Research Vessels Operator's Committee
Summary Report
of the
1997 Annual Meeting

Woods Hole Oceanographic Institution
Woods Hole, MA
21-23 October 1997
Sessions held at the Quissett Campus

Minutes of the 1997 Meeting

Contents:

Appendices

Minutes of the 1997 Annual RVOC Meeting
Woods Hole Oceanographic Institution
Woods Hole, MA

Clark Laboratory, 507
Tuesday, 21 October 1997

The meeting was called to order by RVOC Chair, Paul Ljunggren, Marine Superintendent of Lamont Doherty Earth Observatory.

WELCOMING REMARKS

Joe Coburn, Marine Superintendent, Woods Hole Oceanographic Institute (WHOI) welcomed the RVOC to Woods Hole and introduced Richard F. Pittenger, Associate Director for Marine Operations, WHOI. Mr.

Pittenger, extended a greeting to the attendees and introduced Dr. Robert B. Gaugosian, Director WHOI.

Dr. Gaugosian gave a brief overview of science and technology in the last 2 decades and presented mechanisms for maintaining a healthy environment for marine sciences in the future. As major ocean going programs enter data synthesis modes the need for ship time has diminished. But, a change in the national focus on the world oceans, if captured, will lead to renewed interests in going to sea on UNOLS vessels. New technology for studying the ocean environments, including advanced robotics, a shift from defense related national security to educational national security, and new paradigms for cooperation between federal agencies will play a part in guaranteeing the future for UNOLS.

AGENDA

The meeting followed the agenda outlined in ***Appendix I***. Registered attendees are listed in ***Appendix II***.

OLD BUSINESS

Minutes of the 1996 Meeting - A motion was made, seconded and passed to accept the minutes of the 1996 meeting.

Post Cruise Evaluations - Jack Bash reported that the post cruise evaluation form is on the UNOLS and MLML Marine Operations home page, but the form is not being used by the community. The UNOLS Council would like to use the electronic form as a bank of information for identification of trends in the fleet. The most important result of the Post Cruise Evaluations is the feed back provided to the operator.

The majority of the evaluations that are received by the UNOLS office are in the old format. It was decided that all concerned should make a greater effort to acquaint the users with the electronic form and encourage scientists to submit post cruise evaluations through e-mail or paper forms.

Van Study - A Fleet Improvement Committee (FIC) initiative to provide standardization and guidance for the construction of vans led to a study of van designs in use in the fleet. RVOC reviewed the study returned it to FIC and the draft included as ***Appendix III*** incorporates these comments. The study as presented does not however, provide many specifics for the design and construction of vans. The Safety Committee was given the responsibility for formulating standards for inclusion in the Research Vessel Safety Standards (RVSS).

Medical Standards and Job Descriptions - The Medical Standards group met to continue formulating medical standards and physical capabilities for marine employees. The group will meet for further discussions and development of these standards.

Primer for Small Research Vessels - Dave Powell, group leader, reported that at least 50% of the input from the authors of the report has been received. All of the contributors have been identified. All but one area of the U.S. have submitted data for the Inventory of Small Research Vessels. Some of the inventory reports need updating.

Safety Video - The Safety Committee has met twice with Jamestown Marine and progress is being made on preparation of a script. Filming will begin in the spring of 1998

Size Limit on UNOLS Vessels - The UNOLS Committee to evaluate admission requirements to the UNOLS fleet reported at the last UNOLS meeting that after lengthy consideration of the issue, they recommend no changes. A new committee has been formed to bring the UNOLS charter up to date

New Contract for UNOLS Fleet Inspections - This issue was discussed later in the meeting

NEW BUSINESS

No new business was presented for discussion.

COMMITTEE AND LIAISON REPORTS

UNOLS - Jack Bash reported for UNOLS. An MOA with NOAA has been signed. This agreement will bring the R/V RON BROWN into the UNOLS scheduling process adding another option for scientist in the UNOLS community. Discussions have begun with NOAA fisheries group with the hope of establishing similar arrangements with NOAA fisheries vessels.

The ad hoc Scheduling Committee chaired by Rick Jahnke looked into the scheduling problems in the UNOLS fleet. The scheduling problems experienced last year should be corrected to some degree by the use of the electronic scheduling form, now available on the UNOLS Home Page. One advantage of this form is that it is automatically forwarded to the operator. Neil Bogue at the University of Washington is working on a mechanism to automatically post the form on the Web along with a world chart showing the region in which the cruise is planned. This will allow for future collaboration between scientists. An electronic scheduling form is also being developed. This form will generate an electronic cruise track for each cruise. Transit codes will also be available to inform scientists of the availability of vessels for educational programs and unsponsored research activities. A file drawer will accompany each request and this drawer will be available to which ever operator schedules the cruise. This will be a 2 part form; the first part will be filled out when the scientist submits the proposal and the second part will be completed if the proposal is funded.

Safety Committee - Tom Smith reported on the progress of the safety film video under contract to Jamestown Marine Inc. The committee has met 2 times to discuss the development of this project. It was decided the film would follow the same format as Chapter 1 of the RVOC Safety Training Manual. The film will be approximately 15 minutes long. The script outline has been reviewed by the Committee and recommendations have been forwarded to Jamestown. A July 1, 1998 target date has been established for the release of the film. Operators with film of their vessel that they feel may be of use to the producers are encourage to submit their footage.

The Research Vessel Safety Standards (RVSS) are due for revision in January 1999. Safety Committee members have been assigned chapters from the Standards for review and comments are due after 1 January 1998. These revisions will be distributed to the RVOC membership for review and comment the beginning of February. They will be submitted to the UNOLS Council in August.

The RVOC Safety Training Manual will be revised to incorporate STCW regulations, after the completion of the RVSS revisions. The Manual will then be submitted to the U.S. Coast Guard for their review and approval as the official STCW Training Manual for all UNOLS vessels.

Research Vessel Technical Enhancement Committee (RVTEC) - Tim Askew reported on the RVTEC meeting held at Harbor Branch in November 1996. Topics of discussion were communications including AMSAT and Ocean Net, AUV's, and a Conducting Cable workshop. Topics covered by the workshop included fleet angles, snap loading, cable lubrication, spooling under tension, Lebus shells, and Kevlar cable and terminations. A follow up to the cable workshop is being considered by RVTEC.

The Data Base Subcommittee was renamed the On Line Resources Subcommittee; the Data Interchange Subcommittee was renamed the Data Standards and Exchange Subcommittee; and a new subcommittee, Wire and Cable Specifications Review Subcommittee was appointed. The possibility of updating the existing Handbook of Oceanographic Cable was presented. It was suggested that this update wait until fiberoptic technologies are developed more fully. Tim Askew recommended that Phil Gibson conduct a cable workshop at the next RVOC meeting. The topic was deferred to the Marine Superintendents Roundtable session.

The 1997 RVTEC meeting is in Seattle, Washington. Marine Corrosion is the major topic of discussion and a tour of the SeaBird facility is planned.

Fleet Improvement Committee (FIC) - Joe Coburn indicated that FIC was rather inactive in 1997, ***Appendix IV***. A new chairman, Larry Atkinson, was appointed and a meeting is scheduled for later this month. An agenda, as distributed to the membership, includes defining long term goals of FIC and a review of the Glosten Report. FIC did play a role in the definition of the science requirements for AGOR 26.

The ability of UNOLS to participate in NOAA's fisheries mission will be addressed by FIC. It was

recommended that UNOLS/RVOC make an effort to identify how the fisheries mission might be met by our vessels.

Arctic Icebreaker Coordinating Committee (AICC) - Joe Coburn reported that in the first part of the year the committee focused on the science outfit, arrangement and details of the HEALY, ***Appendix V***. Major improvements were made by the Coast Guard in response to the suggestion made by AICC. The committee may have some input to how the HEALY operates in the future.

The second part of the year AICC acted as a screening and advisory agent to the Coast Guard for ship of opportunity cruises on the existing polar class icebreakers. AICC reviewed proposals and commented on whether the science was suitable to polar class icebreakers.

The second major effort of AICC has been to coordinate science requests for Ship of Opportunity requests on the currently operating Polar Class Icebreakers. The process has been formalized somewhat and the possible criticism of "cronyism" eliminated.

The Coast Guard has asked AICC to help establish requirements for testing science systems on the HEALY. The RVTEC will work closely with the Coast Guard in the preparation of these activity and it was recommended that the science community participate as much as possible in this endeavor.

AGENCY REPORTS

National Science Foundation (NSF) - Dolly Dieter reported that the budget for next year has not been finalized, but it is certain that the ship operations funding will be less in 98 than in the previous year. An increase in ship capacity in the UNOLS fleet will create greater demand for funds available through NSF. Funds from other sources must be secured if the larger fleet is to be maintained. The lack of large programs which support the need for ship time within NSF will have a major impact on the fleet in 1998 at least. Three ships, ENDEAVOR, EWING, and MELVILLE will be in full or partial lay up in 1998.

New Grant Proposal Guides and Proposal Form Kits are out and available through NSF. The NSF will move toward electronic submission of proposals including Ship Operation proposals. The proposal guidelines for the Facilities Section will be upgraded in the near future. Input will be requested from RVOC as a part of the upgrade process.

Office of Naval Research (ONR) - A representative from ONR was not present.

Naval Oceanographic Office (NAVOCEANO) - CDR Jim Trees represented NAVO. This year (1997) represents the first year of the cooperative effort between NAVO and UNOLS and all has gone very well. Funds ($7.5 million) for next year's programs are expected to be in place in time for cruises to proceed as planned. Plans for out years are being formulated. Some work originally scheduled for 1999 is now planned to be completed in 1998. The Navy is anxious to continue this program because frees up their assets and it allows them to train in areas where they plan to deploy.

National Oceanographic and Atmospheric Administration (NOAA) - Cdr. Elizabeth White reported that 327 NOAA operating days are planned for charter in 1998. OAR is supporting some COOP programs, EcoHab and GLOBEC in 1998. Even though COOP is now in the National Ocean Service, OAR will continue to support some of this program.

RON BROWN's first cruise was in the equatorial Pacific and is now working on a VENTS project. On completion of the project the RON BROWN will call in Newport, Oregon. The vessel will be in post shipyard availability next spring.

The BROWN will be participating in the opening day of the Year of the Ocean in Lisbon, Portugal on May 21-22 1998. Any one wishing to help or put a display on the BROWN is welcome to contact NOAA and make arrangements.

In 1998 the BROWN will accommodate the following programs; ACCE (theWOCE Long Line cruise), OACES (Ocean Carbon Exchange Study), a Post Shipyard Availability, VENTS, PACS, and one servicing

of the TAO moorings.

The KA'IMIMOANA which services the TAO array is undergoing an A-76 study and there will be an actual solicitation/statement of work issued on November 3. The government will be do its own in-house cost estimate at the same time the bids are coming in. A source selection panel will review the bids for technical merit and best value and choose a vendor. That vendor's bid will then be compared with the government's estimate. Within a 10% margin, if the contractor is cheaper, the ship will be converted to contractor operation in August 1998.

LUNCH

AGENCY REPORTS - Continued

U.S. Coast Guard - LCDR Steve Wheeler reported on Coast Guard activities.

The 1995 Stream Line Initiative provided for a 25% reduction in the budget and staffing over the next 4 years. A nine person office at headquarters devoted to ice operations, polar and domestic, has been reduced to a one man office. Since streamlining it has become difficult to determine who is the best point of contact so LCDR Wheeler offered his help in directing RVOC members to the proper source of information.

Operationally last year was a very good year for the Coast Guard. POLAR SEA went to Operation Deep Freeze the annual 6 month deployment to Antarctica. The POLAR STAR should have started the Reliability Improvement Project (RIP), but because of some difficulties the availability is deferred until this coming year. The RIP, is a series of short term availability's, will be completed in the year 2006.

The POLAR SEA is dry docked until 24 December for a routine shipyard period. Another short maintenance period is scheduled for early next year and next summer she will work with the Russian Federation on an oil spill exercise. The potential for drilling activities in the high Arctic require the need for oil spill training exercises in these regions.

The POLAR STAR will sail for Antarctica in October 1997 and will return in April 1998. In July she will be in Barrow working for ONR and SAIC.

The AICC has helped this year by putting scientists on board the icebreakers during ice trials which typically follow most availability's.

The HEALY went in the water on 15 November and expected delivery is scheduled for February 1999. The ice trials and acceptance trials will be in the spring of 1999 and the vessel will not be on the schedule until 2000.

U.S. State Department - Tom Cocke reported on the activities within the State Department. Problems still exist with clearances from Mexico; Russian clearances are also difficult to obtain. The Russian government has informed the State Department that clearances will proceed faster with a 12-18 month lead time. There have been no Russian clearances issued.

The UNOLS Council is working to reduce some of the late requests.

The recent problems associated with NOAA vessel off Mexico were discussed. The Mexican Navy boarded the JORDAN and attempted to board the OREGON. Both of these vessels are public vessels and had permission from the Mexican Government to be in their territorial waters. The problem may have come from the fact that the operational Mexican Navy is not kept informed of activities at headquarters. If the U.S. signs the Law of the Sea Convention situations like this may become less common.

Consortium for Oceanographic Research and Education (CORE) - Capt. Dan Schwartz discussed the impact of the U.S. not signing the Law of the Sea Treaty. CORE is working to correct the delays with clearance requests and the problems resulting from down sizing at the State Department.

A survey of individuals in the science community was undertaken by CORE to determine the perceived

impact of the U.S. not ratifying the Law of the Sea and how this might impact foreign clearances. A white paper on the survey is being prepared. The preliminary report showed that there were a few instances of foreign officials sighting their reason for delaying clearances being that the USA had not ratified the Law of the Sea Treaty. Some foreign scientists also indicated that this could have been a reason for clearances moving slowly through their systems.

Capt. Schwartz provided an overview of the National Oceanographic Partnership Program (NOPP) ***Appendix VI***. The money for NOPP was provided through the DOD authorization bill and resides in the Department of Navy. The first announcement went out in 1997 and 250 pre-proposals and 50 full proposals were received. Total awards for 1997 were $15 M. The new Broad Agency Announcement (BAA) for 1998 will be out in October 1997.

The $7.5 M in the budget for use of the UNOLS fleet in 1998 is a plus up and will not come from other sources within the Navy.

Money for 1998 operations will again reside with the Navy and will have the same fundamental components as last year. A total of $24.5 M is available in 1998, and $7.5 M for UNOLS activities. There will also be some linkage to the Year of the Ocean in 1998.

In the future, the moneys for NOPP will be in agencies other than the Navy. NSF and NOAA are already preparing their budgets with support for NOPP.

Ship Inspection Program

NSF Ship Inspection Program - Bruce Banks of Jamestown Marine provided an overview of the NSF Ship Inspection program. The Jamestown office, which has nine people in it, was started to update the Navy salvage technical documentation.

The inspection program follows the RVOC Safety Standards which are based on Subchapter U. The philosophy of the inspection program is to facilitate the safety standards. The inspection program reports are divided into sections like subchapter U. Dick West indicated that seven vessels were inspected in 1997 and the schedule has not been set for 1998.

Special Reports

SACLANT Undersea Research Center - Chris Gobey reported on the activities of their research vessel, the ALLIANCE, which is a public vessel that they have begun chartering. The ALLIANCE will log 250 days at sea in 1997. NATO now requires that 35% of their program be funded through commercial charter. Chris went on to relate a refugee incident which the ALLIANCE had recently experienced while operating in the Adriatic Sea.

A report on composite propellers was given ***Appendix VII***.

National Environmental Research Council (NERC) - Ken Robertson represented NERC ***Appendix VIII***. The Research Vessel Services (RVS) was ISO 9002 certified on their first attempt and plans to be compliance with ISM standards in 1998.

The NERC set up a group to estimate the number of ships needed for future science demands. The committee determined that 5 ships would be needed. The science is in place to utilize these ships but the funding is not available to support ocean science.

An arrangement for the exchange of ship similar to the one between the US and the UK has been expanded to France and Germany. Sharing of significant marine equipment pools are also being considered in a fashion similar to the efforts with sharing ship time.

The International Marine Technician Workshop was held in Southampton last year and it is planned to be held in the U.S. next year.

The three ships in the RVS fleet are, like the SACLANT vessel, under heavy charter to commercial concerns, other UK government departments, and foreign contacts. These activities will fund the vessels for 60-65% of the year. Most of the ship's activities start in March. Their funding remains tight for the entire fleet.

Canadian Coast Guard - Dale Gibbs reported that the merger of the Canadian Coast Guard, Ocean and Fisheries fleet is still in force. All crews are now on a 28 day on and 28 day off schedule. Program funding and multi-tasking are new programs that are taking some getting used to. ISO-ISM compliance efforts are underway. Some difficulties are being experienced with ISM so they have backed off on this program.

Military Sealift Command (MSC) - The Special Mission Oceanographic Ship Section report ***Appendix IX*** was represented by Mr. Rusty Bishop. MSC recently moved from a matrix to a program management organization. The Secretary of the Navy has designated MSC as the type commander for all Navy-unique fleet support, special mission, afloat preposition, common user assets, as well as all other assets assigned to the Navy by other government agencies. The oceanographic fleet is the largest segment of this program.

Mr. Bishop elaborated on the command relationship at MSC. There is chain of command relationship between MSC and NAVOCEAN. A memorandum of agreement exists between CNMOC (and ultimately with Oceanographer of the Navy) and provides responsibilities and sets perdiem rates for basic ship operations. This MOA also designates NAVO as the technical controller of the ships.

The MSC ships are Navy ships, but they are operated to USCG and ABS standards instead of Navy standards. There are still Navy specific requirements in the area of communications, diplomatic relations, and NAVOSH which causes problem for the operation of these ships.

In 1986 the oceanographic ships went out for an A76 and they were lost to commercial operators. They are in the third iteration of operating contracts and they are now satisfied with the results. The commercial operators, Dyne Marine Services of Virginia, are ISO-ISM certified.

Great Lakes Research Vessel Workshop - Paul Ljunggren reported on the meeting held in March 1997 in Detroit ***Appendix X***. Operators from throughout the Great Lakes attended and presented information on the over 60 vessels operating in the Great Lakes. Approximately 80 people including program managers, operators and scientists attended the meeting. Some follow-up meetings have been held since this meeting.

Robert Nester of the Great Lakes Science Center, USGS in Ann Arbor, MI elaborated on the fleet of 5 vessels assigned to his organization one of which is scheduled for a major refit. Another new vessel in the 80-100' class range will be added to the fleet in the near future. The fleet operates from 5 research bases.

Research Vessel Updates:

Woods Hole Oceanographic Institute - Joe Coburn reported that the ATLANTIS came into service this year. Delivery was on 1 March, it arrived in WHOI on 17 April , went into service 1 June, did a series of dives on the mid- Atlantic Ridge and has been operating in the Pacific since then. The ship will be in San Diego at the beginning of 1998 and will be in post shake down availability for 3 months. The 1998 schedule is booked up for the ATLANTIS. The KNORR spent 3 month last winter in the N. Atlantic chasing severe storms and will be back in the N. Atlantic again this winter. OCEANUS operated out of WHOI this year. The mid-life renovation on both the OCEANUS and ENDEAVOR went well. WHOI also has preliminary designs for a 104' SWATH. Funds are not available to build the vessel.

Joe Coburn and Tom Althouse reported that both the KNORR and MELVILLE have each had failures in their Z drives and the THOMPSON has had 3 failures in their drive. The REVELLE, ATLANTIS, and BROWN have similar drives, but the Z-drives are larger and seem to be experiencing fewer problems. It appears that the oceanographic fleet is putting more hours on the gears than other services. There is no data available on the frequency of failures in these gears in service on non-oceanographic vessels. Efforts are on-going to determine the source of the problems and come up with solutions. A report on the studies will be published by the Navy.

Scripps Institute of Oceanography - Tom Althouse reported that the REVELLE was delivered in June

1996 and made a number of critical upgrades and improvements and started the first science cruise on 2 October. Tom outlined the activities over the last year including NAVO work and a cruise to 60û South. Warranty trials were performed during this period and the new Markey traction winch was tested and found to perform very well. A final contract trial was performed and reconfirmed all discrepancies.

On 6 June the shipyard portion of the PSA was started and they spent about $3M in the PSA. Similar activities will be carried out on the ATLANTIS and RON BROWN. On 4 August the ship started an 18 month expedition.

Even though Seabeam is not working well in the shallow mode they were able to map from 100m down to full depth in waters off Tanner and Cortez banks.

Skidaway Institute of Oceanography - Steve Carignan reported on their progress in acquiring a replacement for the BLUE FIN. The new vessel is 91' long, 27' wide and has an 8' draft. She is designed to do research up to 100 mile offshore and 100 miles north and south of Skidaway. The vessel can accommodate a 20' van, but will typically carry a 10' van. The vessel will also accommodate an expanding program for marine education at Skidaway. The new vessel will be named the SAVANNAH, sail with a crew of 4 men, and have an endurance of 10 days.

Plans have been sent to ABS for comment. Preliminary bids have been sent to 5-6 yards. Construction is planned to start in January or February 1998. After the vessel leaves the yard they plan to spend 3-4 month at the Institute doing finish work, installing electronics and cross decking gear. Total cost for construction of the vessel is $2.8M.

University of Connecticut - Robert DeGoursey provided information on progress with the replacement vessel for their 44 year old T boat. The vessel is funded through the State of Connecticut. Funds are available to complete the vessel which will be built at Washburn and Doughty in Booth Bay, Maine. Planned completion is July 1998.

The vessel is designed to work primarily in Long Island Sound and accommodate ROV systems with the 20' van that goes along with the system. Most work is on station so the vessel has shallow pump jet bow and stern thrusters which provide very good low speed fine handling characteristics. Deck sockets will provide for maximum reconfigurability of the deck equipment.

University of Miami - Dave Powell reported that funds for the construction of their new catamaran are not in place.

Insurance and Liability - Dennis Nixon, Risk Manager for the UNOLS fleet, reviewed maritime cases history, reviewed the status of the insurance project, and discussed ISM regulations and how they change the interaction between the vessel Captain and Marine Superintendent.

The case history review touched on a number of issues important to vessel operators. The question of who qualifies as seaman has been addressed again. There is no further clarification beyond the current definition, which identifies a seaman as an individual that serves the purpose of the vessel for at least 30% of their time. It is recommended that in situations where an employee's status is not clearly defined, that your risk management office provide overlapping coverage for the employee under Jones Act, Longshoremen and Harbor Worker's Act, and state workers compensation.

Case history has disallowed maintenance and cure for self inflicted conditions such as AIDS.

An opinion has been handed down in the first ADA case filed by a seaman. The court determined life activities must be substantially limited in order to qualify as a disability. In this case shortness of breath from asbestosis did not qualify as a disability.

In a case involving a MSC vessel it was charged that a violent ship roll caused the engineer to slip, fall and injure himself. It was charged that through negligent maneuvering the ship rolled and caused the accident. The courts found there was no negligence on the part of the ship's operator.

This was a good year for reductions in insurance premiums with increased competition in the insurance business pushing premiums down.

An overview of the UNOLS fleet insurance premium was presented. The overall increase in 1997 premium costs is the result of new large ships coming on line.

Richard Haverlin of Willis Faber North America, Inc., was introduced and gave a short description of the service they provide for the UNOLS fleet.

The International Safety Management (ISM) Code was discussed. The convention is designed to save lives and prevent pollution. Port states will insure compliance with ISM. In most foreign countries R/Vs are classed as passenger vessels and must comply with ISM regulations. ISM shifts responsibility from the captain to the shore side manager identified in the code as "the designated person". The convention requires that you develop safety management plans, test the plan routinely and document your testing procedures. All vessels over 500 gross registered tons must comply with ISM by the year 2002.

TOUR OF WHOI FACILITIES AND R/V OCEANUS

Evening Reception
Clark Laboratory
Rm 507

Wednesday, 22 October 1997
Clark Laboratory, 507

Monterey Bay Aquarium and Research Institute(MBARI)-SWATH Western Flyer-Update - Steve Etchemendy Director of Marine Operations, MBARI provided a very good update of structural problems on the WESTERN FLYER. In March 1997 the vessel was on the second long science mission sailing at 14 kts when 1/2" cracks were found in the 1/2 round area. Glosten Marine did a 2 dimensional single frame survey and discovered more. Tests were conducted to determine the wave pressures on the hull and a full Global Finite Analysis was performed. Significant stress points were indicated in the 1/2 round area. Some areas were found to be below the minimum standards that Lloyd's of London supply for structural elements.

The ABS has checked Glosten's work and agrees that the ship does not meet the minimum adequacy standards for sea state 5 and survive 7. Model testing is now being conducted to determine how to correct the problems. Model tests will show how fixes will affect the motion of the ship. Two possibilities are under consideration, the addition of arches or the addition of sponsons. Arches appear to degrade the SWATH characteristics of the vessel, but they provide improved heavy weather performance. The goal is to have a stable platform in sea state 4. The vessel will not go beyond 500 gross tons after the problems are fixed.

Maritime Health Services - Dr. Mike Brown reported on MHS activities. The UNOLS case load history is similar to last year's load ***Appendix XI***. There were more referrals this year then last, most of which are pre-employment physicals. Accident related injuries totaled 214 in 1997. A discussion ensued about the development of medical standards for the UNOLS fleet.

The availability of trained medical personnel on UNOLS vessels was discussed. Dr. Brown suggested that MHS train ship's crews in first response techniques in their standard SALTS sessions. Schedules for upcoming SALTS classes will be posted.

Dr. Brown reported that tuberculosis and malaria are becoming larger problems. Vaccines for T.B. do exist, but they are not very effective. Testing for T.B. during the pre-employment physical is advisable. Malaria is the most prevalent disease in the world and our R/V's routinely travel to areas where malaria is present. Prophylactics for malaria do exist and ships should prepare before going into areas where malaria is present.

Marine Communications - Ellen Kappel, coordinator of the SeaNet program gave a brief introduction to

SeaNet and the SeaNet group ***Appendix XII***. A $1.5M grant was received through the COOP program to enable the SeaNet partners to create shore -based and shipboard infrastructure for providing high and low speed access to the Internet from ships at sea.

Rex Buddenberg of NPG Monterey give an overview of current systems for providing Internet service. A number of changes are planned for the Internet in the next few years. Satellite communications will be changing, services will change and management of the system will change. About 6 companies will launch 400 communication satellites into low earth orbit in the near future. Mr. Buddenberg provided a list of the organizations currently providing Internet service. Companies have been identified and satellites are being launched that will provide mobile Internet service although none are completely serviceable to date. Some services will not be capable of providing high latitude coverage.

The fact that these satellites are lower orbit will allow antennae sizes to be much smaller than the old satellite communication antennae. In addition, the new satellites will provide service to areas not currently covered by cellular service. This will keep costs down for vessel based service. Some providers will be capable of supplying service equivalent to 1/3 the capacity of a T-1 line.

Inmarsat B is currently capable of 56kbps and earth stations are manufactured by only a few vendors. Competition is higher with the new systems and prices will eventually come down from what we are seeing today. Capacity will not be affected in the near future. Some of this technology will be available before the year 2000.

Andrew Maffei provided an overview of the SeaNet collaboratory starting with the history of how SeaNet developed over the last decade ***Appendix XIII***. He also presented a number of SeaNet projects and working groups. The question of whether INMARSAT can be made affordable for use in ongoing oceanographic science has not been answered, yet.

The problems of shipboard e-mail were covered in a SeaNet workshop and various issues related to ship e-mail were discussed and assignments were made to groups for further study. The working group is open and interested individuals were invited to participate. The NOPP program will develop the infrastructure for getting e-mail on a selected number of UNOLS vessels.

Some of the potential benefits of SeaNet NOPP are less costly e-mail delivery, web site mirroring ship to shore, remote instrument support, and video conferencing.

Lunch

Continuation of Communication Discussion

There will be a network information center to handle consolidation of the infrastructure. MSI will provide the physical space for the center and some dedicated lines to each of the satellite ground stations. This will be done under the over sight of Omnet and SeaNet.

The new system will accommodate as many different methods for transporting mail as possible.

A lengthy question and answer period followed after the formal presentation. Most of the questions concerned administration of the system, how costs will be passed on to the users, equipment needs, and time frames.

Costs will be broken out so they can be passed on to each individual user according to the needs of the operator. In addition, credit cards can be issued to each individual aboard ship. Hardware costs will be minimum because all of the hardware being used presently is off the shelf, but efforts are underway to make this hardware more tailored to SeaNet. Voice and FAX will not be accounted for by SeaNet so ICG boxes may be useful.

An advisory panel will be established to answer the question of who gets the first available units. Three to 4 units will probably be permanent and the other units will be rover Inmarsat high speed units. The real unanswered question right now is how may ships can the current infrastructure support. The system should

be available the middle of next year.
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UNOLS Study - Bill Hurley, of Glosten Associates, provided an update on their study of the affects of recent regulatory changes on existing and future UNOLS vessels ***Appendix XIV***.

The recent regulatory changes are the result efforts to address safety and environmental concerns. Worldwide emphasis has been placed on these changes because of recent, serious marine incidents.

The Coast Guard has been saddled with budget cuts, so that they are deferring to IMO for making rules and classification societies (ABS) for inspection of vessels. Implementation of the new rules by the Coast Guard is causing confusion since these rules are subject to a lengthy process of Notice of Proposed Rules, Interim Rules, Final Rules and Suspension of Final Rules.

Two separate tonnage systems for Domestic and International Tonnage has added to the confusion. To assess the application of the rules to your operation it must be determined which admeasurement system applies to your vessel. The Regulatory Measurement System usually applies to vessels on domestic voyages and International Measurement systems applies to vessels on International voyages.

A review of the regulations, ISM Code, International Convention for Safety of Life at Sea (SOLAS), Standards for Training and Certification of Watchstanders (STCW), and MARPOL, that apply to newly built vessels (depending on their size) and the costs associated with complying with these regulations was presented.

It was recommended that ISM be integrated into the UNOLS inspection process and that we reassess manning requirements and organization/training structure and develop new manning structure for USCG approval.

Regulatory Information - George Ireland was not able to attend the meeting but sent his comments on new regulatory issues which are included as ***Appendix XV***

Evening New England Clam Bake
Thursday, 23 October 1997
Clark Laboratory, 507

ROUND TABLE DISCUSSION

Marine Superintendent or their equivalents from member and guest organizations met to discuss issues of mutual interest. A summary of the topics discussed included:

- Update/comments on marine insurance program.
- GMDSS progress
- Fleet description book for scientists outlining services and charges. Distribution to Program officers NOAA, NSF, ONR, etc.
- Documentation of research vessels
- NSF Cooperative Agreement
- ORV Act
- Shipboard Scientific Support Equipment Proposals. What type of equipment has been requested and what has been approved.

BUSINESS MEETING

Assignment to committees, panels and work groups:

- Tom Smith continues as Chair of the Safety Committee. Members include Joe Coburn, Tim Askew, Steve Rabalais, Bill Hahn, Tom Althouse.
- Joe Coburn will continue as liaison to FIC and AICC.
- Lee Black, Linda Goad, and Mike Prince will work to continue collecting information on ancillary

costs.
- Dave Powell will continue to serve as coordinator for the small boat compendium.

The following action items are pending:

- The regulatory update prepared by George Ireland would be appended to the minutes of the meeting.
- Paul Ljunggren will prepare a formal request to ONR requesting that they participate in future RVOC meetings.
- The Medical Standards and Job Description group will continue their efforts.
- Van Standards will be addressed by the Safety Committee.
- Paul Ljunggren will draft a letter to NSF requesting clarification and summarizing comments on Cooperative Agreement.
- The Safety Committee will continue their revision of the Safety Standards.

Harbor Branch Oceanographic Institute will host the 1999 meeting and the University of Hawaii will host next years meeting. The date for the meeting to be determined.

Adjournment

The RVOC wishes to express its thanks to Joe Coburn, Dick Pittenger and Bob Gaugosian of WHOI and the WHOI Marine Operations staff for hosting this years meeting.

Appendix I

1997 RESEARCH VESSEL OPERATORS COMMITTEE MEETING

AGENDA

0800 Tuesday, 21 October 1997
Woods Hole Oceanographic Institution
Clark Laboratory, 507
Quissett Campus

0800 Registration and Coffee

0830 Welcoming Remarks

- Joe Coburn, Marine Operations Manager
- Ricfiard F. Pittenger, Associate Director for Marine Operations - Paul Ljunggren, Chairman, RVOC

0900 Old Business

- Minutes of the 1996 Meeting
- Post Cruise Evaluations
- Van Study, final review
- Medical Standards/Job Descriptions
- Primer on small research vessels
- Safety Video for scientists
- Size limit on UNOLS vessels, UNOLS Committee - New contract for UNOLS fleet inspections

0930 New Business

1000 Break

1020 Committee and liaison reports

- UNOLS, Jack Bash & LTNOLS Chair, Dr. Ken Johnson (MLML) - Safety Committee, Tom Smith
- RVTECH, Tim Askew
- FIC & AICC, Joe Coburn

1100 Agency Reports

- National Science Foundation - Dolly Dieter
- Office (yf Naval Research - Sujata Millick
- Naval Oceanographic Office - CDR Jim Trees
- NOAA - CDR Elizabeth White
- USCG - LCDR Steve Wheeler
- U.S. State Department - Tom Cocke
- Consortium For Oceanographic Research And Education - Capt. Dan Schwartz - Others

1145 Lunch available at Quissett Campus - The ButteLy

1300- Ship Inspection Program

NSF Ship Inspection Program- Jamestown Marine

1330- Special Rel2orts

- Representatives from other countries: SACLANT -Chris Gobey NERC- Ken Robertson Canadian Coast Guard-Dale Gibb and Mark Cusack and Iomen o'esquero-enrique Aranda
- Other Countries
    - MSC- Special Missions- Rusty Bishop
    - Great LAkes Research Vessel Workshop
    - Research vessel updates; new construction, operations, engineering:
    - R/V Atlantis - Joe Coburn
- R/V Revelle- Tom Althouse
- R/V Thompson
- Skidaway Institute RIV replacement update- Steve Carignan
- University of Connecticut RIV replacment update-Bob DeGoursey
- RSMAS Catamarran- David Powell
- Any other operators with special reports

1515 Break

1530 Insurance and Liability

Report by Dennis Nixon on liability and insurance issues

1630- 1730 Tour of WHOI Waterfront Facility and RIV Oceanus

1800 Reception at WHOI- Clark Laboratory, 50'1.

0830 Wednesday, 22 October 1997
Woods Hole Oceanographic Institution
Clark Laboratory, 507
Quissett Campus

0830 MBARI - SWATH Western Flyer - Update

Steve Etchemendy Director of Marine Operations, Monterey Bay Aquarium Research Institute will provide an update on structural problems they are experiencing with the SWATH Western Flyer.

0900 Maritime Health Issues

Report by Dr. Michael Brown on medical support issues.

1000 Break

1015 MarineCommunication

Rex Buddenberg of NPG Monterey will brief us on the status of the current systems for extending the Internet to sea; what is available and the capabilities of these systems and their costs. A description new systems being implemented and/or planned; what will these new systems offer.

1200 Tour of WHOI - Quissett Campus Facilities and Box Lunch

1330 Continuation Marine Communications

SEANET - Presentation describing SEANET and JOI's recently funded proposal to provide five Inmarsat B installations on R/V's by Andy Maffei, Ellen Kappel

1430 Break

1450 UNOLS Study

Bill Hurley of Glostens Associates will report on a study they are conducting for UNOLS. This study examines the effect of recent regulatory changes (e.g. admeasurement, ISM, STCW) on new construction and the operation of these research vessels

1830- New England Clam Bake at Carriage House on Quissett Campus

0830 Thursday, 23 October 1997
Woods Hole Oceanographic Institution
Clark Laboratory, 507
Quissett Campus

0830 Unfinished business

1000 Round Table Discussion

Marine Superintendents will select and discuss topics of mutual interest.
Please submit additional items that you would like to discuss, other items will be developed during the course of the meeting.

Suggested round table topics:

Update/comments on marine insurance program.

- GMDSS progress
- Fleet description book for scientists outlining services and charges. Distri bution to Program officers NOAA,
  NSF, ONR, etc.
- Change in meeting schedule, start future meetings with a brief session Sunday afternoon.
- Post cruise evaluations,
- Documentation of research vessels
- NSF Cooperative Agreement
- Shipboard Scientific Support Equipment Proposals. What type of equipment has been requested and what has been approved.

1200 Lunch available at The Buttery - Ouissett Campus

1300 Continue Round Table

1400 Business meeting

- Assignments to committees, panels and work groups - Review of action items pending
- Suggestions for the 1998 Agenda and meeting format - Vote on host for 1999 meeting.

1500 Adiourn

NEXT YEAR'S RVOC MEETING

Please use this form before and during the meeting to record any suggestions you may have for next years meeting.
Suggestions for agenda items, workshops or guest speakers:
Suggestions for changes or improvements to the meeting format or schedule:

Appendix II

RVOC CONFERENCE - OCTOBER 21-23, 1997

NAME	INSTITUTION	ADDRESS	TELEPHONE/FAX/E-MAIL
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Appendix III

Available from UNOLS Office

Appendix IV

Report to RVOC Annual Meeting
Woods Hole, 21-23 October 1997
Fleet Improvement Committee
Joe Coburn

The Fleet Improvement Committee drifted with little really accomplished this past year. The outgoing chairman's report of the past 3 years is included as an enclosure. I expect better focus and more meaningful contributions under the direction of the new Chairman, Larry Atkinson, of Old Dominion University. His initial message to the committee is also enclosed. As you can see from the proposed agenda there are several issues the FIC will address which will be of interest to us operators. I will report on these after the November 6 and 7 meeting in Seattle.

encl: 9/22/97 message from Chris Mooers 9/21/97 message from Larry Atkinson

UNOLS Office, 11:34 AM 9/21/97 , Ksg from Larry Atkinson
Return-Path: <unols@gsosunl.gso.uri.edu>
Date: Sun, 21 Sep 1997 11:34:36 -0400 (EDT)
From: UNOLS Office <unols@gsosunl.gso.uri.edu>
X-Sender: unols@gsosunl
To: Larry Atkinson <atkinson@ccpo.odu.edu>,
tom weingartner <weingart@ims.alaska.edu>,
Bess Ward <bbw@cats.ucsc.edu>,
suzanne strom <stroms@henson.cc.wwu.edu>,
Joe Coburn <jcoburn@whoi.edu>, Bill Smethie <bsmeth@ldgo.columbia.edu>, tom crowley <tom@ocean.tamu.edu>,
john freitag <jfreitag@gsosunl.gso.uri.edu>, eric firing <efiring@iniki.soest.hawaii.edu>, ken Johnson <johnson@mlml.calstate.edu>
Cc: "office,uri unols" <unols@gsosunl.gso.uri.edu>
Subject: Msg from Larry Atkinson

Dear Members of the Fleet Improvement Committee:

I urge you to plan on attending the FIC meeting scheduled for Nov. 6 and 7 in Seattle. Although details are being worked out I would like to share the tentative plans with you.
Where: The meeting will be held at the NOAA Pacific Marine Center. PMC is on Lake Union in downtown Seattle. Fisheries and survey vessels should be in port for us to visit.
Hotel: We will stay at a hotel nearby, providing a convenient access to the new REI, walking and jogging along the Lake, etc.
Evening: We are planning an evening at the Center for Wooden Boats a few blocks away.
The agenda is the most important part and here it is:

1. The long-term FIC agenda. Before the meeting you will receive a proposed long-term agenda. We will discuss and agree on a modified version. It will be posted on the FIC www site.
2. Glosten Report. This report will tell us whether intermediate ships can be built in their present form under the new regulations. (The new regulations call for twice as much crew and considerable structural changes.) Thesb new regulations will place strong constraints and replacement and refit schedules we are to develop.
3. AGOR-26. The Navy will be choosing an operator for the new Central Pacific swath. FIC has been asked to represent the academic user community during the Science Mission Requirement development and construction phase in cooperation with the operator. We will finalize a proposed way for FIC to do this.
4. Fisheries Oceanography/Stock Assessment. NOAA needs better and more ships for stock assessment. They are proposing to build six or more. Should or could UNOLS ships do this, what is the science, etc. Will have -four talks on the issue and come up with a FIC position.

FINALLY - READ THIS:
As new FIC Chair, I promise I will keep things moving, on track, interesting and relevant. There are jobs we have to do that are important to our sciences future and I intend to facilitate that. You, as a member of FIC, must read, respond and express your opinion. I look forward to seeing you in Seattle.
Larry

Printed for Joe Coburn jcoburn@whoi.edu
'UNOLS Office, 04:02 PH 9/22/97 , Memo from Chris Mooors
Return-Path: fic-request@diu.cms.udel.edu
Resent-Date: Mon, 22 Sep 1997 16:02:04 -0400 (EDT)
Old-Return-Path: unols@gsosunl.gso.uri.edu
Date: Mon, 22 Sep 1997 16:02:04 -0400 (EDT)
From: UNOLS Office unols@gsosunl.gso.uri.edu
X-Sender: unols@gsosunl
To: mailing list fic fic@diu.cms.udel.edu
Cc: "office,uri unols" unols@gsosunl.gso.uri.edu
Subject: Memo from Chris Mooers

Resent-Message-Id: <"dLaXK2.0.ye.Bxi9q"@diu>
Resent-From: fic@diu.cms.udel.edu
X-Mailing-List: fic@diu.cms.udel.edu archive/latest/61
X-Loop: fic@diu.cms.udel.edu
Resent-Sender: fic-request@diu.cms.udel.edu
I am resending the message from Chris Mooers to the UNOLS Council. Please
let me know if you have difficulty reading this message.
>From unols@gsosunl.gso.uri.edu Mon Sep 22 15:27:17 1997
Date: Fri, 19 Sep 1997 10:53:08 -0400 (EDT)
From: UNOLS Office unols@gsosunl.gso.uri.edu
To: mailing list council council@diu.cms.udel.edu
Cc: mailing list fic fic@diu.cms.udel.edu
Subject: Memo to UNOLS Council from Chris Mooers
Resent-Date: Fri, 19 Sep 1997 10:53:08 -0400 (EDT)
Resent-From: fic@diu.cms.udel.edu
Attached (MS Work file) and below is a memo from Chris Mooers.
From: Prof. Chris mooers, FIC Chair
To: UNOLS Council
CC: UNOLS FIC
Subj.: Reflections on UNOLS/FIC and Council, and on UNOLS overall
Date: 15 September 1997

1. Having served as FIC Chair for the past three years, I think it is important to reflect on our accomplishments and shortfalls, and on the future of FIC and UNOLS.
2. Initially, FIC's major task for the immediate future was the development of plans for the next generation of coastal research vessels (CRVs). We inherited a set of draft SMRs that had been evolved (under the leadership of Dr. Peter Betzer) from the preliminary set derived at the "Williamsburg Workshop" in 1993. His considerable energies were deflected into the major activity of producing the so-called "Betzer Report" of 1995. There had been hope that NSF would sponsor a series of regional workshops to evolve the CRV-SMR, especially to determine if there are region-specific requirements. However, the larger problems associated with providing funds for operating the expanding Fleet apparently precluded this approach. In 1995, the CRV-SMR baton was passed to Dr. Larry Atkinson who serves as their custodian; however, with bleak prospects for R/V construction on the horizon, there has not been much motivation to proceed further. Also, there has been a mindset that a CRV was needed, while the true need is for a CRV fleet composed of a broad spectrum of R/Vs. When the surplus of global vessels was recognized, NSF and ONR identified that they, too, were available for coastal ocean research, ensuring that the CRV fleet would be considered to consist of the broadest conceivable spectrum. (Use of global R/Vs in the coastal ocean (global CRVS) will facilitate large multidisciplinary studies, heavy weather operations that are vital to coastal ocean dynamics, and international EEZ studies that will probably resume someday.) Another trend has been for individual institutions to pursue their own pathways for design and construction of local CRVS. What remains to be done is to define clearly the national need, if any, for specialized CRVS, and to arrange for the replacement of the aging national CRVs and regional R/Vs,---perhaps through collaboration with NMFS on a new generation of FRVS, which combine oceanographic and fisheries-specific capabilities. UNOLS will need to exert significant effort to remain relevant to coastal ocean research which is a steadily growing area of endeavor.----In a rational world, the present level of confusion between the numerous agencies involved with coastal ocean research would subside soon, making it possible for UNOLS to plan better.
3. FIC's accomplishments include -
    a. a survey (questionnaire) of chief scientists that revealed general satisfaction with the operation of the Fleet (except for a few with negative experiences) but a too frequent concern about followup/accountability by operating institutions re: post-cruise summaries;
    b. a Safety Position Paper (led by Dr. Suzanne Strom);
    c. a report giving guidance on portable vans (led by Dr. Suzanne Strom);
    d. very active participation (by Drs. Betzer and Mooers) in preparing the "Betzer Report";
    e. a role in initiating the dialogue with CNMOC and NAVO that has led to cooperative activities;
    f. a role in working through the ARV vs USCGC HEALY conflict;
    g. preparation of revised SMRs for a mid-Pacific R/V with active input from the West Coast

community, as well as the University of Hawaii;

h. opened dialogue with ONR program managers responsible for Auvs and RPVS, especially in the context of their potential use with the UNOLS Fleet;
i. contributing impetus and ideas to moving ahead with more automated real-time data acquisition and reporting from the UNOLS Fleet in order to increase the value of the Fleet to operational and synoptic oceanography (led by Dr. Eric Firing and Mr. Rich Findley);
j. similarly, advocating data system standards, for incorporation by RVTEC, to increase the interoperability of the Fleet (led by Dr. Eric Firing and Mr. Rich Findley); and
k. a membership balanced geographically, by discipline, by gender, and by age.

4. FICs shortfalls have been
   a. a long-delayed IFIP97 due to philosophical differences and the lack of an agreed-upon financial database, which should become an ongoing task of the Council, perhaps with a designated "comptroller" who would work with NSF, ONR, NAVO, NOAA, etc. and the UNOLS Office to establish agreed upon cost and use figures that can be used for strategic planning;
   b. a stalled White Paper on regional R/V consortia due to philosophical differences; the interim strategy has been to wait for SECOR to mature enough to create a good example; NOTE: this is an old idea considered in the early years of UNOLS but somehow many individual institutional egos seem to have prevented its emergence; this old-fashioned thinking may need to change in an era of shared resources;
   c. though nudged forward, the Primer on Small R/Vs is still not completed; this task is now in the hands of RVOC (Mr. David Powell, RSMAS leads the effort and depends upon the cooperation of the several erstwhile contributors); and -
   d. a partially completed draft of FIP 98 which emphasizes new trends in observational oceanography.

   In brief, the oversizing of the Fleet, and uncertainties of future funding for its operation, have caused various large perturbations in the performance of FIC. Since the future will probably be unlike the past, FIC has been left in limbo. At the same time, narrowly focused UNOLS committees like DESSC and AICC have found fertile ground for initiative in exciting and expanding areas of scientific and technological endeavor. There may be a message here.

5. As for UNOLS itself, I think it does many things very well; e.g., coordinating ship schedules, setting and maintaining safety standards, promoting technology upgrades, facilitating Fleet-wide communications and progression, etc. Undoubtedly, its greatest strength are the dedicated voluntary (and staff) efforts provided by numerous talented, knowledgeable, and experienced professionals. one weakness is a lack of oversight re: scientific governance at the level of operating institutions; in other words, UNOLS has no mechanism in place to check the communications between ship operations managers, institutional managers, faculty oversight groups, marine techs, etc. Its greatest weakness is in overall, long-term management of the UNOLS Fleet, a task compounded by a mismatch between vessel lifetimes, research planning horizons, the imperatives of onrushing technological developments, and by a lack of authority to make strategic decisions. From another perspective, UNOLS seems adequately designed to deal with a "rising tide" but not a "falling tide". These inadequacies come into focus when there is a need to downsize or realign the Fleet, or a need to replace a retiring vessel, for which there is no standardized process or procedure. After existing for a quarter of a century, it may be time for a major reform of UNOLS along the following lines:
   a. to achieve an improved power alignment, become a subsidiary activity of CORE;
   b. to avoid obsolescence and irrelevance, expand its scope to deal with all ocean observational facilities and R/Vs of all sizes and types, following the lead of the federal agency coordinating group;
   c. to serve the entire ocean science community, work closely with OSB, CORE, NSF, ONR, and NOAA R&D planning activities to ensure facilities meet 3 community requirements;
   d. to avoid further fracturing of the ocean science community, work to make stakeholders of the "drys" as well as the "wets" by use of enabling technologies; such as, telecommunications and video conferencing with R/Vs at sea; and
   e. to fulfill a modernized mission for UNOLS, consider restructuring the UNOLS management and governance apparatus; for example, in my opinion, the UNOLS Council would be more effective at ensuring the integration of UNOLS resources with the multi-faceted research programs of the future if it was composed solely of Chief Scientist/ P.I. types, while including

certain ship operations managers as ex officio technical advisors, as I do not think we can continue to be ship-driven oceanographers but must balance ships versus other oceanographic facilities and manage resources more cooperatively for the shared-resource future in prospect; i.e., as in the original essence of UNOLS.
Finally, in my opinion, a very strong case could be made for basing all of the global R/Vs at SIO and WHOI, for the following reasons:
--economy of scale (and competence)
--fits their institutional self-image
--fits their institutional role in the national community
--regional distribution arguments do not much apply to global R/Vs
--place an end to smaller institutions, lust for such vessels
--ease the resource management for these precious but expensive assets by focusing on the size of the global R/V fleet at only two institutions.
As a corollary, an argument (based on economy of scale) can probably be made for concentrating regional R/Vs in one operating institution for each major region, and for a broad distribution of national coastal and local coastal R/Vs.

Appendix V
Report to RVOC Annual Meeting
Woods Hole, 21-23 October 1997
Arctic Icebreaker Coordinating Committee
Joe Coburn

AICC's activities were principally divided in two phases; physical arrangements and facilities of the new CG Icebreaker Healy during the first part of the year, and coordinating science requests for the Ship of Opportunity (SOO) on the Polar Class Icebreakers the later part of the year.

Surprisingly, the top ten priorities of physical lay-out improvements suggested by AICC were accepted by the Coast Guard and have been incorporated into the design. These consisted of rationalization of the lab and science storage spaces that on the whole will facilitate science and make the ship much more successful as a research vessel. Although no steel had been cut which was affected by these changes, I anticipated that this would be an impossible request. However, when the shipbuilder asked for a 6 month delay the Coast Guard negotiated for the acceptance of all 10 of these changes with no penalty. Healy will be launched this November, with delivery scheduled for December 1998. Most of 1999 will be devoted to shake down and tests, with the first scheduled science cruises in January, 2000.

The second major effort of AICC has been to coordinate science requests for Ship of Opportunity requests on the currently operating Polar Class Icebreakers. The process has been formalized somewhat and the possible criticism of "cronyism" eliminated.

Additionally, AICC has been advising and helping the Coast Guard in the design and selection of science outfit. In some cases, AICC merely recommended a point of contact for one field of expertise or another and in other situations the committee members used e-mail to arrive at a consensus recommendation. The Coast Guard is looking at our Safety Training Manual and is developing a Cruise Planning Manual based on those on the web. The CG has been clearly appreciative of AICC. I believe the CG does fund the expenses associated with AICC.

Through all of this it is clear that the USCG has clearly emphasized the importance of science in its polar operations. Although 75 seems to be a very large crew from our perspective, the crew of 75 planned for Healy is a significant departure from past policies. The issue between the perceived need for military-style rotations (typically 2 year tours and very rarely second tours.) and the need for continuity and stability among a highly skilled crew has been discussed. The continued turn-over in the icebreaker and polar operations management billets belies any change in this area.

AICC's chairman is Jim Swift of SIO, who is energetic and well organized. I have enclosed his report to the

UNOLS council meeting in June.
Notes from J. Swift presentation to UNOLS Council meeting,
24 June 1997, Grand Haven, MI:

The UNOLS Arctic Icebreaker Coordinating Committee (AICC) continues to move toward scheduling of USCG Arctic science missions in the UNOLS framework. The AICC has recommended that the Coast Guard take advantage of the on-line system, tracking, and other functions provided by the LTNOLS Office. The Coast Guard icebreakers are now on the UNOLS on-line ship-time request site.
The AICC expects continued incorporation into the UNOLS scheduling, notification, and tracking system. In practical terms there will be only limited opportunities for scheduled USCG Arctic science missions (i.e. other than ship-of-opportunity) until January 2000 when USCGC HEALY becomes available.

The dominant mode of operation now for USCG Arctic science support is via ship-ofopportunity (SOO) cruises. These receive no agency cost recovery because they are primarily tests of the vessel(s) and training missions for the USCG. An AICC responsibility is coordination of these SOO cruises.

The AICC functions for the 1997 (first) SOO program went well - all requests were feasible one way or another - but the cruise was canceled. (The AICC has not yet determined what priority should be given to 1997 groups for future years.) There were a number of questions and concerns from the community regarding the AICC's role in the SOO cruise planning. These were largely anticipated by the AICC. The AICC has reformulated to SOO guidelines for 1998 and these should be issued soon (hopefully by end of July 1997).

The AICC notes that SOO exploits a grey area in science support, and this will inevitably lead to problems. Namely, such cruises are fiscally advantageous to agencies, and so might be seen by some program managers as a preferred means of cruise support, but SOO cruises carry considerable risks - in fact there is no USCG commitment on SOO cruises to science support - and when these risks materialize, this may lead to disappointment on the part of agencies and investigators and image problems for the USCG. The AICC notes that dedicated science missions put the responsibility for ship support squarely upon the USCG, and so they better utilize USCG support and test USCG commitment to science missions. The availability of USCGC HEALY brings no new dedicated ship/science funds from the agency side.

The AICC hopes that via publicity and UNOLS ship scheduling that use of USCGC HEALY develops the number and type of excellent proposals envisioned by planners. The availability today of the HEALY on the UNOLS on-line request system is one step in developing that list of proposals.

The AICC has continued to build liaisons. John Freitag of RVTEC is participating in AICC business and the Coast Guard's science officer, Phil McGillivary, is attending RVTECH functions. The AICC and the Antarctic Research Vessel Oversight Committee (ARVOC) are exchanging attendance at meetings. And the AICC email list continues to expand.

One issue of concern to the AICC - scientific clearance in foreign EEZs - has been mostly laid to rest, but the final step of having the Coast Guard play the same role as a UNOLS operator remains somewhat unclear. [Note added: At the UNOLS Council meeting, however, Rick Rooth said that the Coast Guard will adopt those procedures.] AICC questions regarding HEALY's status under Canadian regulations appear to be resolved satisfactorily.

With respect to HEALY construction, Captain Johnson reported almost all good news at the AICC meeting. Even the six-month delivery delay was positive because in exchange for this the yard agreed to complete most of the "top 10" science-related modifications requested by the AICC. (The AICC is very pleased and appreciative!) The hull may be complete at this time. Delivery is set for December 1998 with most of 1999 as shakedown and testing. The AICC plans to tour the vessel shortly after launch in late 1997. John Boaz, a senior technician at SIO, is contracted by the USCG (through NSF) for consulting on science systems.

The AICC has recommended that there be no SOO on USCGC HEALY in 1999. Instead, we ask the USCG to concentrate on tests and training. We hope to locate science groups who can use the test to their advantage, but under control of the USCG and test team. The AICC is now working to help design science system tests during HEALY ice trials. The AICC regards it as very important that procedures be worked

out to provide ficorporate memory" for science systems support rather than to re-train for each mission.

The next scheduled meeting of the AICC will be in New Orleans, probably in January 1998.

Appendix VI

Available from the UNOLS Office

Appendix VII

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Appendix VIII

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Appendix IX

Available from the UNOLS Office

Appendix X

RVOC 1997- Woods Hole Oceanographic Institution
Great Lakes Research Vessel Workshop

On March 11-12 1997 a workshop sponsored by the Great Lakes Commission was held in Detroit, Michigan.

The purpose of this meeting was to respond to reduced or otherwise constrained funding for research and related resources. Questions they sought to address included how to better communicate/share resources to maximize capabilities? Is there unnecessary duplication to eliminate and/or unmet needs to address? Is some new institutional arrangement needed to improve, the operational efficiency of the Great Lakes Research Vessel Fleet?

The meeting was attended by approximately 80 people representing Canadian and U.S. marine operators, scientists and program managed. In preparation for this meeting an effort was inade to develops an inventory of Great Lakes Research Vessels which resulted in 60 R/V's being identified The majority of these vessels were under 65 ft. in length. These vessel were owned and operated by a number of different sources; federal, state/provincial, municipalities, university and private.

As part of this meeting a series of initial presentations were given one of which was an overview of UNOLS. The principal effort was directed towards work groups divided along the lines of scientist, marine operator, and scientist. Prior to adjourmment each work group was asked to summarize and present their recommendations. The recommendations coming from each of the three groups were striking in terms of their similarities. These recommendations included:

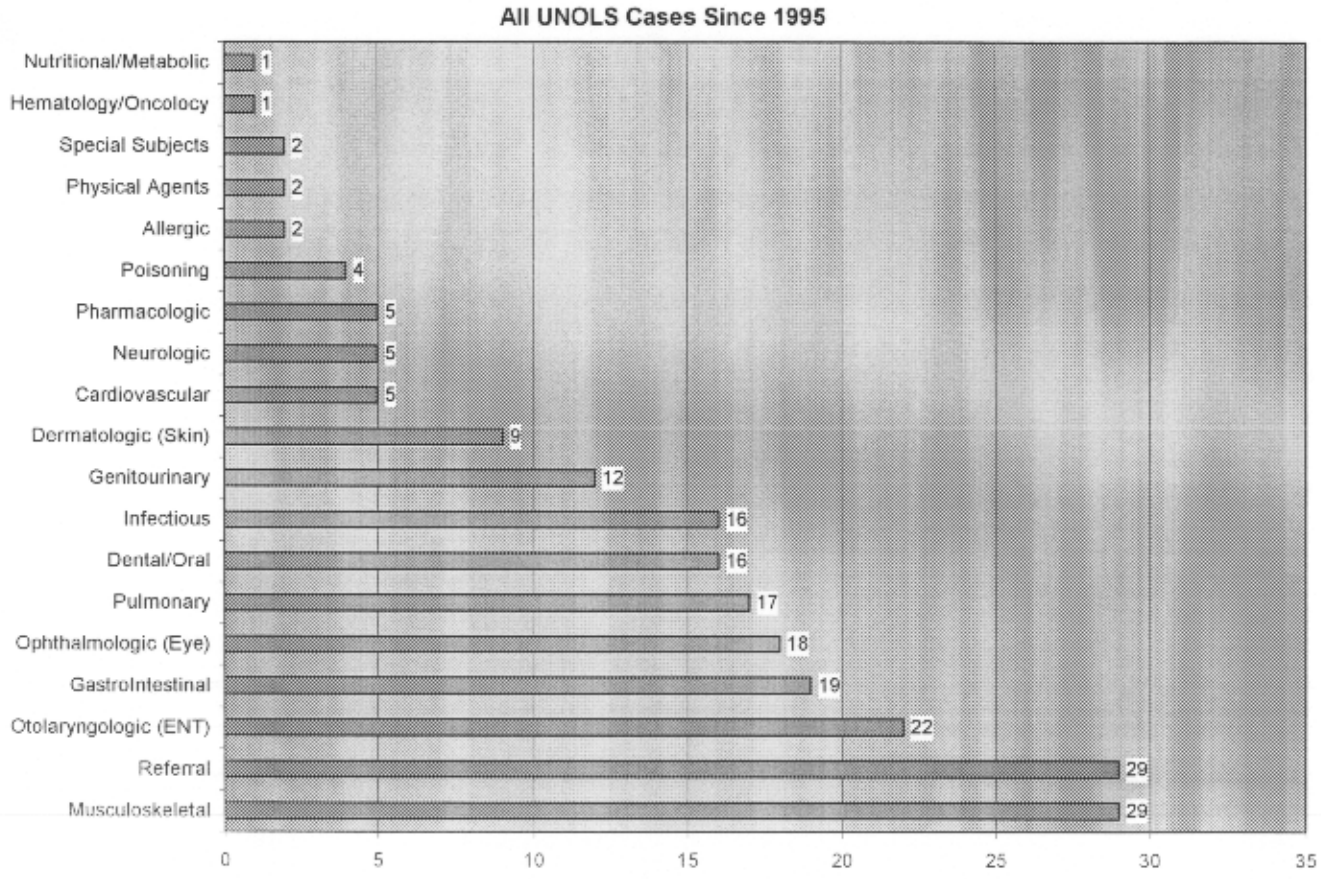
- Greater need for exchange of information with WWW home page seeming to be the initial direction. This need for exchange of information was quite broad, ranging from ship's schedules, to science programs being planned, to inventories of vessels, vessel's equipment, specialized skills, personnel available, etc.
- For a large number of attendees (particularly the operators) this seemed to be the first time they had

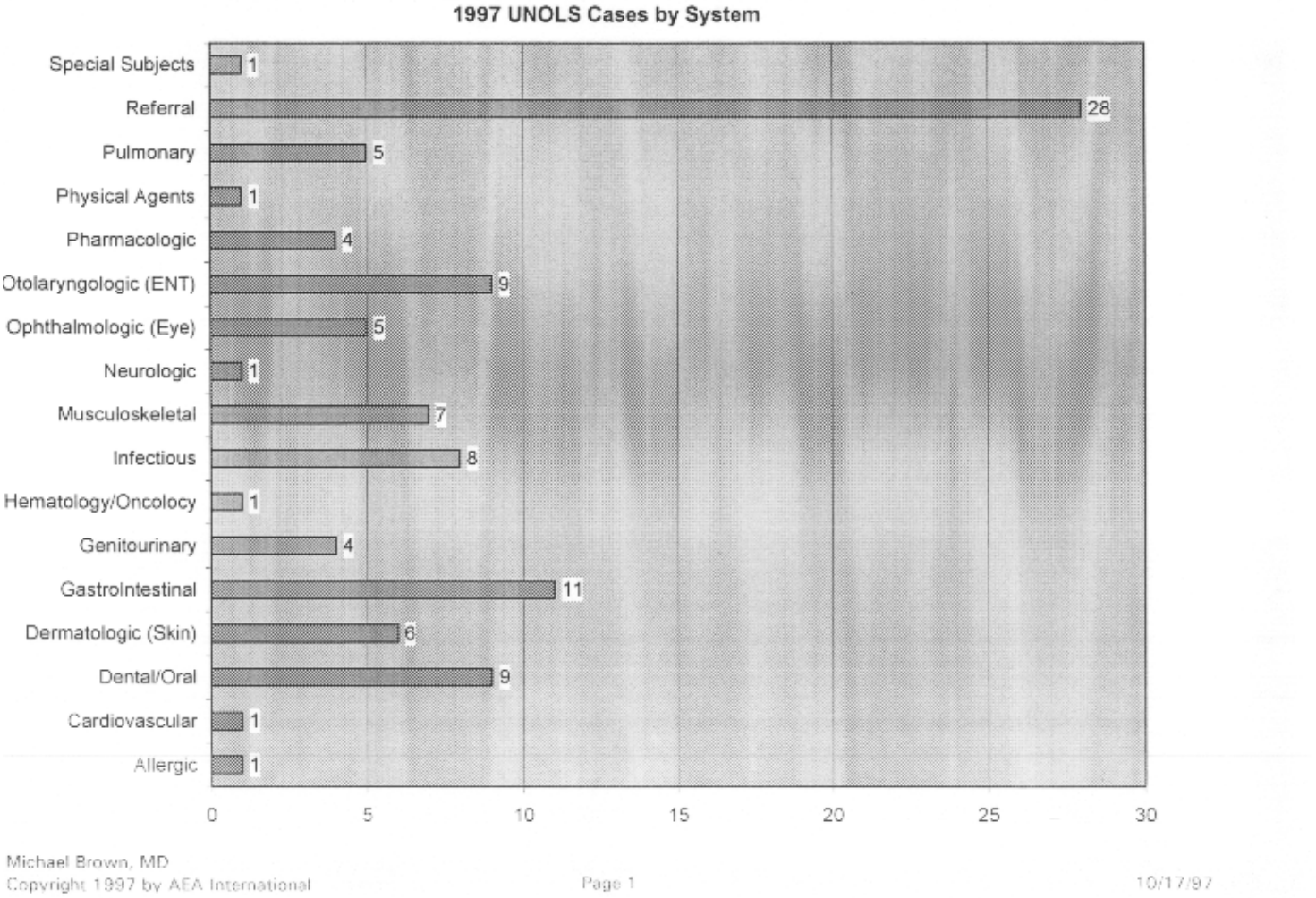
met as a group to discuss common problems and ll groups seemed to feel that regularly scheduled meetings would be beneficial.

- What seemed to follow the preceding recommendations was the need for a more formal organization. As a result of these work groups a more comprehensive list of recommendations for coordination and managment of science vessels on the Great Lakes has been developed.

Paul Ljunggren

Appendix XI





Appendix XII

SeaNet receives National Oceanographic Partnership Program support

by Ellen Kappel
(Joint Oceanographic Institutions)
and Andrew Maffei
(Woods Hole Oceanographic Institution)

Abstract

The SeaNet partners* are pleased to announce that the 1997 National Oceanographic Partnership Program of the Office of Naval Research recommended for funding the proposal, "SeaNet: Extending the Internet to the Oceanographic Fleet," in amount of $1.478M. This funding will provide over two years, and will enable the SeaNet partners to create the shore-based and shipboard infrastructure capable of supporting both a high speed (e.g., INMARSAT-B HSD at 64 kbaud) and low speed (e.g., cellular or PCS modem at 4800 baud) access to the Internet from ships at sea. This infrastructure includes building a shore-based operations center; providing updated satellite and cellular communications for a number of UNOLS vessels; developing shipboard communications servers designed specifically for the support of shipboard science and technical support applications; and supporting the integration of emerging (less expensive)

communications technologies in the future. Once this infrastructure is in place and operational, the incremental cost of adding more ships to the SeaNet network should be relatively small, A SeaNet Advisory Panel will provide guidance and advice to SeaNet operations, including recommending ships for SeaNet installation.

Development Status

In 1995, the National Science Foundation funded the SeaNet collaborative effort by WHOI, LDEO, and JOI to develop a prototype communications system to demonstrate a cost effective use of INMARSAT-B High Speed Data for Internet connectivity between shore and a ship. The system was first installed and tested on the R/V Thompson as part of a JGOFS cruise. This same communications system has been successfully redeployed the Ocean Drilling Program research vessel, JOIDES Resolution, and is in active use by the LDEO Borehole Research Group to transfer large wireline logging data sets. The latest testing over the NERA High Speed Data (IISD) link has shown an increase in transfer rates of close to ten times those of typical INMARSAT-A transfers using modern voice modems. While the cost of the INMARSAT-B link is twice that of the INMARSAT-A link, there is still substantial cost savings because of the efficiency of the B-link.

What will SeaNet provide and who pays?

Now that funding is in place for the next phase of SeaNet development, we will be moving the SeaNet Communications Node (SCN) from a prototype configuration to a production configuration including appropriate documentation, support, and testing. In addition we will be redesigning the new system in order to take advantage of what we have learned from the prototype. In this realm we are considering (1) moving the SCN from a SPARC-5/Solaris platform to a PC/Linux platform, (2) using a MAGNAPhone INMARSAT-B system instead of the NERA INMARSAT-B system to take advantage of a new shared-channel feature that would further improve cost effectiveness of the system, (3) making the new system much smaller and more compact, (4) incorporating new communication link technologies under development at the NAVY NRAD facility, and (4) redesigning the structure of existing software modules (though we are happy with much of the original design).

NOPP funding will provide for five production versions of the SCN to be built and deployed in the first year. Most of these will be installed on large research vessels with guidance from the SeaNet Advisory Panel (see later discussion). One, or possibly two, of these units will be available for temporary installation on ships and platforms of opportunity in support of science driven requirements. SeaNet will provide reduced rate and subsidized INMARSAT pricing (up to 50% subsidy on $9.50/minute rate) in order to encourage investigators to begin to experiment with the use of shipboard Internet capabilities as part of their experiments.

The design and implementation of an enhanced INMARSAT B/HSD Ship Earth Station will be done by MAGNAPhone in close coordination with the other SeaNet partners. The hardware, packaging and installation aspects of the shipboard equipment will be lead by Dale Chayes of LDEO. Andrew Maffei of WHOI will take the lead in the software effort. It is expected that the first production units might be available for installation six months from the award date, which is expected in July 1997.

The SeaNet collaboratory will provide comprehensive technical support for installing the initial SCNs working in close coordination with the vessel operator and/or the science program. The vessel operator or science program will be expected to cover some of the costs associated with their specific installations. At a minimum, this will include: crane and possibly welding costs associated with the installation; INMARSAT B commissioning costs; and the travel expenses of a SeaNet engineer who will participate in the installation, do the on-board configuration and testing, and provide hands-on training of the operators.

SeaNet will handle radio licenses and billing accounts for all of the SCN communications channels. Usage charges will be billed against authorized access codes based upon prearranged accounts.

The Network Operations Center at Omnet, Inc. will provide full time (7 day by 24 hour) monitoring of the performance of the remote SCNs and will be the first level point of contact for remote sites. A SeaNet engineer will be on call to provide backup support for resolving technical and operational problems.

Software in the SCN will maintain a running estimate of usage and cost incurred per authorized user account. Usage updates will be distributed to the NOC, the SeaNet accounting office, and the on-board science party.

Another aspect of the SeaNet collaboratory is technology monitoring. Rex Buddenberg at the Naval Postgraduate School (NPS) has been watching the leading edge technologies that will be more effective in supporting an Internet at sea. In his graduate course titled Internet at Sea, at NPS Buddenberg directly addresses the technological, infrastructure and managerial problems of a SeaNet. Class projects and follow-on theses by NPS students explore various facets of extending the Internet to sea and unifying several heretofore stovepipe communications systems, both inside the Department of Defense and in the commercial world. Buddenberg has recently been working with the Navy Research and Development (NRAD) laboratory which is, itself, deploying an Intemet-at-Sea capability for Navy vessels based on the use of Navy satellites (and expensive shipboard components).

After the first year, we plan to begin to expand the number of ships that are part of SeaNet. New communications link options (Big-LEOS, HF Radio, Navy systems) will be integrated into the SeaNet infrastructure as our research and testing proves them to be both reliable and cost-effective. During Year 2 we also plan to start moving SeaNet towards being a self-supporting venture. Subsidies will decrease as (we hope) prices become more competitive at the same time.

SeaNet Advisory Panel

It is important that those people who plan to use SeaNet have input into its design and future direction. To facilitate wide community involvement in SeaNet, JOI is forming a SeaNet Advisory Panel (SAP). The panel will:

- Review and recommend SeaNet unit installations on oceanographic research vessels and coordinate usage;
- Recommend areas of further development of SeaNet;
- Ensure coordination among scientists, ship operators, funding agencies, and SeaNet; and
- Establish guidelines for evaluating requests for SeaNet equipment and services for science projects.

JOI will invite approximately eight people to join the SAP, and plans to draw membership from the oceanographic support community, including UNOLS RVTEC and RVOC, NAVOCEANO, Coast Guard, NSF/CISE (Networking), and sea-going scientists. We also envision liaisons to this panel being drawn from federal agencies with interest in SeaNet, and SeaNet's commercial partners, as appropriate. The SAP will meet once a year, conducting most of its deliberations via collaboration software and e-mail with occasional teleconferences if necessary. The first SAP meeting will be in October or November 1997. Anyone interested in serving on this panel should contact Ellen Kappel (202-232-3900 ext. 216 or ekappel@brook.edu).

Let's Get Started: A Workshop

One task of the now-funded SeaNet project is to help improve shipboard electronic mail. As a first step in that effort, the SeaNet Collaborative plans to hold a shipboard electronic mail workshop on September 29 and 30 in Washington, D.C. We plan to invite individuals who have been closely involved in the development and operations of the variety of shipboard e-mail systems used in the research fleet as well as technical representatives of other organizations with similar needs.

The goal of the workshop is three-fold. First we will document details about the variety of existing shipboard e-mail systems in use in the fleet. Second, we plan to generate the first draft of a specification that represents the workshop participants' rough consensus about features needed for a shipboard e-mail system that are different that shore-based systems. A third goal is to form a closer working relationship among the technical personnel supporting the shipboard e-mail systems to learn from one another about common problems such as INMARSAT-A communications and billing for usage. A group visit to the COMSAT engineering labs is also in the works.

Travel support for this workshop is available to most participants through JOI's "SeaNet Lite" grant from

NSF. Anyone interested in attending should send Ellen Kappel an email summarizing your background and interests. Only one technical person from any institution may be fully supported. Partial support may be provided to others, depending on availability of funds. It will be assumed that all attendees will have a technical understanding of shipboard and other e-mail systems.

In conclusion....
First and foremost, SeaNet is a community project. The SeaNet partners look forward to working with you on all phases of this effort. As a start, initial communications regarding SeaNet should be directed to Ellen Kappel at JOI (202-232-3900 ext 216 or ekappel@brook.edu).

Finally, we are also pleased to announce that the U.S. Patent and Trademark Office has granted the SeaNet trademark to JOI. We are now official.

*SeaNet Partners and project roles Joint Oceanographic Institutions (Dr. Ellen Kappel, PI):
Liaison/coordination with federal agencies and scientific community, and SeaNet Advisory Panel.
Woods Hole Oceanographic Institution (Mr. Andrew Maffei, PI): Project coordination; Shipboard Communications Node (SCN) software development.
Lamont-Doherty Earth Observatory (Mr. Dale Chayes, PI): INMARSAT-B procurement; Shipboard systems installation and testing.
Omnet Inc (Mr. Robert Heinmiller and Ms. Susan Kubany, PIs): SeaNet operations center; Billing; Value-added services.
Naval Postgraduate School (Mr. Rex Buddenberg, PI): Shipboard implementation laboratory; Emerging technology planning; NRAD and Navy liaison.
Other partners donating services or expertise to this project, but who are not receiving any NOPP funds include:
COMSAT: providing greatly reduced rates, engineering support and, potentially, enhanced services.
MAGNAPhone: providing 20% hardware discount, engineering support, and key input into their product design.
MCI: free circuits and Internet Service.
NCCOSC (Navy) Research and Development Division (NRaD): technology transfer through NPS.

Appendix XIII

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Appendix XIV

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Appendix XV

IRELAND CONSULTING SERVICES, INC.
58 Northbriar Drive
North Kingstown, Rhode Island 02852

Marine Operations and Safety

Captain George F. Ireland
(401) 885-2822 Regulatory Highlights
(401) 885-3678
Fax (401) 885-2822
(Call First)

I was not able to attend the annual RVOC meting at Woods Hole last month so am providing this paper as means to provide some regulatory information for you. My intent is to bring attention to those regulatory issues that will be around for a while and command attention from marine managers.

If there are any questions or uncertainties, please contact me. I'll be glad to help.

STCW

The CG published interim rules in the Federal Register on 26 June 1997. Rules became effective on 28 July 1997. CG asked for comments by 23 December 1997.

Application

The Convention applies to 'seagoing ships' which is defined by the Convention as 'other than those which navigate exclusively in inland waters...' CG implementation of the STCW Convention uses the words 'seagoing vessel' and defines that as '... a self propelled vessel that operates outside the Boundary Line...' regardless of whether the vessel is engaged in a domestic or international voyage, without regard as to size - there is no lower size limit for application of STCW. 'Ship' is not defined by STCW, although qualification standards for deck personnel apply to ships greater than 3,000 gross tons, 500 - 3,000 gross tons, and less than 500 gross tons on near-coastal voyages. 3,000 gross tons is a new break-point for U.S. regulation. Application to engineers is for those serving on vessels of 1,000 or more propulsion horsepower.

STCW does not apply to vessels on inland waters (inside the Boundary Line) and does not apply to vessels on the Great Lakes, nor does it apply to fishing vessels or to non-self propelled vessels such as barges.

Tonnage application remains complicated, particularly for small vessels. U.S. regulations are based on an old system - Regulatory Measurement System (gross registered tons) while tonnages utilized in the STCW Convention are based on tonnages calculated using the International Tonnage Convention (gross tons) which typically generate larger numbers because few exemptions are allowed. The Coast Guard is committed to applying the domestic tonnage measurement system in determining the application of

STCW to vessels of less than 1600 gross tons that operate exclusively to and from U.S ports. Stay tuned.

Keep in mind that STCW applies to vessels that transit seaward of the Boundary Line tonnage serves only as break point for application of particular standards within STCW.

Impact

Keep in mind also that STCW is about qualifications of persons who man vessels, thus the impact has to do with training, credentials (licenses and documents), and that vessels are manned by persons having proper credentials. Some of the responsibility for compliance will rest with individual, and some with marine managers. Specific comments follow -

- Amends Licensing (officers), Certification (unlicensed persons), and Manning standards
- Persons will be impacted when renew or upgrade licenses/merchant mariner's documents
- Training is important issue. Must be approved/accepted and records kept. Training Record Books become mandatory after 31 July 1998.
- STCW becomes fully implemented on 1 Feb 2002 when transitional period ends.
- Technical areas where persons will have to show competence are personal survival techniques, fire prevention and fire-fighting, elementary first aid, personal safety and social responsibility; ARPA: Bridge Team Work
- Marine managers must keep (readily accessible to those in management responsible for safety and for prevention of marine pollution) records of medical fitness, experience/training, and competency of persons
- Work hour/rest standards are set forth in new 46 CFR 15.1111 (effective after 31 January 1997).

Basic standard is 10 hours of rest in any 24 hour period. Master must post watch schedules taking work/rest standards into account.

Recommendations

- Agency (Coast Guard) implementation is articulated in Navigation and Vessel Inspection Circulars 4-97 through 8-97 that are available on CG web site. Reach out and get them. Each has to do with implementation of STCW.
- Keep your crew informed. Unions provide training for members. Non-union people must find private means; some companies have established in-house

Facilities for training.

- Open a line of communication with local Coast Guard Regional Examination Center. These are people who are first-line implementers of STCW rulemaking and who should be well informed. The person in charge of the REC probably is very well informed and should be able to answer specific questions for you. A planned visit to that person to discuss application to your specific operation may be worth while. Take your Master and Chief Engineer with you.

ism

This international 'Code' places certain responsibilities for safety of ships on shore-based management and was brought about by the International Maritime Organization in response to vessel casualties involving loss of several lives. Requirement for implementation is contained in U.S. law (46 USC 3201-3204), and Chapter 9 of SOLAS.

Proposed rules were published in the Federal Register (33 CFR 96) by the Coast Guard on 1 May 1997.

Final rules are expected to be published in the Federal Register in early 1998.

Application

- Application is to vessels to which SOLAS applies - 500 gross tons and over. In general, if your vessel has a SOLAS Safety Equipment Certificate, your vessel must also comply with the ISM standards.
- This code becomes mandatory for passenger vessels, oil tankers, and bulk carriers on 1 July 1998 and for other vessel on 1 July 2002.
- There is provision for vessels, not required to conform to ISM, to be issued ISM Certificates.

Impact

Written procedures (Safety Management System) must be provided for vessels that include: Safety and pollution prevention policy, Functional safety and operational requirements, Defined levels of authority and lines of communication between ship and shore, Procedures for reporting casualties and non-conformanities, Emergency procedures, and Procedures for internal audits and management reviews.

Guidelines for the safety management system are contained in IMO Resolution A.741(18). Additional technical guidance is contained in the proposed rulemaking.

Comment

Preparation of proper documentation is a great deal of work for an operation that has few e3dsting directives to its vessels. On the other hand, it is less work for an operation that has published guidance/directives, etc in place.

No doubt, canned documentation is available that can be adapted to a particular operation.

I've observed some companies implement ISO 9002 along with ISM simultaneously. They spent about a year preparing for the initial audit -and did the work mostly in house. Written procedures fill two large

loose leaf binders - one for shore people, the other for vessel personnel. Vessel personnel wrote many of the shipboard procedures and as consequence a cadre of marine folks became more knowledgeable of operating standards and more professional about their day to day work. Everything has a cost - these people and others put in a great deal of time - with clear goals - award of ISO/ISM certificates were issued first time around. In my opinion, those marine operations are much more professional today than before with substantially lower safety and pollution risks than previously. Record keeping and documentation is an added chore, but not an onerous one, particularly for persons who are handy with computer spread sheets.

OL

Enforcement of Annex V (Garbage) to this international convention still receives a great deal of attention from the Coast Guard and others. Ships must have a Waste Management Plan and records aboard to show compliance. Special Areas are defined in several regions of the world, including the Wider Caribbean Area. While some Special Areas have been designated but operational standards are not in force, many operators comply with the spirit of the standards by separating wet garbage from paper etc, disposing only of wet garbage overboard, and placing the remaining garbage/trash ashore.

TOWING VESSELS

What happens to others has an influence to all of us. The towing industry has two significant rulemakings before it following major oil spills and a very serious mishap involving loss of several lives. Areas addressed by the Coast Guard include vessel operations, navigation equipment, and licensing of personnel. Proposed rules require Masters and Mates of towing vessels to demonstrate competency before being issued a license - a significant change in licensing procedures. The new operating requirements

for towing vessels are comprehensive so that towing vessels are boarded by the Coast Guard periodically to sight compliance.

A comprehensive regulatory package was implemented for commercial fishing vessels about ten years ago, so that today oceanographic vessels are about the only fleet of ocean - going vessels (those less than 300 gross tons) that are not addressed directly by federal safety regulations. This 'freedom' from regulation, in my opinion, should be treated as an idcentive to maintain an exemplary safety and pollution prevention record, otherwise, as demonstrated by towing and fishing industry experiences, others will set your standards for you.