

**UNIVERSITY-NATIONAL OCEANOGRAPHIC
LABORATORY SYSTEM**

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

UNOLS COUNCIL MEETING

SUMMARY REPORT

March 15-16, 1994

**East-West Center
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SUMMARY REPORT

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East-West Center

University of Hawaii at Moana

Honolulu, Hawaii

The UNOLS Council met on March 15-16, 1994 at the East-West Center, University of Hawaii at Moana, Honolulu, Hawaii. The meeting was called to order by Garry Brass, UNOLS Chair, at 8:30 am. The participants are listed in Appendix I and the meeting agenda is included as Appendix II. These minutes reflect the order in which items were addressed.

APPENDICES

- I. Attendance List
- II. Meeting Agenda
- III. 1994 Crew Costs
- IV. Fleet Improvement Plan Outline
- V. NSF Funding Summary
- VI. ONR Organizational Charts
- VII. Department of State Research Clearance Summary - 1993
- VIII. Correspondences regarding Radio Officer Issue
- IX. GPS Status & MOU
- X. Coastal Workshop Report Overview

INTRODUCTION - Dr. Barry Raleigh, Dean of SOEST at the University of Hawaii, welcomed the UNOLS Council to Hawaii. He reported on his recent visit to Washington, DC to attend the Council on Ocean Affairs meeting. The meeting stressed a need for stronger advocacy in Congress for Ocean Sciences. A substantial sum of money would be needed to begin this process and funding sources should include backing from universities and institutions. Dr. Raleigh also reported the need for reorganization of the Joint Oceanographic Institutions.

David Karl reviewed meeting logistics and arranged for a Council visit to Snug Harbor to tour the vessels, MOANA WAVE and KAIMIKAI-O-KANOLA (KOK).

COUNCIL MINUTES - The minutes of the September 1993 Council Meeting were accepted as written.

COMMITTEE REPORTS

RESEARCH VESSEL OPERATORS COMMITTEE - Mike Prince, RVOC Chair, reviewed the events of the 1993 RVOC Annual Meeting. Along with the participants from U.S. institutions, representatives from Canada, the U.K., and Federal Agencies were present. On the first day of the meeting, reports from the RVOC membership included a report by Robert Hinton of the University of Washington who described the problem experienced on THOMPSON with a fresh water organism, Gallionella, that eats steel. As a result, the ship's piping is being replaced with Copper-Nickel.

On the second day of the RVOC meeting, three working groups were formed to discuss crew compensation, control of pollution and hazardous materials, and ship lay-up procedures. The operators were of the general consensus that the present ship lay-up procedures are not the best answer for dealing with shortfalls in funding for science and operations. They will continue to examine this problem. Additionally, RVOC examined the optimum schedules by class of vessel. Large ship operators indicated that 300 day schedules were closer to optimum than the existing number of 270 days. Intermediate vessel operators appear satisfied by the 250 day schedules. Class IV vessel operators would like to see an optimum schedule of approximately 200 days, with the exception of CAPE HATTERAS which would like to stay with the 220 days of old.

Winch manufacturing representatives from Markey Machinery, Dynacon, and Interocean made presentations to RVOC about the latest developments in their products. The meeting ended on the third day with a round-table discussion of the operators.

The 1994 RVOC Annual meeting will be held in Savannah, Georgia. They will most likely use the working group format as implemented this year. They hope to review the first draft of revisions to the *Research Vessel Safety Standards*. A working seminar on safety equipment is being planned.

Don Heinrichs continued the discussion on crew compensation by presenting charts of crew costs by ship class, see Appendix III. Salaries and Overtime/Leave varied quite a bit within each class. It was difficult to reach any conclusions from the charts. It was pointed out that it is often the maintenance and science demand at sea that dictate the amount of overtime necessary.

DEEP SUBMERGENCE SCIENCE COMMITTEE - Jeff Fox, DESSC Chair, reported that due to the efforts of Woods Hole and ONR, ALVIN has been recertified to 4500 meters. This will allow the science community access to new abyssal environments.

Additionally, Woods Hole is in the process of buying SeaBeam for KNORR with support from ONR.

In other good news, the science community received a preview of the capabilities of ALVIN's proposed imaging improvements. A new color, 3-chip camera and a set of new HMI lights

were tested and used on ALVIN this winter. An imaging proposal submitted by Woods Hole was an outgrowth of the deep submergence workshop and if supported will make this equipment standard. Film footage using the new imaging technology was premiered at National Geographic last month. Also, Richard Lutz and John Delaney made a film presentation before the Senate and their staff. They were well received.

Unfortunately, all news is not good. At the December DESSC Planning Meeting, letters of interest proposed over 1000 dives for 1995 and 1996. Approximately 60 dives are already funded and the prospects for 1995 use looks good. However, proposals for late 1995 and early 1996 indicates that 85 percent of the work is attached to NSF support. Also, in 1995 and 1996, HURL plans to take PISCES to the Western Pacific. This work may also compete for the NSF funding. PISCES has a 6,000 foot depth capability.

In the very near term, DESSC will send a letter to the community alerting them of potential funding problems. The Western Pacific science community, along with the Juan de Fuca/time series folks, will also be encouraged to submit proposals.

Other bad news is that there is only one funded program this year for JASON/MEDIA.

In May, the DESSC will meet with the operator in Monterey to establish a development strategy for deep submergence facilities. They will develop a phased approach for acquisition of technology improvements. They can then set in motion a plan and strategy.

Don Heinrichs reported on international deep submergence activities. A collaboration of Canadians, French, British, and Japanese is planned for 1994 and 1995. The US will trade approximately 15 days on the French submersible, NAUTILE. The MIR's, NAUTILE, and SHINKAI all have plans for operations on the Mid Atlantic Ridge.

RESEARCH VESSEL TECHNICAL ENHANCEMENT COMMITTEE - Rich Findley reported on the efforts of the RVTEC since their Annual Meeting in September. They are continuing to investigate NetCDF as a data storage format. The intent of this effort is to develop tools to assist each other with the management of data quality, documentation, and calibration. It is not an intent to enforce a data standard which would be imposed on the scientific users of data. Other RVTEC efforts include establishing an FTP or Gopher sight for use as an informational database. The RVTEC newsletter, *Interface*, should be ready for distribution within a week.

Work towards investigating multibeam formats has not been forthcoming. Efforts need to be made to energize a committee.

Don Heinrichs reported that Lisa Rom will be on maternity leave from 20 June until September.

FLEET IMPROVEMENT COMMITTEE - Marcus Langseth reported that the FIC will meet on Thursday and Friday, immediately following this Council Meeting. The Coastal Workshop Report has been completed and distributed to the Council for review. It will be discussed later in this meeting. There were hopes that an EOS article summarizing the workshop would have been published prior to completion of the report so that the community would have had an opportunity for input. However, this has not occurred and to prevent the report from being delayed, the report will be distributed as is.

Arctic Research Vessel (ARV) - The ARV subcommittee met in December to review the preliminary design. Their comments have been incorporated and the design is now complete. It is unlikely that ARV construction funds will be in NSF's FY95 budget. Funding for the ARV construction will no longer be included under the Ocean Sciences budget. Instead it will compete for funds under a new line item, Major Research Equipment, which is to support capital equipment. A video of the ARV design has been produced for UNOLS by Woods Hole to generate enthusiasm for its innovative features and need. The video describes the unique development process of the ARV design, the design features and the ice model tests. The video was shown for the Council. Copies of the video, can be obtained from the UNOLS Office.

Fleet Improvement Plan (FIP) - Marcus Langseth distributed draft copies of the FIP to the Council. Any comments should be sent directly to Marcus. Marcus provided an outline of the FIP and its recommendations, see Appendix IV. The report will include four sections: (1) Background, (2) Future trends in Oceanography and Facility Needs, (3) Trends and issues regarding the UNOLS Fleet, and (4) Recommendations. The Council recommended that a section on deep submergence needs to be included in the report.

The Council suggested the FIP recommendations be updated and modifications to be more current. For example, the recommendation for FOFCC to establish a mechanism for annual updates of facility needs will need to be modified since FOFCC no longer exists. NSF and ONR indicated that these projections are often difficult to make, however, the Council felt that these figures would be very useful in developing fleet plans.

The Council suggested modifying the ARV recommendation to read that the ARV should only be built if it does not jeopardize blue water oceanography funding. The Council also suggested that the coastal oceanography recommendation be modified to include a study of adapting existing UNOLS vessels for use as "shallow-water high capability research vessels." The other recommendations of the Fleet Improvement Plan include encouraging Inter-Agency cooperation, continuing the present UNOLS mode of operation, and evaluation of the projected oceanographic distribution of the year 2000 UNOLS Fleet by the agencies.

SHIP SCHEDULING COMMITTEE - Ken Palfrey, Ship Scheduling Committee Chair, provided the ship scheduling report. In 1994, the large ships are close to fully utilized with only the KNORR schedule a bit light. In late 1994/early 1995, THOMPSON, KNORR and MELVILLE will head to the Indian Ocean for operations. The East Coast intermediate vessels all have short schedules in 1994. OCEANUS is presently in the shipyard undergoing a midlife

refit and will not operate in 1994. ENDEAVOR and WECOMA hope to resume operations after completion of their refits and resolution of admeasurement problems. ISELIN's schedule has been modified to accommodate some of the cruises originally planned on ENDEAVOR.

The Spring Scheduling Meeting for 1995 operations is scheduled for 23 June at NSF. The fall meeting is tentatively scheduled for 15 September. The revised scheduling procedures which were developed last year will be implemented. Requests for 1995 ship time is down from previous years. Schedulers are recommended to submit all 1995 schedules no later than 1 June. NSF plans to meet with WHOI and Scripps to discuss the scheduling of WOCE work.

Jack Bash reported that EPA is looking into possible alternative platforms for their vessel R/V ANDERSON. ANDERSON will soon be in need of replacement or a major refit. It is 177 feet LOA and operates out of the East Coast. They are exploring the feasibility of using UNOLS ships to fulfill their field work needs. They are preparing "dummy cruise scenarios" to be cost out by various UNOLS operators. They are concerned of any hidden costs that may be associated with their cruises. Also, they are concerned that they may be low in the pecking order when being scheduled for ship time. UNOLS Operators have been encouraged to be receptive to EPA's inquiries.

Nominations for Chair and Vice Chair of the Ship Scheduling Committee will be solicited.

AGENCY REPORTS

NATIONAL SCIENCE FOUNDATION - Don Heinrichs provided the report for the National Science Foundation (NSF) with a series of transparencies which are included as **Appendix V**. The first transparency outlined the total NSF 1995 budget which requested \$3.2 Billion, an increase of \$182.2 M or 6%. Most of this increase is in the Research and Related Activities category. The second transparency outlined the NSF Geosciences' budget which requested an increase of \$39.2 M or 9.7%. The major portion of this increase, \$35.2 M, is in Global Change Programs. The Ocean Science part of the budget requested a total of \$207.9 M for a 10.1% increase. The third transparency elaborated on the Ocean Science budget request. The largest portion of this budget is that of the Ocean Science Research Support (OSRS) which requested \$114 M with a \$14 M increase or 14%. The Oceanographic Centers & Facilities (OCFS) requested \$53.9 M which represents a \$3.7 M increase or 7.3%. As with the total budget, the Global Change Programs make up the largest single portion of the increase.

The overall NSF budget format has changed which now includes a line item for Major Research Equipment. It is in this section that major facilities will be funded, including ship construction. The FY95 request includes \$70 M in the Major Research Equipment category, all of which is accounted for. Don indicated that these budget commitments will run into 1996 when they will ramp down, allowing for competition from new initiatives; such as funding for the Arctic Research Vessel (ARV) construction. Don feels that the ARV can be competitive in vying for these funds.

The ship operations budget for FY94 includes \$31.6 M plus an additional \$1.5 from ODP for a total of \$33.1. This does not include \$2.2 M for ALVIN. Science Instruments and Shipboard Equipment are each budgeted at \$2.5M. Ships, Upgrades budget drops from \$7.2 M to \$2.3 M representing the completion of the mid-life refits on the OCEANUS class ships.

Don provided transparencies reflecting the total 1993 operations support for the UNOLS fleet broken down by funding agency and ship class. NSF provided 67.9% of the total support in 1994 with ONR contributing 14.3%. NOAA and "Other" each provided 6.5% with Institutional support at 4.8%. The transparencies also indicated that the five large ships use 44.6% of the operating funds with the seven intermediate ships using 32.2%. Averages by class of annual cost, operating days and cost per day are also reflected.

In Don's last transparency he broke out the "other support" category for 1992-94. This provided an interesting spread of those agencies other than the big major (NSF, ONR & NOAA) that fund sea going science and represent about 6.5% of the total support.

Don requested the Council to review the Ocean Science Strategic Plan for Research and Education (OSSPRE) which is still in draft form and should be consistent with the new UNOLS Fleet Improvement Plan. Copies of this report are being distributed to the Council by the UNOLS Office.

OFFICE OF NAVAL RESEARCH - The Office of Naval Research (ONR) report was given by Keith Kaulum. Keith introduced Jim Andrews who will be taking over many of the duties of Steve Ramberg as Steve moves into other areas of responsibility. ONR's most recent reorganization combines Basic, Applied and Advanced Research (6.1, 6.2 & 6.3) into a Science and Technology Directorate which is made up of various departments. The Ocean Atmosphere and Space Science and Technology Department is headed by Dr. DeCorpo and is divided into two divisions; the Sensing and Systems Division with Steve Ramberg as Director and the Modeling and Prediction Division headed by Rick Spinrad. Research Facilities will fall under the Sensing and Systems Division. The reorganization is still evolving and basic research will still be a high priority. An organizational wiring diagram is included as **Appendix VI**.

Keith reported that Research Facilities was given an imposed reduction in funding of \$2M in FY 1994 as part of an overall \$9M reduction in Basic Research (6.1). ONR shiptime support for the UNOLS fleet is relatively low in 1994, at approximately \$3.7M. NRL's cooperative funding program with ONR for ship time is continuing. Keith also reported that he is working with Lisa Rom and NSF's technician program in a effort to balance technician costs across the fleet. The goal is to bring technician costs to approximately 10% of the ship's day rate. Keith further reported that the AGOR-25 contract has been let and that the first round of changes have been worked into the contract with comparative ease. Keith reported that GYRE will soon be transferred to Texas A&M.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION - Captain Martin Mulhern provided the report for the National Oceanic and Atmospheric Administration (NOAA). Marty said that Rear Admiral Petersen, as chairman of the Subcommittee of Federal Oceanographic Fleet Coordination (SFOFC), is polling the members of SFOFC to determine their preferences regarding the future of the organization. SFOFC has existed under authority of the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) Committee on Earth and Environmental Sciences (CEES). With creation of the new National Science and Technology Council (NSTC) and its Committee on Environment and Natural Resources (CENR), SFOFC needs to be reorganized if it is to continue. So far the responses have been favorable to reconstituting and continuing the functions of SFOFC.

In NOAA's Fleet Replacement and Modernization Program (FRAM), the contract for the NOAA AGOR (sister ship to AGOR 23) had been signed with the keel laying planned for the July-November 1994 time frame. A total of \$50.1M has been allocated for construction of this ship. Preparation is nearly complete for issue of Requests for Proposals for conversion of TITAN, a T-AGOS ship transferred from the Navy (for support of the TAO array and related process research), and for a Repair to Extend (RTE) of the DELAWARE II, one of NOAA's fisheries research vessels. NOAA is also working on a design study for a new fisheries research vessel.

Also as part of FRAM program, enhanced maintenance periods are underway for ALBATROSS IV and the MALCOLM BALDRIGE. ALBATROSS IV is receiving significant upgrades to its science and fishing capability at a cost of approximately \$3M, including improvements to labs, new trawl winches, booms, stern gantry, and side J-frame, a new science computing system, and ADCP, enhanced navigation, and a ship service power upgrade. One of the programs this ship will support is the GLOBEC/JGOFS program in the George's Bank area. The maintenance on BALDRIGE will cost approximately \$1.5M, including installation of new ship service diesel generators, structural steel repair and preservation, and upgrades of the oceanographic laboratory. A second maintenance period is planned to prepare this ship for its extended deployment to the Indian Ocean in 1995.

NOAA has budgeted \$2.3M for charters in 1994. A UNOLS ship(s) will be used for \$300K of this money on the NOAA Ocean Color/SEAWIFS program off Hawaii, and the NOAA charting program will charter vessels for surveys in Long Island Sound. The charting program is also re-evaluating their requirements for conversion of the T-AGOS ships received from the Navy. The NOAA fleet is studying crew size and compensation, and evaluating an economic study of various modernization alternatives. The NOAA fleet is also conducting a "Re-Engineering" study to identify ways to improve NOAA's operating efficiency. As part of that study a team from NOAA is meeting with a number of the UNOLS ship operators. The team has received outstanding cooperation from the UNOLS institutions it has visited. The FY94-FY95 fleet operating funds appear steady. NOAA is awaiting the results of the Marine Board's review of the NOAA Fleet Replacement and Modernization Plan.

The Council suggested that NOAA, UNOLS and NSF get together to determine if savings can be realized by exchanging programs in the Pacific Ocean in the 1995 to 1996 time frame. A meeting is to be arranged.

UNITED STATES COAST GUARD - There were no representatives from the Coast Guard at the meeting, however, general discussion on Coast Guard issues followed. An Arctic joint operations is planned in the summer of 1994 with the Canadian Icebreaker Louis San Laurent and a USCG Polar Class icebreaker. There are no plans for US icebreaker operations in the Arctic in 1995 or 1996. Admiral Robert Kramek will be replacing Admiral J. W. Kime as Commandant of the Coast Guard.

UNITED STATES DEPARTMENT OF STATE - Tom Cocke provided the report from the Department of State. Tom reported a 12% drop in the number of clearances processed in 1993. He queried the Council as to whether the Annual Research Clearance Summary (included in **Appendix VII**) he produces should be changed and asked if it provided the information needed. Now that the report is computerized, Tom feels that it can be changed if the need is there. Only 30% of the clearance requests submitted are within the time frame recommended. In spite of this, Tom reported that it was manageable and that clearances were not being rejected due to short process time. The post cruise reporting problems with major programs such as WOCE and JGOFS have been resolved. It was agreed that interim reports would satisfy the host countries until full program reports are published.

Present problem areas for clearances include Mexico, India, Indonesia, and Brazil.

Tom explained that the difference in clearances for a "public vessel" and a "private vessel". A public vessel must get diplomatic clearance as well as operating clearance when working in foreign waters. Only operating clearances are necessary for private vessels. He said that the added effort is not onerous and is all part of the business. However, some flexibility is lost with diplomatic clearances; ships are expected to make port calls as indicated on the clearance. Another potential problem with being a public vessel is that the local US Consulates have used the ships as entertainment platforms causing a burden for the ships when in a foreign port.

UNOLS ISSUES

SCIENTIFIC OPPORTUNITIES ON NUCLEAR SUBMARINES - Garry Brass reported on the status of future opportunities on nuclear submarines. Presently, an MOU is circulating through the agencies for further operations using submarines. The MOU was drafted by ONR. It does not designate a specific submarine for all operations. Work will focus on the Arctic. The next scientific opportunity on a nuclear sub is planned for 1995. In July, the FIC will most likely be tasked to draft a new SOONs report.

In other submarine news, the USCG venture to use a Russian submarine does not appear likely to occur.

SEANET UPDATE - Garry Brass reported that progress is slow in the development of SeaNet. JOI is presently preparing a proposal for a SeaNet demonstration during the field work in the Indian Ocean. There has been concern by RVTEC that SeaNet will only be available to the large UNOLS vessels. If implemented, they would like to see it fleet wide.

UNOLS VESSEL IN HAWAII - Garry Brass led a discussion on the future of a UNOLS vessel at the University of Hawaii. He started by reconfirming the UNOLS position that the University of Hawaii should be a UNOLS Operator Institution and that UNOLS is committed to assist UH in their efforts to replace MOANA WAVE. Keith Kaulum reported that a new charter party agreement was being drawn up between ONR and the University of Hawaii for MOANA WAVE. The agreement will be for five years but can be cancelled with 90 day notice. Keith said that it is ONR's intention to withdraw support from MOANA WAVE when AGOR 25 comes on line. This is expected in 1997. Keith also told the Council that MOANA WAVE will not be designated a public vessel as had been rumored.

Dave Karl explained to the Council that UH is aware of ONR's intent to discontinue support for MOANA Wave in 1997 and have been studying various alternatives for the vessel's replacement. The newly acquired KAIMIKAI-O-KANOLA (KOK) is not and will not be the MOANA WAVE replacement. The KOK is owned by UH and is being considered for three HOTS cruises, however, the ship was built as a support ship for the submersible PISCES and is not a general purpose research vessel. The ship is awaiting inspection by the NSF Inspection Team (ex ABSTEC) which is planned when the ship is fully outfitted. Dave said that UH is investigating several SWATH options as a replacement for WAVE. One option investigated, but unlikely, could be to acquire the SWATH vessel KAIMALINO which is being excessed by the Navy. KAIMALINO has recently undergone an extensive overhaul which included new hulls, new engines and a new fuel system. Work has also been done in the laboratory area. A group is also studying the possibility of new construction for a SWATH.

It was suggested that Barry Raleigh be invited to provide the Council with UH plans for replacing MOANA WAVE. Because Barry was not available to speak with the Council it was suggested that Barry or his representative give the Fleet Improvement Committee the information during their meeting on the 17th and 18th.

NEW FUNDING PARADIGM FOR SUPPORT OF NATIONAL DEEP SUBMERGENCE ASSETS - Jeff Fox provided the Council with the subcommittee's (Jeff, Dave Karl, and Bob Wall) efforts to develop a new funding paradigm for deep submergence assets. Garry Brass has written Jim Baker of NOAA asking how NOAA/NURP could be redefined to better support these assets. As of this meeting, Jim had not responded to the letter, however the subcommittee has had conversations with David Duane of NOAA and Bob Corell of NSF both of whom were enthusiastic on the prospects of this new approach to deep submergence funding. Jeff will report any progress in this issue at our next meeting.

SHIP SCHEDULING CONFLICT DISCUSSION - Ken Palfrey and Jack Bash explained to the Council a scheduling conflict that occurred with ATLANTIS II and NEW HORIZON. Both ship's schedules were reviewed at the September 1993 Scheduling meeting. Subsequent to this meeting AII was requested for the work in the Juan de Fuca area which caused their 1994 schedule to be adjusted. After the change, ALVIN was scheduled to dive in the northern EPR area at the same geographic location and time that NEW HORIZON was scheduled to conduct seismic work. When the conflict was discovered it was too late to reschedule the seismic work which was then cancelled. Considerable discussion followed on how this conflict could have been prevented. It was concluded that this was a very rare set of circumstances and that new scheduling procedures were not warranted to head off future such problems. It was suggested, however, that since the types of research that can cause conflicts are relatively few schedulers should have heightened awareness in such cases. It was recommended that schedulers alert the community through the scheduling process to operations which may be sensitive to other science operations (e.g. ALVIN diving, seismic work, drifting arrays, etc.). Individual schedulers have the responsibility to diligently survey possible conflicts for diving and seismic operations (as well as other work that could cause conflicts) particularly when schedule changes occur.

RADIO OFFICER/GPS ISSUES - Dick Pittenger updated the Council on the efforts to remove the requirement of a radio officer on USCG inspected ships. Dick reported that there are two bills before Congress on the issue, one promoting the continuation of the need for radio officers and one for the elimination of same. The purpose for the conflicting bills is to stimulate debate and on the issue. Dick understands that the dialogue between the sea-going unions and operators may have broken down. If the issue is not resolved through these bills, Dick advised that Congressman Markey, Chair of the Subcommittee on telecommunications and Finance, has appended an amendment to the "National Communications Competition and Information Infrastructure Act of 1994" to exempt research ships from this requirement. See **Appendix VIII** for correspondences on this issue.

GPS - Dick reports that the Memorandum of Understanding between DOD and NSF has been signed permitting three institutions (WHOI, Scripps and UW) to have access to the P-code that removes the dither from the GPS signal, see **Appendix IX**. These institutions must have a security officer with clearance to install the classified code into the receiver. Once installed the receiver can go aboard ship as an unclassified piece of equipment. After a year, the MOU is to be reviewed. It is hoped that the program can then be expanded to include all interested UNOLS institutions. Dick suggested that the easiest way to expand might be to use these three institutions as resource security centers and that they service other UNOLS ships.

KNORR CONVERSION SUBCOMMITTEE REPORT - Peter Betzer brought the Council up to date on the plans for KNORR conversion to a submersible handling ship. The FIC/DESSC subcommittee met at WHOI aboard KNORR in September 1993 with representatives from Glostén Associates and WHOI to review Glostén's plans for the conversion. The subcommittee was concerned with the number of scientific berths that would go to the submersible group and suggested that an effort should be made to increase berthing by six to

ten. Stern slamming, which is presently being experienced aboard KNORR, was also of concern. To maintain the maximum flexibility for general oceanography it was suggested that an overhead rail system be investigated to permit a clear deck. A consideration will be given to building a new A-frame if financial conditions permit. New hydraulics will be needed even if the old frame is cross-decked. Dry storage space and an exercise room were also suggested. Glosten plans to complete their preliminary design by May '94 and the contract design by August '94. The time frame for the conversion will be dependent upon KNORR's operating schedule. The earliest date for conversion would be late 1995 with the preferred date in early 1996. At present there are no serious buyers for AII. Funds from the sale of AII would be used to support KNORR's conversion.

DESSC WORKSHOP REPORT - Jeff Fox reported that the DESSC workshop report has taken on the name, *The Global Abyss: An Assessment of Deep Submergence Science in the United States*. The report is near completion and a draft should be ready for distribution to DESSC in May. After incorporation of any comments, the draft report should be ready for distribution to the Council at their July meeting.

COASTAL WORKSHOP REPORT - A draft of the Coastal Workshop Report was distributed to the Council for their review prior to the meeting. Marcus Langseth provided an overview of the report, see Appendix X. The report indicates that the facilities currently available to coastal oceanographers in the U.S. are not adequate to meet all the future needs of coastal research. Coastal oceanography requires synoptic, time series and interdisciplinary observations. These observations can be performed on various platforms including ships, satellites, aircraft, moorings, seafloor observatories, stationary platforms, and drifters. A recommendation from the workshop is for Science Mission Requirements to be established and a conceptual design carried out for a "shallow-water high capability research vessel".

An inventory of the small boat compendium has not been completed and is not included as part of the report as originally intended. To avoid any delays in distribution of the report, it was recommended that the report be accepted as is with the inclusion of any minor editorial changes. A motion was made and passed unanimously to accept the Coastal Workshop Report with the inclusion of any minor necessary editorial changes.

SHIP REFITS/CONSTRUCTION :

OCEANUS Class Mid-life Refits - Ken Palfrey and Jack Bash provided an update on the OCEANUS Class mid-life refits. ENDEAVOR completed the refit in November 1993 and will complete outfitting in March 1994. WECOMA is about to complete their work and OCEANUS is expected to complete in May 1995. All three ships expect to be complete on schedule and essentially on budget. When operational, they will be significantly enhanced for science. Each ship received a different refit package. Improvements included a new deckhouse, stacks and mast for ENDEAVOR and OCEANUS. A deck extension was completed on ENDEAVOR and WECOMA. Air conditioning and refrigeration upgrades were completed on all ships. New and rebuilt cranes and winches were effected.

All three ships have experienced an admeasurement problem, none of which was precipitated by the refit however the three ships can not sail until the problem is rectified. The ships were admeasured to comply with a new international tonnage treaty which goes into effect in July 1994. Original admeasurements by the Coast Guard put the ships under 300 gross tons. Over the years, responsibility for performing the admeasurements for the Coast Guard has been transferred to the American Bureau of Shipping (ABS). The recent ABS admeasurements put the ships over 300 tons. The ships were built to be under 300 gross tons which would exempt them from the requirement of being USCG inspected. USCG has requested that the ships become inspected or correct the tonnage problem. Four possible solutions are being investigated: 1) Provide structural changes to allow the ships to admeasure under 300 tons; 2) Provide structural and other changes necessary to be an inspected vessel; 3) Get Congressional relief with special legislation; or 4) Declare the ships Public Vessels which exempt them from the admeasurement rules.

Ship Construction - Keith Kaulum reported that the construction of AGOR 24 is underway and the contract to Halter Marine for AGOR 25 had been signed. AGOR 24, REVELLE, is scheduled for delivery in 1996 and AGOR 25 in 1997.

MISCELLANEOUS ITEMS

Responsibilities of Principle Investigators - Recently, a legal case was settled out of court involving the responsibilities of various parties during an accident aboard a UNOLS vessel. The parties included a ship operator, the principle investigator, and the PI's institution. While this case was in progress, a subcommittee of UNOLS formed to examine the responsibilities of PIs while at sea, was disbanded after realizing that there were potential conflicts between the participants of the subcommittee and the parties involved with the legal case. Although the case has been settled, the Council decided not to re-form the committee to continue their examination.

UNOLS Proposal - In December, the UNOLS Office submitted their proposal to continue to support of the office for another three years. The proposal includes funding for support of the UNOLS Council Chair and the Chairs of DESSC and FIC. One of the reviewers of the proposal indicated that the support for Chairs should be discontinued. Jack Bash brought this to the attention of the Council for their comment.

The Council indicated that in order to get the most qualified individuals to represent UNOLS, reimbursement of some form may be necessary. Many institutions will only allow their people to serve if funding is provided. It takes a considerable amount of time to chair a committee and for soft-money institutions, this could present a hardship if funding is not provided. If UNOLS is expected to prosper, charity from institutions cannot be expected.

A motion was made and passed to continue with the existing policy of providing support for UNOLS Chairs.

UNOLS MEETING CALENDAR - Schedules for fall meetings were established as follows:

Meeting	Date
Ship Scheduling Committee	15 Sept, Thursday
Ship Scheduling Review	16 Sept, Friday
UNOLS Council	19 Sept, Monday
UNOLS Annual	20 Sept, Tuesday

All meetings will be held in Washington, D.C.

OCEAN SCIENCES STRATEGIC PLAN FOR RESEARCH AND EDUCATION (OSSPRE) - Garry Brass encouraged all Council members to review NSF's OSSPRE report, in particular the Chairs of DESSC and FIC. The UNOLS Office will mail copies of the report to the Council. All comments should be submitted by 15 April.

UNOLS COUNCIL MEMBERSHIP - Garry Brass appointed a nominating committee to prepare a slate of candidates to replace those Council members completing terms. The nominating committee is to consist of three members, two from UNOLS Operator Institutions and one from an institution other than an operator. The terms of Garry Brass, Chair; Peter Betzer, Vice Chair; Dennis Hayes; Richard Jahnke; and Chuck Nittrouer are expiring. Betzer, Hayes, Jahnke and Nittrouer are eligible for second terms.

Dick Pittenger and Dave Karl were appointed to fill the operator positions on the nominating committee and Bob Wall was appointed to fill the non-operator committee slot.

FAREWELLS - Garry Brass extended a farewell on behalf of the Council to Keith Kaulum. He was thanked for his many years of attending UNOLS meetings.

The meeting was adjourned at approximately 5:00 p.m.

APPENDIX I

UNOLS COUNCIL MEETING

ATTENDANCE LIST

UNOLS Council:

Garry Brass	U. Miami/RSMAS, UNOLS Chair
Peter Betzer	U. South Florida
Richard Findley	U. Miami/RSMAS, RVTEC Chair
Jeff Fox	URI/GSO, DESSC Chair
David Karl	U. Hawaii/SOEST
Marcus Langseth	L-DEO, FIC Chair
Chuck Nittrouer	SUNY
Ken Palfrey	OSU, SSC Chair
Dick Pittenger	WHOI
Mike Prince	MLML, RVOC Chair
Tom Royer	U. Alaska

Other Participants:

Jim Andrews	ONR
Jack Bash	UNOLS Office
Annette DeSilva	UNOLS Office
Tom Cocks	Dept. of State
Don Heinrichs	NSF
Keith Kaulum	ONR
Martin Mulhern	NOAA
Barry Raleigh	U. Hawaii/SOEST

APPENDIX II

UNOLS COUNCIL MEETING
8:30 a.m. - March 15-16, 1994
East-West Center, University of Hawaii at Moana
Honolulu, Hawaii

Call the Meeting: Garry Brass, UNOLS Chair, will call the meeting to order at 0830 Mar 15, 1994.

Accept Minutes of September, 1993 Council Meeting.

COMMITTEE REPORTS

Research Vessel Operators Committee - Mike Prince, Chair, will provide a summary of the RVOC Annual meeting held in Galveston, Texas and plans for the 1994 meeting in Savannah, Georgia.

DEep Submergence Science Committee - Jeff Fox, Chair, will report on the status of the 1993 ALVIN operations along with a summary of the DESSC Planning Meeting held in December. Jeff will provide an update on the proposed imaging improvements for ALVIN.

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

Ship Scheduling Committee - Ken Palfrey, Chair, will update the Council on the 1994 ship schedules and discuss planning for 1995.

Research Vessel Technical Enhancement Committee - Rich Findley will report on the status of RVTEC activities.

AGENCY REPORTS: Reports from representatives of NSF (D.Heinrichs), ONR (K.Kaulum), NOAA (M. Mulhern), and USCG (LCDR S. Wheeler) on funding outlooks and special projects. The State Department (T. Cocke) will provide an update on foreign clearance problems.

UNOLS ISSUES

UNOLS Vessel at Hawaii - Garry Brass will lead a discussion regarding the continuation of UNOLS operations at the University of Hawaii..

New Funding Paradigm for Support of National Deep Submergence Assets - Jeff Fox will report on the subcommittee's (Fox, Karl, and Wall) efforts to formulate views on developing a new funding paradigm for support of national deep submergence assets.

Ship Scheduling Conflict Discussion - Ken Palfrey will report on the recent occurrence of a ship scheduling conflict. He will lead a discussion on possible ways of avoiding this situation in the future.

Scientific Opportunities on Nuclear Submarines - Garry Brass will report on activities to gain future opportunities on Navy Nuclear Submarines.

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

KNORR CONVERSION Subcommittee Report - Peter Betzer and Jeff Fox will provide an update on the plans for the KNORR conversion to support ship for submersibles and ROVs.

DESSC Workshop Report - Jeff Fox will provide a review of the draft DESSC Workshop report.

Coastal Workshop Report - Marcus Langseth will provide a review of the draft Coastal Workshop report, Enclosure (1).

Ship Refits/Construction - Ken Palfrey and Jack Bash will update the Council on the status of Midlife refits for the OCEANUS class ships. Keith Kaulum and Bob Knox will report on the progress of the construction of AGOR 24. Dick Pittenger will report on the status of AGOR 25's contract.

SeaNet Update - Garry Brass will provide an update on the status of the proposal to install SeaNet on UNOLS Vessels.

UNOLS Council Membership: A nominating committee will be appointed by the UNOLS Chair to prepare a slate of candidates to replace those Council members completing terms. The nominating committee will consist of three members, two from UNOLS Operator institutions and one from an institution other than an operator. Enclosure (2) provides a full description of the duties of the nominating committee along with a description of the terms expiring. The terms of Garry Brass, Chair; Peter Betzer, Vice Chair; Dennis Hayes; Richard Janhke; and Chuck Nittrouer are expiring. Betzer, Hayes, Jahnke and Nittrouer are eligible for second terms. Enclosure (3) lists all past UNOLS Council members and their years in service.

Calendar for UNOLS Meetings

Meeting Schedule and Dates to be Set:

MEETING	DATES	LOCATION
UNOLS Council	Mar 15-16, 1994	Honolulu, HI
" "	July 11-12, 1994	Walpole, ME
" "	Sep-Oct 1994 (with Annual)	Washington, DC
UNOLS Annual	Sep-Oct 1994	Washington, DC
Ship Scheduling Review	June 23, 1994	Washington, DC
Ship Scheduling Committee	Sep-Oct 1994 (with Annual)	Washington, DC
Fleet Improvement Committee	Mar 17-18, 1994	Honolulu, HI
RVOC	Oct 25-27, 1994	Savannah, GA
RVTEC	Oct ?, 1994	Miami, FL ?
DESSC	May 2-3, 1994	Monterey, CA
DESSC	June 13-15, 1994	Woods Hole, MA
DESSC	Dec 4, 1994	San Francisco, CA

Adjournment

APPENDIX III

APPENDIX IV

UNOLS Fleet Improvement Plan Update 1994

I. Background

- Purpose and objectives of update
- The UNOLS Fleet
- Utilization and cost trends
- Trends in berthing

II. Future trends in Oceanography and Facility Needs

- Coastal, Arctic, Chemical, Biological, Geological, and Physical
- Current large oceanographic programs and the need for ships
- Impact of technology on the need for seagoing platforms

III Trends and issues regarding the UNOLS Fleet

- Funding the UNOLS Fleet

Estimates of Future Operating Costs

Innovative Funding for New Ships

- Improving the U.S. Research Fleet through interagency cooperation
- Regional distribution of the UNOLS Fleet
- Modes of operation of Research Vessels:
- Special platforms

IV. Recommendations:

Table IV-1 Comparison of FIP-90 recommendations for UNOLS Fleet size and composition with projected Fleets in 2000.

(Reference Table 5 FIP-90, p. 33, Table I-1 of this report)

Class	FIP-90	Displ.	2000	Displ.
Large High Endurance (LHE)	3	9,200	4	12,450
Med. High Endurance	2	4,500	2	4,500
Intermediate 150<LOA<200'	6**	6,000	6	6,000
Small 100<LOA<150'	9	2,780	9	2,780
Submersible Support	1†	2,300	1	2,700
Polar Research Vessel	1††	1,000	1	12,000
Totals	22	25,780	23	40,430

* The three LHE ships will be MELVILLE, THOMPSON and REVELLE.

** The Harbor Branch Ships JOHNSON AND SEALINK are not included.

† KNORR was included in the FIP-90 plan as a LHE ship will be converted to submersible support ship and the AII retired.

†† FIP-90 recommended a small ice-capable ship to replace the ALPHA HELIX. The ARV with Class A3 icebreaking capability recommended in this update will be the largest ship in the UNOLS Fleet (340 feet LOA).

RECOMMENDATIONS

1. Monitoring future facility needs:

- FIC recommends that Federal Oceanographic Fleet Coordinating Committee (FOFCC) establish a mechanism for annually updating projections of future oceanographic facility needs looking 5 to 10 years ahead. This assessment should include needs of the oceanographic research components of NOAA, the Navy and other federal agencies..

RECOMMENDATIONS

Arctic Research Vessel

- The development of a community-wide, interdisciplinary program of research in the Arctic of ten or more years duration. The program plan should include an assessment of facility needs.

- The FIC strongly supports the addition of the Arctic Research Vessel to the UNOLS fleet.....

RECOMMENDATIONS

Coastal Oceanography Needs

- The FIC recommends that Scientific Mission Requirements be established and a conceptual design study be carried out for a "shallow-water high capability research vessel".

- FIC recommends that funding agencies encourage regional and national arrangements to share certain expensive equipment and facilities used by coastal oceanographers. Oceanographers should develop commonality between institutions for routine and widely used instrumentation, instrument calibrations, technician training, and computer applications.

RECOMMENDATIONS

Inter-Agency Cooperation

- FIC recommends that federal and academic scientists who depend on ships and other seagoing facilities for their research continue to examine ways to improve cooperation . The FIC recommends collaboration that preserves the distributed operation of oceanographic facilities.

RECOMMENDATIONS

Modes of Operation

- FIC recommends that UNOLS vessels, operated by universities and academic research institutions, continue to be the primary source of seagoing facilities for the academic oceanographic community.

RECOMMENDATIONS

Distribution of the Fleet:

•FIC recommends: Agencies that support the UNOLS research ships should evaluate the projected geographical distribution of the year 2000 UNOLS Fleet. They should reassign existing and/or new ships to maintain a balance among operating institutions that best serves the U.S. oceanographic community as a whole. In particular, we stress the need to maintain Hawaii and Alaska as an operating base for one or more ships of the UNOLS Fleet.

APPENDIX V

NSF FY 1995 BUDGET REQUEST

NSF

- Total Request is \$3.200 Billion
- Increase of \$182.2 Million or 6.0%

	<u>Total</u>	<u>Increases</u>
Research and Related Activities	\$2348.7 M	\$180.0M or 8.3%
Education and Human Resource	586.0 M	16.4M or 2.9%
Academic Research Infrastructure	55.0 M	-45.0M or -45.0%
Major Research Equipment	70.0 M	18.0M or 34.6%
Salaries, Expenses, IG Office, Relocation	140.3 M	12.8M or 10.0%
• Major Research Initiatives		
Advanced Materials and Processing Program	313.2 M	5.2M or 2.7%
High Performance Computing and Comm.	328.6 M	61.6M or 23.1%
Biotechnology	205.7 M	6.2M or 3.1%
U.S. Global Change Research Program	207.5 M	65.6M or 46.2%
Environmental Research	156.0 M	11.6M or 8.0%
Advanced Manufacturing Technology	196.3 M	5.2M or 2.7%
Civil Infrastructure Systems	<u>54.1M</u>	<u>3.0M or 5.9%</u>
	\$1461.4M	\$158.4M or 12.2%
• Other Research Activities	887.3M	\$ 21.6M or 2.5%

NSF FY 1995 BUDGET REQUEST

Geosciences

- Total Request is \$443.1 million
- Increase of \$39.2 million or 9.7%

	<u>Total</u>	<u>Increases</u>
Atmospheric Sciences	\$147.9 M	\$13.5M or 10.0%
Earth Sciences	87.3 M	6.7M or 8.3%
Ocean Sciences	207.9 M	19.0M or 10.1%

- Major Support Categories

Research Projects	\$293.5 M	\$28.6M or 10.8%
Centers & Facilities	138.7 M	10.6M or 8.3%
Education & Training	10.9 M	No Change

- Major Research Initiatives

Global Change Programs	\$134.5 M	\$35.2M or 35.5%
Biotechnology	3.6 M	- 0.4M or -10.0%
High Performance Computing	6.9 M	4.0M or 137.0%
Environmental Research	23.7 M	0.5M or 2.2%
Advanced Materials and Processing Program	<u>8.0 M</u>	<u>No Change</u>
	\$176.7 M	\$39.3M or 28.6%

- Other Research Activities

	\$266.4 M	-\$0.1M or 0.0%
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NSF FY 1995 BUDGET REQUEST

Ocean Sciences

- Total Request is \$207.9 million
- Increase of \$19.0 million or 10.1%

	<u>Total</u>	<u>Increases</u>
Ocean Science Research Support (OSRS)	\$114.0M	\$14.0M or 14.0%
Oceanographic Centers & Facilities (OCFS)	53.9M	3.7M or 7.3%
Ocean Drilling Program (ODP)	40.0M	1.3M or 3.4%
• Major Research Initiatives		
Global Change Programs	71.4M	17.8M or 33.2%
Biotechnology	3.6M	-0.4M or -10.0%
High Performance Computing	1.6M	1.2M or 300.0%
Environmental Research	<u>2.5M</u>	<u>0.5M or 25.0%</u>
	\$79.1M	\$19.1M or 31.8%
• Other Research activities	\$128.8M	-\$ 0.1M or 0.0%

OCEAN SCIENCES DIVISION

	<u>FY 1992</u>	<u>FY 1993</u>	<u>Estimated FY 1994</u>
Ocean Sciences Division	\$177.5 M	\$177.7 M	\$ 188.9 M
Ocean Sciences Research	90.0 M	92.5 M	100.0 M
Ocean Drilling Program	36.3 M	36.0 M	38.7 M
Oceanographic Facilities	51.2 M	49.2 M	50.2 M

OCEANOGRAPHIC FACILITIES DETAIL

Operations			
Ship Operations	31.1 M*	29.4 M*	31.6 M *
ALVIN, Aircraft, etc.	0.9 M	1.4 M	2.2 M
Marine Techs	4.3 M	4.2 M	4.2 M
	\$ 36.3 M	\$ 35.0 M	\$ 38.0 M
Infrastructure			
Science Instruments	1.7 M	1.3 M	2.5 M
Shipboard Equipment	2.8 M	2.1 M	2.5 M
Ships, Upgrades	2.9 M	7.2 M	2.3 M
UNOLS, Misc.	0.6 M	0.5 M	0.7 M
	\$ 8.0 M	\$ 11.1 M	\$ 8.0 M
Technology, Centers, Reserves			
Technology Development	4.4 M	-	-
AMS Center	1.2 M	1.0 M	1.5 M
Cross Directorate/Reserves	1.3 M	2.1 M	2.7 M
	\$ 6.9 M	\$ 3.1 M	\$ 4.2 M

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

**ACADEMIC FLEET OPERATIONS SUPPORT
(SHIP CLASS - 1993)**

	<u>LARGE</u>	<u>INTER</u>	<u>REGION</u>	<u>LOCAL</u>	<u>HBOI</u>	<u>TOTAL</u>	<u>SHARE</u>
NSF	16,037	9,138	4,742	912	242	31,071	67.9%
ONR	2,704	3,387	479	23	0	6,593	14.3%
NOAA	539	1,024	58	439	944	3,004	6.5%
OTHER	486	648	972	364	530	3,001	6.5%
INST	<u>724</u>	<u>564</u>	<u>346</u>	<u>129</u>	<u>460</u>	<u>2,223</u>	4.8%
	\$20,490	\$14,761	\$6,597	\$1,867	\$2,177	\$45,892	
PERCENT	44.6%	32.2%	14.4%	4.1%	4.7%		
AVERAGES	\$4.1M	\$2.0M	\$1.1M	\$0.3M	\$1.1M		
	265 days	216 days	162 days	106 days	140 days		
	(\$15,470)	(\$9,700)	(\$6,790)	(\$2,940)	(\$7,800)		

**"OTHER SUPPORT" FOR UNOLS OPERATIONS
(1992 - 1994)**

SPONSOR	ACTUAL <u>1992</u>	ESTIMATE <u>1993</u>	PROJECTED <u>1994</u>
NAVY LABS"	623	678	1,094
DOE	231	380	770
ARPA	-	46	1,277
MMS	665	327	248
CNOC	367	339	346
USGS	297	15	94
EPA	87	-	60
JAMSTEC	359	762	207
OTHER	<u>210</u>	<u>454</u>	<u>182</u>
	\$ 2,839	\$ 3,001	\$ 4,278

NOTES

NAVY LABS - - NRAD, NOSC, ARL, NUSC, "NAVY", JHU/APL.

OTHER - - INDUSTRY, MBARI, NIH, JOI, MUSEUMS, ETC.

**ACADEMIC FLEET OPERATIONS SUPPORT
(1991-1994)**

UNOLS TOTALS	ACTUAL 1991	ACTUAL 1992	ESTIMATE 1993	PROJECTED 1994
NSF	26,179	35,396	31,071	35,207
ONR	5,211	4,005	6,593	3,979
NOAA	2,490	4,124	3,004	2,172
OTHER	3,129	2,839	3,001	4,278
INST	<u>2,117</u>	<u>2,332</u>	<u>2,223</u>	<u>2,580</u>
	\$39,126	\$48,696	\$45,892	\$48,216

*** Data Sources**

o 1991 - 1994 NSF Ship Operations Proposals Oct. (1993)

AGENCY SUPPORT BY RESEARCH VESSEL
Three Year Average (1992 - 1994)

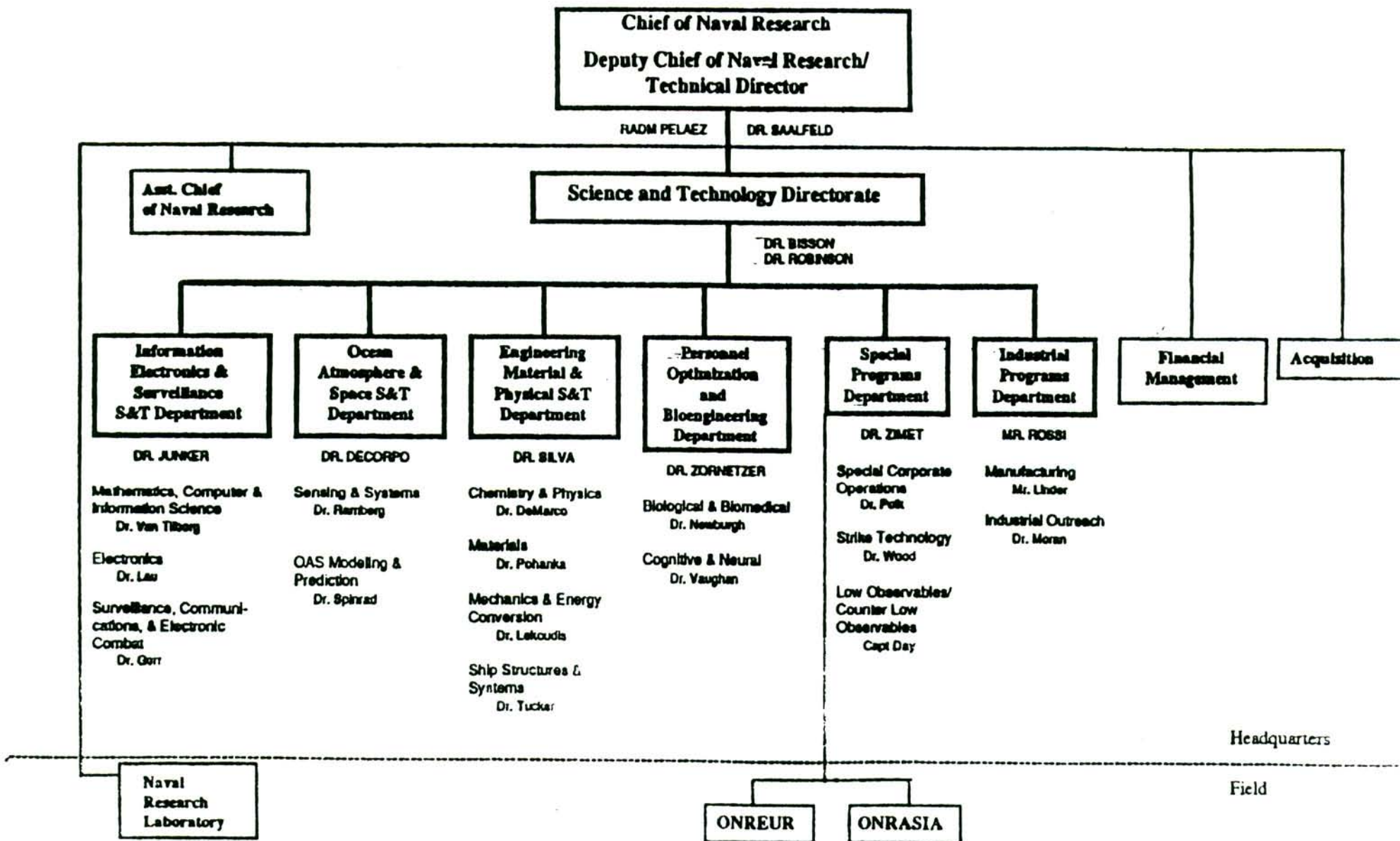
	<u>Over 60 days</u>	<u>30-60 Days</u>	<u>15-30 Days</u>	<u>Less Than 15 Days</u>
<u>NSF</u>	ALL OTHER SHIPS	LAURENTIAN - 53 VICKERS - 52 PELICAN - 40	S. JOHNSON-28 GYRE-26 E. LINK-19	LONGHORN-14
<u>ONR</u>	OCEANUS-73	ISELIN-55 WECOMA-51 MOANA WAVE-49 KNORR-37	ENDEAVOR-22 SPROUL-20 HENLOPEN-20 NEW HORIZON-19 HATTERAS-17 EWING-16 THOMPSON-15 GYRE-15	ALL OTHER SHIPS
<u>NOAA</u>	VICKERS-122 E. LINK-78 PELICAN-61	S. JOHNSON-59	ATLANTIS II-29 LONGHORN-28 (?) BLUE FIN-17	ALL OTHER SHIPS
<u>OTHER</u>	PELICAN-67 PT. SUR-67	ALPHA HELIX-36 GYRE-36 SPROUL-35 MOANA WAVE-34	E. LINK-26 BLUEFIN-18 HENLOPEN-16	ALL OTHER SHIPS
<u>INST</u>	NONE	S. JOHNSON-60 THOMPSON-50 GYRE-46 NEW HORIZON-37	SPROUL-17 LAURENTIAN-16 LONGHORN-15 (?)	ALL OTHER SHIPS

NOTES: VICKERS Two Year Average (1992 - 93)

APPENDIX VI



Office of Naval Research - 1994



OAS Sensing and Systems Division (ONR 321)

Director: S. Ramberg

Military Deputy (321B): P. DeVries

Associate for Integration (321N): J. Andrews

Associate for Warfare Applications (321W): T. Goldsberry

Division Support Staff (321S1 & S2): K. Kvitkovich, K. Whitehead

✓ **321OA - Ocean Acoustics** - M. Badiey (Program Manager), J. Simmen, (E. Estalote), (*P. Jackson*), T. Travis (Secretary)

6.1 FRC's - as current for 324OA

6.2 FRC from 6.2314 for acoustics

✓ **321OP - Ocean Optics** - S. Ackleson (Program Manager), (*B. Almquist*), V. Hoey (Secretary)

6.1 FRC's - as current for 323OP

6.2 FRC's from 6.2315 for LIDAR, SEAL systems and MCM EO

✓ **321RS - Remote Sensing** - F. Herr/*D. Trizna* (Program Manager), C. Luther, *E. Mozeley*, M. Mizuki (Secretary)

6.1 FRC's - as current for 321RS

6.2 FRC's from 6.2315 for SQUID radiometer, magnetic/E-field MCM

✓ **321SI - Sensing Information Dominance** - D. Johnson (Program Manager), (J. Simmen), (E. Shulenberger), *N. Harned, R. Bluth, J. Walker, C. Wheeler* (Secretary)

6.1 FRC - as current for 451E

6.2 FRC for current efforts under 451E

6.2 FRC's from 6.2314 for acoustic fusion, full spectrum processing

6.2 FRC's for SSBN security

✓ **321SS - Sensing, Sources and Arrays** - K. Dial (Program Manager), R. Doolittle, (C. Luther), *P. Jackson, R. Varley, T. Travis* (Secretary)

6.2 FRC's from 6.2314 for expendable sensors, magnetic/optical sensors

6.2 FRC's for efforts under 451B and G

- ✓ **321OE - Ocean Engineering and Marine Systems** - T. Swean (Program Manager), *D. Robeson, (B. Almquist), (D. Small), M. Mizuki (Secretary)*
 - 6.1 FRC's - as current for 321OT
 - 6.2 FRC's from 6.2131M
 - 6.2 FRC's from 6.2315 for spec warfare

- ✓ **321RF - Research Facilities** - K. Kaulum (Program Manager), J. Keller, *P. Dennis, M. Mizuki (Secretary)*
 - 6.1 FRC - as current from 321RF
 - 6.2 FRC from all accounts for ship operations

- ✓ **321US - Undersea Surveillance Systems** - T. Goldsberry (Program Manager), *E. Estalote, L. Jacobi, R. Wheatley, (N. Harned), C. Wheeler and B. Didier (Secretaries)*
 - 6.2 FRC's from 6.2314 for efforts under 451C

- ✓ **321LS - Littoral Surveillance and Systems** - J. Andrews (Program Manager), *(W. Ching), B. Almquist, V. Hoey (Secretary)*
 - 6.2 FRC's from 6.2315 for MCM
Hamlet's Cove liaison

- ✓ **321TS - Tactical Sensing Support** - W. Ching (Program Manager), *(B. Blumenthal), D. Davison, D. Small, C. Wheeler (Secretary)*
 - 6.2 FRC's from 6.2315 for MCM and 6.2314 for TDAs
 - 6.3b FRC from AEAS for TDAs

OAS Modelling and Prediction Division (ONR 322)

Director: R. Spinrad

Military Deputy (322B): T. Sheridan

Associate for Integration (322N): A. Weinstein

Associate for Warfare Applications (322W): R. Feden

Division Support Staff (322S1 & S2): J. Myles & K. Dillard

- ✓ **322PO - Physical Oceanography** - L. Goodman (Program Manager), S. Ramp, *(R. Edson), M. Prude (Secretary)*
 - 6.1 FRC's - as current from 322PO except portion to 322OM

✓ **322BC - Biological/Chemical Oceanography** - E. Shulenberger (Program Manager), E. Green, B. Zahuranec, (*R. Bluth*), T. Anthony (Secretary)

6.1 FRC's - as current from 323B and C

6.2 FRC's from 6.2435 for atmospheric chemistry and bio-optical modelling

✓ **322CD - Coastal Dynamics** - T. Kinder (Program Manager), *L. Vincent*, New Hire, J. Albrittain (Secretary)

6.1 FRC's - as current from 321CS

✓ **322HL - High Latitude Dynamics** - T. Curtin (Program Manager), L. Johnson, R. Edson, *L. Codispoti*, *J. Fondrk*, H. Whitlock (Secretary)

6.1 FRC's - as current from 324AR

6.3 FRC for Arctic Radionuclides

✓ **322OM - Ocean Modelling and Prediction** - R. Peloquin (Program Manager), M. Fiadeiro, E. Chaika, J. Bergin, J. Albrittain & P. Eppinette (Secretaries)

6.1 FRC's - as current from 453B and including portion of 322OP

6.2 FRC's from 6.2435 for physical modelling and acoustics modelling

✓ **322AM - Atmospheric Modelling and Prediction** - *S. Sandgathe* (Program Manager), G. Geernaert, T. Anthony (Secretary)

6.1 FRC's - as current from 453B & including portion of 322MM

6.2 FRC's from 6.2435 for atmospheric prediction, EM/EO effects

✓ **322TE - Tactical Environmental Support** - R. Feden (Program Manager), B. Blumenthal, R. Jacobson, S. Lovelace, (*D. Robeson*), J. Albrittain (Secretary)

6.1 FRC's - as current from 453

6.2 FRC's from 6.2435, 6.2314, 6.2315 for hi-res modelling/simulation

6.3b FRC's from AEAS

✓ **322GG - Marine Geology and Geophysics** - J. Kravitz (Program Manager), (W. Ching), H. Whitlock (Secretary)

6.1 FRC's - as current from 324GG

6.2 FRC's from 453E for littoral sediment transport, bathymetry

✓ **322MM - Marine Meteorology** - R. Abbey (Program Manager), M. Prude (Secretary)

6.1 FRC's - as current in 322MM except portion to 322AM

6.2 FRC's from 6.2435 for tropical cyclones

✓ **322SP - Space Physics** - G. Joiner (Program Manager), *D. Chen, R. McCoy, J. Foreman*, H. Whitlock (Secretary)

6.1 FRC's - as current from 314SP

6.2 FRC from 6.2111 for POAM

4. All responsibilities for 6.3a accounts will remain unchanged from the current assignments.

APPENDIX VII

RESEARCH CLEARANCE SUMMARY 01/01/93 TO 12/31/93

CRUISE	SHIP TITLE	COASTAL STATE	START	END
92-110	R/V CAPE HATTERAS	Bermuda	01/01/93	04/30/93
93-003	R/V MELVILLE	French Polynesia	01/10/93	02/03/93
92-080	NOAA MILLER FREEMAN	Russia	01/15/93	03/22/93
92-131	NOAA ALBATROSS IV	Canada	01/16/93	02/01/93
92-102	R/V THOMAS G. THOMPSON	France	01/17/93	02/11/93
92-105	R/V MOANA WAVE	Micronesia Papua New Guinea Solomon Islands	01/22/93	02/25/93
92-092	R/V CORWITH CRAMER	Bahamas	01/23/93	02/02/93
92-128	NOAA MALCOLM BALDRIGE	Bahamas	01/26/93	01/28/93
92-093	R/V WESTWARD	Bahamas	01/28/93	02/02/93
92-081	R/V KNORR	Chile	01/29/93	02/18/93
92-126	NOAA ALBATROSS IV	Canada	01/29/93	03/01/93
92-037	THE JASON PROJECT	Mexico	02/01/93	03/31/93
92-129	M/V BABY MAX	Bahamas	02/01/93	02/22/93
92-083	R/V WESTWARD	Colombia Mexico Bahamas Jamaica Turks and Caicos Cayman Islands Honduras Dominican Republic	02/08/93	03/21/93
92-087	R/V MELVILLE	Chile	02/08/93	03/19/93
92-084	R/V CORWITH CRAMER	Colombia Honduras Mexico Bahamas Jamaica Turks and Caicos Cayman Islands Dominican Republic	02/10/93	03/23/93
92-133	R/V LE NOROIT	Micronesia	02/16/93	03/01/93

CRUISE	SHIP TITLE	COASTAL STATE	START	END
		Papua New Guinea		
92-085	R/V KNORR	Chile Ecuador Costa Rica Guatemala	02/23/93	04/22/93
92-119	NOAA DISCOVERER	Kiribati Tokelau Tuvalu Wallis and Futuna Western Samoa	02/27/93	04/09/93
93-025	CEPEX AIRCRAFT	Nauru Kiribati	03/01/93	04/07/93
92-127	R/V MOANA WAVE	Micronesia Nauru Marshall Island Papua New Guinea Kiribati	03/02/93	03/31/93
93-004	R/V JOHN V. VICKERS	Solomon Islands Nauru Kiribati	03/06/93	03/26/93
92-142	R/V CAPE HENLOPEN	Bermuda	03/07/93	03/31/93
93-016	NOAA AIRCRAFT	Marshall Island Kiribati Nauru	03/07/93	04/15/93
92-121	R/V ATLANTIS II	Bermuda	03/08/93	03/21/93
93-021	M/V MERO VII	Clipperton Island	03/10/93	06/15/93
92-137	R/V OCEANUS	Bermuda	03/11/93	03/24/93
93-026	R/V GYRE	Mexico	03/14/93	03/14/93
92-098	NOAA SURVEYOR	Chile French Polynesia Canada	03/20/93	05/05/93
92-115	R/V NEW HORIZON	Mexico	03/20/93	04/01/93
92-097	R/V MELVILLE	Chile	03/21/93	06/03/93
92-138	R/V OCEANUS	Bermuda	03/26/93	04/04/93
93-005	NOAA DELAWARE II	Canada	03/26/93	04/16/93

CRUISE	SHIP TITLE	COASTAL STATE	START	END
92-112	R/V WESTWARD	Bahamas	03/27/93	04/10/93
92-113	R/V CORWITH CRAMER	Bahamas	03/27/93	04/01/93
92-099	R/V JOIDES RESOLUTION	Portugal	03/28/93	05/25/93
92-132	NOAA ALBATROSS IV	Canada	04/02/93	05/03/93
92-130	R/V MOANA WAVE	Papua New Guinea	04/05/93	04/18/93
92-116	COLLECTION PERMIT-GRAHAM	Mexico	04/06/93	04/09/93
92-061	R/V ABEL J	Martinique Guadeloupe	04/08/93	04/28/93
93-010	JAPANESE R/V KAIYO	Micronesia Papua New Guinea	04/13/93	04/26/93
92-118	R/V OCEANUS	Portugal	04/16/93	05/14/93
93-039	R/V ATLANTIS II	Barbados Bermuda	04/17/93	04/23/93
92-134	NOAA MALCOLM BALDRIGE	Panama Marquesas Island	04/18/93	05/15/93
93-024	NOAA DELAWARE II	Canada	04/19/93	05/14/93
92-114	R/V WESTWARD	Bahamas	04/20/93	04/25/93
93-006	R/V COLUMBUS ISELIN	Canada	04/20/93	04/29/93
92-122	R/V MOANA WAVE	Papua New Guinea	04/21/93	05/25/93
93-042	R/V THOMAS G. THOMPSON	Canada	04/23/93	05/11/93
92-139	R/V LAURENTIAN	Canada	04/30/93	05/13/93
93-044	R/V KIALOA II	Portugal	04/30/93	04/30/94
93-045	USNS MCDONNELL/LITTLEHALE	United Arab Emirates	05/01/93	04/30/95
92-145	R/V WESTWARD	Bahamas Bermuda Canada	05/03/93	06/11/93
93-043	NOAA DELAWARE II	Canada	05/03/93	05/18/93
92-146	R/V CORWITH CRAMER	Bahamas Bermuda	05/04/93	06/12/93

CRUISE	SHIP TITLE	COASTAL STATE	START	END
		Canada		
93-007	R/V COLUMBUS ISELIN	Canada	05/17/93	05/26/93
93-023	NOAA ALBATROSS IV	Canada	05/17/93	05/29/93
92-120	R/V OCEANUS	Azores Madeira Islands	05/19/93	06/18/93
93-008	R/V NATHANIEL B. PALMER	South Georgia/Arg. South Georgia/UK	05/21/93	06/30/93
93-027	R/V JOHN V. VICKERS	Mexico	05/24/93	05/24/93
92-144	R/V ATLANTIS II	Azores	05/27/93	06/04/93
93-012	R/V MAURICE EWING	Iceland Faroe Islands Ireland United Kingdom Canada	05/27/93	06/20/93
92-143	R/V MOANA WAVE	Japan	06/01/93	06/17/93
93-009	NOAA MALCOLM BALDRIGE	Dominica Martinique St. Lucia Grenada St. Vincent Barbados Trinidad and Tobago Bahamas	06/01/93	06/10/93
93-046	NOAA DELAWARE II	Canada	06/01/93	07/02/93
93-017	R/V ALPHA HELIX	Russia	06/09/93	07/04/93
92-117	NOAA MALCOLM BALDRIGE	Brazil Barbados	06/11/93	06/30/93
92-123	R/V KNORR	Azores Cape Verde	06/14/93	07/02/93
93-041	M/V RAMPAGE	Bahamas	06/20/93	06/26/93
93-030	R/V MOANA WAVE	Japan	06/21/93	07/03/93
93-011	R/V MAURICE EWING	Canada Greenland Iceland Ireland	06/25/93	07/19/93

CRUISE	SHIP TITLE	COASTAL STATE	START	END
93-028	NOAA DISCOVERER	Canada	07/01/93	07/29/93
93-064	R/V SIRIUS	Canada	07/01/93	09/30/93
93-037	R/V COLUMBUS ISELIN	Bermuda	07/02/93	07/19/93
93-013	NOAA MALCOLM BALDRIGE	Madeira Islands Iceland Canada Bermuda	07/04/93	09/16/93
92-125	R/V THOMAS G. THOMPSON	Fiji Wallis and Futuna Tuvalu Kiribati	07/05/93	09/04/93
92-135	R/V POLAR DUKE	Chile Argentina	07/05/93	08/04/93
92-136	R/V MELVILLE	Mexico Clipperton Island	07/05/93	08/04/93
93-033	R/V CORWITH CRAMER	Canada	07/05/93	08/01/93
93-032	R/V WESTWARD	Canada	07/06/93	08/02/93
93-054	NOAA DELAWARE II	Canada	07/06/93	07/17/93
93-052	R/V OCEANUS	Canada	07/07/93	08/11/93
93-049	NOAA AIRCRAFT	Mexico	07/15/93	10/15/93
93-022	USCGC POLAR SEA	Greenland	07/18/93	08/20/93
93-050	R/V SEA DIVER	Canada	07/19/93	07/26/93
93-055	NOAA DELAWARE II	Canada	07/20/93	08/06/93
93-002	NOAA JORDAN/MCARTHUR	Mexico	07/28/93	11/02/93
93-001	R/V JOIDES RESOLUTION	Svalbard Greenland Iceland	07/30/93	09/24/93
93-036	R/V MELVILLE	Canada	07/30/93	09/06/93
93-066	NOAA OREGON II	Canada	07/31/93	08/24/93
93-061	R/V NEREID	Canada	08/01/93	10/15/93

CRUISE	SHIP TITLE	COASTAL STATE	START	END
93-075	USNS MCDONNELL/LITTLEHALE	Albania	08/01/93	12/31/96
93-062	NOAA SURVEYOR	Canada	08/02/93	08/12/93
93-067	R/V ABEL-J	Canada	08/03/93	08/22/93
93-034	R/V CORWITH CRAMER	Canada	08/07/93	09/01/93
92-140	R/V LAURENTIAN	Canada	08/09/93	08/21/93
93-056	NOAA DELAWARE II	Canada	08/09/93	08/20/93
93-078	NOAA RAINIER	Canada	08/13/93	08/14/93
93-020	R/V SEWARD JOHNSON	Jamaica	08/17/93	09/08/93
93-057	USCGC POLAR STAR	Canada	08/18/93	09/20/93
93-069	NOAA DELAWARE II	Canada	08/23/93	09/03/93
92-124	R/V THOMAS G. THOMPSON	Fiji Wallis and Futuna Western Samoa Tokelau Cook Islands French Polynesia	09/07/93	10/02/93
93-079	NOAA DELAWARE II	Canada	09/07/93	10/29/93
93-035	R/V THOMAS G. THOMPSON	Tonga New Zealand Fiji	09/08/93	10/01/93
93-018	R/V ALPHA HELIX	Russia	09/09/93	10/14/93
93-080	R/V MELVILLE	Canada	09/10/93	10/06/93
93-014	R/V COLUMBUS ISELIN	Turks and Caicos Bahamas	09/16/93	10/06/93
93-089	NOAA MALCOLM BALDRIGE	Bahamas	09/16/93	10/04/93
92-101	R/V MAURICE EWING	Brazil	09/20/93	10/03/93
92-141	R/V LAURENTIAN	Canada	09/20/93	10/03/93
93-073	R/V KNORR	Bahamas	09/25/93	10/27/93
93-081	R/V ATLANTIS II	Canada	09/25/93	10/04/93
93-082	NOAA DISCOVERER	Kiribati	09/25/93	12/07/93

CRUISE	SHIP TITLE	COASTAL STATE	START	END
		Tokelau Tuvalu Wallis and Futuna Marquesas Island Western Samoa		
93-038	R/V JOIDES RESOLUTION	Greenland	09/27/93	11/24/93
93-083	M/V BABY MAX	Bahamas	10/01/93	10/22/93
93-031	R/V THOMAS G. THOMPSON	Papua New Guinea Micronesia Japan Fiji	10/05/93	11/10/93
93-019	R/V ALPHA HELIX	Russia	10/12/93	11/06/93
93-051	R/V ISLA MAGUEYES	Martinique Dominica Guadeloupe Antigua and Barbuda	10/12/93	10/26/93
93-048	R/V CORWITH CRAMER	Bermuda Antigua and Barbuda Guadeloupe Martinique Dominica St. Lucia St. Vincent Grenada Montserrat St. Kitts and Nevis Saba Trinidad and Tobago Barbados British Virgin Is.	10/13/93	11/23/93
93-047	R/V WESTWARD	Bermuda Antigua and Barbuda Guadeloupe Martinique Dominica St. Lucia St. Vincent Grenada Montserrat Saba Barbados British Virgin Is. St. Kitts and Nevis	10/14/93	11/24/93

CRUISE	SHIP TITLE	COASTAL STATE	START	END
93-060	R/V MAURICE EWING	South Africa	10/23/93	11/12/93
93-074	R/V KNORR	Bahamas	11/01/93	11/19/93
93-091	NOAA DELAWARE II	Canada	11/02/93	11/17/93
93-053	NOAA MCARTHUR	Mexico Guatemala El Salvador Honduras Nicaragua Costa Rica Panama Clipperton Island	11/06/93	12/05/93
93-015	R/V COLUMBUS ISELIN	Galapagos Islands	11/08/93	11/22/93
93-084	NOAA SURVEYOR	Canada French Polynesia Chile	11/20/93	01/07/94
93-029	R/V NEW HORIZON	Mexico	11/22/93	12/23/93
93-077	R/V MELVILLE	French Polynesia	11/22/93	01/01/94
93-058	R/V WESTWARD	Anguilla Montserrat Turks and Caicos Saba St. Kitts and Nevis Guadeloupe Martinique Dominica St. Lucia St. Vincent Grenada Dominican Republic Bahamas British Virgin Is. Antigua and Barbuda	11/29/93	01/07/94
93-059	R/V CORWITH CRAMER	Anguilla Montserrat Cayman Islands Saba Bonaire St. Kitts and Nevis Guadeloupe Martinique Dominica St. Lucia	11/30/93	01/08/94

CRUISE	SHIP TITLE	COASTAL STATE	START	END
		St. Vincent Grenada Venezuela Dominican Republic Jamaica Honduras British Virgin Is. Antigua and Barbuda		
93-101	NOAA DELAWARE II	Canada	11/30/93	12/16/93
93-103	M/V BABY MAX	Bahamas	12/01/93	09/30/94
93-097	JAPANESE R/V KAIYO	Micronesia Papua New Guinea Nauru	12/05/93	01/02/94
93-100	R/V ATLANTIS II	Mexico	12/31/93	04/28/94

CRUISE CANCELLATION, DENIALS AND COMMENTS

- 92-110 R/V CAPE HATTERAS 01/01/93 04/30/93
- This clearance was initially requested for R/V CAPE HENLOPEN but was shifted to the R/V CAPE HATTERAS after it was approved.
- 93-003 R/V MELVILLE 01/10/93 02/03/93
- Request submitted after ship had begun research, when the need for French clearance was discovered. Approval received in two weeks, after extraordinary waiver of 4-month notice by French authorities.
- 92-080 NOAA MILLER FREEMAN 01/15/93 03/22/93
- Problem developed with Russian Fisheries Committee after Foreign Ministry approval. NMFS had to provide additional information on several occasions. However, research was conducted as proposed.
- 92-128 NOAA MALCOLM BALDRIGE 01/26/93 01/28/93
- Cruise cancelled
- Cruise was cancelled at the last minute owing to mechanical problems with the ship. Approval had already been received.
- 92-093 R/V WESTWARD 01/28/93 02/02/93
- Cruise cancelled
- Cruise cancelled.
- 92-081 R/V KNORR 01/29/93 02/18/93
- Problem with Chilean participation, however, research was conducted as proposed.
- 92-083 R/V WESTWARD 02/08/93 03/21/93
- Request to Dominican Republic made late in attempt to avoid transiting Haitian waters. Mexico denied request because no Mexican scientist was aboard, even though the ship had already left before the Mexican Foreign Ministry responded with request for participation but did not provide approval.
- 92-087 R/V MELVILLE 02/08/93 03/19/93
- Clearance mix-up caused request to be cancelled, however, approval was received and research was conducted as proposed.
- 92-084 R/V CORWITH CRAMER 02/10/93 03/23/93
- Request for Dominican Republic made late in attempt to avoid transiting Haitian waters. After a very difficult process to achieve Colombian approval, and much anguish over Colombian participation, SEA cancelled request to avoid having to take Colombian observers aboard. Mexico denied request because no Mexican scientist was aboard, even though the ship had already left before the Mexican Foreign Ministry responded with

request for participation but did not provide approval.

- 92-133 R/V LE NOROIT 02/16/93 03/01/93
- Approval from FSM received late, however, did not disrupt research effort.
- 92-085 R/V KNORR 02/23/93 04/22/93
- Foreign observer problems, since Chile, Ecuador and Guatemala requested participation and ship could not accommodate them all. However, ship was able to complete research as proposed.
- 92-119 NOAA DISCOVERER 02/27/93 04/09/93
- Approvals from Kiribati and Tokelau were received after ship sailed, however, research was not disrupted.
- 93-025 CEPEX AIRCRAFT 03/01/93 04/07/93
- Official requests for NASA and private aircraft not submitted to State until the very last minute.
- 93-004 R/V JOHN V. VICKERS 03/06/93 03/26/93
- Request for Solomon Islands cancelled when it was learned CEPEX research would not begin until ship left Solomon Islands waters.
- 93-021 M/V MERO VII 03/10/93 06/15/93
- Cruise cancelled
- Very troublesome clearance request submitted late by an individual scientist, which was then cancelled at the last minute.
- 93-026 R/V GYRE 03/14/93 03/14/93
- Cooperative research with Mexican Navy - notification only.
- 92-115 R/V NEW HORIZON 03/20/93 04/01/93
- Request approved two days after ship sailed, however, research was conducted on schedule.
- 92-116 COLLECTION PERMIT-GRAHAM 04/06/93 04/09/93
- Request denied
- Request denied because a permit was issued for this project to a Mexican scientist in CICESE.
- 92-061 R/V ABEL J 04/08/93 04/28/93
- Research originally scheduled for Sep-Oct 1992 had to be rescheduled three times. In addition, the original approval was for outside French territorial sea, and research was possibly required inside, according to movement of whales. French approval was finally given for territorial sea area.
- 93-039 R/V ATLANTIS II 04/17/93 04/23/93
- Notification of non-research activities. No research clearance required for Barbados EEZ. Test dives cancelled off Barbados. ALVIN repairs caused test dives to be rescheduled for areas off

Bermuda. R/V ATLANTIS II requested permission to conduct dives within Bermuda's territorial sea. No clearance required. Ship's captain arranged with local officials.

- 92-134 NOAA MALCOLM BALDRIGE 04/18/93 05/15/93
- Port call clearance only for Panama. Schedule revised three times (slipped six weeks total) owing to mechanical problems and emergency medevac.
- 93-024 NOAA DELAWARE II 04/19/93 05/14/93
- Cruise cancelled
- 93-044 R/V KIALOA II 04/30/93 04/30/94
- Clearance request for this Portuguese vessel was submitted late for research to follow April-May research by R/V OCEANUS (92-118). It was finally approved about two months late, and then several months later local authorities requested written approval which had to be provided by Amembassy Lisbon.
- 93-027 R/V JOHN V. VICKERS 05/24/93 05/24/93
- Port call request only.
- 92-143 R/V MOANA WAVE 06/01/93 06/17/93
- Japanese approval received one day after ship sailed, however, research was conducted as proposed.
- 93-009 NOAA MALCOLM BALDRIGE 06/01/93 06/10/93
- Research in Trinidad and Tobago was cancelled. Schedule revised twice (schedule slipped 3 weeks total) owing to mechanical problems and emergency medevac. Request to Bahamas required at the last minute. Verbal approval obtained by Embassy within three hours. Coastal state familiarity with the project was instrumental in this fast response. For a number of reasons, this was an extremely troublesome clearance request.
- 93-017 R/V ALPHA HELIX 06/09/93 07/04/93
- Request denied
- Request denied by Russia owing to insufficient notice.
- 92-117 NOAA MALCOLM BALDRIGE 06/11/93 06/30/93
- Brazil held up consideration of request pending provision of data from previous research by Dr. Molinari. Schedule had to be revised twice (schedule slipped 3 weeks total) owing to mechanical problems and emergency medevac. Request denied by Brazil owing to non-provision of data from previous NOAA research cruise.
- 93-041 M/V RAMPAGE 06/20/93 06/26/93
- Originally approved for the R/V MARSYS RESOLUTE during the period 1-30 June 1993. Smithsonian had to switch ships and shorten schedule owing to

budgetary constraints.

- 93-030 R/V MOANA WAVE 06/21/93 07/03/93
- Verbal approval received from Japan two days after ship sailed. Research conducted on schedule.
- 93-028 NOAA DISCOVERER 07/01/93 07/29/93
- Cruise cancelled
- Ship did not enter Canadian waters during research near the Juan de Fuca vent area.
- 93-013 NOAA MALCOLM BALDRIGE 07/04/93 09/16/93
- Ship's schedule revised three times, disrupting the clearance process.
- 92-135 R/V POLAR DUKE 07/05/93 08/04/93
- Last minute problems with Chilean clearance, and revisions required, necessitated cancelling research in Argentine waters.
- 92-136 R/V MELVILLE 07/05/93 08/04/93
- Schedule revised one month prior to original scheduled start of research, resulting in Mexican approval being given two days late. Research was conducted on revised schedule.
- 93-049 NOAA AIRCRAFT 07/15/93 10/15/93
- This is only a request for waiver of the Mexican 5-day landing notice. No research in Mexican airspace.
- 93-002 NOAA JORDAN/MCARTHUR 07/28/93 11/02/93
- Mexican approval provided a month before start of research, however, it was received several weeks past deadline issued by NMFS.
- 93-034 R/V CORWITH CRAMER 08/07/93 09/01/93
- Cruise cancelled
- 93-078 NOAA RAINIER 08/13/93 08/14/93
- Port call clearance request only. No research in Canadian waters.
- 93-020 R/V SEWARD JOHNSON 08/17/93 09/08/93
- Although request was made to Jamaica six months in advance, the approval was received only several days prior to proposed start of research.
- 92-124 R/V THOMAS G. THOMPSON 09/07/93 10/02/93
- Cruise cancelled
- Research tentatively rescheduled for R/V MELVILLE during 1994. Since actual dates are not known at this time, request was cancelled.
- 93-035 R/V THOMAS G. THOMPSON 09/08/93 10/01/93
- Clearance for Fiji added in response to request from SOPAC to conduct bathymetry track on transit into Suva. Fiji approval received after ship sailed, however, it did not affect collection of SeaBeam data for SOPAC.

- 93-089 NOAA MALCOLM BALDRIGE 09/16/93 10/04/93
 - Processing of request delayed, first owing to delinquent post cruise obligations for previous cruise, then for non-receipt of explanation of a previous clearance problem, and finally for revision of dates owing to conflict in previously requested dates. However, approval was received from the Bahamas prior to ship's departure.
- 92-101 R/V MAURICE EWING 09/20/93 10/03/93
 - A major problem developed immediately prior to scheduled start of the research, when the Brazilian Navy insisted on the U.S. providing data for previous cruises before approving the present research. After much effort, the approval was given in return for promise to provide specified data from previous research. Research was delayed several days, and CTD casts were not allowed in Brazilian waters.
- 92-141 R/V LAURENTIAN 09/20/93 10/03/93
 - Cruise cancelled
 - This was leg 3 of this research. It was cancelled after completion of legs 1 and 2.
- 93-082 NOAA DISCOVERER 09/25/93 12/07/93
 - NOAA request was made three months late for France, and approval was received 3 days after ship sailed. However, research was conducted as proposed.
- 93-038 R/V JOIDES RESOLUTION 09/27/93 11/24/93
 - Denmark approval for Greenland received less than a week prior to start of ODP leg.
- 93-031 R/V THOMAS G. THOMPSON 10/05/93 11/10/93
 - Clearance for Fiji requested in response to request from SOPAC to conduct bathymetry track on transit from Suva. Japanese approval received on the day the ship sailed.
- 93-019 R/V ALPHA HELIX 10/12/93 11/06/93
 - Cruise cancelled
- 93-051 R/V ISLA MAGUEYES 10/12/93 10/26/93
 - Cruise cancelled
 - Originally scheduled for May 1993. Approvals received on short notice. Problematic conditions placed on research by France. Ship suffered a mechanical malfunction and had to postpone research. Research rescheduled for October 1993 and later cancelled.
- 93-048 R/V CORWITH CRAMER 10/13/93 11/23/93
 - No response to late request made for clearance for British Virgin Islands. Research was cancelled for that area.
- 93-047 R/V WESTWARD 10/14/93 11/24/93

- No response to late requests made for clearances for Barbados and the British Virgin Islands. Research was cancelled in those areas.

- 93-053 NOAA MCARTHUR 11/06/93 12/05/93
- Nicaragua clearance received on day ship sailed. Approval from Mexico received two days after ship sailed.
- 93-015 R/V COLUMBUS ISELIN 11/08/93 11/22/93
- Clearance procedure was protracted and approval was received at the very last minute, however, research was successfully completed with Ecuadorian scientific participation.
- 93-029 R/V NEW HORIZON 11/22/93 12/23/93
- Mexican approval received two weeks prior to scheduled start of research.
- 93-058 R/V WESTWARD 11/29/93 01/07/94
- UK approvals received on day ship sailed. Approval from Dominican Republic received two weeks after ship sailed, but research was completed as proposed.
- 93-059 R/V CORWITH CRAMER 11/30/93 01/08/94
- UK clearances received on day ship sailed. Venezuela approval received one week after ship sailed and Dominican Republic approval received two weeks after ship sailed, however, research was conducted as proposed.
- 93-097 JAPANESE R/V KAIYO 12/05/93 01/02/94
- NOAA requested clearances for Japanese vessel conducting TOGA program research.
- 93-100 R/V ATLANTIS II 12/31/93 04/28/94
- Port calls only.

SUMMARY OF REQUESTS BY COASTAL STATE FOR
01/01/93 TO 12/31/93

COASTAL STATE	# OF REQUESTS
Albania	1
Antigua and Barbuda	5
Argentina	1
Azores	3
Bahamas	20
Barbados	5
Bermuda	12
Bonaire	1
Brazil	2
Canada	44
Cape Verde	1
Chile	7
Colombia	2
Cook Islands	1
Costa Rica	2
Dominica	6
Dominican Republic	4
Ecuador	1
El Salvador	1
Faroe Islands	1
Fiji	4
Galapagos Islands	1
Greenland	4
Grenada	5
Guatemala	2
Honduras	4
Iceland	4
Ireland	2
Jamaica	4
Japan	3
Kiribati	7
Madeira Islands	2
Marshall Island	2
Mexico	13
Micronesia	6
Nauru	5
New Zealand	1
Nicaragua	1
Panama	2
Papua New Guinea	8
Portugal	3
Russia	4
Saba	4
Solomon Islands	2
South Africa	1
South Georgia/Arg.	1
St. Kitts and Nevis	4
St. Lucia	5
St. Vincent	5
Svalbard	1
Tokelau	3
Tonga	1
Trinidad and Tobago	2
Tuvalu	3

United Arab Emirates	1
Venezuela	1
Western Samoa	3
France	28
United Kingdom	19

The Department of State received a total of 134 clearance requests for research to be conducted during the period 01/01/93 - 12/31/93 . They represent 291 requests to 59 foreign governments for U.S. research. Of the 134 clearances requested, 2 were denied and 10 were cancelled.

FOREIGN REQUESTS SUMMARY 01/01/93 TO 12/31/93

SHIP NAME	START	END	COUNTRY	RESULT
CSS PARIZEAU	01/05/93	01/11/93	Canada	N
ALFRED NEEDLER	02/08/93	02/26/93	Canada	C
XIANGYANGHONG NO. 5	02/23/93	02/26/93	China	P
SHIYAN NO. 3	02/24/93	02/27/93	China	P
KEXUE NO. 1	02/24/93	02/27/93	China	P
CSS WILFRED TEMPLEMAN	03/08/93	03/19/93	Canada	N
PRILIV	04/17/93	06/01/93	Russian Federation	N
YUZHMOREGEOLOGIYA	04/18/93	08/31/93	Russia	A
ANYO MARU NO. 22	04/28/93	09/12/93	Japan	A
CSS PARIZEAU	05/10/93	05/25/93	Canada	N
CFAV ENDEAVOUR	05/28/93	06/28/93	Canada	A
OSHO RO MARU	06/03/93	08/19/93	Japan	N
BEI DOU	06/10/93	08/10/93	China	N
CSS VECTOR	06/14/93	07/02/93	Canada	A
CCGS GRIFFON	06/21/93	07/19/93	Canada	A
CSS FREDERICK G. CREED	07/07/93	07/19/93	Canada	A
CSS R.B. YOUNG	07/12/93	09/24/93	Canada	A
JEAN CHARCOT	07/20/93	07/30/93	France	A
OKEAN	07/26/93	07/28/93	Russia	P
OKEAN	08/01/93	09/20/93	Russia	N
CCGS HENRY LARSEN	08/25/93	09/15/93	Canada	N
CSS PARIZEAU	09/20/93	10/01/93	Canada	N
W.E. RICKER	10/04/93	10/15/93	Canada	A
CSS PARIZEAU	10/16/93	10/25/93	Canada	N
E.E. PRINCE	10/18/93	11/15/93	Canada	A
PROFESSOR MUL'TANOVSKIY	10/23/93	10/28/93	Russia	N
PROFESSOR MUL'TANOVSKIY	10/28/93	11/02/93	Russia	P
ALFRED NEEDLER	11/12/93	11/26/93	Canada	N

RESULT ABBREVIATIONS

A - APPROVED
C - CANCELLED
D - DENIED
N - NOTIFICATION ONLY (EEZ)
P - PORT CALL ONLY

APPENDIX VIII

rec'd 3-14-94

EDWARD J. MARKEY, MASSACHUSETTS, CHAIRMAN

WILLIAM T. AUTHIN, LOUISIANA
 J. BOLCHER, VIRGINIA
 THOMAS J. MARTIN, NEW YORK
 RICHARD M. LEHMAN, CALIFORNIA
 LYNN SCHENK, CALIFORNIA
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 PENNSYLVANIA
 MIKE SYNAR, OKLAHOMA
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 BILL RICHARDSON, NEW MEXICO
 JIM BLATTERY, KANSAS
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 JIM COOPER, TENNESSEE
 JOHN D. DINGELL, MICHIGAN
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JACK PHELPS, TEXAS
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 JOE BARTON, TEXAS
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 J. DENNIS HASTERT, ILLINOIS
 PAUL E. GILLMOY, OHIO
 CARLOS J. MOORHEAD,
 CALIFORNIA (EX OFFICIO)

U.S. House of Representatives**Committee on Energy and Commerce****SUBCOMMITTEE ON TELECOMMUNICATIONS AND FINANCE****Washington, DC 20515-6119**DAVID H. MOULTON
CHIEF COUNSEL AND STAFF DIRECTOR

March 3, 1994

Mr. Richard F. Pittenger
 Associate Director for Marine Operations
 Woods Hole Oceanographic Institute
 Woods Hole, MA 02543

Dear Mr. Pittenger:

Thank you for writing regarding the requirements mandated by the Communications Act of 1934 on automated ship and safety distress systems. As Chairman of the Subcommittee on Telecommunications and Finance, I welcome the opportunity to update you in this area.

I agree with the concerns you outlined in your letter regarding certain requirements placed on large ocean-going vessels rendered by the Communications Act of 1934 which have since become outdated with the implementation of the Global Maritime Distress and Safety System (GMDSS) in the Maritime Service Rules.

You will be pleased to know that H.R. 3636, the "National Communications Competition and Information Infrastructure Act of 1994," was approved by my Subcommittee on Tuesday, March 1, 1994. Included in the final package was an amendment, which I supported that states any ship in accordance with the Global Maritime Distress and Safety System provision of the Safety of Life at Sea (SOLAS) Convention shall not be required to be equipped with a radio station operated by one or more radio officers.

As you are aware, the communications industry is a dynamic one which requires Congress to revisit the regulations from time to time; therefore, I very much appreciate your bringing this matter to my attention. If I can be of further assistance to you in the future, please do not hesitate to contact me.

Sincerely

Ed Markey
 Edward J. Markey
 Chairman

ERNEST F. HOLLINGS, SOUTH CAROLINA, CHAIRMAN
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 WENDELL H. FORD, KENTUCKY
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 LARRY PRESSLER, SOUTH DAKOTA
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 JOHN MCGRAW, ARIZONA
 CONRAD BURRIS, MONTANA
 BLAKE GORTON, WASHINGTON
 TRENT LOTT, MISSISSIPPI
 KAY BAILEY HUTCHISON, TEXAS
 KEVIN O. CURTIN, CHIEF COUNSEL AND STAFF DIRECTOR
 JONATHAN CHAMBERS, REPUBLICAN STAFF DIRECTOR

United States Senate

COMMITTEE ON COMMERCE, SCIENCE,
AND TRANSPORTATION

WASHINGTON, DC 20510-8125

February 25, 1994

Mr. Ernest Corrado
 American Institute of Merchant Shipping
 1000 16th Street, N.W.
 Suite 511
 Washington, D.C. 20036-5705

Dear Mr. Corrado:

As Chairman of the Communications Subcommittee, I am well aware of the competitive benefits that new communications technologies offer the U.S. flagged commercial fleet. Unfortunately, many vessels have not been able to take full advantage of these new technologies and still maintain certain radio equipment which the U.S. Coast Guard no longer monitors.

At the same time, however, I am concerned how the members of the American Radio Association will be affected as our ships transition to these new technologies. I believe it is important that personnel are adequately trained to administer these new technologies in the event of an equipment failure at sea.

It is with these concerns that I introduced S. 785 and S. 786 in the hope that the issue would be resolved through negotiation. I have been informed that negotiations proceeded in good faith since July. I am disappointed to learn, however, that this matter remains unresolved. Therefore, I once again appeal to you to negotiate this issue amongst yourselves. I further request that you accept my deadline of May 1, 1994 as a target date for resolution of the matter. If you are unable to reach an agreement by this date, I intend to move forward with legislation that, in all likelihood, will not be fully embraced by all parties.

In closing, I wish to reemphasize that I believe a negotiated settlement would be to the benefit of both parties. If you have any questions, please contact either Kevin Joseph of the Communications Subcommittee, or Margaret Cumiskey of my personal staff.

Sincerely,

 DANIEL K. INOUYE
 CHAIRMAN

Fax #	503-525-1511
Phone #	
CO.	101M



February 22, 1994

Via Fax: 202/225-1716

Honorable Edward J. Markey
United States House of Representatives
Washington D. C. 20515-2107

Dear Mr. Markey:

I am writing to request an appointment with you to discuss a matter expected to come before your Subcommittee on Telecommunications and Finance shortly which is of great interest and importance to Woods Hole Oceanographic Institution.

The Federal Communications Commission has ordered implementation of the Global Maritime Distress and Safety System (GMDSS) in the Maritime Service Rules. By this action, the Commission adopts the requirements of the international Safety of Life at Sea (SOLAS) Convention for large ocean-going U. S. vessels. The new rules render obsolete certain requirements of the Communications Act of 1934 which H. R. 3636, the National Communications, Competition and Information Infrastructure Act of 1993, seeks to resolve by changing the 1934 Act. We would support the draft amendment to HR 3636 language that is attached. It is my understanding that H.R. 3636 is under the jurisdiction of your subcommittee.

As you know, Woods Hole Oceanographic Institution operates a number of research vessels which are governed by applicable U. S. law. The communications Act of 1934 requires that our ships (and all other large ocean-going scientific research ships) carry a radio operator even though our communications equipment is in compliance with and often exceeds the requirements of GMDSS. Because the funding for the operations of our ships is primarily supported by the National Science Foundation and the Office of Naval Research, the cost of unnecessary radio operators is paid for out of funds provided by the Congress for research.

I would like an opportunity to meet with you to outline the nature and extent of this problem and petition you for relief of this burden on our nation's scientific research budget. Norm Mosher (202/546-2339) is the Washington representative of Woods Hole Oceanographic Institution. I have asked him to contact your staff to arrange an appointment at your convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "R. F. Pittenger".

Richard F. Pittenger
Associate Director for
Marine Operations

RFP:reg

Attachment

cc: Norm Mosher
Joe Cox

February 14, 1994

DRAFT AMENDMENT TO H.R. 3636

On page ___, line ___, insert the following:

"Title II of the Communications Act of 1934 (47 U.S.C. 201 et seq.) is amended by inserting at the end thereof the following new section:

'Sec. ___. Notwithstanding any other provision of this Act, a ship documented under the laws of the United States operating in accordance with the Global Maritime Distress and Safety System provisions of the Safety of Life at Sea Convention shall not be required to be equipped with a radio station operated by one or more radio officers or operators.'."

Committee on Commerce, Science, and Transportation

SD-508 Dirksen Senate Office Building, Washington, DC 20510-6125 (202) 224-5111

Jurisdiction: (1) Coast Guard; (2) Coastal zone management; (3) Communications; (4) Highway safety; (5) Inland waterways, except construction; (6) Interstate commerce; (7) Marine and ocean navigation, safety, and transportation, including navigational aspects of deepwater ports; (8) Marine fisheries; (9) Merchant marine and navigation; (10) Nonmilitary aeronautical and space sciences; (11) Oceans, weather, and atmospheric activities; (12) Panama Canal and interoceanic canals generally, except as provided in subparagraph (c); (13) Regulation of consumer products and services, including testing related to toxic substances, other than pesticides, and except for credit, financial services, and housing; (14) Regulation of interstate common carriers, including railroads, buses, trucks, vessels, pipelines, and civil aviation; (15) Science, engineering, and technology research and development and policy; (16) Sports; (17) Standards and measurement; (18) Transportation; (19) Transportation and commerce aspects of Outer Continental Shelf lands.

Ratio: 11/9.

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Sam W. [unclear] SH-428	224-9350
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Subcommittees of the Commerce, Science, and Transportation Committee

- Notes:** 1. The Chairman and Ranking Minority Member are *ex officio* members of all subcommittees of which they are not regular members.
 2. Subcommittee jurisdictions are designated by title.
 3. Subcommittee mail should be directed to the full committee: SD-508 Dirksen Senate Office Bldg., Washington, DC 20510-6125.

AVIATION

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CONSUMER

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(continued on next page)

ENERGY AND POWER
331 Ford House Office Building
Washington, DC 20515

(202) 226-2500

Jurisdiction: (1) National energy policy generally; (2) Fossil energy and renewable energy resources, synthetic fuels and energy conservation; (3) Energy regulation, commercialization and utilization; (4) Utility issues and regulation of nuclear facilities; (5) All laws, programs, and government activities affecting such matters and nuclear energy.

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Jessica H. Laverty 2322 RHOB 225-3641
Catherine Van Way 564 FHOB 226-3400

TELECOMMUNICATIONS AND FINANCE

316 Ford House Office Building
Washington, DC 20515

(202) 226-2424

FAX # (202) 226-2447

Jurisdiction: (1) Interstate and foreign telecommunications including, but not limited to, all telecommunication and information transmission by broadcast, radio, wire, microwave, satellite, or other mode; (2) Securities and finance.

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Mark Horan
Kristan Van Hook
Legislative Assistants Karen Colannino
Dolores Daly
Winifred Loeffler
Administrative Assistant Sara W. Morris
Hearings Coordinator Steven V. Popeo
Staff Assistant Gayatri Bhalla

Minority
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Stephen A. Blumenthal 564 FHOB 226-3400
Michael Regan 564 FHOB 226-3400
Catherine Reid 564 FHOB 226-3400
Peter D. Rich 564 FHOB 226-3400

(continued on next page)

APPENDIX IX

**Memorandum of Understanding
Between the
Department of Defense
and the
National Science Foundation**

**ACCESS TO AND USE OF THE GLOBAL POSITIONING SYSTEM
PRECISE POSITIONING SERVICE**

1.0 PURPOSE

This Memorandum of Understanding (MOU) establishes policies and procedures whereby the National Science Foundation (NSF) is provided access to and use of the Precise Positioning Service (PPS) of the Navstar Global Positioning System (GPS).

2.0 SCOPE

The understandings between the Department of Defense (DOD) and NSF regarding NSF's access to the GPS PPS are contained in this MOU and its annexes. Specific approved applications and any special terms and conditions associated with NSF's use of the GPS PPS are contained in the annexes to this MOU. The annexes are separately concluded, but become part of this MOU on signature by the specifically designated representatives of DOD and NSF.

3.0 BACKGROUND

The satellite-based GPS, which is developed and operated by the DOD, provides two levels of positioning accuracy, a PPS and a Standard Positioning Service (SPS). The PPS is the more accurate level of service. Access to the higher accuracy PPS signals are controlled through the use of cryptographic techniques.

The current DOD policy states that access to and use of the PPS will be limited to U.S. and allied military forces. Additional access may be provided to other government and selected private sector users once appropriate security requirements and other selection criteria are met.

This Agreement specifies the terms and conditions under which NSF, as an authorized user, may obtain access to the GPS PPS.

4.0 APPLICABLE DOCUMENTS

The following documents are applicable to the policies and procedures outlined in this MOU:

- a. *Industrial Security Manual for Safeguarding Classified Information, DOD 5520.22M, current edition*
- b. *Space and Missile Systems Center Navstar GPS Security Classification Guide, current edition*
- c. *National Telecommunications and Information Systems Security Instruction, Number 3006, 28 June 1988*
- d. *DoD Implementation Guide to the Operational Security Doctrine for the Navstar Global Positioning System (GPS) User Segment, August 7, 1989*

- c. *Rules for Obtaining NAVSTAR Global Positioning System Security Devices*, March 12, 1993

5.0 JOINT RESPONSIBILITIES

The DOD and NSF agree to designate a single focal point within their respective agencies for all GPS-related matters and to apprise one another of any changes in the designated focal point. The designated DOD focal point is the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD (C3I)). The designated NSF focal point is the Assistant Director for Geosciences.

6.0 DEPARTMENT OF DEFENSE RESPONSIBILITIES

In order to fulfill its responsibilities under this MOU, the DOD will:

- a. Fund for, establish, operate, and maintain a constellation of GPS satellites and associated ground control network.
- b. Subject to the conditions of Paragraph 7.0, designate NSF as an authorized user of the GPS PPS with assured access for certain approved applications. Specific NSF applications and associated special terms and conditions will be specified in the annexes to this MOU.
- c. Notify NSF of any changes in GPS PPS operations that may impact NSF's use of the PPS.
- d. Establish security and other requirements that NSF must comply with in order to use the GPS PPS.
- e. Establish procedures and mechanisms whereby the necessary cryptographic material will be made available in order to access the PPS.
- f. If requested, assist NSF in obtaining PPS user equipment in sufficient quantities to support authorized uses listed in the annexes.

7.0 NSF RESPONSIBILITIES

In order to fulfill its responsibilities under this MOU and qualify as an authorized GPS PPS user, NSF will:

- a. Become cognizant of and comply with DOD GPS PPS-related security requirements and provisions.
- b. Require each prospective institution that the NSF supports to certify that they understand and will comply with appropriate security requirements prior to NSF approval of the projects listed in the annexes to this MOU and during the annual review of this MOU and annexes.
- c. Fund for and obtain PPS capable user equipment in sufficient quantities to support authorized users.
- d. Limit PPS applications to authorized NSF users as identified in the Annexes.

e. The PPS shall not be used by NSF unless approved by means of a signed annex to this Agreement. The NSF point of contact shall notify the Director, Theater and Tactical C3 Systems, of any proposed change to the intended use of the PPS identified in the annexes.

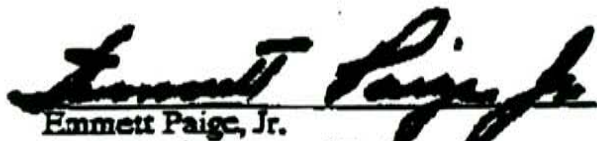
8.0 DELEGATION AUTHORITY

The Director, Theater and Tactical C3 Systems is delegated authority to sign annexes to this Agreement on behalf of the DOD. Authority to sign annexes on behalf of the NSF is delegated to the Directors, Divisions of Atmospheric, Earth, and Ocean Sciences; and the Director, Office of Polar Programs.

9.0 AMENDMENT AND TERMINATION

This MOU will be reviewed annually by DOD and NSF to determine the need for modifications or amendments. The Agreement may be amended by mutual agreement or terminated by either party. Either party shall provide a minimum of 90 days advance notice to the other party of the effective date of such termination.

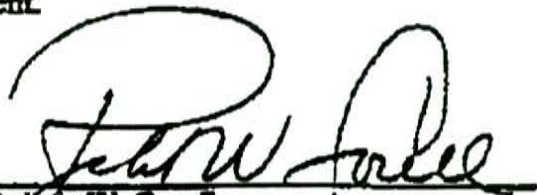
This Agreement is effective from the date of signature of both parties and will terminate on December 31, 2000 unless extended by mutual agreement.



Emmett Paige, Jr.
Assistant Secretary of Defense for
Command, Control, Communications,
and Intelligence
Department of Defense

December 22, 1993

Date



Robert W. Corell
Assistant Director for Geosciences
National Science Foundation

Jan 3, 1994

Date



February 24, 1994

map
f
file

Ms. Kimberly B. Pelch
National Security Agency
ATTN: Y131
9800 Savage Rd.
Fort George G. Meade, MD 20755-6000

Dear Ms. Pelch:

Effective 08 June 1990 account 871 503 was established for WHOI as an unclassified STU-III Only COMSEC Account (SOCA). At that time we were advised that "if in the future you require COMSEC material other than or in addition to the STU-III terminal and seed key, a request to convert your SOCA to a traditional COMSEC account must be submitted in writing". This letter requests SOCA 871 503 be converted to a traditional account.

The attached Memorandum of Understanding Between the Department of Defense and the National Science Foundation provides that WHOI has been approved for use of Global Positioning System (GPS) Precise Positioning Service (PPS) on its oceanographic research vessels effective 14 February 1994. In accordance with this MOU, WHOI shall require access to CONFIDENTIAL crypto keying material for the GPS receiver security modules. We do not anticipate storing keying material onboard any vessel at this time however, and will hold such material within a Class B vault approved by the Defense Investigative Service for SECRET storage. When rekeying is required, material will be transported by cleared WHOI personnel from secure storage to the onboard equipment.

It is our understanding that establishment of the traditional COMSEC account by NSA must occur before we may submit our purchase order to any vendor of GPS PPS equipment. Since we had anticipated installing this new hardware while the vessels are in port this spring, we will appreciate your response by 15 March if possible. Please call me with any questions.

Thank you for your assistance.

Sincerely,

Jane A. Caruso
Security Officer

**Memorandum of Understanding
Between the
Department of Defense
and the
National Science Foundation**

**ACCESS TO AND USE OF THE GLOBAL POSITIONING SYSTEM (GPS)
PRECISE POSITIONING SERVICE (PPS)**

ANNEX 1: OCEANOGRAPHIC RESEARCH

1. OBJECTIVE

The objective of this annex is to approve the use of GPS PPS by the Woods Hole Oceanographic Institution, the Scripps Institute of Oceanography, and the University of Washington for oceanographic research, supported by the National Science Foundation (NSF).

2. APPROVAL

The institutions identified in paragraph 1 conduct oceanographic research on a worldwide basis using several research vessels. Those vessels transporting keying material must be approved for storage of CONFIDENTIAL crypto material. Research vessels requiring access to PPS must be equipped with GPS receivers containing security modules. These receivers are unclassified when keyed; consequently, only those crewmembers handling the keying material require a security clearance.


3. AMENDMENT AND TERMINATION

This Annex will be reviewed annually by DOD and NSF to determine the need for modifications or amendments. The Annex may be amended by mutual agreement of DOD and NSF or terminated by either party. A minimum of 90 days advance notice to the other party of the proposed date of such termination will be provided.


This Annex will terminate on December 31, 2000 unless extended by mutual agreement.

4. EFFECTIVE DATE

This Annex is effective when signed by both parties.


Richard G. Howe
Director, Theater and Tactical
Command, Control, and Communications
Department of Defense

Date 2/8/94


Grant Gross
Director, Division of Ocean Sciences
National Science Foundation

Date 14 Feb 94



COMMAND, CONTROL,
COMMUNICATIONS
AND INTELLIGENCE

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, DC 20301-3040

Usher
Henri
t-D-

FEB 08 1994

Mr. Grant Gross
Director
Division of Ocean Sciences
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

Dear Mr. Gross:

I have signed and am forwarding two amended copies of Annex 1 to the Memorandum of Understanding between the Department of Defense and the National Science Foundation covering use of the Precise Positioning Service (PPS) of the Navstar Global Positioning System (GPS). Annex 1 authorizes the NSF access to GPS PPS to support oceanographic research. This version of Annex 1 has been revised to include your oceanographic activities at the University of Washington.

Please sign both copies of the Annex and return one to my office. If you have any questions, please contact me or my action officer, Mr. Jules McNeff, at (703) 695-6123.

Sincerely,

Richard G. Howe
Director, Theater & Tactical C3

Enclosures

**Memorandum of Understanding
Between the
Department of Defense
and the
National Science Foundation**

**ACCESS TO AND USE OF THE GLOBAL POSITIONING SYSTEM (GPS)
PRECISE POSITIONING SERVICE (PPS)**

ANNEX 1: OCEANOGRAPHIC RESEARCH

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This Annex will terminate on December 31, 2000 unless extended by mutual agreement.


4. EFFECTIVE DATE

This Annex is effective when signed by both parties.


Richard G. Howe
Director, Theater and Tactical
Command, Control, and Communications
Department of Defense

Date

2/8/94


Grant Gross
Director, Division of Ocean Sciences
National Science Foundation

Date

14 Feb 94

March 7, 1994

DRAFT

Major Michael A. Cox
Attention: CZUY
Department of the Air Force
Headquarters Space Systems Division (AFSC)
Los Angeles Air Force Base
P. O. Box 92950
Los Angeles, CA 90009

Dear Major Cox:

1. The Woods Hole Oceanographic Institution (WHOI) requests authorization from the GPS Program Office to procure two each TANS P(Y) sensors from Trimble Navigation. These receivers require two each PPS Security Modules P/N STEL-9300/EC and two each "Gondola" AOC P/N 20248.
2. The Trimble Navigation contract numbers are WHOI PO#'s 37366 and 37367. Once delivered, the receivers will be controlled under COMSEC account #-----, located at Woods Hole Oceanographic Institution, Woods Hole, Massachusetts.
3. The Woods Hole Oceanographic Institution will use these GPS receivers for conducting oceanographic research on a worldwide basis using several research vessels in accordance with the Department of Defense and the National Science Foundation Memorandum of Agreement (see attached).
4. The sponsor of the program is the National Science Foundation and the point of contact for the program is Mr. Joseph Coburn, Marine Operations Manager at the Woods Hole Oceanographic Institution.
5. Should you have further questions, contact Mr. Coburn at (508) 457-2000 ext. 2624.

Sincerely,

Richard F. Pittenger
Associate Director for
Marine Operations

RFP:reg

Attachments

cc: E. Dieter, NSF
K. Kaulum, ONR
J. Coburn

APPENDIX X

COASTAL OCEANOGRAPHY REPORT

FEBRUARY 1994

The facilities currently available to coastal oceanographers in the U.S. are not adequate to meet the challenges of cutting edge research and or to address critical problems of pollution and fishing.

OBSERVATIONS

Synoptic

Time Series

Interdisciplinary

These topics are tied together by models of coastal ocean phenomena and processes

COASTAL OCEANOGRAPHY REPORT

CROSS CUTTING REQUIREMENTS:

Regional organization and management of day boats and small expeditionary vessels.

Recognize regional differences for coastal facilities

Gulf of Maine and Great Lakes.

Middle Atlantic Bight

South Atlantic Bight and Gulf Coast

West Coast and Hawaii

Alaska

Increased cooperation and coordination between agencies and institutions.

High rate data transfer (INTERNET SeaNet)

Distributed, user friendly databanks

Funding for data management

COASTAL OCEANOGRAPHY REPORT

SYNOPTIC OBSERVATIONS:

Satellite data

Rapid data handling and dissemination

Coordination of satellite data acquisition and access

Declassification

Aircraft

Low and slow

Blimps

Ships:

Long time constant phenomena

Ocean truth and calibration

Interactive field programs

COASTAL OCEANOGRAPHY REPORT

TIME SERIES OBSERVATIONS:

Moorings

Realtime telemetry of data

Actions to minimizing losses

Capable ships for deployment and recovery

Fast response ships for event measurements & sampling

Seafloor observatories

Optical cables ashore.

Stationary platforms and spar buoys

Flip replacement or refit

Jack-up rigs

Drifters

COASTAL OCEANOGRAPHY REPORT

INTERDISCIPLINARY OBSERVATIONS:

Larger ships

Large science parties

Multiple wire operations

Handling large and heavy gear

New shallow draft high capability coastal research ship

Use of large UNOLS ships