrieved from the Access data base (1996-1998) are indicated by unfilled symbols.

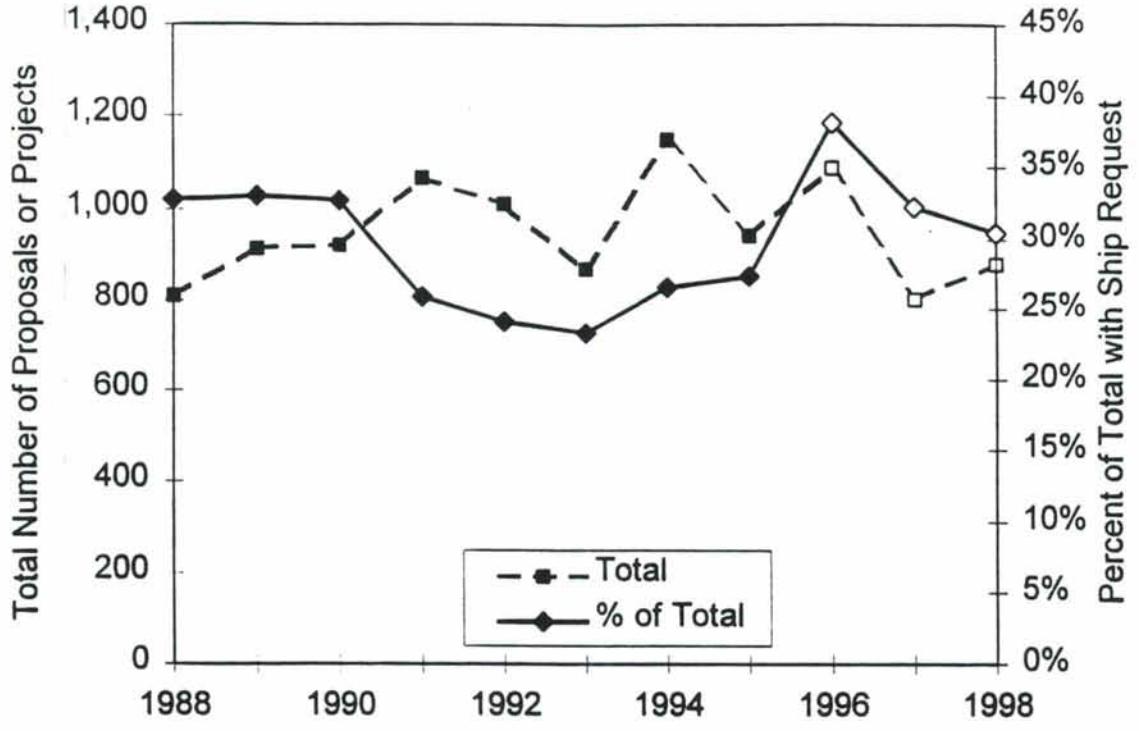


Fig. 5. Total number of OSRS awards and the percent of those awards requesting ship time. Data retrieved from the IBM system (1988-1995) are indicated by filled symbols. Data retrieved from the Access data base (1996-1998) are indicated by unfilled symbols.

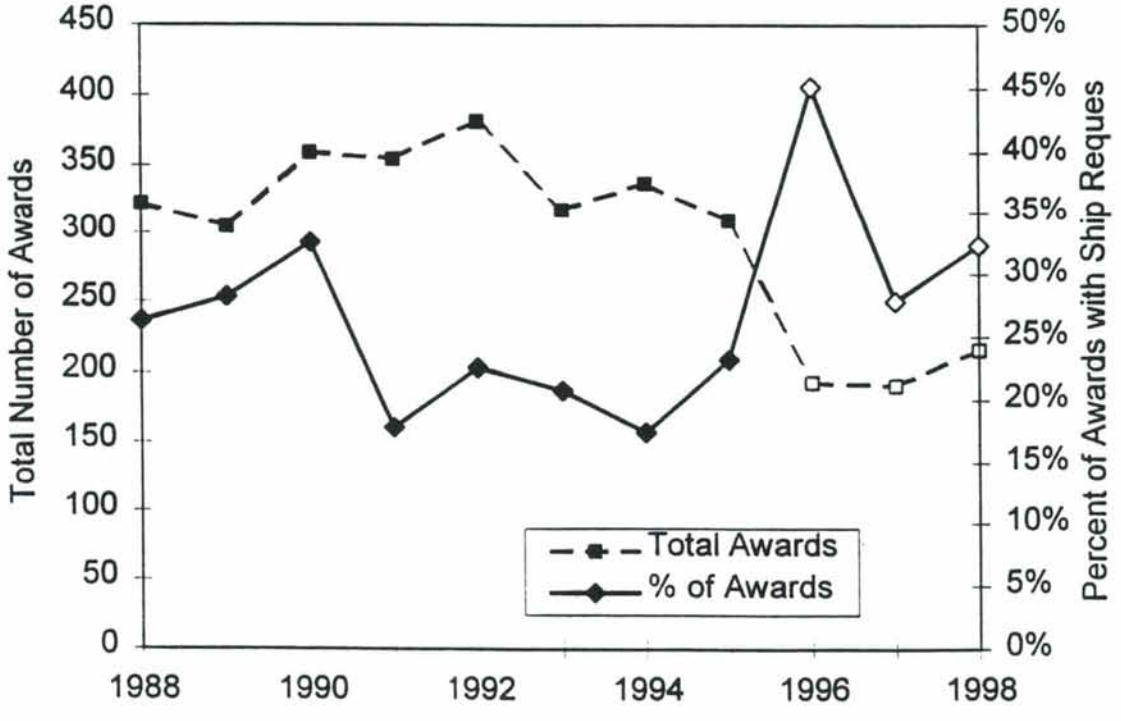


Table 1: Summary of ship request data used in this analysis. Difference refers to the difference between the success rate of projects with ship time and projects without ship time (a + number indicates projects with ship time had a higher success rate then those without ship time). Bold type indicates data retrieved from the Access system; all other data are from the IBM system.

Year Program	Ship Request			Total Proposals			Success Rate			
	Awards	Declines	Total	Awards	Declines	Total	Overall	w/ Ship	w/o Ship	Difference
1988 PO	12	29	41	72	78	150	48%	29%	55%	-26%
1989 PO	14	28	42	52	87	139	37%	33%	39%	-6%
1990 PO	29	28	57	96	114	210	46%	51%	44%	7%
1991 PO	11	18	29	70	102	172	41%	38%	41%	-3%
1992 PO	20	6	26	82	102	184	45%	77%	39%	38%
1993 PO	9	9	18	68	87	155	44%	50%	43%	7%
1994 PO	6	11	17	69	125	194	36%	35%	36%	0%
1995 PO	6	15	21	75	97	172	44%	29%	46%	-17%
1996 PO	**4**	**14**	**18**	**35**	**121**	**156**	**22%**	**22%**	**22%**	**0%**
1997 PO	**2**	**8**	**10**	**40**	**61**	**101**	**40%**	**20%**	**42%**	**-22%**
1998 PO	**8**	**22**	**30**	**59**	**125**	**184**	**32%**	**27%**	**33%**	**-6%**
1988 MGG	26	68	94	105	161	266	39%	28%	46%	-18%
1989 MGG	24	79	103	95	184	279	34%	23%	40%	-17%
1990 MGG	43	85	128	128	193	321	40%	34%	44%	-10%
1991 MGG	27	93	120	118	250	368	32%	23%	37%	-14%
1992 MGG	23	79	102	101	219	320	32%	23%	36%	-13%
1993 MGG	22	71	93	98	210	308	32%	24%	35%	-12%
1994 MGG	30	145	175	122	305	427	29%	17%	37%	-19%
1995 MGG	34	92	126	102	227	329	31%	27%	33%	-7%
1996 MGG	**15**	**84**	**99**	**64**	**351**	**415**	**15%**	**15%**	**16%**	**0%**
1997 MGG	**14**	**91**	**105**	**69**	**248**	**317**	**22%**	**13%**	**26%**	**-13%**
1998 MGG	**19**	**82**	**101**	**67**	**208**	**275**	**24%**	**19%**	**28%**	**-9%**
1988 BO	24	59	83	74	160	234	32%	29%	33%	-4%
1989 BO	30	76	106	94	224	318	30%	28%	30%	-2%
1990 BO	26	55	81	89	195	284	31%	32%	31%	1%
1991 BO	12	85	97	91	266	357	25%	12%	30%	-18%
1992 BO	30	66	96	127	262	389	33%	31%	33%	-2%
1993 BO	27	45	72	91	189	280	33%	38%	31%	7%
1994 BO	14	68	82	92	268	360	26%	17%	28%	-11%
1995 BO	20	51	71	80	191	271	30%	28%	30%	-2%
1996 BO	**37**	**79**	**116**	**55**	**211**	**266**	**21%**	**32%**	**12%**	**20%**
1997 BO	**16**	**73**	**89**	**52**	**208**	**260**	**20%**	**18%**	**21%**	**-3%**
1998 BO	**29**	**46**	**75**	**62**	**198**	**260**	**24%**	**39%**	**18%**	**21%**
1988 CO	23	26	49	72	90	162	44%	47%	43%	4%
1989 CO	18	33	51	64	114	178	36%	35%	36%	-1%
1990 CO	19	16	35	46	60	106	43%	54%	38%	16%
1991 CO	13	18	31	76	96	172	44%	42%	45%	-3%
1992 CO	13	6	19	71	45	116	61%	68%	60%	9%
1993 CO	8	11	19	61	64	125	49%	42%	50%	-8%
1994 CO	9	23	32	55	114	169	33%	28%	34%	-5%
1995 CO	12	29	41	53	118	171	31%	29%	32%	-2%
1996 CO	**31**	**151**	**182**	**39**	**213**	**252**	**15%**	**17%**	**11%**	**6%**
1997 CO	**21**	**33**	**54**	**29**	**93**	**122**	**24%**	**39%**	**12%**	**27%**
1998 CO	**14**	**47**	**61**	**28**	**132**	**160**	**18%**	**23%**	**14%**	**9%**
1988 OSRS	85	182	267	323	489	812	40%	32%	44%	-12%
1989 OSRS	86	216	302	305	609	914	33%	28%	36%	-7%
1990 OSRS	117	184	301	359	562	921	39%	39%	39%	0%
1991 OSRS	63	214	277	355	714	1069	33%	23%	37%	-14%
1992 OSRS	86	157	243	381	628	1009	38%	35%	39%	-3%
1993 OSRS	66	136	202	318	550	868	37%	33%	38%	-5%
1994 OSRS	59	247	306	338	812	1150	29%	19%	33%	-14%
1995 OSRS	72	187	259	310	633	943	33%	28%	35%	-7%
1996 OSRS	**87**	**328**	**415**	**193**	**896**	**1089**	**18%**	**21%**	**16%**	**5%**
1997 OSRS	**53**	**205**	**258**	**190**	**610**	**800**	**24%**	**21%**	**25%**	**-5%**
1998 OSRS	**70**	**197**	**267**	**216**	**663**	**879**	**25%**	**26%**	**24%**	**2%**

UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

An association of institutions for the coordination and support of university oceanographic facilities.

DATE: 10/9/98

TO: Distribution

FROM: Bob Knox, UNOLS Chair

SUBJECT: Success rates of NSF proposals, ship and non-ship

At the September UNOLS Council meeting there was some discussion about the interpretation of a chart of historical proposal success rates (*Enclosure 1*) presented by Don Heinrichs. Don has kindly provided the underlying data to UNOLS, and I have done a small amount of additional analysis (*Enclosure 2*).

The table lists awards, declines, and the sum of these, by year and by NSF/OCE science program, broken into categories of proposals requesting ship use, proposals not requesting ship use, and the total. The fifth block on pg. 2 sums across the four disciplinary programs. A success is an award of any size, not necessarily the amount proposed, as Don has noted.

The only numbers I have added are "success ratio," i.e., the chance of getting a seagoing proposal funded as compared to a non-seagoing one. The algebra is just [(sum of seagoing awards)/(sum of seagoing awards and declines)]/[(sum of nonseagoing awards)/(sum of nonseagoing awards and declines)] using the data in the table. "Sum" in all cases is over the 11 years tabulated.

The overall success ratio, thus defined, is 82%, i.e. on average a seagoing proposer had 4/5 the prospect of success that a non-seagoer did. This varies significantly by program: it is a nearly even chance in PO and BO, a 7/8 shot in CO, and a 2/3 shot in MG&G. One also sees that MG&G has been fairly consistent over time in this pattern; the other programs show larger year-to year variations. I suppose these have to do with random statistics of proposal submissions and quality, and with time scales of major field programs like WOCE, JGOFS, etc.

Don has noted in providing these data that the NSF data system changed between 1995 and 1996. The main difference is that in the earlier years individual proposals were counted, whereas in the recent years a set of collaborative proposals is counted as one. It is estimated that this may shift the overall proposal count down by 10-15% in the later years compared to what the previous system would have counted. It seems unlikely that it would change the ship vs. non-ship comparison in any signficant way.

Distribution: UNOLS Council, current and immediate past
D. Hayes
D. Heinrichs
UNOLS Office

Enclosures:
1. NSF Overall Proposal Success Rate Chart (Fig. 3)
2. Bob Knox's Table - NSF Ship/non-ship proposal success data

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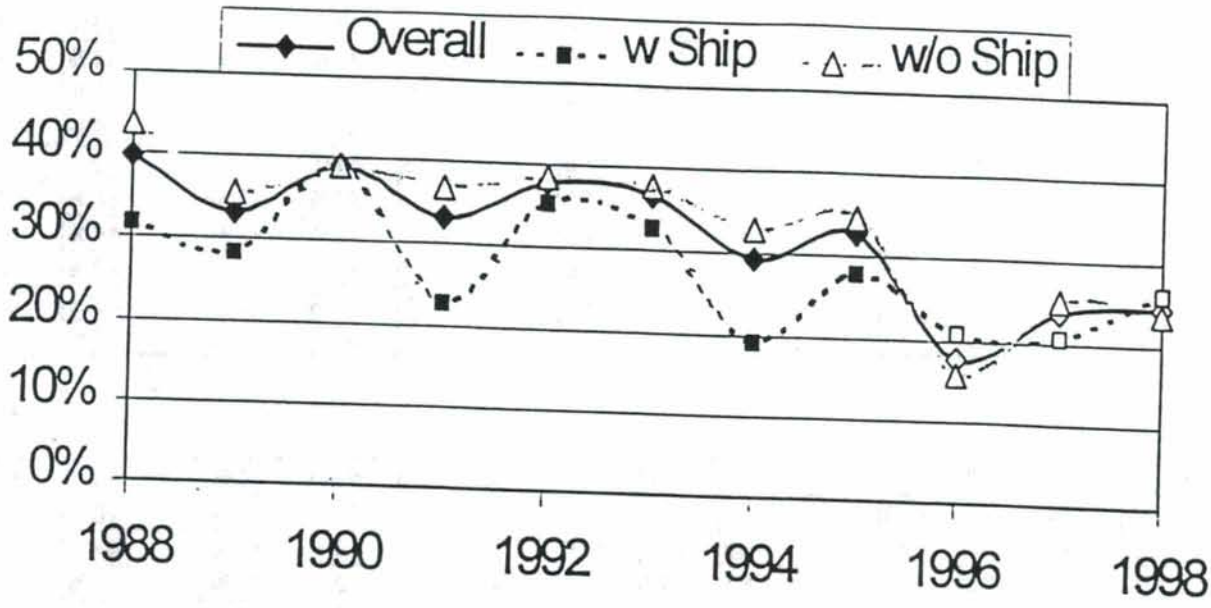
Fig 3. Overall success rates for the four disciplinary programs and success rates for proposal with ship requests. Data retrieved from the IBM system (1988-1995) are indicated by filled symbols. Data retrieved from the Access data base (1996-1998) are indicated by unfilled symbols.



		Ship		Non-Ship			Ship and Non-Ship			Success Rates			Diff.
	Awd.	Decl.	Tot.	Awd.	Decl.	Tot	Awd.	Decl.	Tot.	All	Ship	Non-Ship	S - NS
PO88	12	29	41	60	49	109	72	78	150	48%	29%	55%	-26%
89	14	28	42	38	59	97	52	87	139	37%	33%	39%	-6%
90	29	28	57	67	86	153	96	114	210	46%	51%	44%	7%
91	11	18	29	59	84	143	70	102	172	41%	38%	41%	-3%
92	20	6	26	62	96	158	82	102	184	45%	77%	39%	38%
93	9	9	18	59	78	137	68	87	155	44%	50%	43%	7%
94	6	11	17	63	114	177	69	125	194	36%	35%	36%	0%
95	6	15	21	69	82	151	75	97	172	44%	29%	46%	-17%
96	4	14	18	31	107	138	35	121	156	22%	22%	22%	0%
97	2	8	10	38	53	91	40	61	101	40%	20%	42%	-22%
98	8	22	30	51	103	154	59	125	184	32%	27%	33%	-6%
										PO Success Ratio			99%
GG 88	26	68	94	79	93	172	105	161	266	39%	28%	46%	-18%
89	24	79	103	71	105	176	95	184	279	34%	23%	40%	-17%
90	43	85	128	85	108	193	128	193	321	40%	34%	44%	-10%
91	27	93	120	91	157	248	118	250	368	32%	23%	37%	-14%
92	23	79	102	78	140	218	101	219	320	32%	23%	36%	-13%
93	22	71	93	76	139	215	98	210	308	32%	24%	35%	-12%
94	30	145	175	92	160	252	122	305	427	29%	17%	37%	-19%
95	34	92	126	68	135	203	102	227	329	31%	27%	33%	-7%
96	15	84	99	49	267	316	64	351	415	15%	15%	16%	0%
97	14	91	105	55	157	212	69	248	317	22%	13%	26%	-13%
98	19	82	101	48	126	174	67	208	275	24%	19%	28%	-9%
										MG&G Success Ratio			67%
BO 88	24	59	83	50	101	151	74	160	234	32%	29%	33%	-4%
89	30	76	106	64	148	212	94	224	318	30%	28%	30%	-2%
90	26	55	81	63	140	203	89	195	284	31%	32%	31%	1%
91	12	85	97	79	181	260	91	266	357	25%	12%	30%	-18%
92	30	66	96	97	196	293	127	262	389	33%	31%	33%	-2%
93	27	45	72	64	144	208	91	189	280	33%	38%	31%	7%
94	14	68	82	78	200	278	92	268	360	26%	17%	28%	-11%
95	20	51	71	60	140	200	80	191	271	30%	28%	30%	-2%
96	37	79	116	18	132	150	55	211	266	21%	32%	12%	20%
97	16	73	89	36	135	171	52	208	260	20%	18%	21%	-3%
98	29	46	75	33	152	185	62	198	260	24%	39%	18%	21%
										BO Success Ratio			99%

		Ship		Non-Ship			Ship and Non-Ship			Success Rates			Diff.
	Awd.	Decl.	Tot.	Awd.	Decl.	Tot	Awd.	Decl.	Tot.	All	Ship	Non-Ship	S - NS
CO 88	23	26	49	49	64	113	72	90	162	44%	47%	43%	4%
89	18	33	51	46	81	127	64	114	178	36%	35%	36%	-1%
90	16	16	32	30	44	74	46	60	106	43%	50%	41%	9%
91	13	18	31	63	78	141	76	96	172	44%	42%	45%	-3%
92	13	6	19	58	39	97	71	45	116	61%	68%	60%	9%
93	8	11	19	53	53	106	61	64	125	49%	42%	50%	-8%
94	9	23	32	46	91	137	55	114	169	33%	28%	34%	-5%
95	12	29	41	41	89	130	53	118	171	31%	29%	32%	-2%
96	31	151	182	8	62	70	39	213	252	15%	17%	11%	6%
97	21	33	54	8	60	68	29	93	122	24%	39%	12%	27%
98	14	47	61	14	85	99	28	132	160	18%	23%	14%	9%
										CO Success Ratio			87%
ALL 88	85	182	267	238	307	545	323	489	812	40%	32%	44%	-12%
89	86	216	302	219	393	612	305	609	914	33%	28%	36%	-7%
90	117	184	301	242	378	620	359	562	921	39%	39%	39%	0%
91	63	214	277	292	500	792	355	714	1069	33%	23%	37%	-14%
92	86	157	243	295	471	766	381	628	1009	38%	35%	39%	-3%
93	66	136	202	252	414	666	318	550	868	37%	33%	38%	-5%
94	59	247	306	279	565	844	338	812	1150	29%	19%	33%	-14%
95	72	187	259	238	446	684	310	633	943	33%	28%	35%	-7%
96	87	328	415	106	568	674	193	896	1089	18%	21%	16%	5%
97	53	205	258	137	405	542	190	610	800	24%	21%	25%	-5%
98	70	197	267	146	466	612	216	663	879	25%	26%	24%	2%
										All OSRS Success Ratio			82%

APPENDIX VIII

UNOLS 98 Operations

CAPE HELOPEN	**42 Days**	**Physical Oceanography**
CAPE HATTERAS	**56 Days**	
WECOMA	**15 Days**	
PELICAN	**24 Days**	
REVELLE	**135 Days**	**Gravity Survey**
THOMPSON	**60 Days**	**Gravity/Physical Oceanography**
KNORR	**19 Days**	**AUTEC Range update**
NEW HORIZON	**80 Days**	**SCORE Range update**

NAVO/UNOLS Data Collection Metrics

- **Gravity task**
  - UNOLS completed 25% of requirement FY 97
  - FY 98 UNOLS scheduled for 58% of priority requirement
  - FY 99 scheduled shiptime completes all areas possible
    - EEZs prohibits UNOLS from fulfilling total gravity requirement
- **Physical Oceanography observations** (processed data to date)
  - Cores 150
    - Grabs 92
  - CTD's 3517
  - XBT's 1421
- **FLEET training areas**
  - Upgraded bathymetry and hydrophone placement requirement
    - Shallow and deep water requirement at (AUTEC)
  - Completed all Southern California (SCORE) range geophysical sampling

Scheduling and cost comparisons

1998		1999	
Ship days	**431**	**Ship days**	**460**
Funds	**7.5M**	**Funds**	**7.5M**
↳Ships	6.6M	↳Ships	6.4M
↳Other	0.9M	↳Other	1.1M
UNOLS Institutions	**7**	**UNOLS Institutions**	**7**
Ships Used	**8**	**Ships Used**	**8**

UNOLS 99 Operations

CAPE HELOPEN	**37 Days**	**Physical Oceanography**
CAPE HATTERAS	**56 Days**	
PELICAN	**45 Days**	
PT SUR	**34 Days**	
THOMPSON	**41 Days**	
REVELLE	**145 Days**	**Gravity Survey**
NEW HORIZON	**60 Days**	**SCORE Range update**
MELVILLE	**42 Days**	**Hull Integrity test site**

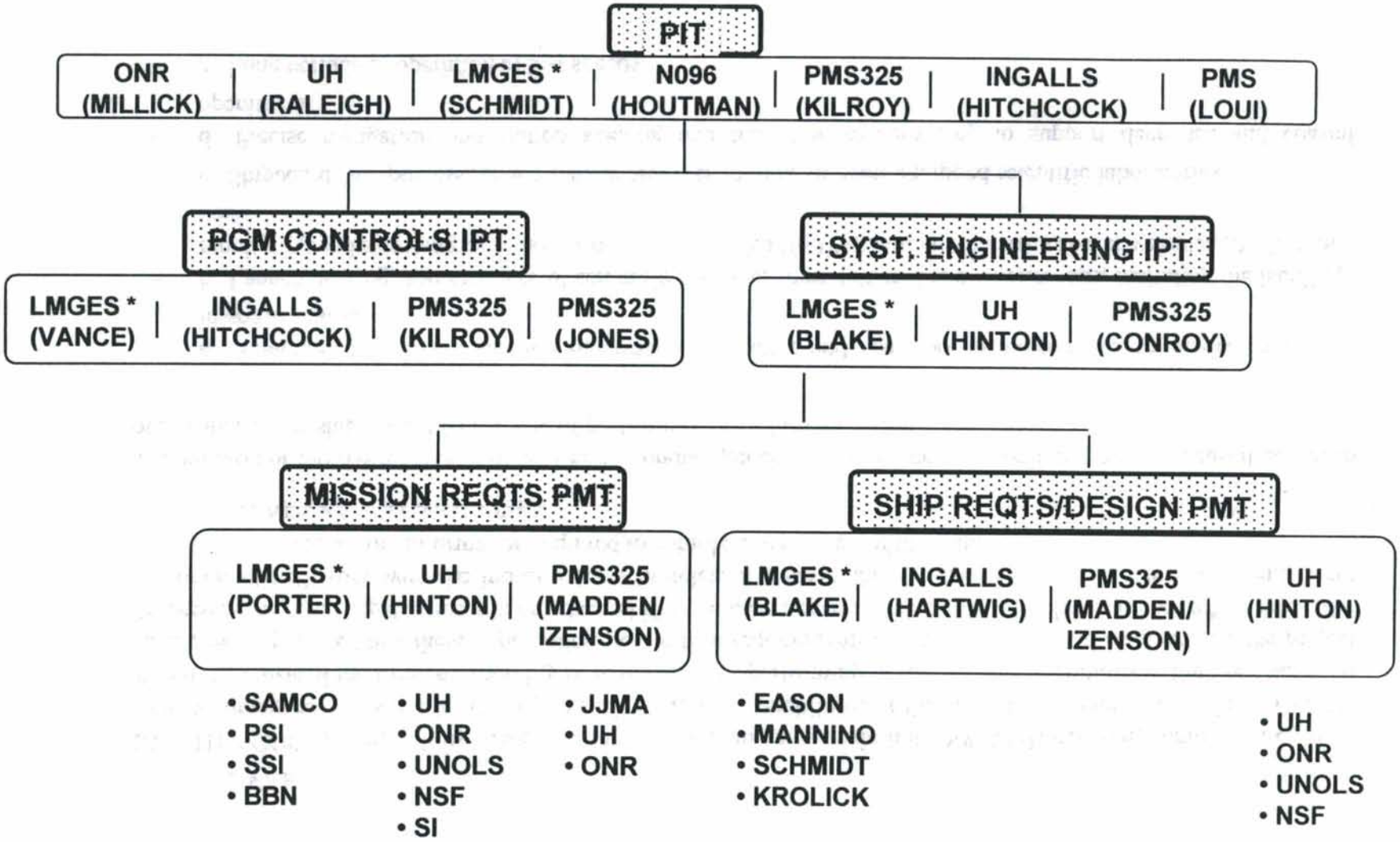
APPENDIX IX

SWATH AROR 26

PRESSENTATION TO UNOLS
STATUS AS OF 9/17/98

OUTLINE

- ORGANIZATION
- CONTRACT REQUIREMENTS
- SHIP SIZING TO MEET REQUIREMENTS
- WEIGHT REPORT SUMMARY
- NOTIONAL CONCEPT LAYOUT as of 8/18/98
- CONSTRUCTION COST
- TRADE OFF STATUS
- SCHEDULE
- EQUIPMENT LIST


PIT
ONR (MILLICK)
UH (RALEIGH)
LMGES * (SCHMIDT)
N096 (HOUTMAN)
PMS325 (KILROY)
INGALLS (HITCHCOCK)
PMS (LOUI)
PGM CONTROLS IPT
LMGES * (VANCE)
INGALLS (HITCHCOCK)
PMS325 (KILROY)
PMS325 (JONES)
SYST. ENGINEERING IPT
LMGES * (BLAKE)
UH (HINTON)
PMS325 (CONROY)
MISSION REQTS PMT
LMGES * (PORTER)
UH (HINTON)
PMS325 (MADDEN/ IZENSON)
• SAMCO
• PSI
• SSI
• BBN
• UH
• ONR
• UNOLS
• NSF
• SI
• JJMA
• UH
• ONR
SHIP REQTS/DESIGN PMT
LMGES * (BLAKE)
INGALLS (HARTWIG)
PMS325 (MADDEN/ IZENSON)
UH (HINTON)
• EASON
• MANNINO
• SCHMIDT
• KROLICK
• UH
• ONR
• UNOLS
• NSF

OPERATIONAL CAPABILITIES

- - **OVERVIEW**
- SWATH AGOR is to be a fully-equipped, small waterplane area, twin hull (SWATH) oceanographic research ship. This document provides a brief description of the desired capabilities of the ship. The primary goal of the SWATH AGOR is to extend the limited capability of monohulls for performing oceanographic operations in high sea states. It should be emphasized that these capabilities are not firm requirements and should be treated as goals. As the project progresses, required capabilities will be adjusted if it becomes apparent that some capabilities are not affordable. The Government will work with the industry team to determine acceptable requirement values. This document is not intended to convey all the information required to complete the design of the ship.
  - **GENERAL CAPABILITIES**
- The mission of the SWATH AGOR will be to conduct general purpose oceanographic research in coastal and deep ocean areas. The ship should be capable of performing the following tasks:

  - a. Sampling and data collection of surface, midwater and sea floor parameters using modern scientific instrumentation
  - b. Launch, towing, and recovery of scientific packages, both tethered and autonomous, including the handling, monitoring and servicing of remotely operated vehicles (ROVs), autonomous underwater vehicles (AUVs), and boats
  - c. Shipboard data processing and sample analyses in modern, well-equipped scientific laboratories
  - d. Precise navigation and station keeping and track-line maneuvering to support deep sea and coastal operations
  - e. Long periods of operation at low speeds.

SPECIFIC CAPABILITIES

The following specific capabilities are desired and are presented in order of priority. Although highly desired, these capabilities are not firm requirements and should be treated as goals.

a. Performance in a Seaway: Fully operational in sea state 6 (4 to 6 meter wave height; 28 to 47 knot wind) at all headings
b. Exterior Working Deck Area: 2,000 square feet of contiguous, exterior working deck area
c. Station Keeping Capability: +/- 50 meters in sea state 6
d. Science Payload: Capacity for 100 tons of temporary science equipment brought on board for specific missions and stored on deck and in storerooms.
e. Length/Beam/Draft Limitations: Ability to reduce draft to less than 17 feet for pier access in a light load condition. Ability to transit through the Panama Canal.
f. Laboratory Area: Total of 3,000 square feet divided among multiple labs and located adjacent to the working deck
g. Science Staff: 25 scientists and technicians in addition to the crew required to operate the ship.
h. Speed: 15 knots
i. Endurance: 50 days at sea.
j. Range: 10,000 nautical miles
k. Scientific Gear Storage Space :15,000 cubic feet in below deck storerooms

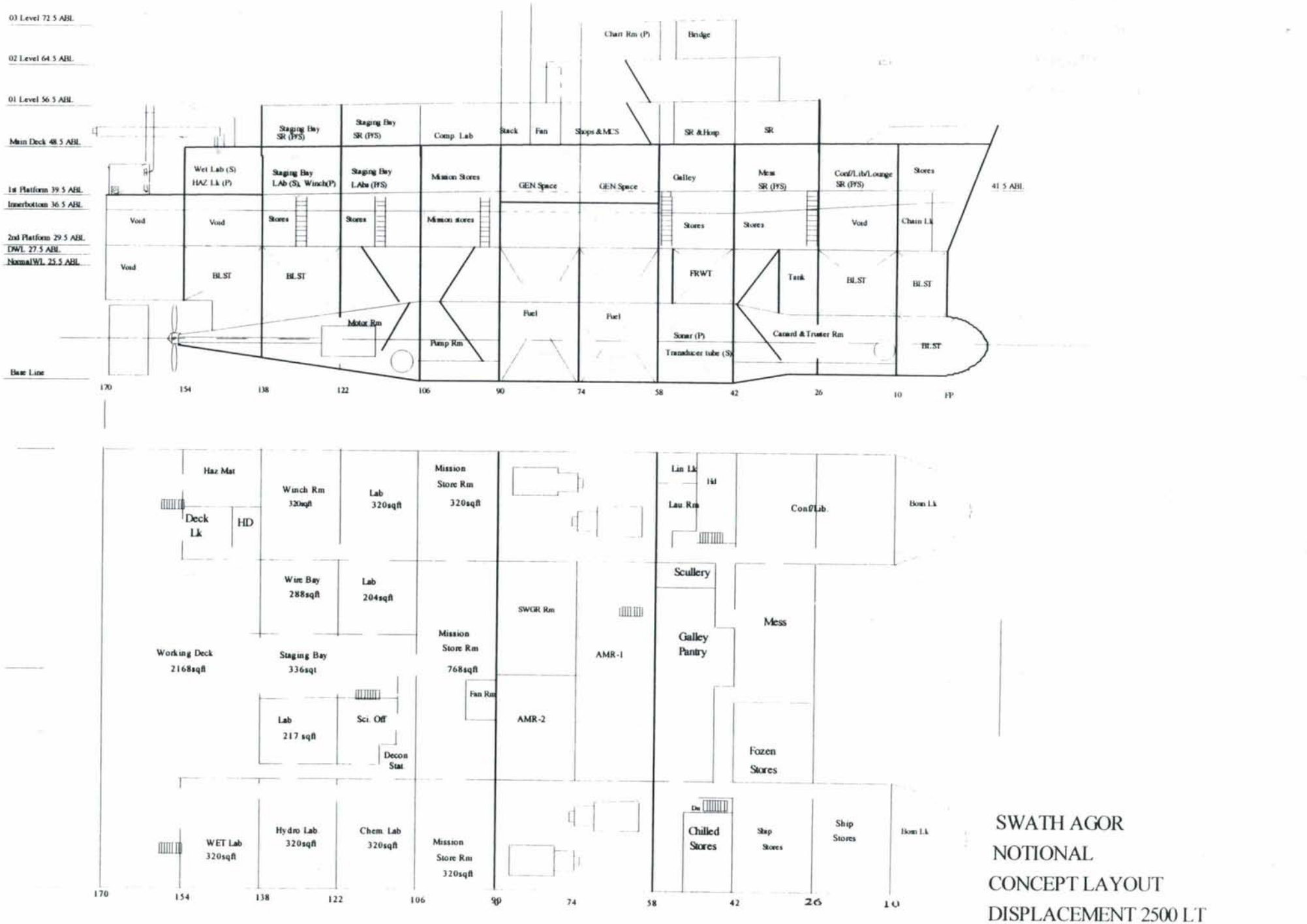
Item	Space ft.	Weight #	Removable	Installed	Provided	Power req.	ROM (k$)	Location~	% used	
CTD										
Winch DESH5	8x8	15000		yes	LM	75hp		aft deck		
2nd winch	8x8	15000	yes		UoH	50hp		aft deck		foundtion and serv. Connection
.322 em cable		2821	yes		UNOLS			aft deck		10000m
Handing sys.		15800		yes	LM	50hp		aft deck		Hydro Boom
Rosett	7h x4d	2500	yes		UoH			aft deck		
.25 wire		3609	yes		UNOLS			aft deck		10000m
Sonars										
Multib. Found.	~15x20			yes	LM					Foundation/cable way/space
Multib. Sys				yes	LM					
3.5Khz	2x2			yes	LM					
12Khz	2x2			yes	LM					
ADCP	2x2			yes	LM					
Vert. Ref. Sys.	1x1			yes	LM					
Dop. Sp. Log	1x1			yes	LM					
Instri. Well	30"D			yes	LM					
Main winch										for coring/dredge/nets
DESH9/11	10x15x8h	58000		yes	LM	150hp		winch rm		9/16wire &.680 cable
9/19 wire		32900	yes		UNOLS					
.680 cable		32800	yes		UNOLS					
A-frame	20x10x22h	32000		yes	LM			aft deck		
A-frame power	3x6	2150		yes	LM	75hp		winch rm		hydro power pack
Side A-frame	12x8x12h	15000		yes	LM			aft side		
Imet tower	8x8			yes	LM			Forward deck		Foundation/services
Traction winch	~5x8	~25900		yes	LM	50HP		winch rm		replace DESH9/11
Uncont.sea W	2" serv.			yes	LM	1hp		Labs/aft deck		
Sci Fef/Frez	10x10		yes		UoH			aft deck		Power service for 8x20 iso van
Seismic sys	10x20	25000		yes	LM	2x150HP		below decks		LM provide fn/power
Tie downs				yes	LM			deck/labs		Working deck 1"&labs3/8"
Unistrut				yes	LM			Labs		2' centers
Sci wireway				yes	LM					Labs/for&aft deck/bridge&mast
SIS				yes	LM			rm's/labs/decks/br/sonar space		
SATCOM M	2x2	200		yes	LM					
P-code GPS		5	yes		UoH					
Gravimeter	3x3	300	yes		UoH					
Magnetometer	3x3	300	yes		UoH					

Mission Description

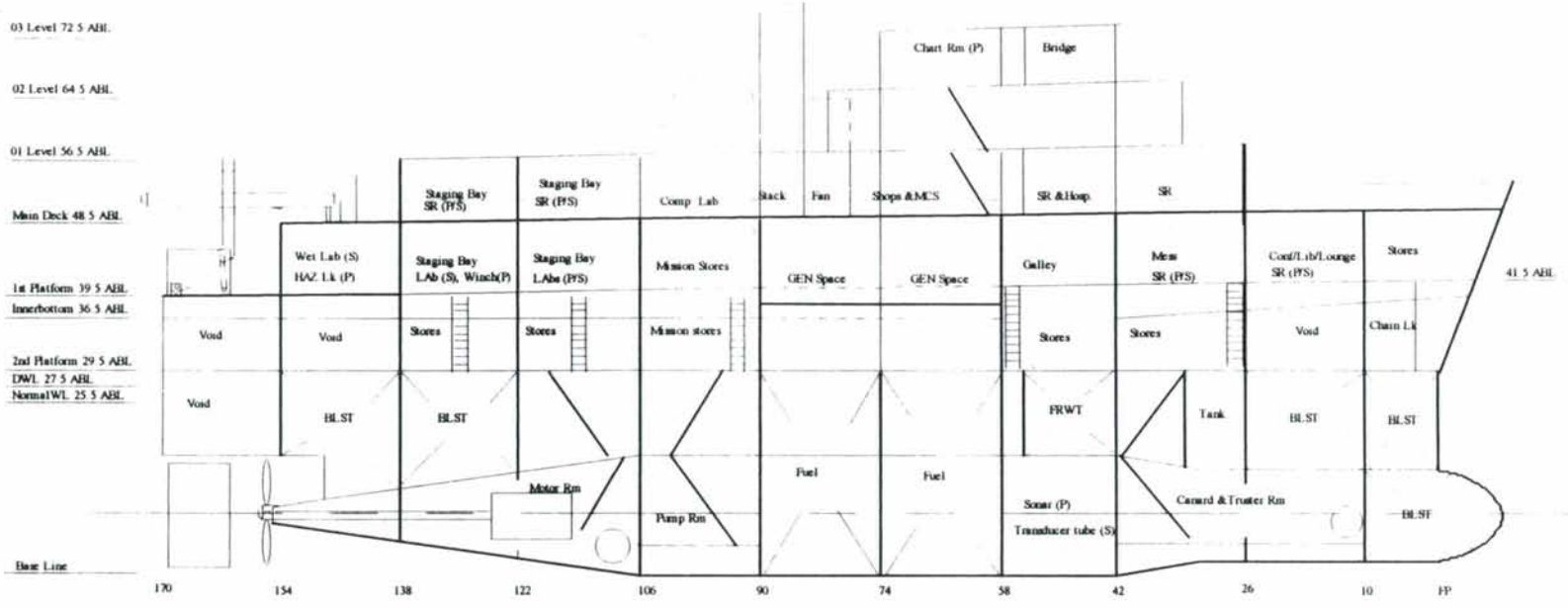
Mission Description	Low Spd Kts	Low Spd Days	Med Spd Kts	Med Spd Days	High Spd Kts	High Spd Days	Total Mission Days	Total Range NM	No. of Crew	No. of Pass	Portable Payload Required LT	Reserve Payload Available LT	Total Portable Payload LT
• HOT quarterly cruise with mooring	1	5	8	8	13	1	14	1968	16	25	17	83	100
• Bottom Observatory Service w/ ROV	0	4	6	1.3	13	6.7	12	2278	16	25	10	90	100
• Sidescan, seismics & sampling	1.5	3	8.2	21.3	13	3.7	28	5454	16	30	36	64	100
• Ocean bottom seismics	2	9	6	7	13	10	26	4560	16	25	28	72	100
• Biogeochemistry Flux Studies	0	14	8	11	13	7	32	4296	16	32	25	75	100
• Physical Oceanography	1	16	0	0	13	14	30	4752	16	24	25	75	100
• CTD, nets, moorings	1	10	10	12	13	8	30	5616	16	28	31	69	100
• Survey & Dredge	2	15	0	0	13	15	30	5400	16	25	25	75	100
• Air-sea Atmospheric Geochemistry	0	1	0	0	13	25	26	7800	16	28	10	90	100
• Trace Element Geochemistry	0	9	0	0	13	25	34	7800	16	28	31	69	100
• Marine Geophysics Survey	0	0	0	0	13	30	30	9360	16	25	24	76	100

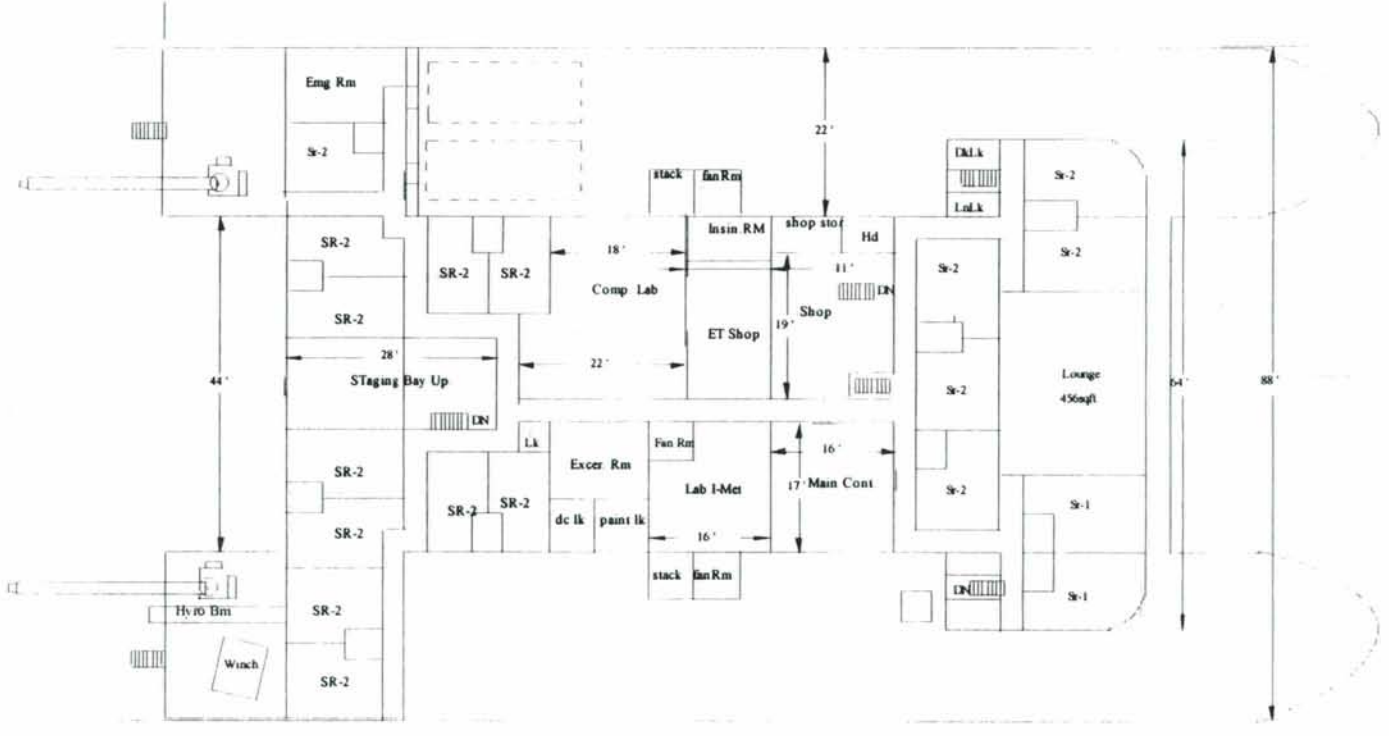
Assumes a 100 LT portable payload for all missions per DOC. Portable payload consists of identified mission unique equipment that are not permanently built into the ship. Balance of 100 LT payload is held in reserve.

SWBS NO.	DESCRIPTION	WEIGHT UNIT	NUMBER UNIT	WEIGHT LT	VCG FT	LCG FT
A	LIGHTSHIP W/OUT MARGIN			1793.00	34.07	74.85
	MARGIN	0.10		179.30	34.07	74.85
	LIGHTSHIP WITH MARGIN			1972.30	34.07	74.85
D00	ENDURANCE - FULL LOADS					
D11	SHIP'S CREW	0.15	16	2.36	36.50	80.00
D12	SCIENTISTS	0.15	32	4.80	36.50	80.00
D29	SP. MISSION SYS & EXPENDABLES			100.00	41.13	118.00
D31	PROVISIONS	0.11	48	5.08	49.38	23.00
D32	GENERAL STORES	8.59		8.59	43.88	62.67
D41	DIESEL FUEL			383.00	12.00	70.00
D46	LUBRICATING OIL			2.68	12.00	70.00
D49	SPECIAL FUELS & LUBRICANTS			1.37	12.00	70.00
D51	SEA WATER			11.45	25.00	74.50
D52	FRESH WATER	0.28	48	13.41	36.27	62.38
D54	HYDRAULIC FLUID			1.56	30.50	57.50
D55	SANITARY TANK LIQUID			3.94	12.00	70.00
D	ENDURANCE-CONDITION 1 LOADS			538.31	19.54	78.36
	FULL LOAD, CONDITION 1			2571.62	31.03	75.49

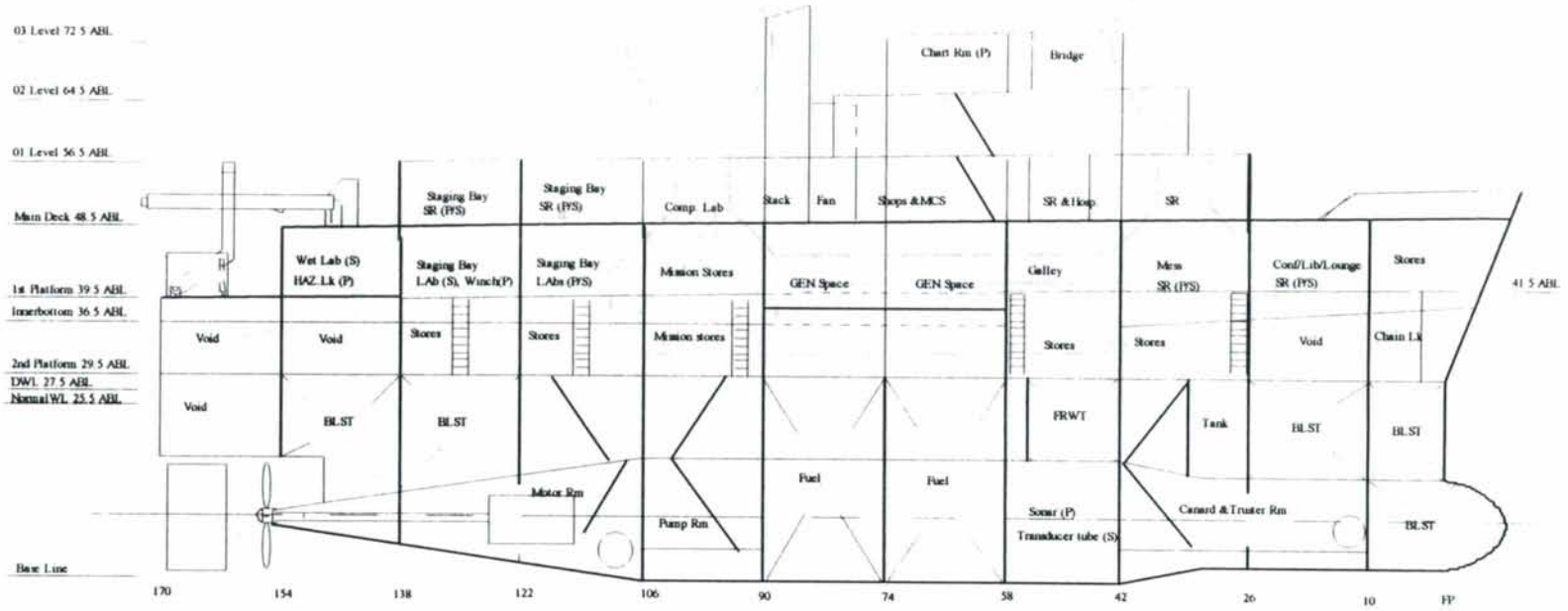


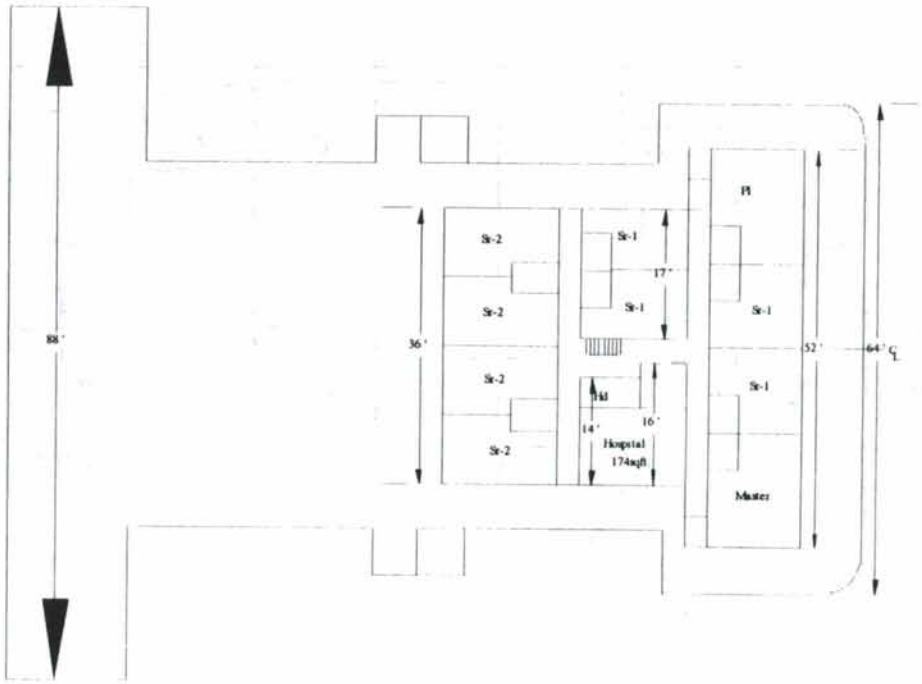
SWATH AGOR
NOTIONAL
CONCEPT LAYOUT
DISPLACEMENT 2500 LT
18 Aug 98 Scale 1/500

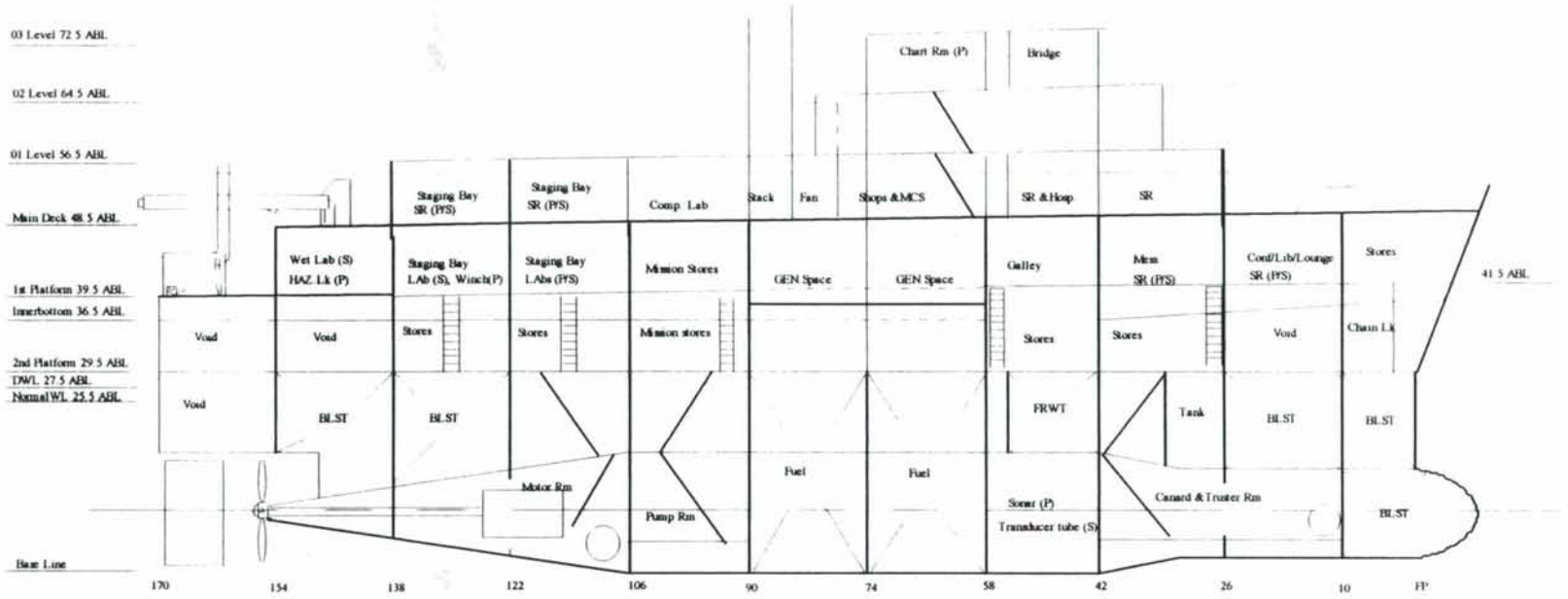




SWATH AGOR
NOTIONAL
CONCEPT LAYOUT
DISPLACEMENT 2500 LT


03 Level 72 5 ABL
02 Level 64 5 ABL
01 Level 56 5 ABL
Main Deck 48 5 ABL
1st Platform 39 5 ABL
Innerbottom 36 5 ABL
2nd Platform 29 5 ABL
DWL 27 5 ABL
NormalWL 25 5 ABL
Base Line
Chart Rm (P)
Bridge
Staging Bay SR (PYS)
Staging Bay SR (PYS)
Comp. Lab
Stack
Fan
Shops &MCS
SR &Hosp
SR
Wet Lab (S) HAZ.Lk (P)
Staging Bay LAb (S), Winch(P)
Staging Bay LAbs (PYS)
Mission Stores
GEN Space
GEN Space
Galley
Mess SR (PYS)
Conf/Lib/Lounge SR (PYS)
Stores
41 5 ABL
Void
Void
Stores
Stores
Mission stores
Stores
Stores
Void
Chain Lk
Void
BLST
BLST
FRWT
Tank
BLST
BLST
Motor Rm
Fuel
Fuel
Sonar (P)
Transducer tube (S)
Canard &Truster Rm
BLST
Pump Rm
170
154
138
122
106
90
74
58
42
26
10
FP


88'
36'
Sr-2
Sr-2
Sr-2
Sr-2
Sr-1
17'
Sr-1
14'
16'
Hospital
174sqft
Pl
Sr-1
Sr-1
52'
64' CL
Muster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Base Line
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Bridge
Staging Bay SR (PYS)
Staging Bay SR (PYS)
Comp. Lab
Stack
Fan
Shops &MCS
SR &Hosp
SR
Wet Lab (S) HAZ. Lk (P)
Staging Bay LAb (S), Winch(P)
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Galley
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Stores
41 5 ABL
Void
Void
Stores
Stores
Mission stores
Stores
Stores
Void
Chain Lk
Void
BLST
BLST
FRWT
Tank
BLST
BLST
Motor Rm
Fuel
Fuel
Pump Rm
Sonar (P)
Transducer tube (S)
Canard &Truster Rm
BLST
170
154
138
122
106
90
74
58
42
26
10
FP

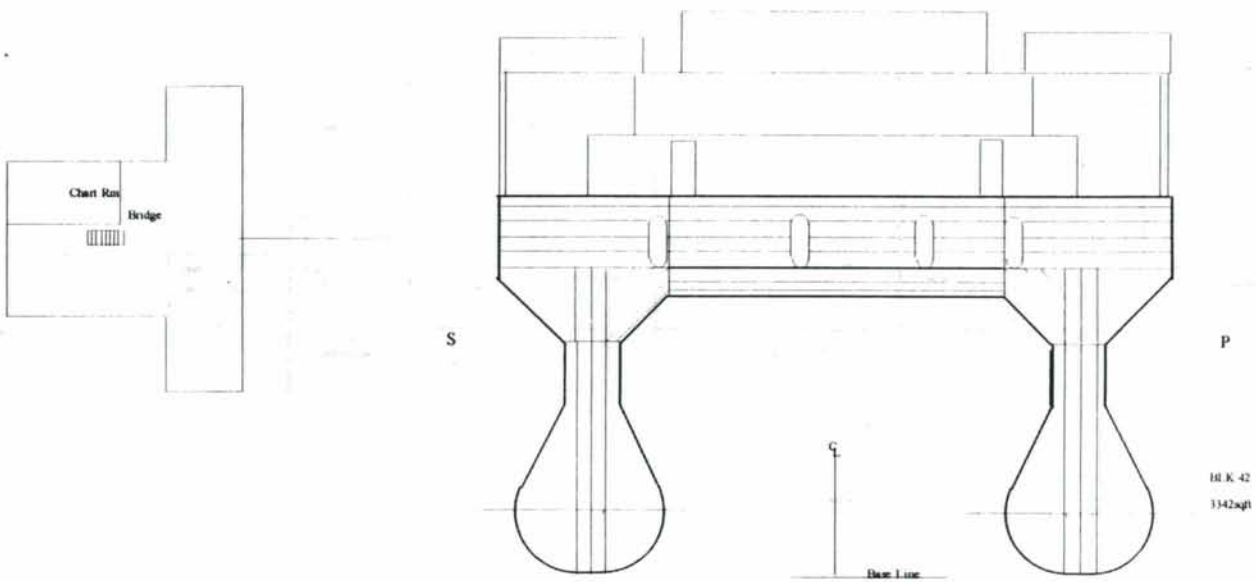
Chart Rm
Bridge
S
P
C
L
Base Line
BLK 42
1342sqft

REQUIREMENT	AGOR24	UNOLS Minimum	SWATH 97 Desirable	Maximum	RFP Desired Capabilities "treated as GOALS"	Lockheed/Ingalls Design as of 7/10/98	KAIYO
Station Keeping	S.S. 6	S.S. 6	S.S. 7	NA	S.S.6 +/- 50m		S.S.6
Pitch		4 degrees	3 degrees	NA			
Roll		8 degrees	6 degrees	NA			
Heave		6 ft.	4 ft.	NA			
Vertical Accel.		0.4g	0.09g	NA			
Horizantal Accel.		0.2g	0.11g	NA			
Deck Space	2800	2000 sq ft			2000 sq ft	3800 sq ft	10500 sq ft
Science Payload	240LT	60LT	100LT	120LT	100LT	100LT	490LT
Draft	17 ft			17 ft	17 ft	25.5	21 ft
Beam	52			104 ft		88 ft	92 ft
Laboratory Space	4800 sq ft	2500 sq ft	3000 sq ft		3000 sq ft	3025 sq ft	630 sq ft
Science Staff	38	20	25	30	25	30-32	53
Speed Cruising	15 kts	10kts@ss6	15kts@ss6		15 kts	14 kts	13.3 kts
Endurance	60 days	40 days	50 days	50 days	50 days		100
Range	10000 nm	9000nm	10000nm	10000nm	10000nm	9360 nm	5100 nm
Science Gear	21000 cu ft	10000 cu ft	15000 cu ft		15000 cu ft	16384 cu ft	30000 cu ft
Displacement	3200LT					2370LT	3500LT
Mission Equip.							
Multibeam sys.	Yes					Yes	
3khz echosounder	Yes					Yes	
12khz echosounder	Yes					Yes	
Sea water probe	Yes					Yes	
Vertical ref. Sys.	Yes					Yes	
Instriment well	Yes					Yes	
A-frame	Yes					Yes	
a-frame power pack	Yes					Yes	
2- cranes	Yes					Yes	
CTD DESH-5	Yes					Yes	
CTD handling sys	Yes					Yes	
Traction winch	Yes					Yes	
SARCOM M	Yes					Yes	
SIS	Yes					Yes	
DP system	Yes					Yes	

NEXT MILESTONE

#	TASK NAME	LEAD	START DATE	FINISH DATE	STATUS
11	Requirements review	LM	5/8/98	6/11/98	Comp.
19	Trade-off Studies		7/6/98	8/17/98	85%
20	Mission level trade-off comp.		7/13/98	7/31/98	90%
21	Range/endur. trade-off comp.	LM	7/13/98	7/31/98	90%
26	Config trade-off comp	LM/ISI	7/6/98	7/31/98	80%
27	Propul. plant trade-off comp.	ISI	7/20/98	8/7/98	70%
28	Elec. sys. trade-off comp.	ISI	7/20/98	8/7/98	70%
30	Outfit trade-off comp.	ISI	7/20/98	8/7/98	80%
34	CAIV goal for concept desg.	Est ISI	8/3/98	8/14/98	20%
36	Revised DOC	LM	8/3/98	8/14/98	TBD
37	Design Review #1	LM	8/17/98	8/17/98	75%
38	Concept design	LM/ISI	8/18/98	9/22/98	TBD
56	Design Review #2	LM/ISI	9/22/98	9/22/98	TBD
71	Refined Cost Estimate	LM	10/20/98	10/20/98	TBD
81	Phase II CAIV determined		10/20/98	10/20/98	TBD

SWATH AGOR
PRELIMINARY

MANUFACTURER	SYSTEM	QTY	Notes
TRIPLE G SUPPLY	IOL - ACU-206 ACOUSTIC COMMAND	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - ATR-395 TRANSPONDER	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - AUTOPROCESSOR PHOTO LAB	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - CELLULAR PHONE	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - COMPRESSOR AIR BREATH	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - COPIER ZOOM W/SORTER	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - REFRIGERATOR FREEZER	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - REFRIGERATOR PHOTO LAB	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - SPRAY OUT FIT AIRGUN PAI	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - UAB-353 ACOUSTIC BEACON	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - 911 PLUS DECK UNIT SYSTEM	*	* Qty is TBD - (IOL=Initial Outfitting List)
TRIPLE G SUPPLY	IOL - ACOUSTIC POSITIONING BEACON	*	* Qty is TBD - (IOL=Initial Outfitting List)
SPERRY MARINE, INC.	MK 37 GYROCOMPASS SYSTEM	2	
SPERRY MARINE	RASCAR RADAR SYSTEM	1 ship set	BOTH X-BAND AND S-BAND NAVIGATION RADARS
LIFESTREAM WATERSYSTEM	LIFESTREAM WATERMAKER	2	
AURORA / PUMP SYSTEMS	A/C CHILLED WATER PUMP	2	
AURORA / PUMP SYSTEMS	AUXILIARY SEAWATER & BILGE PUM	1	
PUMP SYSTEMS, INC.	AUXILIARY SEAWATER PUMP	1	
PUMP SYSTEMS, INC.	BILGE PUMP	2	
AURORA / PUMP SYSTEMS	BOW THRUSTER COOLING PUMP	1	
AURORA / PUMP SYSTEMS	FIRE / BALLAST / BILGE PUMP	1	
AURORA / PUMP SYSTEMS	FIRE PUMP	1	
AURORA / PUMP SYSTEMS	FUEL OIL TRANSFER PUMP	2	
AURORA / PUMP SYSTEMS	HOT WATER CIRCULATING PUMP	2	
AURORA / PUMP SYSTEMS	LUBE OIL TRANSFER PUMP	2	
AURORA / PUMP SYSTEMS	OILY WASTE TRANSFER PUMP	2	
AURORA / PUMP SYSTEMS	POTABLE WATER PRESSURE PUMP	2	
AURORA / PUMP SYSTEMS	PROPULSION MOTOR COOLING PUMP	4	May not be required if ASW sys is used
AURORA / PUMP SYSTEMS	UNCONTAMINATED SEAWATER PUMP	1	science requirement
EVERPURE	BROMINATOR or UV system	1	
ENVIROVAC INC.	ORCA II-165	1	
ENVIROVAC INC.	VCHT SYSTEM	1	
ENVIROVAC INC.	VCHT SYSTEM	1	
ENVIROVAC INC.	VCHT SYSTEM	1	
GENERAL ELECTRIC	480/600 VOLT SWITCHBOARDS	*	* Quantity is TBD
GENERAL ELECTRIC	PROPULSION & THRUSTER DRIVE	*	* Quantity is TBD
GENERAL ELECTRIC	SCR PROPULSION & THRUSTER DRIVE	C	* Quantity is TBD
MAGELLAN	D-GPS SYSTEM	1	COMMERCIAL
CATERPILLAR (PUCKETT MACH.	3406C/250KW EMERGENCY GENERATOR-Set	1	

SWATH AGOR
PRELIMINARY

MANUFACTURER	SYSTEM	QTY	Notes
CATERPILLAR (PUCKETT MACH.	3508B/900KW MARINE GENERATOR-Set	4	
TRIPLE G SUPPLY	LATHE CLAUSING MDL 8024	1	
LIPS THRUSTERS DRUNEN B.V.	PROPELLER, 8 FT DIA, FIXED PITCH	2	TBD
KONGSBERG-SIMRAD	EM 120 MULTIBEAM SONAR SYSTEM	1	
FRITZ-CULVER	A-FRAME TILTING CRANE,#FCDB-2-1337	1	
GENERAL ELECTRIC	SHORE POWER RECEPTICLE	1	
NAUTRONIX	ACOUSTIC POSITION INDICATOR	1	
SIMRAD	DIRECTION FINDER RADIO SET	1	
NAUTRONIX	DYNAMIC POSITIONING SYS	1	
PRECISION MARINE ELECTRONI	ODEC BATHYMETRIC/SUB-BOTTOM PR-12Khz	2	
PRECISION MARINE ELECTRONI	ODEC BATHYMETRIC/SUB-BOTTOM PR-3.5Khz	1	
OCEAN DATA EQUIPMENT	DOPPLER SONAR SPEED LOG	1	
RAYTHEON	RD-500 DEPTH RECORDER SYSTEM	1	
HERBERT S. HILLER CORP.	FIRE DETECTION SYSTEM	1	
KATO ENGINEERING	MOTOR GENERATOR SET	2	
VES, INC	HEATING SYSTEM	1	
VES, INC	REFRIGERATOR UNIT, R-22 PCKG	2	
VES, INC	AIR CONDITIONING PLNT	2	
VES, INC	REFRIGERATION UNITS/HVAC FANS	*	* Quantity is TBD
VES, INC	50 TON A/C CHILLED WATER	*	* Quantity is TBD
MARKEY MACHINERY CO.	HYDROGRAPHIC WINCH- DESH-5	1	
MARKEY MACHINERY CO.	TRACTION WINCH SYSTEM-up mto .680cable	1	
HOSE MCCANN TELEPHONE CO.	SOUND POWERED TELEPHONE	1	stations TBD
HOSE MCCANN	GENERAL ALARMS	1	* Quantity is TBD
GOLAR	GOLAR INCINERATOR, MARINE TYPE	1	
QUINCY	AIR COMPRESSOR, SHIPS SERVICE	2	
SIGMA	OILY WATER SEPERATOR	1	
LAMARCHE	BATTERY CHARGERS (A22-30-24V-A1)	1	
LAMARCHE	BATTERY CHARGERS (A41-75-24V-A1)	1	
NAVAL ELECTRONICS	ENTERTAINMENT SYSTEM-TV,VCR,AM/FM,CD	1	
SCIENTIFIC CLIMATE SYS	CLIMATE CONTROL CHAMBER	1	
MAGNAVOX	TERMINAL, CRT CONSOLE (SATCOM)	1	
MAGNAVOX	SAT NAV RADIO SET	1	A,B,M -TBD
ALASKAN CRANE	CRANE, PED-MTD, TELE	2	60' and 5K-20K #
KITCHEN AID	COMPACTOR, TRASH	1	
HOBART	CONVECTION OVEN	1	
HOBART	DISHWASHER	1	
JET SPRAY	DISPENSER, JUICE	1	
BUSBOY/TOASTMASTER	GARBAGE GRINDER	1	

SWATH AGOR
PRELIMINARY

MANUFACTURER	SYSTEM	QTY	Notes
HOBART	GRIDDLE	1	
HATCO	HEATER, SANITIZING SINK	1	
GROEN	KETTLE, STEAM JACKETED	1	
COSPLICH	REFRIG/FREEZER W/GLASS DOOR	1	
COSPLICH	REFRIGERATOR CABINET	1	
COSPLICH	REFRIGERATOR FREEZER	1	
MAYTAG	WASHER/DRYER, CLOTHES- Stack units	3	
TOASTMASTER	RANGE, ELEC. W/OVEN	1	
VARIOUS	HBI COMMISSARY SPARES	AR	
GROEN	HY-3E HYPER ATMOSPHERIC STEAMER	1	
GAYLORD	GAYLORD VENTILATION	1	
CRANE DEFENSE SYSTEM	CABLE OPERATED LIFT		Not planned at this time
SEACOAST ELECTRONICS, INC.	DIAL TELEPHONE SYSTEM	1	
SEACOAST ELECTRONICS	WEATHERFAX/WIND SPEED INDICATOR	1	
SEACOAST ELECTRONICS	CLOSED CIRCUIT TELEVISION	*	* Quantity is TBD
HERBERT S. HILLER	AFFF SYSTEM	TBD	
HERBERT S. HILLER	FIRE EXTINGUISHING, CO2	TBD	
ELLIOT TURBO	WHITE GILL BOW THRUSTER (BOW)	1	
(TBD)	STERN THRUSTER	TBD	
RHEEM	WATER HEATER, ELECT.	1	
SPERRY MARINE	GMDSS	1	
FRITZ CULVER	ANCHOR, WINDLASS	2	
MORGAN MARINE	CRANE PORTABLE DECK -36'	2	
CORNELL-CARR	PORT LITE	60	Approx
CYBEREX	UNINTERUPTED POWER SUPPLY	*	* Quantity is TBD
I.E.S.	MOTOR CONTROL CENTER (AGOR 23)	1	
JET	DRILL PRESS	1	
FEIN	ELECTRIC HACK SAW	1	
ALFA-LAVAL	PURIFIER, CENTRIFUGAL F.O.	2	
IN-MAR SYSTEM	WINDOW WIPERS	*	* Quantity is TBD
QUALITY POWER PRODUCTS	NAVIGATIONAL LIGHT PANEL	1	
MCELROY MACHINE	BOOM, HYDRAULICALLY ACTUATED	1	
GEMS SENSORS	TANK LEVEL INDICATORS	16	Fuel(4),Blst(4),CHT(2),OilyW(2),+(4)
MENGE MARINE	DAVIT, BOAT	1	
MENGE MARINE	25 HP OMC/112 HP OMC OUTBOARDS	2	Approved for Rescue Boat
ZODIAC	RESCUE BOAT	1	
RD INSTRUMENTS	ACOUSTIC DOPPLER CURRENT PROFILER	1	
BUNN-O-MATIC	COFFEE MAKER	2	
DC EQUIPMENTS		*	AS REQUIRED BY CFR

SWATH AGOR
PRELIMINARY

MANUFACTURER	SYSTEM	QTY	Notes
LIFE RAFTS		*	AS REQUIRED BY CFR
ALDEN	ANEMOMETER	2	
HALSEY TAYLOR	DRINKING FOUNTAINS	6	
REYNOLDS	ICE MAKER #DCF-600-30	2	
LABCONCO	FUME HOOD 47" #48816	1	
LABCONCO	FUME HOOB 35" #54L51300	1	
LABCONCO	CABINATES/COUNTERTOPS	120'	
LABCONCO	LAB SINKS	6	

APPENDIX X

SeaNet

Extending the Internet to the Oceanographic Fleet

Most recently, SeaNet was funded by ONR as part of the National Ocean Partnership Program (NOPP). Two-year funding , which began on August 1, 1997, was awarded to a consortium consisting of:

Joint Oceanographic Institutions (JOI) – Responsible for administration of project funds, liaison with government agencies and the academic research fleet operators. Ellen Kappel

Woods Hole Oceanographic Institution (WHOI) – Responsible for design, development and maintenance of the routing and protocol level communications software. Andy Maffei, Steve Lerner, Cindy Sellers

Lamont-Doherty Earth Observatory (LDEO) of Columbia University – Responsible for installation and operational management of the shipboard hardware/software package. Dale Chayes and Richard Perry

Naval Post-Graduate School (NPGS) – Responsible for liaison with the US Navy fleet, forward planning, and maintenance of testbed facilities. Rex Buddenberg

Omnet, Inc. – Responsible for establishment of a Network Operations Center (NOC) and Network Information Center (NIC), accounting and billing, development of application-level utilities, value-added services, and commercialization. Bob Heinmiller and Susan Kubany

First Ships Awarded SeaNet Units

- A letter to all UNOLS vessel operators was sent in March 1998 asking them to (1) provide information about their ship's current satellite communications system(s) and (2) provide a letter proposal to JOI to be one of the ships to be outfitted with a SeaNet unit this year.

- Eight proposals were received in response to the solicitation, a review committee was set up and sent the set of proposals for a written evaluation.

- The review committee consisted of two people from RVOC, one person from RVTEC, and one person from NOAA's Internet at Sea group.

- Shortly after the written evaluations were received and compiled, a conference call was convened to discuss the overall reviews and make the final recommendation. The committee's final recommendation was reviewed by ONR and NSF managers, and the entire SeaNet group, before the institutions were notified of SeaNet's decision.

The five ships recommended for the first SeaNet installations were:

ATLANTIS
EWING
MELVILLE
PELICAN
SEWARD JOHNSON

Tentative Installation Status/Schedule

September 1998: SeaNet was installed on the ATLANTIS while in San Diego. This was not a full and complete installation, however, but will provide us a with a good beta test of the system. We are currently gathering statistics on the INMARSAT unit every 15 minutes to determine how well the system is functioning through time, at different ship headings and in different latitudes. Meteorological data also being transmitted routinely as test files. A survey of the MELVILLE was also done in ~~January~~ September. We are anticipating survey of the PELICAN this month.

October 1998: We tentatively plan to install SeaNet hardware on the EWING. This will be the first complete hardware install.

December 1998: Install SeaNet software on EWING.

January 1999: Official turn-on of the SeaNet system.

January - March: ATLANTIS and EWING hardware and software shake-down.

January: Install antenna on SEWARD JOHNSON

MELVILLE/PELICAN installations are still being discussed.

**We are currently designing a home page for each "SeaNet ship" so that anyone could look up the ship's installation status. We are also considering putting up some ship information (e.g., heading, meteorological) once SeaNet is operational and the data routinely transmitted.

BILLING

- COMSAT will provide Omnet with detailed, electronic billing information for each SeaNet unit.

- Omnet will bill for all INMARSAT use that goes through SeaNet. Any other use, e.g., phone calls, etc. will still be billed to the institution registered to the INMARSAT unit.

- PO's will be set up between Omnet and each SeaNet institution.

- Omnet will be able to provide authorized users web-access to up-to-date SeaNet usage information, including cost-to-date.

- Omnet will be able to itemize billing by project, individual, account, etc. But, of course, Omnet will need to know beforehand what the billing breakdown should be.

APPENDIX XI

UNOLS DIRECTORY (with designated representatives)

Operator Institutions in **BOLD**

Rev. 11/98

ALABAMA MARINE ENVIRONMENTAL SCIENCES CONSORTIUM
Dr. George F. Crozier

UNIVERSITY OF ALASKA Dr. Thomas Weingartner

BERMUDA BIOLOGICAL STATION for RESEARCH, Inc. Dr. Dennis Hansell

BIGELOW LABORATORY FOR OCEAN SCIENCES
Dr. David Townsend

BROOKHAVEN NATIONAL LABORATORY Dr. Creighton D. Wirick

UNIVERSITY OF CALIFORNIA, SAN DIEGO, SCRIPPS INSTITUTION OF OCEANOGRAPHY
Dr. Robert Knox

UNIVERSITY OF CALIFORNIA, SANTA BARBARA
Dr. Steven Gaines

UNIVERSITY OF SANTA CRUZ

CAPE FEAR COMMUNITY COLLEGE Mr.Raymond P. Brandi

COLUMBIA UNIVERSITY, LAMONT-DOHERTY EARTH OBSERVATORY Dr. Dennis Hayes

UNIVERSITY OF CONNECTICUT Capt. Lawrence Burch

UNIVERSITY OF DELAWARE Dr. Carolyn A. Thoroughgood

DUKE UNIVERSITY/UNIVERSITY OF NORTH CAROLINA Dr. Daniel B. Albert

FLORIDA INSTITUTE FOR OCEANOGRAPHY Dr. John C. Ogden

FLORIDA INSTITUTE OF TECHNOLOGY Dr. Richard Gerlick

FLORIDA STATE UNIVERSITY Dr. William C. Burnett

HARBOR BRANCH OCEANOGRAPHIC INSTITUTION
Mr. Richard Herman

HARVARD UNIVERSITY Dr. Michael B. McElroy

UNIVERSITY OF HAWAII Dr. Brian Taylor

HOBART & WILLIAM SMITH COLLEGES Dr. Donald L. Woodrow

THE JOHNS HOPKINS UNIVERSITY Dr. Stephen L. Root

LEHIGH UNIVERSITY Dr. Bobb Carson

LOUISIANA UNIVERSITIES MARINE CONSORTIUM
Dr. Michael Dagg

UNIVERSITY OF MAINE Dr. Robert E. Wall

THE MARINE SCIENCE CONSORTIUM Dr. Darlene Richardson

UNIVERSITY OF MARYLAND Dr. Tom Malone

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Dr. John M. Edmond

UNIVERSITY OF MIAMI, ROSENSTIEL SCHOOL OF MARINE & ATMOSPHERIC SCIENCES
Dr. Otis Brown

UNIVERSITY OF MICHIGAN, CENTER FOR GREAT LAKES & AQUATIC SCIENCES Dr. Russell A. Moll

UNIVERSITY OF MINNESOTA, DULUTH Dr. Thomas Johnson

MONTEREY BAY AQUARIUM RESEARCH INSTITUTE
Dr. Bruce Robison

MOSS LANDING MARINE LABORATORIES
Dr. Kenneth Johnson

NAVAL POSTGRADUATE SCHOOL Dr. Robert Bourke

UNIVERSITY OF NEW HAMPSHIRE
Dr. Wendell Brown

STATE UNIVERSITY OF NEW YORK AT STONY BROOK
Dr. Charles A. Nittrouer

UNIVERSITY OF NORTH CAROLINA AT WILMINGTON
Mr. Robert I. Wicklund

NOVA UNIVERSITY Dr. Julian P. McCreary

OCCIDENTAL COLLEGE Dr. John S. Stephens, Jr.

OLD DOMINION UNIVERSITY Dr. Larry Atkinson

OREGON STATE UNIVERSITY Dr. G. Brent Dalrymple

UNIVERSITY OF PUERTO RICO Dr. M.L. Hernandez-Avila

UNIVERSITY OF RHODE ISLAND Dr. Jeffrey E. Callahan

RUTGERS UNIVERSITY Dr. Clare Reimers

SAN DIEGO STATE UNIVERSITY Dr. Clive Dorman

SEA EDUCATION ASSOCIATION Capt. Philip Sacks

SMITHSONIAN TROPICAL RESEARCH INSTITUTE
Mr. Howard Barnes

UNIVERSITY OF SOUTH CAROLINA Dr. Robert Thunell

UNIVERSITY OF SOUTH FLORIDA Dr. Peter R. Betzer

UNIVERSITY OF SOUTHERN CALIFORNIA Dr. Douglas Hammond

UNIVERSITY OF SOUTHERN MISSISSIPPI Dr. Denis Wiesenburg

UNIVERSITY SYSTEM OF GEORGIA, SKIDAWAY INSTITUTE OF OCEANOGRAPHY Dr. Richard Jahnke

UNIVERSITY OF TEXAS Dr. Terry E. Whitledge

TEXAS A&M UNIVERSITY Dr. Ed Shaar, Jr.

VIRGINIA INSTITUTE OF MARINE SCIENCE Dr. L. Donelson Wright

UNIVERSITY OF WASHINGTON Dr. Richard Sternberg

UNIVERSITY OF WISCONSIN AT MADISON Dr. Anders W. Andren

UNIVERSITY OF WISCONSIN AT MILWAUKEE
Dr. David E. Edgington

UNIVERSITY OF WISCONSIN AT SUPERIOR Dr. Mary Balcer

WOODS HOLE OCEANOGRAPHIC INSTITUTION
RADM Richard Pittenger

UNOLS RESEARCH VESSELS

OPERATING INSTITUTION	SHIP	OWNER	LENGTH
	CLASS I/II		
Scripps Institution of Oceanography	MELVILLE	Navy	279 ft.
Woods Hole Oceanographic Institution	KNORR	Navy	279 ft.
University of Washington	THOMAS G. THOMPSON	Navy	274 ft.
Scripps Institution of Oceanography	ROGER REVELLE	Navy	274 ft.
Woods Hole Oceanographic Institution	ATLANTIS	Navy	274 ft.
Lamont-Doherty Earth Observatory	MAURICE EWING	NSF	239 ft.
University of Hawaii	MOANA WAVE	Navy	210 ft.
	CLASS III		
Harbor Branch Oceanographic Institution	SEWARD JOHNSON	HBOI	204 ft.
Oregon State University	WECOMA	NSF	185 ft.
University of Rhode Island	ENDEAVOR	NSF	184 ft.
Texas A&M University	GYRE	TAMU	182 ft.
Woods Hole Oceanographic Institution	OCEANUS	NSF	177 ft.
Scripps Institution of Oceanography	NEW HORIZON	SIO	170 ft.
Harbor Branch Oceanographic Institution	EDWIN LINK	HBOI	168 ft.
	CLASS IV		
Moss Landing Marine Laboratories	POINT SUR	NSF	135 ft.
Duke University/UNC	CAPE HATTERAS	NSF	135 ft.
University of Alaska	ALPHA HELIX	NSF	133 ft.
Scripps Institution of Oceanography	ROBERT G. SPROUL	SIO	125 ft.
University of Delaware	CAPE HENLOPEN	UD	120 ft.
Bermuda Biological Station for Research	WEATHERBIRD II	BBSR	115 ft.
Harbor Branch Oceanographic Institution	SEA DIVER	HBOI	113 ft.
Louisiana Universities Marine Consortium	PELICAN	LUMCON	105 ft.
University of Texas	LONGHORN	UT	105 ft.
	< CLASS IV		
Smithsonian Tropical Research Institute	URRACA	Smithsonian	96 ft.
University of Michigan	LAURENTIAN	UM	80 ft.
University System of Georgia	BLUE FIN	UG	72 ft.
University of Miami	CALANUS	UM	68 ft.
University of Washington	CLIFFORD A. BARNES	NSF	66 ft.

11/98

UNOLS COUNCIL/COMMITTEES

UNOLS COUNCIL (UC)

(619) 534-4729	Robert Knox, SIO, (Chair)	10/94-10/00
(757) 683-5547	Thomas Royer, ODU, (V-Chair)	10/93-10/00
(541) 737-3966	Tim Cowles, OSU	09/98-09/01
(516) 344-3128	Charles Flagg, Brookhaven	09/98-09/01
(441) 297-1880 x210	Dennis Hansell, BBSR	09/96-09/99
(305) 361-4046	Tom Lee, U Miami	09/98-09/01
(805) 893-4319	Barbara Prezelin, UCA, SB	09/97-09/00
(732) 932-6555 x236	Clare Reimers, Rutgers	09/96-09/99
(512) 471-0430	Tom Shipley, U Texas	09/97-09/00
(401) 874-6579	John Freitag, URI, (Chair, RVTEC)	11/96-11/9X
(808) 956-3146	Patricia Fryer, U Hawaii (Chair, DESSC)	08/98-08/0X
(757) 683-4926	Larry Atkinson, ODU, (Chair, FIC)	10/97-10/9X
(408)-633-3534	Michael Prince, MLML, (Chair, SSC)	05/98-05/0X
(914) 359-2900 x245	Paul Ljunggren, L-DEO, (Chair, RVOC)	10/96-10/9X
(619) 534-3387	J. Swift, SIO, (Chair, AICC)	09/96-09/XX

DEEP SUBMERGENCE SCIENCE COMMITTEE (DESSC)

(808) 956-3146	Patricia Fryer, U Hawaii, (Chair)	08/98-08/01
(352) 392-2128	Mike Perfit, U Florida, (Outgoing Chair)	07/95-06/98
(617) 258-9476	James Bellingham, MIT	07/93-06/99
(541) 737-4367	Robert Collier, OSU	07/93-06/99
(541) 867-0275	Robert Embley, NOAA	10/98-10/01
(206) 543-0895	Marvin Lilley, U Washington	06/96-06/99
(831) 459-3280	Dan Orange, U CA, Santa Cruz	07/93-06/99
(732) 932-9763 x333	Anna-Louise Reysenbach, Rutgers	10/98-10/01
(757) 221-2229	Cindy Van Dover, College of William & Mary	06/95-06/98
(508) 289-2597	Richard Pittenger, WHOI, (ex-officio)	06/91-XXXX
(508) 289-2857	Daniel Fornari, WHOI, (ex-officio)	07/92-XXXX

RESEARCH VESSEL OPERATORS' COMMITTEE (RVOC)

(914) 359-2900 x245	Paul Ljunggren, L-DEO, (Chair)	10/96-10/00
(504)-851-2808	Steve Rabalais, LUMCON, (V-Chair)	10/96-10/00

FLEET IMPROVEMENT COMMITTEE (FIC)

(757) 683-4926	Larry Atkinson, ODU, (Chair)	07/95-10/00
(409) 845-0795	Tom Crowley, Texas A&M	10/96-10/99
(808) 956-5924	Chris Measures, U Hawaii	09/98-09/01
(914) 365-8566	Bill Smethie, LDEO	10/96-10/99
(609) 258-5150	Bess Ward, Princeton U	09/95-09/01
(907) 474-7993	Tom Weingartner, U Alaska	09/95-09/01
(508) 289-2624	Joseph Coburn, WHOI, (ex-officio)	10/92-10/9X

RESEARCH VESSEL TECHNICAL ENHANCEMENT COMMITTEE (RVTEC)

(401) 874-6579	John Freitag, URI, (Chair)	10/96-10/00
(512) 749-6720	Anthony Amos, U Texas, (V-Chair)	11/97-11/99

(over)

UNOLS COUNCIL/COMMITTEES

SHIP SCHEDULING COMMITTEE (SSC)

(408)-633-3534	Michael Prince, MLML, (Chair)	05/98-09/00
(252) 504-7579	Joe Ustach, Duke, (Vice-Chair)	09/98-09/00

ARCTIC ICEBREAKER COORDINATING COMMITTEE (AICC)

(619) 534-3387	Jim Swift, SIO, (Chair)
(919) 328-1834	Lisa Clough, East Carolina U
(508) 289-2624	Joe Coburn, WHOI
(757) 683-5835	Glenn Cota, ODU
(541) 737-3625	Kelly Falkner, OSU
(512) 471-0433	Larry Lawver, U Texas
(619) 534-6369	Dan Lubin, SIO
(907) 474-7229	Terry Whitledge, U Alaska

MARINE OPERATIONS CONTACT

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

UNOLS Hompepage: http://www.gso.uri.edu/unols/unols.html

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OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	CREW	NO. of SCI.	OWNER	MARINE OPS. CONTACT
University of Hawaii Marine Center #1 Sand Island Road Honolulu, HI 96819 Homepage: http://www.soest.hawaii.edu/umc/	MOANA WAVE	210/64	1973/1984	16	19	NAVY	Capt. J.W. Coste Marine Superintendent PHONE: (808) 847-2661 FAX: (808) 848-5451 INTERNET: bcoste@ poha.soest.hawaii.edu
University of Alaska Seward Marine Center PO Box 730 Seward, AK 99664 Homepage: http://www.ims.alaska.edu:8000/helix.html	ALPHA HELIX	133/41	1966	9	15	NSF	Mr. Thomas Smith Marine Superintendent PHONE: (907) 224-5261 FAX: (907) 224-3392 INTERNET: fnts@aurora. uaf.edu
University of Washington Box 357940 School of Oceanography Seattle, WA 98195-7940 Homepage: http://www.ocean.washington.edu/ships/ships.html	T. G. THOMPSON C.A. BARNES	274/84 66/20	1991 1966/1984	22 2	36 6	NAVY NSF	Capt. Daniel Schwartz Marine Superintendent PHONE: (206) 543-5062 FAX: (206) 543-6073 INTERNET: schwartz@ocean. washington.edu
Oregon State University College of Oceanography PO Box 429 South Beach, OR 97366-0429 Homepage: http://lubber.oce.orst.edu/Wecoma/WecomaHome.html	WECOMA	185/56	1976/1994	13	20	NSF	Capt. Fred Jones Marine Superintendent PHONE: (541) 867-0224 FAX: (541) 867-0294 INTERNET: jonesf@ucs. orst.edu
Moss Landing Marine Laboratories PO Box 450 Moss Landing, CA 95039 Homepage: http://color.mlml.calstate.edu/www/	POINT SUR	135/41	1981	9	12	NSF	Mr. Michael Prince Marine Superintendent PHONE: (408) 633-3534 FAX: (408) 633-4580 INTERNET: prince@mlml. calstate.edu
University of California, San Diego Scripps Institution of Oceanography Nimitz Marine Facility 297 Rosecrans Street San Diego, CA 92106 Homepage: http://sio.ucsd.edu/supp_groups/shipsked	MELVILLE ROGER REVELLE NEW HORIZON R.G. SPROUL	279/86 274/84 170/52 125/38	1969/1990-1 1996 1978 1981/1985	23 22 12 5	38 37 19 12	NAVY NAVY U.C U.C.	Capt. Thomas S. Althouse Marine Facilities Code P-0705 PHONE: (619) 534-1643 FAX: (619) 534-1635 INTERNET: capt@mpl.ucsd.ed
University of Michigan Center for Great Lakes & Aquatic Sciences 2200 Bonisteel Boulevard Ann Arbor, MI 48109-2099 Homepage:	LAURENTIAN	80/24	1974	6	8	U.M.	Dr. Linda Goad Marine Superintendent PHONE: (313) 763-5393 FAX: (313) 647-2748 INTERNET: linda.m.goad@ umich.edu
Texas A&M University Mail Stop 3146 College Station, TX 77543 Homepage: http://www.ocean.tamu.edu/gyre.html	GYRE	182/55	1973/1980	10	23	TAMU	Dr. Ed Shaar, Jr. Operations Manager PHONE: (409) 862-3290 FAX: (409) 845-6331 INTERNET: eshaar@ocean. tamu.edu

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OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	CREW	NO. of SCI.	OWNER	MARINE OPS. CONTACT
University of Texas Marine Science Institute Port Aransas, TX 78373 Homepage: http://www.utmsi.zo.utexas.edu/hornspec.htm	LONGHORN	105/32	1971/1986	4	12	U.T.	Mr. John Thompson Assoc. Director, Admin. PHONE: (512) 749-6760 FAX: (512) 749-6777 INTERNET: thompson@ utmsi.zo.utexas.edu
Louisiana Universities Marine Consortium Marine Research & Education Center 8124 Highway 56 Chauvin, LA 70344 Homepage: http://www.lumcon.edu/educate.html	PELICAN	105/32	1985	5	15	LUMCON	Mr. Steve Rabalais Marine Ops. Supervisor PHONE: (504) 851-2808 FAX: (504) 851-2874 INTERNET: srabalais@ lumcon.edu
Harbor Branch Oceanographic Institution 5600 US 1 N Ft. Pierce, FL 34948 Homepage: http://www.hboi.edu/	SEWARD JOHNSON EDWIN LINK SEA DIVER	204/63 168/51 113/34	1984/1994 1982/1988 1959/1992	11 10 6	29 20 12	H.B. H.B. H.B.	Mr. Tim Askew Marine Operations PHONE: (561) 465-2400 x262 FAX: (561) 465-2116 INTERNET: taskew@hboi.edu
University of Miami, RSMAS Marine Department 4600 Rickenbacker Causeway Miami, FL 33149 Homepage: http://www.rsmas.miami.edu/support/calanus.html	CALANUS	64/20	1971	2	6	U.M.	Mr. David Powell Marine Operations PHONE: (305) 361-4832 FAX: (305) 361-4174 INTERNET: dpowell@ rsmas.miami.edu
University System of Georgia Skidaway Institute of Oceanography 10 Ocean Science Circle Savannah, GA 31411 Homepage: http://www.skio.peachnet.edu/bluefin.html	BLUE FIN	72/22	1972/1975	5	8	U.G.	Mr. Steven Carignan Supt. of Plant & Marine Ops PHONE: (912) 598-2456 FAX: (912) 598-2310 INTERNET: steve@skid. peachnet.edu
Duke/UNC Oceangraphic Consortium 135 Duke Marine Lab Road Duke University Marine Laboratory Beaufort, NC 28516 Homepage: http://www.env.duke.edu/marinelab/vessels.html	CAPE HATTERAS	135/41	1981	10	12	NSF	Mr. Quentin Lewis Marine Superintendent PHONE: (252) 504-7580 FAX: (252) 504-7651 INTERNET: quentinl@ duncoc.ml.duke.edu
University of Delaware College of Marine Studies 700 Pilottown Road Lewes, DE 19958 Homepage: http://www.udel.edu/marine_operations/	CAPE HENLOPEN	120/37	1976	7	12	U.D.	Mr. Tim Pfeiffer Director, Marine Operations PHONE: (302) 645-4341 FAX: (302) 645-4006 INTERNET: pfeiffer@ udel.edu
Lamont-Doherty Earth Observatory Columbia University Palisades, NY 10964 Homepage: http://www.ldeo.columbia.edu/Ewing/home.html	MAURICE EWING	239/73	1983/1990	18	32	NSF	Capt. Paul Ljunggren Marine Superintendent PHONE: (914) 365-8845 FAX: (914) 359-6817 INTERNET: pwl@ ldeo.columbia.edu
University of Rhode Island Graduate School of Oceanography Narragansett, RI 02882 Homepage: http://www.gso.uri.edu/endeavor/endeavor.html	ENDEAVOR	184/56	1977/1993	12	18	NSF	Mr. William Hahn Marine Superintendent PHONE: (401) 874-6554 FAX: (401) 874-6574 INTERNET: b_hahn@ gso.uri.edu

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OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	CREW	NO. of SCI.	OWNER	MARINE OPS. CONTACT
Woods Hole Oceanographic Institution Woods Hole, MA 02543 Homepage: http://www.whoi.edu/marine-ops/	KNORR	279/85	1970/1989	25	34	NAVY	Capt. Joe Coburn Manager, Marine Ops. PHONE:(508) 289-2624 FAX: (508) 540-8675 INTERNET: jcoburn@whoi.edu
	ATLANTIS	274/84	1997	35*	24	NAVY	
	OCEANUS	177/54	1976/1994	12	18	NSF	
	DSRV ALVIN	25.8	1964			NAVY	
Bermuda Biological Station for Research Inc. 17 Biological Station Lane Ferry Reach St. George's GE-01 BERMUDA Homepage: http://www.bbsr.edu/wbird.html	WEATHERBIRD II	115/35	1993	10	12	BBSR	Capt. C. Lee Black Marine Superintendent PHONE: (441) 297-1880 x208 FAX: (441) 297-1839 INTERNET: lblack@bbsr.edu
Smithsonian Tropical Research Institute Box 2072 Balboa, Republic of Panama APO AA 34002-0948 Homepage:	URRACA	96/30	1986/1994	5	10	STRI	Mr. Howard Barnes Assistant Director PHONE: 011-207-227-5211 FAX: 011-027-232-6197 INTERNET: STRI.TIVOLI. BARNESH@ic.si.edu

* Includes 22 Crrew
11 DSG
2 Technicians

SHIP SCHEDULING CONTACT

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

UNOLS Homepage: http://www.gso.uri.edu/unols/unols.html

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OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	NO. of SCIENTISTS	OWNER	SHIP SCHED. CONTACT
University of Hawaii Marine Center #1 Sand Island Road Honolulu, HI 96819 Homepage: http://www.soest.hawaii.edu/umc/	MOANA WAVE	210/64	1973/1984	19	NAVY	Capt. Stan Winslow Ship Scheduler PHONE: (808) 847-2661 FAX: (808) 848-5451 INTERNET: snug@poha.soest.hawaii.edu
University of Alaska Institute of Marine Science PO Box 757220 Fairbanks, AK 99775 Homepage: http://www.ims.alaska.edu:8000/helix.html	ALPHA HELIX	133/41	1966	15	NSF	Dr. Thomas Weingartner PHONE: (907) 474-7993 FAX: (907) 474-7204 INTERNET: weingart@ims.alaska.edu
University of Washington Box 357940 School of Oceanography Seattle, WA 98195-7940 Homepage: http://www.ocean.washington.edu/ships/ships.html	T. G. THOMPSON C.A. BARNES	274/84 66/20	1991 1966/1984	36 6	NAVY NSF	Capt. Daniel Schwartz Marine Superintendent PHONE: (206) 543-5062 FAX: (206) 543-6073 INTERNET: schwartz@ocea washington.edu
Oregon State University College of Oceanography PO Box 429 South Beach, OR 97366-0429 Homepage: http://lubber.oce.orst.edu/Wecoma/WecomaHome.html	WECOMA	185/56	1976/1994	20	NSF	Capt. Fred Jones Marine Superintendent PHONE: (541) 867-0224 FAX: (541) 867-0294 INTERNET: jonesf@ucs.orst.edu
Moss Landing Marine Laboratories PO Box 450 Moss Landing, CA 95039 Homepage: http://color.mlml.calstate.edu/www/	POINT SUR	135/41	1981	12	NSF	Mr. Michael Prince Marine Superintendent PHONE: (408) 633-3534 FAX: (408) 633-4580 INTERNET: prince@mlml.calstate.edu
University of California, San Diego 9500 Gilman Drive, Dept. 0210 Scripps Institution of Oceanography La Jolla, CA 92093-0210 Homepage: http://sio.ucsd.edu/supp_groups/shipsked	MELVILLE ROGER REVELLE NEW HORIZON R.G. SPROUL	279/86 274/84 170/52 125/38	1969/1990-91 1996 1978 1981/1985	38 37 19 12	NAVY NAVY U.C U.C.	Ms. Rose M. Dufour/ Elizabeth Rios Ship Scheduler(s) Code A-0210 PHONE: (619) 534-2841 FAX: (619) 535-1817 INTERNET: shipsked@ucsd.edu
University of Michigan Center for Great Lakes & Aquatic Sciences 2200 Bonisteel Boulevard Ann Arbor, MI 48109-2099 Homepage: http://	LAURENTIAN	80/24	1974	8	U.M.	Dr. Linda Goad Marine Superintendent PHONE: (313) 763-5393 FAX: (313) 647-2748 INTERNET: linda.m.goad@umich.edu
Texas A&M University Mail Stop 3146 College Station, TX 77543 Homepage: http://www.ocean.tamu.edu/gyre.html	GYRE	182/55	1973/1980	23	TAMU	Dr. Ed Shaar, Jr. Operations Manager PHONE: (409) 862-3290 FAX: (409) 845-6331 INTERNET: eshaar@ocean.tamu.edu

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University of Texas Marine Science Institute Port Aransas, TX 78373 Homepage: http://www.utmsi.zo.utexas.edu/hornspec.htm	LONGHORN	105/32	1971/1986	12	U.T.	Mr. John Thompson Assoc. Director, Admin. PHONE: (512) 749-6760 FAX: (512) 749-6777 INTERNET: thompson@ utmsi.zo.utexas.edu
Louisiana Universities Marine Consortium Marine Research & Education Center 8124 Highway 56 Chauvin, LA 70344 Homepage: http://www.lumcon.edu/educate.html	PELICAN	105/32	1985	15	LUMCON	Mr. Steve Rabalais Marine Ops. Supervisor PHONE: (504) 851-2808 FAX: (504) 851-2874 INTERNET: srabalais@ lumcon.edu
Harbor Branch Oceanographic Institution 5600 US 1 N Ft. Pierce, FL 34948 Homepage: http://www.hboi.edu/	SEWARD JOHNSON EDWIN LINK SEA DIVER	204/63 168/51 113/34	1984/1994 1982/1988 1959/1992	22 20 12	H.B. H.B. H.B.	Mr. Tim Askew Marine Operations PHONE: (561) 465-2400 x262 FAX: (561) 465-2116 INTERNET: taskew@hboi.edu
University of Miami, RSMAS Marine Department 4600 Rickenbacker Causeway Miami, FL 33149 Homepage: http://www.rsmas.miami.edu/support/calanus.html	CALANUS	64/20	1971	6	U.M.	Mr. David Powell Marine Operations PHONE: (305) 361-4832 FAX: (305) 361-4174 INTERNET: dpowell@ rsmas.miami.edu
University System of Georgia Skidaway Institute of Oceanography 10 Ocean Science Circle Savannah, GA 31411 Homepage: http://www.skio.peachnet.edu/bluefin.html	BLUE FIN	72/22	1972/1975	8	U.G.	Mr. Steven Carignan Supt. of Plant & Marine Ops PHONE: (912) 598-2456 FAX: (912) 598-2310 INTERNET: steve@skid. peachnet.edu
Duke/UNC Oceanographic Consortium 135 Duke Marine Lab Road Duke University Marine Laboratory Beaufort, NC 28516 Homepage: http://www.env.duke.edu/marinelab/vessels.html	CAPE HATTERAS	135/41	1981	12	NSF	Mr. Joe Ustach Marine Operations PHONE: (252) 504-7580 FAX: (252) 504-7651 INTERNET: joeu@ duncoc.ml.duke.edu
University of Delaware College of Marine Studies 700 Pilottown Road Lewes, DE 19958 Homepage: http://www.udel.edu/marine_operations/	CAPE HENLOPEN	120/37	1976	12	U.D.	Mr. Tim Pfeiffer Director, Marine Operations PHONE: (302) 645-4341 FAX: (302) 645-4006 INTERNET: pfeiffer@ udel.edu
Lamont-Doherty Earth Observatory Columbia University Palisades, NY 10964-8000 Homepage: http://www.ldeo.columbia.edu/Ewing/home.html	MAURICE EWING	239/73	1983/1990	32	NSF	Mr. John Diebold Marine Sci. Coordinator PHONE: (914) 365-8524 FAX: (914) 359-6817 INTERNET: johnd@ ldeo.columbia.edu
University of Rhode Island Graduate School of Oceanography Narragansett, RI 02882 Homepage: http://www.gso.uri.edu/endeavor/endeavor.html	ENDEAVOR	184/56	1977/1993	18	NSF	Mr. William Hahn Marine Superintendent PHONE: (401) 874-6554 FAX: (401) 874-6574 INTERNET: b_hahn@ gso.uri.edu

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OPERATOR	NAME	LOA (FT/M)	BUILT/ CONVERTED	NO. of SCIENTISTS	OWNER	SHIP SCHED. CONTACT
Woods Hole Oceanographic Institution Woods Hole, MA 02543 Homepage: http://www.whoi.edu/marine-ops/	KNORR ATLANTIS OCEANUS DSRV ALVIN	279/85 274/84 177/54 25.8	1970/1989 1997 1976/1994 1964	34 35* 18	NAVY NAVY NSF NAVY	Mr. Donald Moller Marine Ops. Admin. PHONE: (508) 289-2277 FAX: (508) 457-2185 INTERNET: dmoller@whoi.edu
Bermuda Biological Station for Research Inc. 17 Biological Station Lane Ferry Reach St. George's GE-01 BERMUDA Homepage: http://www.bbsr.edu/wbird.html	WEATHERBIRD II	115/35	1993	12	BBSR	Capt. C. Lee Black Marine Superintendent PHONE: (441) 297-1880 x208 FAX: (441) 297-1839 INTERNET: lblack@bbsr.edu
Smithsonian Tropical Research Institute Box 2072 Balboa, Republic of Panama APO AA 34002-0948 Homepage:	URRACA	96/30	1986/1994	5	STRI	Mr. Howard Barnes Assistant Director PHONE: 011-507-227-5211 FAX: 011-507-232-6197 INTERNET: STRI.TIVOLI.BARNESH@ic.si.edu

*Includes: 22 Crew
11 DSG
2 Technicians