

UNOLS FLEET IMPROVEMENT COMMITTEE

Meeting Minutes

Naval Oceanographic Office
Stennis Space Center
Stennis, Mississippi
5-6 February 1996

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1. OPENING REMARKS - The UNOLS Fleet Improvement Committee met in Room 162 at the Naval Oceanographic Center in Stennis, Mississippi on February 5 and 6, 1996. Captain Dieter Rudolph welcomed the FIC to NAVO and provided the opening remarks. He gave a brief description of the NAVOCEANO facility at Stennis Space Center and the status of the Navy's survey fleet and assets. A major initiative for NAVOCEANO is to initiate "cross-learning" projects. Data processing can be applicable as a cross-learning project by placing NAVOCEANO personnel on UNOLS ships and vice versa to observe different methods for handling data. The annual budget for operation of their survey ships is approximately \$65 million.

2. INTRODUCTION AND WELCOME TO NEW FIC MEMBERS - Chris Mooers, FIC Chair, introduced and welcomed the new FIC members. New members include Bess Ward from the University of California, Santa Cruz (her areas of interest include molecular biology), Tom Weingartner from the University of Alaska (his areas of interest include Arctic physical oceanography), and Larry Atkinson is replacing the remainder of Don Wright's term (his areas of interest are physical and chemical oceanography). All other meeting participants ([Appendix II](#)) were introduced.

Chris reviewed the FIC subcommittees and task assignments. He emphasized that everyone needs to be involved in a significant fashion. The Fleet Improvement Plan (FIP) needs to be updated. This is a two-year process that should begin now. Improved science communication is needed in the development of the FIP update. Community awareness of UNOLS needs to be heightened. Open forums at ocean science conferences were suggested. Ken Johnson is writing an article on the state of UNOLS to be published in EOS.

The meeting agenda is included as [Appendix I](#).

3. STATUS REPORTS:

3.a. News from the UNOLS Council - Ken Johnson, UNOLS Chair, reported that the National Research

Council OSB report on Arctic research facility needs has been published. The report endorses the construction of the USCG Ice Breaker HEALY, but emphasizes that the Coast Guard must work with the community during the vessel's construction and operations. UNOLS will establish a high latitude facility committee to work closely with the U.S. Coast Guard to advise on polar science operations and provide oversight of HEALY's construction with respect to science facilities. The USCG will provide most of the support for this new committee. The Ocean Sciences Division at NSF has shown interest in the committee and is working to help establish it.

Construction plans for an Arctic Research Vessel are on hold indefinitely.

Ken discussed the UNOLS report on Projections for UNOLS' Future. The report was prepared by a UNOLS Subcommittee chaired by Peter Betzer. There are still many unanswered questions mostly because of the uncertainties with NOAA's future, especially the fate of the NOAA Fleet. Ken and Jack Bash have been asked to attend a

meeting in Washington, DC to discuss the future of NOAA's fleet operations and how its potential changes may impact the UNOLS Fleet. The committee briefly discussed UNOLS capability for performing fisheries oceanography.

In other UNOLS matters, ATLANTIS has been designated as the new deep submergence support platform to replace ATLANTIS II. An agreement was reached between ONR, NSF and WHOI to support the ship's modification costs.

The 1996 schedules are posted. All funded science ship days have been scheduled. The large ships have good schedules; however, most of the intermediate and small vessels are showing low utilization. CAPE HATTERAS will be tied-up for the year.

Ken reported that the MBARI's new swath vessel, WESTERN FLYER, arrived at Moss Landing on 2 February. The vessel is 119 feet in length and has a 56-foot beam. Its cruising speed is 14 knots.

A Diving Safety Meeting was held in October to review and update the 1990 diving report. Approximately 15 people attended including agency representatives, Michael Lang from Smithsonian, ship operators, dive officers, and divers. Changes have been drafted and are under review. A supplement to the 1990 report will be distributed which will provide the changes to the original report. One of the recommendations was the need to heighten awareness of diving safety. Ken Johnson has written a letter which will be distributed to ship operators expressing the need for diving safety.

The Department of Commerce (DOC) has approached UNOLS regarding their fisheries buy-out program. Under the program, DOC buys fishery vessels from commercial fishermen. The fishermen in turn must give up their licenses to fish. DOC has a formula for selecting which vessels to buy. The most attractive vessels are those yielding the biggest catches. Ships vary in age and size; from two to 40 years old and 60 to 220 feet in length. Prior to buying the vessel, the vessel owner has the option to cannibalize the vessel. The UNOLS Office has advertised to the community that these vessels can be made available to their institutions. Once a vessel is selected by DOC, the institution can negotiate directly with the fishermen regarding the degree of cannibalism. Last year, 13 ships were bought by DOC and destroyed. Most of the ships were concentrated in the N.E. Atlantic. Fifteen inquiries into the buy-out program have been received at the UNOLS Office.

3.b. Inventory of Small R/Vs - Jack Bash reported that most of the small boat inventories from the various U.S. geographic regions have been posted to the WWW. Those areas that have not been posted are almost ready for posting. FIC recommended that Jack add a disclaimer to the posting stating that these vessels are "available for scientific use, but their listing does not guarantee approval for federally funded programs."

3.c. Primer on Small R/Vs - Jack Bash reported that no further progress has been made in developing a primer. Bob Dinsmore has retired. Jack will assist in coordinating this effort. It was recommended that a volunteer from RVOC be sought to take over the project.

3.d. Point Paper on Safety Orientation - Suzanne Strom was not present, but she had passed her draft paper and comments to Chris prior to the meeting, see [Appendix III](#). Suzanne points out that it appears that not everyone is acutely interested in the safety problems. There is a need to elevate awareness of shipboard safety. RVOC is planning to produce a video highlighting important safety tips. FIC made a number of recommendations:

- Post signs on ships with simple safety reminders.
- Canvas the crews on what scientists tend to neglect in regard to safety
- Offer CPR classes.
- Require science parties to attend a safety briefing prior to setting sail.
- Establish physical standards for the science party, possibly with required physical examinations.
- Define the Chief Scientist's responsibility in regard to safety.

The safety orientation paper will be published in the UNOLS Newsletter along with a cover letter by Ken Johnson.

Joe Coburn provided an example of a European shipboard safety video. After viewing the video, FIC encouraged RVOC to proceed with the production of a safety orientation video.

3.e. Report on Van Study - Suzanne Strom provided the draft Van Study for FIC's review, see [Appendix IV](#). It was noted that USCG and ABS regulations regarding vans should be referenced in the study. (FIC members passed written comments to Chris, who in turned passed them to Suzanne.) NAVOCEANO offered to provide the ABS regulations to Joe Coburn. The draft study will then be provided to RVOC and RVTEC for their review. It was suggested that the study be completed for the summer UNOLS Council meeting.

3.f. Nuclear Submarine Report - Jack Bash reported that the Nuclear Submarine report is in its final review and is expected to be distributed in approximately six weeks.

3.g. ARV Ocean Studies Board (OSB) Report - Tom Weingartner provided a review of the National Research Council OSB report, *Arctic Ocean Research and Supporting Facilities - National Needs and Goals*. The report outlined three configurations to meet

Arctic science needs:

1. Cease building HEALY and build the ARV,
2. Don't build the ARV, but operate HEALY in a dedicated research mode similar to the way the ARV would be operated, or
3. Retire one polar class vessel and build both the HEALY and ARV.

Although, the ARV is not a dead issue, at the present time configuration (2) is being pursued. NSF, USCG and UNOLS are forming a committee to be supported largely by the Coast Guard, to advise on Arctic science operations and provide oversight to the HEALY construction process. Tom Weingartner provided a comparison table of the ARV and HEALY along with summaries of why one vessel is better than the other, see [Appendix V](#). HEALY will be able to carry more scientists and is more ice capable, and the cost to NSF is less (\$20,000 versus \$33,000/day). The ARV is designed as a more capable science support vessel. Attributes include more/better science equipment, technical assistance, and crew experience. The laboratories are larger with a better layout. HEALY has no Baltic rooms (covered working deck areas for protection against harsh environment).

3.h. Agency Reports:

National Science Foundation (NSF) - Dolly Dieter provided the report for NSF. She began by explaining that NSF is operating under a continuing resolution until 15 March. It is very difficult to speculate what the continuing resolution will bring in terms of funding. If funded at 90% of the 1995 level, ship operations will most likely all be funded. At the present time, NSF is authorized to fund up to 75% of the 1995 level. At this time, there has been no future commitment for GLOBEC field work from NOAA. NSF is becoming very concerned.

Office of Naval Research (ONR) - Sujata Millick provided the report for ONR. She began by outlining the highlights of the 1995 CNO Executive Board (CEB) study. The Board met in the spring and has published its report. The study promotes Navy's role in oceanographic research. The study recommended that ONR maintain its ocean sciences budget at or above the FY96 level. In other matters, an agreement has been reached between WHOI, ONR and NSF to modify ATLANTIS to become the new support ship for ALVIN and ROVs. REVELLE delivery is scheduled for 8 June. The formula for funding ship time by ONR has changed. The Research Facilities program will now provide 80% of the ship time costs and the science programs will provide 20%. In the past, science programs provided roughly 45% of the cost. The effects of this change most likely will not be felt until 1997; however, some of the science program officers that are aware of the change have already requested additional ship time.

Naval Oceanographic Office (NAVOCEANO) - CDR Darrell Smith provided a report on NAVOCEANO's Survey Fleet and assets, see [Appendix VI](#). He first provided a list of points of contacts for each of the UNOLS Committees. Next he showed a map of the current locations of the survey vessels and aircraft. The assets are dispersed world wide. Darrell provided views of the profiles of each ship class. NAVOCEANO recently acquired the USNS WATERS. The vessel had been previously used by the Navy in SPAWARS operations. It is 457 feet in length and has four bowthrusters. The vessel will carry four HSLs and two ROVs for bathymetric survey work. A comparison table of the four classes of survey ships was provided. The KANE will be transferred to the Turkish Navy in the near future. The TAG-60 Class is still experiencing transformer problems and as a result is presently speed-limited. These problems are still being investigated. These ships are 329 feet in length and can carry 27 scientists. Other assets discussed included "SHOALS" which is a laser airborne sonar system and the Oceanographic Remotely Controlled Automation (OCRA), an AUV. ORCA looks similar to a torpedo with a mast. It is approximately 24-feet in length with a 21-inch diameter. It's mission is the cost-effective collection of hydrographic and oceanographic data. ORCA carries an ADCP and a CTD. The approximate cost of ORCA with a SIMRAD system is \$2 million. Darrell Milburn from NAVOCEANO provided an additional report on new technologies and ORCA. A paper describing ORCA and its capabilities is included as [Appendix VII](#). FIC indicated that UNOLS would be interested in receiving NAVOCEANO's list of new technologies.

Oceanographer of the Navy's Office - Pat Dennis provided a brief report. The Oceanographer's modernization plan is expected to be complete in FY97 and result in a fleet of eight survey ships. The TAG-60 Class construction has proceeded and, by April, three ships will be delivered. TAG-63 is scheduled for delivery between October 1997 and February 1998. USNS WATERS will undergo yard work this year making it capable to support survey work. There is growing support for NAVOCEANO to work with UNOLS; however, potential conflicts with operations in EEZs will need to be investigated. If funding permits, and the timing can be accommodated, NAVOCEANO would like to experiment with utilizing UNOLS vessels. Pat concluded by reporting that NAVOCEANO was very encouraged by the CEB study and will work to build strong partnerships between Navy, industry, and academia.

3.i. Whither UNOLS - Peter Betzer reviewed the findings of the report, "*Projections for UNOLS' Future - Substantial Financial Challenges*," see [Appendix VIII](#). The fundamental questions that the report attempts to answer is whether there will be sufficient science and operational funding in the future to support the UNOLS Fleet as currently configured; if not, what actions might be taken to maximize the effectiveness of the Fleet. A committee chaired by Peter was formed to address these questions and report their findings. Peter reviewed the specific charge to the Committee. The charge included five elements: (1) review Don Heinrichs' budget projections, (2) assess a general model for the UNOLS Fleet requirements for supporting science, (3) if an imbalance exists between requirements and resources, offer suggestions as to how to remedy the situation, (4) investigate what UNOLS operational/fiscal changes would work best, and (5) could fleet realignment lead to a more effective use of our ships? Table (1) and Figure (1) of the report show the trends in federal support over the past 27 years. NSF and "other" support has increased five-to-six-fold and ONR's support has remained the same. UNOLS Fleet operations support is projected to be level into the future. Under this scenario, by 1997 there will be a shortfall in funding of approximately two large ships and one intermediate.

One recommendation of the report is to build partnerships with other federal agencies. Unfortunately, NOAA's future plans are unclear. The USGS has provided some positive feedback. They may be

interested in using 30 to 60 days of Class IV time each year. Ken Johnson plans to contact agencies after the report is distributed. The report should be ready for distribution by mid February.

3.j. ALVIN Support Ship Conversion - Joe Coburn reported that four parties (WHOI, NAVSEA, ONR and NSF) worked out an agreement with the shipyard, Halter Marine Inc., to modify ATLANTIS to be the new submersible/ROV support ship. The cost of the modification was negotiated at approximately \$2.7 million and will be split evenly between NSF, ONR and WHOI. The A-frame from ATLANTIS II will be cross-decked. An area has been designated for battery storage, spares, etc. Shops for ALVIN and ROVs will be added along with an ROV hangar and hydroboom. The modifications will not impact the general oceanographic capability of the vessel. ATLANTIS was launched on schedule on 1 February. Builders trials are scheduled for December 1996. Delivery of the ship (with the ALVIN modification installed) is planned for 15 April 1997. ATLANTIS II is presently for sale and may be scrapped.

3.k. AGOR 24/25 Construction Update - Joe reported that REVELLE is scheduled to undergo builder's trials in March with delivery planned for June 1996. After transit to Scripps, the ship will have a fitting out period. The ship's 1996 schedule is very minimal. Since AGOR 23's delivery, most (if not all) of the major deficiencies in the ship's design have been addressed and corrected on AGORs 24 and 25. These include noise reduction, addition of a traction winch, bridge rearrangement, and transition to copper nickel piping. NOAA's AGOR construction is coming along. Launch is scheduled for May 1996 and delivery is planned for August 1997.

4. INITIATIVES:

4.a. Shipboard Technology Upgrades - Chris Mooers opened the discussion on shipboard technology upgrades by distributing an outline for a study plan (see [Appendix IX](#)). Rich Findley informed FIC of the efforts of RVTEC. An ad hoc committee was suggested to study shipboard technology upgrades. Eric Firing was recommended to chair the committee. Bess Ward would address biological issues; Bob Detrick, geology; Peter Betzer, chemistry and a representative would be found to address engineering issues. A representative from NAVOCEANO would also be asked to serve on the committee.

Rich discussed the progress of JOI's development effort with SeaNet, see [Appendix X](#). A prototype of SeaNet, which is a method of bringing Internet to sea, was installed on THOMPSON in October 1995 and has been used successfully from the Indian Ocean. Technical support for this program was provided by Andy Maffei, WHOI; Bill Martin, UW, and Mike Relander, UW. The system uses INMARSAT B. One problem encountered was the masking of the signal to the antenna causing a disruption in transmission. When the ship was positioned for a clear signal, the system worked faster than shoreside Internet. Rich presented an analysis of the economics suggesting a significant cost reduction over slower data transmission rates using the traditional Inmarsat A. Next steps in the SeaNet development include: (1) working closely with other UNOLS ships for further development of a standard B interface to SCN, (2) identifying a science cruise that requires high speed data requirements, and (3) identifying other UNOLS institutions planning upgrades to INMARSAT B to assist in data considerations.

4.b. UNOLS Fleet as Real-Time Data Platforms - Rich Findley reported that not much progress has been made on this subject but will be reported on at the summer FIC meeting. However, RVTEC is working on data standards which will be important when addressing real-time data collection. FIC member, Eric Firing, has been working with RVTEC on this issue. RVTEC has encouraged OSU to submit a NSF proposal for data standard development.

4.c. UNOLS Fleet as MG&G Platforms for NAVO - In Bob Detrick's absence, no update was provided.

4.d. White Paper on Regional Consortia - Chris Mooers had distributed a draft white paper on the use of regional consortia and the need to hold workshops to better define future R/V needs of regional consortia, see [Appendix XI](#). All UNOLS operating

institutions are presently members of one or more consortia, with the exceptions of Scripps and Hawaii. Chris asked the committee to review the white paper and provide comments.

4.e. Gravimeter MOU - Pat Dennis described the cooperative effort between NAVOCEANO and academia concerning the loan of NAVO gravimeters. An MOU has been signed with NAVO, NSF, ONR, and WHOI to coordinate this effort. A subcommittee, with Dan Fornari as Chair, has been established to oversee the loan process. Dave Epp, NSF; Dan Fornari, WHOI; and Robin Bell, LDEO have been key

figures in making this arrangement for the academic fleet. The program is working well and could be an example for other cooperative efforts involving the loan of NAVOCEANO instrumentation.

5. COASTAL ZONE RESEARCH VESSEL (CZRV) PLANNING:

5.a. Scientific Mission Requirements - The action for CZRV Scientific Mission Requirements was assigned to Larry Atkinson. This is also one of the objectives for the MARCO workshop which is awaiting a funding decision.

5.b. MARCO Proposal Update - Larry Atkinson advised the committee that MARCO had not yet been informed by NSF as to the funding status of their proposal to hold a workshop and develop a science mission plan. Larry was tasked to review existing Science Mission Requirements (SMRs) as they apply to a CZRV and to MARCO. Jack Bash reported that Duke has received information from a naval architect that it is possible to add a mid-section to CAPE HATTERAS without causing the ship to exceed 500 gross tons (allowing it to remain uninspected). It is the intention of Duke to proceed with a proposal to NSF for a Phase I feasibility study, then, in Phase II, contract design, and, in Phase III, detail design for accomplishing the stretch, (see [Appendix XII](#)). FIC recommended that Ken and Chris draft a letter to Duke encouraging them to communicate with MARCO regarding their plans for CAPE HATTERAS. Jack also reported that Skidaway was investigating the replacement of BLUE FIN. They have retained a naval architect and are looking at a mono-hull design of 87 feet for a replacement vessel, see [Appendix XIII](#).

5.c. Analysis: Assets, Capabilities, and Requirements - Chris Mooers lead an extended discussion on the makeup and distribution of the UNOLS fleet. This was stimulated by the report of "*Projections for UNOLS' Future - Substantial Financial Challenges*" (the Betzer report). The discussion also included the need to commence an update of the Fleet Improvement Plan for 1998. It was decided that an Interim Fleet Plan (IFP) should be written at the earliest possible date to address the problems cited in the Betzer report. This interim report would look at three funding scenarios. The scenarios would include the number and mix of ships, including general geographical location, that could be supported by the anticipated available funding. Science program projections for coastal and blue water science will be needed. The follow-on meeting of the UNOLS Council was to look at this tasking and provide a specific charge. The Committee plans to work on the various scenarios during the spring and exchange information via e-mail so that a well developed discussion and advanced draft set of scenarios will be the product of the summer FIC meeting. These would then be polished and presented to the Council for their summer meeting.

5.d. Regional Workshops - As discussed above, the funding for the MARCO workshop is yet to be determined. The committee decided to hold up planning for other workshops until results of MARCO's funding request for a workshop were known.

6. FLEET IMPROVEMENT PLAN 1998 - Chris Mooers distributed a draft outline and schedule (see [Appendix XIV](#)) for the Fleet Improvement Plan (FIP) 1998. A few items were added and additional adjustments will most likely be made after preparation of the IFP. Each committee member was asked to review the FIP outline and identify at least five items they could address. Each item would be one to three pages in length. At FIC's winter ('96/'97) meeting a rough draft should be reviewed with a full draft available by summer 1997 for review by the Council and others.

TWO NEW ITEMS WERE DISCUSSED:

(1) Post Cruise Assessments - RVOC has been working on a revised post cruise assessment form. The purpose is to encourage better feedback from the cruises. Peter Betzer volunteered to review this effort for FIC.

(2) **UNOLS Image** - Several FIC members expressed concern that the role and actions of UNOLS are not well known in the community at large and that we need to raise our visibility. Discussion followed and suggestions included developing a UNOLS poster. (Ken is writing an article for EOS about UNOLS. It was suggested that the Council should consider this matter, too.)

7. SUMMARY OF ACTION ITEMS:

7.a. Outstanding Action Items -

- (1) Jack Bash will add a disclaimer to the Inventory of Small R/Vs.
- (2) Primer on small R/Vs - Jack Bash and Chris Mooers will help coordinate; a volunteer from RVOC will be requested.
- (3) Complete Safety Orientation Paper - Chris Mooers will forward comments to Suzanne Strom who will then complete report. Ken Johnson will write cover letter.
- (4) Complete Van Study - add USCG and ABS regulations. Chris Mooers will forward comments to Suzanne Strom. Then the study will be forwarded to RVOC and RVTEC for final review.
- (5) UNOLS Fleet as Real-Time Data Platforms - Rich Findley and Eric Firing.
- (6) UNOLS Fleet as MG&G Platforms for NAVO - Bob Detrick.
- (7) CZRV Science Mission Requirements - Larry Atkinson.

7.b. New Action Items -

- (1) FIC recommends that RVOC proceed with the production of a safety video.
- (2) Letter to Duke concerning the CAPE HATTERAS stretch requesting an analysis of how this fits into the UNOLS Fleet (especially MARCO's plans), Ken Johnson and Chris Mooers.
- (3) Shipboard Technology Upgrades - Form ad hoc committee to address upgrades; proposed members Eric Firing (Chair), Bess Ward, Bob Detrick, Peter Betzer, and an engineer (TBA).
- (4) FIC members were assigned to investigate science programs prospects: JGOFS, Bess Ward; Global Ocean, Tom Weingartner and Bess Ward; MG&G, Bob Detrick.
- (5) IFP Development - Develop, for the summer meeting, appropriate fleet size numbers and ship locations to meet National needs based on three funding scenarios (to be provided by Council tasking).
- (6) 1998 FIP Update - In advance of the summer meeting, each FIC member is to identify five areas of the 1998 FIP for which they will take responsibility.
- (7) Post Cruise Assessment Report - Peter Betzer will review RVOCs revised report form.

8. STRATEGIC PLAN:

8.a. How is it going? - Chris reviewed the FIC "Agenda for the Next Three Years" developed at the St. Petersburg FIC meeting in January 1995 (see [Appendix XV](#)). Most action items were moving along on schedule; some have been completed. Continuing action items are noted in paragraph 7 above.

8.b. Venue and Dates for Summer Meeting - Larry Atkinson invited FIC to Norfolk and ODU. The time frame of this meeting was planned for the last week in June or the first week in July. Jack Bash was tasked to survey FIC as to the best dates.

8.c. Agenda and Special Guests - The major agenda item for this meeting will be the IFP discussed above. Additional suggestions included inviting ONR experts to speak on AUVs (Autonomous Underwater Vehicles) and RPA (Remotely Piloted Aircraft).

February 7, 1996 NAVOCEANO FACILITY TOUR

Captain Dieter Rudolph provided an overview of the NAVOCEANO facility, organization, and Fleet. Bob Barrett, Code N-5, provided an overview of the NAVOCEANO Fleet capabilities and assets. The TAGS 60 Class construction is coming to completion. These will serve as multi-purpose hydrographic survey ships. Approximately 95% of the data they collect is released. Data can be accessed on their WWW home page. In May, the USNS WATERS will undergo a yard period to make it capable as a

survey ship. The ship is scheduled to be operational by 30 September 1996. The ship is 456 feet in length, has a 69 foot beam and berthing for 91 personnel (30 to 33 berths are designated for crew). A multibeam system will be installed. Lastly, Bob discussed the features of ORCA, which is 26 feet long, weighs 8600 pounds, and runs on diesel fuel. It can go 24 hours at ten knots. It is designed to be a cost-effective collection platform for hydrographic and oceanographic data. If the TAG 60 transformer problems are resolved, ORCA will be placed on the ship in April. Bob Starek, NAVOCEANO presented their Integrated Data Management System. It is a flexible system. The goal is to make it available on the WWW. Steve Lynch, NAVOCEANO, presented their visualization lab. He showed an impressive video made from data collected during a January cruise on KANE. Side scan and dredge data were collected. The video is a "fly-through" of the New River area off the U.S. East Coast. It took approximately one week to process the data. FIC then toured NAVOCEANO's super computer center and the Warfighting Support Center. REVELLE/ATLANTIS TOURS

Meeting participants traveled to Halter Marine Inc. (HMI) in Moss Point, MS to tour REVELLE and ATLANTIS. Tours were provided by Ed Peterson, Scripps Shipyard Rep; John Thompson, WHOI Shipyard Rep; and Robert Camp, HMI.