UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

University-National Oceanographic Laboratory System

Research Vessel Operators Council

Summary Report

of the

1984 Annual Meeting

Hosted by the Bermuda Biological Station, Bermuda

October 15-17, 1984

CONTENTS

Summary Report of the 1984 Annual RVOC Meeting

Bermuda Biological Station

15-17 October, 1984

WELCOMING REMARKS

Dr. Wolfgang Sterrer, Director of the Bermuda Biological Station welcomed the RVOC to Bermuda and the Bermuda Biological Station. Dr. Sterrer provided a history and a brief picture of the financial support of the Station.

The meeting was called to order by Chairperson E. R. "Dolly" Dieter, University of Alaska. The meeting loosely followed the agenda (Appendix I). Registered attendees are listed in Appendix II.

OLD BUSINESS

A motion was made, seconded and passed to accept the minutes of the 1983 meeting. Two items of old business were discussed.

U.S.C.G. - Attempts were not successful to get a U.S. Coast Guard representative to speak on the compensation act, manning or new tonnage regulations.

Furuno - Mr. Dave Abbott of Furuno sent a letter to Dick West advising him that UNOLS members are offered the GSA discount for Furuno equipment - (Appendix III).

NEW BUSINESS

Newsletter - A motion was passed to establish a RVOC newsletter that will be published by the Secretary three or four times a year.

AGENCY REPORTS

National Science Foundation

John McMillan presented the 1982 thru 1985 budgets. Appendix IV is a summary of this information.

Office of Naval Research

The ONR report was given by John McMillan since Keith Kaulum was unable to attend. John reviewed the Secretary of the Navy's initiative to significantly increase the Navy's participation in Oceanography including a new vessel. This vessel would eventually be turned over to the research community.

UNOLS

Bill Barbee, Executive Secretary, UNOLS, elaborated on the effects of the Navy's new initiative on the research fleet upgrade and replacement. He

recommended that RVOC maintain a standing committee to continuously update the UNOLS Safety Standards. Bill also reported that NSF is now block funding the Medical Advisory Systems (MAS) for all ships receiving NSF block funding. He further discussed the marriage of ALVIN to ATLANTIS II and the resulting full schedule - mainly in the Pacific into 1986.

U.S. State Department - Bill Erb, discussed the U.S. Fisheries Research Policy and the International Court of Justice decision in the Gulf of Maine area boundary dispute between the United States and Canada (Appendix V). He also discussed U.S. policy concerning hydrographic surveys in foreign waters and how this policy can conflict with policies in individual countries.

Naval Oceanography Command - Commander Ralph Miller, discussed the Navy's needs for hydrographic data and stated that they were watching for ships of opportunity to buy time for the purpose of obtaining hydrographic data. Commander Miller also discussed the availability to research vessels of Navy weather forecasting and Optimum Ship Track Routing (OSTR).

NAVOCEANO - Richard Martino, discussed the need for the Oceanographic community to notify his office when scientific operations plan to use explosives or deploy moorings in 300 meters or less of water. He gave current contacts to be used in filing this information.

SPECIAL REPORTS

Safety Standards

Tex Treadwell was unable to attend the conference. Tex plans to present the latest iterations of the Safety Standards at the 26 October 1984 UNOLS meeting.

R/V SEWARD JOHNSON

Marsh Youngbluth of Harbor Branch Foundation presented an overview of their new 176 foot research vessel, SEWARD JOHNSON. The vessel has been delivered and is presently at Harbor Branch being fitted out.

IMO

Jonathan Leiby of WHOI gave an update of the IMO (previously IMCO).

R/V POLAR DUKE

Jonathan further discussed the present status of POLAR DUKE, replacement for R/V HERO. The vessel is presently being outfitted in St. John's Newfoundland for Antarctic operations. (Appendix VI).

Medical Advisory Systems

David A. Monaghan discussed the services offered by MAS for the oceanographic community as part of their contract to provide services to the UNOLS fleet, in particular the MAS training program.

R/V FRED MOORE Replacement

Bill Mitchell of the University of Texas reported on their progress in procurring a new ship. They are presently reviewing five conceptual designs and hope to let a contract for builders drawings by next month.

Doppler Current Indicator

Sam Gerard of Lamont-Doherty Geological Observatory reported on the Furuno Doppler Sonar Current Indicator recently installed on R/V CONRAD. Sam also invited the council to tour R/V CONRAD and view their new Magnavox Global Positioning System (GPS) installation and operation.

PRESENTATIONS

GPS - Rich Keegan of the Magnavox Corporation explained the status and capabilities of the Global Positioning System (GPS) and its future timetable. He discussed the GPS equipment presently available from Magnavox. Rich later demonstrated the Magnavox GPS equipment installed aboard R/V CONRAD.

NOIA

Captain John Fuechsel, USCG (RET), presented the goals and initiatives of the National Ocean Industries Association, concerning communications and data transmission.

Firefighting

John Donovan of Texas A & M gave a slide presentation on the TAMU firefighting school with special emphasis on marine firefighting. He provided the council with information on courses offered to the marine community.

R/V MOANA WAVE

Dick Longfield of the University of Hawaii reported on the changes made during the R/V MOANA WAVE stretch.

Acoustic Doppler Current profilers

Mike Chapman of Mike Chapman Company gave a technical presentation on the development of acoustic doppler current profile equipment. Mike discussed the capabilities of various models of R-D Instruments acoustic doppler current profilers.

Rodney Lay of Rodney Lay & Associates presented his progress with development of a shipboard computerized system program for stability and preventive maintenance (Appendix VII).

Research Submersibles

Gene Allmendinger of the University of New Hampshire gave an interesting slide presentation on the development of manned and unmanned submersibles.

UNOLS Fleet Replacement

Bob Dinsmore of WHOI was unable to attend but provided a report on UNOLS Fleet Replacement (Appendix VIII).

The Compensation Act agenda item was not presented for lack of speaker, however, Bob Dinsmore sent a handout on the Compensation Act that was distributed to attendees.

WORKSHOPS

Tom Cocke of the Clearance Office, U.S. Department of State directed a discussion on foreign clearance request procedures, and proposed changes to the submission forms. Appendix IX is a copy of these proposed changes. A discussion followed with recommendations for further changes.

Ken Palfrey of Oregon State University chaired a workshop on User Manuals. A summary of his findings including comments and suggestions, are included in Appendix X. It was generally felt that "User's Manuals" are in good condition. It was further discussed that in keeping with the UNOLS recommendation all UNOLS members should send a copy of their users manual to each UNOLS Institution.

Bob Wilson of Scripps substituted for Jim Williams and conducted the workshop on Shared Use Equipment. Following a lengthy discussion, it was concluded by the membership that extensive work and interplay from all institutions is necessary in getting a handle on Shared Use Equipment. This is only part of a greater problem of Marine Technician funding and proposals. The workshop concluded that a more extensive study was necessary to address the entire problem.

The workshop's effort to define "Shared Use Equipment" concluded that this equipment could be divided into six categories. Three areas were (1) Fixed aboard ship, (2) Restricted to Institutions ships only, (3) For any research vessel. Each of these were further divided into two categories (a) Government purchased, (b) other than Government Purchased. It was felt that five different costs could apply (1) Maintenance fee, (2) Shipping Cost, (3) Repair or replacement cost, (4) Special costs such as set up costs or (5) no cost. Further refinement should be deferred to a workshop with attendees having specific Marine Tech/Science Officer responsibilities.

SCHEDULE TOPICS AND ACTIVITIES

Business Meeting Wrap-up

A motion was passed for RVOC to maintain a standing Safety Committee to keep the Safety Standards current. This committee would be chaired by Tex Treadwell with the following members: K. Palfrey, E. Allmendinger, E. Nelson, J. Williams, J. Bash and B. Mitchell.

A motion was passed that a Diving committee be established and that the RVOC chairperson contact Jim Stewart of Scripps to chair this committee. The objective of the committee will be to establish diving guidelines for use by the oceanographic community.

1963 RVOC By-Laws were rewritten and adopted - Appendix XII.

A motion was passed to ask UNOLS to purchase one set (1/2" and 3/4") fire fighting tapes from Texas A & M.

A motion was passed to have the 1985 meeting at Moss Landing. W. Owen offered University of Delaware for the 1986 meeting. No motion was made on this request.

A motion was passed to have the proposed Safety Standards be reviewed by USCG. It was recommended that Jonathan Leiby present them to the USCG representatives to IMO for review.

A motion was made to conduct a one day stability workshop in conjunction with the 1985 meeting. Gene Allmendinger will chair this workshop. The following persons expressed an interest in being involved in the meeting: E. Nelson, K. Palfrey, M. Prince.

The council expressed its concern on not receiving an update on the winch and wire problems and requested the chairperson to pass this concern on to UNOLS.

Election of Officers

E.R. Dieter was re-elected as Chairperson of RVOC for a two year term.

J. Bash was re-elected as Secretary of RVOC for a one year term.

The meeting was adjourned followed by a tour of the Bermuda Biological Station.

RESEARCH VESSEL OPERATORS' COUNCIL

1984 Annual Meeting
Bermuda Biological Station
Ferry Reach 1-15, BERMUDA

15-17 October 1984

FINAL AGENDA

15 October 1984 - 0915

Registration

Welcoming Remarks

Dr. Wolfgang Sterrer, Director, Bermuda Biological Station.
Dr. Anthony Knap, Associate Director, Bermuda Biological Station.

Old Business

Report of 1983 Annual RVOC Meeting - Dolly Dieter, Chairperson.

U.S.C.G. - Short comments.

Furuno - Short comments.

New Business

Bylaws - Update?

RVOC Newsletter - Suggested by N.S.F. Would it be useful? Items?

Workshops - Topics and dates.

Agency Representatives Reports

- National Science Foundation - Budget Outlook; Cdr. John McMillan.
- Office of Naval Research - Budget Outlook; Cdr. Keith Kaulum.
- University National Oceanographic Laboratory Systems - Report from UNOLS; Capt. Bill Barbee.
- U.S. State Department - U.S. Ocean Policy; Bill Erb.
- Commander Naval Oceanography Command - Potential for Hydrographic Data Collection; Cdr. Ralph Miller.
- Navy Weather Forecasting; Richard Martino.

Special Reports

- Safety Standards - Update; Tex Treadwell - Texas A & M University.
- R/V SEWARD JOHNSON - New vessel; Marsh Youngbluth - Harbor Branch Foundation.
- IMCO Update; Jonathan Leiby - Woods Hole Oceanographic Institute.
- R/V POLAR DUKE - Progress of Charter; Jonathan Leiby - Woods Hole Oceanographic Institute.
- Medical Training Program; David A. Monaghan - Medical Advisory Systems.
- R/V FRED MOORE Replacement; Bill Mitchell - University of Texas.
- Doppler Sonar Current Indicator; Sam Gerard - Lamont - Doherty Geological Observatory.

Presentations

- Telecommunications; Capt. John Fuechsel - National Ocean Industries Assocation.
- Global Positioning System (GPS); Tom Stansell - Magnavox Corporation.
- Marine Firefighting - Training Program; John Donovan - Texas A & M.

16 OCTOBER 1984 - 0915

Presentations cont.

- Winch and Wire Update; Allan Driscoll - University of Rhode Island.
- Acoustic Doppler Current Profiles; Mike Chapman - Mike Chapman Company.
- Shipboard Computerized Systems - Maintenance, Stability; Rodney Lay - Rodney Lay & Associates.
- Manned and Unmanned Submersibles; Eugene Allmendinger - University of New Hampshire.
- Fleet Replacement; Capt. Bob Dinsmore - Woods Hole Oceanographic Institute.
- Compensation Act - (Speaker not definite; either a representative from Marsh and McLellan Insurance or Admiralty Lawyer from Boston).

Workshops

- Foreign Clearance Procedures and Post Cruise Obligations; Tom Cocke - Department of State.

17 OCTOBER 1984 - 0915

Workshops cont.

- User's Manual - Pertinent information to scientific users of research vessels; Capt. Ken Palfrey, Chairman - Oregon State University.
- Shared Use Equipment - What it is, charges, etc.; Capt. Jim Williams - Scripps Institute of Oceanography.

Scheduled Topics and Activities

- Wrap Up of Business Meeting
- Suggestions for 1985 Annual Meeting:

  Location
  Agenda Items (Please have suggestions ready.)

- Tour of Bermuda Biological Station and R/V WEATHERBIRD.

Social Activities

Meal times at B.B.S.:	Breakfast	0800
	Lunch	1200
	Supper	1800

11:45 - 1:30 (daily) Lunch break.

14 October 1984 (Sunday)

6:00 p.m. No host wine get together at the main building at B.B.S.

15 October 1984 (Monday)

6:30 p.m. Cocktail hour hosted by Bermuda Biological Station.

7:30 p.m. Buffet dinner in main lounge at B.B.S.

16 October 1984 (Tuesday)

6:30 - 7:30 p.m. No host cocktail hour at Grotto Bay Hotel.

7:30 p.m. No host dinner at Moongate Terrace Restaurant at Grotto Bay Hotel.

APPENDIX II

RVOC Annual Meeting Attendees
1984

E. Eugene Allmendinger
University of New Hampshire
46 Oyster River Road
Durham, NH 03824
(603) 868-2684 (Home)

William D. Barbee
UNOLS Office
School of Oceanography WB-15
University of Washington
Seattle, WA 98195
(206) 543-2203

John F. Bash
University of Rhode Island
P.O. Box 145
Saunderstown, RI 02874
(401) 792-6203

Rick Chandler
Woods Hole Oceanographic Inst.
Woods Hole, MA 02543
(202) 548-1400 extension 2612

Mike Chapman
MECIO
125 2nd Avenue
Duvall, WA 98019
(206) 788-4522

W. B. Clark
University of Hawaii
#1 Sand Island Road
Honolulu, HI 96819
(808) 847-2661

W. Thomas Cocke
Department of State
OES/OMS Room 5801
Washington, D.C. 20520
(202) 632-0789

Tom Cooley
National Science Foundation
1800 G Street
Washington, D.C. 20550
(202) 357-7837

Bruce K. Cornwall
Chesapeake Bay Institute
4800 Atwell Road
Shadyside, MD 20764
(301) 867-7550

E. R. "Dolly" Dieter
Univeresity of Alaska
Institute of Marine Science
Box 617
Seward, AK 99644
(907) 224-5261

John Donovon
Texas A & M University
College Station, TX 77843-8000
(404) 845-1152

Captain Jack Fuechsel
National Ocean Ind. Assoc.
1050 17th Street, Suite 700
Washington, D.C. 20036
(202) 785-5116

Sam Gerard
Lamont-Doherty Geological Obs.
Palisades, NY 10964
(914) 359-2900

Ron Hutchinson
University of Maine
1060 Port Blvd.
Miami, FL 33132
(305) 373-3830

K. W. Jeffers
School of Oceanography WB-10
University of Washington
Seattle, WA 98195
(206) 543-5062

Larry Jones
Moss Landing Marine Labs
P. O. Box 450, Sandholt Road
Moss Landing, CA 95039
(408) 633-3304

Richard Keegan
MAGNAVOX
2829 Maricora St.
Torrance, CA 90503
(213) 618-1200

Lee Knight
Skidaway Inst. of Oceanography
P. O. Box 13687
Savannah, GA 31406
(912) 356-2486

Rodney Lay
R. L. & Associates
13891 Atlantic Blvd.
Jacksonville, FL 32225
(904) 246-6438

Jonathan Leiby
Woods Hole Oceanographic Inst.
Woods Hole, MA 02543
(617) 548-1400

Richard L. Longfield
University of Hawaii
2525 Correa Road
Honolulu, HI
(808) 948-8949

Richard A. Martino
Naval Oceanographic Office
Bay St. Louis
NSTL, MS 39522
(601) 688-4206

John McMillan
National Science Foundation
1800 G Street NW
Washington, D.C. 20550
(202) 357-7837

Ralph Miller, CDR, USN
COMNAVOCEANCOM
Bay St. Louis
NSTL, MS 39522
(601) 688-4500

Bill Mitchell
UTIG
700 The Strand
Galveston, TX 77550
(409) 761-2276

David Monaghan
Medical Advisory Systems
Box 193 Pennsylvania Avenue Ext.
Owings, MD 20736
(301) 855-8070

Don Newman
University of Southern California
920 S. Seaside Avenue
Terminal Island, CA 92731
(213) 830-4570

Eric B. Nelson
Duke/UNC Consortium
Beaufort, NC
(919) 728-2111

Wadsworth Owens
University of Delaware
700 Pilottown Road
Lewes, DE 19958
(302) 645-4320

K. M. Palfrey
Oregon State University
Newport, OR 97365
(503) 867-3011 Extension 224

Mike Prince
Moss Landing Marine Laboratories
PO Box 450
Moss Landing, CA 95039
(408) 633-3057

Steve Rabalais
Louisiana University Marine Cons.
Star Route Box 541
Chauvin, LA 70322
(504) 594-7552

Cliff Tetzloff
University of Michigan, GLMWC
2200 Bonisteel Blvd.
Ann Arbor, Mich. 48109
(313) 763-3183

Richard B. Tripp
School of Oceanography WB-10
University of Washington
Seattle, WA 98195
(206) 543-5082

J. B. Watkins, Jr.
School of Oceanography WB-10
University of Washington
Seattle, WA 98020
(Retiring)

Bob Wilson
Scripps Inst. of Oceanography
A-023
La Jolla, CA 92117
(619) 452-6054

Marsh J. Youngbluth
Harbor Branch Foundation
RR 1 Box 196
Fort Pierce, FL 33450
(305) 465-3400

FURUNO U.S.A., INC.

JUN 15 1984

June 12, 1984

Dr. Richard West
National Science Foundation
1800 "G" Street
Room 615
Washington, D.C. 20550

Dear Dr. West:

Thank you for seeing me on such short notice when I was in Washington, D.C. week before last. Tony de Sousa and I gained a lot from the visit.

This letter will confirm my verbal offer that FURUNO U.S.A. will furnish FURUNO equipment listed in current GSA price schedules at the prices and terms listed in those schedules to institutional vessels of the Research Community.

The GSA Schedule has our best prices and all items are FOB destination via surface freight. Air freight can be arranged at an additional price.

Copies of the current schedule and catalogues are available to institutions by contacting Rose M. Henry at FURUNO U.S.A. offices in South San Francisco.

Orders may be placed with the Order Service Department at the same location. A purchase order citing the current GSA contract number will ensure correct pricing.

List prices are shown in the body of the schedule and the GSA discounts are shown on Page 4A.

Enclosed is a copy of the current GSA contract and a short form catalogue for your reference. Please let me know if I can help in making this information available to the various institutions involved.

I look forward to a continuing relationship.

Sincerely,

D. L. ABBOTT
Sales Manager

DLA:rmh

cc: Mr. William P. Dupre, President
Mr. Larry Griswold, Order Service/Credit Manager
Mr. Tony de Sousa, Tony de Sousa Associates

P.O. BOX 2343, 271 HARBOR WAY • SOUTH SAN FRANCISCO, CALIFORNIA 94080 • (415) 873-9393 TELEX 331419

APPENDIX IV

DIVISION OF OCEAN SCIENCES BUDGETS ($M)

	$M			
	1982	1983	1984	1985
Research Support (OSRS)	46.9	49.9	54.6	58.8
Ship Operations (OFS)	28.9	31.6	32.8	35.3
Drilling Program (ODP)	____	21.0	26.3	27.6
TOTAL	75.8	102.5	113.7	121.7
Ship Ops	20.5	22.2	23.5	
Conversion	1.2	1.0	0.6	
Inst./Equipment	4.1	4.0	4.9	
ALVIN, UNOLS, ETC.	3.1	3.5	3.5	____
TOTALS	28.9	30.7	32.3	35.3

GULF OF MAINE CASE

On October 12, 1984, a Chamber of the International Court of Justice (ICJ) in The Hague, the Netherlands, announced its decision in the Gulf of Maine area boundary dispute between the United States and Canada. The Case was brought before the Court pursuant to a boundary settlement treaty between the United States and Canada. Under the Statute of Court, and in accordance with the Treaty, the Parties are bound to accept the boundary line established by the Court. The Court has considered extensive written and oral submissions presented by both Canada and the United States during the past two years.

The Court, at the request of the parties, established a Special Chamber of five judges to hear the case. The members of the Chamber included: Judge Roberto Ago of Italy, President of the Chamber, Judge Andre Gros of France, Judge Herman Mosler of the Federal Republic of Germany; Judge Stephen Schwebel of the United States; and Judge ad hoc Maxwell Cohen of Canada.

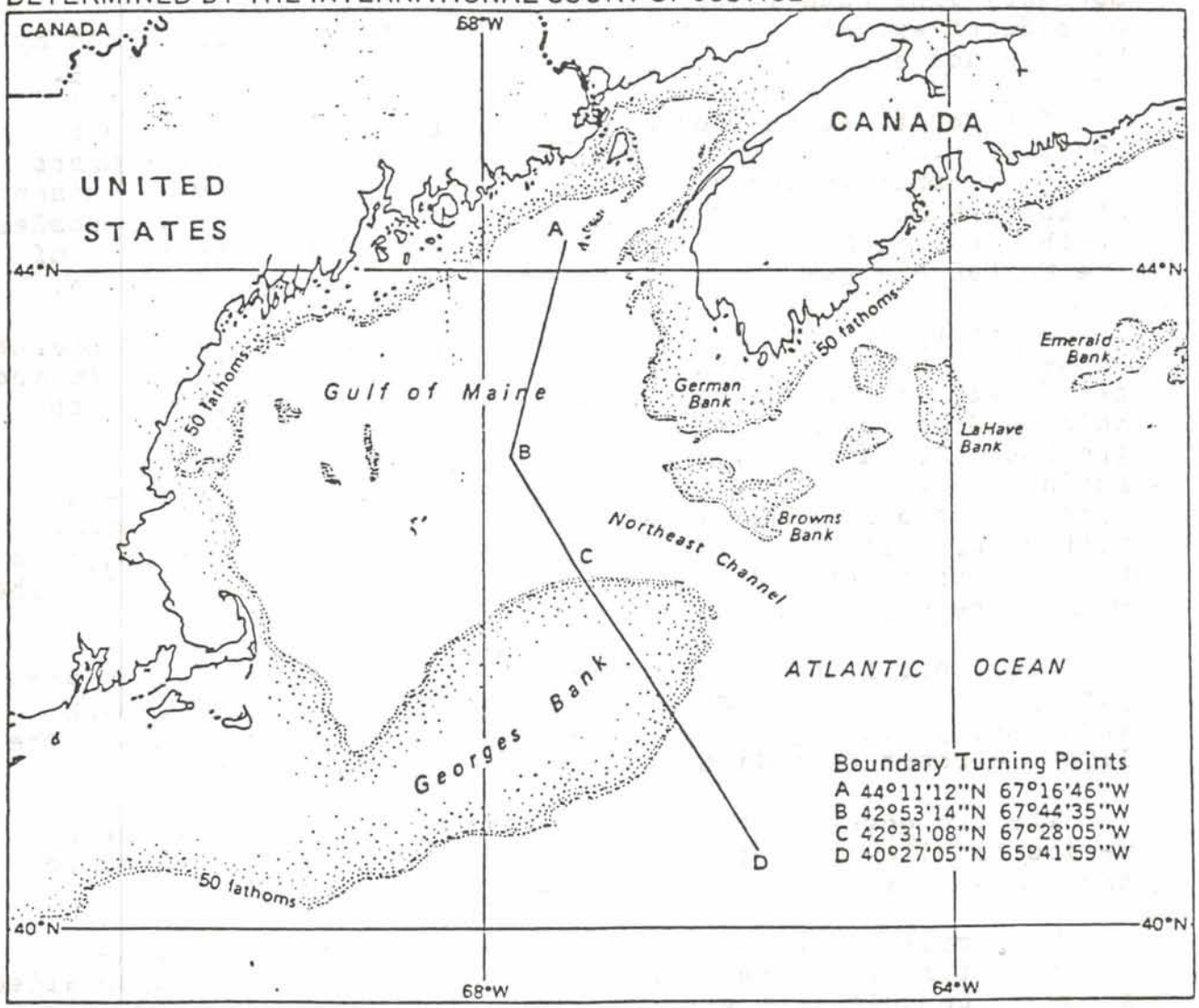
At stake in the case was maritime jurisdiction over an area between 13,000 to 18,000 square nautical miles in size. At the center of the dispute was jurisdiction over the northeastern half of Georges Bank, one of the world's richest fishing grounds. The area may also contain oil and natural gas. During the dispute the United States maintained that it was entitled to a boundary line that would retain all of Georges Bank under United States jurisdiction, whereas Canada sought a boundary that would divide the Bank in half, leaving all of the northeastern portion under Canadian jurisdiction.

The Court found that neither side's boundary position was justified. It established a line that crosses Georges Bank essentially mid-way between the claims of the two States. The line the Court established is shown on the attached map.

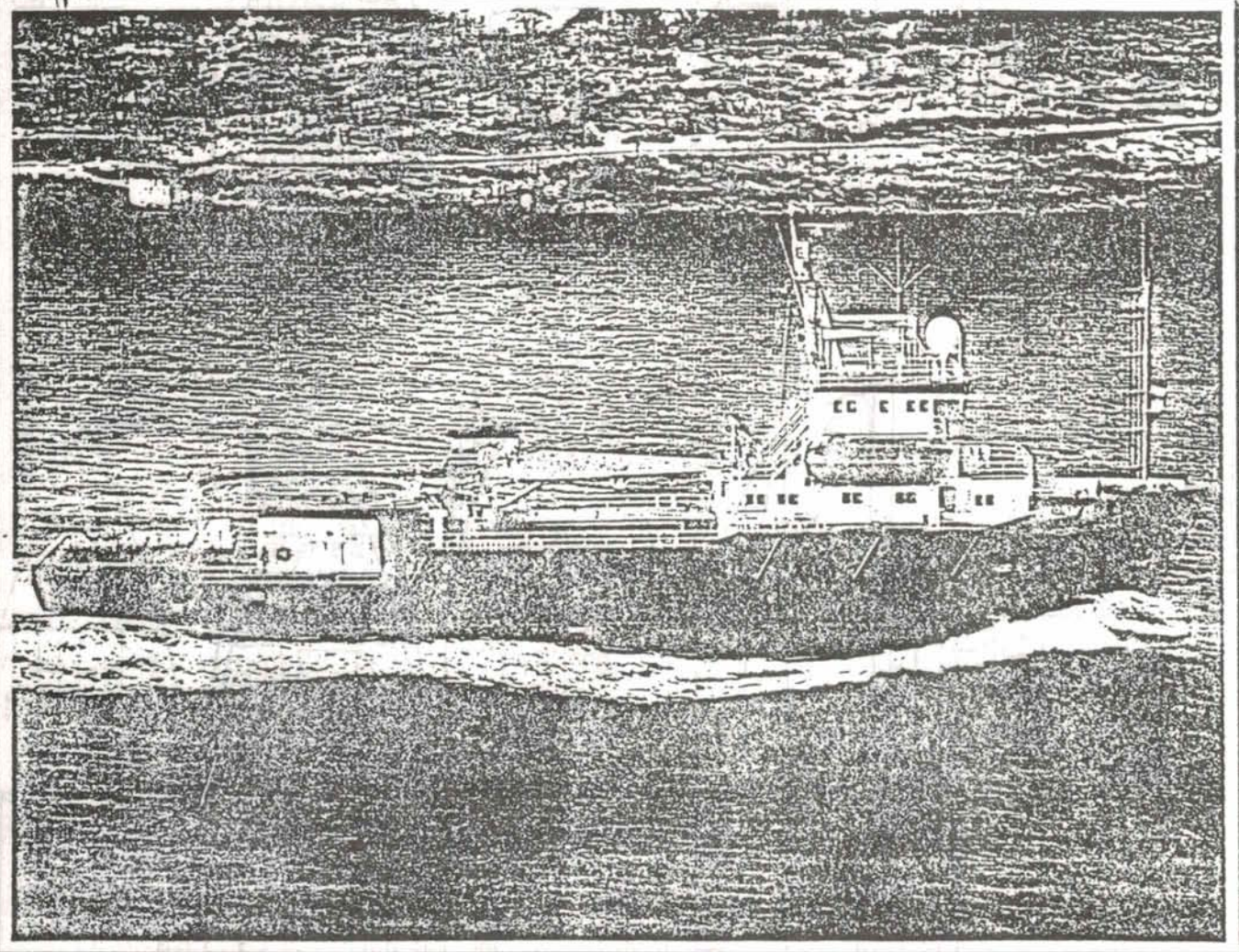
The two governments have agreed to a fourteen-day grace period to allow the fishermen on both countries to return to their respective sides of the new boundary.

The implications of the decision for management of the Atlantic fisheries are highly complex and will require detailed study in consultation with New England fishing industry and Congressional interests. We anticipate that implementation of the new boundary will take place in the atmosphere of cooperation that generally characterizes US-Canadian relations.

UNITED STATES - CANADA MARITIME BOUNDARY
DETERMINED BY THE INTERNATIONAL COURT OF JUSTICE



M/V «POLAR DUKE» VOGB



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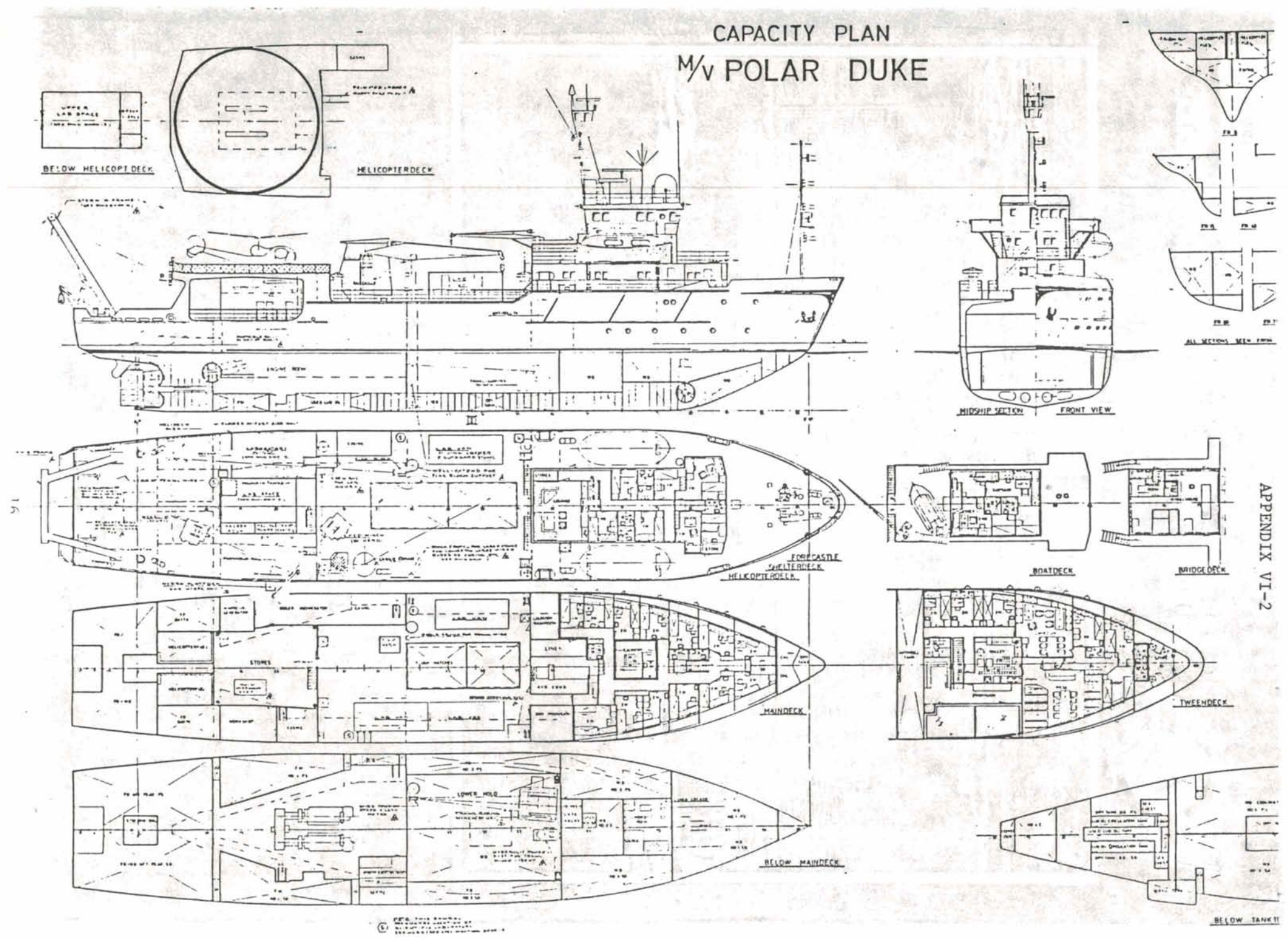
CAPACITY PLAN
M/v POLAR DUKE



APPENDIX VI-2

SHIPBOARD COMPUTERIZED SYSTEMS

SUMMARY OF STABILITY AND PREVENTATIVE MAINTENANCE PROGRAMS

Rodney E. Lay & Associates, Inc.
13891 Atlantic Boulevard - Jacksonville, Florida 32225

SHIPBOARD COMPUTERIZED SYSTEMS

SUMMARY OF STABILITY AND PREVENTATIVE MAINTENANCE PROGRAMS

With the decreased cost of micro computers, they are becoming available and practical for shipboard use and are now becoming popular on smaller vessels.

Some typical applications would be:

Preventive maintenance
Stability analysis
Monitor Engine Room functions
Voyage cost
Spares inventory

Summary

Will provide brief explanation of how one may apply the microprocessor to stability analysis and preventive maintenance.

Hardware required:

Micro computer - typical models
Vector - V4-30
IBM - PC XT
Xerox - PC 18/6

Dual floppy or hard disk system w/floppy backup

128K RAM (random access memory)

CRT 24 x 80 (24 vertical lines w/80 characters per line)

Printer - Letter quality not required
Dot matrix usually faster

Typical printer models:
EPSOM Series
Datasouth
NEC Series

Approximate cost (computer & printer) $ 5,000 to $ 8,000

OUTLINE OF COMPUTERIZED TRIM AND STABILITY

Stability Analysis

Obtain the following from outside source (i.e. not computed by stability program).

1. Hydrostatic tables for vessel.
2. GM required table relative to draft or displacement.
3. Tank capacity and sounding tables for all liquids (capacity, VCG and LCG).
4. Free surface factor tables for all tanks.

Software

Prepare the data files (i.e., hydrostatic, GMt and tank tables) from which information will be drawn by the stability program. These files will be maintained separately and called on by the program. Depending on the number of ships, you could have a library of data tables to be accessed by the same program.

The data tables may be entered at any intervals and the program will interpolate.

The data files will also contain the vessel characteristics which remain constant (i.e., Lightship values, LBP and vessel description).

The program can be written in practically any language, most micro systems support BASIC, Fortran, Cobol and others.

Program will be written to follow the basic mathematical calculations normally carried out by hand in the Trim & Stability Booklet.

The program will prompt the user as to whether the user will be entering the weights and centers or if the program is to find tank information from the tables.

The program will search the tank capacity data file for the proper weights (if soundings are given) and centers of gravity.

User will indicate which tanks are to have free surface correction applied.

When all load items have been entered, the program will then summarize the weights, centers of gravity and free surface correction for this particular load condition.

Depending on the way the input is handled, checks and balances may be installed to prevent a tank or cargo input being omitted.

If the total displacement is greater than load line (which would be part of the input data files) the program will notify user. The program will then calculate and print out the following data:

Total Displacement and Draft
Available GMt at this draft
Forward and Aft drafts and total trim.

The program will also printout the interpolated hydrostatic values used to derive the above.

(see enclosed examples)

The program will compare the GMt computed to that in the data tables and if GMt doesn't meet that required the user will be informed that GM FAILS.

If the available GMt does not pass, the the user must modify the input and the program will then recalculate a new condition.

Average time for input +/- 5 minutes (not including data tables).
Average time to compute 1 or 2 minutes.

Manhours to build data tables: 40-55 hours
Manhours to write, implement & debug program: 80-100 hours

RODNEY E. LAY & ASSOCIATES, INC. JOB #1992 DATE: 10/08/84

VESSEL : 160 FT. RESEARCH VESSEL
LOAD CONDITION: 100% CONSUMABLES - NO BALLAST

ITEM DESCRIPTION	WEIGHT (L.TONS)	VCG (FT.)	LCG (FT.)	FREE SURFACE
LIGHTSHIP	595.73	14.00	-6.26	0.0
CREW & EFFECTS	4.50	16.00	72.00	0.0
SHIP'S STORES	6.00	19.00	58.00	0.0
A-FRAME	41.50	31.83	-66.96	0.0
FRESHWATER P/S	36.74	4.93	29.56	188.2
SEWAGE	7.70	2.68	-17.99	31.3
FUEL OIL FR 36-48 P/S	118.60	4.18	-4.07	431.0
FUEL OIL FR 50-58 C	23.98	2.86	-27.70	0.0
DAY TANKS P/S	9.50	12.95	-40.84	2.0
MISC OIL TANKS	8.98	11.35	-32.87	1.7
ANTI-ROLL TANK	32.00	3.20	13.80	627.0
SUBMARINE	9.80	22.00	-66.00	0.0
TOTALS:	895.03	12.46	-7.74	1,281.2

MOLDED SALT WATER LCF DRAFT, ABOVE BASELINE	=	10.98 FT.
KMT AT LCF DRAFT, UNCORRECTED FOR TRIM	=	17.38 FT.
KG, CORRECTED FOR FREE SURFACE	=	13.90 FT.
GMt - AVAILABLE	=	3.48 FT.
GMt - REQUIRED (MUST BE LESS THAN AVAILABLE GMt)	=	2.06 FT.

LCB (FROM MIDSHIP)	=	-5.34 FT.	TRIM (NEG. AFT)	=	-1.84 FT.
TRIM LEVER	=	-2.40 FT.	LCF (FROM A.P.)	=	70.15 FT.
MT-1 INCH	=	97.40 FT-LT	LBP	=	160.00 FT.

MOLDED DRAFT AT MIDSHIP, ABOVE BASELINE	=	10.87 FT.
MOLDED DRAFT AT FWD. PERPENDICULAR, ABOVE BASELINE	=	9.95 FT.
MOLDED DRAFT AT AFT PERPENDICULAR, ABOVE BASELINE	=	11.78 FT.

NOTE: LCB, LCF & LCG, POSITIVE BEING FORWARD OF MIDSHIP. TRIM LEVER, POSITIVE BEING BY THE BOW. FREE SURFACE CORRECTION REFLECTS EFFECT OF LARGEST TANK OR ONE LARGEST PAIR OF EACH LIQUID.

TYPICAL EXAMPLE

RODNEY E. LAY & ASSOCIATES, INC. JOB #1992 DATE: 10/08/84

VESSEL : 160 FT. RESEARCH VESSEL
LOAD CONDITION: 10% CONSUMABLES - NO BALLAST

ITEM DESCRIPTION	WEIGHT (L.TONS)	VCG (FT.)	LCG (FT.)	FREE SURFACE
LIGHTSHIP	595.73	14.00	-6.26	0.0
CREW & EFFECTS	4.50	16.00	72.00	0.0
SHIP'S STORES	6.00	19.00	58.00	0.0
A-FRAME	41.50	31.83	-66.96	0.0
FRESHWATER P/S	36.74	4.93	29.56	188.2
SEWAGE	7.70	2.68	-17.99	31.3
FUEL OIL FR 36-48 P/S	0.00	4.18	-4.07	0.0
FUEL OIL FR 50-58 C	5.71	2.86	-27.70	108.4
DAY TANKS P/S	9.50	12.95	-40.84	2.0
MISC OIL TANKS	8.98	11.35	-32.87	1.7
ANTI-ROLL TANK	32.00	3.20	13.80	627.0
SUBMARINE	9.80	22.00	-66.00	0.0
TOTALS:	758.16	13.99	-7.83	958.6

MOLDED SALT WATER LCF DRAFT, ABOVE BASELINE = 9.83 FT.
KMT AT LCF DRAFT, UNCORRECTED FOR TRIM = 17.39 FT.
KG, CORRECTED FOR FREE SURFACE = 15.26 FT.
GMt - AVAILABLE = 2.14 FT.
GMt - REQUIRED (MUST BE LESS THAN AVAILABLE GMt) = 2.12 FT.

LCB (FROM MIDSHIP)= -4.63 FT. TRIM (NEG. AFT) = -2.33 FT.
TRIM LEVER = -3.20 FT. LCF (FROM A.P.) = 71.16 FT.
MT-1 INCH = 86.57 FT-LT LBP = 160.00 FT.

MOLDED DRAFT AT MIDSHIP, ABOVE BASELINE = 9.70 FT.
MOLDED DRAFT AT FWD. PERPENDICULAR, ABOVE BASELINE = 8.53 FT.
MOLDED DRAFT AT AFT PERPENDICULAR, ABOVE BASELINE = 10.87 FT.

NOTE: LCB, LCF & LCG, POSITIVE BEING FORWARD OF MIDSHIP. TRIM LEVER, POSITIVE BEING BY THE BOW. FREE SURFACE CORRECTION REFLECTS EFFECT OF LARGEST TANK OR ONE LARGEST PAIR OF EACH LIQUID.

TYPICAL EXAMPLE

OUTLINE OF COMPUTERIZED VESSEL MAINTENANCE PROGRAM

The purpose of the vessel maintenance program is to provide management and maintenance a support tool to insure maximum equipment operational readiness and prevent costly down time.

The system will provide management a means to plan, organize, control and evaluate preventive maintenance activities.

The program will assist in projecting manpower and material resources needed, therefore, using manpower most efficiently.

A planned maintenance system will develop minimum actions required to maintain the equipment in a fully operational condition within specifications. The system, when performed according to schedule, will provide the means to identify parts and components requiring replacement/repairs prior to failure.

Planned maintenance systems procedures are, therefore, preventive in nature in that they are designed to prevent future equipment failures which might otherwise result in expensive corrective maintenance actions.

The planned maintenance system procedures and the periodicities in which they are to be accomplished are developed for each piece of equipment based on good engineering practice, practical experience and technical standards. The procedures are contained MAINTENANCE REQUIREMENT CARDS.

MAINTENANCE REQUIREMENT CARDS provide the detailed procedures for performing the preventive maintenance and state: who, what, when, how and with what resources a specific requirement is to be accomplished.

Some MAINTENANCE REQUIREMENT CARDS have EQUIPMENT GUIDE LISTS accompanying them to serve as location guides for identical equipments, such as controllers, valves, life rafts, deck fittings, CO_2 bottles, etc., which are impractical to schedule individually for routine, periodic preventive maintenance.

The planning and scheduling of maintenance requirements are accomplished by several means. The maintenance schedule may be annually, quarterly, monthly or weekly; depending on past experience or manufacturers' recommendations.

Items which are maintained relative to hours running will be scheduled based on hours since last action. Current hours on equipment would be reported by the chief engineer.

A brief description of tasks required to set up a PREVENTATIVE MAINTENCE PROGRAM:

1. Inventory vessel, listing equipment which you wish to have in the preventive maintenance system. It is possible to list equipment for the purpose of "inventory control" and not interfere with the maintenance program.

2. Determine equipment to be included in the maintenance schedule, if total inventory is not used.

3. Determine maintenance schedule of all equipment desired by cycle or hours.

4. Determine level of current maintenance for all equipment desired.

5. Develop MAINTENANCE REQUIREMENT CARDS.

6. Prepare computer database of onboard equipment needing periodic service. Database will include:

   a. Equipment code number, this identification may indicate which deck the equipment is on, port or starboard, frame number, the department such as electrical, scientific, hull, etc.
   b. Equipment description
   c. Period of maintenance
   d. Manhours required for task
   e. Last date of service

7. Prepare historical data file. This file will automatically update and record the last service date. The file will keep a continuous record of dates a particular item was maintained, hours required and remarks, if any. The historical data file could be expanded to include parts used and tied to a parts replacement and purchase/inventory control.

A "MAINTENANCE REQUIREMENT REPORT" would be the primary document used by the maintenance department, chief engineer and management. It would contain the following:

   a. Equipment code number
   b. Equipment description
   c. Next service date

d. Hours required for each task
e. Total hours for maintenance period
f. Reference the MAINTENANCE REQUIREMENT CARD

The MAINTENANCE REQUIREMENT REPORT could be printed out by department, deck area, chronological order of maintenance requirements or equipment code number.

The MAINTENANCE REQUIREMENT REPORT would include space for engineers' feedback which would consist of:

a. Date task completed
b. Hours required
c. Remarks

The MAINTENANCE REQUIREMENT REPORT will also serve as an equipment casualty report, i.e., if a piece of equipment failed before the scheduled service date, then the program will update the new service date accordingly.

The program will keep a running record of service or repairs items not accomplished. These unserviced items will be printed repeatedly in the MRP until a "serviced" date is entered. Numerous overdue/unserviced items may be accomplished when in port or during next shipyard period.

Once the database files are complete and programs operating, training and onboard installation are required.

ONBOARD EQUIPMENT MAINTENANCE SCHEDULE
PERIOD: 10/01/84 TO 11/30/84

DECK/AREA	EQUIPMENT NUMBER	FR. NO.	EQUIPMENT DESC	SCHEDULED SERV. DATE	LAST DATE SERVICED	ESTIMATED MAN HOURS	NEW DATE SERVICED	ACTUAL MAN HOURS	WORK DONE (COMMENTS)
MD/C04	50 011 001	25	AIR CONDITIONING UNIT	10/03/84	04/30/84	1.0	--------	----------	----------
MD/S00	50 120 001	58	STERN A FRAME	10/05/84	09/04/84	4.0	--------	----------	----------
MD/S00	50 130 028	50P	FUELING STATION	10/05/84	09/04/84	1.5	--------	----------	----------
MD/D02	20 050 000	16	EMERGENCY LIGHT NO 6	10/09/84	09/08/84	0.5	--------	----------	----------
MD/G09	50 300 002	23	UNINTERRUPTIBLE AC POWER SOURCE	10/09/84	09/08/84	3.5	--------	----------	----------
MD/C06	20 060 000	24	REMOTE ALARM PANEL	10/10/84	09/09/84	0.5	--------	----------	----------
HD/N00	50 019 013	45P	A/C UNIT HEAT EXCHANGER	10/20/84	04/15/84	2.0	--------	----------	----------
02/A00	20 031 C07	AFT	WHISTLE CONTROL	10/23/84	07/20/84	0.5	--------	----------	----------
HD/M00	60 013 007	25S	HYDRAULIC JUNCTION BOX	10/25/84	08/10/84	1.0	--------	----------	----------
HD/N00	30 500 018	39P	BILGE AND BALLAST PUMP NO. 1 W/CONTROL	10/25/84	04/20/84	2.5	--------	----------	----------
HD/N00	30 502 021	39P	BILGE MANIFOLD	10/25/84	05/20/84	1.0	--------	----------	----------
HD/M00	50 100 020	33P	WATER FOUNTAIN/COOLER	10/29/84	04/25/84	0.5	--------	----------	----------
HD/M00	60 010 007	24	WATERTIGHT DOOR AND HYDR. CLOSURE	11/01/84	08/05/84	1.0	--------	----------	----------
01/R00	51 121 003	06	ANCHOR WINCH WITH CONTROLS	11/01/84	04/28/84	3.5	--------	----------	----------
HD/L01	50 802 004	06P	WATER FILTER	11/05/84	10/01/84	0.5	--------	----------	----------
HD/N00	50 702 033	38S	HYDRAULIC POWER PACK NO. 1	11/05/84	08/01/84	1.5	--------	----------	----------
HD/M00	60 390 005	23S	EMERGENCY ESCAPE HATCH	11/05/84	10/04/84	1.0	--------	----------	----------
HD/N00	50 704 039	43	HYDRAULIC POWER PACK CONTROLLER	11/05/84	08/01/84	0.5	--------	----------	----------
HD/M00	20 041 001	15	FIRE EXTINGUISHER	11/15/84	08/10/84	0.5	--------	----------	----------
MD/C11	20 041 000	16	FIRE EXTINGUISHER	11/15/84	08/10/84	0.5	--------	----------	----------
MD/C01	20 040 000	30	FIRE STATION NO 3	11/15/84	08/10/84	0.5	--------	----------	----------
MD/D06	20 041 000	09	FIRE EXTINGUISHER	11/15/84	08/10/84	0.5	--------	----------	----------
HD/M00	20 043 001	19S	FIRE STATION NO 5	11/15/84	08/10/84	0.5	--------	----------	----------
HD/N00	30 480 014	44P	AIR COMPRESSOR NO 2 W/CONTROLLER	11/20/84	05/15/84	1.0	--------	----------	----------
HD/L00	50 450 004	07S	ELECTRIC WATER HEATER	11/21/84	05/18/84	1.0	--------	----------	----------
HD/N00	30 421 008	51P	FUEL OIL MANIFOLD	11/22/84	09/20/84	0.5	--------	----------	----------
HD/N00	30 420 009	52P	FUEL OIL PUMP NO. 1	11/22/84	09/20/84	3.0	--------	----------	----------
HD/N00	30 422 010	51P	FUEL OIL PURIFIER	11/22/84	09/20/84	0.5	--------	----------	----------
HD/N00	30 423 010	52P	FUEL OIL TRANSFER START/STOP CONTROLLER	11/22/84	09/20/84	0.5	--------	----------	----------
HD/N00	30 424 010	52P	FUEL OIL SEPARATOR START/STOP CONTROLLER	11/22/84	09/20/84	0.5	--------	----------	----------
HD/N00	30 460 012	48P	2" A/C FW DISCHARGE PUMP	11/29/84	11/28/83	2.5	--------	----------	----------

DECK CODE: HD=HOLD:MD=MAIN DECK:01=01 DECK:02=02 DECK:03=03 DECK

AREA CODE: (A)=PILOTHOUSE (B)=QUARTERS (C)=MESS & LOUNGE (D)=LAUNDRY (E)=GALLEY (F)=DRY STORES (G)=MAIN LAB AREA (H)=DRY LAB (I)=WET LAB & STORES (J)=SWITCHBOARD ROOM (K)=MACHINERY SPACE (L)=PAINT LOCKER (M)=PASSAGEWAY (N)=ENGINE ROOM (O)=STEERING GEAR (P)=TOP OF PILOT HOUSE (Q)=BRIDGE DECK (R)=FOC'SLE DECK (S)=MAIN DECK

ONBOARD EQUIPMENT MAINTENANCE SCHEDULE
PERIOD: 10/01/84 TO 11/30/84

DECK/AREA	EQUIPMENT NUMBER	FR. NO.	EQUIPMENT DESC	SCHEDULED SERV. DATE	LAST DATE SERVICED	ESTIMATED MAN HOURS	NEW DATE SERVICED	ACTUAL MAN HOURS	WORK DONE (COMMENTS)
HD/L00	50 450 004	07S	ELECTRIC WATER HEATER	11/21/84	05/18/84	1.0			
HD/L01	50 802 004	06P	WATER FILTER	11/05/84	10/01/84	0.5			
HD/M00	20 041 001	15	FIRE EXTINGUISHER	11/15/84	08/10/84	0.5			
HD/M00	20 043 001	19S	FIRE STATION NO 5	11/15/84	08/10/84	0.5			
HD/M00	50 100 020	33P	WATER FOUNTAIN/COOLER	10/29/84	04/25/84	0.5			
HD/M00	60 010 007	24	WATERTIGHT DOOR AND HYDR. CLOSURE	11/01/84	08/05/84	1.0			
HD/M00	60 013 007	25S	HYDRAULIC JUNCTION BOX	10/25/84	08/10/84	1.0			
HD/M00	60 390 005	23S	EMERGENCY ESCAPE HATCH	11/05/84	10/04/84	1.0			
HD/N00	30 420 009	52P	FUEL OIL PUMP NO. 1	11/22/84	09/20/84	3.0			
HD/N00	30 421 008	51P	FUEL OIL MANIFOLD	11/22/84	09/20/84	0.5			
HD/N00	30 422 010	51P	FUEL OIL PURIFIER	11/22/84	09/20/84	0.5			
HD/N00	30 423 010	52P	FUEL OIL TRANSFER START/STOP CONTROLLER	11/22/84	09/20/84	0.5			
HD/N00	30 424 010	52P	FUEL OIL SEPARATOR START/STOP CONTROLLER	11/22/84	09/20/84	0.5			
HD/N00	30 460 012	48P	2" A/C FW DISCHARGE PUMP	11/29/84	11/28/83	2.5			
HD/N00	30 480 014	44P	AIR COMPRESSOR NO 2 W/CONTROLLER	11/20/84	05/15/84	1.0			
HD/N00	30 500 018	39P	BILGE AND BALLAST PUMP NO. 1 W/CONTROL	10/25/84	04/20/84	2.5			
HD/N00	30 502 021	39P	BILGE MANIFOLD	10/25/84	05/20/84	1.0			
HD/N00	50 019 013	45P	A/C UNIT HEAT EXCHANGER	10/20/84	04/15/84	2.0			
HD/N00	50 702 033	38S	HYDRAULIC POWER PACK NO. 1	11/05/84	08/01/84	1.5			
HD/N00	50 704 039	43	HYDRAULIC POWER PACK CONTROLLER	11/05/84	08/01/84	0.5			
MD/C01	20 040 000	30	FIRE STATION NO 3	11/15/84	08/10/84	0.5			
MD/C04	50 011 001	25	AIR CONDITIONING UNIT	10/03/84	04/30/84	1.0			
MD/C06	20 060 000	24	REMOTE ALARM PANEL	10/10/84	09/09/84	0.5			
MD/C11	20 041 000	16	FIRE EXTINGUISHER	11/15/84	08/10/84	0.5			
MD/D02	20 050 000	16	EMERGENCY LIGHT NO 6	10/09/84	09/08/84	0.5			
MD/D06	20 041 000	09	FIRE EXTINGUISHER	11/15/84	08/10/84	0.5			
MD/G09	50 300 002	23	UNINTERRUPTIBLE AC POWER SOURCE	10/09/84	09/08/84	3.5			
MD/S00	50 130 028	50P	FUELING STATION	10/05/84	09/04/84	1.5			
MD/S00	50 120 001	58	STERN A FRAME	10/05/84	09/04/84	4.0			
01/R00	51 121 003	06	ANCHOR WINCH WITH CONTROLS	11/01/84	04/28/84	3.5			
02/A00	20 031 C07	AFT	WHISTLE CONTROL	10/23/84	07/20/84	0.5			

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(J)=SWITCHBOARD ROOM (K)=MACHINERY SPACE (L)=PAINT LOCKER (M)=PASSAGEWAY (N)=ENGINE ROOM (O)=STEERING GEAR (P)=TOP OF PILOT HOUSE
(Q)=BRIDGE DECK (R)=FOC'SLE DECK (S)=MAIN DECK

GLOSSARY OF TERMS

Where an item in a definition appears in BOLD FACE, it is defined under its own entry in this Glossary.

AMBIGUOUS FILENAME - Used to refer to a group of files at one time. By using a WILDCARD character, either * or ?, you can access more than one file at a time in various commands within CP/M. For example, the command DIR *.MEM will display a directory of all files ending with the .MEM extension. The *.MEM is the ambiguous filename. See also UNAMBIGUOUS FILENAME.

ASCII - American Standard Convention for Information Interchange: the code used to store letters, numbers and control characters as BYTES. There are 256 ASCII characters available to the Vector 4, the number and combination most common in the microcomputer industry.

BOOTING - A term used to describe the process of loading the operating system from the disk into the internal memory of the computer after the power has been turned on the system. The booting command, given by the operator, is "F" when booting from a floppy disk and "W" from the hard disk.

BDOS - Basic Disk Operating System. The portion of the Vector 4 CP/M Operating System responsible for locating and recording data stored on the disk drives.

BIOS - Basic Input-Output System. The portion of Vector 4 CP/M responsible for controlling input and output; makes sure that the correct circuits are open for transmission at the right time.

BIT - A "binary digit", or the smallest single piece of information capable of being stored in the computer's memory. Usually represented as a 1 or a 0, a bit is actually the relative presence or absence of electrical current in a particular position in some memory device.

BYTE - For the Vector 4 CP/M operating system, a coded character made up of eight bits. For example, the character [CTRL C] is viewed by the computer as the byte 00000011.

CCP - Console Command Processor. The portion of Vector 4 CP/M responsible for interpreting input from the keyboard and sending commands to the remainder of the operating system. The RESIDENT COMMANDS are part of the CCP.

COMMAND - An instruction given to the computer by the operator.

COMMAND KEYS - A series of buttons or keys on the keyboard that are used to send commands to the computer. For example, [ESC], [DEL] and [CTRL] are all command keys.

CONSOLE - The part of your Vector 4 which contains the video screen, central processing unit, and other electronic components.

CP/M - Control Program for Microprocessors. An extremely popular operating system used extensively in the microcomputer industry. Modified for simpler operation on the Vector 4, as Vector 4 CP/M.

CPU - Central Processing Unit. The brains of á computer. A tiny silicon chip or integrated circuit that is responsible for making decisions, performing calculations and executing instructions given to it by the user.

CURSOR - A flashing box, arrow, or line seen on the video screen, used to indicate the location of the computer's "attention".

DISK - Magnetic media used to store data and programs created on the computer. A disk may be flexible, called a "floppy diskette" or rigid, called a "hard disk".

DISK DRIVE - The hardware device that houses either the hard disk or the floppy. The storage component of the computer.

EXTENSION - The three characters after the period in a FILE NAME.

FILE - A block of data recorded on disk under a specific name.

FILENAME - The way to access, or refer to a FILE on your Vector 4. The filename consists of two parts: the name itself, which can be up to eight characters long, and the EXTENSION, which can be up to three characters long.

FORMAT - A transient command used to prepare a DISK for use. Format actually puts TRACK and SECTOR markings on the recording surface to customize it for the particular computer hardware it will be used with.

FUNCTION KEYS - A series of buttons or keys across the top of the keyboard that are used for special functions in aapplications programs.

HARDWARE - The physical components of the computer. Disk drives, consoles, printers and keyboards are all examples of hardware devices.

KILOBYTE - A term that describes 1,024 bytes, a byte being equivalent to a character. The abbreviation is "k", so a disk may be said to hold 630k or approximately 630,000 characters.

MEGABYTE - A term that describes a million (actually 1,048,576) BYTES or characters. The abbreviation for megabyte is mb, so a hard disk may hold 5mb or approximately 5 million characters.

MICROPROCESSOR - The "brain" of the computer. A "chip" which performs calculations, determines logical values, and guides the functions of the computer, according to the SOFTWARE and the user COMMANDS.

OPERATING SYSTEM - A program that controls the flow of data into and out of the components of the computer, manages FILES and allows the user to load application PROGRAMS.

PIP - Peripheral Interchange Program. A TRANSIENT COMMAND used to copy FILES from one disk (or device) to another.

PRINTER - A hardware component of the computer that is used for the output of data onto hard copy.

PROGRAM - A set of instructions, specially coded in a way that control the computer HARDWARE in order to perform functions determined by the programmer. "Application programs" are used to perform a specific task.

RAM - Random Access Memory. A type of volatile (changeable) memory used by the microprocessor to store data that it is changing, or to store the instructions called by user commands. Also used to store the operating system.

RESIDENT COMMANDS - A group of commands that are loaded into the internal memory of the computer during the booting process. These commands are part of the CCP.

ROM - Read-Only Memory. A type of stable memory which allows the computer to retain instructions even with the power off. The booting program, for example, is stored in ROM chips.

SOFTWARE - Instructions written for the computer to tell it how to perform various functions. There are two kinds of software: application programs, written to perform a specific task (such as calculate a balance or add material to a data base); and system software, which controls the computer HARDWARE so that the application software can function.

TRANSIENT COMMANDS - A group of utility programs included on the systems disk; used for file maintenance and as support to the OPERATING SYSTEM. The transient commands must be on the disk in order to use them, and they may be moved or copied to other disks for use by the operator.

TPA - Transient Program Area. The "left over" portion of the RAM after booting, used for storing applications programs, transient commands, and data being entered. Also a RESIDENT COMMAND which allows the user to return to the last task he or she was performing.

UNAMBIGUOUS FILENAME - A specific filename only satisfied by one file on a directory. For example, if you request STAT.COM, only one file can be accessed because there is only one file with that name. See also AMBIGUOUS FILENAME.

USER AREA - A space designated (by the OPERATING SYSTEM) on the disk, used to store files. There are potentially 16 user areas that may be accessed by the operator. The purpose of a user area is to subdivide the storage space available. They are especially useful on a hard disk system.

UTILITY - Another name for any of the transient commands used for file maintenance.

WILD CARD - A Vector 4 CP/M function which allows references to multiple files with one AMBIGUOUS FILE NAME. The wild cards are:

? - replace with any single character in the location entered

***** - replace with any character or group of characters needed to fill up the maximum (eight in name, three in extension)

PART II- THEORY OF OPERATION

The Theory of Operation will discuss each functional portion of the Vector 4 Computer. This includes a detailed analysis of the nine functional systems: CPU, RAM/PROM Memory, Video, CRT, I/O, Keyboard, Disk Controller, Disk Drive, and Power Supply. The Vector 4 Block Diagram (Exhibit II-1) shows how all nine systems inter-relate. The following section gives a brief description of each system:

CPU	The CPU System provides the intelligence and clocking mechanism of the Vector 4. This is accomplished through development of two timing cycles: VIDEO and CPU. Implementation of these cycles allow the CPU and the Video Systems to access the same block of memory at different and equal intervals.
RAM/PROM Memory	This system consists of RAM and PROM memory. The CPU System (multiplexing portion) controls the addressing, reading and writing to this system.
Video	This system which is located on the SBC translates Vector 4 computer signals into various types of video displays. The Video Subsystem uses the memory located in the RAM/PROM System to achieve its video displays.
CRT	The CRT System consists of the Video Board and CRT. It takes the video and associated control signals from the Video System and uses them to display video information on the CRT.
I/O	The I/O System has ports, expansion slots and various decoding devices. It provides the interface for the Disk Controller System, Keyboard System and other I/O devices.
Keyboard	The Keyboard System consists of a separate unit which is used by the user to key-in numbers, alphanumeric data or other type of computer information.
Disk Controller	The Disk Controller System is a separate PCB which provides the interface between the Disk Drives and the Single Board Computer.
Disk Drives	This system provides the peripheral storage.
Power Supply	The Power Supply System routes the correct form of power to all the computer systems.

UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

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

COMMITTEE ON FLEET REPLACEMENT

REPORT TO RVOC ON UNOLS FLEET REPLACEMENT

The need to plan for new, more capable research ships to conduct scientific programs at sea has become a matter of urgency. Numerous studies have amply demonstrated that by the 1990's most ships will be obsolete in terms of capability to keep up with the growing requirements of modern seagoing oceanographic programs. Large high performance overside handling arrangements and modern state-of-the art shipboard laboratories will be needed to meet major ongoing ocean programs. In addition, a high quality working environment is essential in order to attract competent seagoing personnel.

UNOLS Fleet Replacement Committee is preparing a plan for the replacement of the existing UNOLS Fleet. It will address the projected "fleet" for the 1995-2000 time frame. In addition to the recommended numbers and mix of vessels, the Committee plans to develop scientific requirements and conceptual designs for each type or class of ship envisioned.

Initial planning for fleet replacement starts a fleet not too different from the existing fleet with some additions in the "specialized" areas. As more information is developed during periodic input and review processes, these numbers will be amended.

Priority has been assigned to planning for the replacement of larger ships. This class (over 200 feet) has the oldest median age and generally regarded to have the greatest deficiency in capability vs. needs.

"Requirements" have been developed for three classes of large general purpose ships. These are:

(1) High Endurance R/V - envisioned as about 260-280 feet LOA. Probably about one or two are needed to meet needs by the year 2000.

(2) Medium Endurance R/V - seen as about 210-220 feet LOA and probably will be the most common large ship replacement. About four ships projected.

(3) High Performance R/V - to large ship requirements but envisioned as a SWATH type hull.

Copies of the "Requirements" for each of the above are attached. Comments are requested to make these the most effective as possible. In addition to "General Purpose" ships, specialized types such as geophysics, polar research, and submersible are being considered.

Conceptual designs are being undertaken for each of the classes described above. Conceptual designs include the following:

1. Technical report of the vessel design providing a discussion of the responsiveness to the scientific requirements and ship characteristics stated
2. General arrangements plans
3. Inboard and outboard profile plans
4. Machinery arrangement and description of propulsion system and auxiliary power
5. Scientific arrangement
6. Estimate of drag, power, and fuel consumption rates
7. Analysis of ship's motion in waves
8. Operating characteristics, including costs
9. Estimated construction cost
10. Artist's conception drawing

In addition to the Conceptual Designs for large general purpose ships, the University of Texas has undertaken five conceptual designs for geophysics ships and currently is evaluating them.

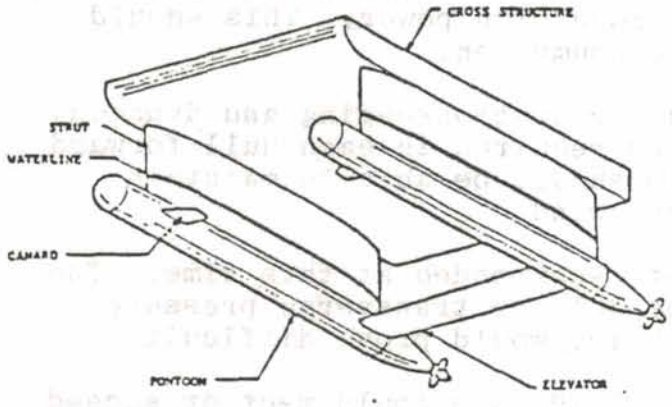
The work of the Fleet Replacement Committee will be reviewed at a Community-wide Workshop in March, 1985. This will include:

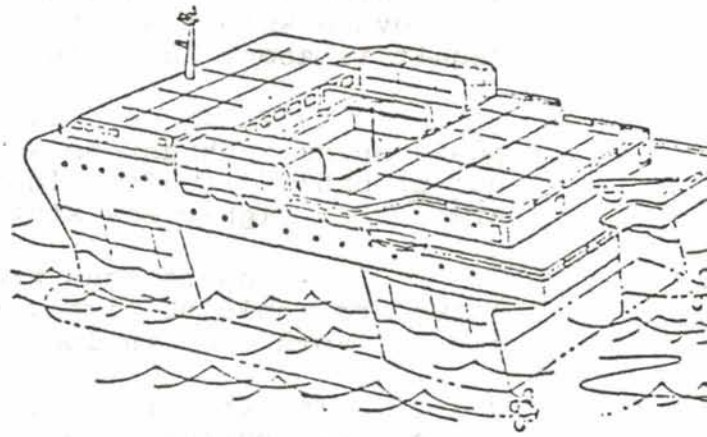
- Fleet-wide Replacement Scheme
- Requirements for Research Vessels
- Reports of Conceptual Design Studies

From this workshop will emerge direction for the next phases of the replacement effort including preliminary design studies leading to contract designs.

SWATH Ship

The small waterplane twin hull (SWATH), or semi-submerged ship, is a relatively recent development in ship design. Although patents employing this concept show up in 1905, 1932, and 1946, it was not until 1972 that the Naval Electronics Laboratory constructed an 89-foot, 217-ton prototype model. The principle of the SWATH ship is that submerged hulls do not follow surface wave motion, and struts supporting an above water platform have a small cross section (waterplane) which result in longer natural periods and reduced buoyancy force changes. Hull fins further dampen motions and provide dynamic stabilization when underway. The result of all this is that SWATH ships both in theory and performance of the several already built demonstrate a remarkably stable environment and platform configuration which is highly attractive for science and engineering operations at sea. It is time that the oceanographic community takes a hard look at what SWATH can offer.





Based on information available on SWATH performance and configuration, a SWATH comparable to the large monohull can be described as follows:

Length-overall	210 ft.	Beam	92 ft.
Operating Draft	23.5 ft.	Displacement	2,000 tons
Hull Diameter	17 ft.	Air Gap	15 ft.
Speed	15 knots	Horsepower	3,100 S.H.P.

A SWATH ship of these dimensions would be able to sustain cruising speeds in Sea State 6 with relatively small pitch and roll. Station work could proceed relatively unhampered in sea states

up to SS 7. These two characteristics constitute the chief and highly attractive advantage of this type hull over a monohull vessel. Other advantages include highly accessible and versatile working spaces and flexibility for varying arrangements for at-sea operations.

SWATH endurance is probably less. Fuel capacity would be limited to about 100,000 gallons (325 tons) thereby restricting the endurance to 40-45 days. Payload is less than a monohull; defined as 25% of displacement and including fuel. This results in a net available loading of about 250 tons -- within the stated requirements but none the less limiting.

The main working deck is about 25 feet above waterline which is considerably higher than most oceanographers are accustomed to. This would be offset by the easier overside handling which the platform stability affords. Some working space could be arranged at the crossover level which is the height of the air gap -- 15 feet.

SWATH has less drag than a monohull and would need less propulsion power for the same speed. A plant similar to the monohull above would require four 850 H.P. diesel engines to provide ship's service and propulsion power. This should result in about 15% less fuel consumption.

SWATH is well adapted for stationkeeping and dynamic positioning. Thrusters would be required in each hull forward but probably not aft. The ship should be able to maintain station in higher sea states and wind.

Ice operations are not recommended at this time. The structure would be highly vulnerable to transverse pressure ice and work even in loose pack ice would prove difficult.

In other respects the SWATH ship could meet or exceed the general purpose requirements set forth. Motion characteristics, deck working area potential, capability for overside and center well handling, and hull mounted transducer and hydrophone arrays make it particularly adaptable for ocean engineering needs.

The wide separation possible for towed geophysical arrays as well as the versatility of deck space make the ship well suited to geology and geophysics. Coring operations would be especially enhanced. The same comments which are stated in the monohull section regarding an underway G & G ship also apply here but probably to a lesser degree.

The deep draft and wide beam constitute a disadvantage in the selection of ports and berthing. This can be offset somewhat by deballasting and light load condition where one-half fuel load and payload will result in an 18-foot draft.

This will not always be possible and will be a consideration always to be reckoned with. It is estimated that construction costs for a SWATH ship described above would be $27M for the basic ship and $7M for science outfitting.

FOREIGN CLEARANCE REQUEST

A request for Department of State assistance in obtaining a foreign clearance for marine scientific research should consist of (1) a cover letter which gives the ship, the inclusive dates, the region of operations and what clearances are required, the project title, and any special instructions; (2) a Cruise Prospectus form (attached); (3) a one page description of the scientific purpose and research objectives including previous related cruises and plans for future research and follow-on studies; (4) and a track chart or charts (page-sized and suitable for reproduction). This information should be forwarded to:

R/V Clearance Office
OES/OMS, Rm. 5801
U.S. Department of State
Washington, D.C. 20520

It should be understood that the above information should reach the State Dept at least one month before the required lead time of the country involved. It should be further understood that two berths must be made available to participants from each country for which a clearance is requested and that all data results must be shared with each host country. A preliminary cruise report is required within 30 days of completion of research. See NTRVO #XX for further information concerning post cruise obligations.

APPENDIX IX-2

PROSPECTUS

DATE _____

1. SHIP NAME

2. OPERATING INST. OR AGENCY

3. PROJECT TITLE

4. CRUISE DATES (inclusive)

5. **Action Required**

RESEARCH CLEARANCES

_____ REQUEST STATE DEPT. TO INITIATE

_____ REQUEST STATE DEPT. ADVICE

_____ BEING HANDLED PRIVATELY - INFORMATION ONLY

_____ NONE REQUIRED - INFORMATION ONLY

_____ OTHER (SPECIFY ON REVERSE)

PORT CALL CLEARANCES

_____ PUBLIC VESSEL - STATE DEPT. INITIATE

_____ PART OF RESEARCH CLEARANCE - REQUEST REQUEST STATE DEPARTMENT INITIATE

_____ BEING HANDLED BY SHIP'S AGENT

_____ UNUSUAL PROBLEM - REQUEST STATE DEPARTMENT ASSISTANCE (SPECIFY)

6. ITINERARY

Port	Inclusive Dates

7. CRUISE COORDINATOR OR CONTACT (name, address & telephone number)

8. PRINCIPAL SCIENTIST(S) (name, title & affiliation)

NO. SCIENTISTS_____

9. FUNDING AGENCY(S)

10. COOPERATING INSTITUTIONS (including foreign)

11. SCIENTIFIC EQUIPMENT TO BE USED

12. DATA TO BE COLLECTED

13. SHIP DESCRIPTION

GROSS TONS_____ LOA_____ DRAFT_____

NAME OF MASTER:

NO. CREW_____

RADIO CALL SIGN:

EMERGENCY FREQ. MONITORED

14. ANCILLARY PROJECT (describe briefly)

FOREIGN CLEARANCE PROCEDURES

1. ANTICIPATE CLEARANCE REQUIRES FAR IN ADVANCE

2. CONSULT LATEST REVISION OF NTRVO #61

3. CONSULT OTHER NTRVO'S FOR SPECIAL REQUIREMENTS

4. DECIDE WHETHER OFFICIAL CHANNELS WILL BE USED

5. SEEK ADVISE FROM STATE DEPT., IF NECESSARY

6. MINIMUM REQUIREMENTS TO OBTAIN CLEARANCE:

   A) TWO BERTH FOR EACH COUNTRY

   B) SHARE ALL DATA RESULTS

7. SUBMIT CLEARANCE REQUEST PACKAGE:

   A) COVER LETTER

   B) CRUISE PROSPECTUS FORM

   C) ONE-PAGE DESCRIPTION OF PURPOSE

   D) PAGE-SIZE TRACK CHARTS

8. OES/OMS WILL SEND MEMO INDICATING IMPLEMENTATION OF REQUEST

9. TIMELY RESPONSE TO ALL REQUESTS FOR ADDITIONAL INFORMATION

10. CHANGES TO SCHEDULES AND RESEARCH PLANS ARE DISCOURAGED

11. CHECK WITH OES/OMS ABOUT 2 WEEKS PRIOR TO RESEARCH

12. WRITTEN NOTIFICATION OF APPROVAL WILL BE SENT TO PRINCIPAL INVESTIGATO

DRAFT

NOTICE TO RESEARCH VESSEL OPERATORS #66

SUBJECT: Post-Cruise Obligations

The United States has always emphasized the need to provide the data and final reports to the coastal states, who have given us permission to conduct marine scientific research. The Law of the Sea Treaty has codified requirements on post-cruise obligations making it mandatory for researchers to fulfill post-cruise obligations and the Treaty further stipulates that future clearance requests from the researching state may be denied if there are outstanding post-cruise obligations. UNOLS, the National Academy of Sciences, and the State Department agreed in 1979 to institute a procedure for complying with post-cruise obligations (NTRVO #57). In March, 1983, President Reagan proclaimed a U.S. economic zone, which resulted in a policy that generally provided for acceptance of the marine science and other non-seabed portions of the Law of the Sea Treaty. As such, the data obligation provision of the Treaty (article 249), will be recognized by the United States. In fact, the requirements contained therein largely reflect the policy which was already practiced in the United States.

This notice replaces NTRVO #57 and #40, although the procedures are generally unchanged. The purpose of issuing a new notice on post-cruise obligations is to simplify the instructions, hopefully resulting in better compliance by U.S. researchers.

The Procedure

Preliminary Cruise Report

Presently, government and academic institutions receive written notification from the State Department when a research clearance is approved by a foreign government. A sample copy of the notice is attached. The notice lists the obligations and conditions required of the researcher as specified by the coastal state. Within (30) days after completing a research cruise, the chief scientist should submit to the R/V Clearance Officer a preliminary cruise report. A sample report is attached which identifies the information required. Most importantly the report should restate the obligations and include a schedule indicating when the data and various reports will be submitted to meet the obligations. This may require using an additional page. If the cruise is multidisciplined or multi-phased, the preliminary cruise report should address each separately.

The Preliminary Cruise Report is our first communication back to the government which granted us the research clearance. It is usually provided to several agencies by their foreign office and demonstrates our willingness to fulfill the remaining obligations. As such, it should be a polished document, typed on institution letterhead. It is required that the original and two copies be provided.

Mailing Instructions

Preliminary cruise reports should be mailed to the following address:

Research Vessel Clearance Officer
U.S. Department of State
OES/OMS, Room 5801
Washington, D.C. 20520

All data reports, preliminary and final, should be mailed to the above address. On occasion scientists may prefer to mail bulky data or tapes directly to a foreign scientific institute or agency. If this is done, it is extremely important that copies of the transmittal letter be sent to the R/V Clearance Officer. This is to ensure that Embassy and Foreign Office and other clearing agencies in the foreign government check you off for having complied with the obligations, otherwise you will not be credited with having fulfilled the obligations.

Responsibility

It is the responsibility of the chief scientist who submitted the clearance request to comply with post-cruise obligations. If the chief scientist does not comply, the research institution operating the vessel will be held responsible and clearance requests submitted to the State Department by that institution will not be processed. This action is necessitated to protect other scientists who may wish to work in the same area, since coastal states have the right to reject any request from a researching state that has overdue post-cruise obligations. The next step would be to encourage funding agencies to take actions within their purview.

Reminders

Unfortunately, reminders are time consuming and we simply do not have the staff to handle them. As such, if a preliminary cruise report is not received on time, the research institution will be informed that their clearance requests will not be processed until the matter is resolved. It will be the task of the research institution to remind researchers of their obligations but ultimately it is the scientists responsibility.

Our overall objective is to ensure continued access for U.S. researchers to foreign waters. Compliance with post-cruise obligations is a very small cost to ensure continued access, and may result in less burdensome obligations being imposed. Your cooperation with this procedure is essential. Please contact me if you have questions concerning the procedure or requirements.

BUREAU OF OCEANS AND INTERNATIONAL
ENVIRONMENTAL AND SCIENTIFIC AFFAIRS

MEMORANDUM

TO:

FROM:

Research Vessel Clearance Officer
Office of Marine Science
and Technology Affairs

SUBJECT: Clearance Approval and Post Cruise Obligations

1. A. The Government of _____ has approved the research cruise of the R/V _____ for _____, 1984.

B. The document authorizing the research is _____ _____ dated _____.

2. The obligations stated as a condition of research are listed below. Please see instructions in NTRVO #66 for meeting post-cruise obligation requirements.

L-E-T-T-E-R-H-E-A-D

(In order to achieve most visible effect use institution or agency logo or letterhead)

PRELIMINARY
RESEARCH CRUISE REPORT

SHIP NAME: OPERATING INSTITUTION:

CLEARANCES COUNTRIES: DATES:

PROJECT TITLE(S): PORT CALLS:

FOREIGN PARTICIPANTS: SENIOR SCIENTISTS:

DESCRIPTION OF SCIENTIFIC PROGRAM: (Brief)

OBSERVATIONS AND SAMPLES COLLECTED: (TYPE, LOCATION, CUSTODIAN)

INFORMATION ADDRESS:

POST-CRUISE OBLIGATIONS SCHEDULE:

PRODUCT	DUE - MONTH YEAR

Instructions:

1. The above report should be submitted to the R/V Clearance Officer, Office of Marine Science and Technology Affairs (OES/OMS), U.S. Department of State, Washington, D.C. 20520 within 30 days following the termination of a cruise or leg where a foreign research clearance was granted.

2. Append page size track chart suitable for reproduction.

3. THIS REPORT IS THE FIRST STEP IN MEETING THE OBLIGATIONS OF A FOREIGN RESEARCH CLEARANCE.

APPENDIX X

USER MANUAL WORKSHOP

RVOC 1984 ANNUAL MEETING

BERMUDA BIOLOGICAL STATION

OCTOBER 15-17, 1984

Ken Palfrey
Oregon State University
Chairman

PART I

USER MANUALS - UNOLS STATUS*

R/V ALPHA HELIX	8/6/84 (final draft)
R/V CAYUSE	undated
R/V JERE A. CHASE	1/6/82
R/V BLUE FIN	5/84
R/V GYRE	1984 (revision)
R/V CAPE HATTERAS	1984 (2nd edition)
R/V CAPE HENLOPEN	7/81
R/V KANA KEOKI	undated
R/V LAURENTIAN	undated
**R/V MELVILLE	7/83
**R/V NEW HORIZON	1/84 (revision)
**R/V E. B. SCRIPPS	1983
R/V THOS. G. THOMPSON	undated - (revision reflecting mid-life refit in preparation)
R/V RIDGLEY WARFIELD	2/84
**R/V THOS. WASHINGTON	6/1/84 (draft reflecting mid-life refit)
R/V WECOMA	Winter 1984 (revision)
AGOR's NAVOCEANO	7/20/81 (chg 1)
U. TEXAS	Manuals in preparation

* Based on copies received by Chairman.
**SIO also publishes a "Chief Scientist's Manual" providing rules and procedures vs. features and capabilities contained in "Vessel Handbook" - not reviewed.

PART II

USER MANUALS

GENERALIZED CROSS-SECTION OF CONTENTS

TABLE OF CONTENTS

INTRODUCTION

Owner, cautions/disclaimers, key personnel and contact information.

CRUISE PREPARATION AND INFORMATION

Scheduling - UNOLS regional scheduling schemes, forms required, ancillary projects encouraged, first come-first served.

Financing - Optional days, transit time, provisional/actual daily rate.

Cruise plan - Use of institutional form, due date, itinerary, port calls, area of operations, work/station plan, required ship/shared-use equipment, scientific personnel and affiliation.

Home port - Facilities, equipment, limitations, time for loading/offloading and arrival departure of scientific party.

Foreign (other domestic) ports - Ship's agent.

Insurance - Disclaimer for non-employes.

Medical facilities.

Diving.

Foreign clearances.

Customs, public health & immigration.

Scientific berthing - Number, description, facilities, plans, assignment.

Shipboard attire and personal items - What ship provides; linen, etc., laundry facilities, hat required.

Hazardous materials - Radioisotopes, explosives, gasoline, compressed gases, special chemicals.

ON-BOARD PROCEDURES

Authority of Master/Captain.

Chief Scientist's Responsibilities.

General Safety Procedures.

Fire & Emergency Procedures - Briefing, station cards, life jackets, survival suits.

Dining Facilities - Hours, procedures.

Communications - Captain regulates, collect or credit card calls.

Miscellaneous Information.

Water consumption.

Prohibited, items - alcohol, narcotics, firearms, sheath knives.

Cleanliness.

Consideration in common-use areas.

Smoking.

Use of ship's tools and equipment.

Ship crew duties and responsibilities.

Doors and hatches - air-conditioning.

Objects in toilets.

Report accidents, injury, illness.

Bonded stores.

POST-CRUISE PROCEDURES

Clean-up - Labs and scientific berthing.

Offloading -timeliness, completeness.

Cruise Reports - UNOLS, foreign, forms used.

Acknowledgement of support in publications.

GENERAL SHIP DATA (PHOTOS)

SHIP'S EQUIPMENT - CAPABILITIES AND LIMITATIONS

Propulsion, auxiliary machinery and service equipment/systems.

Endurance, range and speed.

Navigation & communications systems (depth sounding).

Storage.

Anchoring.

Capstan.

SCIENTIFIC OUTFIT & CAPABILITIES

Laboratories - Description, appointments, services, access.

Electrical

Fresh & salt water

Refrigeration and freezer space

Vacuum system

Cabinetry

Deck areas - Freeboard, rails, safety, wells.

Crane(s) - Load charts.

Winches and wire rope/cable

Sheaves & swivels

A,J,K,U-frames

Workboats

Seismic/bathy systems

Sail

Computers

Shared-use equipment - Menus, priorities, permanent/portable.

Scientific load - Limits, distribution, tie-downs, securing, Bos'n locker.

Marine/resident technicians

Vans

APPENDICES

UNOLS Cruise Prospectus/Foreign Clearance Report Forms

UNOLS Ship Time Request Form

Requirements for Research Vessel Use - NSF Form 831

Cruise Plan Form

Scientific Personal Data/Release Form

Radioisotope Application, Use, Safety Practices Training Forms.

Winch and Wire Rope Charts/Tables

Institutional Summary Cruise Report Form

UNOLS Cruise (ship utilization) Report Form

UNOLS Research Vessel Cruise Assessment Form

ROSCOP - forms/procedures

Deck Plan(s)

Laboratory Plan(s)

Berthing Plan(s)

Vessel Outboard Profile

Diver Information Form

Dive Plan Form

Crane Load Chart

A-Frame Dimensional Drawing

Disposition of Cruise Records - Form

Cruise Track Chartlet(s) - Blank

PART III

COMMENTS & SUGGESTIONS

1. There appears to be a high degree of consistency among those manuals reviewed. Each appears appropriate to the size, capabilities and potential scientific missions of the vessels involved. A healthy amount of plagiarism can be detected.

2. In addition to setting forth requirements and procedures a number of manuals use an editorial style which "sells" the vessel and its capabilities.

3. User manuals should have some means of judging status (recency) prominently displayed on the cover, such as date (year as a minimum) and version (revision, numbered edition, etc.).

4. Should we adopt a standard/uniform title? Titles now vary as follows:

Cruise Planning Manual

User Handbook

(Ship) User's Handbook

Scientist's Handbook

Cruise Handbook

5. The unique, encyclopedic-style manuals produced by SIO may be of interest to an institution contemplating a complete manual re-write or format change.

10 OCT. 1984

S H A R E D U S E E Q U I P M E N T P R O J E C T

GEOLOGY SAMPLING GEAR

	UNIV WASH	SIO MTG	OSU	URI	WHOI	TEXAS A & M	USC	DUKE UNC	UNIV ALASKA
GRABS	X	X		X			X		X
GRAVITY CORE	X	X		X	X	X	X		X
PISTON CORE		X	X		X		X	X	X
SHIPAKGRAB	X								X
MULTI-BARREL	X								
BOX CORER	X	X			X	X	X		X
SOUTAR CORER	X		X						X
DREDGES		X			X			X	X
DEEP SEA CAMERA			X	X			X	X	
VIBRA CORE SYSTEM								X	

APPENDIX XI

BIOLOGY SAMPLING GEAR

	UNIV WASH	SIO MTG	OSU	URI	WHOI	TEXAS A & M	USC	DUKE UNC	UNIV ALASKA
PLANKTON NETS	X	X				X	X		X
IKMT NETS		X					X		X
DIP NETS		X							
OTTER TRAWL						X	X	X	X
BEAM TRAWL							X		X
TSK FLOWMETER							X		
ACOUSTIC TRAWL							X		
TIME-DEPTH RECORDER							X		
BONGO FRAMES								X	
INSTRUMENTED TRAWL		X		X					
NET RELEASE									X
TUCKER TRAWL									X

HYDROGRAPHIC SAMPLING GEAR

	UNIV WASH	SIO MTG	OSU	URI	WHOI	TEXAS A & M	USC	DUKE UNC	UNIV ALASKA	SIO PCODF
XBT SYSTEM	X			X	X	X	X		X	
NISKIN BOTTLES	X		X	X		X	X	X	X	X
C T D	X		X	X	X	X		X	X	X
12 BOTTLE ROSETTE	X		X		X	X		X	X	X
SLIP RINGS	X	X	X	X					X	X
NANSEN BOTTLES	X						X		X	X
GERARD BOTTLES					X					X
SCOTT-RICHARD BOTTLES	X									
REVERSING THERMS	X		X	X	X	X	X	X	X	X
MESSENGERS	X	X			X		X			X
TIDEGAUGES	X									
CURRENT METERS	X									X
TRANSMISSOMETER	X						X			X
SURFACE TEMP	X			X	X					
SURFACE SALINITY	X			X						
S. T. D.							X			
PUMPING SYSTEM							X			
BUCKET THERMOMETER		X							X	X
CURRENT PROFILER									X	

CHEMICAL - ANALYTICAL

	UNIV WASH	SIO MTG	OSU	URI	WHOI	TEXAS A & M	USC	DUKE UNC	UNIV ALASKA	SIO PACOPF
AUTOANALYZER	X		X			X		X		X
SALINOMETER	X		X	X	X	X		X	X	X
SPECTROPHOTOMETER	X			X	X			X	X	X
OXYGEN TITRATION	X		X	X	X				X	X
SAMPLE BOTTLES	X									X
EMISSION SPECTOMETER			X							
FLUOROMETER			X					X		X
AUTOCLAVE								X	X	
DRYING OVEN								X	X	
P H METER								X		X
SCINTILLATION C.			X	X					X	
SCALE									X	
MICROSCOPES									X	
HYDROMETER									X	
CENTRIFUGES									X	
BALANCE									X	
NUTRIENT ANALYSIS					X					X

GEOPHYSICAL GEAR

	UNIV WASH	SIO MTG	OSU	URI	WHOI	TEXAS A & M	USC	DUKE UNC	UNIV ALASKA
12 KHZ TRANSDUCER	X	X		X	X				
3.5 KHZ TRANSDUCER		X		X	X				
PROGRAMABLE RECORDERS	X	X	X		X	X	X		X
12 KHZ PINGER	X	X		X	X		X	X	
LORAN C	X	X							
SATELLITE NAV	X	X							X
DIRECTION FINDER	X	X							
MAGNETOMETER	X	X		X		X	X		
AIR GUNS	X	X	X	X			X	X	
WATER GUNS		X		X					
HYDROPHONE STREAMER	X	X	X	X				X	
BOOMER	X								
ARCER		X							
SIDE-SCAN SONAR	X								
GRAVITY METER		X							
SEA BEAM SYSTEM		X							
ACOUSTICAL NAV SYSTEM			X						
AIR COMPRESSORS		X	X	X			X	X	
SPARKER						X	X	X	
TOWED HYDROPHONE								X	

COMPUTER and ELECTRONICS

	UNIV WASH	SIO MTG	OSU	URI	WHOI	TEXAS A & M	USC	DUKE UNC	UNIV ALASKA
S. A. I. L.	X				X	X			
COMPUTER				X	X				
VAX 730		X							
H P 85						X			X
H P 600A						X			
2112 A M				X					
DIGITAL PLOTTER	X	X	X	X					
MAG TAPE DRIVE	X	X		X					X
COPIER	X								
ACOUSTIC RELEASE									X
CALCULATOR				X					X
SCUBA COMPRESSOR		X							X

LAB SET UP - PORTABLE LABS - BOATS

	UNIV WASH	SIO MTG	OSU	URI	WHOI	TEXAS A & M	USC	DUKE UNC	UNIV ALASKA
PORTABLE ISOTOPE LAB		X							
PORTABLE REFRIG. LAB		X	X						X
PORTABLE EXPLOSIVE MAG		X							
LAB FUME HOOD									
PORTABLE FREEZER VAN									X
FORKLIFT		X							
ZODIAC		X							X
WHALER		X							X
TEM. CALIBRATION			X						
EXPLOSIVE SHOOTING EQ.		X							
BLENDER									X
REFRIGERATOR LAB		X		X	X				X
FREEZER LAB		X		X	X				
STILL									X
PORTABLE LAB					X				

Oct. 17, 1984

BY LAWS OF THE

RESEARCH VESSEL OPERATOR'S COUNCIL

A. PURPOSE

The purpose of the Research Vessel Operator's Council shall be to promote cooperation among marine science research and educational institutions and to represent their interests in the areas of marine operation, marine safety, governmental regulations, labor relations, and public relations as these areas affect their research fleets.

B. MEMBERSHIP

1. Membership in the Research Vessel Operators' Council shall be limited to members and associate members of the University National Oceanographic Laboratory System (UNOLS).

C. REPRESENTATION

1. Each member institution shall be entitled to one vote at the Annual Meeting. Each member institution shall be entitled to send as many individuals as it desires to the Annual Meeting, as representatives of the institution.

2. Each member institution shall be notified of the Annual Meeting by the Secretary of the Council at least one month prior to the Annual Meeting.

D. OFFICERS

1. The Research Vessel Operator's Council shall have a Chairperson and a Secretary. The Chairperson and Secretary will be elected by majority vote at the Annual Meeting for a two year term. Date of office shall commence at the close of the Annual Meeting. The Chairperson and Secretary shall be elected in alternate years.

2. The Chairperson shall represent the Council in all matters stipulated in the purpose of these by-laws and in all matters deemed necessary in the interest of the Council. The Chairperson shall implement the programs enumerated by the Council and shall conduct the Annual Meeting and whatever special meetings are deemed necessary by the Chairperson or the members.

3. The Secretary shall record the business of the Council. The Secretary shall be responsible for dissemination of informaton through newsletters or other media as stipulated in these bylaws to all members of the Council.

4. If the Chairperson or the Secretary are unable to fulfill their duties of office, the Chairperson shall appoint a successor to act with full authority until the succeeding Annual Meeting.

E. COMMITTEES AND PANELS

1. Upon the recommendaton of the Chairperson and with a majority vote of the Council, at the Annual Meeting, various panels and committees, as necessary to the work of the Council, may be constituted. The duration of action of such panels and committees shall be stipulated at the time of inception. Size of such panels and committees, scope of action, and membership shall be stipulated at the time of inception.

2. Special committees may be established if required between the Annual Meetings but they must be confirmed by a vote at the Annual Meeting.

F. ANNUAL MEETING AND OTHER MEETINGS

1. A general meeting of the Council shall be held at least once yearly. The Chairperson shall preside. The business of the meeting shall encompass reports of any active panels and committees, and discussions of projects and actions of the Council. Speakers from the marine community may also be included on the agenda. Workshops for projects of general concerns are encouraged.

2. Passage of projects and actions shall be by majority vote of the members present at the meeting.

3. The various panels and committees shall each meet at least once yearly, at the general meeting.

G. FINANCES

UNOLS will provide limited funding for the Council to include the following:

a. Travel expenses for the Chairperson and Secretary to the annual meeting.
b. Meeting facilites when required.
c. Travel and meeting expenses for panels, committees workshops or the annual meeting when appropriate.