

**UNOLS Ship Scheduling Committee
Report of Meeting
September 14, 1989**

**Theater
American Society of Association Executives
The ASAE Building
1575 I Street
Washington, D.C.**



**UNOLS Ship Scheduling Committee Meeting
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Washington, DC**

The UNOLS Ship Scheduling Committee met at 8:30 a.m. in the Theater, ASAE Building, Washington, DC. The meeting was called by George Shor, Committee Chair. A list of attendees is Appendix I.

Notification of the meeting, agenda and requests for schedules, operating and cost information were by UNOLS Office letter dated September 5, 1989. (Appendix II).

Since operators had provided information beforehand via telemail on costs and days of operation, fleet summaries were available for the meeting. These summaries were relatively uncertain, because many of the submissions by individual operators included projects not firmly funded.

Schedules for 1990. Individual operators presented scheduling, cost and operating information for 1990 as summarized in Appendix III. The summaries included herein (dated 1 November 1989) reflect much of the funding information exchanged during the meeting; in most cases ship days and operating costs were taken from Ship Operations Proposals for 1990. During presentations by individual operators, NSF program managers provided information on the science proposal funding for most ship cruises whose funding status had not yet been determined (i.e. cruises marked proposed). The net effect was to reduce schedules, markedly on a few ships. The schedules are characterized for individual ships:

ALPHA HELIX: As in 1989, the traditional schedule funded mainly by NSF will be augmented by work in Prince William Sound related to the EXXON VALDEZ oil spill. A schedule of 169 days has been proposed: Resurrection Bay, Prince William Sound and southeast Alaska (February-June), Bering Ice Edge and Skan Bay (June-July), Prince William Sound and Kodiak (July-August), Commander Islands (September), and Prince William Sound and Resurrection Bay (October-November). DPP portion from NSF (52 days) is proposed.

ATLANTIS II: Schedule for 292 days presented (NSF 174, Navy 66, NOAA 53 and Other 26), 39 days proposed. After a project on the MAR, ship will enter Curacao Shipyard (February-March), followed by two ALVIN projects in the Gulf of Mexico (March-April). After transit through the Canal, ALVIN projects off Guatemala (May), EPR and Gulf of Cortez (June), then non-ALVIN in Gulf of Cortez (July). Transit to Gorda-Juan de Fuca-Oregon continental margin for four ALVIN projects (July-September). Return for three ALVIN projects on Fieberling Guyot and Monterey Canyon (October-December), and end year in San Diego.

BERNIER: The BERNIER would enter shipyard for conversion and modification late in 1989. L-DGO plans were to finish conversion and shakedown to begin operations mid-January, 1990. There remained uncertainties as to when conversion would be completed, and schedule is constrained by SEAMARC availability. A likely schedule would begin with G&G work off Venezuela (April-May), and continue working north in the northwest Atlantic to near Iceland (May-September), followed by G&G in the South Atlantic (September-December). Not all of the proposed work (NSF, Navy and industry) was yet funded.

BARNES: At least 145 days, in inland waters, Washington and British Columbia, mostly funded by NSF.

BLUE FIN: Regional schedule advanced for 100 days, half NSF, half DOE.

CALANUS: Scheduled for 148 days in Bahamas, Florida Keys. All funded by NSF, NOAA.

CAPE HATTERAS: Scheduled for about 220 days, off south Atlantic coast (January-March), Georges Bank and Gulf of Maine (April-May), Caribbean (May-June), western Atlantic, Gulf of Maine (June-August), Sargasso, Bahamas, southeastern United States shelf (August-December). 158 days funded by NSF, ONR, DOE and State. Pending work all NSF.

CAPE HENLOPEN: Schedule advanced for 118 days, but only 43 funded. Work in Delaware Bay (June) Mid-Atlantic continental shelf (September-December). Funding by NSF, ONR, NASA, DOE.

ENDEAVOR: Modest schedule advanced for 223 days, 59 still unfunded. NSF and ONR work in Gulf of Maine (January), Sargasso and northwest Atlantic (January-April), Barbados, Bermuda, Florida Straits (April-June), northwest Atlantic, Gulf Stream, Georges Bank (June-September). Open late in year.

GYRE: Schedule advanced for 153 days, funded by NSF and State. Work begins in Gulf of Mexico (February-March), off Bermuda (March-April), Gulf of Mexico (April, May, July, October), Bahamas (October), and Cocos, Galapagos (November). Openings in May, June, August, September and December.

ISELIN: Scheduled for 242 days, funded by NSF (215) and ONR (26). Work in eastern Caribbean (January, April), Amazon Fan (February-April and May-June), the Caribbean (July), Bahamas (September, October), and off North Carolina (October, November).

SEWARD JOHNSON: Enters fleet in 1990. Scheduled for 182 days, funded by NOAA, Navy and Harbor Branch. Shakedown (March), Gulf of Maine and Great Lakes (June-September).

KNORR: Continues renovation/conversion (January-June), after return to Woods Hole, work in Sargasso (July), south of Iceland (August, September), then transit to WOCE work in southeast Pacific (September-December). NSF, Navy and NOAA funding for 153 days.

EDWIN LINK: Enters fleet in 1990. Scheduled for 205 days, funded by NOAA, Navy, other agencies and Harbor Branch. Work off Florida (January, February, July, September), Caribbean (January, July), and off North Carolina (August).

LAURENTIAN: Scheduled 75 days, all in Lake Michigan, under NSF and State funding. Working season is April-October.

LONGHORN: Re-enters fleet in 1990. Anticipate 50 days regional work under State funding.

MELVILLE: Under conversion/renovation January-November. Shakedown (November, December). Schedule advanced for 82 days, in northwest Atlantic/Caribbean, may not be realized.

MOANA WAVE: Scheduled for about 280 days, funded by NSF and commercial contract. Work in Hawaiian waters (January), transact Hawaii - Pago Pago - New Zealand - Guam (January-April), G&G off Taiwan and Subuyan Sea (April-June), in Hawaiian waters (July-December).

NEW HORIZON: Scheduled for 268 days, funded by NSF, ONR, DOE, NOAA, NASA and UC. Work in California Basins (January, February, March, June-November), Fieberling Guyot (February), off Oregon (May, June) and near Mazatlan (April).

OCEANUS: Schedule advanced for 261 days, with funding decisions for large portion still pending. Portion with firm funding includes work south of and local to Woods Hole (March, April), vicinity of Bermuda (April), off northeast coast and mid-Atlantic Bight (July-September), and Sargasso Sea (September, October, November).

OSPREY: Would enter shipyard, November 1989-January 1990, and complete conversion after shipyard. Sea trials and scientific operations in April.

PELICAN: Scheduled for 102 days, funded by NSF, MMS, NOAA, DOE. All work in northwest Gulf of Mexico.

POINT SUR: Scheduled for 199 days, funded by NSF, CNOC and State. Work off central and northern California and Monterey Bay (January-March), off Oregon (March) and, again, off northern and central California, Monterey Bay (April-December).

ROBERT G. SPROUL: Schedule advanced for 162 days. One project off Columbia River with two trips and 82 days from NSF still pending. Remaining work (January-May, July-August and October-December) is off southern California, funded by NSF, ONR, DOE, UC and JPL.

RIDGELY WARFIELD: Scheduled for 106 days in Chesapeake Bay, all funded by NSF.

THOMAS WASHINGTON: Schedule advanced for 354 days, including work in western Pacific. Agreed-to schedule, 268 days funded by NSF and ONR, begins with G&G near Galapagos and Panama Basin (January, February), Mid-Atlantic Ridge and south Atlantic (March-May), off Venezuela (June), and EPR in north and south Pacific (July-December).

WECOMA: Scheduled for 235 days funded by NSF and ONR. Work begins in western equatorial Pacific (January-March), central equatorial Pacific (March-July), and work off Washington, Oregon and northern California coasts (August-November).

WEATHERBIRD: Newly converted ship will work out of Bermuda for entire year. 259 days funded by NSF.

Detailed schedules for all UNOLS ships can be found on the Omnet electronic bulletin board SHIP.SCHED90.

Discussion of 1990 Schedules and Costs. At the July, 1989 Ship Scheduling Committee meeting, the shortfall projected between estimated 1990 fleet costs and anticipated funding had been approximately \$1 million (see Appendix IV). That projected shortfall was somewhat uncertain, because NSF/OCFS did not have solid estimates of their 1990 funding and schedule/cost information was preliminary.

During the September 1989 meeting, summaries of ship use days and costs were as follows:

| | NSF | | NAVY | | OTHER | | TOTAL | |
|----------------------|-------|------|------|-----|-------|-----|-------|------|
| | days | \$M | days | \$M | days | \$M | days | \$M |
| Sept. 1989 estimates | 3,554 | 28.6 | 586 | 6.2 | 610 | 4.4 | 4,750 | 39.2 |

This represents a July-September reduction in NSF costs of about \$1.6 million, no change in costs to Navy and Other, and a reduction in total fleet costs of \$1.6 million. Two factors, however, have impacted the favorable balance indicated at the September meeting: The ship costs projected by UNOLS operating institutions in their October 1, 1989 Ship Operations proposals increased over those reported in September to NSF, \$29.6 million, ONR \$6.1 million, Other \$4.8 million and Total \$40.5 million. Further, NSF reported that they would be allocated significantly less than \$28 million for ship operations. Thus, the summary of 1990 Ship Costs and Use (Appendix IV), which is based on October 1 estimates included a sizable but uncertain deficit in NSF-funded and total ship operations. Further adjustments to individual ship schedules and operating budgets for 1990 must be expected. Schedules based on science funding decisions not yet final are especially vulnerable.

Based on the apparent match between operations budgets and anticipated funding (in September), the Ship Scheduling Committee had no recommendations to advance to UNOLS.

Information from Funding Agency Representatives. NSF, with representatives from both facilities and science programs, was the only agency providing information at the meeting.

Dolly Dieter reiterated instructions and schedule for the submission of Ship Operations proposals. She also discussed with the Committee revision of UNOLS Ship Time Requests and of NSF Form 831, Shiptime Requests. NSF is revising Form 831 to include more information and to be more useful. It is expected that one form will serve both UNOLS and NSF.

Mike Rawson, L-DGO was nominated as Scheduling Committee Chair, and George Shor, Scripps was nominated Vice Chair. (They were later confirmed in those positions by George Keller, UNOLS Chair.)

SHIP SCHEDULING MEETING
Washington, D.C./September 14, 1989

ATTENDEES:

Timothy M. Askew, Harbor Branch Oceanographic Institution
Mary Ataldo, National Science Foundation
William D. Barbee, UNOLS
Harry Barnes, Bermuda Biological Station
John F. Bash, University of Rhode Island
Douglas Biggs, Texas A&M University
Garrett W. Brass, University of Miami
Larry Clark, National Science Foundation
Joe Coburn, Woods Hole Oceanographic Institution
Bruce Cornwall, Johns Hopkins University/CBI
James W. Coste, University of Hawaii
E. R. Dieter, National Science Foundation
Paul J. Fox, University of Rhode Island
Barbara Funke, UNOLS
Linda Goad, University of Michigan
Donn Gorsline, University of California, Los Angeles
George Grice, Woods Hole Oceanographic Institution
James Griffin, University of Rhode Island
Ron Hutchinson, University of Miami
K. William Jeffers, University of Washington
Richard B. Lambert, National Science Foundation
Dean Letzring, Texas A&M University
Lisa Lynch, National Science Foundation
Bruce Malfait, National Science Foundation
David Menzel, Skidaway Institution of Oceanography
Don Moller, Woods Hole Oceanographic Institution
Greg Mountain, National Science Foundation
Donald Newman, University of Southern California
Wadsworth Owen, University of Delaware
Theodore Packard, National Science Foundation
Kennard Palfrey, Oregon State University
Michael Prince, Moss Landing Marine Laboratories
Steve Rabalais, Louisiana Universities Marine Consortium
Michael Rawson, Lamont-Doherty Geological Observatory
Gilbert Rowe, Texas A&M University

Thomas Royer, University of Alaska

Judy Rubano, University of Hawaii

Ronald Schlitz, National Science Foundation

George G. Shor, Jr., Scripps Institution of Oceanography

Alexander Sutherland, National Science Foundation

Joseph Ustach, Duke/UNC Oceanographic Consortium

Terry E. Whittedge, University of Texas

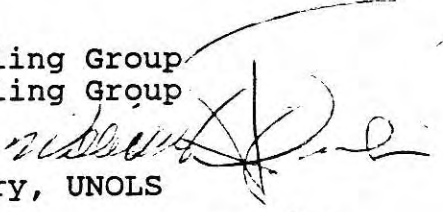
UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

An association of institutions
for the coordination and support
of university oceanographic facilities

UNOLS Office, WB-15
School of Oceanography
University of Washington
Seattle, Washington 98195
(206) 543-2203

September 5, 1989

TO: East Coast Scheduling Group
West Coast Scheduling Group

FROM: William D. Barbee 
Executive Secretary, UNOLS

SUBJECT: Schedule Meeting, September 14, 1989

The final 1989 meeting of the UNOLS Ship Scheduling Group has been called:

Theater
American Society of Association Executives
The ASAE Building
1575 I Street N.W.
Washington, D.C.
September 14, 1989
8:30 a.m. - 5:00 p.m.

The objectives of the meeting are: 1) quickly review operations, schedules and costs for 1989 to reveal changes, surprises, problems; 2) examine and summarize costs and schedules projected for 1990. Costs and schedules for both 1989 and 1990 will have been provided by UNOLS operating institutions (via SCHEDULERS.EAST.GULF or SCHEDULERS.WEST) and appropriate information is on SHIP.SCHED90 or SHIP.SCHED89. Summaries of cost information will be provided (in format similar to attachments to this letter) along with a comparison of fleet totals with NSF and ONR ship operations funding for 1990; 3) develop Scheduling Group recommendations for 1990 and a viable 1990 operating plan for the UNOLS fleet; and 4) elect a Scheduling Committee Chair and Vice Chair.

Materials for the Meeting

1. Cost Information for 1989 and 1990. Send your cost information, via telemail to SCHEDULERS.EAST.GULF or SCHEDULERS.WEST not later than 8 September, 1989. The format/information is:

East/West Coast Scheduling Group
September 5, 1989
Page Two

| 1989: | NSF | NAVY | OTHER | TOTAL |
|-----------|-----|------|-------|-------|
| Ship Days | | | | |
| Cost \$K | | | | |
| 1990: | NSF | NAVY | OTHER | TOTAL |
| Ship Days | | | | |
| Cost \$K | | | | |

The UNOLS Office will summarize the costs received from all UNOLS members for both 1989 and 1990 as on the summaries attached here (dated November 15, 1988). Copies will be provided at the September 14 meeting; you needn't bring extras if you have responded by teletail before September 8.

2. Schedules for 1989 and 1990. Please provide your latest/best schedule for both 1989 and 1990 not later than 8 September to SCHEDULERS.WEST or SCHEDULERS.EAST.GULF. The UNOLS office will enter them on SHIP.SCHED89 or SHIP.SCHED90. (Please examine your ship's schedules as they currently appear on SHIP.SCHED89 and SHIP.SCHED90 and submit corrected schedules as necessary.) If everyone complies by providing schedules via teletail, they needn't bring multiple copies to the meeting.

3. Summary of Unfilled 1990 Shiptime Request. There shouldn't be any, but bring 10 copies of a summary of any 1990 ship time request that you are not certain has been filled. If you don't know it's filled, list it.

4. You may want to bring vu-graphs (overhead projections) to help explain/present your 1989 and 1990 schedules. Whatever's fair.

Agenda and 1989 (old) and 1990 cost summaries from the July, 1989 meeting are attached.

WDB/cml
Enclosures

UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

AGENDA

UNOLS Ship Scheduling Meeting
Theater

American Society of Association Executives
The ASAE Building
1575 I Street N.W.
Washington, D.C.

8:30 a.m.

Thursday, September 14, 1989

The Scheduling Groups will be called into session by Chairs George Shor and Mike Rawson. Emphasis will be on matching projected funding to costs and ship schedules for 1990.

1. **Projection of Fleet Schedules and Costs for 1990.** Based on cost and operating information provided earlier via telemail, George Shor/Mike Rawson will present an overview for 1990. Potential problems will be identified. Any funding/schedule problems remaining from 1989 can, hopefully, be resolved.

2. **Information from Funding Agency Representatives.** From NSF, ONR, and other agencies as desired, on 1990 funding available, total ship days required by science programs, science decisions available. Recap of 1989 schedule/funding problems as necessary.

3. **Schedules for 1990.** Individual presentations by institutions of their tentative schedules for 1990 and projected costs. (Should be as you submitted via telemail). Identify problems: unfunded projects, multiple bookings, schedule inefficiencies, etc. Explicit list of unfilled 1990 ship-time request. Recap 1989 problems as necessary. (Institution reps need only bring vu-graphs for their presentations and summary of unfilled requests.)

4. **1990 Schedule Improvement:** Chairs will provide direction and moderate discussion on schedule problems (eliminate multiple bookings, accommodate unmet requests, address funding mismatch, improve schedule efficiencies).

Recommendations. Discuss and adopt as appropriate, recommendation to go to UNOLS Council (September 15).

5. **Nomination of Chair, Vice Chair:** In accordance with the Charter, a Chair and Vice Chair will be nominated for the coming year. See George Shor's August 13 telemail for a suggested protocol for nominating Scheduling Committee Chair and Vice Chair.

July 31, 1989

Summary of Fleet Use and Costs
Year: 1989

| SHIP/CLASS | FUNDING | | | | | | | | |
|------------------|---------|---------|-------|---------|-------|---------|-------|---------|-------|
| | NSF | | ONR | | OTHER | | TOTAL | | |
| | Days | Dollars | Days | Dollars | Days | Dollars | Days | Dollars | |
| MELVILLE | b. | 153 | 1839 | 74 | 889 | 1 | 12 | 228 | 2740 |
| KNORR | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ATLANTIS II | | 202 | 3151 | 16 | 250 | 23 | 359 | 241 | 3760 |
| CONRAD | | 58 | 737 | 42 | 534 | 3 | 38 | 103 | 1309 |
| T. WASHINGTON | c. | 230 | 2557 | 23 | 256 | 8 | 88 | 261 | 2901 |
| MOANA WAVE | | 248 | 2335 | 6 | 57 | 4 | 38 | 258 | 2430 |
| CLASS II TOTAL | | 891 | 10619 | 161 | 1986 | 39 | 535 | 1091 | 13140 |
| AVE: (5) | | 178 | 2124 | 32 | 397 | 8 | 107 | 218 | 2628 |
| ENDEAVOR | | 193 | 1500 | 40 | 310 | 23 | 178 | 256 | 1988 |
| OCEANUS | | 222 | 1887 | 24 | 204 | 0 | 0 | 246 | 2091 |
| GYRE | | 90 | 501 | 0 | 0 | 53 | 281 | 143 | 780 |
| ISELIN | | 175 | 1468 | 52 | 436 | 0 | 0 | 227 | 1905 |
| NEW HORIZON | d. | 66 | 582 | 70 | 617 | 46 | 406 | 182 | 1605 |
| OSPREY | | 30 | 300 | 0 | 0 | 0 | 0 | 30 | 300 |
| WECOMA | | 154 | 1309 | 65 | 553 | 0 | 0 | 219 | 1862 |
| CLASS III TOTAL | | 930 | 7547 | 251 | 2120 | 122 | 865 | 1303 | 10531 |
| AVE: (7) | | 133 | 1078 | 36 | 303 | 17 | 124 | 186 | 1504 |
| PELICAN | | 17 | 74 | 0 | 0 | 71 | 331 | 88 | 405 |
| POINT SUR | f. | 56 | 347 | 89 | 552 | 21 | 130 | 166 | 1029 |
| CAPE HATTERAS | | 195 | 1260 | 0 | 0 | 13 | 81 | 208 | 1341 |
| ALPHA HELIX | | 115 | 1265 | 0 | 0 | 46 | 506 | 161 | 1771 |
| R. SPROUL | e. | 86 | 400 | 17 | 79 | 14 | 65 | 117 | 544 |
| CAPE HENLOPEN | | 87 | 574 | 19 | 125 | 25 | 165 | 131 | 865 |
| R. WARFIELD | | 121 | 670 | 0 | 0 | 0 | 0 | 121 | 670 |
| CLASS IV TOTAL | | 677 | 4590 | 125 | 756 | 190 | 1278 | 992 | 6625 |
| AVE: (7) | | 96 | 656 | 21 | 126 | 27 | 183 | 142 | 946 |
| BLUE FIN | | 46 | 114 | 0 | 0 | 31 | 76 | 77 | 190 |
| LAURENTIAN | | 55 | 220 | 0 | 0 | 11 | 44 | 66 | 264 |
| BARNES | | 80 | 161 | 2 | 1 | 20 | 30 | 102 | 192 |
| CALANUS | a. | 99 | 229 | 20 | 46 | 45 | 104 | 164 | 379 |
| WEATHERBIRD/NEW | | 203 | 511 | 6 | 14 | 10 | 24 | 219 | 549 |
| < CLASS IV TOTAL | | 483 | 1235 | 28 | 61 | 117 | 278 | 628 | 1574 |
| AVE: (5) | | 97 | 247 | 6 | 12 | 23 | 56 | 126 | 315 |
| FLEET TOTAL | | 2981 | 23991 | 565 | 4923 | 468 | 2956 | 4014 | 31870 |
| AVE: (24) | | 124 | 1000 | 24 | 205 | 20 | 123 | 167 | 1328 |

- a. NOAA 45 days, \$104K
- b. JOI 1 day, \$12K
- c. UC 4 days, \$44K, JOI 4 days, \$44K
- d. UC 46 days, \$406K
- e. UC 14 days, \$65K
- f. ONR includes NPS (CNOC) 75 days, \$465K

July 31, 1989

Summary of Ship Use and Costs
Year: 1990

| SHIP/CLASS | FUNDING | | | | | | | |
|------------------|---------|---------|------|---------|-------|---------|-------|---------|
| | NSF | | ONR | | OTHER | | TOTAL | |
| | Days | Dollars | Days | Dollars | Days | Dollars | Days | Dollars |
| MELVILLE | 35 | 447 | 62 | 793 | 0 | 0 | 97 | 1240 |
| KNORR | 149 | 1952 | 28 | 367 | 35 | 459 | 212 | 2778 |
| ATLANTIS II | a. 197 | 2704 | 77 | 1057 | 39 | 535 | 313 | 4296 |
| BERNIER | 217 | 2930 | 117 | 1580 | 0 | 0 | 334 | 4510 |
| T. WASHINGTON | 344 | 3914 | 0 | 0 | 0 | 0 | 344 | 3914 |
| MOANA WAVE | f. 178 | 1669 | 0 | 0 | 102 | 957 | 280 | 2626 |
| CLASS II TOTAL | 1120 | 13616 | 284 | 3797 | 176 | 1951 | 1580 | 19364 |
| AVE: (6) | 187 | 2269 | 47 | 633 | 29 | 325 | 263 | 3227 |
| ENDEAVOR | 158 | 1343 | 54 | 459 | 0 | 0 | 212 | 1802 |
| OCEANUS | 217 | 1595 | 48 | 353 | 6 | 44 | 271 | 1992 |
| GYRE | 107 | 696 | 0 | 0 | 23 | 150 | 130 | 846 |
| ISELIN | 216 | 1815 | 26 | 219 | 0 | 0 | 242 | 2033 |
| NEW HORIZON | b. 180 | 1404 | 22 | 172 | 98 | 766 | 300 | 2342 |
| OSPREY | 52 | 624 | 0 | 0 | 0 | 0 | 52 | 624 |
| WECOMA | 206 | 1854 | 69 | 621 | 0 | 0 | 275 | 2475 |
| CLASS III TOTAL | 1136 | 9331 | 219 | 1824 | 127 | 960 | 1482 | 12114 |
| AVE: (7) | 162 | 1333 | 31 | 260 | 18 | 137 | 212 | 1730 |
| PELICAN | 26 | 120 | 0 | 0 | 35 | 161 | 61 | 281 |
| POINT SUR | d. 95 | 599 | 65 | 410 | 15 | 95 | 175 | 1103 |
| CAPE HATTERAS | 205 | 1223 | 10 | 60 | 32 | 191 | 247 | 1474 |
| ALPHA HELIX | 171 | 1881 | 0 | 0 | 56 | 616 | 227 | 2497 |
| R. SPROUL | c. 133 | 580 | 4 | 17 | 8 | 35 | 145 | 632 |
| CAPE HENLOPEN | 56 | 370 | 0 | 0 | 29 | 191 | 85 | 561 |
| R. WARFIELD | 124 | 657 | 0 | 0 | 0 | 0 | 124 | 657 |
| CLASS IV TOTAL | 810 | 5430 | 79 | 487 | 175 | 1289 | 1064 | 7205 |
| AVE: (7) | 116 | 776 | 11 | 70 | 25 | 184 | 152 | 1029 |
| BLUE FIN | 50 | 100 | 0 | 0 | 50 | 100 | 100 | 200 |
| LAURENTIAN | 39 | 156 | 16 | 64 | 30 | 120 | 85 | 340 |
| BARNES | 123 | 259 | 4 | 6 | 18 | 34 | 145 | 299 |
| CALANUS | e. 128 | 282 | 0 | 0 | 45 | 99 | 173 | 381 |
| NEW SHIP | 250 | 950 | 0 | 0 | 0 | 0 | 250 | 950 |
| < CLASS IV TOTAL | 590 | 1747 | 20 | 70 | 143 | 353 | 753 | 2170 |
| AVE: (5) | 118 | 349 | 4 | 14 | 29 | 71 | 151 | 434 |
| FLEET TOTAL | 3656 | 30124 | 602 | 6178 | 621 | 4553 | 4879 | 40853 |
| AVE: (25) | 146 | 1205 | 24 | 247 | 25 | 182 | 195 | 1634 |

- a. NOAA 39 days, \$535K
- b. UC 32 days, \$250K, DOE 32 days, \$250K, NOAA 17 days, \$133K, NASA 7 days, \$55K, JOI 10 days, \$78K
- c. DOE 8 days, \$35K
- d. ONR includes NPS (CNOC) 60 days, \$378K
- e. NOAA 45 days, \$99K
- f. SSI (private) 102 days, \$933K

Summary of Ship Use and Costs
Year: 1989

| SHIP/CLASS | FUNDING | | | | | | | |
|------------------|---------|---------|-----|----------|-------|---------|-------|---------|
| | NSF | | ONR | | OTHER | | TOTAL | |
| | Day | Dollars | Day | Dollars | Day | Dollars | Day | Dollars |
| MELVILLE | 148 | 1,752 | 70 | 829 | 6 | 71 | 224 | 2,652 |
| KNORR | 0 | (260) | 0 | (14,805) | 0 | 0 | 0 | - |
| ATLANTIS II | 192 | 3,267 | 16 | 272 | 14 | 238 | 222 | 3,777 |
| CONRAD 4. | 58 | 749 | 42 | 534 | 3 | 38 | 103 | 1,321 |
| T.G. THOMPSON 3. | 0 | 72 | 0 | 100 | 0 | 3 | 0 | 175 |
| T. WASHINGTON | 230 | 2,565 | 23 | 256 | 8 | 90 | 261 | 2,910 |
| MOANA WAVE | 285 | 2,544 | 0 | 0 | 10 | 90 | 295 | 2,634 |
| CLASS II TOTAL | 913 | 10,949 | 151 | 1,991 | 41 | 530 | 1,105 | 13,469 |
| AVE: (5) | 183 | 2,190 | 30 | 398 | 8 | 106 | 221 | 2,693 |
| ENDEAVOR | 193 | 1,500 | 40 | 310 | 23 | 178 | 256 | 1,988 |
| OCEANUS | 228 | 1,801 | 24 | 190 | 0 | 0 | 252 | 1,991 |
| GYRE | 91 | 506 | 0 | 0 | 56 | 291 | 147 | 797 |
| ISELIN | 175 | 1,468 | 52 | 436 | 0 | 0 | 227 | 1,904 |
| NEW HORIZON | 68 | 606 | 63 | 561 | 41 | 365 | 172 | 1,532 |
| OSPREY | 0 | 350 | 0 | 0 | 0 | 0 | | 350 |
| WECOMA 2. | 158 | 1,382 | 62 | 542 | 0 | 0 | 220 | 1,924 |
| CLASS III TOTAL | 913 | 7,613 | 241 | 2,039 | 120 | 834 | 1,274 | 10,486 |
| AVE: (6) | 152 | 1,269 | 40 | 340 | 20 | 139 | 212 | 1,748 |
| PELICAN | 19 | 74 | 0 | 0 | 62 | 372 | 81 | 446 |
| POINT SUR 1. | 61 | 373 | 86 | 525 | 16 | 98 | 163 | 996 |
| CAPE HATTERAS | 187 | 1,167 | 0 | 0 | 12 | 75 | 199 | 1,241 |
| ALPHA HELIX | 115 | 1,133 | 0 | 0 | 38 | 374 | 153 | 1,508 |
| R. SPROUL | 83 | 404 | 17 | 83 | 16 | 78 | 116 | 565 |
| CAPE HENLOPEN | 83 | 548 | 19 | 125 | 28 | 185 | 130 | 858 |
| R. WARFIELD | 114 | 670 | 0 | 0 | 1 | 6 | 115 | 676 |
| CLASS IV TOTAL | 662 | 4,369 | 122 | 733 | 173 | 1,188 | 957 | 6,290 |
| AVE: (7) | 95 | 624 | 17 | 105 | 25 | 170 | 137 | 899 |
| BLUE FIN | 44 | 77 | 0 | 0 | 56 | 98 | 100 | 175 |
| LAURENTIAN | 54 | 216 | 0 | 0 | 2 | 8 | 56 | 224 |
| BARNES | 70 | 148 | 2 | 1 | 30 | 47 | 102 | 197 |
| CALANUS | 88 | 204 | 20 | 46 | 45 | 104 | 153 | 354 |
| WEATHERBIRD | 218 | 512 | 4 | 9 | 15 | 35 | 237 | 556 |
| < CLASS IV TOTAL | 474 | 1,157 | 26 | 56 | 148 | 292 | 648 | 1,506 |
| AVE: (5) | 95 | 231 | 5 | 11 | 30 | 58 | 130 | 301 |
| FLEET TOTAL | 2,962 | 24,088 | 540 | 4,819 | 482 | 2,844 | 3,984 | 31,751 |
| AVE: (23) | 129 | 1,047 | 23 | 209 | 21 | 124 | 173 | 1,380 |

1. Navy includes NPS (CNOC) 75 days, \$458K
2. Navy includes NORDA 22 days, \$192
3. Funding to sustain shore support, UW
4. Other is JOI (Ocean Drilling Program?)

Summary of Ship Use and Costs
Year: 1990

| SHIP/CLASS | FUNDING | | | | | | | |
|-------------------|---------|---------|-----|---------|-------|---------|-------|---------|
| | NSF | | ONR | | OTHER | | TOTAL | |
| | Day | Dollars | Day | Dollars | Day | Dollars | Day | Dollars |
| MELVILLE | 65 | 732 | 17 | 192 | 0 | 0 | 82 | 924 |
| KNORR | 148 | 2,573 | 33 | 574 | 0 | 0 | 181 | 3,147 |
| ATLANTIS II | 146 | 2,177 | 86 | 1,282 | 76 | 1,133 | 308 | 4,592 |
| CONRAD | 210 | 2,835 | 115 | 1,552 | 0 | 0 | 325 | 4,388 |
| T.G. THOMPSON 2. | 0 | 83 | 0 | 83 | 0 | 0 | 0 | 166 |
| T. WASHINGTON | 354 | 4,238 | 0 | 0 | 0 | 0 | 354 | 4,238 |
| MOANA WAVE | 190 | 1,758 | 0 | 0 | 96 | 889 | 286 | 2,647 |
| CLASS II TOTAL | 1,113 | 14,396 | 251 | 3,683 | 172 | 2,022 | 1,536 | 20,102 |
| AVE: (6) | 186 | 2,399 | 42 | 614 | 29 | 337 | 256 | 3,350 |
| ENDEAVOR | 140 | 1,233 | 66 | 581 | 0 | 0 | 206 | 1,814 |
| OCEANUS | 207 | 1,633 | 48 | 379 | 6 | 47 | 261 | 2,059 |
| GYRE | 120 | 780 | 0 | 0 | 33 | 215 | 153 | 995 |
| ISELIN | 215 | 1,897 | 26 | 229 | 0 | 0 | 241 | 2,126 |
| NEW HORIZON | 110 | 888 | 39 | 315 | 104 | 840 | 253 | 2,042 |
| OSPREY | 30 | 350 | 0 | 0 | 0 | 0 | 30 | 350 |
| WECOMA | 220 | 1,930 | 37 | 325 | 0 | 0 | 257 | 2,255 |
| CLASS III TOTAL | 1,042 | 8,711 | 216 | 1,829 | 143 | 1,102 | 1,401 | 11,641 |
| AVE: (7) | 149 | 1,244 | 31 | 261 | 20 | 157 | 200 | 1,806 |
| PELICAN | 58 | 231 | 0 | 0 | 54 | 216 | 112 | 447 |
| POINT SUR 1. | 108 | 611 | 76 | 430 | 15 | 85 | 199 | 1,126 |
| CAPE HATTERAS | 175 | 1,158 | 10 | 66 | 31 | 205 | 216 | 1,429 |
| ALPHA HELIX | 99 | 922 | 0 | 0 | 70 | 652 | 169 | 1,575 |
| R. SPROUL | 149 | 619 | 0 | 0 | 13 | 54 | 162 | 673 |
| CAPE HENLOPEN | 86 | 568 | 10 | 66 | 22 | 145 | 118 | 779 |
| R. WARFIELD | 124 | 646 | 0 | 0 | 2 | 10 | 126 | 656 |
| CLASS IV TOTAL | 799 | 4,755 | 96 | 562 | 207 | 1,367 | 1,102 | 6,685 |
| AVE: (7) | 114 | 679 | 14 | 80 | 30 | 195 | 157 | 955 |
| BLUE FIN | 62 | 126 | 0 | 0 | 34 | 70 | 96 | 196 |
| LAURENTIAN | 45 | 180 | 0 | 0 | 30 | 120 | 75 | 300 |
| BARNES | 156 | 242 | 4 | 2 | 15 | 15 | 175 | 259 |
| CALANUS | 103 | 219 | 0 | 0 | 45 | 96 | 148 | 314 |
| WEATHERBIRD (NEW) | 259 | 965 | 0 | 0 | 0 | 0 | 259 | 965 |
| < CLASS IV TOTAL | 625 | 1,732 | 4 | 2 | 124 | 301 | 753 | 2,034 |
| AVE: (5) | 125 | 346 | 1 | 0 | 25 | 60 | 151 | 407 |
| FLEET TOTAL | 3,579 | 29,594 | 567 | 6,076 | 646 | 4,792 | 4,792 | 40,462 |
| AVE: (25) | 143 | 1,183 | 23 | 243 | 26 | 192 | 192 | 1,618 |

1. Navy includes NPS (CNOC) 72 days, \$402K
2. Funding to sustain shore support, UW

PROFILES OF FUNDING CYCLES \$ MILLION

| | OP DAYS | NSF | ONR | OTHER | TOTAL | SHORT FALL |
|------|------------|------|-----|-------|-------|---------------|
| 1987 | 4,649 | 28.0 | 5.7 | 4.0 | 37.8 | - |
| 1988 | 4,731 | 28.7 | 6.0 | 4.2 | 39.0 | - |

1989 Cost Projections

| | NSF | | ONR | | OTHER | | TOTAL | |
|-----------------|-------|---------|------|---------|-------|---------|-------|-----------|
| | Days | Dollars | Days | Dollars | Days | Dollars | Days | Dollars |
| July 1988 | 3,798 | 29.55 | 426 | 3.44 | 358 | 1.90 | 4,582 | 34.89 |
| (Anticipated) | | 26.8 | | 4.3 | | 1.9 | | 33.4 |
| Proj. Shortfall | | (2.7) | | 0.9 | | - | | (1.8) |
| October 1988 | 3,333 | 26.17 | 486 | 3.68 | 388 | 2.80 | 4,207 | 32.65 |
| (Anticipated) | | 24.-26. | | 3.68 | | 2.80 | | 30.5-32.5 |
| Proj. Shortfall | | ? | | - | | - | | ? |
| July 1989 | 2,981 | 23.99 | 565 | 4.92 | 468 | 2.96 | 4,014 | 31.87 |
| (Anticipated) | | 24.* | | 4.9 | | 3.0 | | 31.9 |
| Proj. Shortfall | | - | | - | | - | | - |
| Sept. 1989 | 2,962 | 24.01 | 540 | 4.82 | 482 | 2.84 | 3,984 | 31.75 |
| (Anticipated) | | 24.* | | 4.8 | | 2.84 | | 31.8 |
| Proj. Shortfall | | - | | - | | - | | - |

*provides deficit cancellation

SHIP OPERATIONS
SUMMARY OF 1990 PROJECTIONS
\$ MILLION

| | NSF | | ONR | | OTHER | | TOTAL | |
|-----------------|-------|---------|------|---------|-------|---------|-------|-----------|
| | Days | Dollars | Days | Dollars | Days | Dollars | Days | Dollars |
| July 1989 | 3,656 | 30.12 | 602 | 6.18 | 621 | 4.55 | 4,879 | 40.85 |
| (Anticipated) | | 28-29? | | 6.2 | | 4.6 | | 38.8-29.8 |
| Proj. Shortfall | | (1M-2M) | | - | | - | | (1M-2M) |
| Sept. 1989** | 3,579 | 29.59 | 567 | 6.08 | 646 | 4.79 | 4,792 | 40.46 |
| (Anticipated) | | ?*** | | 6.08 | | 4.79 | | ? |
| Proj. Shortfall | | ? | | - | | - | | ? |

** Projections for use, costs are from Ship Operations Proposals dated October 1989

*** NSF budget was uncertain and no firm estimate was provided at the September, 1989 meeting.