

# **Research Vessels Operator's Committee**

## **Summary Report of the 1999 Annual Meeting**

**Harbor Branch Oceanographic Institution  
Ft. Pierce, FL  
2-4 November 1999**

Sessions held at the  
HBOI Marine Education Center Annex

**Contents:**  
**Minutes of the 1999 Meeting**  
**Appendices**

- I. Agenda**
- II. Attendees**
- III NAVOCEANO**
- IV NOAA Corps Operations**
- V Report to RVOC – U.S. Coast Guard**
- VI Laser Net Technology**
- VII INMARTECH 2000**
- VIII University of Hawaii**
- IX University of Miami**
- X University of Connecticut**
- XI Scripps ISM Experience**
- XII WHOI/SIO Proposal to Support Antarctic Fisheries Research**
- XIII Academic Fleet Review**
- XIV National Marine Fisheries Service FRV-40**
- XV SeaNet**
- XVI Shipboard Activities Logging System**
- XVII Computerized Machinery Maintenance Systems**

**Minutes of the 1999 Annual RVOC Meeting**  
**Harbor Branch Oceanographic Institution**  
**Ft. Pierce, FL**

**Tuesday, 2 November 1999**  
**HBOI Marine Education Center Annex**

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

### **WELCOMING REMARKS**

Tim Askew, Marine Superintendent, Harbor Branch Oceanographic Institution (HBOI) welcomed the RVOC to Ft. Pierce and introduced Rick Herman, President and Managing Director of HBOI.

Mr. Herman welcomed RVOC to Harbor Branch and gave a brief overview of the Institution and the facilities at Ft. Pierce. A film describing HBOI and the various branches of the Institution was shown to the participants. Mr. Herman concluded his presentation by giving a summary of the part that HBOI vessels play in supporting oceangoing science at Harbor Branch.

### **AGENDA**

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

## OLD BUSINESS

**Minutes of the 1998 Meeting** - A motion was made, seconded and passed to accept the minutes of the 1998 meeting.

**Defibrillator Purchase** - Mike Prince reported that National Science Foundation (NSF) funds have been used to purchase defibrillators for every vessel in the fleet except for the Smithsonian Tropical Research Institute (STRI) and the HBOI vessels which already had them onboard when the grant was awarded. There is enough money in the grant for training and Mike will organize one session on each coast in the near future.

**Primer for Small Research Vessels** - Dave Powell, group leader for this effort, reported that the chapter on catamarans is the only outstanding section. When completed the final copy will be returned to the authors before being sent to a review panel. The UNOLS office will be responsible for publishing the final manuscript. Dan Schwartz, Paul Pelletier, and Fred Jones volunteered to serve on the review panel.

## NEW BUSINESS

**Lab Vans Inventory and Standards** - At the request of Dolly Dieter (NSF) Joe Coburn conducted a review of the existing sea going vans in the UNOLS fleet. According to the information received from operators, \$400K would be required to upgrade the existing inventory of vans. This number may be low because not all operators responded with information about their vans and vans not belonging to operator institutions were not included in the survey. Blake Powell with Jamestown Marine Services (JMS) pointed out the need for proper deck securing devices for vans on UNOLS ships. Jack Bash (UNOLS) will publish a statement about the need for UNOLS van to be inspected by the U.S. Coast Guard.

**RVOC Website** - Steve Rabalais reviewed UNOLS committee web sites and demonstrated a prototype site for RVOC.

## COMMITTEE AND LIAISON REPORTS

**UNOLS** - Jack Bash reported that on 1 May 2000 the UNOLS office will move to Moss Landing Marine Laboratory (MLML). Annette DeSilva will remain in Rhode Island as an employee of the UNOLS office.

In the future all ship request forms will be submitted electronically. All ships will also be tracked electronically through the UNOLS web page and users will have the ability to download daily tracking information including the ships schedule and information about the P.I. using the ship.

The UNOLS Wire and Winch Symposium was funded by NSF and is scheduled for Nov. 30- Dec. 1 in New Orleans, LA. A steering committee of 6 scientists and 1 operator has been set up to provide oversight for the Symposium. This is the first wire and winch symposium in 16 years and the proceedings will be used to update the Handbook of Oceanographic Winch, Wire, and Cable Technology published in 1982. Operators, technicians, and sea going scientists are encouraged to attend the meeting. The UNOLS office has some travel money available for scientists attending the meeting. It was suggested that more than one cable manufacturer be given the opportunity to participate.

It was noted that the Fleet Review Committee was concerned that only 65% of the scientists using UNOLS vessels were submitting cruise assessment forms. It is anticipated that more pressure will be exerted to increase the number of responses.

**Safety Committee** - Tom Smith reported that the Research Vessel Safety Standards are on the UNOLS web page and printed copies will soon be available from the UNOLS office. The final version will contain an index as recommended by the UNOLS Council. A review of the CFR's as they pertain to un-inspected research vessels is underway and will be completed by the Safety Committee in January. The Safety Committee will also review the RVOC Training Manual in an effort to determine to what degree

the manual meets STCW training requirements and what changes if any may be required to update the document.

**Ship Scheduling Committee** - Mike Prince reported on the activities of the Ship Scheduling Committee. The Committee met as a full committee in July and then met again in September to review input from the operators and resolve outstanding schedule conflicts. Mike pointed out that it is difficult to get all the information needed to present final schedules for all vessels as early as September of the preceding year. It is anticipated that by combining the ship request process and the ship scheduling effort through electronic submissions many of the uncertainties that currently hamper the efficient scheduling of UNOLS vessels will be resolved.

In 2000 there are a number of vessels with weak schedules. NSF will be using more ship days on larger ships in 2000, but NAVO support for the fleet may be significantly reduced when compared to funding in previous years.

The Ship Scheduling Chair is now Joe Ustach representing the east coast and Dan Schwartz is the new west coast representative and Vice Chair of the Committee.

**Research Vessel Technical Enhancement Committee (RVTEC)** - Bob Martin (UT) attended the 1999 RVTEC meeting which was held at the University of Texas Marine Science Institute in Port Aransas, TX. A number of pertinent issues were discussed including the need for underway meteorological collection capabilities on UNOLS vessels, programs for training technicians for the fleet, new automated nutrient analyzers, the 38khz Phased Array at University of Miami, and NetCDF. Advanced training for technicians within RVTEC was discussed and it was determined that NSF would be receptive to supporting some training within the group. Annette DeSilva asked for suggestions for the next INMARTECH meeting.

Next years meeting will be held at Lamont-Doherty Earth Observatory in order to make travel easier for those attending the INMARTECH meeting in Holland.

**Fleet Improvement Committee (FIC)** - Joe Coburn, RVOC's representative to FIC and AICC reported on the activities of these 2 committees. A meeting is scheduled during the week of Nov. 8 to kick-off an effort to write a biannual review of the fleet capabilities. It will not follow the same format as the Fleet Improvement plan of previous years. An outline of the fleet review can be found on the UNOLS web site.

**Arctic Icebreaker Coordinating Committee (AICC)** - Delivery on the *USCGC Healy* is now scheduled for 9 Nov. 1999. Warm water testing will be held in early Feb. 2000 and cold water testing will be in May and June of 2000. Cold water testing will be conducted in the Davis Straits. UNOLS input to this project has been predominately through RVTEC. Joe will be involved with operational ice trials in the eastern Arctic.

## **AGENCY REPORTS**

**National Science Foundation (NSF)** - Dolly Dieter gave a summary of NSF activities. Holly Smith has joined Dolly's staff as a Science Assistant. Don Heinrichs will be retiring the end of Dec 1999. Mike Reeves will take over the Facilities Section at NSF. Because Dick West has not been replaced, Dolly now has the UNOLS Office, Shipboard Scientific Support Equipment, and Winch and Wire in addition to her regular duties.

In 1999 funding was not as tight due in part to a 7% program increase. Dolly was able to fund the purchase of defibrillators, the van study, training for the fleet, the ASCEND workshop, the wire and winch symposium, and a computerized stability program under development by Scripps, but the majority of her extra monies went to the training program.

The budget request for 2000 is about \$40M compared to a \$30M budget request for 1999. Currently there is about \$35M to cover operational costs for year 2000. Operators are requested to adjust operating budgets in accordance with NSF budget limitations. There is no budget yet.

The new proposal guidelines are still in draft form. The new guidelines will include more emphasis on quality assessment. In October 2000 all proposals will have to be submitted by Fastlane.

**Office of Oceanographer of the Navy (ONR)** - Tim Pfeiffer submitted the report for the Navy. There will be approximately the same level of ONR funding next year. There will be a significant drop in the level of NAVO funding in 2000. There is also a significant decrease in ship time requests from NOPP. In 1999 funding was provided for upgrades to Navy owned ships. There are no funds for upgrades in 2000.

The contract for the AGOR 26, the University of Hawaii SWATH, was signed last week. Delivery of the ship is scheduled for 23 months after the contract has been signed.

About twice the amount of funding for DURIP proposals is requested then there is monies available for funding.

Navy owned vessels are now on a 5-year INSERV inspection cycle. A science inspection will be added midway between the scheduled INSERV inspections.

**Naval Oceanographic Office (NAVOCEANO)** - Paul Taylor and Gordon Wilkes represented NAVO, *Appendix III*. NAVO has utilized 10 research vessels from UNOLS institutions over the last 3 years to meet their domestic R/V requirements. A total of 1,255 days has been funded on UNOLS ship during this period. It would take 5 years to accomplish this amount of work using Navy assets. Approximately \$7.5M/yr has been spent on ship time in the fleet. All the high priority gravity work outside foreign EEZ's has now been completed. In addition, a large amount of physical oceanography work has been completed along with side scan sonar and high resolution bathymetry work. The SOCAL, AUTEK, and ECSWTR Onslow Bay Test ranges were also supported with this ship time. The schedule for 2000 was presented. If excess funding is made available more ship time will be funded on the West Coast.

**National Oceanographic and Atmospheric Administration (NOAA)** - CDR Elizabeth White introduced Capt. Stephen Manzo, Deputy Director of the Atlantic Marine Center. Scott McKellar is retiring and OAR is being reorganized. Beth is now assigned to the Office of Science Support.

The *Ron Brown* has completed an around the world voyage. There may some trouble with the starboard Z drive on the *Brown* and some vibration testing has been done to determine the source of the problem.

The \$3M NAVO funding for the UNOLS fleet now resides in the NOAA Corps and Fleet Maintenance Account. It is as yet to be determined how this money will be allocated back to the NAVO account.

Beth introduced CDR Bill O'Clock who gave an overview of the NOAA Corps Office *Appendix IV*. Bill will be replacing Scott McKellar as the primary NOAA liaisons to UNOLS. A number of personnel changes in the NOAA Corps Operations were presented. The Corps has recently been given recruitment authority after a 4-year employment freeze. In 1999 23 new officers were recruited into the NOAA Corps. The goal is to have 250 officers by the end of FY 2000.

Highlights from the various NOAA groups were reviewed. The *Rude* was involved with the project to locate John F Kennedy's plane. A major planned project last year was the Sustainable Seas Expedition (SSE) which involved the exploration of the 12 marine sanctuaries in the U.S. This project is a partnership between the National Geographic Foundation, the Goldman Foundation, which funds the project and NOAA. Canadian one-man submersibles are being used to explore the sanctuaries.

More details were provided on the *Ron Brown* round the world cruise. During this cruise the *Brown* completed studies of volcanic activity off the Washington/Oregon coast, studied precipitation patterns around the world and determined air-to-sea exchange of CO<sub>2</sub> in the North Atlantic.

The status of the *Gordon Gunter* was presented. It is the replacement vessel for the smaller *Chapman*, which operated in the Gulf of Mexico. All systems seem to functioning properly and the ship has 260 days scheduled in 2000.

NMFS budget issues were reviewed. Funds were provided for upgrades to the data collection on the *Rainer* and partial funding was provided for the Coastal Ocean Program (COP). Funding was not received for the conversion of 2 Navy vessels one of which was planned to replace the *Rude*.

**U.S. Coast Guard** - CDR George Dupree, reported on the status of the *Healy*, presented an update of the Polar class vessels, and discussed the revised MOA with NSF. After completion of ice trials in the eastern Arctic the ship will return to Seattle via the Northwest Passage. The final commissioning is planned for Sept. 2000. The first unrestricted science cruise is scheduled for early spring 2000 *Appendix V*.

The *Polar Sea* completed Operation Deep Freeze in the Antarctic and then immediately deployed to the Arctic for a funded science mission in the St. Lawrence Island area. The ship is currently undergoing a "reliability Improvement Project". The *Polar Star* just completed major repairs to the centerline shaft and will deploy for Deep Freeze 2000 in mid November.

A revised MOA between the Coast Guard and NSF was signed earlier this year. The document, which outlines NSF's use of the Coast Guard icebreakers, is a vast improvement over the old document. With the new MOA, incremental reimbursement of fuel costs and a surcharge for helicopter and ship maintenance costs will be passed on to NSF.

**U.S. State Department** - Tom Cocke reported that research vessel clearance procedures are at an optimum level. During a period of about 6 weeks last spring Liz Maruschak assumed operation of the office while Tom was ill. During this period Liz did all the foreign clearances, post cruise obligations, and interacted with marine operators and embassy personnel. She is in the process of developing a new computer program for managing clearance requests in the office. Funds are still outstanding to hire a consultant to review the program before final implementation.

## SPECIAL REPORTS

**Lasernet Technology** - Dan Schwartz gave a brief summary of the new Lasernet technology for oil analysis being tested on the *Thompson Appendix VI*. This is an onboard system that measures fault type and rate of progression of faults by measuring size distribution, shape characteristics and rate of production of debris particles. This is an existing technology that is being adapted to marine applications by the Naval Research Lab (NRL). The system is designed to be installed inline and can be used to analyze fuel, hydraulic fluid, and lubrication oil. The unit is not inline yet. Samples are drawn by the engineers and tested onboard the ship. It is very important to use proper techniques when taking the sample.

## LUNCH

**SACLANT Undersea Research Center** - Chris Gobey reported on the activities of SACLANT and their research vessels, the *Alliance*, and a 60' Army T-boat. The *Alliance* carries a German, British, and Italian crew and the smaller vessel has an all Italian crew. Last year they were working primarily in the Black and Mediterranean Sea. Their operations are limited by the numerous War Risk areas in the Mediterranean.

Plans to replace the T boat are underway. The Invitation for Design Concept was out in October and plans are to have final documents for the shipyard by July 2000. It will be 80-100' LOA and will be an Italian flagged vessel. Total cost for the construction of the vessel is \$5.5M.

**Southampton Oceanography Centre** - Paul Stone provided an update on the Southampton Oceanography Centre. The Centre has 3 research vessels, *Discover*, *Darwin*, and *Explorer*. Their funding is level this year and a drop in sea days may force the lay-up of one of their vessels. A new, 75m vessel is on the planning board. It is anticipated that this ship will replace 2 of their existing vessels. There has been some discussion about privatizing ship operations at the Centre. All of the Centre's fleet is ISM Certified. They have not reached full compliance with STCW '95 regulations and are struggling to come to grips with this issue.

**Netherlands Institute for Sea Research (NIOZ)** - Dr. Marieke Rietveld spoke about the INMARTECH 2000 meeting *Appendix VII*. The meeting will be held at the Netherlands Institute for Sea Research in Texel, The Netherlands on 20-22 September 2000. It will be planned and organized to facilitate the best possible interaction between technicians. The total number of participants will be limited to 60-80 to allow for small discussion groups of about 15-20 individuals.

A list of suggested topics for the meeting were provided and RVOC members were encouraged to comment on the agenda. Presentations were given at the ISOM and RVTEC meetings earlier this year and participants were asked to provide lists of potential attendees and provide input to the preparation of an agenda.

### RESEARCH VESSEL UPDATES

**University of Hawaii** - Robert Hinton gave a status report on the SWATH AGOR 26 *Appendix VIII*. A contract was signed last week with Atlantic Shipyard for the construction of the ship. She will carry a 16 person ship's crew and 31 scientists. Operational speed will be 12 kts in Sea State 6 (4-6m wave height). Station keeping capabilities are +/- 50m at best heading. SWATH mapping, standard sonar, and all scientific equipment are optional to the contract. An I-met lab will be located at the forward end of the ship at the main deck level. A computer room and E.T workshop will be located above the science labs on the main deck. Total lab space is equal to approximately 3,000 sq. ft. The vessel will be ice strengthened and will have a 100 tons of science payload. Two 20' vans will be carried on the 01 deck.

Construction is scheduled to begin in June 2000 and delivery will be in September 2001. Post shipyard availability will be in June 2002.

**University of Miami** - David Powell reported on the construction of the replacement of the *Calanus Appendix IX*. Tim Graul was selected to commission a design for the new catamaran. Bid packages were circulated to shipyards last year and 7 bids were submitted. Two yards were selected as finalists and the consulting architects, Van Leer & Associates participated in site visits and final selection of the successful bidder. The ship will be built at Eastern Shipbuilding in Panama City, FL at a total cost of \$4.2M. Delivery date is scheduled for 23 January 2000.

The as yet unnamed catamaran will be 96' long and 40' wide and will be registered at <100 gross tons. Crew complement will be 3 typical and 4 max. Twenty berths will be available for scientific personnel. She will have dynamic position capabilities, which will incorporate dual side tunnel thrusters, controllable pitch propellers and independent rudders controlled by a Kongsberg Simrad DP system tied to an attitude, heading and vertical reference sensor.

Scientific capabilities include ADCP, 3.5kHz and 12 kHz transducer arrays, a notched stern to facilitate handling of equipment using the stern A frame, and a moon pool between the 2 hulls. She will also carry a W.S Ocean undulating system that will allow for continuous underway, vertical sampling at pre-set sections of the water column.

The ship will be built to USCG Subchapter T standards and will have an ABS International Loadline.

**University of Connecticut** - Larry Burch provided an update on the University of Connecticut new *R/V Connecticut Appendix X*. The vessel was built by Washburn and Doughty, Inc. at a total construction cost of \$2M. She was delivered to her homeport in Groton, CT on 11 November 1998. There were numerous problems with the vessel when she was delivered including bad wiring, engine failures and poor thruster reliability, but these have all been corrected and the ship is operating as expected. The ship is 76' long and carries a 3man crew on day trips and 5 men for 24/hr/day operations. The day rate for the vessel is \$3,400 beginning in January 2000.

**Scripps ISM Experiences** - Tom Althouse gave a brief synopsis of their experience with recent efforts to obtain ISM and ISO 9002 Certification for their fleet of research vessels *Appendix XI*. In December 1998 ABS conducted an assessment of the Scripps vessel operations and a review of policies already in place that could contribute to the development of ISM compliance documentation. An ISM Coordinator was

assigned at this time. In January 1999 a format for ISM manuals was selected and in February of this year a Quality Steering Committee was established and document writing was commenced. Safety Management Manuals were written for each vessel, the management section, and shops, and reference documents were compiled. In October 1999 Scripps personnel were enrolled in auditor training courses.

Each ship in the Scripps fleet will have a safety management plan that is based on the overall plan established for the institution.

Considerable discussion followed concerning the ramifications of implementing ISM. The basic premise behind ISM is that you must do what you say and you should not include issues in your compliance documentation that you do not have control over. For example, the handling of hazardous scientific materials is regulated by your institution and should not be covered in your list of standard operating procedures.

**WHOI/SIO Proposal to Support Antarctic Research** - Tom Althouse reported that Scripps and Woods Hole Oceanographic Institute teamed this year to prepare a proposal to NOAA to conduct fisheries research and standard ocean survey work in the Antarctic *Appendix XII*. They prepared a list of equipment needed to refit the *Knorr* and *Melville* to conduct fisheries research. The equipment was designed so the same suite of equipment could be used on either vessel. Equipment costs alone equaled \$1.5M. The total fixed cost price for the 5 year program was \$19M. This included significant amounts of transit time that could be reduced depending on the ship's schedules any given year.

They were informed that the cost estimate was in the competitive range, but a decision was made by both institutions to withdraw their bid because of a \$7.5K/day liquidated damages clause in the final contract.

The contract was ultimately awarded to the some Russian vessel that did this work for the last 3 years.

The pervious 3 year contract was about \$6M.

**Insurance and Liability** - Dennis Nixon, Risk Manager for the UNOLS fleet, reviewed maritime case history, and insurance in the UNOLS fleet over the last year. Dennis has been the Legal Advisor for Risk Management for UNOLS since 1991.

Dennis covered 5 issues relevant to marine insurance and they included insurance cost figures for the entire UNOLS fleet, the world outlook for marine insurance, ISM operational issues, maritime personal injury awards, and issues involving seaman status.

Premium costs for the UNOLS fleet in 1998 were less expensive than originally anticipated. Insurance costs for that year was approximately \$800K. The accumulated savings on insurance premiums over the last 5 years has been just over \$2M. Premium costs for each class of vessel and costs per person on UNOLS vessels were presented.

In 1997 the world wide marine insurance industry lost \$3.6B. Over capacity in the market is at the root of low premium costs in recent years. This in combination with OPA 90 regulations, greater port state enforcement of new rules, and ISM regulations have resulted in reduced premium costs again in 1998.

Most of the losses in recent years involved large vessels. The number of ships lost has gone up, but the total amount of tonnage lost has gone down.

Dennis reviewed some of the legal ramifications of ISM. The ISM manuals could create a potential for mariners to be subjected to serious paper work violations. Examples were given of managers receiving criminal fines because of negligent acts that were record in ISM required record books. An example was also given of managers that hire trained crews to be present during ISM inspections and then replaced the trained individuals with unlicensed personnel after the auditors left.

A number of maritime personal injury cases were presented. One case reiterated that OSHA standards do not apply to ships on the high seas.

## A Taste of Aquaculture Buffet Dinner at Laizza Reception Center

**Wednesday, 3 November 1999**  
**HBOI Marine Education Center Annex**

**Academic Fleet Review** - Dolly Dieter provided an overview of the Academic Research Fleet Review *Appendix XIII*. The Academic Research Fleet review Committee consisted of 8 individuals from industry, federal government and academia. The Committee was charged by the NSF Assistant Director for Geosciences to: review and evaluate the current academic research fleet, review and evaluate management structure, existing capabilities and services and possible future changes, and to recommend actions to improve the organization, management and cost effective operation of the fleet.

The Committee recommended that the UNOLS system be retained with increased emphasis on science support and continuous quality improvement. They noted a continuous evolution of technology and facilities support requirements for science programs and they underscored the need for updated research platforms. They recommended that quality-based systems for ship operations, instrument support, and technical services should be adopted fleet-wide, along with rigorous evaluation of performance. The entire UNOLS and operator system needs to be infused with an orientation toward continuous improvement and formal quality control programs.

The NSF Ocean Sciences Section response to the Committee's recommendations was presented. The NSF will develop new Cooperative Agreements with renewed emphasis on quality control and standards and will revise guidelines, reviews and management of shared-use instrumentation to improve technology. They also plan to sponsor workshops focused on emerging technology, specialized capabilities and improvements to basic systems. Long range planning for the modernization of the fleet and trial participation of commercial operators are included as long range goals.

**National Marine Fisheries Service (NMFS) - FRV40** - Jim Meehan spoke about the status of the proposed new fisheries research vessel for NMFS and gave a brief overview of NMFS facilities and their need for fisheries vessels *Appendix XIV*. There are 4 NMFS centers and 20 NMFS laboratories located in the U.S. The data needed to support NMFS activities comes from various sources including NOAA fisheries research vessel, private sector and academic R/V's, commercial and recreational observers and catch statistics and remote sensing. There are 3 major laws that NMFS has to respond to, the Magnuson-Stevens Fishery Conservation and Management Act, the Endangered Species Act and the Marine Mammals Act. Dedicated fishery research vessels (DFRV) are needed to enforce these laws by providing calibrated instruments for acquiring long term data sets for accurate stock assessments.

NMFS needs new DFRV's because the old ones are 31-49 years old and the technology on these vessels is obsolete. It will take about 8 years to acquire the new ships.

The new vessels will meet the ICES (International Council for the Exploration of the Sea) quiet standards. The ICES standards are based on a curve that represents the limits of noise that cause a fish to alter its behavior. This is the major design driver for the design of the new vessels. There are very few vessels world wide that meet these standards. Quieting will be accomplished through special hull and propeller designs, isolation mounting for machinery and piping, hull structural designs for minimum noise propagation, and hull coating and damping materials.

Data comparing some existing vessels with the ICES standards was presented.

The vessels will be a multi-purpose vessels. The maximum science depth capability will be 1,000 fm.

The history behind the centerboard on the vessels was presented. The *Miller Freeman* was built with a centerboard for stability. It was later retrofitted to accommodate the fish sounders. This significantly increased the acoustic capabilities of the vessel.

A very inexpensive styrofoam mock-up of the vessel was created in Aberdeen, Scotland. This proved to be a very useful tool during both the design and construction phases. Tank tests *were* conducted at the



Navy's Memphis design center using a 13' long wooden model of the ship. They also did the design for the propeller, which was a 14' fixed pitch propeller with replaceable blades. The propeller has a number of design features that will increase quietness and efficiency.

Funding has been requested for four FRV's. The first one will be assigned to Alaska. The second vessel will replace the *Albatross* in Woods Hole, the third one will be a new ship for the west coast, and the fourth vessel will replace the *Oregon II* in the Gulf of Mexico. The future of some of the other existing NMFS FRV's was reviewed.

A Request for Information was issued to industry on July 28, 1999. About 400 comments and questions were received. A Request for Proposals will be issued on November 5, 1999 and a contract award is expected in May 2000. Delivery on the first vessel is scheduled for mid 2003.

The hull and below deck design for all of the vessels will be the same. The main deck will be slightly different on the various ships. The West Coast vessel is the least specialized and the most capable. The Alaskan vessel has a lot of redundant systems. The vessel is 63.8m long and has a 15m beam. Total complement is 19 scientists and 19 crew.

Information on the vessel can be obtained at [www.sao.noaa.gov](http://www.sao.noaa.gov).

**SeaNet** - Susan Kubany, Bob Heinmiller, and Andy Maffei gave presentations on the SeaNet system *Appendix XV*. SeaNet was developed and operates with funding support from the Office of Naval Research and the National Science Foundation. Omnet is the operations part of the SeaNet consortium. One of the goals of SeaNet is to develop a standard means of communication for ships in the UNOLS fleet.

The SeaNet system consists of rugged, standardized hardware and software configurations and support and the management of these systems. The software developed by SeaNet provides for batch transmissions at 6400 bits/sec, low cost off peak rates, preset cost estimates, and individual user accounting. SeaNet also provides a one-stop trouble-ticket system, billing codes for projects and individuals, and invoicing to multiple parties.

A prototype system was built, installed, and tested on the *Thompson*. After the system was proved to be successful, funding was secured to begin extending the program to the rest of the fleet. The *Atlantis*, *Seward Johnson*, *Melville*, *Ewing*, and *Pelican* all have systems on board. A proposal will be submitted to NSF for a number of new units, but there will not be enough funding to purchase units for the entire fleet.

The primary mission of SeaNet is to provide Internet accessibility to ships at sea. The system is based on the Nera Saturn B Inmarsat system. There are 2 communication modes available one is a batch mode that sends compressed data at very high speeds and the other is an interactive mode which is much more inefficient than the batch mode. Omnet will provide support to insure that the most cost effective communication means is used. Omnet will also handle all High Speed Data (HSD) Communications and they will not add any extra costs to the service provider charges.

Data was presented on the use to date of the installed units. Some initial Beta testing was conducted on the *Atlantis* and *Ewing*. Transmission problems were experienced on the *Ewing* and the source of the problems has not been determined.

The STN Atlas Oceanlink is the only other maritime HSD system available. This unit can not be integrated into the SeaNet system currently.

SeaNet will be providing funding for scientists to use the system in the future. A 3-year proposal will be submitted to NSF for expanding the system by increasing the number of units in the fleet and for providing funds to create a system whereby SeaNet can be used to transmit e-mail more efficiently.

**LUNCH**

**Shipboard Activities Logging System** - Bill Herman with NOAA Corp Operations presented The Shipboard Logging System (SALS) used on NOAA vessels *Appendix XVI*. The shipboard side of the SALS application was demonstrated. The shore side or administrative application was not covered. SALS is an entirely automated system which provides a rapid, seamless, and efficient mechanism to gather operational statistics from NOAA ships and to create information reports for SALS customers. It is estimated that only a few minutes/days are required to provide the data needed to formulate a SALS report on a particular cruise.

SALS information is logged in 2 reports, the Ship's Days Report and the Project Summary Report. The Ship's Day Report provides an accurate breakdown of the ships operation into 20 different day types. Day types account for all operating days either allocated or deployed, ship days and days in homeport.

The project Information Report lists project information, including project name and ID, sponsor and associated strategic plan elements. It also contains number of days at each operating area, a summary of allocated days, operating days, and full or partial days lost for each project.

Besides the Ship Days and Project Information reports, the ship can obtain detailed summary activity reports on a monthly basis. It allows each ship to evaluate its progress, derive totals for many different parameters, and maintain a historic archive of its operations.

There are 3 broad day types, Operating, Homeport, and Shipyard days. Each day type is then broken down into subcategories like Full Production day, Curtailed Production day, etc. Numerous examples of the various types of ship days were presented using examples from the NOAA Fleet.

**Computerized Machinery Maintenance Systems** - Jack Ringelberg and Blake Powell from Jamestown Marine provided an overview of various Computerized Shipboard Maintenance Systems *Appendix XVII*. The Navy and the Coast Guard have been using these systems for a number of years. The Navy obtained their system from naval aviators.

A brief overview was given of what should be in a system and then examples of four systems were presented. Three of these systems were available at the meeting.

The purpose of these systems is to standardize maintenance procedures, forecast and schedule preventative maintenance, document corrective and preventative maintenance, organize information and simplify the crew's workload. Having a computerized maintenance program on board will help meet ISM standards. A number of suggestions were given for choosing a system.

Standard system features include an equipment list, maintenance procedures, equipment, spare parts list, shore communications, remote system support/technical support, post-purchase accessories and report generation. Maintenance programs should include all major onboard machinery, technical specifications, manufactures' data, equipment serial numbers, location of equipment, and spare parts inventory. A list of standard reports provided by most systems was provided. The system should have an intuitive interface, easy access and means to up date the data and have an appropriate system scope.

The 4 systems demonstrated were, ABS-SafeNet, KCS- Vessel Maintenance System, Seaworthy-Seastar, and SpecTec-AMOS. All systems have a base installation price and a separate cost for each node. The ABS system is the most capable and most expensive of the 4 examples presented. This system is very good for tracking ISM and STCW regulations. The KCS system is the least expensive system but it only does vessel maintenance history and planning. It doesn't requisitioning, personnel or some of the other functions provided by the ABS system. The KCS system is designed to be used on smaller vessels. The Seastar system has all of the ISM required components. It is a work order driven system. The SpecTec system was the least responsive of the 4 providers contacted. All of the programs do maintenance scheduling, and personnel and cost accounting except VMH.

**Ozone-Shipboard Applications** - Ken Hughes with Delta Marine International gave a presentation on ozone technology and its applications to use aboard UNOLS ships. A brief synopsis of the chemistry of ozone was given. Treating water with ozone does not create any toxic residual compounds. High voltage

electricity and ultraviolet light are used to produce ozone in water treatment systems. The high voltage systems must be supplied with dry air or oxygen. The light tubes with the ultraviolet systems must be replaced on a regular basis in order for the system to perform properly.

Ozone is 3,125 times faster than chlorine at killing *E. coli*. No microbes are known to be resistant to ozone. Ozone can be used to treat ballast water, gray and black water systems as well as potable water systems.

Ceramic diffusion is used to bubble ozone into the water on the *Knorr*, *Oceanus*, and *Atlantis*. Various other means for injecting ozone into the water can be used.

Ozone has been shown to reduce rust in tanks. It also helps to keep the liquid in the tank neutral, kills mold and mildew, and helps control allergic reactions.

An extensive question and answer period followed.

## **Tour of HBOI Marine Operations Facilities**

**Thursday, 4 November 1999**  
**HBOI Marine Education Center Annex**

**Quality** - The Academic Fleet Review report indicated the fleet should look at ways to increase the quality of service provided by the UNOLS fleet. The Cruise Evaluation Form has been one mechanism for identifying areas in which the quality of service on our vessels could be improved. Numerous shortfalls in this approach include the lack of response from scientists and a reluctance on the part of scientists to criticize the ship and crew. Approximately 60-65% of the forms have been returned in the past

It was pointed out that in many cases a lack of communication between the science party and the ship's crew may be at the root of some of the scientists' dissatisfaction with some of the vessels in the UNOLS fleet. Last minute changes in cruise plans and a lack of efficient means for determining the needs of scientist often contribute to misunderstandings and hard feeling between the scientists and ship's crew.

It was suggested that professional help in writing customer satisfaction surveys might be useful. It is difficult to get pertinent information from the scientific community unless the appropriate questions are asked.

Making the crew, technicians, and other members of the vessel support staff aware of the need to be responsive to the needs of the scientists is important and has to be attempted in order to address this problem. Some mechanism for providing training in customer satisfaction may be needed. Suggestions were made to include ISM quality control type programs to monitor technical support on the vessels.

A look at the science of customer satisfaction could also help in improving the quality of service on our vessels. Most sociological studies show that there is no way of quantifying quality. It is well recognized by sociologists and experts in the area of customer satisfaction that it is up to the upper management to pass on to his subordinates the need for customer satisfaction in order for an organization to be successful at providing a quality product.

Many factors and divergent groups of people all contribute to the general issue of perceived quality on UNOLS vessels. Because of this it was suggested that a committee be established in order to look at quality in the fleet and determine if there are problems, where they exist, and make relevant suggestion for improving the quality of service on UNOLS vessel. This committee should be made up of individuals from all groups including the marine superintendent, ship captains, crew, technicians, and most importantly the scientific community. It was suggested that a facilitator be hired to over see the establishment and conduct of the committee. This issue will be put on the agenda for the next UNOLS meeting.

## UNFINISHED BUSINESS

**University of Delaware** - Matt Hawkins gave an update on the status of the replacement vessel for the R/V *Henlopen*. A letter of intent to retire the *Henlopen* has been given to the UNOLS council. A new vessel will be built in 2005. It is anticipated that the vessel will be ready to replace the *Henlopen* sometime in 2006.

**Florida Institute of Oceanography (FIO)** - Gene Olsen reported that FIO is on the verge of securing planning monies for a vessel to replace the R/V *Suncoaster*.

**Woods Hole Oceanographic Institute (WHOI)** - Joe Coburn reported on WHOI's plan to build a new SWATH vessel. The vessel's goal is to support coastal research in the New England area. A number of New England marine science institutions were contacted during the preparation of the mission requirements for the new vessel. Some of the considerations that went into the design of the vessel were the ability to work on George's Bank in the winter, the ability to accommodate a modest deck load of approximately 20 tons, and the vessel would have to have a modest range at a reasonable speed. The vessel will also have modest dynamic positioning and will be acoustically quiet.

Data was shown that compared the sea keeping characteristics of the new vessel compared to the *Oceanus*. The SWATH compared favorably with the *Oceanus*. In Sea State 5 the vessel will roll only 3 degrees. The *Oceanus* will roll 9 degrees in the same Sea State.

The vessel is designed on similar type vessels in the off shore oil industry. The vessel will be steel with an aluminum deckhouse. It is a variable draft vessel which will allow the ship to ballast down in order to get the deck closer to the water to facilitate science operations. The vessel is diesel electric drive.

The design phase has been completed and the plans are ready to submit to ABS. Funds are not available to proceed with the construction of the vessel.

## 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:

- SeaNet
- Personnel Evaluations
- Selecting a naval Architect
- Personnel Data Base
- New UNOLS Office
- Agent Fees - How are port costs covered? What charges can scientists be expected to pay?
- Crew Rotations - How do institutions pay for travel costs associated with crew rotations?
- E-mail - What costs associated with communication aboard ship are scientists and crew responsible for reimbursing the operator?
- RVOC Web page

## BUSINESS MEETING

Action items

- Paul Pelletier, Dan Schwartz, Fred Jones to review small boat compendium
- Vice Chair will be responsible for updating the RVOC Web page which will include Superintendent access only section
- Bill Hahn to investigate volume buying for maintenance software
- Tim Askew to investigate securing an individual to do a presentation on psychological implications of going to sea and how spending long periods at sea affect individual behavior.
- Paul Ljunggren will contact NSF with recommendations for ship inspection program and suggestion for revisions for the new cooperative agreements

- Marine Superintendents to encourage scientists to attend Wire and Winch Symposium
- Paul Ljunggren will investigate various management training programs
- Paul Ljunggren will develop a slate for the Chair and Vice Chair for the 2000 meeting

Oregon State will host the 2000 meeting and the University of Rhode Island will host the meeting in 2001. An effort will be made to schedule the 2001 meeting in conjunction with the RVTEC or ISOM meetings. The dates for the meetings are to be determined.

*Adjournment*

*The RVOC wishes to express its thanks to, Rick Herman, Tim Askew, and the Marine Operations staff at Harbor Branch Oceanographic for hosting this year's meeting.*