

UNOLS NEWS

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HIGHLIGHTS

 Refit of KNORR and MELVILLE New Navy Ship Construction
 CAYUSE Reassigned International Marine Science
 Marine Pollution Ship Use
 Schedules for 1988 ALVIN

OVERHAUL AND REFIT OF AGOR 14 AND 15

The preliminary design phase for the overhaul and refitting of the KNORR and MELVILLE is nearly complete. Major changes include an increase in length from 245 ft. to 279 ft., and increase in cruising speed from 10 knots to 12 knots, and increase in scientific capacity from 25 to 34 scientists, and an increase in laboratory space from 2400 sq. ft. to 3860 sq. ft. Estimated cost is about \$16M per ship. The current schedule for the refits is as follows:

September 1987	Complete preliminary design
October	Begin contract design
February 1988	Complete contract design
March	Issue RFP for KNORR
July	Award contract on KNORR
October	KNORR to yard
December	Issue RFP for MELVILLE
April 1989	Award contract on MELVILLE
June	Complete KNORR
July	MELVILLE to yard
September	KNORR in service
April 1990	Complete MELVILLE
July	MELVILLE in service

Both ships will be in the yard for about one year with a 2-3 month overlap in 1989.



STATUS OF NEW NAVY SHIP CONSTRUCTION

The RFP for the construction of the new ONR R/V AGOR-23 has been issued. It is a "design and build" RFP calling for a ship design which conforms to Navy requirements as well as a bid price for construction and outfitting. SWATH ships and conversions may enter but the program targets a monohull of about 250 ft. in length. Minimum requirements are for an acoustically quiet ship with good sea-keeping ability, cruising speed of 12 knots with an endurance of 8000 nm plus 29 days of station time, 3200 sq. ft. of laboratories and 3400 sq. ft. of fantail working area, 13,000 sq. ft. for scientific storage, towing capability of 10,000 lbs at 5 knots and 20,000 lbs at 2.5 knots, and accommodations for 30 scientists and 20 crew. The ship is scheduled to be delivered in late 1990.

ONR has also issued an invitation to institutions to express interest in operating the new ship. It is intended that the operator be a member of UNOLS, but a crucial criterion is that the potential operator be able to trade in an AGOR3 for layup. ONR's decision will be announced by about 30 October, and it is anticipated that the operator selected will play a role in construction design and construction monitoring.

R/V CAYUSE REASSIGNED

The R/V CAYUSE, formally operated by Moss Landing, has been reassigned to ARGO Maine, the Association for Research in the Gulf of Maine consisting of the Maine Maritime Academy, Department of Marine Resources, the Bigelow Laboratory for Ocean Sciences, and the University of Maine. The ship is due to be delivered in September of this year.

INTERNATIONAL MARINE SCIENCE COOPERATION PROGRAM

Coastal nations are paying closer attention to their offshore waters as a consequence of the Law of the Sea negotiations and related economic and technological developments. This awareness is often reflected in increased jurisdictional claims and restrictions on such activities as marine research. About 100 of the world's coastal states have already asserted some form of jurisdiction beyond the 200 nm limit, and many have stipulated various rules and procedures by which foreign research institutions may have access to those waters.

Coincident with this political fragmentation of the world's oceans is the growing awareness of the global nature of many ocean phenomena. In an attempt to enhance international cooperation among the world's marine science communities and to minimize the impact of political boundaries and the study of ocean phenomena, the Woods Hole Oceanographic Institution with support from Sea Grant has established the International Marine Science Cooperation Program. A recent product of this program is a publication by David A. Ross and Therese A. Landry entitled "Marine Scientific Research Boundaries and the Law of the Sea: Discussion and Inventory of National Claims." The first part of this document describes research boundaries and discusses specific articles of the Law of the Sea Treaty that bear on marine research. The second part lists the maritime claims of 139 countries. Publication of this

document follows the publication in 1986 of a map showing the world's marine research boundaries. Copies of both documents are available free from David A. Ross, International Marine Science Cooperation Program, Woods Hole Oceanographic Institution, Swift House, Woods Hole, MA 02543.

MARINE POLLUTION

Recent Ship inspections have reminded us that all UNOLS Vessels do not have adequate facilities for storing, treating and disposing of wastes generated at sea. No vessels have been cited for being illegal with respect to either United States or international regulations. It is noted, however, that many UNOLS vessels are of under 500 tons, and, for them, waste discharge rules are sparse. Often, bilge water, oily and solid wastes can be and are disposed of at sea. Not only does this practice potentially contaminate samples and compromise research projects, it contributes to the general pollution of the marine environment. Pollution by research vessels may not be quantitatively significant, but symbolic effects become increasingly important. UNOLS and the oceanographic community, investigators and operators alike, have high respect for the marine environment. Given their mission, UNOLS ships should become models of waste management at sea.

SUMMARY OF UNOLS SHIP USE

A summary of UNOLS Fleet use has been updated to cover the years 1982-1986. It is listed here, for your information.

Short term projections are also shown for the years 1987 and 1988. The projection for 1987 is of course, partially realized and should be an accurate portrayal of use in 1987. The projection for 1988 was made before all pertinent science funding decisions were made; some of the ship use projected may not be realized.

**UNOLS FLEET STATISTICS
FIVE YEAR SUMMARY
1982-1986**

	DAYS/Percent				AVERAGE DAYS PER SHIP
	NSF	ONR	OTHER	TOTAL	
1982					
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
1983					
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	486/11	834/18	4494/100	180
1984					
Class II (6 ships)	1225/77	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
1985					
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
1986					
Class II (7 ships)	1330/83	172/11	110/07	1612/100	230
Class III (6 ships)	913/77	127/11	151/12	1191/100	198
Class IV (6 ships)	813/85	52/05	98/10	963/100	160
< Class IV (4 ships)	347/70	13/03	133/27	493/100	123
FLEET TOTAL (23 ships)	3403/80	364/09	492/11	4259/100	185
1982-1986 FIVE YEAR TOTALS					
Class II	5657/76	1141/15	672/09	7470/100	249
Class III	4697/66	775/11	1630/23	7102/100	209
Class IV	3931/79	148/03	908/18	4987/100	156
< Class IV	2151/68	138/04	890/28	3179/100	109
FIVE YEAR FLEET TOTAL	16,436/72	2,202/10	4,100/18	22,738/100	182
AVERAGE/YEAR	3,287	440	820	4,548	-

**UNOLS FLEET STATISTICS
SHORT TERM PROJECTION**

	DAYS/Percent				AVERAGE DAYS PER SHIP
	NSF	ONR	OTHER	TOTAL	
1987					
Class II (7 ships)	1401/77	293/16	117/07	1811/100	258
Class III (7 ships)	1076/71	252/17	185/12	1513/100	216
Class IV (6 ships)	674/73	40/04	212/23	926/100	154
< Class IV (4 ships)	479/81	10/02	104/17	593/100	148
FLEET TOTAL (24 ships)	3630/75	595/12	618/13	4843/100	202
1988					
Class II (7 ships)	1543/77	418/21	37/02	1998/100	285
Class III (6 ships)	690/46	624/42	185/12	1499/100	250
Class IV (6 ships)	850/79	49/05	173/16	1072/100	179
< Class IV (4 ships)	328/75	16/04	94/21	438/100	110
FLEET TOTAL (23 ships)	3411/68	1107/22	489/10	5007/100	218

UNOLS FLEET STATISTICS
 FIVE YEAR FLEET HISTORY
 1982-1986

1981	1982	1983	1984	1985	1986	1987
Class II (5) MELVILLE KNORR ATLANTIS II 1. THOMPSON WASHINGTON	Class II (5) MELVILLE KNORR	Class II (5) MELVILLE KNORR	Class II (6) MELVILLE KNORR 10. ATLANTIS II CONRAD THOMPSON WASHINGTON	Class II (7) MELVILLE KNORR ATLANTIS II CONRAD THOMPSON WASHINGTON 17. MOANA WAVE	Class II (7) MELVILLE KNORR ATLANTIS II CONRAD THOMPSON WASHINGTON MOANA WAVE	Class II (7) MELVILLE KNORR ATLANTIS II CONRAD THOMPSON WASHINGTON MOANA WAVE 28. KNORR
Class III (8) VERA ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON KANA KEOKI	Class III (6) 5. ENDEAVOR OCEANUS WECOMA GYRE	Class III (7) ENDEAVOR OCEANUS WECOMA GYRE 11. ISELIN NEW HORIZON KANA KEOKI	Class III (8) ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON FRED MOORE KANA KEOKI	Class III (7) ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON FRED MOORE	Class III (6) ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON FRED MOORE	Class III (7) ENDEAVOR OCEANUS WECOMA GYRE ISELIN NEW HORIZON FRED MOORE
Class IV (6) 2. CAPE FLORIDA ALPHA HELIX CAPE HENLOPEN 3. EASTWARD VELERO IV R. WARFIELD	Class IV (6) CAPE FLORIDA CAPE HATTERAS ALPHA HELIX CAPE HENLOPEN 8. VELERO IV R. WARFIELD	Class IV (6) CAPE FLORIDA CAPE HATTERAS ALPHA HELIX CAPE HENLOPEN VELERO IV R. WARFIELD	Class IV (7) CAPE FLORIDA CAPE HATTERAS ALPHA HELIX CAPE HENLOPEN VELERO IV R. WARFIELD 15. R. SPROUL CAPE HENLOPEN VELERO IV R. WARFIELD	Class IV (7) CAPE FLORIDA CAPE HATTERAS ALPHA HELIX CAPE HENLOPEN VELERO IV R. WARFIELD	Class IV (6) PT SUR CAPE HATTERAS ALPHA HELIX R. SPROUL CAPE HENLOPEN R. WARFIELD	Class IV (6) PT SUR CAPE HATTERAS ALPHA HELIX R. SPROUL CAPE HENLOPEN R. WARFIELD
< Class IV (7) SCRIPPS CAYUSE LONGHORN BLUE FIN HOH ONAR CALANUS	< Class IV (7) SCRIPPS CAYUSE LONGHORN BLUE FIN HOH ONAR CALANUS	< Class IV (7) SCRIPPS CAYUSE LONGHORN BLUE FIN ONAR BARNES CALANUS	< Class IV (6) SCRIPPS CAYUSE LONGHORN BLUE FIN ONAR BARNES CALANUS	< Class IV (5) 19. CAYUSE BLUE FIN 20. LAURENTIAN 21. LAURENTIAN BARNES CALANUS	< Class IV (5) 19. CAYUSE BLUE FIN 20. LAURENTIAN 21. LAURENTIAN BARNES CALANUS	Class IV (4) BLUE FIN 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.
23. WECOMA did not operate in 1986.
24. CAPE FLORIDA transferred, renamed POINT SUR in 1986 (all vessel use listed herein).
25. VELERO IV retired 1986.
26. FRED MOORE had no federally funded use in 1986.
27. CAYUSE out of service 1986.
28. KNORR out of service - 6 months.
29. GYRE out of service - 6 months.

UNOLS SHIP SCHEDULES FOR 1988

UNOLS ship schedulers met in Washington, D.C. on July 14 to present tentative operating schedules for 1988. Their projects for 1988 operations were, in summary:

	OP Days	NSF Costs	ONR Costs	Other Costs	Total
UNOLS Projections	5,540	\$35.63M	\$5.39M	\$2.87M	\$43.90M
Anticipated Funds		(\$30.4M)	(\$8.5M)	(\$2.9M)	(\$41.8M)
Projected shortfall		(\$5.2M)	\$3.1M	(0)	(\$ 2.1M)

Total fleet costs would be up about 17% (\$43.9M over \$37.5M), 1988 over 1987. The percentage increase in costs is about equal to the projected 15% increase in days of operation (5,540 over 4,843 in 1987). Not all of the 5,540 days will likely be realized, since some of the science will not be funded.

The projected shortfall of \$2.1M in 1988 is much less than similar projections in recent years; it would doubtless be accommodated through a combination of reductions through science funding declinations and a general budget reduction. A more serious problem, however, is that UNOLS ship use projections of the partitioning between NSF and ONR use does not match anticipated funding from those agencies.

Tentative 1988 schedules for UNOLS ships, based on information from July 14 are characterized below. Details of 1988 tentative schedules are available on UNOLS bulletin board SHIP.SCHED88.

ALPHA HELIX. Strong schedule beginning in March in Gulf of Alaska, southeast Alaska, Bering Sea, Prince William Sound and, ending in December, Gulf of Alaska. About 90% funded.

ATLANTIS II. Strong schedule, all in support of ALVIN dive projects. All work in eastern Pacific, from California Basins, Guaymas, EPR/Galapagos, Gorda-Juan de Fuca and continental slope off Oregon, more California Basins and, finally, eastern Pacific seamounts. November transit to Woods Hole for AII and ALVIN maintenance, overhaul and upgrade. Virtually all work funded under tri-agency agreement.

BARNES. Numerous short trips in Puget Sound. Could accommodate additional Puget Sound work during most months.

BLUE FIN. Short trips in coastal waters off southeastern United States. Could accommodate additional short cruises in the area.

CALANUS. Relatively heavy schedule in Straits of Florida and Caribbean Islands. About 50% already funded.

CAPE HATTERAS. Moderate schedule in Bahamas, mid-Atlantic shelf and western Atlantic, Caribbean, Blake Plateau and mid-Atlantic shelf and slope. Based about 60% in newly-submitted science projects.

CAPE HENLOPEN. Relatively open schedule in Delaware Bay, mid Atlantic coast, Georgia Embayment and Long Island Sound. Could accommodate additional projects in most months, especially September and after. About 90% of present schedule is funded.

CAYUSE. Not in service. Awaiting reassignment, transfer.

CONRAD. Schedule highly dependent on pending science decisions. Projects in Caribbean, Chile Triple Junction, mid Atlantic Ridge, eastern north Atlantic, Mediterranean and North Sea.

ENDEAVOR. Heavy schedule beginning in northwest Atlantic, cross Atlantic to Canary Basin, work in Arctic and end season in northwest Atlantic. A few double booked projects. About 50% funded.

GYRE. Schedule begins in Gulf of Mexico, then Barbados equatorial Atlantic transect, Canary Basin, Gulf of Cadiz, off Amazon, equatorial transects and ends in Gulf of Mexico. Schedule includes some double-booked projects; most science projects pending.

ISELIN. Strong schedule begins Bermuda Rise, then Caribbean, off Amazon, equatorial Atlantic, Bahamas, off Amazon, Caribbean, Amazon, equatorial Atlantic and Sargasso. Schedule includes some double-booked projects. About 80% funded.

KNORR. Schedule begins in south Atlantic, then to Mediterranean and Black Sea (March through October) and return to Woods Hole. Schedule mostly funded. Schedule not extended beyond October pending decision on order of AGOR-14, 15 renovation.

LAURENTIAN. Schedule for May through November in Lake Michigan except for July-August project in Erie and Ontario.

MELVILLE. Schedule begins in transit from Easter Island, then along California coast, to Galapagos, then Gorda-Juan de Fuca, and projects off California through September. Schedule for October and later tentative pending AGOR-14, 15 decisions.

MOANA WAVE. Heavy schedule beginning in transit to Guam, then Indonesian Sea, China/Sulu Sea, western Pacific, Philippines, Marshall Islands and (tentatively) Java Plateau and Havre Trough (southern Ocean). About 75% funded.

FRED H. MOORE. Tentative schedule withdrawn. Most projects on other ships, most not yet funded.

NEW HORIZON. Heavy schedule begins off California, to northwest coast (May) and return to California coast. About 60% funded.

OCEANUS. Heavy schedule begins northwest Atlantic, crosses Atlantic to Azores and via North Sea, return to northwest Atlantic, then Bermuda and mid-Atlantic, ending in Bridgetown. Few double bookings. About 60% funded.

OSPREY. Schedule for May through August, off Peru, then Santa Barbara Bight, central California coast. Most funding decisions pending. Rest of year to complete conversion and install equipment.

POINT SUR. Schedule begins with VERTEX to 139W, then off central California, Monterey, Bodega and San Francisco Bays, repeat VERTEX and finish with projects off west coast, California to Washington. Over 90% funded.

ROBERT G. SPROUL. Relatively heavy schedule, mostly off California, one project Gulf of California. Open periods March, November, December. About 65% funded.

THOMAS G. THOMPSON. Three-project schedule, off Hawaii, Gulf of Alaska, Bering Sea. Most funded.

RIDGELEY WARFIELD. Modest schedule, all Chesapeake Bay. Current schedule could accommodate additional projects in region throughout the year.

THOMAS WASHINGTON. Heavy schedule begins on EPR, then to Hawaiian Islands, California coast, Aleutians, western Pacific, Java Plateau, Lau Basin. Alternate schedules still being considered. About 60% funded.

WECOMA. Heavy schedule starts with VERTEX, then central Pacific and off northwest U.S. coast. About 75% funded.

ALVIN Program

The ALVIN Review Committee met May 6, 7, 8, 1987 to review requests for ALVIN dives in 1988, to make schedule recommendations, to review ALVIN program status and make planning recommendations for future programs.

ALVIN-ATLANTIS II began 1987 work off California, completed projects off Hawaii and in the mid-Pacific and then completed a series of dive projects in the Marianas and Bonin ARC regions in the western Pacific. After a mid August transit back across the Pacific ALVIN-ATLANTIS II took up a series of projects on the Gorda-Juan de Fuca systems and on the subduction zone off Oregon-California. They should complete this work by mid-October and will finish out 1987 with a set of projects in California basins. Operations have been highly successful; very few dives have been aborted. There have been some problems with sampling and data acquisition systems but there is progress toward solutions.

In 1988 ALVIN-ATLANTIS II operations will all be in the eastern Pacific. The ALVIN Review Committee made schedule recommendations for seventeen projects totaling about 190 dives. The recommendations arose about 40% from dive requests submitted in 1986 or earlier and about 60% from requests reviewed in 1987. ALVIN-ATLANTIS II will begin 1988 operations off California, then do a Guaymas Basin project, an investigation on the EPR, near the Galapagos, then a series of investigations on Escanaba, the Washington-Oregon subduction zone and Gorda-Juan de Fuca. After shorter investigations in California basins and on eastern Pacific

seamounts ALVIN-ATLANTIS II will return, in November, to Woods Hole for renovation and overhaul.

At the end of 1988 there will be no backlog of already-recommended dive requests for ALVIN. Hence the ARC foresees relative freedom in development of 1989 ALVIN operations. The Committee expects from six to eight months operation. Based on interest expressed earlier, together with logistics considerations, the Committee will invite dive requests for the north Atlantic, including reasonably high latitudes, the Gulf of Mexico and Caribbean, the south Atlantic and equatorial Atlantic and in the eastern Pacific but probably excluding high latitudes. The Committee realizes that an effective schedule could not be made encompassing work in all of these areas; they expect to recommend projects in one, two or three of the areas that can be fit together effectively to support the strongest science projects submitted.

The study on **Research Submersible Requirements for the 1990's and Beyond**, headed by Bruce Robison, UCSB, has been initiated. Bruce has held the first study-committee meeting and has outlined the study. Other study committee members (not all of whom could attend the first meeting) are: Robert C. Aller, SUNY, Stony Brook, Richard A. Cooper, University of Connecticut, Joseph A. Curray, Scripps, Daniel J. Fornari, L-DGO, Robert E. Wall, University of Maine, Karen Wishner, University of Rhode Island and Dana R. Yoerger, W.H.O.I.