

# UNOLS NEWS

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## HIGHLIGHTS

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### Early Submission of Proposals for Research Requiring Ship Time

Program managers of funding agencies, ship operators and schedulers alike join in urging investigators to make early submission of those proposals for research that require ship support. No matter where you seek support for your research, the research must be funded before the shiptime will be granted. Given the need for advanced planning of ship time and that final schedules can be made only after science funding decisions are announced, the need for early submission of proposals is clear. Advantage of early submission to the investigator is that you arrive while the funding trough is full; submission to meet subsequent deadlines means that you are competing for only a remainder of the year's funding (and ship time). To encourage early submission of science proposals needing ship support the Oceanographic Centers and Facilities Support Section of the National Science Foundation's Ocean Sciences Division has issued this important notice:



## Ocean Sciences Research Proposals Requiring Use of UNOLS Vessels

Since fiscal year 1981, ocean science research proposals involving the use of University-National Oceanographic Laboratory System (UNOLS) Ships are required to be submitted in time to be considered at the spring or summer proposal review panel meetings.

This policy remains in effect. In order to facilitate timely decisions on ship schedules and support levels, proposals should be submitted as early in the calendar year as possible particularly for expeditionary field work in remote ocean areas.

The proposal review panel schedule for 1987 is shown below:

Proposal Target Date	Panel Meeting	Start Date (Earliest)
February 1, 1987	April 1987	July 1, 1987
June 1, 1987*	August 1987	November 1, 1987
October 1, 1987	December 1987	February 1, 1987

\* Last target date for proposals requiring ship support for calendar year 1988.

Proposals that have been previously declined and are being resubmitted must be received within these proposal target dates to be considered for ship support.

For further information contact Mr. John McMillan, Division of Ocean Sciences, Oceanographic Centers and Facilities Section (202) 357-7837.

### Where the Ships Are

Schedules for the 1987 operation of UNOLS ships are available on TELEMAIL bulletin board SHIP.SCHED87. Read the board for details. For a quick look, here's a list.

ALPHA HELIX begins work in the Gulf of Alaska in February and works in the Gulf and Bering Sea into December.

ATLANTIS II works in support of ALVIN beginning off California, then to Western Pacific via Hawaiian Islands. Returns to Northwest U.S. east in August and will finish 1987 off California.

BARNES will operate in Puget Sound for entire year.

BLUE FIN will operate off southeast United States for entire year.

CALANUS will work in Bahamas, Tongue of the Ocean and Straits of Florida January through December.



CAPE HATTERAS has open period mid January through mid April. Will work on southeast U.S. Shelf and north Atlantic April - November.

CAPE HENLOPEN will work mostly in Chesapeake Bay, January-December.

CAYUSE will not operate as part of UNOLS fleet in 1987.

CONRAD will work in equatorial and south Atlantic January-July. North Atlantic, Gulf of Mexico, Caribbean August-December.

ENDEAVOR will work in Gulf of Maine and western north Atlantic January-October.

GYRE will work in Gulf of Mexico and Caribbean January-March, be laid up until October and work in the Gulf November, December.

ISELIN will transit to Mediterranean for work January-March, and work in Gulf of Mexico, Caribbean, Florida Shelf and north Atlantic March-December.

KNORR is laid up January-August. Will work briefly in north Atlantic and then in south Atlantic September-December.

LAURENTIAN will work in Lake Huron, Erie, Ontario and Michigan May-September.

MELVILLE will work off California, Hawaii and Oregon April-August. In equatorial and south eastern Pacific September-December.

MOANA WAVE will begin in 1987 in western Pacific (Fiji Basin) and through February. Work in mid-Pacific March, April and east Pacific May-December.

FRED H. MOORE will begin work in Gulf of Mexico in February, transit Panama Canal for work off Costa Rica in April, and work in western Pacific June-November.

NEW HORIZON will work off California March-June, in mid Pacific July, August and off California September-December.

OCEANUS will work on Mid-Atlantic Ridge, Gulf of Maine and western north Atlantic January-December.

OSPREY will continue conversion.

POINT SUR will work in eastern north Pacific January-December.

ROBERT G. SPROUL is scheduled for regional work out of San Diego, January-December.

THOMPSON will work in mid Pacific March-May, Gulf of Alaska June, Bering Sea July-September, Gulf of Alaska September, October and on east Pacific Rise during November.

WARFIELD is scheduled for Chesapeake Bay, February-December.

WASHINGTON will work in eastern and mid and south central Pacific January-May. In mid and eastern Pacific June-December.

WECOMA in eastern Pacific through March, south equatorial Pacific April, May, eastern Pacific June-November.

These schedules, as in many recent years, include several ships operating for less than the full year (e.g., KNORR and GYRE laid up six months or more, OSPREY continues in conversion).

Ship scheduling for 1988 will follow the process outlined at October, 1986 UNOLS meetings: During March, operators will exchange summaries of ship time requests and tentative schedules through electronic mail. Ship schedulers will meet during July to coordinate their institution schedules. Ship operations proposals will be due NSF/OCFS on October 1.

#### ALVIN Program

The ALVIN Review Committee held its annual workshop for ALVIN program advanced planning (in San Francisco, December 7, 1986, just preceding the Fall AGU meeting). Letters of Intent for work after 1988 were received from twelve investigators (or teams) comprising about 230 ALVIN dives. The Notices were for work in areas from the North Atlantic to the Western Pacific; there was more interest in the Atlantic (Mid Atlantic Ridge) than had been anticipated.

There is interest from funding agencies in a well-focused research project under the U.S.-French Bilateral to be undertaken in 1989 or beyond. A science planning group has been formed (Don Heinrichs is co-chair for the U.S.), and a strong candidate is a program of investigations of the Mid Atlantic Ridge, using ALVIN and French submersibles.

The ALVIN Review Committee has recommended that in 1988 ALVIN-ATLANTIS II work in the eastern Pacific, including extended work on Gorda-Juan de Fuca, and return to Woods Hole late in the year. Schedule recommendations will be made in May, 1987.

ALVIN-AII began 1987 work off California, have completed projects off Hawaii and in the mid-Pacific and are enroute to an extended deployment in the Mariana region and Bonin Arc. They will return to the eastern Pacific in August for a series of projects off the Washington, Oregon and California coasts.

Bruce Robison, UCSB, has agreed to chair a working group to prepare a study on Research Submersible Requirements for the 1990's and Beyond. An eight-person working group will assess trends for academic ocean research programs that can be advanced through use of submersible systems and develop a comprehensive submersible science facilities plan to meet projected research requirements. They intend to complete their report by fall, 1987.



## CORELL to NSF

Robert Corell, Vice Chairman UNOLS and Chairman, ALVIN Review Committee has announced that he is joining the National Science Foundation. He has resigned from UNOLS positions. UNOLS will miss the energy, enthusiasm and counsel that Bob has contributed as Vice Chairman, Advisory Council or ALVIN Review Committee member since 1976. The ocean research community will continue to benefit from his tremendous energy, commitment and blanket airline pass.

## Fleet Improvement Committee

The UNOLS Fleet Improvement Committee, chaired by Worth Nowlin, TAMU held its first meeting in early February, in College Station, Texas. Other members of the Committee are Richard Barber, Duke, Robertson P. Dinsmore, WHOI, Donn Gorsline, USC, Marcus Langseth, L-DGO, James Murray, UW, Bruce Robison, UCSB and Fred Spiess, Scripps. The Committee will address fleet management and fleet replacement issues in a context of national ocean program and ocean community planning directions. Their tentative meeting schedule for the rest of 1987 is May 11, 12 in Washington, D.C., August 13, 14 in Monterey, California and November 9, 10 in La Jolla.

## MELVILLE, KNORR Refits

MELVILLE (AGOR 14) AND KNORR (AGOR 15) were completed in 1969 and 1970 respectively. They are sister ships but not twins. Their differences reflect certain preferences or "options" on the part of the operating institutions. From the outset, these ships have been beset with maintenance problems chiefly associated with the drive train and propulsion system. These ranged from vibrations, alignments, gears, seals, and more recently, a massive failure in the aft cycloid itself. The high maintenance costs and time lost are a matter of record. The ships are now 15 years old and have demonstrated that the problems encountered are beyond the "debugging" stage. If full service life is to be expected, a major engineering refit is required.

In 1985, an engineering study was commenced. The purpose of the study was to examine the problems with the existing propulsion system to redefine the mission requirements (Appendix A) and to investigate the alternatives of modifying and/or replacing the propulsion system. This study has been completed and has been reported. Results of that study showed (1) that the average mean time between failures on the AGORS over the past 15 years is 10 months and shows no sign of current improvements; (2) radiated noise from the existing ship systems preclude any reasonable attempts to meet scientific acoustical requirements; and (3) possible refits can be summarized as follows:

- Three alternatives are cycloid, Z-drive and screw propulsion. All can meet requirements.
- Conventional screw propulsion will require most change ergo cost.

The Repowering Study compared Z-drive propulsors favorably against cycloid and conventional screw propulsion. Subsequent reviews have concurred but recommended that more information must be evaluated before any final decision is made. The nature of information needed regarding Z-drive propulsors and associated thrusters includes engineering data, actual shipboard performance, first hand observation, and acoustical characteristics. Similar information should be acquired for modern cycloid propulsors.

In addition to performance data already obtained, acoustic analyses are especially important to the decision-making process. To date, acoustic evaluations have identified the existing ship problems and set target goals to meet requirements; however, little information is available on the several alternative installations under consideration and how they would relate to the AGOR 14 class. An acoustic analysis is being conducted with ONR support to examine candidate thrusters and predict noise characteristics to design and operating parameters. Acoustic source levels will be used to briefly assess impact on sonar systems. As appropriate, noise reduction requirements and attenuating mechanisms will be presented. Requirements for additional data and/or analysis necessary for propulsor/thruster selection will be identified.

A study is being carried out to investigate the feasibility of jumboizing the AGOR 14 class as a part of the refit program. Specifically, the effects on weight, longitudinal strength and stability, payload, speed, power and operating range, will be examined along with determining an estimated cost. In addition, alternative arrangements will be examined such as sponsons, new stern section or other concepts.

The Repowering Study recommended an integrated electric plant and discussed the choice between an SCR (DC) drive and an AC drive. The former appeared to be highly attractive except for the several sources of harmonic and other interference inherent with thyristor control drives. As part of making a decision, more information is required concerning this potential problem and its solution. Experience shows that when there is prior planned control over SCR interference, the results are successful. When there is no planning to head off this problem, retrofits have been only partially successful. It is planned that a recognized marine electrical engineer conduct a study on the recommendations for safeguards against the several forms of problems inherent with AC-DC converters.

As a final phase of the preplanning engineering studies, it is planned to hold a review meeting at Washington, D.C. in March 1987. The purpose of this meeting will be to review all phases of the engineering studies and to make recommendations for the design planning period, March-October 1987, leading up to the actual refit program in 1988-1989.



### PROGRAM SCHEDULE

<u>Action</u>	<u>Period</u>	<u>Remarks</u>
Complete concept & technical studies	February 1987	WHOI contract using consultants
Decision workshop to fix overhaul elements	March 1987	Participation by WHOI, SIO, NSF, ONR, UNOLS, consultants
Preliminary design study	March-July 1987	Contract with WHOI who will use naval architect consultants
Request proposals for final design and overhaul	June 1987	To WHOI and SIO only
Review proposals for final design and overhaul for one or both ships	August-September	ONR, NSF task group with UNOLS representative
Fund proposal	October 1987	This may be incrementally funded contract for both ships (FY-88 & 89)
Begin overhaul (1st ship)	October 1988	
Complete overhaul and shakedown	October 1989	

### AGOR 14 REPOWERING STUDY

Orig. July 1985  
SCIENTIFIC AND OPERATIONAL REQUIREMENTS - Revised June 1986

The oceanographic mission requirements from 1965 have been updated and revised for the purpose of best meeting projected oceanographic requirements at sea. The following tentative requirements shall apply for the purpose of this Study.

1. Speed: 14 knots maximum speed, but this alone should not dictate the choice of a propulsion system.
2. Endurance: Minimum 10,000 miles at 12 knots cruising speed.  
Minimum 15,000 miles at 10 knots cruising speed.
3. Tow Pull: 10,000 lbs at 6 knots  
25,000 lbs at 2.5 knots

4. Speed Control: Continuous speed control or increments not greater than 0.1 knot (0-6 knots) and 0.2 knot (6-14 knots).
5. Ice Strengthening: ABS Class C, but this should not dictate the choice of a propulsion system.
6. Acoustics: Ship should be as quiet as possible for hull mounted echo sounding and towed multichannel seismic arrays. Design target is precision echo sounding at 3.5 and 12 kHz and Sea Beam to depths of 6,000 m and acoustic doppler profiling at frequencies between 50-300 kHz; up to 10 knots sustained speed at Sea State 4 (8 ft. wave height).
7. Dynamic Positioning: Depths of 6,000 m in wind speed 35 knots, SS 5 and 3-knot current, at best heading, using GPS and/or bottom transponders. Max excursion of 150 ft.
8. Precision Trackline: Maintain slow speed (2 knots mean speed) track under controlled conditions (GPS and/or bottom transponders in depths to 6,000 m) in wind speed 35 knots, SS 5 and 3-knot current, and ships heading within 45 degrees of intended track with a 10,000 lb. horizontal pull. + 0.1 knot speed control along track. Maximum lateral excursion 150 ft.
- 8a. Maintain the maneuverability of the existing vessels.
9. Payload: Provide for deck and hold loading of not less than 100 tons total in addition to regular scientific outfit.
10. Electric Load: Provide for auxiliary electric power about 50% more than now available.

#### **Inspection Programs for UNOLS Fleet**

All of the ships in the UNOLS fleet are regularly inspected under programs funded and sponsored by the National Science Foundation of the Office of Naval Research. NSF funds an NSF/MARAD program executed under a Maritime Administration contract to ABS Technical Services. ONR employs for all Navy-owned ships in the fleet, INSURV, executed by the U.S. Navy Board of Inspection and Survey.

The NSF/MARAD inspections continue to find improvements in the overall material condition of the ships visited. In addition to material condition and safety, attention is now being directed to readiness, principally in terms of procedures, emergency drills, medical capability, and planning; and to stability.

Chief discrepancies which show up with regular frequency include:

Winches and Cranes - obsolescence, poor maintenance (chiefly lubrication), inadequate wire monitors.



- Overside Handling - Frames and cranes inadequate and too small, sloppy rigging, hazardous procedures (e.g., use hard hats), blocks too small.
- Laboratory Quality - Labs dirty and sloppy, poor cabinetry, poor lighting, too small, no eyewash, electrical outlets not marked or grounded.
- Meteorological - anemometers, barometer, substandard for science.
- Pollution Controls - oil and/or sewage missing or substandard.
- Watertight integrity - openings in watertight bulkheads, doors missing or malfunctioning.

In 1987, inspections are scheduled as listed below.

R/V ATLANTIS II	Jan 5-6	NSF/MARAD
R/V THOMPSON	Feb 2-4	INSURV
R/V GYRE	Feb 23-25	INSURV
R/V MELVILLE	Mar 30-1 Apr	INSURV
R/V POLAR DUKE	Apr 8-10	NSF/MARAD
R/V WECOMA	Jun 22-23	NSF/MARAD
R/V POINT SUR	Aug 10-11	NSF/MARAD
R/V KNORR	Sept ?	INSURV
R/V CALANUS	Nov 2-3	NSF/MARAD
R/V ISELIN	Nov 5-6	NSF/MARAD
R/V CAPE HATTERAS	Dec 3-4	NSF/MARAD
R/V ENDEAVOR	TBS	NSF/MARAD
R/V OCEANUS	TBS	NSF/MARAD

#### NSF: Budget Forecasts and Directions for Ocean Sciences

An overview of budgets and forecasts for the National Science Foundation's Ocean Sciences Division follows:

#### Budget Forecasts National Science Foundation Ocean Science Division \$ in Millions

	FY1986	FY1987	FY1988	Percent Inc. 1988/1987
OSRS (science programs)	56.9	66.4	74.3	11.8%
OFS (facilities support)	33.7	37.2	43.9	18.0%
ODP (ocean drilling)	<u>28.9</u>	<u>30.1</u>	<u>31.3</u>	<u>4.2%</u>
OCE (ocean Sciences)	119.5	133.7	149.5	11.8

Estimates for 1987 are essentially as reported in UNOLS NEWS Vol. 3., No. 4. The President's budget, from which 1988 forecasts are taken, includes a statement projecting doubling of NSF's budget by 1992.

Growth in OCE during 1988 (both for science programs and facilities support) is generally identified with **Global Geosciences Initiatives**. Increases might include: research and facilities support for TOGA, WOCE, GOFS, etc., ALVIN facilities support for Ridge Crest Studies, expanded ocean technology development and support, engineering design studies for a replacement submersible support vessel and funding for satellite and modeling data and information programs. With the increase anticipated for global geosciences, current core programs would remain about level funded.

### **ONR Policy on Research Vessels**

**Rear Admiral J.B. Mooney, Jr., Chief of Naval Research outlined policy on research vessels in a recent letter.**

**Subject: Office of Naval Research Policy on Oceanographic Research Ships**

1. The Office of Naval Research in concert with other Navy Commands is continuing its policy of increasing support for basic research in oceanography. The latest actions involve providing two new ships, the "AGOR-23" and "AGOR-X", for academic fleet use and major upgrades for the RV/KNORR (AGOR-14) and RV MELVILLE (AGOR-15). Over \$100M has been budgeted for these activities in fiscal years 1987 through 1990.
2. The Office of Naval Research is increasing its ship operation investment with a funding enhancement of \$5M per year beginning in fiscal year 1988. It will be used to provide added support for Navy ships in the academic fleet that best meet long term research requirements. We look forward to continuing our close relationships with the oceanographic research community, our federal colleagues, and the University-National Oceanographic Laboratory System in these future efforts to provide for the safe and efficient conduct of research at sea.

### **Marine Aspects of NSF/DPP's Polar Operations**

**Representatives from Division of Polar Programs reported recently on aspects of their polar operations.**

Especially since the POLAR DUKE has been in service for Antarctic operations, DPP has moved to foster a DPP-UNOLS relationship that would include participation in UNOLS scheduling and appropriate oversight (e.g., advise on outfitting POLAR DUKE for research).



Recent developments make it likely that DPP will soon begin to operate a second vessel in the Antarctic, a research vessel with ice breaking capability. DPP would like UNOLS advice in outfitting this additional vessel.

NSF's budget estimates for 1988 include \$13 million to procure a research vessel with ice breaking capability. The intent is to employ the vessel principally in the Antarctic, to enable conduct of the U.S. ocean research program there.

Events leading to NSF/DPP's effort to acquire this research vessel include last fall's announcement that the Coast Guard's GLACIER could no longer be deployed as an icebreaker. Although, later negotiations led to GLACIER'S deployment to Antarctica as an ice strengthened vessel, DPP could not conduct their planned oceanographic research for want of a capable escort/standby icebreaker; project AMEREIZ was canceled. The earliest Coast Guard response would be 1994-1995 when their two new icebreakers became available.

After negotiation with the Coast Guard, NSF decided they must acquire a research vessel to fulfill their Antarctic obligations. Upon investigating the availability of suitable ships (both U.S. and foreign) and with information from UNOLS and the ocean community, an RFP was prepared for a general purpose research vessel with ice breaking capability.

The vessel would have science and polar operation capabilities comparable to the POLAR STERN, LOA less than 300 ft., ice capable to break 3 ft. of ice at 3 knots. Acquisition would be by lease (charter), with option to buy. DPP feels confident that there will be interest in responding to the RFP.

#### Summary of UNOLS Ship Use

A five year (1981-85) summary of UNOLS Fleet use was prepared recently for the Advisory Council. Here it is.

**UNOLS FLEET STATISTICS  
FIVE YEAR SUMMARY  
1981-1985**

	DAYS/Percent				AVERAGE DAYS PER SHIP
	NSF	ONR	OTHER	TOTAL	
<b>1981</b>					
Class II (5 ships)	884/75	155/13	141/12	1180/100	236
Class III (8 ships)	1018/58	315/18	426/24	1759/100	220
Class IV (6 ships)	462/71	25/04	160/25	647/100	108
< Class IV (7 ships)	642/70	15/02	258/28	915/100	131
FLEET TOTAL (26 ship)	3006/67	510/11	985/22	4501/100	173
<b>1982</b>					
Class II (5 ships)	956/78	168/14	102/08	1226/100	245
Class III (6 ships)	875/64	180/13	324/23	1379/100	230
Class IV (6 ships)	739/71	46/05	253/24	1038/100	173
< Class IV (7 ships)	496/66	23/03	237/31	756/100	108
FLEET TOTAL (24 ships)	3066/70	417/09	916/21	4399/100	183
<b>1983</b>					
Class II (5 ships)	836/75	212/19	69/06	1117/100	223
Class III (7 ships)	1166/68	205/12	332/20	1703/100	243
Class IV (6 ships)	688/79	30/03	159/18	877/100	146
< Class IV (7 ships)	484/61	39/05	274/34	797/100	114
FLEET TOTAL (25 ships)	3174/71	468/11	834/18	4494/100	180
<b>1984</b>					
Class II (6 ships)	1255/77	237/15	137/08	1599/100	266
Class III (8 ships)	955/58	189/11	508/31	1652/100	206
Class IV (7 ships)	776/78	0/0	223/22	999/100	143
< Class IV (6 ships)	430/76	30/05	107/19	567/100	94
FLEET TOTAL (27 ships)	3386/70	456/10	975/20	4817/100	178
<b>1985</b>					
Class II (7 ships)	1310/68	352/18	254/13	1916/100	274
Class III (7 ships)	788/67	74/06	315/26	1177/100	168
Class IV (7 ships)	915/82	20/02	175/16	1110/100	158
< Class IV (5 ships)	394/70	33/06	139/26	566/100	113
FLEET TOTAL (26 ships)	3407/72	479/10	883/18	4769/100	183
<b>1981-1985 FIVE YEAR TOTALS</b>					
Class II	5211/74	1124/16	703/10	7038	251
Class III	4802/62	963/13	1905/25	7670	219
Class IV	3580/77	121/02	970/21	4671	146
< Class IV	2446/68	140/04	1015/28	3601	113
<b>FIVE YEAR FLEET TOTAL</b>	16,039/70	2,348/10	4,599/20	22,980	180
<b>AVERAGE/YEAR</b>	3,208	470	920	4,596	-



UNOLS FLEET STATISTICS  
FIVE YEAR FLEET HISTORY  
1981-1985

1981	1982	1983	1984	1985
<b>Class II (5)</b>	<b>Class II (5)</b>	<b>Class II (5)</b>	<b>Class II (6)</b>	<b>Class II (7)</b>
MELVILLE KNORR ATLANTIS II 1. THOMPSON WASHINGTON	MELVILLE KNORR 4. CONRAD THOMPSON WASHINGTON	MELVILLE KNORR 10. CONRAD THOMPSON WASHINGTON	MELVILLE KNORR 13. ATLANTIS II CONRAD THOMPSON WASHINGTON	MELVILLE KNORR ATLANTIS II CONRAD THOMPSON WASHINGTON 17. MOANA WAVE
<b>Class III (8)</b>	<b>Class III (6)</b>	<b>Class III (7)</b>	<b>Class III (8)</b>	<b>Class III (7)</b>
VEMA ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON KANA KEOKI	5. ENDEAVOR OCEANUS WECOMA GYRE 6. NEW HORIZON KANA KEOKI	ENDEAVOR OCEANUS WECOMA GYRE 11. ISELIN NEW HORIZON KANA KEOKI	ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON 14. FRED MOORE KANA KEOKI	ENDEAVOR OCEANUS WECOMA GYRE 22. ISELIN NEW HORIZON FRED MOORE 18.
<b>Class IV (6)</b>	<b>Class IV (6)</b>	<b>Class IV (6)</b>	<b>Class IV (7)</b>	<b>Class IV (7)</b>
2. CAPE FLORIDA ALPHA HELIX CAPE HENLOPEN 3. EASTWARD VELERO IV R. WARFIELD	CAPE FLORIDA 7. CAPE HATTERAS ALPHA HELIX CAPE HENLOPEN 8. VELERO IV R. WARFIELD	CAPE FLORIDA CAPE HATTERAS ALPHA HELIX CAPE HENLOPEN VELERO IV R. WARFIELD	CAPE FLORIDA CAPE HATTERAS ALPHA HELIX 15. R. SPROUL CAPE HENLOPEN VELERO IV R. WARFIELD	CAPE FLORIDA CAPE HATTERAS ALPHA HELIX R. SPROUL CAPE HENLOPEN VELERO IV R. WARFIELD
<b>&lt; Class IV (7)</b>	<b>&lt; Class IV (7)</b>	<b>&lt; Class IV (7)</b>	<b>&lt; Class IV (6)</b>	<b>&lt; Class IV (5)</b>
SCRIPPS CAYUSE LONGHORN BLUE FIN HOH ONAR CALANUS	SCRIPPS CAYUSE LONGHORN BLUE FIN 9. HOH ONAR CALANUS	SCRIPPS CAYUSE LONGHORN BLUE FIN ONAR 12. BARNES CALANUS	SCRIPPS CAYUSE 16. BLUE FIN ONAR BARNES CALANUS	19. CAYUSE BLUE FIN 20. LAURENTIAN BARNES CALANUS

**NOTES:**

1. CONRAD out of service (midlife) 1981.
2. CAPE FLORIDA entered fleet midway 1981.
3. EASTWARD operated only 2 days 1981.
4. ATLANTIS II out of service 1982 (modification); CONRAD back.
5. VEMA retired 1982 (no sponsored use).
6. ISELIN did not operate 1982 (no schedule).
7. CAPE HATTERAS operated all of 1982.
8. EASTWARD retired from fleet.
9. HOH retired during year.
10. ATLANTIS II out of service 1983 (modifications for ALVIN).
11. ISELIN back in operation 1983.
12. BARNES entered fleet late in 1983.
13. ATLANTIS II returned to service 1984.
14. FRED MOORE entered fleet 1984.
15. ROBERT SPROUL entered fleet late in 1984.
16. LONGHORN out of fleet 1984.
17. MOANA WAVE stretched to CLASS II 1985.
18. KANA KEOKI retired 1985.
19. SCRIPPS retired 1985.
20. ONAR retired 1985.
21. LAURENTIAN added 1985.
22. ISELIN operated only 4 days in 1985.



### Schedule of UNOLS Meetings

A number of changes have been made recently in the schedule of UNOLS and UNOLS committee meetings. At last October's UNOLS meeting it was decided that spring ship scheduling meetings would be canceled. Scheduling meetings will be in July and October. The Advisory Council later recommended and UNOLS membership determined that only one UNOLS meeting was needed each year. Last, the Advisory Council decided to schedule three meetings yearly, rather than four. The following schedule of meetings has been set, reflecting these changes.

	1987	
Meeting	Dates	Place
ALVIN Review Committee	May 6, 7, 8	Woods Hole, MA
Fleet Improvement Committee	May 11, 12	Washington, DC
Ship Scheduling (East, West & Joint)	July 14	Washington, DC
Advisory Council	August 13, 14	Boothbay Harbor, ME
Fleet Improvement Committee	August 13, 14	Monterey, CA
Advisory Council	October 21	Washington, DC
Ship Scheduling	October 22	Washington, DC
UNOLS Annual	October 23	Washington, DC
Fleet Improvement Committee	November 9, 10	La Jolla, CA

### See Your Name in Lights

UNOLS NEWS is distributed about quarterly to roughly 500 addresses throughout the oceanographic community. This circulation is increasing at a modest rate, mostly in response to new requests. Our editorial policy is to include news and information of interest to ship operators, ship users, UNOLS institution faculties and staffs and the seagoing oceanographic community.

While we are pleased with the modest success of UNOLS NEWS we are concerned that it's almost exclusively a report of various UNOLS meetings together with the occasional items from UNOLS officials. We invite items from other readers. Send things of interest to our community (if you're interested the rest probably will be too) to editor Tom Malone, University of Maryland, Center for Environmental and Estuarine Studies, Box 775, Cambridge, MD 21613, (telemail T.MALONE), or the UNOLS Office WB-15, University of Washington, Seattle, WA 98195. We'll give you a by-line and a free open-ended subscription to UNOLS NEWS.

