Committee Reports for UNOLS Council Meeting – 2/02

UNOLS Arctic Icebreaker Coordinating Committee

By Lisa Clough, AICC Chair

The AICC has had a busy fall and winter, including a meeting in Washington, D.C. in September, and a Town Hall Meeting at AGU in December. The committee continues to gather feedback from HEALY's recently completed science cruises, AMORE and ALTEX. In addition, we're working with the U.S. Coast Guard (USCG) and NSF to facilitate the upcoming 2002 Arctic science cruises on both HEALY and POLAR STAR.

As one component of gathering feedback from completed science cruises, we are using a debrief system. We have a set of approximately 20 topics that we cover:

Pre-cruise communications; Permits/Clearances; Logistics/Cargo; Construction; Information Technology; Laboratory operations; Laboratory equipment; Diving support; Science technical services; Small boat ops; Helo ops; Food service; Housing/janitorial; Safety; Administrative services; Medical; Travel; Ship operators; Any other comments?; and Plans for the next trip if relevant.

We invite representatives from the funding agency, Coast Guard Headquarters and Pacific Area, the ship, the chief scientist for the science party, and of course the AICC to participate in the debrief. So far, it has been a very worthwhile interchange of information that has resulted in several valuable suggestions for continued improvement of science operations on USCG icebreakers. Both the AMORE and ALTEX debriefs were discussed in detail at our AICC meeting on 24-25 January.

The December town hall meeting offered another venue to compile feedback from the just completed cruises, and to share "lessons learned" with potential future users of the USCG icebreakers. We had a turnout of approximately 30 people to hear from Peter Michael and Ned Cokelet (pretty good considering opposing town hall meetings were offering food and beverages).

Plans for cruises on board the USCG icebreakers in 2002 are in full swing. HEALY will be spending summer 2002 in the western Arctic Ocean. Two main science projects will be taking place in the Chukchi Sea area on HEALY: Shelf-Basin Interactions (SBI) a large interdisciplinary science project; and a geological investigation led by a group from Woods Hole Oceanographic Institution. POLAR STAR will also be used for a series of SBI cruises, and will support a physical oceanography cruise in the western Arctic.

Minutes from our September meeting are available on-line at: http://www.unols.org/aicc/aicmt109/aicmi109.html. Our most recent meeting was on January 24th and 25th in Seattle. The agenda for that meeting can be seen at: http://www.unols.org/aicc/aicmt201/aicag201.html. The AICC can be reached by writing to the Chair <CLOUGHL@MAIL.ECU.EDU> or to the UNOLS Office <office@unols.org>.

DEep Submergence Science Committee

By Patricia Fryer, DESSC Chair

DESSC held its annual meeting on 9 December in San Francisco at the Marriott Hotel. Minutes of the meeting will be available on the DESSC page of the UNOLS Web site soon, <http://www.unols.org/dessc/>. Science reports by Principal Investigators for 2001 expeditions utilizing ALVIN, WHOI ROV/AUV vehicles, and several assets from other submergence facilities highlighted some of the major discoveries of the past year and reinforced the need to continue to foster support for the use of and access to submergence assets.

The National Deep Submergence Facility Operator's Report (WHOI), included an operations summary for the NDSF vehicle systems, and WHOI work plans for 2002-2003. Specifics of the work done on R/V ATLANTIS, a summary of work to be done, and a review of community input for improvements were discussed. The operator presented a report of the overhaul completed in 2001. A progress report on the ROV upgrades included timing for scheduling of field trials and scheduling of scientific expeditions for 2002/2003. The DSL-120A upgrades are complete and the first field programs using the new vehicle were in late 2001. Jason II will undergo dock tests in late May or early June, field trials will begin in July, and field programs are scheduled in August of 2002. Reports on the activities of other facilities were presented by S. Pomponi (HBOI), M. Chaffey (MBARI), and F. Spiess (MPL). HURL and ROPOS provided written reports that will be included in the minutes of the meeting.

WHOI announced that a New ALVIN Construction Advisory Committee (NACAC) will be set up to assist the NDSF with planning from a new 6+km capability occupied submersible. The committee will be established within the next few weeks and DESSC and the NDSF encourage members of the community to provide input. As the committee ramps up its activities you will be hearing more requests for input.

WHOI/NDSF Chief Scientist Dan Fornari will be stepping down from that position this year. There is a special article in this issue of the UNOLS News (page 16) as tribute to Dan's many contributions to submergence science in his capacity as Chief Scientist for the NDSF.

A brief report from UNOLS highlighted some of the recent difficulties encountered with security aboard research vessels in foreign waters and provided guidance for scientists contemplating work in regions where security is an issue (see article on page 4).

A report from the NOAA Ocean Exploration (OE) Initiative indicated that proposals for about 160 science projects were received for the November 1st deadline for NOAA funding. Reviews of these proposals are due at the end of January and the panel meeting for final deliberations regarding them is set for 5-6 March. Concerns regarding scheduling of the fieldwork on UNOLS ships were expressed, but the OE office is aware of the difficulties and is working with UNOLS to sort out facility scheduling.

In response to recommendations from the UNOLS DESCEND workshop and with endorsement from the UNOLS Council, DESSC plans to establish an ad hoc Shallow-water Submergence Science Committee (SSSC) with S. Pomponi (HBOI) as Chair. The membership of the committee, problems of support for the committee, and issues regarding its mandate (science goals, technology needs, access and funding issues) were discussed at a lunchtime meeting of the DESSC members. The eventual fate of the SSSC was also discussed. One possibility is that its mandate be folded into that of DESSC, thus broadening the scope of DESSC's responsibilities. Another possibility is that it be a stand-alone committee with liaison to DESSC.

As a follow-up to the UNOLS DESCEND workshop, DESSC has been working toward organizing a technology meeting. An upcoming meeting of technologists and scientists on 20-22 May 2002 will provide a venue for discussions of a future roadmap for technological developments in support of submergence science. Information about this meeting, NOAA/NASA Exploration 2002 - LINK Symposium, can be found on their website at http://oceanexplorer.noaa.gov/projects/link02/link02.html. The topics of

discussion will include future developments for occupied, remotely operated, and autonomous vehicles, navigation and power systems, imaging systems, sonar mapping systems, chemical & biological sensing, intervention capabilities data management, and communications.

The marine biological community has been making great strides recently in studies of biological systems in various submarine environments. At the 2002 AGU/ASLO Ocean Sciences meeting in February DESSC will host two special sessions on "Recent advances in understanding submarine biosystems: Submergence Research." The first will be a poster session (Wednesday morning, 13 February) highlighting the accomplishments of various submergence facility operations and innovative scientific discoveries made with these assets. The second session (Thursday afternoon, 14 February) will provide the attendees with a DESSC AGU style set of oral presentations beginning with summaries of recent research results using a variety of submergence assets. We will then hear a combined funding agency report from NSF and NOAA. The last talks will be operations reports from the NDSF. The last slot in the session is reserved for an interactive feedback forum for users and operators. This follows the general form of the DESSC public meetings that for years have been held immediately before the December AGU meeting in San Francisco. These special sessions were planned with the objective of providing the community of marine biologists with a higher level of interaction with the National Deep Submergence Facility, a level similar to that which the Marine Geology and Geophysics community has enjoyed through the regular public DESSC meetings in San Francisco. Other meetings targeting various disciplines are also coming up over the next months and DESSC plans to provide more information regarding the use of submergence assets at these. They include the Spring Benthic Ecology meeting in Florida and the MIT Archaeology meeting in April 2002.

DESSC encourages public outreach and education activities related to submergence research and representatives of several such activities highlighted the successes of recent efforts. The UNOLS Public Outreach and Education Links, <http://www.unols.org/outreach.html> has links to the following programs: Dive and Discover <http://science.whoi.edu /DiveDiscover/>, Extreme 2001 <http://www.ocean.udel.edu/extreme2001/>, NOAA Explorations: Deep East 2001 <http://oceanexplorer.noaa.gov /explorations/deepeast01/deepeast01.html>, Millennium Observatory (NeMO) <http://www.pmel.noaa.gov/vents/nemo/index.html>, and the MATE Internship Program <http://www.marinetech.org/careers/internships.html>. Additional outreach efforts are being proposed in collaboration with Ridge 2K to provide a number of Deep Submergence Lectureships highlighting the discoveries made recently with submergence assets.

The most visually spectacular activity presented in conjunction with the DESSC meeting was a 20-minute selection of some of the first extensively illuminated, super-high fidelity footage of the deep oceans. The movie was shown Monday morning (12/10) at the Sony IMAX Theater at Metreon. The footage included shots from hydrothermal vent sites in the Atlantic and Pacific (600m to 4000m) filmed from Alvin in the 15/70mm giant screen film format. The raw footage presented is part of a future release entitled "Voyage into the Abyss" (a working title). This IMAX movie is currently in production and scheduled for release September 2002.

The screening was a follow-up to the Principal Investigators reports at the DESSC meeting and included footage from the recent August Mid-Atlantic Ridge cruise. The presentation was also open to AGU attendees. The screening was so popular with the near capacity crowd that a second screening was offered on Thursday.

Voyage into the Abyss is a collaborative science education outreach effort produced by Volcanic Ocean Films Inc., an affiliate of The Stephen Low Company, together with Rutgers University. Major financial support for the project comes from the National Science Foundation. Project contributors include: the New England Aquarium (Boston), the Museum of Science and Technology (Syracuse) and the University of South Florida. Filming for the project was completed principally with the submersible

ALVIN and the deep submergence resources of Woods Hole Oceanographic Institution and brings together the latest advances in submarine imaging and lighting technology including a new lighting array configured especially for the submersible and the unique demands of this project.

The final film will be the culmination of over six years of development and the first concerted effort to light and capture a diversity of the ocean's extreme environments in a high-definition presentation. Via the giant screen, the Voyage into the Abyss project will give audiences around the world a 'being there' experience of dimensions of the planet that most have never truly seen before: including submarine volcanoes, hydrothermal vents and communities of deep-sea organisms.

The attendees at the DESSC meeting provided Mr. Steven Low with a variety of suggestions for scientific content material to augment the video images and with suggestions for mechanisms by which to integrate the release of the movie with outreach activities at marine science institutions/departments throughout the nation.

Gripping experiences such as this IMAX movie provide one of the most important ways in which we as members of the marine science community can call the general public's attention to our science. We complain that we must grapple with the frustrations of access problems, funding difficulties, scheduling challenges, and the continuing need for new technological developments within our research enterprise. We know that the solution is a higher level of funding, but we must recognize that it is our responsibility, not that of the funding agencies, to explain to our supporters, the public, why it is important to devote more funding to the marine sciences. DESSC congratulates those who have and urges all to continue to highlight the accomplishments of submergence research in public forums.

The Fleet Improvement Committee Report

By Larry Atkinson, FIC Chair

The academic research fleet in the U.S. is now entering a new, exciting phase. The National Ocean Research Leadership Council has now approved the document, *Charting the Future for the National Academic Research Fleet: A Long Range Plan for Renewal,* developed by the Federal Oceanographic Facilities Committee (FOFC). The report can be viewed at http://www.geo-prose.com/projects/projects_narf.html. To put it directly the plan calls for replacement of the fleet. The plan provides a recommendation on the numbers and composition of vessels that are needed for replacement. The need for fleet renewal requires that Science Mission Requirements and Conceptual Designs be developed. There is an urgency to keep the renewal process rolling as it takes many years to fund and construct ships. This will be a focus of the Fleet Improvement Committee (FIC).

The most urgent need is to develop a process for implementing fleet renewal. A draft process is being developed and can be viewed on the UNOLS/FIC web site http://www.unols.org/fic/renewal/roadmap.html. It cannot be overemphasized that we will be seeking community input and participation in the process. The renewal will take twenty years.

The FOFC Plan defines four basic vessel classes for the current and future fleet: Global Class, Ocean Class, Regional Class and Local Class. FIC, UNOLS and various institutions are initiating or are currently involved in fleet renewal projects. These are briefly summarized below:

Ocean Class: The Ocean Class called for in the FOFC plan is a new class of larger, more capable intermediate vessels. As stated in the report, "Ocean Class ships will fulfill a critical need in fleet modernization by replacing the aging "Intermediate" ships with vessels of increased endurance, technological capability, and number of science berths. These will be ocean-going vessels, though not globally ranging." The Ocean Class would have the following characteristics:

- Endurance - 40 days
- Range - 20,000 km
- Length - 55-70 m
- Science Berths - 20-25

In the coming months the process to create science mission requirements and concept designs for the Ocean Class will be developed. The process will attempt to include the broad user community through web comment areas and town hall meetings.

Gulf Regional Vessel - The need for a new research vessel in the Gulf of Mexico has been recognized for many years. This was noted in the FOFC report that also recommended that such a vessel be the first Regional vessel. The Regional Class ships are those that will work in and near the continental margins and coastal zone, but with improved technology and more science berths than in current, comparably sized vessels. FIC recently asked representatives from the Gulf of Mexico to form a representative group to discuss ship requirements in the Gulf. The purpose of this meeting is not to discuss or propose ship operators, but to start formulating Science Mission Requirements for the ship. Similar meetings will be needed for ships proposed in other areas. The Gulf group hopes to meet in late spring.

Alaska Region Research Vessel (ARRV) – Design development for a research vessel that will operate in the Alaska region is well underway. This vessel is being designed as an Ocean Class ship. The Concept design has been completed and progress towards a preliminary design of the ARRV continues with FIC

represented on the Design Steering Committee. At a recent meeting in Seattle, Washington, The Glosten Associates presented an updated design plan. Model testing results and the final preliminary design should be ready by this summer. A meeting to report on model test results and get community input on the preliminary design will be scheduled for sometime this spring in the Washington D.C. area. Information about the Science Mission Requirements and concept design plans can be found on the UNOLS website at http://www.unols.org/fic/#arrv.

Science Testing of the AGOR 26 – Construction of the University of Hawaii's vessel, KILO MOANA, is nearing completion. KILO MOANA will be the first large SWATH in the academic fleet. As such it is imperative that it be thoroughly tested so both the scientific community and the operator community are fully and fairly aware of its capabilities and limitations. UNOLS/FIC is working with the operator (U. Hawaii) to plan such testing. See http://www.soest.hawaii.edu/agor26/ for more information on the KILO MOANA.

FIC Web Site - If you haven't visited the UNOLS/FIC website **<www.unols.org/fic>** we urge you to. There you can find information on the following:

- FOFC Draft Academic Fleet Renewal Plan - UNOLS Response
- Ship Construction Efforts:
  - Alaska Region R/V (ARRV)
  - KILO MOANA (AGOR 26)
- FIC Fleet Renewal Plans
- Past Trends and Future Projections for the Academic Research Fleet
- The UNOLS Biennial Review of Sea Going Oceanographic Facilities
- Fleet Improvement Committee Reports
- Science Mission Requirements

Ship Scheduling Committee Report

By Joe Ustach, SSSC Chair

With shoehorns and concessions by scientists, most of the scheduling difficulties for 2002 have been eased. Not all of them to everyone's satisfaction, especially in the case of the Northwest Pacific GLOBEC cruises, but at least the ships are sailing in acceptable to marginal time periods. Again the problem is scheduling multiple ships for a relatively small window and how changes in any of the affected vessels cause havoc throughout an even larger number of ships.

Nonetheless, 2002 overall has about 300 fewer days scheduled than did 2001, 5374 vs 5678. NSF has about 50 days more on schedules in 2002 than in 2001; the Navy has 367 fewer days scheduled in 2002 vs 2001, the result of NAVO's decreased funding; and the other category is holding steady, with about 25 more days on the schedule in 2002. In terms of ship classes, the large, Class I/II ships average around 83% of a full operating year. This average should be tempered by the inclusion of KILO MOANA, BROWN, and HEALY schedules. KILO MOANA has a schedule based on starting operations on 1 July; the Coast Guard removed HEALY's schedule and NOAA removed BROWN'S after the September attacks. The only Class I/II vessel with less than 65% of a FOY is SEWARD JOHNSON with a 187 day schedule (62.3%).

The Class III ships are roughly in the same range as 2002. They average just over 65% of a FOY, while in 2001 they averaged 69.8%. The only vessel in this class with less than a 66% FOY is GYRE, with 91 days scheduled, (33%). The Class IV vessels show a large drop in days scheduled in 2002, from 1533 days to 1158 days. Much of this drop is due to CAPE HATTERAS only operating for half a year and then going in for a mid-life refit and for SEA DIVER retiring. The only other vessel with less than a 70% FOY is LONGHORN with 91 days scheduled (50.6%). However, the smaller vessels usually pick up cruises throughout the year, so these numbers are not fixed. In the Class V vessels, there are no weak schedules, all of the vessels are at or above 55%, with BLUE HERON having 57.3% of a FOY.

The outlook for 2003 is still hazy, since ship requests are still arriving into the scheduling system. AS of Friday, Feb.22 Noon Eastern Time, I have received 920 ship requests from the UNOLS Office. There will be well over 1000 requests by the end of the month. February is the deadline for NSF ship time requests, but the Navy and other agencies have an even later deadline. A quick glance at the areas of operation shows that there is an interest in the Indian Ocean in 2003 and 2004 besides the usual Atlantic and Pacific and Arctic and Antarctic and Great Lakes regions.