



UNOLS NEWS

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February 2010

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A Message from the UNOLS Chair...

Thanks to the tireless efforts of its members and our excellent staff, UNOLS continues to prosper and the status of our fleet remains healthy. At the top of our list of positive news is the award of American Recovery and Reinvestment Act (ARRA) funds for the construction of the Alaska Region Research Vessel (ARRV). This project has reached a major milestone when the contract with Marinette Marine Corporation was signed on 18 December 2009. This highly capable vessel will provide a much needed boost to our fleet and the capability of this excellent vessel will make a substantial contribution to our ability to perform work in this challenging environment.

Next on the list of good news is the Navy’s award of Phase I contracts for the two Ocean Class vessels to two design teams. These consist of Dakota Creek Industries in Washington teaming up with designer Guido Perla and Associates, and Marinette Marine Corporation in Wisconsin teaming up with Glostn Associates. These teams will both create the initial designs and then compete for the Phase II final design and construction award. Much of the UNOLS community has been involved in the process of specifying the scientific mission requirements and we are looking forward to the addition of these two vessels some time in the CY2014 or 2015 time frame.

Other positive notes include the rejuvenation of the Scientific Committee for Oceanographic Aircraft Research (SCOAR) by its new Chair Dan Schwartz, continued progress for Rolling deck to Repository (R2R) data initiative, and ongoing progress by all of our standing committees as reported in this issue.

On a sadder note, we received official notification in October that the RV *Seward Johnson* was withdrawn from the UNOLS fleet in order to allow Harbor Branch Oceanographic Institution (HBOI) to use this vessel to pursue extended commercial contracts. HBOI made it clear; however, that they remain committed to working with UNOLS and will retain their institutional membership.

Finally, the new UNOLS office at URI is up and running and all of the operations of the organization continue to function well. The transition went remarkably well, thanks in large part to the excellent support from the outgoing Moss Landing Marine Laboratories team. Our new team has hit the ground running and we are looking forward to ongoing smooth sailing.

So, in spite of the ongoing fiscal concerns at all levels, UNOLS remains healthy. We continue to explore new approaches to the efficient operation of the fleet and expect to see the enhancement of collaborations with other agencies as we face these challenges together.

By Vernon Asper, UNOLS Chair



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Alaska Region Research Vessel ~ Construction begins on R/V *Sikuliaq*!

By Daniel Oliver (UAF)

The project by the University of Alaska Fairbanks (UAF) to construct and operate the Alaska Region Research Vessel (ARRV) for the National Science Foundation achieved a major milestone at the end of 2009. On 18 December 2009 UAF awarded the shipyard construction contract to Marinette Marine Corporation (MMC) in Marinette, Wisconsin. The contract award price was for \$123 million with delivery in January 2013 for a 254 foot ice capable research ship. The name for the ship has also been chosen, the R/V *Sikuliaq*, pronounced [see-KOO-lee-auk], is an Inupiaq word meaning young sea ice.



The award of *Sikuliaq*'s shipyard contract caps a 2-1/2 year effort to update the previous ARRV design that was finished in December 2004 along with development of the various project documents and acquisition planning needed for a project of this magnitude. Characteristics of the final design are:

General Characteristics:

Length, Overall	LOA	254 feet
Length, Design Waterline	LWL	231 feet
Beam, Max across reamer	Bmax	52 feet
Beam, Max across hull amidship	Bmidship	48 feet
Draft, Design Waterline	TDWL	18 feet 9 inches
Freeboard, Design Waterline	FDWL	8 feet 9 inches
Displacement at Design Waterline		3,665 long tons
Propulsion Power	P	5,750 BHP

Performance

Endurance	45 days	
Endurance, Hotel Only	60 days	
Speed, Calm Open Water	Vcalm	14.2 knots
Speed, 4 M Sea (13.1 ft)	Vss 5	12.3 knots
Level Ice at 2 knots	Ice thickness	3 feet

Capacities and Working Areas

Science Berths, includes Marine Technicians	26
Crew Berths	20
Science deadweight	100 long tons
Science/Storage Vans, 8 feet x 20 ft	2 - 4 vans
Science storage	8,000 cubic feet
Science Labs	2250 square feet
Deck Working Area	4550 square feet
Diesel Fuel, at 95%	170,000 gallons
Fresh Water, at 100%	13,150 gallons
Water making capacity	6,000 gallons/day
Provisions	60 days
Holding capacity	24 hours

While *Sikuliaq* has many outstanding design features, some of the highlights include:

- The ship is designed and will be constructed to meet the ABS Ice Class PC5 ice-going vessel requirements. *Sikuliaq* is the first ship that ABS will class using the new polar class rules developed by the International Association of Classification Societies (IACS) and because of this, the project worked with ABS during design development to get ABS approval of the contract drawings.
- The vessel has a diesel electric power plant based upon an integrated power plant concept where both ship's power and propulsion power is provided by a common high voltage buss. The ship's power is supplied from the high voltage buss either by a transformer or motor-generator set, depending on the sensitivity of the power need. Propulsion is provided by two a/c asynchronous motors that are supplied power from the high voltage buss through variable frequency drives. The two propulsion motors are connected to Z-drives that not only provide outstanding maneuvering capability, but will enhance *Sikuliaq*'s ice capability.
- Extensive effort has gone into designing the ship to be as quiet as practical given that it has an ice capable hull and



propellers. This effort will support the ship's extensive suite of science sonar systems that include deep water and shallow water bottom mapping multi-beam systems, scientific sounder system mounted on a drop keel, scientific echo sounder, ADCPs, and a sub-bottom profiler. There will be a sonar synchronization system that controls all acoustic devices to minimize interference along with a sonar self-noise monitoring system.

- An integrated over the side handling system with a stern A-frame, Baltic Room for deployments using a motion compensating boom, and three winches; CTD, hydro, and traction. The system is designed to meet the requirements for enhanced over the side handling systems in the draft version of Appendix B to the *Research Vessel Safety Standards*.
- A full suite of scientific laboratories is provided, all located on the main deck along with a large heated open working deck aft, and two science cargo holds. In addition to the over-the-side handling system, the working deck has two large cranes capable of supporting the deployment of science payloads, cargo handling, and loading of up to three scientific vans onto the fantail and one smaller van forward on the 02 deck.
- Good habitability with 16 of the 20 crew in single person staterooms (the other four in double staterooms) and all science party members in double staterooms. The ship will have an anti-roll tank to improve sea-keeping. The ship will also comply with the American Disability Act (ADA) Guidelines for UNOLS Vessels where possible and is equipped with an ADA compliant science stateroom and two passenger rated elevators.

UAF opened its *Sikuliaq* Shipyard Project Office at the shipyard the first week of January and it is currently staffed with four people along with a support contract to Glosten Associates out of Seattle as the project's technical agent. The contract with MMC requires the shipyard to first go through a design verification and transfer process before starting detail design and production. Once the design verification and transfer is complete and MMC is ready to start production, the project will hire two additional personnel for the shipyard office to assist with inspection work during *Sikuliaq*'s construction. The project team decided upon this strategy to get potential production issues identified and corrected up front rather than trying to correct problems during production. This first phase of the contract will go through the summer of 2010 and at the end, MMC will reissue the specifications and contract drawings under their name and assume responsibility for the design. During this process UAF and MMC will work together to review the *Sikuliaq* design and correct any problems or omissions as well as incorporate productivity improvements. To assist them, MMC will be using Guido

Perla & Associates, Inc. out of Seattle, Washington with the project continuing to use Glosten Associates.

Delivery of *Sikuliaq* in January 2013 is driven by the delivery time for the ship's Z-drives. Early in the acquisition process when the project found that the Z-drives had an extremely long lead time that would significantly impact the length of the shipyard contract, the project team made the decision to purchase the Z-drives early and provide them to the shipyard as Owner Furnished Equipment. Following approval of this decision after Final Design Review with NSF, UAF went through the procurement process for the Z-drives and signed a contract with Wartsila in August 2009 to purchase the Z-drives separate from the shipyard contract. The two Z-drives will be PC5 classed and are currently in the final stages of detail design by Wartsila with delivery to the shipyard scheduled for December 2011. As you can see from the *Sikuliaq* profile graphic, the Z-drives are tractor units with "pulling" propellers. During model testing of the *Sikuliaq* hull, tractor Z-drive units showed better performance than a conventional "pushing" Z-drive, particularly for ice operations.

Following delivery in early 2013, UAF will transit *Sikuliaq* from the shipyard in Wisconsin to the ship's home port in Seward, Alaska via the Panama Canal since it will be too early in the year to transit the Northwest Passage. Along the way the ship will go through a series of science trials to fully test all of the onboard science systems. Not only will each system be individually tested, but the integrated use of the systems through a multi-discipline testing regime will be carried out to ensure the ship is capable of meeting its science mission requirements. Through the support of the project's external oversight committee headed by Dr. Margo Edwards from University of Hawaii, the detailed testing plans will be completed over the course of the next two-years with execution of the testing integrated into the transit voyage. After arrival in Seward, Alaska and a chance to complete assessing the ship's performance during the transit and testing, *Sikuliaq* will head north for a series of ice trials. The ice trials will duplicate much of the science testing done during the transit, but in the cold environment of polar waters. Additionally, the ship will conduct a series of ice performance tests to measure how well *Sikuliaq* performs in the ice and provide the opportunity for the crew to gain ice experience. Following the ice trials *Sikuliaq* will enter a short dry dock period to thoroughly inspect the hull and Z-drives prior to expiration of the ship's warranty period, after which *Sikuliaq* will be ready for funded science operations. It is anticipated that this will occur in late 2013.

You can go to the project's website at <http://www.sfos.uaf.edu/arrv/> for periodic updates on *Sikuliaq*'s progress.



U.S. Navy Awards Preliminary Design Contracts for Ocean Class Research Vessels

By Mike Prince, (ONR)

On January 27, 2010 the U.S. Navy announced that Dakota Creek Industries (DCI) and Marinette Marine Corporation (MMC) are each being awarded firm fixed-price contracts of \$1.5 million for preliminary design of two Ocean Class AGOR (auxiliary general oceanographic research) vessels. The awards were based on full and open competition.

This is the first phase of a two phase procurement strategy being managed by the Navy's Program Executive Office (PEO) Ships. At the completion of preliminary design, the Navy intends to down-select to one design and continue with just one of the preliminary design contractors for detail design and construction contract in 2011. The first ship is expected to be delivered in early 2014 and the second ship would follow later that year.

MMC was also recently awarded the contract to build the Alaska Region Research Vessel, *Sikuliaq*, for the University of Alaska Fairbanks with funding from the National Science Foundation. They have also built many vessels for the U.S. Navy and U.S. Coast Guard, including the Great Lakes Icebreaker and the newest Buoy Tenders. MMC has teamed up with Seattle based naval architects, The Glosten Associates, Inc., a firm with many years supporting the UNOLS fleet and most recently completed the design for the *Sikuliaq*.

DCI recently built the University of Delaware Research Vessel, *Hugh R. Sharp*. Other recent projects include various workboats such as factory trawlers, fireboats, and ferries up to 290 feet in length. They also completed construction of an advanced electric ship demonstrator, *Sea Jet*, for the Office of Naval Research (ONR). DCI has partnered with Seattle based naval architects, Guido Perla and Associates, the firm that completed the final design and construction engineering for the R/V *Kilo Moana*.

ONR is conducting a merit-based competition for selection of potential operators of Ocean Class vessels. The proposal submission opportunity has closed, with selection and announcement expected in the next two months. It is anticipated that representatives of selected operator institutions will participate in the preliminary design process (Phase I), as well as in the detailed design and construction (Phase II). ONR will be represented by Mike Prince, who will work with the institutional operator representatives to provide community and ONR input to the design and construction process.

Regional Class Research Vessel (RCRV) Status and Plan

By Matt Hawkins (NSF)

OCE convened a panel of experts on October 7-8, 2009 to perform the technical down-select using a rigorous and well documented Design Selection Plan. Although a single design was successfully chosen by the Panel and recommended to NSF, the previous attempts to contain costs through de-scoping imposed unfavorable restrictions on both designs. The Panel noted the need to re-evaluate several critical areas of operational performance including power, dynamic positioning capability, aft deck space, and use of a bulbous bow. This needed evaluation supports the idea of the RCRV entering a "Project Refresh" phase that culminates in a Final Design Review similar to the Alaska Region Research Vessel (ARRV now the R/V *Sikuliaq*). Before proceeding with the solicitation, OCE intends to request UNOLS community input on the proposed actions necessary to enhance the design during Phase I. OCE would also contract for an independent cost estimate that inputs the current market information collected through the ARRV and Ocean Class projects. This estimate would support the development of future construction budgets including needed contingency.

The near term schedule is as follows:

- **February 2010:** NSF announcement of selected design. Development of Action Plan for UNOLS community input through FIC.
- **March 29-30, 2010:** Presentation of an Action Plan to FIC.
- **July/August 2010:** Review community recommendations. Conduct independent cost estimates for construction and development of total project cost.

Once construction funds are identified, NSF would release the solicitation for "*Construction and Operation of the RCRV*." Award would mark the beginning of the Phase I "Project Refresh."



Progress Towards an Improved Submersible for the U.S. Science Community

By Susan E. Humphris

Woods Hole Oceanographic Institution, Woods Hole, MA 02543

In 2004, Woods Hole Oceanographic Institution (WHOI) received funding from the National Science Foundation (NSF) to design and build a new, state-of-the-art 6500 meter research submersible to replace the HOV *Alvin* that has served the U.S. science community so reliably for the past four decades. The original plan included contracts for the design and fabrication of the personnel sphere to Southwest Research Institute, and for construction of the new vehicle to Lockheed Martin. In January 2008, a detailed cost estimate was received indicating that the total projected cost for the new submersible was significantly greater than the available funds. Hence, alternative ways to accomplish the objectives were investigated.

In June 2008, WHOI recommended that fabrication of the 6500 meter personnel sphere proceed, and that it subsequently be integrated with *Alvin's* existing systems. Such an approach could be managed by the National Deep Submergence Facility's engineering team. Furthermore, a two-stage approach, consistent with available technology and funding, was recommended. During Stage 1, the new personnel sphere will be integrated into *Alvin's* modified frame (Figure 1). This new sphere will allow for larger fields of view for scientists, including complete overlap with the pilot's view of the deep ocean and seafloor, thereby providing significant improvement over the existing *Alvin's* capabilities (Figure 2). In addition, the improved vehicle will have fiber optic penetrators, improved ergonomics, a new command and control system, improved lighting and imaging, increased data logging capabilities, and better interfaces with science instrumentation.



Figure 1. Preliminary conceptual design of the Stage 1 HOV.

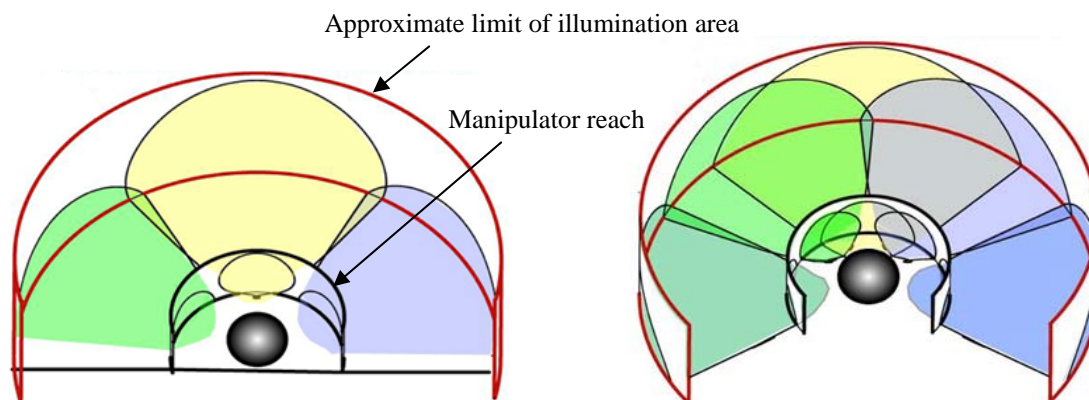


Figure 2. Comparison of fields of view from the current *Alvin* sphere (left -- 180° field of view) and from the new sphere (right -- 245° field of view).

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The two major goals that will not be accomplished during Stage 1 are an increased depth capability (since some of *Alvin's* systems to be used are only rated to 4500 meters), and increased energy availability that would provide longer duration dives and enhanced mid-water capabilities. In order to provide more energy, a different battery type – most likely, a lithium-based chemistry – will be required. However, this technology is not yet sufficiently well developed to ensure its safe use in human-occupied vehicles. Once this technology matures, and as funding becomes available, the changes necessary to increase working time and extend the depth rating of the submersible to 6500 meters will be accomplished during Stage 2 of the project.

Major progress has been made on the construction of the personnel sphere, which has a diameter that is 6.4” greater than *Alvin's* current sphere. This is the first time that a project involving forging and welding of such thick (3”) titanium has ever been undertaken in the U.S., and hence the design and fabrication of the sphere has been very challenging. In June 2008, the two hemispheres for the personnel sphere were successfully forged from large titanium disks. A very important milestone was reached in August 2009 with the successful electron beam welding of those two hemispheres. Work continues on insert welding for the hatch, penetrator plate, and viewports. However, with much of the technically difficult work completed, we expect delivery of the personnel sphere in March 2011.

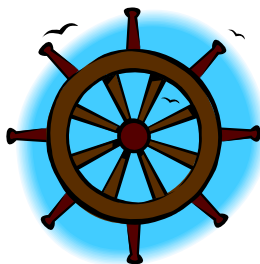
A major overhaul of the submersible is currently scheduled to begin in April 2011 when *Alvin* will be removed from service and disassembled. Installation of the new personnel sphere will be accomplished with a redesign of the forward section of the existing *Alvin* frame and replacement of the existing forebody flotation material, including the main ballast tanks. There will be significant changes in the electrical systems, primarily as a result of the inclusion of fiber optic penetrators and of a redesign of the command and control system. Systems that will be retained from *Alvin* include the variable ballast, hydraulic, and mercury trim systems. Sea trials and classification dives are planned for October 2011 out of Bermuda, and then a science shakedown cruise is tentatively scheduled for the following month.

In December 2009, a panel selected by NSF conducted a Preliminary Design Review. This involved a complete review of the engineering design and scope, budget, schedule, and management of Stage 1 of the project. The recommendation was that the project move forward to a Final Design Review later this year.

How can you provide input into this project? NSF has created the HOV Replacement Oversight Committee (RHOC -- membership can be found at http://www.unols.org/committees/dessc/replacement_HOV/members.html) to obtain community input and advice on all aspects of the submersible redesign. RHOC is very active, and has bi-weekly conference calls with the WHOI project team to ensure that the vehicle design best meets the community's needs within the budget. In addition, work is proceeding on the interior design of the personnel sphere using a fiberglass mock-up that WHOI has acquired. If you are in Woods Hole and would like to take a look and try it out, we welcome your input.



Figure 3. The titanium personnel sphere after electron beam welding of the two hemispheres in August 2009. (Image courtesy of Matthew Blute, Open Road Pictures and WHOI).



R2R Gets “Underway”

By R. Arko, S. Carbotte, V. Ferrini, S. Miller, K. Stocks, C. Chandler, A. Maffei, S. Smith, M. Bourassa

The NSF-funded Rolling Deck to Repository (R2R) program envisions the academic fleet as an integrated global observing system, with routine underway data and documentation flowing directly from research vessels to a central shore-side repository. R2R was initiated as a pilot project in September 2008, and advanced to a fleet-wide program in October 2009. The program’s fundamental goals are to ensure long-term preservation of original underway sensor data; to improve the quality of these data through automated assessment and feedback; and to make data and documentation more easily accessible.

R2R involves technicians at sea, data managers on shore, vessel schedulers, clearance officers, funding agencies, national data centers, and the science community. The program benefits a wide array of stakeholders – operators are freed from the need to archive data (and respond to download requests); science parties are freed from the need to submit routine underway data to national data centers; global synthesis efforts gain wider and more uniform access to data; permitting and clearance data requests can be more easily satisfied; and the community gains access to a library of best practices for data reduction and quality assessment.

R2R is developing a standard ‘pipeline’ in which cruise data and documentation are submitted by vessel operators directly to a central repository; inventoried in a unified fleet-wide catalog; organized into discrete data sets with persistent unique identifiers; associated with essential cruise-level metadata; and delivered to the appropriate national data center for archiving and dissemination (*Figure 1*). Vessels submit data by any convenient means, typically portable disk drives or direct network transfer. No data are released by R2R for public download until proprietary holds (if any) are cleared. A majority of UNOLS vessels have now submitted data, and the R2R catalog already includes over 1,000 cruises (www.rvdata.us). At the November 2009 RVTEC meeting, we set a goal to bring the balance of the fleet online by fall 2010.

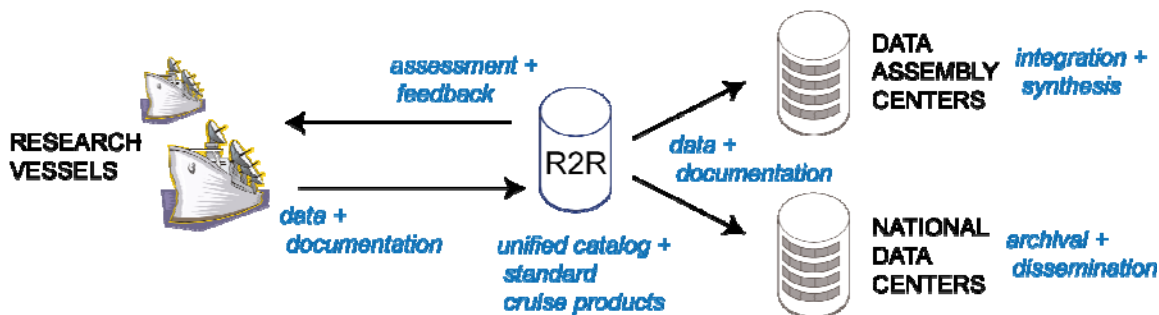



Figure 1. Overview of R2R program design showing primary stakeholders and functions.

In addition to moving cruise data through a standard pipeline, R2R is developing a suite of standard products for each cruise. These include a catalog record with the authoritative cruise id, vessel, operator, ports/dates, project titles, funding awards, science party, survey targets, and inventory of underway data sets; a quality-controlled ‘final’ navigation file and abstracted set of control points for easy map plotting; an event log that documents scientific sampling programs; and an operations report that comprises the catalog record, track map, event log, and any science party appendices in a fleet-standard format for easy dissemination as a single document (*Figure 2*). R2R has worked closely with the UNOLS Office over the past year in developing Web Services to harvest cruise metadata from the Ship Time Request and Scheduling (STRS) system and synchronize controlled vocabularies.

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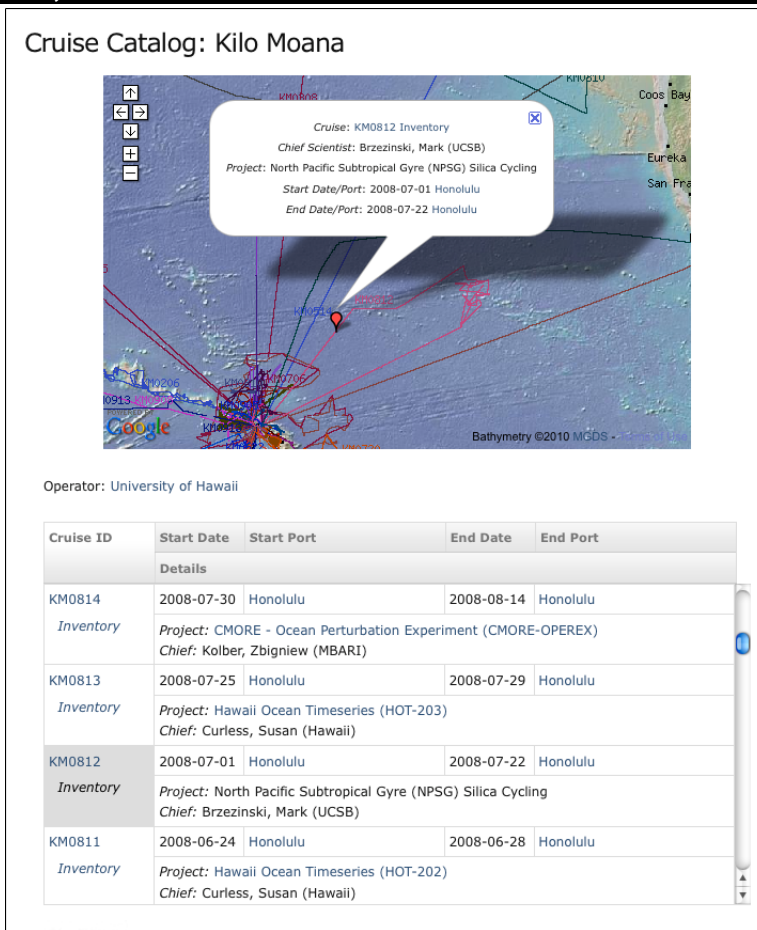


Figure 2. Example from R2R Catalog web page for R/V Kilo Moana (http://www.rvdata.us/catalog/Kilo_Moana) showing cruise-level metadata, ship track, and link to data file inventory.

R2R will undertake routine/automated (post-cruise) data quality assessment, engaging Data Assembly Centers and specialists in the community to develop appropriate procedures for each data type. Results will be posted as ‘quality assessment certificates’ (QACs) and disseminated via a live Web Service feed, providing feedback to vessel operators as well as background for science users.

As part of R2R, the Shipboard Automated Meteorological and Oceanographic System (SAMOS) initiative is developing a protocol for UNOLS vessels to deliver meteorological and thermosalinograph data to shore in near-real-time. The SAMOS data center will perform rapid quality assessment and provide feedback to vessels while a cruise is underway. R2R is also developing an Event Log application to aid science parties in documenting their station deployments and sampling programs, and producing a digital event log at the end of a cruise. The log format specification, and best practices guide, will be published as an open reference for other developers. This near-real-time feedback, and standardization of event logs, will facilitate improved data quality and consistency across the fleet.

R2R was endorsed by Council at its October 2009 meeting and by NSF Memorandum from the Integrative Programs Section on December 15, 2009. Our program design draws from the UNOLS Committee on Data Management Best Practices, whose recommendations were submitted to Council in October 2008, and builds on work from the NSF Legacy of Ocean Exploration project initiated in 2005.

The primary focus of R2R is the UNOLS fleet, but the program is designed broadly to accommodate other academic research vessels. We will continue to report results and solicit feedback at national meetings (e.g. Council, RVTEC, AGU, and Ocean Sciences) as well as visit ships and meet with marine office staff. Recent or upcoming visits during Winter/Spring 2010 include Moss Landing, Oregon State, and Rhode Island. Feedback on any aspect of the program is welcome at info@rvdata.us.



Call for UNOLS Nominations

UNOLS Council – Three Positions Including Chair-Elect

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, aircraft, submersibles, and facilities required to support a healthy and vigorous research and education program in the ocean sciences. UNOLS is currently engaged in a variety of important Fleet initiatives; such as, academic research fleet renewal, greening the fleet, and assessing future facility demands that will be placed upon the fleet with the implementation of ocean observatories and observing systems. Individuals who wish to contribute to these and other UNOLS efforts are needed to fill three UNOLS Council seats. The UNOLS Council members represent and act on behalf of the UNOLS membership as the operating and governing body of UNOLS.

Nominations are being sought from UNOLS institutions to fill three Council positions opening in 2010. Requirements for the positions are as follows:

- One Chair-Elect Position - affiliation with any UNOLS institution.
- One At-Large Position - affiliation with any UNOLS institution.
- One Non-Operator Position - affiliation with a UNOLS non-facility operator institution.

The term for the Chair-Elect is two years, followed by being UNOLS Chair for two years, and Immediate Past Chair for two additional years. Terms of office are three years for Council Members with the possibility of re-election for a second term.

Nominations for the slate may be submitted by anyone affiliated with a UNOLS institution to <office@unols.org>.

A CV and statement of interest should accompany all nominations. The Nominating Committee must give due consideration to the qualifications of the individuals nominated, as well as to maintenance of regional and disciplinary balance on the Council. The committee will then recommend a slate of candidates that will be voted upon by the UNOLS membership at the 2010 Annual Meeting in the fall. For more information about UNOLS and its activities, visit the website, <http://www.unols.org>. The UNOLS Charter is located at: <http://www.unols.org/info/ucharter.html>.

Call for Nominations

DEep Submergence Science Committee

The UNOLS DEep Submergence Science Committee (DESSC) is seeking nominations to fill four membership vacancies that will open in late 2010.

The DESSC is the UNOLS Committee charged with providing oversight and advice to the National Deep Submergence Facility (NDSF) operator on matters concerning utilization, upgrades, and long-term planning of its vehicles (*Alvin*, *Jason*, and *ABE/Sentry*). The Committee strives to maintain awareness of the needs of the users for new sensors and equipment to address important scientific questions, and to provide this information to the NDSF operator and the federal agencies. Experience in the use of deep submergence vehicles is required. For additional information about DESSC, visit the Committee website at <<http://www.unols.org/committees/dessc/index.html>>. For information about committee responsibilities contact the UNOLS Office at <office@unols.org>.

Terms of office are three years, with the possibility of re-appointment for a second term. Applicants or nominees should submit a brief statement of interest in serving on DESSC along with a CV to the UNOLS Office by email <office@unols.org>. Committee members are appointed by the UNOLS Chair based on the recommendation of the DESSC and with the concurrence of the UNOLS Council.



Upcoming Workshops

Workshop Announcement

Challenges and Opportunities in Academic Marine Seismology March 22-24, 2010 Incline Village, NV

Co-conveners: W. Steven Holbrook & Graham Kent

We are entering a time of unprecedented opportunity for marine seismology, as the R/V *Langseth* completes its second year of successful operations. The capabilities of the *Langseth* facility will enable key scientific advances. However, along with these new opportunities come new challenges, including the high cost of 3D seismic acquisition, the difficulty of forecasting areas of operation, and ensuring broad community access to the data produced by the facility. We will convene a workshop to discuss the future of academic marine 3D and 2D seismology, with a focus on:

- Defining science goals that require a healthy marine seismic facility over the next decade.
- Improving the process of soliciting, evaluating, funding, and scheduling seismic cruises.
- Broadening access to *Langseth* products for scientists and educators.

The workshop will be hosted by the University of Nevada, Reno, and is planned for March 22-24. The workshop will be preceded on March 21 with a workshop on 3D seismic data.

To apply, please see: http://www.unols.org/meetings/2010/201003mls/201003LW_details.html. Participants are asked to consider submitting a one-page "white paper" describing future areas of interest for marine seismic work.

Partial travel support is available for participants.

For further information, please contact:

Steve Holbrook (steveh@uwyo.edu) or Graham Kent (gkent@seismo.unr.edu)



Application Deadline: February 19, 2010



~ Announcement ~
3rd NSF Large Facilities 2010 Operations Workshop
4-7 May 2010

The 3rd NSF Large Facilities 2010 Workshop will take place in San Diego, CA, May 4-7, 2010. The workshop will be hosted by the Scripps Institution of Oceanography, UC San Diego and UNOLS. The 2010 Workshop will last 3 ½ days and will be held at The Humphrey's Half Moon & Inn (<http://www.halfmooninn.com/>) on Shelter Island in San Diego, CA. This year's format will feature shorter presentations with ample time for discussions.

The purpose of this annual meeting is to bring together NSF staff and personnel from the NSF funded large facilities that are currently in operation. The workshop provides a strategic forum for discussing best practices, sharing "lessons learned", making new contacts and fostering close interactions between facilities.

Planned themes, speakers & discussion panels include:

- *All Facilities Safety: underground, on the ground, in the air, at sea, at high altitude/latitudes*
- *Re-capitalization strategies for major LF maintenance items and upgrades*
- *Managing human resources: how to keep your staff happy*
- *How to measure performance: merit criteria and metrics*
- *Energy: getting it, producing it, saving it*
- *Greening of Facilities*

As part of the workshop, excursions to Scripps Marine Facility (and ships if they are in Port) and to the San Diego Facility of the George E. Brown Jr. Network for Engineering Earthquake Simulation are planned. A *Cinco de Mayo* Banquet will be held at Birch Aquarium <<http://www.aquarium.ucsd.edu/>>.

Additional information about the workshop agenda, events, venue, the hotel, reservation, local contacts, and an on-line registration form can be found on the UNOLS website at www.unols.org/meetings/2010/2010031fw/. Registration is required and the fee of \$250.00 will include two receptions, coffee breaks, breakfasts and lunches for each day of the workshop. Guests are welcome for an additional cost. Hotel lodging expenses are not covered in registration fees; however, a special rate is available for Workshop participants. Please make sure to make your own hotel reservations, using the group name – UCSD, Scripps Institution of Oceanography.

Meeting registration as well as hotel registration deadlines are both April 3, 2010. Rooms will be available at a higher rate and as space provides after this date.

UNOLS Goals and Priorities

UNOLS goals and priorities are to: 1) Promote broad, coordinated access to oceanographic research facilities, 2) Support continuous improvement of existing facilities, and 3) Plan for and foster support for the oceanographic facilities of the future. In addition to these standing goals, each year the UNOLS Council also adopts additional goals and priorities for the upcoming year. At the Annual Meeting in October 2009, the Council announced two new goals for the upcoming year. These are to:

- ⇒ UNOLS and OPP - Explore the relationship of working with NSF's Office of Polar Programs to coordinate support for Antarctic Research Vessels.
- ⇒ Greening the Fleet – UNOLS should explore how to make the present and future fleet more environmentally sustainable. New and existing technologies and practices should be used in the construction, operation, and recycling of research vessels and UNOLS should take a leadership role in promoting a green U.S. research fleet, as we move forward in developing the academic fleet.

UNOLS welcomes community input regarding these issues and hopes that the membership will work to help us achieve our goals.



UNOLS Committee News

Ship Scheduling News

By Stan Winslow, Ship Scheduling Committee Chair

The Ship Scheduling Committee has been busy since our last report. The individual 2010 ship schedules were for the most part approved by the funding agencies prior to the end of 2009 with the caveat that only the first half of the year is considered firm. There may be some adjustments to these schedules as the Ship Operations Annual Reports that propose a 2010 day rate are negotiated during the first quarter of 2010.

The first meeting to discuss the 2011 schedules was held for the large ship schedulers on 27 January 2010 at Scripps Institution of Oceanography (SIO). The early start for the large ships is necessary since several of the ships are not scheduled to be in home port at the end of 2010 which necessitates making early plans on how to work them back to home port or on to where ever they are scheduled to go in 2011. In addition, a high percentage of the large ship schedules require research clearances from foreign governments which require a minimum of six months lead time.

The outlook for ship schedules in 2011 is not encouraging based on the input from the funding agencies at the 27 January meeting. It is early in the scheduling process; however, funded and proposed requests for ship time are low enough to be of concern. At the urging of the funding agencies, the Ship Scheduling Committee Chairman sent out an email to all ship schedulers asking them to alert their institutions of the projected shortfall and informing them that there is still time to submit proposals requiring 2011 ship time. The hope is this will lead to additional proposals being submitted.

Scheduling conference calls will be set up in the June-July timeframe to work on the 2011 schedules. Ships will be grouped with other ships that are generally competing for the same cruises making for about five separate conference calls. The need for a face-to-face meeting of all schedulers will be determined after we see how the conference calls go.



DEep Submergence Science Committee

Dear colleagues,

I hope this newsletter finds you well. I am honored to have been appointed DESSC chair and I thank you for your support. As a long time user of the National Deep Submergence Facility (NDSF), I look forward to working with the broader community to continue building and improving upon our deep submergence assets via existing and new programs. It is my hope that -over the coming years- we will increase our community user base and promote the addition of state-of-the-art sensors and samplers to the NDSF instrument pool. Most importantly, I believe we need to bring more young scientists into the NDSF community. They are literally the future of science, and will bring fresh ideas and resources into the program. Today, we are uniquely poised to stimulate greater interest, facilitate more collaborative efforts, and bring new resources and ideas into the NDSF, and I am grateful for the opportunity to play a role in that exciting effort.

The coming months are going to be a busy time for DESSC. We will continue to be engaged with the effort to replace DSV *Alvin*, working with the Replacement Human Occupied Vehicle Oversight Committee as they oversee the project's progress. There are continuing discussions about the newer autonomous vehicles and the role they play in the NDSF. These and many other issues that are relevant to your research are summarized in the DESSC meeting minutes (<http://www.unols.org/committees/dessc/index.html>). Please take a moment and take a look at what's going on at DESSC, and feel free to offer any comments or ideas.

Please note that there will be three vacancies in the fall, and one more by the end of the calendar year. A Call for DESSC Nominations can be found on page 9 in this issue. We will be looking for enthusiastic scientists to serve on DESSC. It's an opportunity to work with your friends and colleagues on issues related to the NDSF, and to play a leadership role in the deep submergence community.

Thank you all for your time and attention. As always, feel free to send us your ideas and comments.

Regards,

Peter Riad Girguis, DESSC Chair
Associate Professor, Harvard University



Fleet Improvement Committee News

By Clare Reimers, FIC Chair

Although no consensus was ever reached in the news media on what to call the last decade (the oh's? the double zeros? the aughties?), for the Fleet Improvement Committee (FIC) it was the decade of redrafting the UNOLS Fleet Improvement Plan (FIP). The now completed 2009 FIP provides a comprehensive description of future ocean science initiatives, fleet trends and fleet capacity projections. In 2010 and beyond, FIC will be working with the Federal agencies and the UNOLS Council to implement the recommendations of this plan. These include bringing to completion all current fleet renewal activities (specifically the design, construction and sea trial phases of the Alaska Region Research Vessel (ARRV), and new Regional and Ocean Class Vessels), and planning for and fostering support for replacement of two existing general

purpose Global Class Vessels (R/V *Knorr* and R/V *Melville*). The FIC encourages all UNOLS members to become familiar with the FIP ([www.unols.org/committees/fic/FIP05/Fleet Improvement Plan 2009 Final.pdf](http://www.unols.org/committees/fic/FIP05/Fleet%20Improvement%20Plan%202009%20Final.pdf)). Its recommendations will be publicized further via a poster presentation at the 2010 Ocean Sciences Meeting in Portland, OR.

Another area of committee activity is working to improve current and future ship designs by evaluating the quality, reliability and safety of new technologies entering the UNOLS fleet. For example, chief scientists using the RV *Hugh Sharp* this year can expect to receive a set of post-cruise debrief questions on design and outfitting features such as the new “hands-free” over-the-side CTD deployment system, the retractable centerboard with mounted acoustic transducers, modular vans connected to the superstructure, and

dynamic positioning. The load handling system on the RV *Kilo Moana* is also being reviewed, as well as modifications to the RV *Knorr* for WHOI's Long Coring system that recovers sediment cores in lengths up to 46 meters.

The FIC welcomes committee input on all fleet improvement issues. In 2010 FIC will, with the Council, be investigating approaches for greening the fleet through new construction, life cycle and recycling activities. Two new committee members who add their seagoing expertise to the committee are Dr. David Bradley, from Pennsylvania State University who specializes in marine acoustics, and Dr. Miles Sundermeyer from the University of Massachusetts Dartmouth who conducts research on ocean mixing.

Arctic Icebreaker Coordinating Committee (AICC) News

Article submitted by Robin Muench (rmuench@esr.org) on behalf of the AICC, the NSF and the USCG

The past year has marked an extremely active period for Arctic research and, hence, for the AICC. More than half of the membership, including the Chair, has been replaced to cover departures through expired terms or other commitments. National and international interest in the Arctic has continued to increase commensurate with dramatic regional changes exemplified by warming and loss of pack ice. The Coast Guard icebreaker USCGC *Healy* has continued its pivotal role in support of Arctic research activities. The icebreaker USCGC *Polar Sea* has resumed a regular role in supporting Arctic science after several years of relative inactivity. Initial funding is in hand, and engineering assessment studies are now complete, for the Coast Guard to proceed with plans to return the icebreaker USCGC *Polar Star* to service. The Coast Guard's District 17,

which includes all Alaska State waters, continues its recent focus on Arctic Domain Awareness activities, including operations in the Chukchi and Beaufort seas. AICC activities continue to focus on interactions among the Coast Guard, scientists using the icebreakers as research platforms, other government agencies, and Alaskan Native groups who are concerned with protecting the environment and wildlife of the Arctic regions.

USCGC *Healy* conducted four science missions during the 2009 season. These missions included two cruises during March-May in support of the National Science Foundation (NSF) - funded Bering Sea Ecosystem Study/Bering Sea Integrated Research Program (BEST/BSIERP). She returned to Seattle in June, then departed again in early July for the Beaufort



Sea. The first of two Beaufort cruises, with logistics support from the NSF, supported the National Ocean Partnership Program (NOPP), that conducted mooring recoveries and redeployments, and an Office of Naval Research (ONR) program that addressed hydrography on the Beaufort shelf. The second cruise was conducted jointly with the Canadian icebreaker CCGS *Louis St. Laurent* and funded by the National Oceanic and Atmospheric Administration (NOAA), and carried out Extended Continental Shelf (ECS) mapping. *Healy* then entered dry dock at Todd Pacific Shipyard in Seattle for maintenance and upgrades, including the installation of a new Kongsberg EM122 multibeam system. The length of the shipyard period will prevent her from supporting the final field year of the BEST/BSIERP program, therefore, this program will instead take place from a non-ice strengthened UNOLS vessel, the R/V *Thomas G. Thompson*, and the USCGC *Polar Sea*. Following the shipyard period, *Healy* has a full science schedule of three cruises, two of which entail seismic and seafloor mapping activities both on her own and through escort of a second vessel, for the remainder of the 2010 field year starting in June.

USCGC *Polar Sea* was on standby to support the

Swedish icebreaker *Oden* during the early 2009 McMurdo breakout and resupply, however, her services were not required. She later supported an autumn cruise to the Beaufort Shelf region in support of a project, funded jointly by the Naval Research Laboratory (NRL), the Department of Energy (DOE) and the U.S. Geological Survey (USGS), primarily to map methane hydrates but also to conduct some other science. Her final cruise for the season, also in the Beaufort Sea, supported an NSF funded project to re-capture tagged polar bears. *Polar Sea* will support the BEST spring cruise in March followed by a drydock maintenance period and a fall cruise to the Chukchi and Beaufort in 2010 to carry out work funded by the NSF and other agencies as may become appropriate.

AICC efforts to foster effective and positive communications among scientific researchers, the Coast Guard, and northern communities have continued. These communications focus on means for minimizing potential impacts of research activities on the Arctic marine environment, as well as informing the northern communities on new research results. Past AICC Chair Carin Ashjian attended the Alaska Eskimo Whaling Commission (AEWC) meeting in mid-summer 2009 and



USCGC *Healy* (left) and USCGC *Polar Sea* in the pack ice (photo courtesy of USCG).



presented a summary of science results from the BEST/BSIERP program. Both Ashjian and AICC member Lee Cooper have met in early 2010 with elected tribal government leaders and Native hunter subsistence stakeholders to discuss the upcoming science activities and minimize potential conflicts. Discussions are also well underway between the chief scientist of the later ESC cruise and the northern communities. The majority of similar efforts on behalf of the USCGC *Polar Sea* have been undertaken by USCG District 17 and Philip McGillivray (USCG), science liaison. The *Polar Sea* 2009 cruise activities had, as do some of the 2010 cruises, the potential to conflict with local subsistence hunting. Considerable effort was required in 2009, and will be required again in 2010, to deal with these issues.

The AICC underwent a large turnover in membership during 2009. This turnover was due to expiration of terms for existing members and to departures for new employment positions that were incompatible with membership. Positions for five new members opened during the year and have successfully been filled through solicitation. Past Chair, Carin Ashjian, finished her term in December 2009 and was replaced at the December meeting by Robin Muench. Responsibilities and tasks for the AICC have increased rapidly over the past few years, concurrently with the

increased interest in Arctic research. In a response designed to insure long-term continuity within the group, the AICC has created the position of deputy chair. The deputy chair will serve for three years as an AICC member, assisting the chair as appropriate, and may become the chair upon completion of the present chair's term. Lee Cooper is the initial person to serve as deputy chair. The AICC membership can be found at <http://www.unols.org/committees/aicc/>.

The AICC last met on 8-9 December 2009 in Seattle, Washington. Presentations made at this meeting, and an attendee list, can be found on the UNOLS website at <http://www.unols.org/meetings/2009/index.html>. Draft minutes of the December meeting will be posted to this site in the near future. The next meeting is planned to take place at the NSF facility in Arlington, Virginia during the week of 26-30 April 2010.

Finally, the AICC would like to congratulate the NSF and the USCG on their highly productive collaboration in utilizing these national assets, the icebreakers, to support research in the rapidly changing Arctic regions.

The AICC can be reached by contacting either the Chair (rmuench@esr.org) or the UNOLS Office (office@unols.org).

During the December 2009 AICC meeting, outgoing AICC Chair, Carin Ashjian, was honored by UNOLS and the USCG for her years of dedicated service to the Arctic seagoing science community and to UNOLS.



UNOLS Executive Secretary, Jon Alberts, presents Carin Ashjian with a UNOLS Certificate of Appreciation plaque.



USCG Captain Fred Somers presents Carin Ashjian with a USCG Distinguished Service Award.





Research Vessel Operators Committee (RVOC)

By Pete Zerr, RVOC Chair

As I write this, the first month of 2010 is coming to a close, and I am sailing down the Oregon coast for my first ever trip on the R/V *Kilo Moana*, courtesy of the University of Hawaii. We departed a Portland Shipyard, motored down the Columbia River, and are performing trials of the upgraded multi-beam system and the new CTD launch and recovery system (see photo below). The weather has been cooperating wonderfully for these trials.

Economic stimulus funding, or American Recovery and Reinvestment Act (ARRA), has provided some much needed upgrades to the fleet, and is keeping many of us busy in implementing these upgrades. In addition to dealing with design criteria, purchasing, and installation, the ARRA funding comes with additional reporting requirements, further increasing the pressures on our time. Of course, the big news of 2009 was that the long awaited Alaska Region Research Vessel, now officially called the R/V *Sikuliaq*, was also funded through the ARRA and will soon start construction.

The Safety Committee, which is chaired by Dan Oliver and is a subcommittee of RVOC, is working on Appendix B (Load Handling System Design Standards) of the *Research Vessel Safety Standards* (RVSS). Appendix B is currently in the RVSS's as a placeholder and is listed as "under development." Despite it still being in a developmental stage, those within UNOLS involved with purchasing new handling equipment are using the draft. Like Appendix A, much of Appendix B represents a procedural solution to the problems we face; better operational definitions, improved documentation, and testing, etc.

For those of you that are not already aware, the UNOLS Office has a small selection of training videos for use by the fleet. The videos that can be loaned out from the UNOLS Office, all on VHS format, are:

- *Safe Use of Rigging Equipment*
- *Safe Hotwork Procedures*
- *Personal Survival I & II*
- *Shipboard Security Awareness*
- *Engine Room Resource Management*
- *Drug and Alcohol Prevention*
- *Safe Isolation of Machinery*
- *Bridge Resource Management*
- *Enclosed Space Entry*
- *Personal Safety and Social Responsibility*
- *Shipboard Investigation*
- *International Safety Management (ISM)*

If anyone has recommendations on specific training videos that could be added to this library, please let the UNOLS Office know.

UNOLS Van Pools - The entire UNOLS scientific community should be aware of the portable laboratory vans labs available for use on UNOLS vessels. There are two pools, one located on the east coast <http://marops.cms.udel.edu/uecvp/> and one on the west coast <http://www.shipops.oregonstate.edu/ops/vans/>. Funding for operating these two pools comes mainly from the National Science Foundation. Lab vans in the inventory include: isotope, general purpose, wet, dry, and cold.

NSF Ship Inspection Program - NSF is coming out with revised Ship Inspection Program guidelines. They have incorporated many of the suggestions from the operators on improving this process and we



R/V *Kilo Moana*'s new winch/crane handling system by Caley. Photo by Pete Zerr



appreciate the opportunity to provide input and feedback. Inspections conducted after March 2010 will start using the new guidelines.

Annual RVOC Meeting - The 2010 RVOC meeting will be held at the University of Rhode Island's Graduate School of Oceanography in Narragansett, Rhode Island on April 20-22. We need your help in identifying topics of interest for the upcoming meeting. If anyone has suggestions for interesting and informative topics, please pass them on to me. Details will soon be posted on the UNOLS site at <http://www.unols.org/meetings/2010/201004rvo/201004rvoag.html>. The on-line meeting registration form is now available.

Research Vessel Technical Enhancement Committee – 2009 in Review

Photos and Commentary by Aubri D. Steele, UM

The 2009 Annual Meeting of the Research Vessel Technical Enhancement Committee (RVTEC) was hosted by the University of Washington (UW) this past November. The 3-day meeting convened at the UW Botanical Gardens and Center for Urban Horticulture. Robert Hagg, Engineering Technician and long time RVTEC'er; James Postel, UW Marine Technician Manager; Dan Schwartz, UW Marine Superintendent, and Su Tipple of the Marine Office, all generously offered their time and support of the meeting arrangements, facilities, and other logistic detail.

Richard Findley, Director of Marine Technical Services for the University of Miami, chaired the 2009 RVTEC meeting. Rich was nominated and appointed last year to serve as Chair after the unexpected loss of Bill Martin, former RVTEC Chair. Rich will also preside as RVTEC Chair for the 2010 meeting, expected to be hosted by the Bermuda Institute for Ocean Sciences (BIOS) in St. Georges. During the 2009 RVTEC meeting Daryl Swensen of Oregon State University (OSU) was elected as the new Vice-Chair for the next two years.


During the 2009 meeting, participants toured the nearby Markey Machinery facility, Sea-Bird Electronics in Bellevue, and the R/V *Thomas Thompson*, an AGOR Global Class ship. A semi-formal dinner followed the R/V *Thompson* tour at the University of Washington Club for a remembrance celebration for Bill Martin and Mike Realander, another UW marine technician who passed away last year. This exquisite club is exclusively for UW members and their guests and boasts beautiful panoramic views of Lake Washington.

SWATH bathymetry and HiSeasNet focus groups met as a precursor to the annual meeting for interested

participants. General meeting topics included communications discussions including the Fleet Broadband, Iridium and HiSeasNet systems. An overview of the Rolling Deck to Repository (R2R) Program was introduced by Bob Arko from Lamont Doherty Earth Observatory. Cyndy Chandler and Andy Maffei also gave presentations on the R2R Event Logger System and Cruise Directory structure. David O'Gorman and Toby Martin gave an excellent look at the upgrade to the Ships Underway Data System aboard OSU vessels.

The Winch and Wire discussion likely proved an eye-opener to many participants, due to pending compliance with the updated *Research Vessel Safety Standards* published in early '09. Presently, a group purchase orchestrated by LUMCON will require collaboration with Measurement Technologies NW and the University of Miami. This collaborative effort is expected to initiate four workshops in 2010 to help scientists, engineers, technicians and other shipboard support staff understand the complexity and dire need to properly calculate standard weight limits, breaking strength, and conduct calibrations of wire and wire rope aboard UNOLS vessels.

A new addition to this year's annual meeting, with the largest number of attendees since the inaugural meeting held in Washington, D.C. in 1992, was the acclaimed *Year In Review*, or highlights from the previous year aboard UNOLS vessels. It was recommended that junior members of RVTEC present quips, challenges and remarkable news, giving the old salts a chance to reflect on their early years as marine technicians and support staff.

RVTEC photos on next page 





Images from the 2009 RVTEC Meeting: R/V *Thomas Thompson* and the UW Botanical Garden and Center for Urban Horticulture - by Aubri Steele



Scientific Committee for Oceanographic Aircraft Research News

by Daniel S. Schwartz, SCOAR Chair

Ocean investigators' tools, a decade into the 21st Century, have included research ships, submersibles, buoys, drifters, undersea gliders, and cabled observing systems. Additionally, since the 1960s, earth-observing satellites provide meso- to ocean-scale views of ocean dynamics across a range of time scales. But, there is an intermediate realm wherein the rapid response and cost-effective capabilities of aircraft offer an attractive and significant contribution. Aircraft and emerging Unmanned Aerial Systems (AUS) field a wide variety of sensors and capabilities specifically tailored to the spatial needs of ocean, Arctic, near coastal, near shore, and estuarine investigations.

To facilitate access to (and awareness of) aircraft facilities for oceanographic research, the University-National Oceanographic Laboratory System (UNOLS) established the Scientific Committee for Oceanographic Aircraft Research (SCOAR) in 2002. An initial meeting attended by marine scientists and Federal funding agency program managers held the following year established a process for designation of aircraft operating organizations to be "National Oceanographic Aircraft Facilities," parallel to the UNOLS practice of designating research vessel operating institutions.

The Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) is a research center at the Naval Postgraduate School in Monterey, California that operates manned, instrumented research aircraft in support of the science community. CIRPAS has been designated as a National

Oceanographic Aircraft Facility by UNOLS.

Other assets available to qualified marine science investigators are operated by organizations such as NOAA, DOE, NSF, NRL, and NASA, along with aircraft operated by state and local law enforcement agencies, universities, or by general aviation pilots and fixed-base operators. SCOAR is in the process of identifying ongoing research programs that utilize manned and unmanned aircraft.

SCOAR activities (or member representation at other events) in CY 2009 included:

- June 11, 2009: SCOAR Teleconference Meeting.
- Sept. 15-16, 2009: 2nd Annual Alaska UAS Interest Group, Fairbanks, Alaska.
- Nov. 9-10, 2009: ICCAGRA - The Interagency Coordinating Committee for Airborne Geosciences Research and Applications. Tampa, Florida.

- Feb. 22, 2010: SCOAR Town Hall Meeting "The View from Above – Integrating Aircraft and Unmanned Aerial Systems into your Ocean Research" at the Ocean Sciences Meeting, Portland, Oregon, Room D-137 11:45 PST.
- Date TBD: SCOAR meeting at the CIRPAS facility, Marina, California.
- Sept 19th to 24th, 2010: Marine Technology Society/ IEEE Oceans 2010 Seattle. Session on aircraft remote sensing by manned and unmanned aircraft.

Aircraft offer an extraordinary range in payload, altitude, time aloft, spatial coverage, speed, readiness and repeated observation capability. Aircraft can be manned or unmanned, configured for transport, visual observation, or remote-sensing instrumentation. Aircraft can sustain missions designed for repeat observations on the scale of minutes to years, over meters to thousands of kilometers.



Photo courtesy of NOAA and University of Alaska, Fairbanks.

Coming up in CY-2010 are:

Remarkable technological progress



is being made in the design, construction and utilization of multi-mission capable remotely piloted aircraft that can be utilized in environments where one would not risk a flight crew. While the media most frequently mentions these in their military roles, some of

these air vehicles are now being employed in border protection, upper level atmospheric studies, and law-enforcement. Yet none of the emerging designs for replacement UNOLS or NOAA research vessels include infrastructure to support air-capability. Small, light and cheap

off-board aerial vehicles that could be employed on the Arctic, Ocean Class, and Global Class UNOLS ships are becoming available. See the photograph below of the launch of a small UAS from the NOAA ship *McArthur* in the Bering Sea, this last summer.

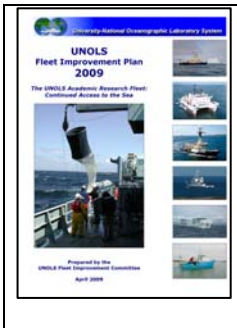
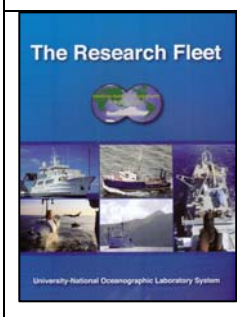
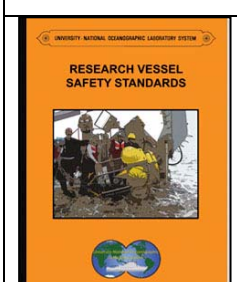
Council and Committees – *Recognition of Service*

UNOLS thanks those Council and Committee members who completed their terms and service for UNOLS in the past year. The following individuals are recognized:

- Council: Mary Jane Perry, Dave Hebert, Marcia McNutt, Carin Ashjian, Deb Kelley, and Steve Holbrook
- DESSC: Jennifer Reynolds
- FIC: Dave Hebert, James Bauer, and Newell “Toby” Garfield
- RVTEC: Stewart Lamerdin
- AICC: Carin Ashjian, Erica Key, Kate Moran, Bernie Coakley, and Rebecca Woodgate
- MLSOC: Peter Littlewood, Nancy Grindlay, Thomas Shipley, and Peter Tyack

The time, service, and contributions provided by these individuals are greatly appreciated. *Thank you for your service to UNOLS!*

UNOLS Publications in 2009

	<p>The UNOLS Fleet Improvement Plan – 2009 was finalized and published in April 2009. The Plan provides a comprehensive evaluation of today’s Academic Research Fleet, future science directions, and fleet capacity projections. The Plan’s recommendations are based on future science needs while at the same time recognize the challenges before us; escalating costs, budgetary constraints, and an aging fleet. The document is available on-line at http://www.unols.org/committees/fic/FIP05/Fleet_Improvement_Plan_2009_Final.pdf</p>
	<p>In 2009 a New UNOLS Brochure: “The Research Fleet” was published. The pages of the brochure are filled with images of UNOLS ships and facilities, illustrating the science operations that are supported from their decks. Information about the history of UNOLS, the research fleet and national facilities, research at sea, ocean initiatives, seagoing tools of oceanography, and the future of UNOLS. An interesting look inside a research vessel is featured. The brochure, prepared under a grant from the National Science Foundation, is an excellent education and outreach resource. Laura Dippold and Mike Prince were editors of the document. Copies of the brochure can be requested from the UNOLS Office at office@unols.org. The brochure is available individually or by the box (70 copies to a box).</p>
	<p>These updated Research Vessel Safety Standards provide guidelines for the operation of oceanographic research vessels owned, operated or chartered by Members of the University-National Oceanographic Laboratory System (UNOLS), to assure that research at sea is conducted to the highest practicable standards of safety and prudence. Each Member Institution is encouraged to comply with them as applicable to all ships and boats under their control.</p>



UNOLS Events at the 2010 Ocean Sciences Meetings

~ We hope that you will join us at these upcoming sessions. ~

Town Hall Meeting

Monday, 22 February, 11:45am – 12:45pm

**The View from Above: Integrating Aircraft and Unmanned Aerial Systems into Your Ocean Research
Room D137**

Ocean investigators' tools include research ships, submersibles, buoys, drifters, undersea gliders, and cabled observing systems. While satellites provide meso- to ocean-scale views of ocean dynamics across a range of time scales, the rapid response and cost-effective capabilities of aircraft offer an attractive and significant contribution. Aircraft and maturing Unmanned Aerial Systems field a wide variety of sensors and capabilities specifically tailored to the spatial needs of ocean, Arctic, near coastal, near shore, and estuarine investigations. Join us to learn more about aircraft facilities for researchers, hosted by the University-National Oceanographic Laboratory System's Scientific Committee for Oceanographic Aircraft Research (SCOAR.)

Poster Session

MT35A-03 - Poster Hall E

Wednesday, February 24, 5:30pm – 7:00pm

A report on the UNOLS 2009 Fleet Improvement Plan: Findings, Recommendations, and Implementation

Clare E. Reimers, Annette DeSilva, and Dave Hebert on behalf of the UNOLS Fleet Improvement Committee

The UNOLS Office at the University of Rhode Island

The UNOLS Office moved from Moss Landing Marine Laboratories to the University of Rhode Island (URI) on May 1, 2009. The new office is located on the Graduate School of Oceanography campus in the newly built Ocean Sciences and Exploration Center. The hiring of our new office members is complete and the staff is ready to support the UNOLS organization. We are excited to have this opportunity and welcome community feedback.

The members of the UNOLS Office include:

- Jon Alberts – Executive Secretary
- Annette DeSilva – Assistant Executive Secretary
- Erin Jackson – Project Assistant (*see article on next page*)
- Pam Thompson – Administrative Assistant
- Programmers – Steve Ciesluk and Sandy Fontana
- Risk Manager – Dennis Nixon
- Alice Doyle - Marine Technician Manager (*new UNOLS Office position*)

We extend a big “thank you” to the MLML UNOLS Office members – Mike, Kate, Laura, and Aaron - for all their help with the transition!



Meet the UNOLS Project Assistant: Erin Jackson - I am very excited to introduce myself to you as the new UNOLS Office Project Assistant. I joined UNOLS in September after spending two years completing my master's degree in Marine Affairs at the University of Rhode Island. I am thrilled with the opportunity I have been given to work with the many individuals that make up the UNOLS community.

As the Project Assistant, I will be maintaining the Post Cruise Assessment and Safety Report databases, as well as editing and updating the UNOLS website. In addition, I will be assisting the Technical Services Managers in the completion of their Technical Services Information on the Ship Time Request System. Significant progress was made on this toward the end of 2009, with several institutions populating and publishing their information pages.

In an effort to utilize and promote the UNOLS Science and Education Opportunities webpage (http://www.unols.org/info/cruise_opportunities.html) I will be working towards matching interested volunteers to 2010 cruises over the next couple of months. Currently, there are 25-30 individuals who are interested in assisting scientists and crew aboard UNOLS vessels in exchange for the unique learning experience this participation would provide. I am working directly with several of these individuals to get them aboard a UNOLS vessel in the coming months. If you are interested in a volunteer opportunity, please visit the link above. In addition, if you are looking to take a volunteer aboard please contact me, as I have many who are waiting for a cruise opportunity!



Please don't hesitate to contact me at office@unols.org or at 401-874-6826 if you have questions about the Technical Services Information, Post Cruise Assessments, Safety Reports, or Science and Education Opportunities. I look forward to working with many of you in the future!

Calendar - Upcoming Meetings		
Meeting	Date	Location
Langseth Workshop	March 22-24	Incline Village, NV
FIC Spring Meeting	March 29-30	Stennis, Mississippi
Council Spring Meeting	March 30-31	Stennis, Mississippi
RVOC 2010 Annual Meeting	April 20-22	URI, Narragansett, RI
AICC Spring Meeting	April 27-28	Arlington, VA
NSF Large Facilities Workshop	May 4-7	SIO, San Diego, CA

I would like to thank all who contributed information and articles for this issue of UNOLS News. Articles are always welcome and encouraged. Copy can be submitted via e-mail to <office@unols.org>.

Thank you, Annette DeSilva - Editor, UNOLS News

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