UNOLS

National Science Foundation

Fleet Review Meeting

June 8-10, 1998

University-National Oceanographic Laboratory System

NSF Academic Fleet Review

Terms of Reference

1) Review and evaluate the current and projected research vessel fleet required for research by NSF within a national framework...:

- Background on fleet composition and status.
- Scientific role of the UNOLS Fleet in a national framework.

2) Review and evaluate overall management structure of the Academic Research Fleet:

- The role of UNOLS in Fleet management.

3) Provide recommended actions by NSF to improve the organization, management, and cost effective operation of the Academic Research Fleet:

- Areas where we have difficulties:
  - acquisition of fleet assets in a coordinated manner.
  - scheduling and coordination of ships in a user transparent manner.

UNOLS related topics deferred to second meeting:

- Cost comparisons of various modes of operating ships
- Capital planning and fleet improvement

The Mission of UNOLS is Support for Seagoing Science

"The benchmark for success of the fleet is the success of the research projects conducted on board each ship."

UNOLS FUNCTIONS

- Science Facility Support
- Access to the Sea
- Safety at Sea
- Operating Efficiency and Science Efficiency
- Planning - UNOLS Sponsor History and Trends

UNOLS Today

There are 57 UNOLS Institutions:

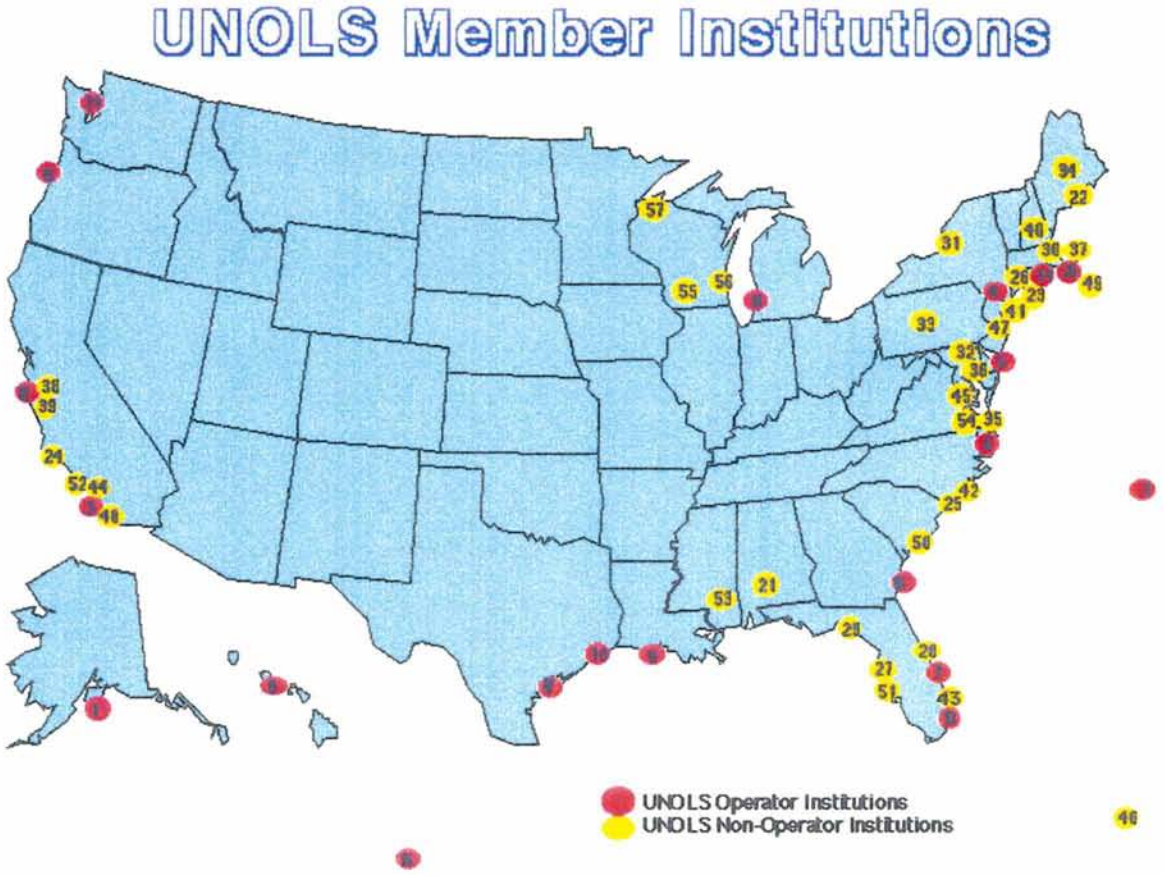
- **20 Operator Institutions**
- **37 Non-operator Institutions**

There are 28 UNOLS Vessels:

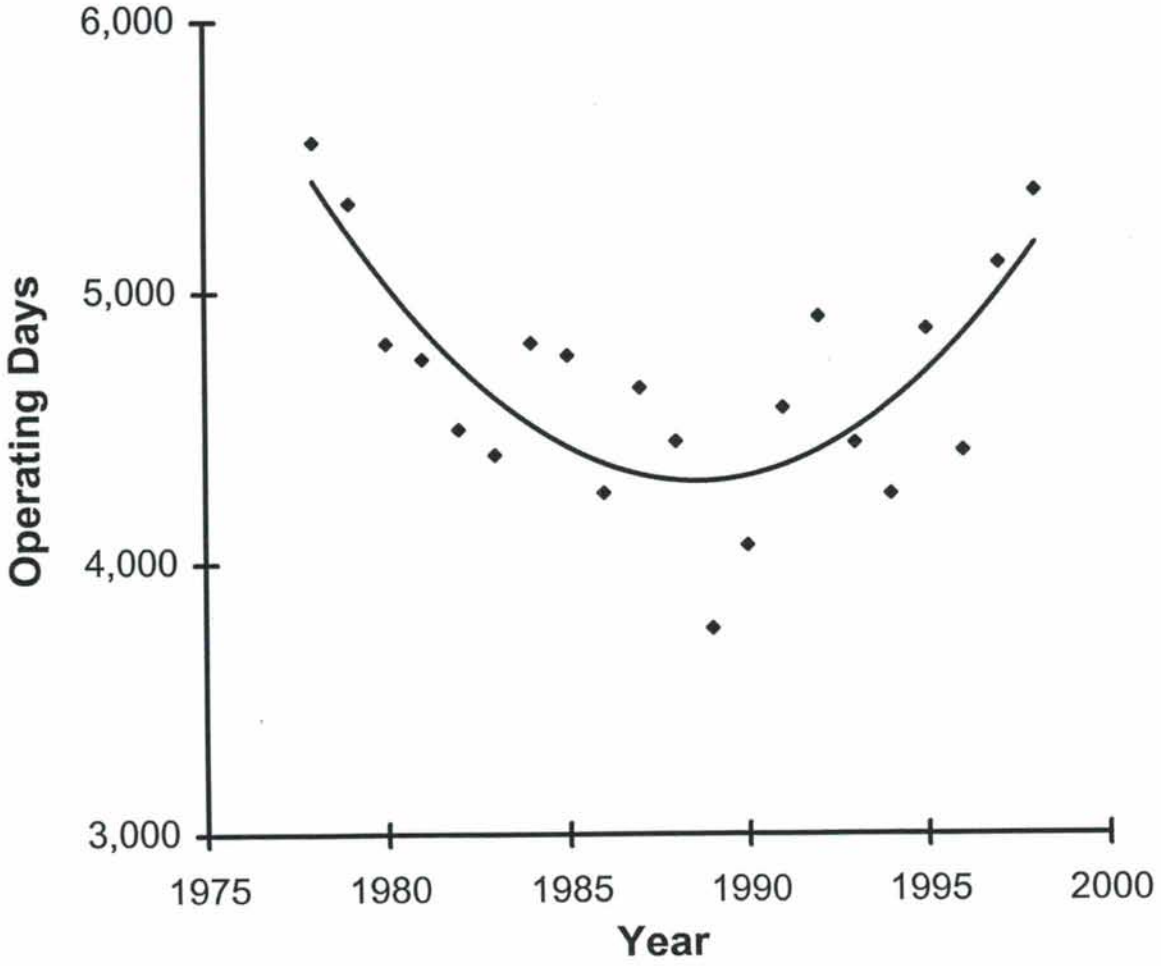
- **6 Navy Ships (5 larger expeditionary, 1 intermediate regional)**
- **8 NSF Ships (1 large expeditionary, 6 intermediate regional & 1 local near-shore)**
- **14 State or Private Ships (5 intermediate regional & 9 local near-shore)**

The Federally owned vessels are operated under Charter Party Agreements with their respective UNOLS Operator Institution

UNOLS Member Institutions



Total UNOLS Operating Days, Last 20 Years



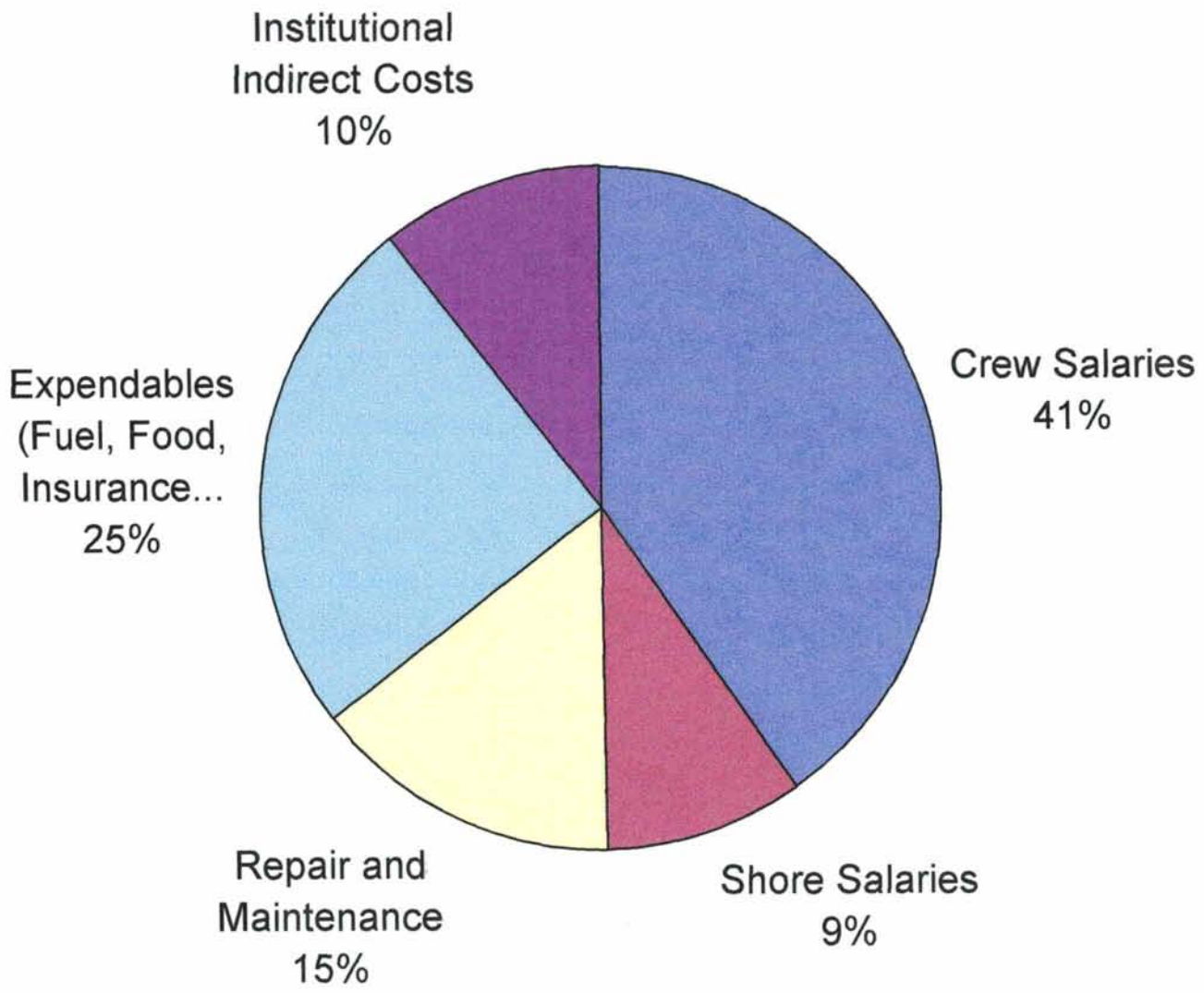
UNOLS SHIP OPERATION DAYS: 1998

SHIP/CLASS	Days Operating	Days Available	Percent Utilization
GLOBAL/EXPEDITIONARY SHIPS			
ATLANTIS	272	275	
R. REVELLE	299	275	
MELVILLE	229	275	
KNORR	263	275	
EWING	215	275	
T.G. THOMPSON	277	275	
TOTAL	**1555**	**1650**	**94%**
INTERMEDIATE/REGIONAL SHIPS			
MOANA WAVE	169	275	
EDWIN LINK	174	250	
ENDEAVOR	158	250	
OCEANUS	233	250	
GYRE	131	250	
NEW HORIZON	221	250	
SEWARD JOHNSON	281	250	
WECOMA	226	250	
	1593	**2025**	**79%**
POINT SUR	193	180	
CAPE HATTERAS	205	180	
ALPHA HELIX	172	180	
R. SPROUL	169	180	
TOTAL	**739**	**720**	**103%**
LOCAL/NEAR-SHORE SHIPS			
PELICAN	244	180	
LONGHORN	58	180	
CAPE HENLOPEN	202	180	
WEATHERBIRD II	134	180	
SEA DIVER	149	180	
	787	**900**	**87%**
BLUE FIN	95	110	
LAURENTIAN	146	110	
BARNES	119	110	
CALANUS	167	110	
URRACA	173	110	
TOTAL	**700**	**550**	**127%**
FLEET TOTALS	**5374**	**5845**	**92%**

UNOLS PROJECTED 1998 OPERATIONS SUPPORT

AGENCY	$M	%
NSF	28,526	53
NAVO	5,337	10
ONR/NRL	3,170	6
NAVY LABS	1,153	2
NAVY POSTGRAD	113	0
NOAA	5,407	10
INST/STATE	4,554	8
INDUSTRY	2,549	5
INTERNATIONAL	517	1
MMS	472	1
USGS	222	0
DOE	---	
ARPA	---	
ALL OTHERS	1,650	3
Total	**53,690**	

1996 Ship Operating Cost Breakdown



UNOLS Daily Rates -1997

SHIP/CLASS	1997 Operating Days	Daily Rates	Annual.Cost
GLOBAL/EXPEDITIONARY SHIPS			
ATLANTIS	185	16,000	$2,960,000
R. REVELLE	288	15,962	$4,597,056
MELVILLE	308	16,879	$5,198,732
KNORR	284	16,300	$4,629,200
EWING	273	16,425	$4,484,025
T.G. THOMPSON	214	15,349	$3,284,686
TOTAL	**1552**		**$25,153,699**
INTERMEDIATE/REGIONAL SHIPS			
MOANA WAVE	202	13,015	$2,629,030
EDWIN LINK	214	8,505	$1,820,070
ENDEAVOR	201	10,770	$2,164,770
OCEANUS	209	10,577	$2,210,593
GYRE	184	7,196	$1,324,064
NEW HORIZON	259	9,149	$2,369,591
SEWARD JOHNSON	290	9,401	$2,726,290
WECOMA	199	9,900	$1,970,100
POINT SUR	188	6,198	$1,165,224
CAPE HATTERAS	221	6,878	$1,520,038
ALPHA HELIX	118	11,891	$1,403,138
R. SPROUL	182	5,278	$960,596
TOTAL	**2467**		**$22,263,504**
LOCAL/NEAR-SHORE SHIPS			
PELICAN	203	3,507	$711,921
LONGHORN	46	4,000	$184,000
CAPE HENLOPEN	195	5,694	$1,110,330
WEATHERBIRD II	152	7,411	$1,126,472
SEA DIVER	105	4,505	$473,025
BLUE FIN	82	1,816	$148,912
LAURENTIAN	44	4,702	$206,888
BARNES	126	1,381	$174,006
CALANUS	111	3,304	$366,744
TOTAL	**1064**		**$4,502,298**
TOTALS	**5083**		**$51,919,501**

Calendar Year 1996 Ship Operating Budgets

	Wecoma	Moana Wave	Thompson	Knorr
Crew Salaries	$846,500	$696,863	$1,460,374	$1,964,501
Shore Salaries	$240,000	$245,452	$274,499	$249,085
Repair and Maintenance	$360,000	$321,135	$562,864	$481,343
Expendables (Fuel, Food, I	$316,000	$494,203	$1,383,209	$1,022,922
Institutional Indirect Costs	$224,964	$191,233	$323,922	$539,313
Total	$1,987,464	$1,948,886	$4,004,868	$4,257,164
Operating Days	198	144	246	279

Fraction of Total					Average
Crew Salaries	43%	36%	36%	46%	40%
Shore Salaries	12%	13%	7%	6%	9%
Repair and Maintenance	18%	16%	14%	11%	15%
Expendables (Fuel, Food, I	16%	25%	35%	24%	25%
Institutional Indirect Costs	11%	10%	8%	13%	10%

UNOLS Function

University-National Oceanographic Laboratory Systems (UNOLS) institutions are joined for the purpose of coordinating oceanographic ships' schedules and research facilities. Primary functions of UNOLS are twofold:

- Facilitate the efficient and cost effective scheduling and operation of the 28 UNOLS research vessels in support of seagoing science;

- Plan for the development of a research fleet, deep-submergence facilities and shore facilities that will meet the sea-going needs of scientists at academic institutions and National Laboratories.

UNOLS Function - continued

UNOLS acts as a federated body with each institution retaining control of its own internal affairs. There are, however, a few common threads in the management of the Fleet. These are, common accounting procedures for ship costs, scheduling procedures, safety procedures and submission to material and operational inspection.

Ultimately, all decisions reside with funding agencies and the role of UNOLS is to provide input to those decision making processes.

UNOLS Organization

UNOLS Council

- **Chair - Ken Johnson, Moss Landing Marine Laboratories**
- **9 Elected representatives from the UNOLS Institutions**
- **6 Ex-officio members (Standing Committee Chairs)**

UNOLS Office

- **Hosted at the University of Rhode Island**

Six Standing Committees

UNOLS Structure

UNOLS Council, Chair Ken Johnson, MLML

● The UNOLS Council acts on behalf of the UNOLS membership as the operating and governing body of UNOLS. It coordinates the activities of the UNOLS Standing Committees. The Council is elected by the UNOLS institutions.

1) **Ship Scheduling Committee (SSC) -**
Chair Don Moller, WHOI

- Coordinates use of available facilities in an efficient manner. Less than 5% of time spent in dead-head transit in a 4971 day operating schedule in 1998.

2) **Research Vessel Operators Committee (RVOC) -**
Chair Paul Ljunggren, LDEO

- Promotes cooperation among the marine science research institutions. RVOC cooperation and safety standards have lead to nearly a $250,000 yearly reduction in fleet insurance rates.

UNOLS Structure

3) **Fleet Improvement Committee (FIC) -**
Chair Larry Atkinson, ODU

- Provides guidance to match the number, mix, overall capability of ships in the UNOLS fleet with science needs. FIC is currently planning for a new generation of coastal and intermediate research vessels.

4) **DEep Submergence Science Comm. (DESSC)**
Chair Mike Perfit, U Florida

- Provides oversight responsibilities for the manned submersible ALVIN, and ROVs. DESSC recommendations have led to significant improvements in imaging systems and an 18% increase in ALVIN bottom time.

UNOLS Structure

5) **Research Vessel Technical Enhancement Committee (RVTEC)** - Chair John Freitag, URI
   - Enhances technical support for sea-going scientific programs. Working to develop a fleet-wide electro-optical cable standard to replace the 0.322" conducting wire.

6) **Arctic Icebreaker Coordinating Committee (AICC)** - Chair Jim Swift, SIO
   - Provides oversight and advice to the USCG for the purpose of enhancing facilities and science aboard their icebreaker fleet. AICC recommendations have resulted in significant upgrades to science facilities on the new research icebreaker HEALY.