

UNOLS NEWS

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March 1997

Comments From The UNOLS Chair . . .



Dear Colleague,

This has been a year of building successful partnerships for UNOLS. New partnerships have been built with the US Naval Oceanographic Office, NOAA and the US Coast Guard. The goal in building these partnerships has been to ensure that sea going scientists continue to maintain superb access to the sea.

HIGHLIGHTS

- Comments from the Chair
- CORE/UNOLS MOA
- Ship Scheduling Procedures are Reviewed
- Ship Scheduling Procedures Follow-Up Actions
- Ship Time Requests On-Line
- 1997 NAVO Cruises
- ALVIN/ROV Request Form
- FIC Activities
- RVTEC On-Line
- RVOC News
- DSF Operations in 1997
- UNOLS Fleet Ops in 1997
- UNOLS Meeting Calendar

As a result of the National Ocean Partnership Act, the Naval Oceanographic Office (NAVOCEANO) is now using UNOLS vessels to conduct surveys in US and international waters. This project represents the efforts of the academic community working together with the Consortium for Ocean Research and Education (CORE), Congress and the US Navy to find mutual solutions to difficult problems. NAVOCEANO will be able to perform ocean surveys in many more regions than they can access with their own fleet of survey ships. Their fleet of survey ships are forward deployed in areas where conflicts are likely and they seldom return to US waters. There are, therefore, many years of unmet survey needs in local waters for training exercises and model development. The NAVOCEANO funding will allow more UNOLS vessels to keep operating. This greatly improves our flexibility in scheduling science operations and helps to ensure that all funded academic science cruises, particularly those in remote areas, are able to find a platform for their work. It also helps build a bridge

between NAVOCEANO, which is one of the largest oceanographic institutions in the world, and the academic community. The first of nearly 400 days of work in support of NAVOCEANO have been completed and we are very enthusiastic about the results. Although the initial funding is for one year only, we hope to continue this program at a sustainable rate into the future.

UNOLS is working with NOAA to expand the availability of sea going platforms for each institution. If these negotiations are successful, the new NOAA ship, RONALD BROWN, will enter the UNOLS scheduling process and it will be available to academic scientists as are other UNOLS vessels. The BROWN is a THOMPSON class vessel that will be particularly well equipped for atmospheric studies. NOAA will support a full year of Class I ship time, but much of it may be conducted on UNOLS vessels operating in oceans far from the BROWN. Access to the UNOLS fleet will minimize NOAA transit costs. Availability of the BROWN will expand the flexibility for academic scientists in scheduling ships, as well as expanding the specialized assets available to sea going scientists. We think this is a win-win situation for everyone.

UNOLS has also established the Arctic Icebreaker Coordinating Committee (AICC) to act as the lead for scientists working from US ships in the Arctic Ocean. Jim Swift chairs the AICC, and they have made

remarkable strides in working with the US Coast Guard on their new research icebreaker, MICHAEL HEALY and on broadening academic access to the POLAR Class ships. We anticipate that the academic community will have access to the HEALY in much the same way that we request other specialized facilities, such as ALVIN. This will greatly reduce the effort needed by scientists to get a funded Arctic proposal into the field.

The results of these partnerships are apparent in the 1997 ship schedule. The UNOLS fleet will operate for over 5000 days in 1997. This is the highest number the fleet has ever attained. These successes have not come without some pain. Introducing new users to the fleet has strained the ship scheduling process. Dr. Rick Jahnke is, therefore, chairing an ad-hoc committee to reexamine the UNOLS scheduling process. One of their early conclusions is that the ship schedulers often do not have enough information about cruise requirements to make the correct scheduling decision. Further, the information that is available can be easily lost when schedules change and cruises move to new ships. These changes are becoming more common as the flexibility available to schedulers increases. The flexibility produces many cost efficiencies for the fleet, as a whole, and it helps ensure that all scientists have access to sea going platforms. However, schedule changes may also severely impact the individual scientist, particularly if all of their needs are not known. The ad-hoc scheduling committee has come up with some very exciting solutions to this problem. These solutions will be incorporated into a data base available to all scientists on the World Wide Web. More information on this system is outlined in this newsletter issue.

These partnerships are the result of some of the finest team building efforts I have seen. They will ultimately result in a much stronger and more flexible fleet that can accommodate the rapidly changing needs of the science community.

Thanks to all who have been involved.

Ken Johnson
UNOLS Chair

CORE/UNOLS Memorandum Of Agreement is Adopted

A Memorandum of Agreement (MOA) between the Consortium for Oceanographic Research and Education (CORE) and the University-National Oceanographic Laboratory System (UNOLS) has been adopted. The purpose is to promote access to and study of the oceans for scientific and educational purposes. By the terms of the MOA, each organization agrees to coordinate activities in an effort to strengthen their respective missions of supporting the communities of ocean science researchers and educators. The Agreement encourages communication between UNOLS and CORE.

The MOA will be reviewed every two years and remain in force until canceled or modified.

UNOLS Ship Scheduling Procedures are Reviewed

by Dr. Rick Jahnke (Skidaway Institute of Oceanography), Ad-hoc Committee Chair

The Ship Scheduling Procedure Review Committee met on 7 January 1997 in Washington D. C. This ad hoc committee had been charged to review all aspects of the ship scheduling procedure and recommend changes that might improve the procedure. The committee was chaired by Rick Jahnke and included Bob Detrick, Pat Dennis, Dolly Dieter, Dave Epp, Robert Hinton and Rose Dufour. Prior to the meeting, each member was asked to provide a list of perceived weaknesses with the present system and suggested improvements. The items on each list were combined and formed the basis of the agenda for the meeting.

Ineffective information exchange among scientists, schedulers and operators was the most commonly cited concern. Among the factors that contribute to this are that all of the relevant information is not requested on the present ship scheduling form and that requirements often change between the initial submission of the form and the expedition due to changes in planned activities and additional P.I.s. Other concerns included the absence of a mechanism by which individual project ship-needs could be tracked, the absence of a rigorous cost-benefit analysis, and differences between operators related to costs that must be supported within the science budgets.

The main recommendations reflect the above concerns. The committee suggests that the ship-time request form be revised into a two-part form. The first part would request much of the same information that is requested on the present form. This form would be submitted electronically and in hard copy with the proposal and would be used to provide information related to the funding decision and in establishing preliminary ship schedules. The second part would be requested only for funded projects and would be used to provide more detailed information concerning operational requirements, potential scheduling conflicts, etc.

In addition to the form changes, the committee also recommended that a tracking system be developed. This would provide the data base to ensure that every funded project is scheduled and out-year commitments and requirements are tracked. To encourage P.I. participation and feedback in the scheduling process, the committee also suggested that the preliminary schedules be posted on the internet and that this posting should be announced to all P.I.s. Furthermore, it was recommended that an automated procedure be developed whereby each P.I. would be notified by e-mail whenever a schedule on which they appear changes. These procedures would allow P.I.s to participate more actively in the scheduling process. No consensus was reached concerning the need to develop a rigorous cost-benefit analysis and it was concluded that Program Managers should continue to handle operator differences in equipment rental and technical support charges on an individual basis.

Overall, the committee recognizes that scheduling ships for a diverse community of users and agencies throughout the world will always be a difficult task. The procedures adopted by UNOLS have generally worked well in the past and the recent difficulties can be remedied through better communication and information exchange.

Ship Scheduling Procedure Review - "Follow-up" Actions

by Jack Bash

During the ad hoc committee meeting on scheduling procedures, Robert Hinton and Jack Bash were tasked to develop the changes to the on-line ship time request form and to build a tracking system for the requests. Robert and Jack met at the University of Washington on 23 January along with Neil Bogue (U.Washington) to work out a plan. The plan is still in its infancy but should address the issues of concern. In the next several months Robert, Neil and Jack will be talking with the community and encouraging input to the plans. The more community involvement the better the product.

Please Submit Your Ship Time Request Electronically

The UNOLS Ship Time Request form is now on the World Wide Web. It can be accessed from the UNOLS homepage at <<http://www.gso.uri.edu/unols/unols.html>>. The electronic form should be used for **all** ship time requests. Any problems, questions, and/or recommendations regarding the form should be directed to the UNOLS Office <unols@gso.uri.edu> or by phone, (401) 874-6825. We appreciate your

input.

UNOLS Ships Begin Operations for the Naval Oceanographic Office

by Jack Bash

The National Oceanographic Partnership Act (NOPA) has provided \$7.5M for The Naval Oceanographic Office (NAVOCEANO) to use UNOLS ships for their surveys in domestic and international waters. NAVOCEANO presented eleven programs as possible candidates for this work. UNOLS ships were able to schedule ten of these programs within the funds available. As this newsletter goes to press, five of the cruises are underway.

Ships to be utilized for this work are CAPE HATTERAS, POINT SUR, PELICAN, NEW HORIZON, CAPE HENLOPEN, EWING, KNORR, MELVILLE, THOMPSON and REVELLE. Processing of the CTD data collected during the NAVOCEANO cruises will be done at Scripps. This additional Navy support for ship time has been a welcome addition to the 1997 funding for the UNOLS fleet.

NAVOCEANO is investigating yet another mooring type cruise in the Gulf of Mexico for 1997. Their ship time request should be out shortly. In addition, NAVOCEANO has asked if a UNOLS Institution would be able to analyze the cores recovered on some of their 1997 cruises. There are efforts to attain funding money for NAVOCEANO ship time in 1998 and hopefully it will become part of the budget process in the out years. UNOLS looks forward to a long and successful partnership.

ALVIN/ROV Vehicle Request Form is On-Line

The UNOLS Office would like to keep its database of ALVIN, ROV and tethered vehicle time requests as current as possible. If you have a proposed or funded field program using these deep submergence vehicles scheduled to be carried out in the near future, or plan to submit a request to use these vehicles in the next few years, please complete an on-line form at the web address:

<http://www.marine.who.edu/webpub/unols/request.htm>

Unfortunately, we do not have the capability for on-line revision of previous submissions, but you may copy and paste from an old record into a new one. Access the records by clicking on the URL specified in the form, or go directly to:

<http://www.marine.who.edu/webpub/unols/default.htm>

Copy any information you wish to keep from the old form and paste it into a new submission. To remove a request which is no longer current, please send an e-mail message to Rick Chandler at: rhandler@who.edu.

UNOLS COMMITTEE REPORTS

Fleet Improvement Committee Activities

(by Chris Mooers, FIC Chair)

The Fleet Improvement Committee (FIC) has two new members Bill Smethie (Lamont-Doherty Earth Observatory) and Tom Crowley (Texas A&M), replacing Peter Betzer (USF) and Bob Detrick (WHOI). Overall, geographical and disciplinary balance has been approximately maintained on the committee.

Development of ad hoc Science Mission Requirements (SMRs) for the Congressionally mandated mid-Pacific Class II/III oceanographic research vessel (possibly a SWATH) has been the major activity of FIC in recent months. At FIC's winter meeting (December 12-13, 1996 in San Francisco), a set of SMRs was developed with participation from eleven guest West Coast seagoing oceanographers (including U. Hawaii representatives), several Council members, and ONR and NSF representatives. The FIC recommendations were forwarded to the Council, which made several changes and caveats; the UNOLS Chair then submitted the SMRs to ONR in time to meet a pre-established deadline. The UNOLS Chair has recommended an ad hoc subcommittee of FIC to provide continuing advice to ONR during planning and construction of the new vessel. Much development in the Navy's plans for this vessel is anticipated in the next several months.

Further evolution of the Interim Fleet Improvement Plan (IFIP) has been the second leading activity. Since it deals with options for Fleet downsizing, and since the Fleet's situation is rapidly evolving, the IFIP has been a "moving target". However, it should "converge" shortly.

Given the current fluidity of the UNOLS Fleet, FIC's erstwhile major activity, the development of the next Fleet Improvement Plan (FIP), has been moving slowly. However, some excellent material is emerging. It has been decided to make the focus of the next FIP on emerging scientific and technological trends with major implications for the UNOLS Fleet of the future.

FIC has requested RVTEC to adopt NetCDF as a shipboard data format standard in order to improve interoperability.

Based on a recent update of the UNOLS vessel operators' estimates of the "useful life" remaining for their R/V's, it is clear that several intermediates and coastal vessels will retire by 2015 and that new construction should begin early in the next century. Hence, FIC recommended to the Council that UNOLS should propose to NSF the development of conceptual designs for a spectrum of intermediate/coastal type R/Vs, possibly including fisheries oceanography vessels for joint operation with NOAA/NMFS.

FIC's summer meeting is planned for July 21-22 at the University of Rhode Island/GSO. The major action item is anticipated to be the FIP, which will be developed on a limited-access Web homepage in advance. The present intention is to invite representatives of the community's science program planning infrastructure (e.g., OSB, NSF Geoscience Advisory Committee, ONR Ocean Sciences leadership, and CORE) to present their thoughts and on long-range seagoing research plans, and to engage in a dialogue about the draft FIP.

Research Vessel Technical Enhancement Committee goes On-Line

The Research Vessel Technical Enhancement Committee (RVTEC) Database Committee, chaired by Tom Wilson (SUNY), has developed an RVTEC homepage. It can be found at the website address: <http://www.gso.uri.edu/unols/rvtec/rvtec.html>. The site provides UNOLS resource lists including

technical support groups and scientific equipment.

Arctic Icebreaker Coordinating Committee - Activities and Updates

At the recent UNOLS Council Meeting, Jim Swift, Arctic Icebreaker Coordinating Committee (AICC) Chair, reported on Committee plans in 1997. Excerpts from his report are provided here. The AICC business for the next year includes:

- Moving ship scheduling of Arctic facilities towards the UNOLS format
- Providing science-of-opportunity guidelines
- Overseeing production of a "Chief Scientist" pamphlet
- Identifying steps to provide technical support continuity
- Coordination of science missions
- Support for future science initiatives
- Oversight of science aspects of HEALY construction/outfitting

The "Science of Opportunity" guidelines are an attempt to provide community communication and coordination for what are expected to be annual opportunities to carry out occasional "not to interfere" science programs during Coast Guard training and test cruises in the Arctic, without any "day rate" charge being assessed to the science program (and with no assurance that the science program will be carried out). The AICC's 1997 program is a trial to establish procedures. The 1997 opportunity and attendant guidelines have been provided to the community.

The construction of the USCGC HEALY provides some of the most urgent present business for the AICC. Bringing news of the HEALY status to the community and acting on community concerns and ideas - for a ship which is already well under construction - provides a challenge for the AICC.

The AICC has held an internal workshop with the Coast Guard regarding the science-related layout and specifications, and has come up with a number of recommendations, including: increasing area and bench space in labs; improving traffic flow; providing fantail staging area; choices for vans; providing laboratory temperature control; seawater temperature monitor/control; area for incubations; reduce/move science freezer; provide stowage for on-ice equipment; relocation of the dive locker; work area visibility; portable lab freezers and refrigerators; portable con station; and upgrading data archiving. The Coast Guard has been receptive to these concerns, and for example has proposed a revision of the layout of the main deck science areas that would greatly improve the highest priority concerns on the AICC list.

The flow and urgency of issues regarding the HEALY tend to overwhelm the AICC at times. The AICC in the coming year may suggest that the Coast Guard subcontract with a UNOLS marine operator for routine HEALY consulting, providing direct contact between the subcontractor and USCG, monitored by the AICC. Increased access to technical expertise may also be provided via the UNOLS Research Vessel Technical Enhancement Committee (RVTEC). An RVTEC representative/liason may possibly be added to the AICC membership. The AICC plans to form closer ties with the community involved with the PALMER, THOMPSON, REVELLE, and ATLANTIS construction and scientific outfitting.

The AICC does not propose that all community concerns regarding the HEALY will be solved, or that they are all solvable. It is clear, however, that the context of recent events makes the HEALY the "Arctic Research Vessel" for the beginning of the next century. We must make the best of this resource and opportunity, providing a fair trial, as we form long-term plans for US Arctic logistics. The working relationship between the AICC and the Coast Guard regarding HEALY matters is cordial and effective. The AICC is strongly heartened and cautiously optimistic. There are many hurdles to overcome, but it

appears that within the framework of options available that the AICC and Coast Guard are off to an excellent start.

Research Vessel Operators' Committee News

by Paul Ljunggren, RVOC Chair

The 1997 Research Vessel Operators' Committee (RVOC) meeting will be hosted by Woods Hole Oceanographic Institution and is scheduled for October 21-23, 1997.

At the present time there are several projects being worked on or coordinated by RVOC members:

David Powell of the University of Miami/RSMAS, is coordinating the efforts of several individuals authoring sections of a Small Research Vessel Compendium. This publication is intended to cover topics: including Requirements and Capabilities; Regulatory Requirements; Safety; Stability and Seakeeping; Design and Construction; Conversion versus New Construction; Outfitting and Equipment; SWATH Vessels; Catamarans; Selected New Designs; and Inventory.

Robert Hinton, University of Washington, has relieved Bill Coste, University of Hawaii, as chair of the Medical/Physical Standards Work Group. This group has been working to identify a uniform set of medical conditions which would be used as a more stringent guideline for employing shipboard positions. At the October 1996 RVOC Meeting, this group greatly benefited from the attendance of Dr. Michael Brown of Maritime Health Services and Mr. Dennis Nixon of the University of Rhode Island. Dr. Brown was able to speak for the medical community and Mr. Nixon was able to address the legal aspects of the issue. The working group is also seeking to define the functional/physical requirements of marine positions.

The RVOC Safety Committee, chaired by Tom Smith of the University of Alaska, is seeking to develop a safety orientation video which would primarily be used to address safety issues with the science party. The video is expected to be 10 to 12 minutes long and generic in nature such that it could be used by all research vessels. A proposal is being drafted for submission to NSF. In 1997, the committee will also begin an update of the RVOC Safety Standards. Deadline for completion of the update is January 1999.

National Deep Submergence Facility Operations in 1997

In the spring, ALVIN will complete its overhaul and be loaded aboard ATLANTIS. ALVIN's certification dives are planned to be conducted in June. Science operations will begin in late June with the first cruise on the Mid Atlantic Ridge. In July/August, ATLANTIS will transit through the Panama Canal for ALVIN work off California. In the fall after completion of ATLANTIS' shipyard period, ALVIN will resume operations on the Northern East Pacific Rise. The year will end with ATLANTIS on the Southern EPR for ALVIN and ROV operations.

The ROVs have a full schedule in 1997. The year began with two ROV programs in the Western Pacific off THOMPSON. This includes a 47 day UK funded cruise to survey the wreck of the M/V DERBYSHIRE. All three ROV systems (Jason, ARGO II, and DSL-120) will be used in the survey. ROV operations are also planned at Juan de Fuca, the Mediterranean Sea and the Southern East Pacific Rise. The systems are scheduled to be used from three different platforms: THOMPSON, CAROLYN CHOUEST and ATLANTIS.

UNOLS Fleet Operations in 1997

In 1997, a total of 5,034 days are scheduled on UNOLS ships. As in the past, NSF continues to be the major sponsor of ship time. The 1997 total days represents a substantial increase over 1996 totals and can largely be accredited to building new partnerships with NAVOCEANO and NOAA, *see chart*.

Class I/II

ATLANTIS' delivery cruise to Woods Hole from the shipyard is planned to begin on 25 March. After outfitting and installation of ALVIN; the ship will set out on mission demonstrations, outreach programs and dive certifications. Science operations are scheduled to begin at the Mid Atlantic Ridge in late June. After transit through the Panama Canal in August, operations will resume off

California. A Post Shakedown Availability in port period is planned for September through mid-October. Operations in the fall are planned at the Northern East Pacific Rise (EPR). The year will end with operations on the Southern EPR.

KNORR will spend the entire year in the North Atlantic. Work areas include the Labrador Sea, George's Bank, off Greenland, Sargasso Sea and Onslow Bay. The schedule includes operations to support WOCE, NOAA's FASTEX program and NAVO work.

MELVILLE has a full schedule of 297 days. Work areas include the Indian Ocean, the South Pacific, Gulf of Alaska and the Northern East Pacific at 90N. The schedule includes 108 days of NAVO ship time.

MAURICE EWING has a schedule of 276 days, 60 of which are to support NAVO cruises. Work areas will span the globe and include the US Continental Margin, the Mid Atlantic Ridge, Iberia Abyssal Plain, East Pacific Rise, Equatorial Pacific and Oahu Moat.

MOANA WAVE will spend most of the year off Hawaii in support of HOTS. Work is also planned in the Western Pacific. The schedule has 193 days.

ROGER REVELLE has 290 days scheduled. The year began with SeaBeam work in the Southern Pacific (40o-65oS). This was followed by operations in the South Atlantic. In April, a NOAA program, PACS, is planned for the North Pacific. In June and July, the ship will be in port undergoing its Post Shakedown Availability (PSA). In August and September operations are planned off of Hawaii. The remainder of the year will be spent on JGOFS work in the South Pacific.

THOMAS G. THOMPSON began the year with operations in the Western Pacific conducting two ROV programs. This includes a UK funded cruise to survey the wreck of the M/V DERBYSHIRE. In June, the ship will return to the States for work at the Columbia River and off the Northern California coast. In August and September, THOMPSON will carry out Jason operations at Juan de Fuca Ridge. A NAVO survey cruise is planned in October off Washington. In November, a State funded cruise is also planned off of Washington. The schedule has 260 total days.

	1996		1997	
	DAYS	PERCENT	DAYS	PERCENT
NSF	2745	63.0%	3023	60.1%
ONR	432	9.9%	484	9.6%
NOAA	152	3.5%	282	5.6%
NAVO	0	0.0%	393	7.8%
OTHER	1030	23.6%	852	16.9%
TOTALS	4359		5034	

Class III:

EDWIN LINK has 251 days scheduled and includes 55 days for NOAA ship time, 32 days for the Navy, 53 days of privately funded work and 46 days supported by HBOI. The year began with work in the Bahamas. Other work areas will include: the waters off Jamaica, the Atlantic, the Gulf of Mexico and the waters off Cuba. The year ends with a transit to the South Pacific.

ENDEAVOR will operate in the North Atlantic for the entire year. Many of the operations will be conducted on Georges Bank in support of GLOBEC. The schedule also includes ONR's Coastal, Mixing and Optics work and PRIMER programs. The schedule includes 189 days.

GYRE will operate in the Gulf of Mexico with a schedule of 133 days.

NEW HORIZON will spend most of the year in operations off California. Cruises off Mexico are planned in May and October. There is also a cruise in December to the Northern East Pacific Rise to study vent animals. The schedule has 264 days and includes 63 days of NAVO work.

OCEANUS will operate in the North Atlantic for the entire year. Most of the operations will be conducted on Georges Bank in support of GLOBEC. The schedule also includes ONR's Coastal, Mixing and Optics work. The schedule includes 202 days.

SEWARD JOHNSON will spend most of 1997 in distant waters. In March, operations are planned off Brazil. This will be followed by work off Barbados in May. In August and September, operations are planned off Africa. The final cruise of the year is scheduled to begin in October in the North Atlantic closer to home port. In mid November, the ship will begin a maintenance period for the remainder of the year. The schedule calls for 255 days.

WECOMA will begin the year with operations off Oregon. In June, operations to support NOAA's FOCI program are planned in the Bering Sea. The remainder of the year will be devoted to work off the Oregon and Washington coasts. The schedule has 189 days.

Class IV:

ALPHA HELIX has a schedule of 161 days and will operate in the Bering Sea, Resurrection Bay and Skan Bay. Operations include a 35 day JAMSTEC funded cruise.

CAPE HATTERAS began the year with operations on the Virginia and Southeast Shelves including a 24 day NAVO program. A second NAVO cruise to the same area is planned for September. Other operation areas include the Gulf of Maine, Gulf Stream, and Georges Bank. The schedule has 230 days.

CAPE HENLOPEN has a schedule of 186 days including 42 days of NAVO work. Most of the operations are planned for the Chesapeake and Delaware Bays. The NAVO physics cruises will be conducted off the coast from Virginia to New York.

LONGHORN will operate in the Gulf of Mexico with an 82 day schedule.

PELICAN will operate in the Gulf of Mexico for the entire year. The schedule includes 182 days and includes NOAA and NAVO ship time.

POINT SUR will operate mostly off California. There is a cruise in June/July to the Pacific Northwest

and another in September/October off Mexico. The schedule has 197 days.

SEA DIVER has a very light schedule with only 33 days scheduled. Three ONR funded cruises are planned through March off Florida.

ROBERT G. SPROUL has a schedule of 209 days. All other work is scheduled for off California, with the exception of three cruises to the Columbia River and one cruise to Saanich Inlet, BC.

WEATHERBIRD II has 150 days scheduled in 1997. All operations will be off Bermuda.

<Class IV

BLUE FIN has a schedule of 116 days and will operate off the Southeast U.S. Coast.

CALANUS has a schedule of 102 days. Operation areas include the Bahamas, Gulf Stream, Florida Straights, and Florida Bay.

CLIFFORD A. BARNES will operate in Puget Sound and the Columbia River. The schedule calls for 134 days.

LAURENTIAN's schedule calls for 77 days of operations in the Great Lakes.

~ In Memoriam ~

Marcus Langseth

Marcus G. Langseth died on January 4, 1997. Marcus actively served on the UNOLS Fleet Improvement Committee (formally Fleet Replacement Committee) from 1985 to 1994 and was the Chair from 1990 through 1994. This was a very busy time for the committee and many of their efforts can be credited to shaping the capable UNOLS Fleet as we now know it. Marcus gave freely of his time and talents for oceanographic research. His contributions to UNOLS were many and he will be dearly missed both as a scientist and a friend.

***The UNOLS Office FAX number has changed. Please note the new number:
(401) 874-6167.***

I would like to thank all who contributed information and articles for this issue of the Newsletter. Articles are always welcome and encouraged. Copy can be submitted via e-mail, FAX or mail. The next newsletter is planned for June 1997.

Thank you

Annette DeSilva

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To view *UNOLS News* on the Web, go the UNOLS homepage site:
<http://www.gso.uri.edu/unols/unols.html> UNOLS Meeting Calendar

Meeting Date Location

AICC 30 April - 2 May Arlington, VA
Ship Scheduling Review 17 June Arlington, VA
Council 24-25 June Grand Haven, MI
FIC 21-22 July GSO/URI
DESSC August/September WHOI, MA
Ship Scheduling Committee 15 September - tentative Arlington, VA
Ship Scheduling Review 16 September - tentative Arlington, VA
Council 17 September - tentative Arlington, VA
Annual Meeting 18 September - tentative Arlington, VA
RVOC 21-23 October Woods Hole, MA
RVTEC 27-29 October Seattle, WA
DESSC 7 December San Francisco, CA
