

# **UNOLS COUNCIL MEETING**

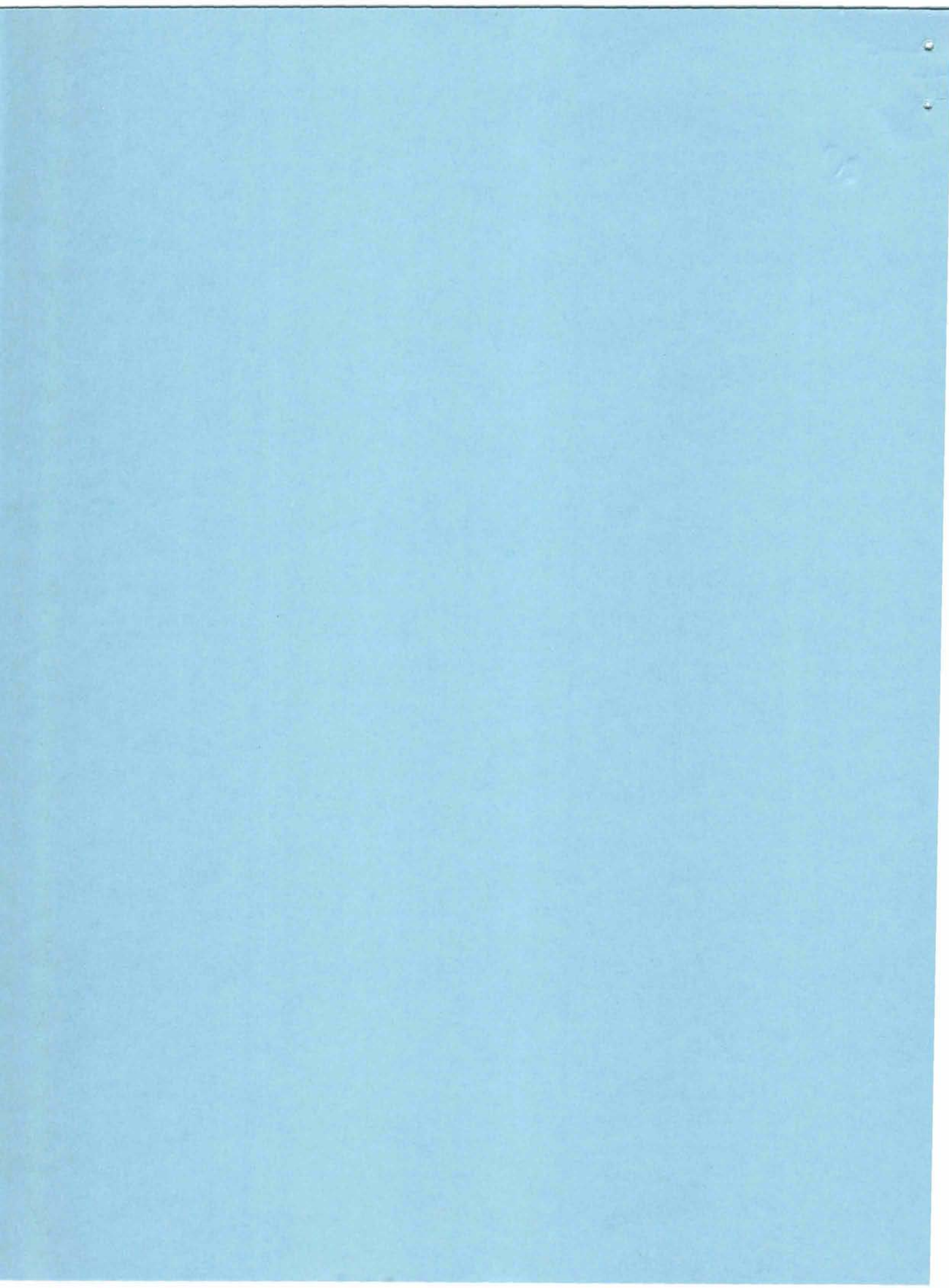
## **SUMMARY REPORT**

**September 12, 1995**

**September 13, 1995**

**National Science Foundation, Board Room 1235  
4201 Wilson Boulevard  
Arlington, VA 22230**





**SUMMARY REPORT**  
**UNOLS COUNCIL MEETING**  
**September 12-13, 1995**

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

The UNOLS Council met on 12-13, September, 1995 at the National Science Foundation, Board Room 1235, Arlington, VA. The meeting was called to order by Ken Johnson, UNOLS Chair at 1:00 p.m. The participants are listed in *Appendix I* and the meeting agenda is included as *Appendix II*. These minutes reflect the order in which items were addressed.

**APPENDICES**

- I. Meeting Participant List
- II. Meeting Agenda
- III. Proposed Changes to the Research Vessel Safety Standards
- IV. ALVIN/ROV Proposal and Operations Summary
- V. 1996 Intermediate Ship Schedule Timelines
- VI. 1995/1996 Ship Costs
- VII. RVTEC Meeting Agenda
- VIII. POLAR DUKE Replacement Plans
- IX. USCG Polar Icebreaker Schedule & Ice Operations Overview
- X. AGOR 24/25 Construction
- XI. New Horizon Mid-life Refit
- XII. 1995 Telecommunications Bill

**ACCEPT MINUTES:** The minutes of the 24-25 April, 1995 Council Meeting were accepted as written.

**COMMITTEE REPORTS**

**RESEARCH VESSEL OPERATOR'S COMMITTEE (RVOC)** - Mike Prince, RVOC Chair, reported on plans for the 1995 RVOC Annual Meeting scheduled for 24-26 October in San Diego, CA. Scripps will hold this year's meeting. The first day's agenda will include reports from the committees, agencies and operators. Medical Health Systems has been invited to report on activities over the past year. George Ireland will report on regulatory issues. Dennis Nixon will provide an update on liability and insurance issues.

The second day of the meeting will include a tour of Scripps's Marine Facility. Mike reported that a white paper on the benefits of the UNOLS fleet is being developed by Paul Ljunggren, himself and Jack Bash. A draft of the paper will be reviewed at the RVOC meeting. Other

items to be addressed at the meeting include: Post Cruise Assessments, crew training, increasing shipboard safety awareness, MHS pre-exam, physical exam standards and home pages for UNOLS Operators. A tour of the MBARI swath currently under construction at SWATH Ocean is being arranged for Wednesday afternoon. If possible, a tour of KAIMALINO will also be arranged.

The third day of the meeting will be devoted to roundtable discussions by the operators.

A small diving workshop is being scheduled for Monday, October 23rd preceding the RVOC meetings.

Mike reported that over the past two years, the RVOC Safety Committee has been reviewing the Research Vessel Safety Standards (RVSS). The current standards were approved in 1992. A review is required every three years. The committee has proposed a number of changes, see *Appendix III*. The changes mostly reflect regulatory updates that have come into effect in the past three years. Other changes include corrections to wording. An appendix has been added which provides guidelines for chartering non-institutional vessels by UNOLS institutions. Mike provided the Council with an executive summary of the changes for their review and discussion later in the meeting.

**DEEP SUBMERGENCE SCIENCE COMMITTEE (DESSC)** - Mike Perfit, DESSC Chair, reported on the Committee's activities along with a summary of ALVIN and ROV operations. In 1995, ALVIN is scheduled to complete 177 dives which relates to 317 ATLANTIS II operational days. This year to date, ALVIN has completed 130 dives and operations on the whole have been very successful. ALVIN will complete its 3000th dive during the week of 18 September in Juan de Fuca.

In 1996, ALVIN/AII operations are faced with a number of uncertainties: 1) uncertainties in scheduling, 2) ALVIN's overhaul schedule, 3) the ATLANTIS II certification, 4) fiscal and operational constraints, 5) widely geographically dispersed requests for science operations and 6) the retirement of ATLANTIS II at the end of 1996. In 1996, 128 dives are proposed with only 47 currently funded and the remaining 81 pending, see *Appendix IV*. Although 1997 is anticipated to be a light operating year, there is still some funded work in the Southern and Northern East Pacific Rise. Mike presented a time line of ATLANTIS II's 1996 operations.

In 1996, there are three, possibly four, programs planned for the ROV facilities, JASON, AMS120 and Argo II. The three programs have operations on the Mid-Atlantic Ridge, Juan de Fuca, and Southern EPR. Interest in 1997 for ROV facilities is high with nineteen programs currently in the planning stages, see *Appendix IV*.

Mike continued by reporting on issues that were discussed at DESSC's spring meeting. The DESSC supported the concept of ATLANTIS as the ALVIN handling platform. ONR had reported at DESSC's spring meeting that initial reports were positive that ATLANTIS could be modified to handle ALVIN. A NAVSEA study indicated that this would be feasible, cost would be reasonable and ship construction schedules minimally impacted. Halter shipyard has

been tasked to scope out the project and provide a cost estimate. DESSC hopes to see ALVIN operational down time to a minimum during this transition phase.

A proposal for navigation upgrades is being developed and should be submitted soon. Other upgrades are currently in progress for the ROVs including improvement to manipulative capabilities. A study on submersible batteries was recently performed. The study examined the bottom time capabilities of ALVIN over past years. A slight downward trend in available battery time was observed. A comparison of batteries currently in use by other submersible operators was performed. Presently, the other batteries in use are considerably more expensive than those used on ALVIN and the additional bottom time achieved would not justify the additional cost for use on ALVIN.

In June, the agencies indicated that they continue to be very supportive of the National Deep Submergence Facility (DSF). However, the future funding picture is very unclear, especially for NURP. DESSC emphasized to the agencies that they consider re-establishing a Memorandum of Agreement for the DSF very important.

Two new members have been nominated for DESSC. Additionally, Karen Von Damm recently submitted her resignation from the committee, due to her new responsibilities as Chair of RIDGE. Lastly, Mike announced that the next DESSC meeting is scheduled for Sunday, 10 December, immediately preceding the AGU Conference.

**FLEET IMPROVEMENT COMMITTEE (FIC):** Chris Mooers, FIC Chair, reported that the committee continues in their efforts to investigate coastal zone research facility needs. They believe that orderly planning is needed since it can take up to ten years from the beginning of planning until a vessel is actually on line. Chris believes planning is best done by working through consortia that cover the various coastal regions. He reported that he has been polling the agencies to get an indication of what their future coastal research needs will be. NSF and NRL have indicated that large ships may be capable of meeting many of the future coastal research needs. Chris will continue to get input from other agencies. Chris reported that MARCO has proposed a workshop to NSF on identifying coastal vessel needs for their area. Additionally, Duke has submitted a letter to NSF requesting authorization for a study to stretch CAPE HATTERAS.

FIC is involved in a number of studies. A study on vans is in the process of having final comments incorporated. A study on safety responsibilities aboard UNOLS ships is nearing completion. Bob Dinsmore is preparing a Primer on small boats. As part of the Primer, an inventory of small boats is being compiled on the World Wide Web. Ten geographic regions have been established and a point of contact for each area identified. FIC is also involved with RVOC in reviewing the Post Cruise Report objectives.

Chris continued by reporting on the summer FIC meeting in Seward, Alaska. Guests to the meeting included a representative from NOAA's NOS program and a representative from Navy's CNMOC office. The purpose of them attending the meeting was to explore mutual interests in collecting data from UNOLS ships.

Chris concluded by announcing that there will be a session at OCEANS 96 MTS/IEEE focusing on coastal ocean science. The meeting will be in September in Ft. Lauderdale.

**SHIP SCHEDULING MEETING (SSC)** - Don Moller, SSC Chair, reported on the results of the Ship Scheduling Meeting and Review held on 11 September just prior to the Council Meeting. Many of the scheduling issues had been resolved prior to the meeting. NSF funding decisions were made early this year as a result of their earlier submission deadline of February. Additionally, many funding decisions for major ONR programs had been decided early in the year. Communication between the operators has been good.

On the whole, proposal pressure for 1996 is low. There is only one cruise that remains unscheduled, but most likely will be accommodated. This is a GLOBEC cruise. All the large ships need to return home from the southern oceans in 1996. Additionally, they were faced with a number of scheduling constraints: transferring OBSs, scientific party boarding and coordination with the scheduling demands of the Fiber optic systems. The schedulers did a good job at economizing on transit times and accommodating science programs. There is concern over the status of KNORR's SeaBeam capabilities. The first two 1996 cruises on KNORR will depend on the SeaBeam operating properly.

The intermediate ship schedules in the northeast Atlantic are closely coordinated, see *Appendix V*. These include DOE work on the global ocean program, ONR's Coastal Mixing and Optics and the NSF/NOAA GLOBEC program. As a Class, the intermediates, with the exception of SEWARD JOHNSON, will not be operating to their optimum capacity. There is concern over the status of federal funding in 1996, particularly NOAA/NURP funding. A few ships will depend heavily on NOAA/NURP work.

The ship scheduling meeting concluded with a presentation by Robert Hinton on electronic transmission of ship time requests, form 831.

*Appendix VI* is a comparison table of the Fleet operating days for the years 1994 to 1996. Don concluded his report by presenting ship costs for 1995 and 1996. These numbers reflect the budgets the operators feel necessary to support the scheduled operations.

**RESEARCH VESSEL TECHNICAL ENHANCEMENT COMMITTEE (RVTEC)** - Rich Findley, RVTEC Chair, reported on the Committee's upcoming annual meeting to be hosted by Moss Landing Marine Lab in Monterey, CA on 16-18 October. Participation by all UNOLS institutions with technician programs is strongly encouraged. Rich reviewed the meeting's tentative agenda, see *Appendix VII*. The first morning of the meeting will address general business. Elections will be held for the Vice Chair position. A technical session on dissolved oxygen is planned. The Data Standards Committee will report on the status of their activities to be followed by a half day workshop on data standards. A report from the Equipment and Database Subcommittee is scheduled. They will address home pages on the WWW along with searchable data bases. Other items on the agenda include Chirp Sonar, safety in handling

over-the-side equipment, and review of UNOLS forms. A representative from the Navy's CNMOC program will be invited.

**GUEST SPEAKER - Al Sutherland, NSF Office of Polar Programs:**

Al Sutherland, from the NSF Office of Polar Programs, provided the Council with a presentation on the acquisition of the replacement ship for POLAR DUKE. View graphs of Al's talk are included at *Appendix VIII*. POLAR DUKE's contract is coming to an end. Congress dictated that the ship's replacement would be U.S. Flagged. This did not rule out re-contracting POLAR DUKE if this ship went through the re-flagging process. Three competitors offered bids. Edison Chouest Offshore was selected on 18 April based both on technical and price issues. The ship will be delivered in June 1997 in Louisiana. The name of the ship will be L. M. GOULD, named after a famous Antarctic explorer, educator and university president. Dr. Gould server as chief scientist under Admiral Byrd.

GOULD will be built to ABS-A1 class. It will be 230 feet LOA with a beam of 46 feet and a draft of 18 feet. The gross tonnage will be 1599 tons. A variable pitch propeller with kort nozzle will be driven by a 4200 BHP engine. The ship will have accommodations for 44 persons. With a planned crew of 14 this would permit 30 scientific berths. The ship is expected to be operated similar to POLAR DUKE with both research and supply being its mission. Living areas and labs will be located above the water (ice) line. The contract with Chouest is for a five year term with a ten year option at \$4.5M to \$5M per year. An estimated operating day rate of \$17.5 - 18 K is planned.

**AGENCY REPORTS**

**NATIONAL SCIENCE FOUNDATION** - Don Heinrichs provided the report for NSF starting with personnel issues. Mike Purdy is expected to take over the job of Director, Ocean Science Division in late September. Lisa Rom is on professional development leave at U C Berkeley. She will be working 50% of her time for NSF technician program. Mick Devin, a Sea Grant Intern, will be the on site contact for the technician program.

The NSF budget for 1996 is expected to be 1% below the 1995 budget. In 1995, OCE received \$193.4M. The final numbers will not be known until the Senate/House conference has been completed. NSF is expecting to be told to reduce the Foundation by one directorate.

Special projects include the discussions on potential changes in the UNOLS fleet. NSF is working with ONR on this issue to provide an agency perspective. The Ocean Studies Board is being considered as a possible forum for the evaluation of UNOLS.

The Arctic Research Vessel planning status remain the same. The GAO report said that there was not a demonstrated need for the ARV. The National Academy study is to be briefed to NSF and the USCG in early October and the completed report published before the end of October. NSF

will seriously look at the recommendations of this report. Don reported that Tom Pyle has been named the new Arctic Section Head for OPP.

**OFFICE OF NAVAL RESEARCH** - Jim Andrews reported that ONR Research Facilities is anticipating level funding for 1996. They are revising the algorithm for funding ship time from 55:45 to 80:20 facilities to science funding. This is designed to encourage more ship use.

The CNO Executive Board made a series of proclamations with regard to oceanography. The CEB recognized that the Navy has a fundamental interest in the ocean and oceanography not shared by other agencies. The Navy will, therefore, continue to emphasize support for ocean research. Although the Navy has been emphasizing coastal science, they do not want to ignore blue water oceanography. They have set their priorities at 70% littoral, 60% blue water with a 30% overlap of the two regions. Additionally, they will not allow the funding for ONR ocean science to fall below the 1996 baseline funding. Additional initiatives are still being worked out, however, they are expected to include the revitalization of Navy Chairs. Finally, NAVOCEANO is exploring the option of using Navy ships for their survey work. No money has been identified for this future work, but they are hopeful to have a test program on a UNOLS ship in 1996.

The budget and schedule for converting AGOR-25, ATLANTIS, to a submersible handling ship should be available from Halter Marine by the end of September. ONR and NSF will work towards a quick decision. At present the assumptions are that it will be feasible

Sujata Millick was hired in the spring to work in the ONR Research Facilities Program. Sujata is currently working for the Senate Appropriations Committee and will not be able to work full time at ONR until the DOD appropriations are signed.

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)** -Captain Martin Mulhern reported on present activities, recent changes, and the budget picture for the NOAA fleet. Construction of the NOAA AGOR, named RESEARCHER, is on schedule and proceeding well. Delivery is expected in August 1997. The NOAA AGOR is the fourth in the "THOMPSON" class. Marty noted that NOAA has benefited from close cooperation with the University of Washington, Scripps Institution of Oceanography, Woods Hole Oceanographic Institution, and NAVSEA, as well as the shipyard's experience in constructing the other ships in the class.

Conversion of a U.S. Navy T-AGOS ship to support oceanographic mooring operations and related research is underway, with delivery scheduled in early spring, 1996. Home port will be Honolulu, and the ship will be named Ka'Imimoana. Also underway are repairs to extend (RTE) the life of the fisheries research vessel DELAWARE II.

The NOAA Ship MALCOLM BALDRIGE is deployed along with a number of UNOLS vessels in the Indian Ocean, to provide support to WOCE, OACES, JGOFS, and other programs. The BALDRIGE is operating extremely well. Last year, new evaporators and ship service diesel generators were installed, and several years ago a shaft alignment problem was completely resolved. The BALDRIGE will return to the U.S. in February 1996.



By the end of September the NOAA Ships SURVEYOR, MT MITCHELL, and HECK will be taken off line, joining the already inactive OCEANOGRAPHER, FAIRWEATHER, and DAVIDSON. Plans for disposal are temporarily on hold while regulations concerning PCB's are investigated. Excluding the permanently inactive ships listed above, by October NOAA's fleet will include a total of 18 ships: the T-AGOS ship now in conversion, two T-AGOS ships that are temporarily inactive, plus fifteen other active ships.

In the future NOAA expects to utilize both university-operated and private sector ships to a larger degree. Continued vigorous cooperation between NOAA and the academic community is expected, with healthy cooperation being a "2-way street".

**UNITED STATES COAST GUARD (USCG)** - Captain Alan Summy made the USCG presentation using a series of view graphs which are included as *Appendix IX*. Captain Summy reported that the USCG budget was to decline 20% over the next four years, however, they expect 100% funding in 1996 for operating, maintenance, acquisition and construction funds for the Polar Icebreakers. No science missions have been requested for 1995 or 1996. A mission has been proposed for 1997.

An International agreement has been worked out with the Canadians that would grandfather ships with CASPPR compliance if they are launched prior to 31 December 1998. HEALY is scheduled for launching prior to that time and will be exempt from the new CASPPR requirements.

HEALY is on track for construction starting next year. HEALY's home port has not yet been decided. Ports under consideration include Boston, Norfolk and Charleston on the east coast and Seattle on the west coast. A shore side staff of 65-70 will be in support of HEALY. The cost for science use of HEALY is estimated at \$16-20K per day. This includes 60% of the helicopter cost, 40% maintenance and 100% fuel. Characteristics of HEALY are included in *Appendix IX*.

**DEPARTMENT OF STATE (DOS)** - Tom Cocke provided the Department of State presentation. Tom's office has seen an increase in requests for foreign clearances by 15 to 20% to now about 400 per year. Half of the clearance requests are coming in late. Participation by the foreign state scientists has been increasing. Tom reported that the Indian Ocean clearances have been working well. Brazil clearances seem to be less of a problem. The number of requests for Mexico have been decreasing. Tom will be going to Mexico this year in an effort to improve clearance procedures with that country. Two clearances were received from Russia this year which is an improvement.

**OCEANOGRAPHER OF THE NAVY (OON)** - The OON report was presented by Pat Dennis. The Navy's modernization program is winding down. The program will stabilize out at eight survey ships. Two TAGS ships (60 and 61) have been delivered but are not operating as a result of a transformer problem. The third ship is ready for delivery and the keel for the fourth is scheduled to be laid. The Navy has an option on two additional TAGS 60 class ships, however, instead of constructing the sixth TAG, OON may receive the USNS WATERS. USNS WATERS, built as a

cable layer, if transferred to the OON would be converted to a survey ship. Cost of conversion is estimated at \$7M.

NAVOCEANO is planning on a modest use of UNOLS ships in 1996. This could expand in the future and supplement the activities of OON's eight core ships.

### UNOLS ISSUES

**Potential Changes on the Horizon for the UNOLS Fleet** - Peter Betzer chaired an ad hoc committee to examine the "Potential Changes on the Horizon for the UNOLS Fleet". Included in his committee were: D. Hayes, R. Knox, C. Mooers, R. Pittenger and R. Wall. The committee developed a draft paper to address the issue of declining funding and an excess of ship capacity. They responded to the following charge.

1. Review the budget projections of Don Heinrichs for UNOLS ship operations, giving special regard to the possible expanded participation of supporters/users, other than NSF (i.e. ONR, NRL, NOAA, USGS, MMS, DOE, EPA and NASA);
2. Within reasonable budgetary assumptions, assess a general model for the UNOLS Fleet requirements for supporting science. This assessment should be based on the model the UNOLS Fleet Improvement Committee projected for the year 2000 but modified to more accurately reflect current status and updated projections;
3. If any imbalance exists between requirements and resources, offer suggestions as to how we might best reconcile the mismatch? (i.e. increase the user base, reduce the fleet, and/or go to different modes of operation);
4. What UNOLS operational/fiscal changes would work best for the U.S. oceanographic community;
5. Could fleet realignment lead to a more effective use of our ships? If so, what are the particular criteria that should be used to evaluate the merits of shifting sea-going assets.

Fleet operating costs projections were provided which included the new ships that would be coming on-line. Funding available projections were also provided from information collected from the agencies. Considerable discussion followed. The ad hoc committee listened to many suggestions which would be used in updating and revising the draft report. A completed report will be ready for the next Council meeting. One conclusion of the report was to expand the user base. This was non-controversial and considered an immediate action item.

**Customer Satisfaction Survey** - The Fleet Improvement Committee mailed out surveys to 325 recent UNOLS ship users. These surveys asked questions about the quality of service of the UNOLS fleet. Approximately 20% of the surveys were returned. A summary of the results was included in the UNOLS Newsletter. In general the results were very good. Chris Mooers

explained that there were, however, problem areas that were being addressed. The most significant problem was in the post cruise assessment reporting. Several respondents suggested this report was not effective. The FIC is working with the RVOC and RVTEC to improve the reporting procedure. A new assessment form is under development and the need for the operating institution to respond to each assessment was stressed.

**Assessment Reports** - Mike Prince presented a draft for a new assessment report. The format should be easier to complete and better to extract statistics for analysis. The Council discussed the draft and made suggestions. RVOC was tasked to work with RVTEC and provide a final draft for the next FIC meeting which would then be forwarded to the Council for approval.

**Internet Update** - At the scheduling meeting, Robert Hinton displayed UW's homepage with an electronic version of the ship time request form (form 831). The UNOLS Office is in the process of exploring methods for putting the ship time request form on internet so that it will be accessible to all operators and ship users

**White Paper on Regional Consortia** - Chris Mooers, Chair of the FIC, distributed to the Council a draft "white paper" on regional consortia. Chris has been receiving input from various FIC and Council members and will continue work on the draft. Chris is also collecting MOA's from the existing consortia. A revised draft of this paper will be mailed to the FIC and Council membership for review.

**New Ship Construction** - Dick Pittenger reported on construction of AGOR 24 and 25, see *Appendix X*. Much was learned from the construction of THOMPSON and many of its design deficiencies have been corrected on REVELLE and ATLANTIS. Construction on ATLANTIS is progressing ahead of schedule. Delivery is planned for April 1997. Halter shipyard is performing a study to determine cost and schedule impact of converting ATLANTIS to a submersible handling platform. Shipyard representatives have visited LANEY CHOUEST and ATLANTIS II to examine their handling systems. Results of the study are expected by the end of the month. Bob Knox showed a video of the REVELLE launch and presented a momento to Annette DeSilva in appreciation for her efforts at ONR during design and construction of the ship.

**Mid-life Refits** - Mike Prince reported that a mid-life refit for POINT SUR is on hold for a few years until there are adequate funds and time. However, an extended overhaul has been requested for early 1996.

Bob Knox reported on the proposed mid-life refit for NEW HORIZON for 1996, see *Appendix XI*. The proposal is straight forward with plans to correct long standing problems. The areas to be examined include: stability, payload versus endurance, operational maintainability and improved habitability. The ship will be grandfathered in regard to admeasurement resulting in a savings in funds. The mid-life is scheduled to begin late this year and proceed through the early months of next year, but is contingent on funding. Scripps plans to cost share the mid-life with NSF on a 20/80 split (Scripps:NSF). This is based on the percentage use of the ship by State and Federal agencies.

A stretch of CAPE HATTERAS is being considered by Duke/UNC. Funding to perform a study on the stretch has not been identified.

MARCO's proposal for a Coastal Workshop has been submitted to NSF and is under review. The workshop will study the needs for a coastal vessel in the Mid-Atlantic region.

**Arctic Facilities Committee/Science Committee for HEALY** - Cindy Lee, Tom Royer and David Karl were on an ad hoc committee to assess the need for a UNOLS Committee to champion Arctic facilities. Cindy reported that the committee believes that UNOLS should have a standing committee and that this committee should be concerned with all polar research facilities needs. HEALY would be one issue among many. Chris Mooers advised the Council that FIC was communicating with the Coast Guard about an advisory committee for HEALY. He is working with the Coast Guard on terms of references for an oversight group and considering possible candidates, however, funding to support the committee is an issue. Discussion followed. It was decided to wait for the National Academy report on the Arctic facilities before proceeding. A small interim working group is to be established to work with the Coast Guard and address HEALY issues while laying the ground work for a UNOLS Committee.

**Nuclear Submarine For Oceanographic Research** - The SOONS update report is not moving along due to a lack of a major sponsor. Ken Johnson will contact Lloyd Keigwin to see if he needs assistance completing the report.

**Radio Operator/GPS** - Dick Pittenger is continuing his efforts to get UNOLS' large ships exempt for the requirement to carry a Radio Officer. The exemption may get passed this year. A copy of the 1995 Telecommunications Bill is enclosed as Appendix XII.

P-Code GPS is now operating on the vessels operated by Scripps, University of Washington and WHOI. Efforts to get P-Code access for University of Hawaii, URI, OSU and LDEO are underway, but facing a lot of red tape.

**Research Vessel Safety Standards** - After review of changes to the Research Vessel Safety Standards, the Council made a motion to approve the standards as amended with the additions of "hazardous" and "where appropriate". This was in regard to a section addressing chemicals carried aboard a vessel. Rather than identifying all chemicals it was recommended that "hazardous" chemicals along with their neutralizing agents be listed where appropriate.

**UNOLS Council Membership** - The Council membership slate was presented for Council review. The slate will be voted on at the Annual meeting.

**UNOLS Committee Appointments** - Chris Mooers announced nominations for three FIC members: Larry Atkinson of ODU would replace Don Wright. Bess Ward of UCSC would replace Tom Royer and Tom Weingartner of University of Alaska will replace Ken Johnson. The Council approved the nominations.

Mike Perfit announced two nominees for DESSC. These are Cindy Van Dover, West Coast Science Director for NURP, and J.C. Sempere, a geophysicist with expertise in remote sensing and deep towed vehicles. The Council approved the nominations.

**Annual Meeting** - Ken Johnson reported that the Annual meeting will follow the Council meeting. No changes to the tentative agenda were noted.

**Calendar for UNOLS Meeting** - NAVOCEANO has invited UNOLS to host their winter meetings at Stennis, MS. The Council meeting could be scheduled during the same week as FIC. A visit to Halter Marine Inc. could also be arranged. Jack Bash will poll the Council to determine a convenient date.

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

# APPENDIX I

<u>NAME</u>	<u>AFFILIATION</u>	<u>PHONE</u>	<u>FAX</u>	<u>INTERNET ADDRESS</u>
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Alan Summy	USCG	(202) 267-1461	(202) 267-4425	A.SUMMY/G-NIO@ CGSMTP.USCG.MIL
Al Sutherland	NSF/OPP	(703) 306-1032		alsuther@nsf.gov
Brian Taylor	U of Hawaii	(808) 956-6649	(808) 956-2538	taylor@soest.hawaii.edu
Robert Wall	U of Maine	(207) 581-1435	(207) 581-1426	robert_wall@umeres.maine.edu
Richard West	NSF	(703) 306-1579	(703) 306-0139	rwest@nsf.gov
Steve Wheeler	USCG/Ice Ops	(202) 267-1453	(202) 267-4425	



## **APPENDIX II**

## **AGENDA**

### **UNOLS COUNCIL MEETING**

**1300 hrs. 12 September 1995**

**0830 hrs. 13 September 1995**

**National Science Foundation, Board Room 1235**

**4201 Wilson Boulevard**

**Arlington, VA**

**Call the Meeting:** Ken Johnson, UNOLS Chair, will call the meeting to order at 1300 hrs. 12 September 1995.

**Accept Minutes of April 1995 Meeting.**

#### **COMMITTEE REPORTS**

**Research Vessel Operators' Committee** - Mike Prince, Chair, will provide an updated summary of the plans of the upcoming RVOC meeting in San Diego, CA scheduled for 24-26 October 1995.

**DEep Submergence Science Committee** - Mike Perfit, Chair, will report on the updated ALVIN and ROV operation plans for 1996 along with a brief overview of the DESSC meeting held at WHOI on 31 May through 2 June, 1995.

**Fleet Improvement Committee** - Chris Mooers, Chair, will report on the results of the FIC meeting held in Seward, Alaska 20 - 21 July 1995. Chris will review courses of action and status for the various FIC projects.

**Ship Scheduling Committee** - Don Moller, Chair, will summarize the 1995 ship schedules and provide the results of the 11/12 September Ship Scheduling and Schedule Review meetings. Don will report the funding shortfall, if any, for the 1996 UNOLS ship operations.

**Research Vessel Technical Enhancement Committee** - Rich Findley, Chair, will report on the progress of RVTEC in 1995 and the plans for the RVTEC annual meeting to be held in Monterey, CA 16-18 October, 1995.

**AGENCY REPORTS** - Reports from representative's of NSF (D. Heinrichs), ONR (J. Andrews), NOAA (Capt. Mulhern), DOE (C. Wirick), NURP (H. Frey), and USCG (Capt. Summy) on funding outlooks and special projects. The U.S. Department of State (T. Cocke) will provide an update on foreign clearance problems. Pat Dennis (OON) will report on matters from the Oceanographer of the Navy.

**GUEST SPEAKER** - Al Sutherland will speak on the POLAR DUKE replacement (R/V L.M. GOULD).

#### **UNOLS ISSUES**

**Potential Changes on the Horizon for the UNOLS Fleet** - Peter Betzer will provide a draft of a paper authored by an ad hoc committee that discusses the current and projected funding environment with recommended courses of action to deal with the shortfalls. The ad hoc committee members are: P. Betzer, R. Knox, C. Mooers, R. Pittenger, D. Hayes and R. Wall.

**Customer Satisfaction Survey** - Chris Mooers will summarize the results of the Customer Satisfaction Survey and suggest ways to address the problem areas.

**Assessment Reports** - Mike Prince will discuss the proposed assessment report form (Enclosure 1).

**White Paper on Regional Consortia** - Chris Mooers will present a revised White Paper on the advantages of Regional Consortia.

**Arctic Facilities Committee** - The ad hoc committee of Tom Royer, Cindy Lee and Dave Karl will report on their findings as to the need for a UNOLS Committee to coordinate Arctic facilities.

**Science Committee for HEALY** - Chris Mooers will discuss his progress on a science committee to provide the Coast Guard advice on the science mission for HEALY.

**New Ship Construction** - Bob Knox and Dick Pittenger will update the Council on the construction status of REVELLE and ATLANTIS. Jim Andrews will review the status of the study to modify AGOR 25 as a support ship for ALVIN.

**Mid-Life Refits** - Bob Knox and Mike Prince will discuss the progress of mid-life refits for NEW HORIZON and POINT SUR respectively. Jack Bash will report on the possible stretch of CAPE HATTERAS and the MARCO proposal.

**Nuclear Submarine for Oceanographic Research** - Jack Bash will report on the status of the September 1994 workshop report. An open discussion will be held on the direction UNOLS should go with this issue.

**Radio Operator/GPS** - Dick Pittenger will update the Council on the status of the Radio Operator problem and introducing GPS to the rest of the UNOLS fleet.

**Internet Update** - Jack Bash will report on the progress of UNOLS' use of Internet.

**UNOLS Council Membership:** Dave Karl, Nominating Committee Chair, will present the slate for the membership elections. The terms of Dick Pittenger, At-large seat, and Bob Wall, Non-operator seat, will be expiring. Both are eligible for second terms.

**UNOLS Committee Appointments** - Chris Mooers and Mike Perfit will announce nominations for FIC and DESSC.

**Annual Meeting** - Ken Johnson will briefly discuss the plans for the UNOLS Annual Meeting scheduled for 14 September 1995.

**Calendar for UNOLS Meetings** - The Council will discuss the winter meeting site. It has been suggested that the Council meet the same week as the FIC meeting at the NAVOCEANO facilities Stennis, MS. The week of 22 Jan. has been suggested. The meetings would be held in January with the FIC meeting Monday and Tuesday, the Council meeting Thursday and Friday. Wednesday there will be a tour of the Navy facilities and Halter Marine.

#### **Meeting Schedule**

<b>MEETING</b>	<b>LOCATION</b>	<b>DATES</b>
UNOLS Council	Arlington, VA	12-13 September 1995
UNOLS Annual	Arlington, VA	14 September 1995
RVTEC	Monterey, CA	16-18 October 1995
RVOC	San Diego, CA	25-27 October 1995
DESSC	San Francisco, CA	10 December 1995

# **APPENDIX III**

## **Executive Summary** **of** **the Proposed Revisions to the Research Vessel Safety Standards (1992)**

**Overview:** Changes were incorporated into chapters 3, 8, 9, 10, 12, 15, 16 and 17. Most were minor in nature and reflected changes to regulations since the Safety Standards were last published. An appendix was also added that includes the checklist for chartering non-UNOLS vessels as required by chapter 17 and approved by the UNOLS Council for adoption in 1993. All references to federal regulations, e.g. CFRs, USC, etc. were verified and changed if required. The table of contents page has also been updated. Actual changes by chapter are summarized below.

### **Chapter 3 - Certification, Documentation and Inspection**

- Reference to MARPOL 73/78 was added.
- Several references were changed to reflect the regulation numbers in the current CFRs.

### **Chapter 8 - Lifesaving Equipment**

- 8.1(b) Life Rafts. Changed to reflect the current requirement for new life rafts to be tested annually after they become two years old.
- 8.1(c) Buoyant Apparatus. Paragraph d. added to include the provisions of NVIC 3-87 concerning survival equipment for liferafts. Includes new SOLAS requirements.
- 8.1(e) Buoyant Apparatus. Paragraph e. added to point out new SOLAS requirements that may be appropriate for all UNOLS vessels.
- 8.2(a) Life Preservers. Sentence added prohibiting the use of chemiluminescent type lights in near freezing waters.
- 8.2(b) Immersion Suits. Wording change entered throughout to bring paragraph into conformity with the current use of "immersion suit" vice survival suit. SOLAS requirement for marking storage bag with last inspection date added.
- 8.4 Emergency Position Indicating Radio Beacon (EPIRBs) and Other Radio Lifesaving Equipment. (OLD). This section was moved to chapter 13, paragraph 13.8, in the proposed changes, where it is more appropriate. It was also updated to show current requirements for EPIRBs, SARTS and survival craft radios.
- 8.4 Line Throwing Appliance and Rescue Boat. (NEW) Line 6 "personnel" added before lifting device for clarity.
- 8.5 Self Contained Breathing Apparatus. Requirement for apparatus to be MSHA or NIOSH approved for 30 minutes, requirement for a spare bottle for each apparatus, requirement for training bottle and a note that this type oxygen is not approved for medical use was added to the end of this section.

### **Chapter 9 - Scientific and Shipboard Hazardous Materials**

- 9.1(d) Hazardous Scientific Materials. Paragraph added to show warning concerning storage of incompatible materials together.
- 9.2 Changed to show that the Chief Scientist is to provide a list of chemicals to be used and their neutralizing agents two to four weeks prior to the cruise.
- 9.3 Last sentence added to make Chief Scientist responsible for providing the hazardous material inventory and MSDS sheets to vessel's Master.

#### **Chapter 10 - Explosives**

- 10.8 Assistance. Paragraph added to provide contacts for help in planning a cruise involving explosives. Few Institutions have expertise in this area and few conduct explosive cruises. Requests that names of contacts with experience in explosives be included in the Safety Standards was received from several Institutions.

#### **Chapter 12 - Scientific Equipment**

- 12.0 Background. Second sentence, (*such as CTD, Rosettes and rock dredges*), added for clarity.
- 12.4 Acoustic Beacons (OLD). Section was deleted. No one on Safety Committee or in RVOC could remember why it was included or identify a requirement for it.

#### **Chapter 13 - Communications**

- 13.8 EPIRB. This section was moved from chapter 8 because it is more appropriate here. It was also updated to show current requirements for EPIRBs, SARTS and survival craft radios to bring the requirements in line with SOLAS and current regulations.

#### **Chapter 14 - Manning**

- 14.0 Manning. Sentence added at end of this section stating that the Chief Scientist has the responsibility for insuring that the science party is adequately manned and for planning the employment of his personnel in a safe manner.

#### **Chapter 15 - Operations**

- 15.12 Oil Transfer Procedures. Section added to show the new requirements for certain size vessels to maintain oil transfer procedures.
- 15.13 Refuse Record Book. Section added to show the new requirements for certain size vessels to maintain this record.
- 15.14 Oil Record Book. Section added to show the new requirements for certain size vessels to maintain this record.

#### **Chapter 16 - Diving Operations**

- 16.2(1) Cruise Planning. The Chief Scientist added to the list to whom the Principal Investigator is to forward the cruise dive plan. (Note: Past problems have occurred when PI is different than Chief Scientist and Chief Scientist did not get a copy of dive plan prior to cruise departure.)

#### **Chapter 17 - Chartering of Non-Institution Vessels**

- 17.0 Background. Adds sentence that these policies are mandatory when federal funding is involved. Last sentence added to indicate that the goal is to insure charter vessels meet the safety standards of comparable size UNOLS vessels.
- 17.1(8) Pre-Charter. Adds a list of inspections that can be accepted as an adequate substitute for an on site inspection.

#### **Appendix A - Chartering non-Institutional Vessels by UNOLS Institutions**

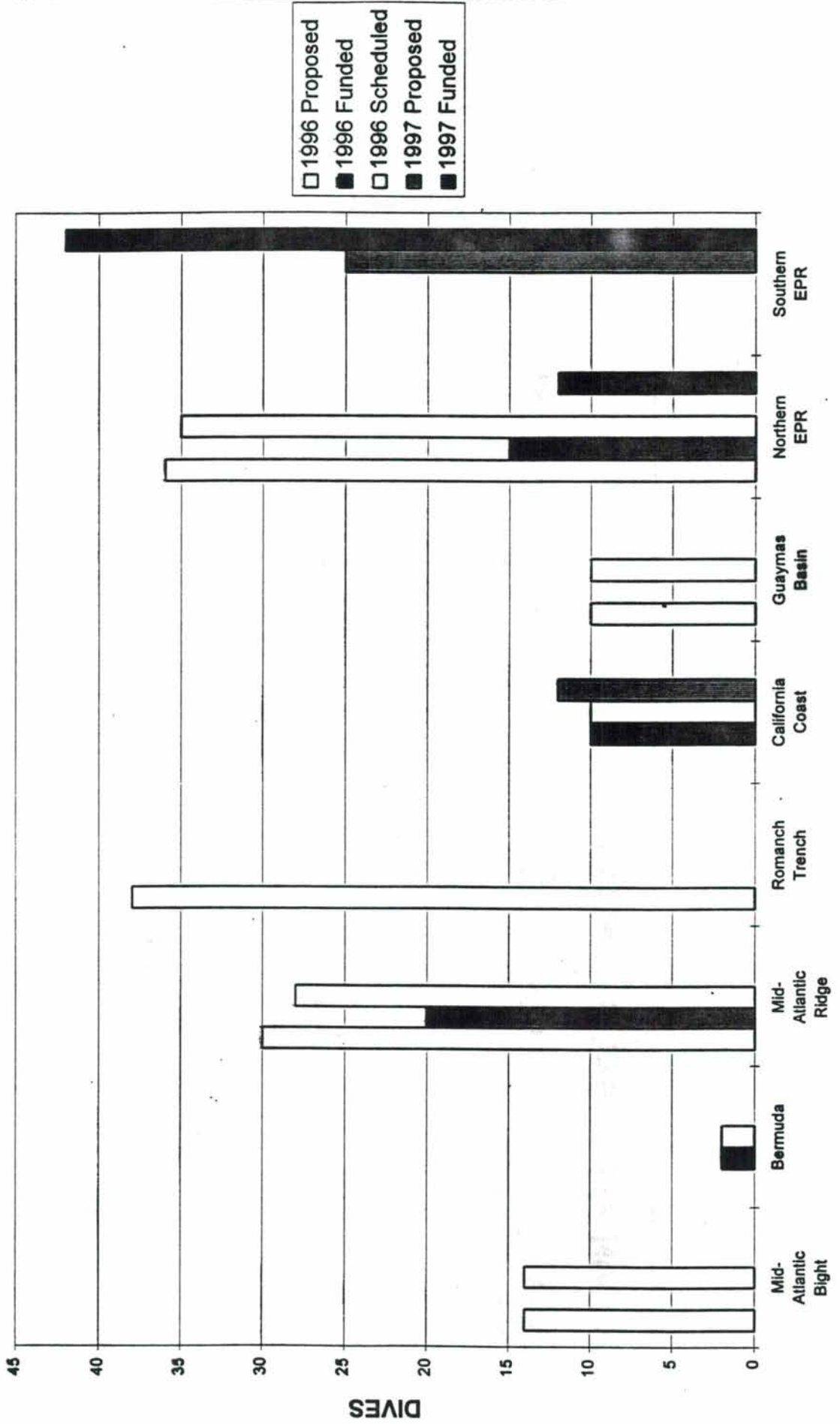
- Totally new section that contains the guidelines and inspection check list approved by the UNOLS Council in 1993.
- Documentation. Adequate insurance changed to read "meets chartering Institute's minimum requirements"

## **APPENDIX IV**

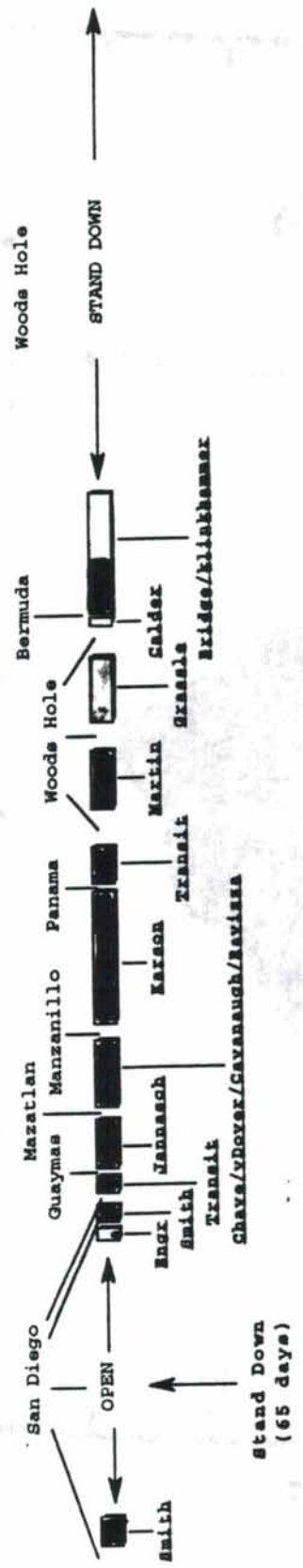
<b>ALVIN PROPOSAL SUMMARY</b>					
<b>AREA</b>	<b>1996 Proposed</b>	<b>1996 Funded</b>	<b>1996 Scheduled</b>	<b>1997 Proposed</b>	<b>1997 Funded</b>
Mid-Atlantic Bight	14		14		
Bermuda		2	2		
Mid-Atlantic Ridge	30	20	28		
Romanch Trench	38				
California Coast		10	10	12	
Guaymas Basin	10		10		
Northern EPR	36	15	35		12
Southern EPR				25	42



# ALVIN PROPOSAL SUMMARY: 1996 - 1997



1996 ATLANTIS II 1996 Dated: 25 August 1995



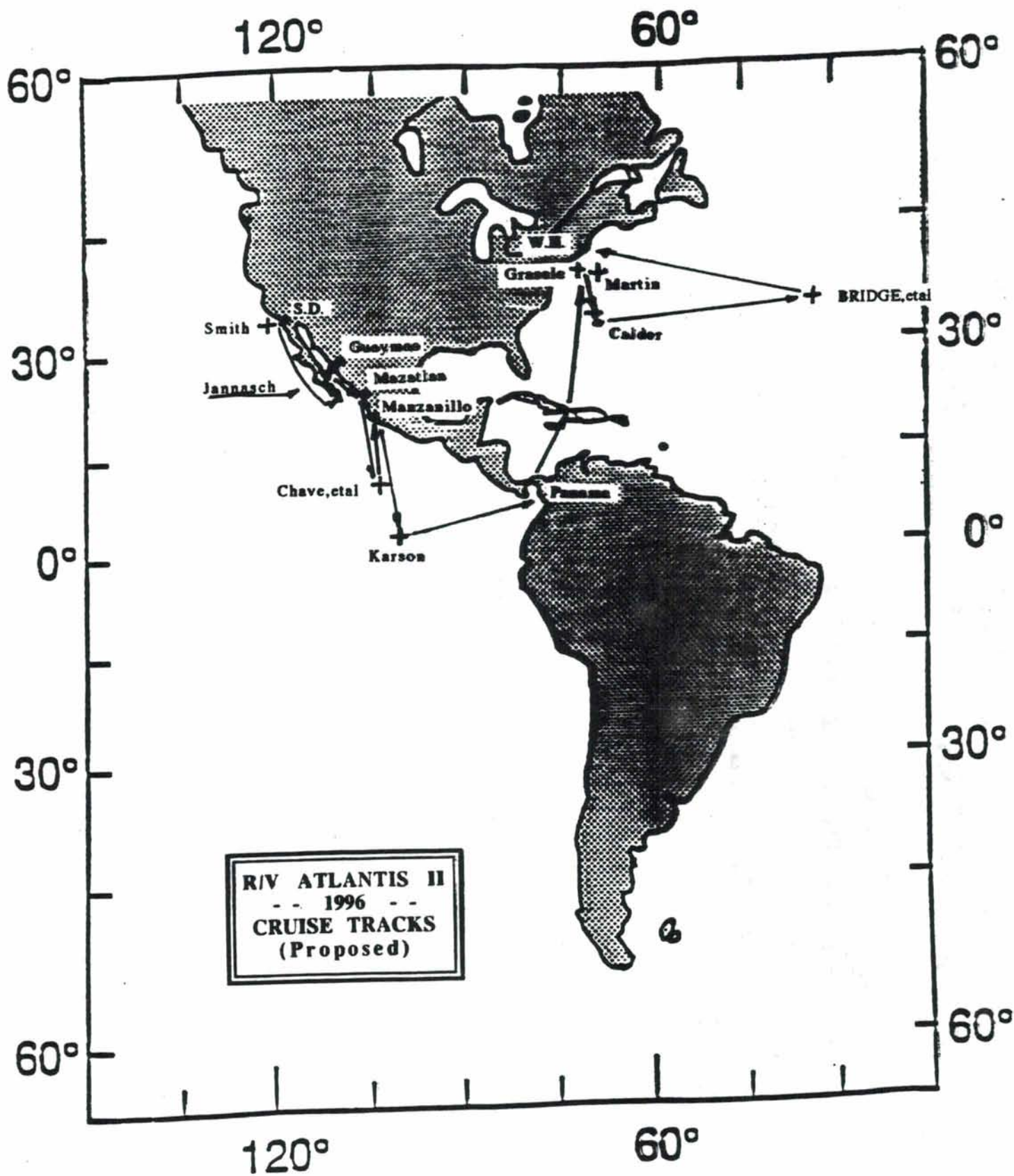
ALVIN DIVES

NSF=	69
NAVY=	0
NOAA=	14
OTHER=	10
ENGR=	3
TOTAL=	96

ATLANTIS II

TOTAL FUNDED PENDING

NSF=	131	66	65
NAVY=	1	1	0
NOAA=	17	1	16
OTHER=	16	2	14
TOTAL=	165	70	95



Title

Title	Agency	Principal Investigator	ROV
1. Investigation of the Relations Between Volcanic, Tectonic and Hydrothermal Activity Within a Segment of the Mid-Atlantic Ridge Influenced by the Azores Hotspot: The Lucky Strike Segment at 37d N	NSF	Fornari/Humphries/ Van Dover	JASON/MEDEA, ARGO II
2. ARGO II Survey @ 17degrees South	NSF	Haymond/MacDonald	ARGO II
3. Juan de Fuca Ridge Survey	NSF	Johnson	JASON/MEDEA
4. DSL 120 Survey of Russian Yankes Submarina	ONR	Hollister	DSL 120
5. Unmanned Vehicle Support of the Volcanological Investigation of the Superfast Spreading Mid-Ocean Ridge using the DSL 120	NSF	Sinton	DSL 120
6. ARGO II and DSL 120 Surveys for Linking Morphology, Petrology, and Geochemistry to Understanding Crustal Construction at the Mid-Atlantic Ridge	NSF	Humphries	ARGO II, DSL 120
7. Crustal Structure and Neotectonics at Hess Deep: An ODP Survey for Science in Support of Drilling	NSF	Dick	ARGO II, DSL 120
8. Monitor Short Term Variability of Diffuse Flow from the North Cleft Segment of the Juan de Fuca Ridge	NSF	Kadko	JASON/MEDEA
9. Survey for FARA Program at Mid-Atlantic Ridge 29 degree N.	NSF	Sempere	ARGO II, DSL 120
10. Detailed Investigation of Development and Evolution of Abyssal Hill Morphology Along the Mid-Atlantic Ridge	NSF	Killenrock	JASON/MEDEA, ARGO II
11. Indian Ocean Survey	NSF	Fornari/Humphries	JASON/MEDEA, ARGO II, DSL 120
12. Study of Temporal Changes in Biological Community Structure at Nascent Hydrothermal Vents on the EPR Crest	NSF	Lutz	JASON/MEDEA
13. Spatial Control for Temporal Variability: 3-D Multiscale Mapping of Seafloor Features and Water Column Plumes Within the Ridge Observatory	NSF	Delaney	JASON/MEDEA, DSL 120
14. Hydrothermal & Structural Investigations Along the Fastest Spreading Center	NSF	Hey	DSL 120
15. Active Processes at Ridge Crest: Establishing a Baseline for Recent and Future Diking-Eruptive Events on the Juan de Fuca Ridge	NSF	Delaney	DSL 120
16. High-Resolution Magneto-Stratigraphic and U-Series Dating of Giant Submarine Landslides and Their Correlation with Explosive Volcanism on the Hawaiian Hot Spot	NSF	Smith, John	ARGO II
17. Instrumented Borehole Seals for 1996 ODP Drilling on the Juan de Fuca Ridge	NSF	Becker	JASON/MEDEA
18. Observatory Experiment Using Jason on the Juan de Fuca Ridge	NSF	Chadwick	JASON/MEDEA
19. Hawaii 2 Observatory - Subcontract to IRIS	NSF	Chavez/Yoergler/Catipovic	JASON/MEDEA

# **APPENDIX V**



# APPENDIX VI

**Charge/Operating Days  
Class II & Class III  
(1995 & 1996)**

	1994 Total	1995 Total	1996 Total
Atlantis II	306	319	170
Ewing	310	309	311
Knorr	253	351	258
Melville	303	297	296
Revelle			17
Thompson	255	333	248
Total	1,427	1,609	1,300
Edwin Link	215	157 *	239
Endeavor	130 *	228	205
Gyre	148	128	@100
Iselin	192	0	0 (not in service)
Moana Wave	215	191	155
New Horizon	241	249	178 *
Oceanus	0 *	189	211
Seward Johnson	70	275	302
Wecoma	84 *	147	180
Total	1,295	1,564	1,568

\* Overhaul (partial service)

\*\*\* Overhaul (out of service)

D.A.M.- 9/11/95



**Charge/Operating Days  
Class IV  
(1995 & 1996)**

	1994 Total	1995 Total	1996 Total
Alpha Helix	163	144	174
Cape Hatteras	173	172	0 ***
Cape Henlopen	170	204	206
Longhorn	53	65	100
Pelican	134	163	123
Pt. Sur	185	187	142 *
Sea Diver	124	160	97
Sproul	111	183	149
Weatherbird	144	161	166
<b>Total</b>	<b>1,257</b>	<b>1,419</b>	<b>1,157</b>
Barnes	72	78	102
Bluefin	59	92	120
Calanus	54	51	87
Laurentian	83	89	52
<b>Total</b>	<b>268</b>	<b>310</b>	<b>361</b>

\* Overhaul (partial service)

\*\*\* Overhaul (out of service)

D.A.M.- 9/11/95

## SUMMARY OF SHIP USE AND COSTS YEAR: 1995

As of: 9/8/95

SHIP/CLASS	NSF		NAVY		OTHER		TOTAL		DAILY RATE			
	DAY	\$	DAY	\$	DAY	\$	DAY	\$				
MELVILLE	256	4,309	36	608	5	84	297	4,999	16,832			
KNORR	351	5,059	0	0	0	0	351	5,059	14,413			
ATLANTIS II	296	3,910	1	13	22	291	319	4,214	13,210			
EWING	285	4,294	0	0	25	377	310	4,671	15,068			
T.G. THOMPSON	219	3,073	112	1,572	0	0	331	4,645	14,033			
MOANA WAVE	176	1,995	0	0	50	567	226	2,562	11,336			
<b>CLASS II</b>	<b>1,583</b>	<b>22,640</b>	<b>0</b>	<b>149</b>	<b>2,191</b>	<b>0</b>	<b>102</b>	<b>1,319</b>	<b>0</b>	<b>1,834</b>	<b>26,150</b>	- -
AVE: (8)	264	3,773	25	365	17	220	306	4,358	- -			
EDWIN LINK	15	113	0	0	135	1,013	150	1,125	7,500			
ENDEAVOR	191	2,015	37	390	0	0	228	2,405	10,548			
OCEANUS	124	1,180	60	571	3	29	187	1,780	9,519			
GYRE	0	0	24	151	104	655	128	806	6,297			
ISELIN							0	0	NA			
NEW HORIZON	194	1,872	8	77	40	386	242	2,335	9,649			
SEWARD JOHNSON	81	689	36	306	153	1,301	270	2,295	8,500			
WECOMA	72	1,024	75	1,067	0	0	147	2,091	14,224			
<b>CLASS III</b>	<b>677</b>	<b>6,892</b>	<b>0</b>	<b>240</b>	<b>2,562</b>	<b>0</b>	<b>435</b>	<b>3,383</b>	<b>0</b>	<b>1,352</b>	<b>12,837</b>	- -
AVE: (8)	85	862	0	30	320	0	54	423	0	169	1,605	- -
PELICAN	0	0	38	171	125	563	163	734	4,503			
LONGHORN	36	144	7	28	22	88	65	260	4,000			
POINT SUR (a)	106	695	38	249	23	151	167	1,095	6,557			
CAPE HATTERAS	152	1,310	18	144	19	185	189	1,639	8,672			
ALPHA HELIX	89	862	19	186	36	366	144	1,414	9,816			
R. SPROUL	87	484	32	178	37	206	156	868	5,564			
CAPE HENLOPEN	173	955	25	138	0	0	198	1,093	5,520			
WEATHERBIRD II	153	1,160	1	7	2	15	156	1,182	7,578			
SEA DIVER	31	118	58	220	71	270	160	608	3,800			
<b>CLASS IV - TOTAL</b>	<b>827</b>	<b>5,728</b>	<b>0</b>	<b>236</b>	<b>1,322</b>	<b>0</b>	<b>335</b>	<b>1,843</b>	<b>0</b>	<b>1,398</b>	<b>8,893</b>	- -
AVE: (9)	92	636	0	26	147	0	37	205	0	155	988	- -
BLUE FIN	84	204	0	0	8	19	92	223	2,424			
LAURENTIAN	93	400	0	0	0	0	93	400	4,301			
BARNES	57	96	0	0	21	35	78	131	1,679			
CALANUS	27	76	5	14	19	53	51	143	2,804			
<b>CLASS IV TOTAL</b>	<b>261</b>	<b>776</b>	<b>5</b>	<b>14</b>	<b>48</b>	<b>107</b>	<b>314</b>	<b>897</b>	<b>- -</b>			
AVE: (4)	65	194	1	4	12	27	79	224	- -			
<b>Fleet Total</b>	<b>3,348</b>	<b>36,036</b>	<b>0</b>	<b>630</b>	<b>6,089</b>	<b>0</b>	<b>920</b>	<b>6,657</b>	<b>0</b>	<b>4,898</b>	<b>48,777</b>	- -
AVE: (27)	124	1,335	0	23	226	0	34	246	0	181	1,807	- -

NOTES: a. NPS (CNOC) days only

## SUMMARY OF SHIP USE AND COSTS YEAR: 1996

As of: 9/19/95

SHIP/CLASS	NSF		NAVY		OTHER		TOTAL		DAILY RATE			
	DAY	\$	DAY	\$	DAY	\$	DAY	\$				
R. REVELLE	1	18	1	18	27	488	29	524	18,069			
MELVILLE	296	5,319	0	0	0	0	296	5,319	17,970			
KNORR	230	3,703	28	451	0	0	258	4,154	16,101			
ATLANTIS II	131	1,912	1	15	33	482	165	2,409	14,600			
EWING	300	4,695	0	0	4	63	304	4,758	15,651			
T.G. THOMPSON	164	2,710	10	165	74	1,149	248	4,024	16,226			
MOANA WAVE	106	1,427	0	0	49	660	155	2,087	13,465			
CLASS II	1,228	19,784	0	40	649	0	187	2,842	0	1,455	23,275	- -
AVE: (7)	175	2,826	0	6	93	0	27	406	0	208	3,325	- -
EDWIN LINK	21	168	0	0	218	1,744	239	1,912	8,000			
ENDEAVOR	96	1,082	64	721	45	507	205	2,310	11,268			
OCEANUS	75	780	72	749	64	665	211	2,194	10,398			
GYRE	14	88	0	0	30	189	44	277	6,295			
ISELIN							0	0	NA			
NEW HORIZON	153	1,643	6	64	17	183	176	1,890	10,739			
SEWARD JOHNSON	209	1,881	57	513	36	324	302	2,718	9,000			
WECOMA	104	1,240	76	906	0	0	180	2,146	11,922			
CLASS III	672	6,882	0	275	2,953	0	410	3,612	0	1,357	13,447	- -
AVE: (8)	84	860	0	34	369	0	51	452	0	170	1,681	- -
PELICAN	47	188	0	0	76	304	123	492	4,000			
LONGHORN	68	272	0	0	32	128	100	400	4,000			
POINT SUR (a)	60	379	52	328	30	189	142	896	6,310			
CAPE HATTERAS	0	700	0	0	0	0	0	700	#DIV/0!			
ALPHA HELIX	123	1,178	0	0	51	536	174	1,714	9,851			
R. SPROUL	95	580	39	238	15	91	149	909	6,101			
CAPE HENLOPEN	158	853	44	238	0	0	202	1,091	5,401			
WEATHERBIRD II	172	1,120	22	143	0	0	194	1,263	6,510			
SEA DIVER	54	216	19	76	43	172	116	464	4,000			
CLASS IV - TOTAL	777	5,486	0	176	1,023	0	247	1,420	0	1,200	7,929	- -
AVE: (9)	86	610	0	20	114	0	27	158	0	133	881	- -
BLUE FIN	101	240	0	0	0	0	101	240	2,376			
LAURENTIAN	42	185	0	0	10	44	52	229	4,404			
BARNES	75	116	0	0	27	42	102	158	1,549			
CALANUS	24	72	48	144	15	45	87	261	3,000			
CLASS IV TOTAL	242	613	0	48	144	0	52	131	0	342	888	- -
AVE: (4)	61	153	0	12	36	0	13	33	0	86	222	- -
Fleet Total	2,919	32,765	0	539	4,769	0	896	8,005	0	4,354	45,539	- -
AVE: (28)	104	1,170	0	19	170	0	32	286	0	156	1,626	- -

NOTES: a. Includes 22 NPS (CNOC) days

# **APPENDIX VII**

# RVTEC ANNUAL MEETING

1995 Annual  
Research Vessel Technical  
Enhancement Committee  
October 16,17,18  
Monterey, CA

## Representation

- Each UNOLS institution is allowed one voting member
- Additional technical participants encouraged to attend
- Other agencies and organizations welcome to attend

## Agenda

- General Business
  - Election of Vice-Chair
  - Ammendment of Charter
  - Scheduling of next meeting
  - Logo design
- Training Sub-Committee
  - Half-day workshop on dissolved oxygen

## Agenda (Cont.)

- Data Standards Sub-Committee
  - Half-day workshop
    - » Interchangeable physical media
    - » Interchangeable data sets
    - » Meta data
    - » Implementation
    - » Voluntary compliance

## Agenda (Cont.)

- Equipment & Database Sub-Committee
  - Web pages
  - Feasibility of searchable data base
- Other
  - Results of CHIRP intercomparison
  - Safety
    - » Related to over the side handling of technician supported instrumentation
    - » Role of technicians

## Agenda (Cont.)

- Other (Cont.)
  - NOAA SEAS
  - Review of UNOLS forms
    - » Ship time request
    - » Chief Scientist's cruise assessment
    - » Captain/Technician cruise assessment

# **APPENDIX VIII**



DUKE/L.M. GOULD  
UPDATE

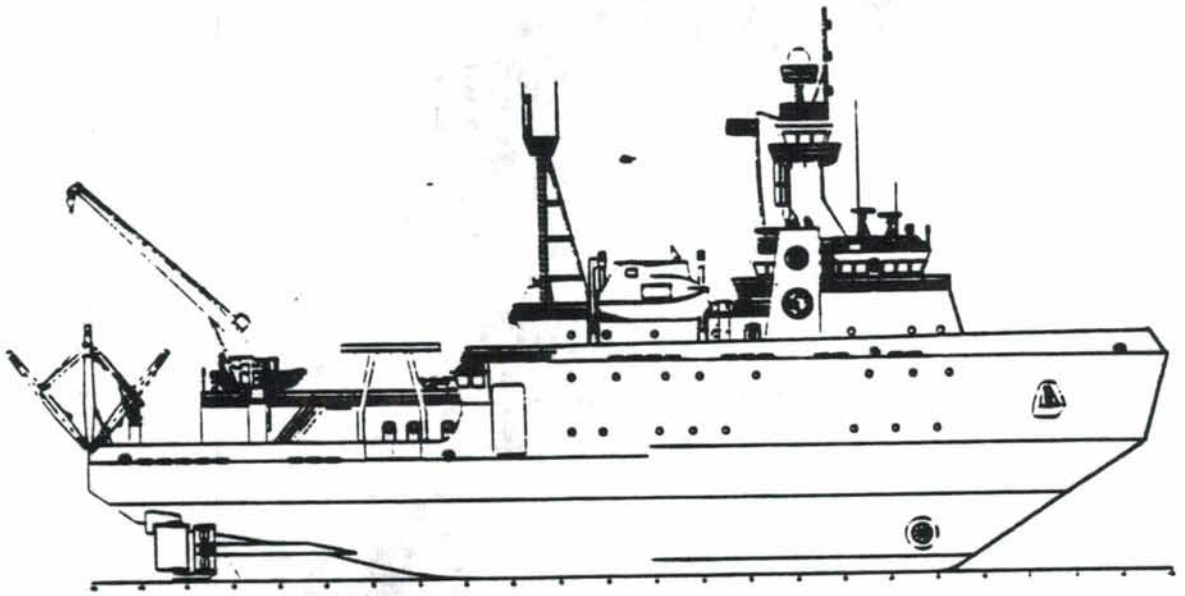
- ORIGINAL TEN YEAR CONTRACT NEARING COMPLETION  
(ACTUALLY BEYOND)
- CONGRESS REQUIRES A U.S. FLAG/U.S. YARD SHIP
- "DUKE-LIKE SHIP AT DUKE-LIKE PRICE" SOUGHT. NOT A  
NEW CAPABILITY BUT CONTINUANCE OF EXISTING  
REQUIREMENTS
- 5 YEAR INITIAL TERM, WITH OPTIONS TO 10 YEARS
- 2 YEAR CONTRACTUAL PROCESS COMPLETED APRIL 18, 1994
- THREE COMPETITORS
- CLEAR WINNER (PRICE & TECHNICAL) - ECO
- VESSEL DELIVERED O/A 1 JUNE<sup>1997</sup> IN LOUISIANA

Al Sutherland  
NSF- Office of Polar Programs  
alsuther@nsf.gov  
9/12/95

## SHIP PARTICULARS

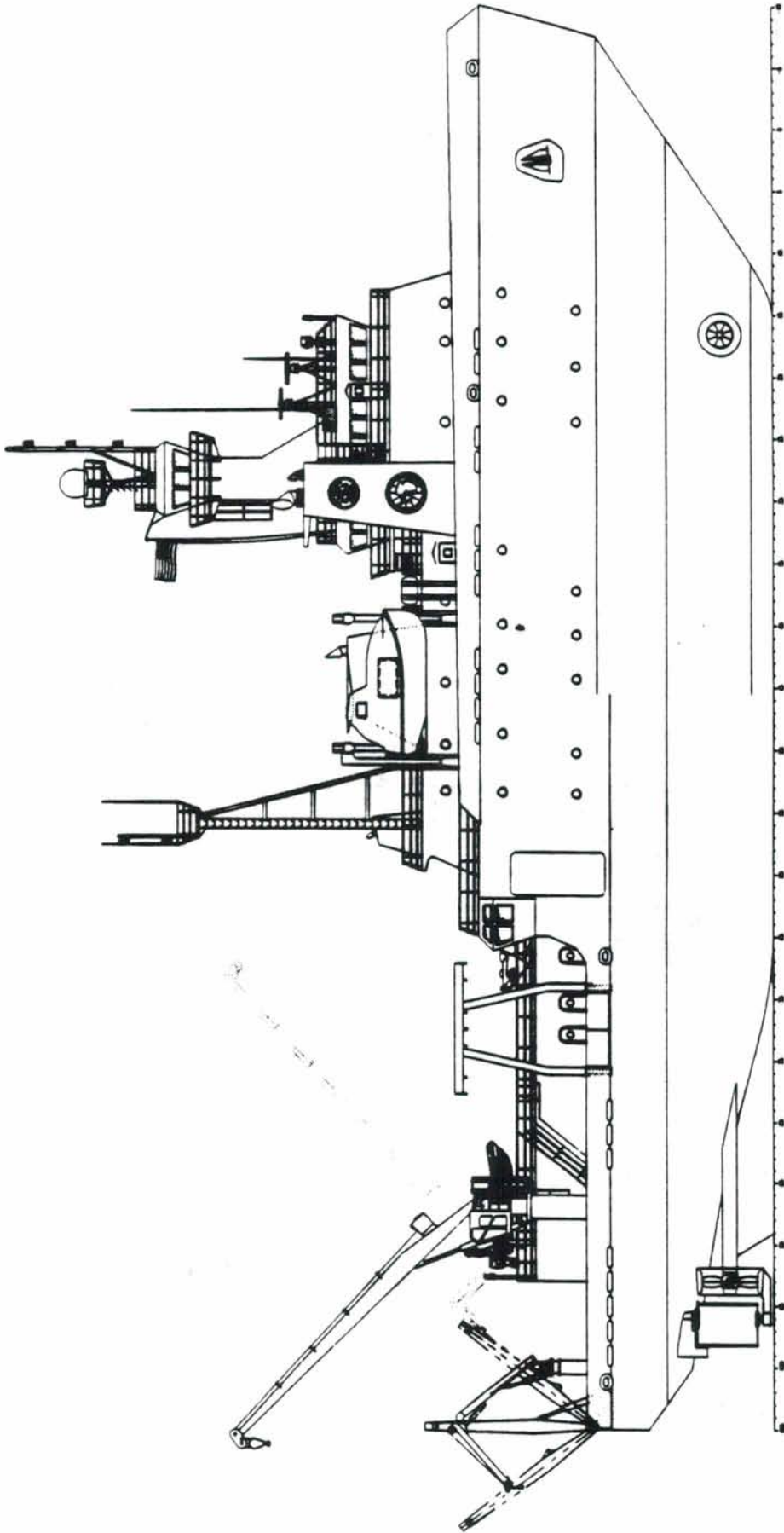
	L.M. GOULD	DUKE
CLASS	ABS-A1	BALTIC SEALER
AGE	NEW BUILD	1983
DIMENSIONS		
LENGTH	230 FT	219 FT
BREADTH	46 FT	43 FT
DRAFT	18 FT	19 FT
GR. TONS	1599 TONS	1594 TONS
HORSE POWER	4200 BHP	4500 BHP
PROPELLER	2-VAR PITCH KORT NOZZLE	1-VAR PITCH KORT NOZZLE
ACCOMMODATIONS	44	41
LAB SPACES		
WET LAB	425 FT2	400 FT2 (MAX)
HYDRO LAB	426 FT2	300 FT2 (MAX)
DRY LAB	356 FT2	300 FT2 (MAX)
ELECT. LAB	420 FT2	400 FT2 (MAX)
AQUARIUM	6 TANKS	6 TANKS
CARGO	9 MILVANS	7 MILVANS

# ANTARCTIC RESEARCH AND SUPPLY VESSEL

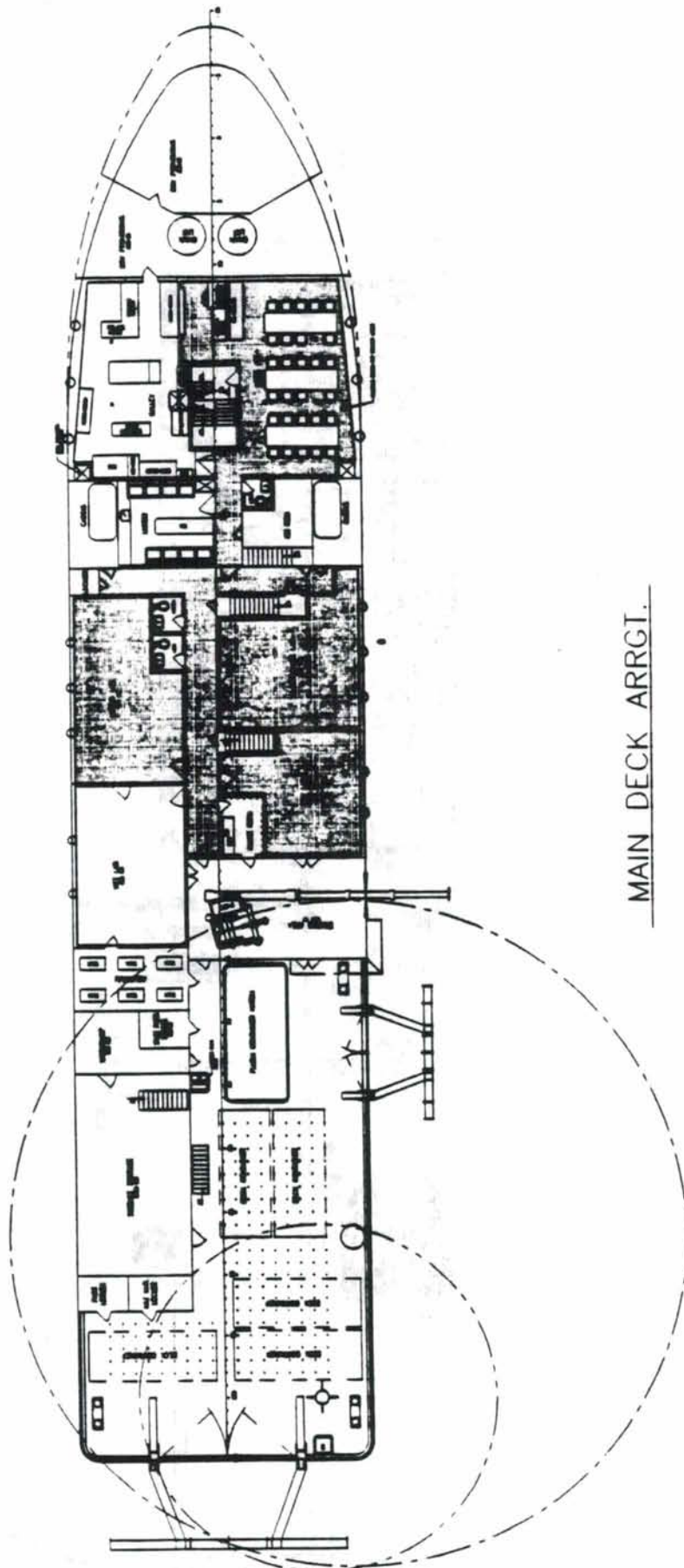


**PRELIMINARY DESIGN**

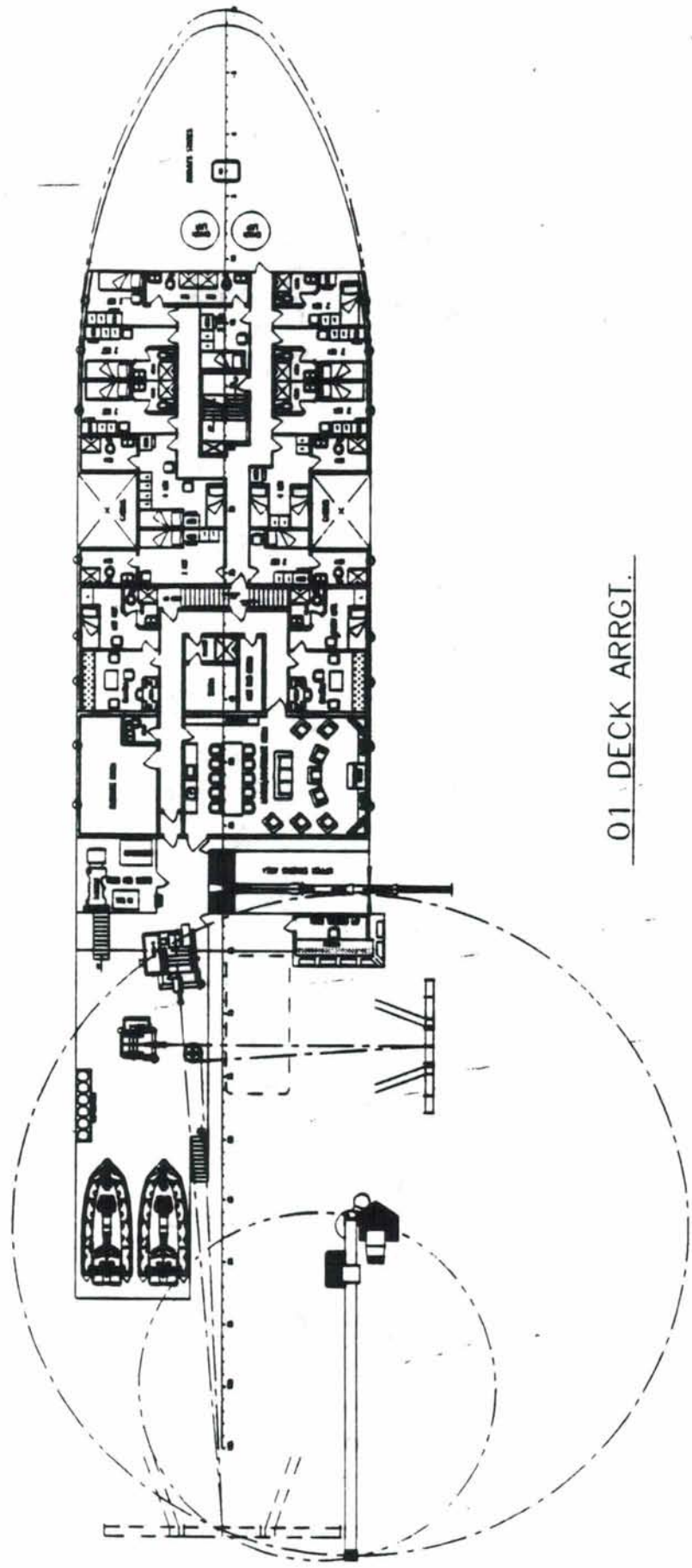
Antarctic Support Associates  
15 June 1995



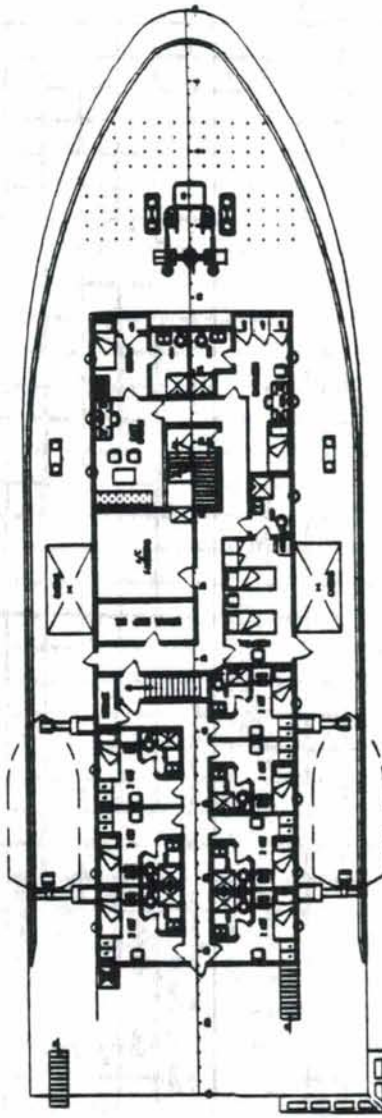
OUTBOARD PROFILE



MAIN DECK ARRGT.



01 DECK ARRGT.



02 DECK ARRGT.





**ARSV SUBCONTRACT WITH EDISON CHOUVEST OFFSHORE  
MODIFICATION NO. 1:**

**A. The purpose of this no cost modification to the ASA Subcontract No.....is to incorporate technical and schedule changes to the proposed design and delivery of the Antarctic Research and Supply Vessel provided for in the referenced Subcontract.**

**B. The vessel subcontracted for, designated ARSV by ASA and assigned Hull No. 154 by North American Ship Building, will be named the R/V L. T. GOULD.**

**C. The schedule for delivery of the vessel is changed by this modification to:**

- 1. Vessel delivery at Pt. Fourchon, Louisiana**
- 2. On or about 1 June 1997, after the successful completion of dock and sea trials.**
- 3. The attached schedule (attachment 1), produced by NASB, is incorporated into the subcontract.**

**D. Technical changes:**

**All structural and equipment changes and additions must be in conformance with the environmental, classification and other regulatory rules which apply to the vessel and as noted in the technical requirement of the RFP and the subcontract for the vessel.**

**1. Add an Oceanographic Staging Hanger to the starboard side, aft of the Dry Lab. One GFE oceanographic winch is to be installed at the inboard end of this space to service an installed telescoping boom with five ton capacity and an outboard reach of 15 feet. The room shall be constructed so as to provide access to the telescoping boom and the starboard A-Frame. The door to the outboard side shall be hydraulically actuated, and with at least 8 feet of clearance, side to side. Overhead clearance from the sill must be no less than 15 feet. The staging hanger shall be designed and constructed in a manner similar to that of the staging hanger on the R/V N.B. Palmer.**

**2. The starboard side A-frame, provided for in the original vessel design, shall be relocated further aft to make room for the Staging Hanger. The A-frame shall now be centered near the rail at approximately frame #73.**

**3. Add an Aft Control Station with winch, boom and maneuvering controls, to the aft end, outboard corner of the Staging Hanger. This room should have good visibility to the working decks and machinery, and have communications with the laboratories, Staging Hanger and the bridge.**

**4. Add a access door between the Wet Lab and the Aquarium Room.**

5. Move access door to the main deck Scientific Stores Room further aft.
6. Reverse day room and bed room arrangements in the NSF rep. and MPC cabins; acoustically insulate the bulkheads of these cabins which are adjacent to the lounge/conference room and the exercise room respectively.
7. Remove the Pyrotechnique Locker and expand the Paint and Hazardous Materials Lockers with the resulting space
8. Install a Hot Tub near the Sauna on 01 deck. Space is available as a result of NASB's redesign and relocation of HVAC units.
9. Consider modularity of furniture in Lounge in order to make the space more flexible and useable as a conference room and study area.
10. Install a Moon Pool of at least 1 meter diameter through the hull, starboard side, inboard, approximately at frame #73. Moon Pool must have a cover flush with the main deck.
11. Add a chain hoist boom over the access hatch to the lower hold science cargo area. ASA will provide the chain-hoist for this boom.
12. Add a Scientific Instrumentation Mast, aft of the ship's main mast, with a platform of equal height to the ship's mast, similar in construction to the mast on the R/V N.B. Palmer, or a more appropriate design, such as the new NASB tripod masts now being installed on some ECO vessels. The mast should have an access ladder and a platform for the installation of various antennas. Final design of this antenna must be approved by the ASA technical manager for this project.
13. Acoustically insulate the Mess Hall to significantly reduce hull transmitted noise during ice transits. Acoustically insulate the decks; acoustically and thermally insulate the peripheral bulkheads; use acoustic, perforated ceiling tiles in the overhead.
14. Provide 220 v., 60 Hz. current for science freezers to be located by ASA in the science cargo hold and storage area on the main deck.
15. Unistrut should be installed in the laboratory decks. This is noted in the RFP technical requirement, but requires clarification.
16. Extend the ship's main crane so that it will reach beyond the stern to the point where a wire from the stern A-frame fully extended, would enter the water, and so that the crane will reach over the port quarter, at least 15 feet

clear of the side of the ship. The lifting requirement for this crane remains as stated in the Technical Requirement.

17. Attachments 2,3 and 4 indicate the changes to the general arrangements of the vessel as reflected by this modification.

# **APPENDIX IX**

# **Polar-Class Icebreaker Long Range Schedule**

## **Basic precepts applied to the schedule:**

**#1: One operational polar icebreaker at all times.**

**#2: A ship available for Deep Freeze every year.**

**#3: 1 month ready-for-sea period prior to  
deployments.**

***There are other important precepts, including  
scheduling time for training & maintenance, and  
designating Deep Freeze and Canadian Arctic  
resupply backup vessels.***



# POLAR-CLASS ICEBREAKER FORECAST SCHEDULE 1996

**POLAR STAR**

JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC	
10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20

DEEP FREEZE 96-----<<---IMPORT---VOYAGE REPAIRS----->>-----REP #1---(1 SEP THRU 1 MARCH)----->>>

**POLAR SEA**

JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC	
10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20

MCAM-----<<---U/W PREPS--->>><<TT>><<---ICE TRIALS/OP WINDOW----->>>-----U/W PREPS----->>>-----DF 97----->>>

(9 OCT 95 - 12 APR 96

TRAINING TRAINING





# U.S. COAST GUARD ICE OPERATIONS

## OVERVIEW

Captain Alan Summy, USCG  
Chief, Ice Operations Division  
Office of Navigation Safety and Waterway Services  
U.S. Coast Guard Headquarters

## FUNDING

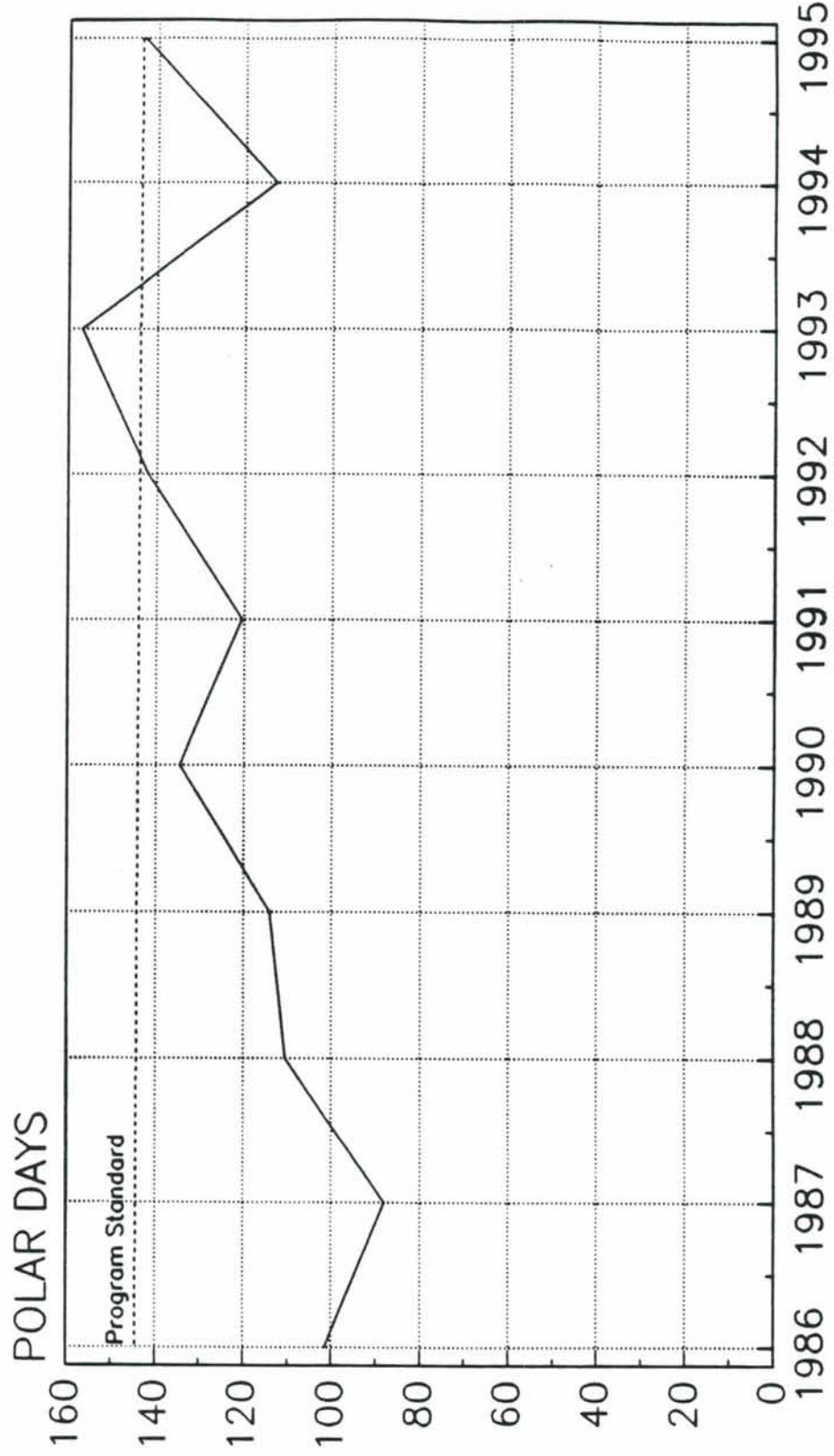
The tentative FY96 Congressional budget provides 100% of Operating, Maintenance, Acquisition and Construction funds for Polar Icebreakers as requested by the Coast Guard.

## MISSIONS

- No science missions have been requested for 1995 or 1996.
- A North Water Polynya mission has been, proposed for 20 July – 12 September 1997.

# POLAR ICE OPERATIONS

AVERAGE NUMBER OF POLAR DAYS PER YEAR PER SHIP



## COMMANDING OFFICERS

- POLAR SEA: Captain Jeff Garrett relieved  
Captain Lawson Brigham (retired).
- POLAR STAR: Captain Carl Swedberg relieved  
Captain Bob Parsons (retired).

## MCAM and RIP Schedules

- POLAR SEA: MCAM begins October 1995 and will be completed April 1996.
- POLAR STAR: MCAM completed and tested in western Arctic sea trials.

## CASPPR Compliance

- Ships grandfathered if launched prior to 31 December 1998.
- USCG/CCG agreement to change implementation verbage to meet IMO standards.

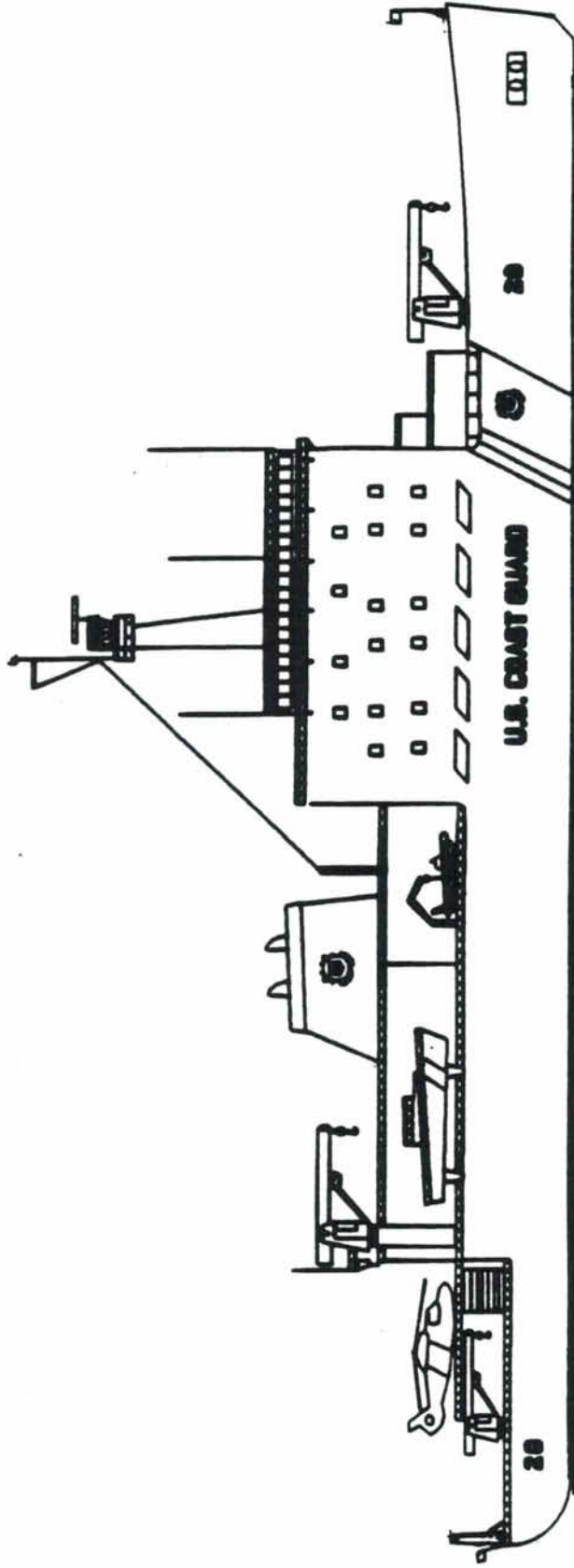
## Arctic Harmonization

- Ship construction standards
- Pilot qualifications
- Safety equipment



# USCGC HEALY Update

**U.S. Coast Guard Icebreaker**  
**USCGC HEALY (WAGB-20)**



**Length:** 420 ft. / 128 M

**Beam:** 82 ft. / 25 M

**Max Draft:** 29.25 ft.

**Max Displacement:** 16,400 tons

**Shaft HP:** 40,000 HP Installed /  
4 x 10,000 HP Sulzer Engines

**Bowthruster:** 2200 HP / 1640 KW

**Propulsion:** Diesel-electric

**Screws: 2 FP, 4 bl. 16 ft / 4.8 M**

**Economic Speed: 12.5 KTS**

**Max Speed: 17 KTS**

**Endurance: 65–120 days**

**Range: 16,000–30,000 NM +**

**Provisioning: 65–180 days**

**Ice (@ 3 kts): 4.5 ft. + (1.4 M)**

**Fuel, Diesel: 1,028,785 gals.**

**Fantail work space: 3000 sq.ft.**

**Elect/computer lab: 600 sq.ft.**

**Bio/chem lab: 300 sq.ft.**

**Climate cont. rooms: 200 sq.ft.**

**Scientific freezer: 200 sq.ft.**

**Indoor Staging area: 300 sq.ft.**

**Vans: (8) 20' CONEX**

**C/T winch (1):** 15,000 M 9/16"  
10,000 M 0.680" EM

**Oceano winch(s):** 10,000 M 1/4" wire  
10,000 M .322 " EM

**Science Comms. Network**

**Science data Network**

**Main lab:** 2000+ sq.ft.

**Wet lab** 400 sq.ft.

# **U.S. Coast Guard Icebreaker *USCGC HEALY (WAGB-20)***

## **Major Changes, Updates:**

**Reconfigured science suite (as requested in the October 1993 meeting in New Orleans) was adjudicated and accepted (in principal) by the shipyard.**

**A Sea Beam Multi-Beam system was added.**

**Main Propulsion Control & Monitoring System (MPCMS) awarded to CEGELEC.**

**Science Data Network (SDN) awarded to EDI.**

**Integrated Bridge System (MPCMS, SDN, Dynamic Positioning System) awarded to Sperry.**

**Visits to the science community (USGS, U of Wash., CRREL, WHOI) are ongoing, until a standing advisory group can be formed.**

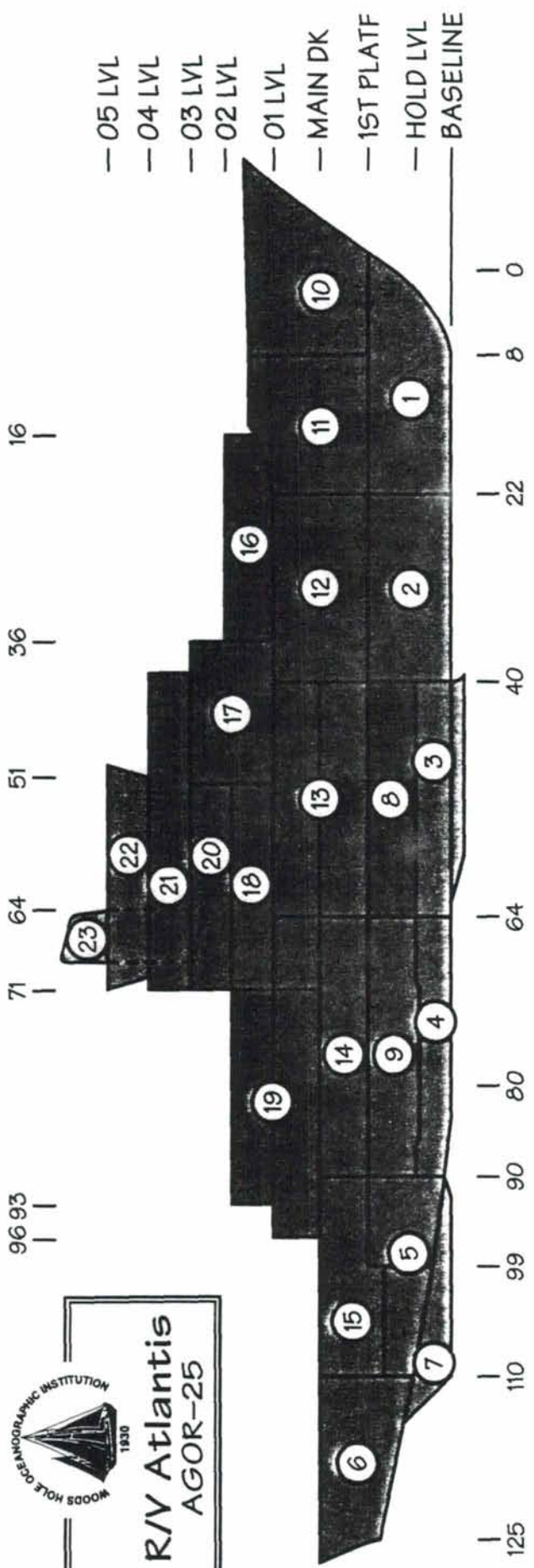
- Mar. 1996:** Start (modular) assembly.
- Sep. 1996:** Ceremonial Keel Laying.
- Summer 1997:** Initial crew training begins.
- July 1997:** Ship Launching.
- Jan. 1998:** Builder's dock trials.
- Feb. 1998:** Builder's sea trials.
- Feb. 1998:** Inclining tests.
- Apr. 1998:** Acceptance trials.
- June 1998:*** Ship delivery.



APPENDIX X



**R/V Atlantis**  
**AGOR-25**



- 05 LVL
- 04 LVL
- 03 LVL
- 02 LVL
- 01 LVL
- MAIN DK
- 1ST PLATF
- HOLD LVL
- BASELINE

CHARACTERISTICS

LENGTH 273'-6"  
 BREADTH 52'-6"  
 DEPTH 26'-6"  
 DWL 17'-0"

Construction Progress  
 as of 1 AUGUST 1995

**APPENDIX XI**

## NEW HORIZON MID-LIFE REFIT PLAN

**Project Goal:** Improve New Horizon's ability to support scientific operations by taking maximum benefit of the opportunity presented by an extended mid-life refit period through orderly planning and execution of repairs and upgrades which will ensure continued reliable operations and which conform to the UNOLS "Scientific Mission Requirements for an Intermediate General-purpose Oceanographic Research Ship" as closely as possible. Elements of the refit which support this goal are:

Resolution of long-standing stability problems,

Repairs, upgrades and modifications that improve operation, reliability and maintainability of the ship by correcting design deficiencies, replacing worn out or obsolete equipment and machinery and capitalizing on technical advances since delivery,

Improvements, modifications and installations which will result in improved ability to support scientific operations in both coastal and open ocean areas,

Habitability improvements resulting in a higher quality of life for science party and crew.

**Funding:** The funding for the planned refit will come from three sources. Normal overhaul projects will be funded from the Major Overhaul Stabilization Account. The University of California, San Diego proposes to share the remaining cost of the refit with the National Science Foundation. The University's percentage of the cost will be the same as the percentage of use of the ship for state projects. Historically, in the 10 year period since 1985, this amounts to 21% of the ship's scheduled operations. An estimated cost breakout will be presented later in this proposal.

**Timing:** New Horizon completed her last regular overhaul period in January 1993. Normal interval between dockings is 2-2 1/2 years. A conscious decision was made to extend this interval to ensure that the ship was available for science during 1995 because of a large number of requests for her services. Additionally, predictions from funding agencies for 1996 have consistently indicated a lighter operating schedule for all ships. As an ABS classed vessel, she must be drydocked and inspected no later than January 1996 to remain in class. Normal maintenance and repair efforts have continued during this extended period, but the ship now needs overhaul. This timing also supports accomplishment of work items scheduled at intervals longer than the normal 2 year cycle such as gearbox overhaul and tail shaft clearance measurements which are now due.

1995's operating schedule for New Horizon currently ends on 21 November. We propose to immediately place the ship "out of service" and commence preparing for the shipyard phase of the refit which will commence in December. Upon completion of the shipyard availability, New Horizon will return to Nimitz Marine Facility's pier for a second phase which will consist of additional contractor and MARFAC shop work. We plan to complete the refit in approximately five months.

**Scope:** As evidenced by her ability to successfully complete extensive, complex science schedules each year, New Horizon is in excellent material condition with a minimum of deferred maintenance. Engines, piping systems and the ship's structure are fully sound. The long standing stability problems which result in a limit on mission duration have been continually documented. Correction of these problems is the highest priority and most complex item in the refit package. Because the work necessary to resolve stability issues is so extensive, it will define the critical path of the refit. Another major item is the replacement of the underpowered, retractable bow thruster with a modern tunnel thruster with a significantly improved control system.

Improvements in deck systems will be included to take advantage of the full capabilities of the DYNACON traction winch which was installed in 1994 as an initial phase of the refit.

A common occurrence in shipyard overhauls which can cause significant delays and cost over runs is the discovery of asbestos in a ship after commencement of work. To guard against this possibility, a full hazardous material survey of the ship has been accomplished with UC funds. This survey verified that New Horizon is asbestos free.

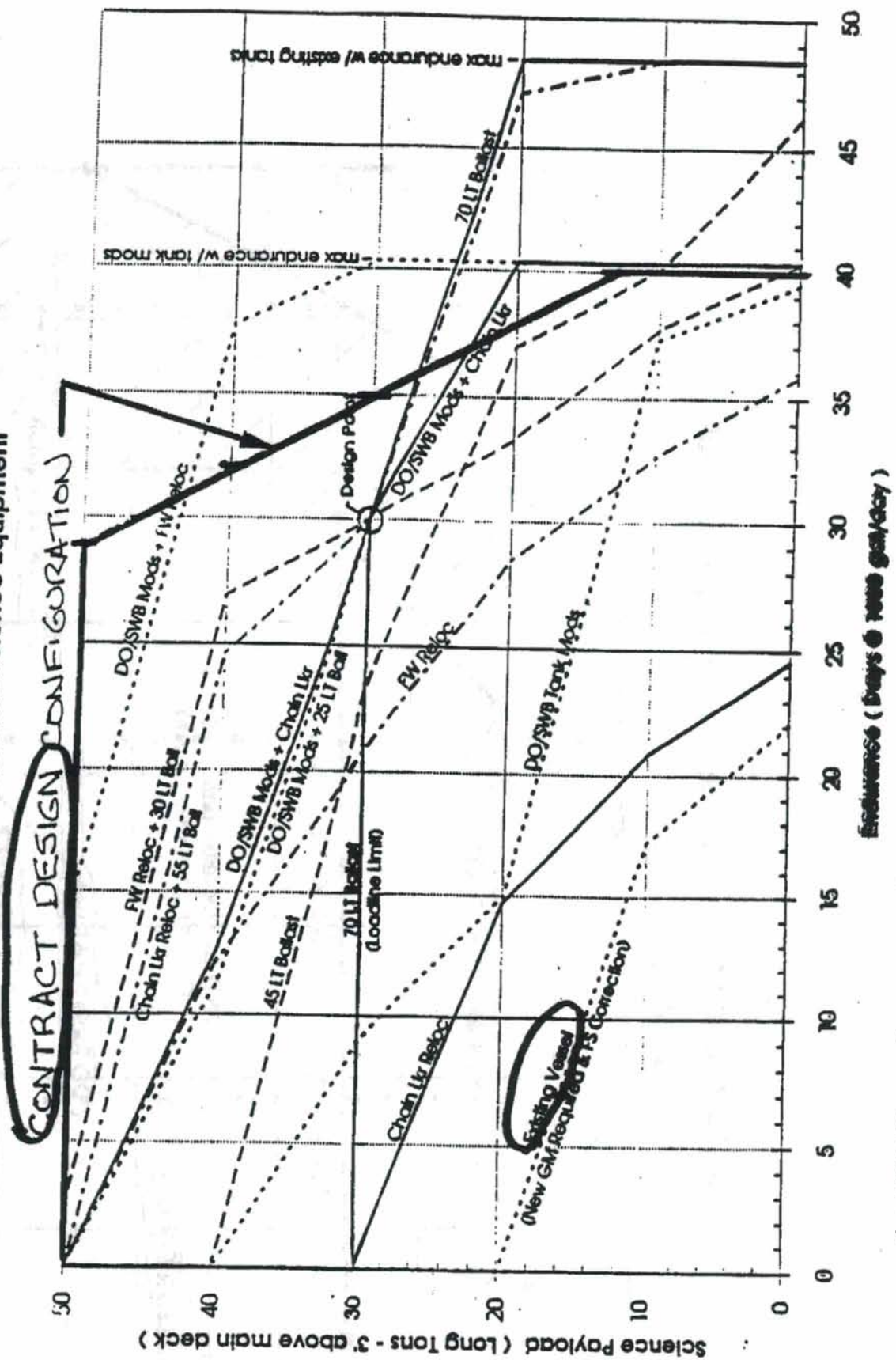
The following four tables detail the work planned during *New Horizon's* mid-life refit. Items funded in previous Shipboard Scientific Support Equipment or Oceanographic Instrumentation Proposals are indicated. The tables cover:

- Projects to ensure continued reliable operations of *New Horizon*,
- Projects to provide a modest improvement in science capability for *New Horizon*,
- Projects that will meet future science requirements or are desirable upgrades to *New Horizon*,
- Items which constitute a normal overhaul and drydocking for *New Horizon*.

With funding provided as part of the University of California cost share, the Glosten Associates conducted a Feasibility Study of major mid-life refit work items. After review of this study and selection of applicable items, UC funding was provided for development of detailed Work Item Specifications, General Specifications, Work Item Drawings and a Purchase Specification for Tunnel Thruster, which have been used to develop cost estimates for major elements of the refit. Justification of all work items in the tables is provided in Appendix A. Annex I to Appendix A contains the detailed Work Item Specifications, Work Item Drawings, General Specifications and the Purchase Specification for Tunnel Thruster developed by the Glosten Associates for the major structural refit items. Annex II is the Glosten Associates letter describing estimated costs for various options to resolve the ship's current admeasurement problems. Vendors' quotes and other amplifying information related to overall refit costs are included in Annex III.

1/25/95

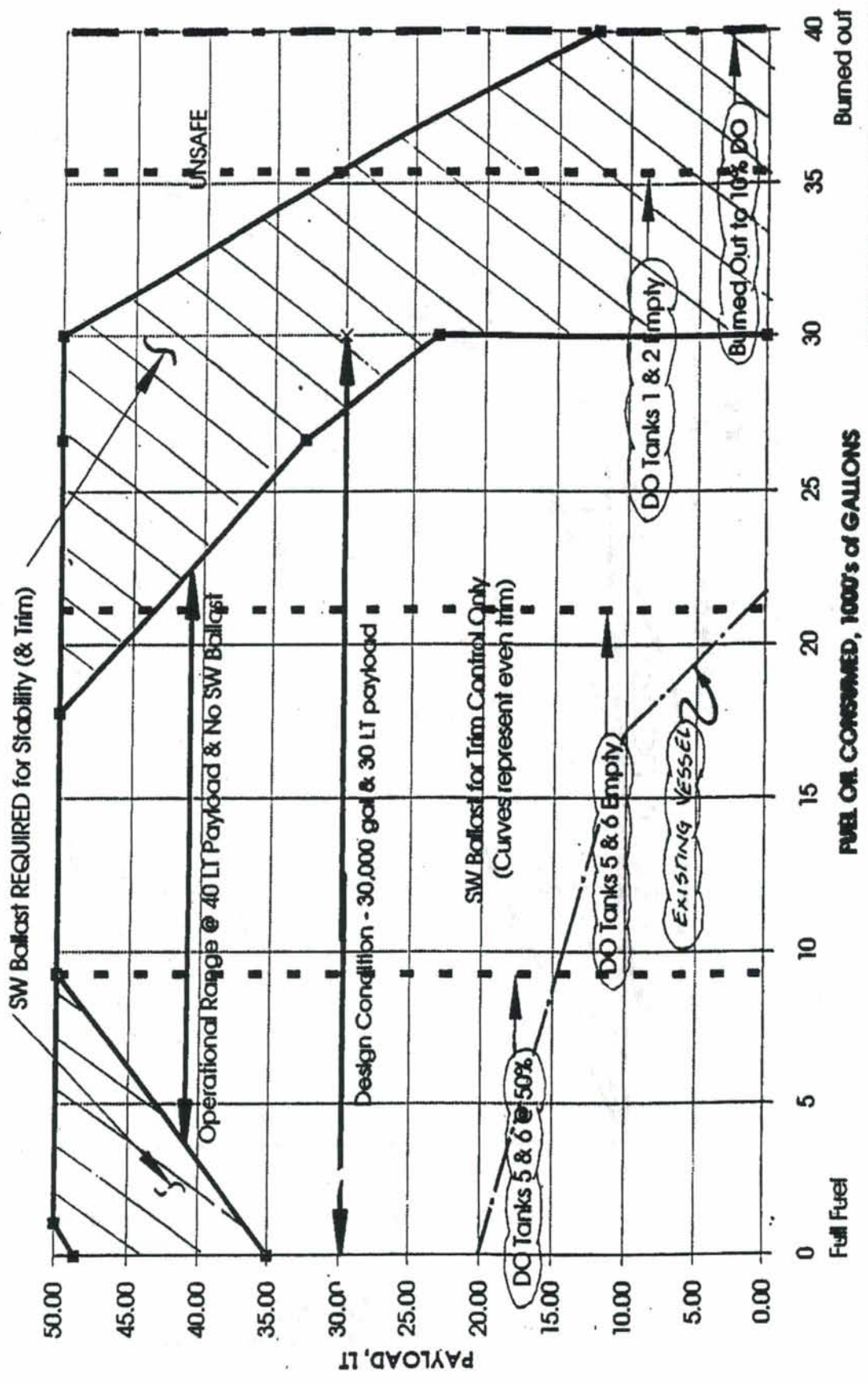
# R/V NEW HORIZON Payload vs. Endurance with Installed Science Equipment



COMPARISON OF FEASIBILITY STUDY & CONTRACT DESIGN

Figure 2-1  
Payload vs. Endurance Plot

### R/V NEW HORIZON - Estimated Payload Capacity After Mid-Life Refit



**THE CLOSTEN ASSOCIATES, Inc.**  
 DESIGNING ENGINEERS SERVING THE MARINE COMMUNITY  
 500-8000 Bay Boulevard • 605 P.O. Avenue • South, WI 53080-7204  
 BY: JMM/ML DATE: 08/06/95 105 NO. 23-50-C1

## NEW HORIZON MID-LIFE REFIT PROJECTS TO ENSURE CONTINUED RELIABLE OPERATIONS

ITEM	DESCRIPTION	MLR	PROVIDED SSSE/OI '93 OR EARLIER	PROVIDED SSSE/OI '94
Stability Improvement	Hull Tankage Modifications			
	Fuel and Ballast Tanks			
	Potable Water			
	Piping Systems	\$452,200		
	Replace Concrete Ballast	\$157,000		
Correct Admeasurement	Deckhouse Modifications	\$82,300		
	Correct Historic Admeasurement Problems	\$30,000		
Piping Systems Modifications	Replace Saltwater Suction Header			
	Isolate Bilge and Ballast System	\$48,000		
Replace Machinery and Equipment	Bow Thruster	\$354,800		
	No. 2 Ship's Service Generator	\$30,000		
	Autopilot	\$33,409		
	Winch Readouts			\$17,819
	Deck Equipment Hydraulic System	\$30,446		
	Main Reefer Units	\$16,000		
	Science Reefer Units	\$7,800		
	Fathometer	\$11,508		
	VHF Transceivers	\$1,047		
	PDR	\$26,500		\$26,500
	Lab Ventilated Workstations			\$10,041
	Portable Fire Pump			\$9,550
	Mission Announcing (Intercom) System	\$30,702		
Install New Mach. and Equipment	Marine Sanitation Device	\$60,000		
	UPS Clean Power			\$8,963
	HAZMAT Locker			\$3,423
	NAVTEX			\$1,302
Machinery Overhauls	Nautilus Crane			\$36,785
	Anchor Windlass	\$9,240		
	Forward Hydraulic W/T Door	\$8,560		
	No. 1 & 2 A/C Units	\$3,000		
Pitch Controls	Replace Improperly Routed Piping and Oversize Actuators	\$49,000		



UCSD95-1442

New Horizon Mid-Life Refit

## NEW HORIZON MID-LIFE REFIT PROJECTS TO PROVIDE SCIENCE CAPABILITY UPGRADE

ITEM	DESCRIPTION	MLR	PROVIDED SSSE/OI '93 OR EARLIER	PROVIDED SSSE/OI '94
Lab Upgrades	Install Scientific Information System			\$12,500
	Install Science Closed Circuit TV	\$11,750		
	Replace Lab Benches			\$4,678
	Modify Overheads & Scientific Cableways	\$8,000		
	Install Deck Tiedowns	\$4,200		
	Scientific Cableway to Upper Lab	\$3,255		
Scientific Storage	Construct Storage Van	\$5,500		
	Complete 01 Level Tiedown Pattern			\$5,204
	Install Tiedowns In Science Freezer	\$800		
Deck Systems	Traction Winch		\$278,424	
	Deck Air System	\$4,860		
	Install Deck Lighting			\$4,987
	Stern Ramp Extension Removal	\$5,000		
Science Accommodations	Install Convertible Stateroom	\$12,300		
Communications	Install GMDSS	\$44,229		

## NEW HORIZON MID-LIFE REFIT PROJECTS TO MEET FUTURE SCIENCE NEEDS / DESIREABLE SHIP UPGRADES

ITEM	DESCRIPTION	MLR	PROVIDED SSSE/OI '93 OR EARLIER	PROVIDED SSSE/OI '94
Habitability	Upgrade Two Person Science Rooms	\$20,000		
	Replace & Relocate SR Chillers	\$16,560		
	Replace PVC Chiller Piping with Cu	\$10,400		
	Improve SR Furnishings	\$10,000		
	Upgrade SR Entertainment Systems	\$8,090		
	Replace SR & Lounge Carpeting	\$10,000		
	Replace Deteriorated Paneling	\$20,000		
Galley	Clean and Overhaul Exhaust System	\$12,000		
HVAC	Modify A Deck, Port Side Vent System	\$6,000		
	Provide Hot Water to Main Ship's Supply Heat Exchanger	\$8,040		
Water System	Install Hot Water Recirculation System	\$5,700		
Windows	Remove and Restore O2 Level Windows	\$5,700		

## NEW HORIZON OVERHAUL ITEMS

DESCRIPTION	COST
General Shipyard Services	\$16,500
Drydock	\$20,000
Sandblast and paint hull and sides	\$40,000
Sandblast and paint ballast tanks	\$70,000
Inspect/service sea valves	\$6,000
Put, inspect and repair tail shafts	\$21,000
Put rudders, replace bearings	\$16,000
Replace zincs as required	\$2,700
Conduct audio gauging of hull	\$3,500
ABS Surveys	\$10,000
Service tank vents and check valves	\$3,500
Service bilge, tank and void foot valves	\$2,500
Gas free bilges for hot work	\$6,000
Empty and gas free fuel tanks	\$15,000
Clean main switchboard	\$2,000
Overhaul main engines	\$120,000
Overhaul main engine gearboxes/propellers	\$115,000
Clean and hydro ships' svc air flasks	\$7,000
Repair stringers in sewage holding tank	\$20,000
Overhaul engineroom supply fans	\$2,800
Calibrate switchboard meters	\$3,000
Replace hydraulic hoses and fittings	\$10,000
Repair control panels in aft control station	\$12,000
Provide guards	\$5,200
TOTAL	\$529,700

**SUMMARY BUDGET**

**A. Mid-Life Refit Projects**

Stability Improvement	\$609,200
Correct Admeasurement	\$112,300
Piping System Modifications	\$48,000
Replace Machinery and Equipment	\$605,922
Install New Machinery and Equipment	\$73,688
Machinery Overhauls	\$57,585
Pitch Controls	\$49,000
Lab Upgrades	\$44,383
Scientific Storage	\$11,504
Deck Systems	\$293,271
Science Accommodations	\$12,300
GMDSS	\$44,229
Habitability	\$93,050
Galley	\$12,000
HVAC	\$14,040
Water System	\$5,700
Windows	\$5,700
<b>Total Mid-Life Refit Projects</b>	<b>\$2,091,872</b>

**B. Tests and Trials**

Dock/Sea Trials (3 Days)	\$30,000
<b>Total Tests and Trials</b>	<b>\$30,000</b>

**C. Project Management**

Engineering, Design, Technical Services (Note 1)	\$170,000
Owner's Representative	\$16,000
Contract Review Consultant	\$5,000
<b>Total Project Management</b>	<b>\$191,000</b>

**SUMMARY BUDGET**

**D. Out of Homeport Costs (Note 2)**

Owner's Representative	\$7,080
Ship's Crew	\$5,935
Marine Facilities Staff	\$15,080
Transit	\$80,000
<b>Total Out of Homeport Costs</b>	<b>\$108,095</b>

**Total Mid-Life Refit** \$2,420,967

**Funding From Previous SSSE/OI Grants** \$420,176

**New Funding Required** \$2,000,791

**University of California 21% Share (See Note 1)** \$420,166

**TOTAL REQUESTED FROM NSF** \$1,580,625

**Note 1:** This amount includes \$139,000 expended through 4/95 for the feasibility study and detailed specifications and drawings by The Glosten Associates funded as part of UC's 21% cost share of the refit.

**Note 2:** Required only if refit conducted outside San Diego. This cost will be used as a factor in evaluation of bids. If shipyard is in San Diego, this item will be deleted and the total request to NSF will be reduced accordingly.

**APPENDIX XII**

## 1995 Telecommunications Bill

### *“Automated Ship Distress and Safety Systems”*

*“Notwithstanding any provision of the Communication Act of 1934 or any other provision of law or regulation, a ship documented under the laws of the United States operating in accordance with Distress and Safety System provisions of the Safety of Life at Seas Convention shall not be required to be equipped with a radio telegraphy station operated by one or more radio officers or operators. This section shall take effect for each vessel upon a determination by the United States Coast Guard that such vessel has the equipment required to implement the Global Maritime Distress and Safety System installed and operating in good working condition.”*





