



*Underway off
the California
Coast*

2002 Annual Report

A Message from the Chair:

It is a pleasure to introduce the UNOLS Annual Report for 2002. The report provides highlights of the activities of UNOLS over the past year, and includes a CD with additional reports, statistics, and information about the UNOLS fleet and UNOLS activities. UNOLS has many roles in its service to the oceanographic research community, including ship scheduling, coordination of Arctic icebreaker work, coordination of deep submergence work, and planning for fleet improvement. I encourage you to use this report as a starting point to become better informed about the issues facing UNOLS, as the continued success of our oceanographic programs rely upon the smooth operation of reliable, technically-capable vessels and facilities.

Of particular note this past year was the progress made toward UNOLS Fleet Renewal. In December 2001, the National Ocean Research Leadership Council (NORLC) approved the report from the Federal Oceanographic Facilities Committee (FOFC), entitled *Charting the Future for the National Academic Research Fleet*. This report outlines a sequence of construction of Ocean Class and Regional Class research vessels over the next 15-20 years. During 2002 the Fleet Improvement Committee within UNOLS

organized workshops and obtained considerable community input in developing and finalizing Science Mission Requirement documents for these vessels. The Federal agencies and UNOLS are working together to use these documents in the concept design process for new vessels. We expect further progress during 2003.

As part of its Quality of Service initiative, UNOLS implemented a new, on-line, Post-Cruise Assessment process in 2002 for Chief Scientists, Captains, and Marine Technicians. The new assessment form has been in place for over six months, and is providing UNOLS with excellent feedback on the various aspects of doing science from research vessels. I urge you to use this assessment process to help vessel operators provide the best science and vessel support possible for your projects.

Finally, please do not hesitate to contact the UNOLS Office with comments, questions, or concerns about the issues facing UNOLS and the ocean community.

Dr. Tim Cowles
UNOLS Chair
Oregon State University



UNOLS Mission Statement

The University-National Oceanographic Laboratory System (UNOLS) is an organization of academic oceanographic institutions working in cooperation with agencies of the U.S. Federal Government to ensure broad access to modern, well-operated, state-of-the-art research vessels, submersibles and facilities required to support a healthy and vigorous research and education program in the ocean sciences. UNOLS is an advisory body that provides the mechanisms for coordinated utilization, scheduling and access to research vessels and facilities, co-operation and innovation by facility operators and broad community input to operators and federal agencies regarding current and future facility requirements for the ocean sciences.

UNOLS Office
Moss Landing Marine
Laboratories
8272 Moss Landing Road
Moss Landing, CA 95039
(831) 771-4410
office@unols.org

Access and Scheduling

◆ Many conflicts and scheduling problems were resolved by late September, however it was necessary to defer a large number of projects until 2004 due to a variety of reasons. Subsequently, schedules have been severely impacted by problems with permits, clearances, and budgets. The cooperation of UNOLS schedulers with PI's and program managers continues to provide a dynamic mechanism for resolving scheduling problems

Continuous Quality Improvement

- ◆ Implemented a revised on-line Post Cruise Assessment Form and evaluation system. Use of the form has increased during the first six months.
- ◆ Formal debriefs of HEALY users were conducted to help determine areas for improvement.

Plan for Future Facilities

- ◆ UNOLS supported the initial implementation of the FOFC Fleet Renewal Plan. Two SMR Workshops were held in July and August 2002.
- ◆ UNOLS contributed to the planning and designs for new UNOLS vessels: The Alaska Region Research Vessel (ALPHA HELIX replacement) and the CAPE HENLOPEN replacement.
- ◆ Upgrade and Overhaul of the National Deep Submergence Facility: UNOLS contributed to the ALVIN Replacement Design Review Committee. Jason II successfully completed sea trials and its first science mission.
- ◆ Created a Standard UNOLS van specification manual.
- ◆ Established a National Oceanographic Aircraft Facility and oversight committee (SCOAR).

Arctic Icebreaker Coordinating Committee News

*Report Submitted by Lisa Clough,
AICC Chair*

Summer 2002 saw both the USCGC HEALY and POLAR STAR in the western Arctic. Many thanks to the crews for yet another year of successful Arctic science support. We're happy to report the new 75 kHz ADCP on HEALY seems to be working well. For our part the AICC has been busy too. We had two days of meetings in DC in September. As promised, the meeting started off with an accounting of how well we did completing our action items and recommendations from the previous meeting. Fortunately we had managed to knock off a few items, but the list certainly contained some open items as well. Always plenty to do these days!

Highlights from the meeting included the good news that the USCG does not anticipate any significant changes to the icebreaker program with the pending shift to the Department of Homeland Security. Dave Forcucci, HEALY's science liaison, gave very nice summaries on each of this summer's science missions. Renee Crain from NSF provided an informative overview on the steps the Office of Polar Programs is taking to facilitate interactions between the native communities in Alaska (who make extensive use of the Arctic Ocean for subsistence hunting) and sea-going scientists. Larry Mayer from UNH presented a very convincing case that high quality SeaBeam data should be collected from HEALY at all times, if at all possible. Margo Edwards from the AICC had concurrently analyzed the quality of some SeaBeam data collected during summer 2001 and showed that even unattended SeaBeam data collected from HEALY seems to be of use. Following these presentations and much additional deliberation the AICC has formally transmitted a recommendation to the funding agencies that underway data

collection from all USCG icebreakers be supported. Since the meeting we have completed our second round of postcruise debriefs. With both HEALY and POLARSTAR supporting science this summer we wound up having four separate phone conferences. We thank the chief scientists for taking the time to provide important feedback. Of note, some elected to both complete the UNOLS PCA and participate in the debriefs. Keeping an eye towards the future, a few members of the AICC and USCG icebreaker personnel participated in the Arctic Instrumentation Workshop held at MBARI in October. Finally, several members of the AICC spent time at the UNOLS booth during the December 2002 AGU meeting, listening to concerns Arctic scientists might have, and asking for suggestions as to how we can improve expeditionary planning, for example. The AICC winter meeting was just held in Seattle, February 6th and 7th, with a few members arriving early to take part in the ARRV meeting held on the 4th of February.

The need for finding ways to improve or promote long term expeditionary planning was further emphasized during presentations regarding Sweden's plans for a Beringia 2005 expedition using the icebreaker ODEN. The Swedish Polar Research Secretariat is very interested in having the HEALY or some other icebreaker join the third leg of this expedition for a trans-Arctic basin transect that crosses the North Pole. Among the ideas being considered that might allow planning for U.S participation in this expedition while maintaining the principal of having the best peer reviewed science drive the schedules of U.S. vessels is to allow for earlier proposal submission for the 2005 field season. Arctic researchers interested in this expedition or forming one of their own should stay tuned to NSF announcements, the AICC Web page and other scientific publications for future announcements regarding proposal deadlines and expeditionary planning efforts.

Finally, a few bits and BERGS of note to the UNOLS community. The HEALY is en route to the southern hemisphere for the first time. The ice conditions down in the Antarctic continue to be challenging due to the presence of a few large icebergs in the vicinity of McMurdo Sound. With POLAR STAR in dry-dock, and POLAR SEA needing a bit of help, the decision was made to send HEALY south during the first part of January. HEALY should be back in Seattle by sometime in April, as such we do not anticipate any changes to the planned Arctic work for HEALY in summer 2003. The AICC is also seeking community input for suggested changes to be included in HEALY's next planned dry-dock in 2004 (changing the science seawater system is number 1 on our list), as well as suggestions for science improvements to be made to the POLAR class icebreakers as they prepare for midlife refits.

Deep Submergence Science Committee News

Help for New Submergence Science Technology Development
by *Patricia Fryer, DESSC Chair*

Over the past few years several community workshops have defined the need for specific new sensor and tool technologies in support of submergence science. The recommendations of the UNOLS sponsored DESCEND workshop can be viewed at: <http://www.mlml.calstate.edu/unols/dessc/descend/descend.htm>

A subsequent UNOLS sponsored community meeting regarding developing submergence technology resulted in several recommendations: <http://www.mlml.calstate.edu/unols/dessc/descend/followon/april04.htm> Recently, attendees at the NOAA/NASA supported LINK Symposium provided a list of specific tools and sensors that they recommended be developed for submergence assets of various kinds. These are included in a recent

MTS Journal article [Shepard A., Fryer, P., Bellingham, J., Moore, B., Kelly, M., Zande, J., McCurdy, A., Carless, J., Ward, M., Lemmerman, L., *Link 2002 Symposium*, MTS Journal, Vol 36, No. 2].

The DESSC encourages the development of the tools and sensors recommended by these groups and has a mechanism in place to provide feedback and assist Principal Investigators in their efforts to do so. The existing "Third-Party Tools Policy" of the DESSC can be viewed at: <http://www.unols.org/dessc/tool.html>. This policy was originally designed in order to assist members of the submergence science community in their efforts to develop either tools specific to a given project or tools that would be of more general use to the marine science community. At the time the DESSC policy was set forth, the emphasis was on tools that were meant to be used on the NDSF vehicles. DESSC is, however, also mandated by UNOLS to enhance multidisciplinary submersible science throughout the academic community. PIs interested in designing and developing tools and sensors for submersible assets are encouraged to contact DESSC for assistance.

Fleet Improvement Committee Activities

The UNOLS Fleet Improvement Committee activities continue to focus on fleet renewal issues. They recently met on 28-29 January 2003 at the National Science Foundation. The meeting agenda included discussions on the Science Mission Requirements (SMRs), Agency funding support, conceptual design process, ship design and improvement projects that are in progress, and evaluation of R/V KILO MOANA science operations.

Science Mission Requirements – The SMR documents for the Ocean Class and Regional Class vessels are being finalized for presentation to the UNOLS Council in March. Two workshops (one for each ship class) were held in the summer to establish the SMRs. In the fall the draft SMR documents were available for community review and comment. These comments have been considered and incorporated. After Council endorsement, the SMRs will be available for use in future design efforts. They will be the basis for the conceptual designs.

Regional Class follow-on design activities – FIC will work with the Agencies and the Naval Architect, JJMA, to provide input into their study to further refine rough-order-of-magnitude (ROM) design estimates for the Regional Class vessels. The ROM estimates were developed as part of the Navy's Common Hull Study. The material developed during this effort will be used by the agencies in preparation for the ship design and acquisition process.

KILO MOANA: Science operations began in fall 2002. Members of FIC are contacting PIs who have sailed aboard KILO MOANA and conducting phone debrief interviews. The information from these debriefs is intended to evaluate the SWATH hull as a science platform. The 2003 ship schedule is calling for a diverse range of operations and higher sea states are expected. The FIC will continue the debrief interviews through the year.

The FIC Chair position will open in October – In October, Larry Atkinson, will complete his second term as FIC Chair. UNOLS will be seeking nominations for candidates to fill this position. A formal call with the position requirements will be announced later in the year.

Research Vessel Operators' Committee Report

By Steve Rabalais, RVOC Chair

The 2002 Research Vessel Operators' Committee Annual meeting was co-sponsored by Moss Landing Marine Lab (MLML) and Monterey Bay Aquarium Research Institute (MBARI), at their facilities in Moss Landing, and Monterey, Ca. Dr. Kenneth Coale, Director of Moss Landing Marine Lab, welcomed the participants to MLML/MBARI, and Rich Muller, Marine Superintendent, MLML, and Steve Etchemendy, Marine Superintendent, MBARI followed with information about their respective Institutions.

Committee and Liaison Reports included a presentation by Tom Althouse on the status of the Research Vessel Safety Standards (RVSS), which are currently under review by the RVOC Safety Committee. The final document will be ready for consideration by RVOC in February 2003, and will be presented to UNOLS for acceptance at their annual meeting later this year. The RVOC liaison to the Fleet Improvement Committee (FIC), Joe Coburn, then gave a brief review of FIC's efforts to develop Science Mission Requirements for the two new UNOLS vessel classes being considered by the community. RVOC has played a major role in this effort through representation on the Regional (Steve Rabalais and Rich Mueller) and Ocean Class (Joe Coburn) Steering Committees. An in-depth review of the UNOLS Fleet Renewal program was given by Mike Prince, during the second day of the meeting.

The RVOC representative (Steve Rabalais) to the Ship Operators Cooperative Program (SOCP) gave an overview of issues covered at the 2002 SOCP Meeting sponsored by the Naval Sea System Command in Philadelphia, Pa. Full SOCP membership status was granted to RVOC during this

meeting. The SOCP and RVOC deal with issues of concern to both groups and it is expected that RVOC will benefit from this union. During the RVOC Business Meeting it was suggested that RVOC select a designated liaison to SOCP and Paul Ljunggren, LDEO, agreed to serve in this capacity.

Progress with International Safety Management (ISM) compliance on Class I/II vessels was the subject of a group discussion, lead by Joe Coburn, Tom Althouse and Dan Schwartz. All large UNOLS vessels are required to comply with standards established by ISM and were in the process of completing the final stages of completion. ISM compliance in the remainder of the fleet was debated during the RVOC Business Meeting. It was concluded that all UNOLS Intermediate Class vessels would seek compliance with ISM standards and that the UNOLS Office would aid this effort by requesting funding from Federal Agencies to support the preliminary vessel surveys.

Woody Sutherland and Sandy O'Brien, both from SIO, reviewed isotope use on UNOLS vessels and difficulties encountered during shipping, storage, handling and disposal of isotopes and contaminated supplies. They have found that many scientists using UNOLS vessels were uninformed about procedures relating to the use of isotopes at sea and in their labs. RVTEC will discuss isotopes on UNOLS vessels at their annual meeting and may recommend a joint RVOC/RVTEC committee to address this issue.

At the RVOC Business Meeting, on the final day, a motion was passed to change the by-laws so that the Chair and Vice-Chair were limited to one 3-year term in each position and the Vice-Chair would serve as the Chair Elect. Steve Rabalais was elected to serve a 1- year term as Chair at which time Tim Askew (standing Vice-Chair) would become the new Chair. Other business items included the establishment of an Agenda

Committee (Steve Rabalais, Mike King, and Dan Schwartz) and a request to the UNOLS Office to include funding in their next grant to cover the cost for the RVOC Safety Committee to meet one time each year in addition to the annual meeting that coincides with the RVOC Annual meeting.

Research Vessel Technical Enhancement Committee

The University of Hawaii hosted the RVTEC Annual meeting on November 12-14, 2002 in Honolulu, HI. The agenda was full and included discussions on defining levels of technician/instrumentation support, networking/wireless/communications, isotope procedures and SWAB requirements, Post Cruise Assessment reporting, next generation wire and safe working loads, shipboard science inspections, and STCW and ISM Compliance. Dale Chayes was re-elected to serve another two years as RVTEC Chair.



Scientific Committee for Oceanographic Aircraft Research (SCOAR)



The UNOLS Membership voted at the 2002 Annual Meeting to designate the Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) as a National Oceanographic Aircraft Facility. The designation defines a National Oceanographic Aircraft Facility as an academic organization or institution that operates one or more aircraft in support of oceanographic research or education and that is made available to qualified scientists from any institution with funding for the use of the

facility. The purpose is to provide access to aircraft facilities to scientists that do not operate or otherwise have available the required aircraft facilities.

CIRPAS is a research center at the Naval Postgraduate School, Monterey, California with aircraft owned primarily by the Navy and operated through a contractor, the California Institute of Technology (CALTECH). The facility provides Remotely-Piloted Aircraft (RPA) as well as manned aircraft services to the science, research, test and evaluation communities. The primary CIRPAS aircraft for oceanographic support is the UV18A 'Twin Otter,' the military version of the DeHavilland DHC-6-300. CIRPAS flight operations and the maintenance facility are located at Marina Municipal Airport in Monterey County, California. CIRPAS missions are almost entirely over the ocean and have supported several oceanographic and atmospheric research projects in recent years.



FIC Observatories Working Group

In January 2003, the UNOLS Council approved the formation of a working group to address ocean observatory facility needs. The working group will work to identify the ship and submergence facility requirements for emerging national ocean observatory initiatives. The needs of all ocean observatory

system types will be considered, ranging from global systems (i.e., moored buoys) to regional-scale and coastal observatories. The focus of their effort will be on defining new demands and requirements evolving from NSF ocean observatory initiatives as well as other agency observatory initiatives that are being developed or in operation. Members of the working group include: Alan Chave (WHOI), Chair; Andy Bowen (WHOI); Scott Glen (Rutgers); Wes Hill (SIO); Mike Kosro (OSU); Gene Massion (MBARI); Daniel Schwartz (U.Wash); Ken Smith (SIO); Bill Wall (International Telecom Group); Beecher Wooding (WHOI); Peter Worcester (SIO); and Larry Mayer (UNH). The working group's draft recommendations are expected in the spring at which time they will be available for community review. The UNOLS Office will provide information about this effort on the UNOLS Website. Community feedback is encouraged.

UNOLS elections held at the annual meeting in Arlington, VA on September 27, 2002

The following persons were elected to terms on the UNOLS Council:

- √ **Tim Cowles**, Oregon State University, two-year term as UNOLS Chair
- √ **Peter Wiebe**, Woods Hole Oceanographic Institution, two-year term as UNOLS Vice Chair /Chair-Elect
- √ **Peter Ortner**, University of Miami/RSMAS, three-year term as Council member from an operator institution.
- √ **Denis Wiesenburg**, University of Southern Mississippi, three-year term as Council member from any UNOLS institution (second term)

Ballot Measures

√ **Designation** of the Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) as a National Oceanographic Aircraft Facility in accordance with Annex II of the UNOLS Charter.

√ **Approved** the establishment of a “Scientific Committee for Oceanographic Aircraft Research” (SCOAR) under Annex II of the UNOLS Charter to be operated according to the Scientific Committee for Oceanographic Aircraft Research (SCOAR) Terms of Reference and Operating Procedures dated September 27, 2002.



Ensure broad, coordinated access to oceanographic research facilities:

- Maintain a system that ensures broad access to research vessels and other facilities and provides for coordinated, efficient and effective scheduling and utilization of those research vessels and facilities.

Work towards continuous quality improvement of existing facilities:

- Foster cooperation between facility operators, funding agencies and research scientists with the goal of continuously improving the quality and capability of existing ocean science facilities and the quality, reliability and safety of their operation.

Plan for and foster support for the oceanographic facilities of the future:

- Provide leadership and broad community input to the process of planning for and supporting the improvement, renewal and addition of facilities required to support the ocean sciences in the future.

The UNOLS Office would like to acknowledge the continued support of the following federal agencies:

**The National Science Foundation
The Office of Naval Research
The National Oceanic and Atmospheric Administration
U.S. Geological Survey
U.S. Coast Guard
Minerals Management Service
U.S. Department of Energy
Oceanographer of the Navy**



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