

# UNIVERSITY - NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

## RESEARCH VESSEL OPERATORS COUNCIL

Summary Report  
of the  
1983 Annual Meeting

Hosted by the  
University of Hawaii  
Honolulu, Hawaii  
October 4-6, 1983

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SUMMARY REPORT OF THE 1983 ANNUAL RVOC MEETING

Kaimana Beach Hotel

Honolulu, Hawaii

4-6 October 1983

WELCOMING REMARKS

Dr. Haward McKanghan, Director of Research at the University of Hawaii welcomed the RVOC to Hawaii.

The meeting was called to order by Chairperson E. R. "Dolly" Dieter, University of Alaska. The meeting 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. There was no other old business.

NEW BUSINESS

Jim Williams of Scripps delivered to the RVOC a memo from P. Niler, Chairman, Marine Operations Committee at Scripps to be passed to UNOLS concerning a need for better wire documentation (Appendix III). Discussion on the subject suggested that full compliance with Al Driscoll's Winch and Wire "Green" book would go a long way in providing proper care and documentation for wire. It was brought out that all ships should have the Green book onboard for ready reference. It was further discussed that UNOLS has yet to officially adopt this book.

*The RVOC recommended that UNOLS adopt as a practice for wire and winch documentation Chapter Five of the Handbook of Oceanographic Winch, Wire and Cable Technology, Alan H. Driscoll, Ed., 1982.*

The usefulness and future role of RVOC was discussed. All present believed that RVOC was a useful body and should get more involved in technical and operational matters.

AGENCY REPORTS

John McMillan of NSF presented the 1982, 1983 and estimated 1984 ship funding picture for NSF, ONR and other funding agencies. Below is a summary of this information.

Funding for Ship Operations

<u>Source</u>	<u>1982</u>	<u>1983</u>	<u>1984 (Estimated)</u>
NSF	20.5	22.5	24.0
ONR	2.6	3.4	2.9
FED	2.9	3.4	3.2
State & Private	1.8	1.8	1.6
Total	27.8	31.1	31.7

A projected shortfall of 5 million dollars is seen at this time for 1984.

Bill Barbee of the UNOLS office discussed the value of the cruise assessment forms and the need to ensure their submission. He noted also that he had recently received suggestions that the results of the assessments be made available to ship users throughout the community. A suggestion from the floor was made that the form should be revised to distinguish between cruise failures from ship equipment problems and those failures from scientific equipment problems. It was further suggested that UNOLS make a statement on the need and importance of the form and that the distribution policy remain as is.

Bill noted that a comparison of ship days used annually from 1973 to 1977 and again from 1978 to 1982 showed a decrease in average annual ship days from 6000 to 5100, however it appeared that the 1984 trend was up.

Bill asked RVOC to look at shared use equipment and, if they agreed, to recommend a UNOLS policy on specific equipment that should be on each ship.

Dick Martino of the Naval Oceanography Command discussed:

Notification of Intent

Navy Fuel

Oceanographic Ship's Operating Guide

Research Vessel Reference Service

No outstanding problems were raised.

Sam Applegarth provided comments on the fleet inspection results. He explained the evolution of the inspection process and that now the inspection includes a sea phase. The purpose of these inspections is to: Provide NSF with the material status of its capital assets; aid the institutions; and to forecast future needs. The general findings are: Institutions are doing a good job; Institutions are receptive; Common discrepancies noted in inspection reports are in the categories of machinery, safety, ship control and scientific equipment.

## PRESENTATIONS

Art Mersereau of Kims Electronics and Dave Abbot of Furuno USA Inc. provided the group with information on electronic navigation and new developments in the electronic industry.

Don Hussong of the University of Hawaii gave an informative talk on the development and status of SeaMARK II. A paper on SeaMARK II that was delivered at the 1983 Offshore Technology Conference was presented. (Citation: First Results From a Combination Side-Scan Sonar and Seafloor Mapping System (SeaMARK II) J. M. Blackington and Hussong, D.M.).

Jack Donnelly of WHOI provided us with John Leiby's memo on the status of IMO. Mr. Leiby's memo was distributed to attendees (Appendix IV).

Dave Monaghan of Medical Advisory Systems made a presentation on the scope of services offered through MAS. John McMillan stated that he is looking into the possibility of a fleet purchase agreement for participation in MAS which would result in a reduced rate. The sense of the meeting was that nearly all were interested in the service. Most will defer action pending NSF group arrangements.

Thomas Ridican of Frank B. Hall & Co. provided an enlightening discussion of marine insurance risk management (Appendix V).

Jim Stewart of Scripps discussed diving standards and recommended diving and medical procedures. Jim's talk provided the group with valuable information that ship operators must be aware of when conducting diving operations at sea. Jim would be available to assist Institutions in setting up diving procedures and policies.

The Charter Vessel Policy Workshop was conducted by Ken Palfrey, OSU (Appendix VI).

A Ship Operations and Marine Technician Workshop was conducted by Jack Bash, URI. Costs were compared and reviewed for each UNOLS ship. The discussion included the variations in ship costs and reasons for these variations including: ship location, operating schedule, local labor conditions and various institutional operating and accounting procedures. Areas discussed included: (1) how overhead is calculated; (2) insurance costs and savings; (3) advantages and disadvantages of budgeting for biennial overhauls; (4) fuel cost projection methods/Navy fuel; (5) size of shore support; (6) budget for shore leave/ sea pay; (7) elements included under miscellaneous and other; (8) clearing accounts annually and every three years; (9) what is budgeted in shore facilities; (10) NSF blanket coverage items; (11) money other than federal dollars in ship operations support; (12) Memo of Understanding; (13) charges to outside users; (14) detail labor costs, Marine Technician budgets and discussions on a cost analysis spread sheet. Details of these discussions can be found in Appendix VII.

UNOLS Safety Standards Workshop was conducted by Tex Treadwell, Texas A&M University (Appendix VIII). The sense of the assembled attendees was that revision of UNOLS Safety Standards is a critical issue.

On the final day of the meeting, opportunity was afforded for attendees to tour the University of Hawaii's marine operations facility and the Scripps R/V NEW HORIZON in port there.

Prior to adjourning, Chairperson Dieter expressed for RVOC and meeting attendees their appreciation for the University of Hawaii's hospitality and help in arranging the meeting. In particular, Ms. Dieter thanked Dr. Howard McKanghan and William Harkness.

# RESEARCH VESSEL OPERATORS' COUNCIL

1983 Annual Meeting  
Kaimana Beach Hotel  
Honolulu, Hawaii 96815  
4-6 October 1983

## AGENDA

4 October 1983 -

### Registration

### Welcoming Remarks

University of Hawaii

### Old Business

Report of 1982 Annual RVOC Meeting - Dolly Dieter, Chairperson.

Other.

### New Business

Agency Representatives reports:

- \* National Science Foundation - Budget Outlook; Cdr. John McMillan.
- \* University National Oceanographic Laboratory Systems - Report from UNOLS, Cruise Assessment Forms, Shared Use Equipment; Capt. Bill Barbee,
- \* U.S. State Department - Clearance; Bill Erb.
- \* Commander Naval Oceanography Command - CNOC Status; Richard Martino.

Scheduled Topics and Designated Speakers:

- \* Fleet Inspection; Sam Applegarth.
- \* Diving Standards - Recommended Diving and Medical Procedures; Jim Stewart, SIO.
- \* Medical Advisory Systems - Description of Program; David A. Monaghan.
- \* Navigational Electronics - State of the Art; Art Mersereau, Furuno.
- \* Marine Insurance - Thomas Redican, Frank B. Hall & Co., Honolulu
- \* Sea Marc II System - Description of Project; Donald Hussong - University of Hawaii.

5 October 1983 -

Workshops

- Charter Vessel Policy - Policy on Chartering UNOLS and non-UNOLS vessels; Capt. Ken Palfrey, Chairman - Oregon State University.
- Ship Operations and Marine Technician Costs - Informal Comparison of Costs; Jack Bash, Chairman - University of Rhode Island.
- UNOLS Safety Standards - Upgrade of 1980 Safety Standards; Capt. Tex Treadwell, Chairman - Texas A & M University.

6 October 1983 -

Scheduled Topics and Activities

- Wrap Up of Workshops.
- Suggestions for 1984 Annual Meeting:  
    Location  
    Agenda
- Tour of University of Hawaii, Snug Harbor Facilities.

Social Activities

4 October 1983

6:00-8:00 p.m. - Cocktail party and heavy pupus hosted by University of Hawaii.

5 October 1983

6:00- ?? p.m. - No host Japanese dinner.

TENTATIVE SCHEDULE

Monday, 3 October

2000: Early bird reception, no host. Kaimana Beach Hotel Lobby.

Tuesday, 4 October

0800 - 0900: Registration, Kaimana Beach Hotel.  
Coffee and pastries.

0900 - 1130: Agenda items and designated speakers.

1130 - 1300: Lunch break.

1300 - 1700: Agenda items and designated speakers.

1800 - 2000: Cocktails and pupus hosted by University of Hawaii at  
Kaimana Beach Hotel.

Wednesday, 5 October

0800 - 0830: Coffee and pastries.

0830 - 1000: Charter Vessel Workshop.

1000 - 1200: Ship Operations and Marine Technician Cost Analysis Workshop.

1200 - 1300: Lunch break.

1300 - 1600: Safety Standards Workshop.

1800 - ? ? : No Host Japanese Dinner - Kaimana Beach Hotel.

Thursday, 6 October

0800 - 0830: Coffee and pastries.

0830 - 1030: Wrap up workshops.

1030 - 1130: 1984 RVOC Meeting.

1130 - 1300: Lunch break.

1300 - 1500: Facilities Tour - Snug Harbor, University of Hawaii.



# RESEARCH VESSEL OPERATORS' COUNCIL

## RVOC Annual Meeting Attendees 1983

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30 September 1983

To: UNOLS via RVCC

From: P. Niiler, Chairman, Marine Operations Committee, Scripps Institution of Oceanography

Subject: Wire maintenance records and replacement policy for UNOLS vessels

On rather unpredictable occasions, hydrographic wires and trawl wires fail due to improper maintenance or use of wire which no longer is in good condition. Under UNOLS, both the Atlantic and Pacific vessels are shared by many institutions and guest investigators, which makes it no longer possible to have first-hand knowledge of the history or condition of each spool of wire. Some UNOLS institutions can provide a detailed history and current test data on each spool, others cannot. As a recent example, losses of half of existing Gerrard Barrels in the Pacific could have easily been prevented, would all ship operating institutions maintain accurate records on the wires provided for guest investigators.

The Marine Operations Committee of Scripps requests UNOLS to institute a uniform policy for maintenance and record-keeping of wires. Scripps has an institutional policy on this matter, which we would be happy to share with UNOLS!

*Office Memorandum* • WOODS HOLE OCEANOGRAPHIC INSTITUTION

TO : Research Vessel Operations Council

DATE: September 29, 1983

FROM : Jonathan Leiby

SUBJECT: IMO Status - International Code for Special Purpose (Research) Vessels.

The draft code for Special Purpose Vessels has been "finalized" and is to be submitted to the next session of the Maritime Safety Committee of the International Maritime Organization of the United Nations. A full copy of the Draft Code and associated notes is attached. To summarize, please note that the code would apply only to vessels over 500 gross tons carrying more than 12 "special purpose personnel", and since our (motor) ships are presently inspected by Coast Guard when greater than 300 grt., this code should not add any additional regulation.

JL:jaw

Marine Insurance - Risk Management  
Remarks by Thomas Redican of  
Frank B. Hall & Co., Honolulu

Edited by J. Bash

The question a lot of people have is, "What is risk management?". It reminds me of when I started in the insurance business years ago I asked, "What is a legal liability policy?", and was told it's a policy that insures you when you are legally liable. "What is risk management?", it is managing your risks; the risks that vessel operators have. The field of risk management is relatively new. It's an application of insurance management combined with a finance background and preferably a detailed knowledge of the employers product or operations as the case may be. To manage risks there are a couple of simple precepts; first to identify your risk, second is to control or decrease it, third is to pass it on to somebody else and fourth is to either insure or fund the risk through some source other than insurance. The first, to identify the risk can be the most difficult. By training and background most risk managers will not have a great deal of familiarity with the operation of the employer but he should make it his business for either he or his staff to get down into the dirt of what that company is doing and find out about the operations. Now that can be difficult because just by what he does he comes across as a prophet of doom and nobody wants to talk to him. That's where he has to start because to identify the risk across a spectrum, the probable average loss, the probable maximum loss and the possible maximum loss; the probable and the possible maximum loss quite often vary. Then a risk manager would study the ways to control or decrease the loss within the confines of what has to be done. That is you usually cannot totally control a risk without abandoning the results of what you are trying to accomplish by taking the risk. Passing the risk on to somebody else is possible. You can try to contract out to other parties to do some work but quite often in the past the concept was to pass the risk on to someone else by some kind of odious contract. You have escape clauses or whole harmless clauses. The courts don't take kindly to this in the modern scheme of things in our consumer oriented society. The courts are more liberal than in the past and won't allow these contract shenanigans. Particularly where you had a large corporation and or a large employer contracting with a smaller company to do something, and they just put it in the contract that, that fellow had to absorb all the risks for what may not have been his negligence. That can't be done much anymore, that's one part of risk management that is sort of phasing out. When all the above is done then you have to take steps to ensure or otherwise fund the risks so as to protect the assets and financial integrity of the employer and the financial viability of the individual department or project. For example if you were to lose a major ship and crew what does it do to your program? Some programs could carry on by chartering other vessels and have insured their liabilities that they did incur. But if you haven't, it could be the end to an entire research program or research department at a university if that has not been approached properly. Now self funding the potential risk really requires the services of a professional risk mana-

ger if you're going to self fund it as opposed to insure it. Insuring it, all you do is pay premiums and you pass the risk on to somebody else contractually. If you're going to self fund it or self insure it then you're really going to have to have a pro in there who knows what he is doing because its a question of not only what are the risks, but how are you going to fund it, how is the cash flow going to be set up to handle the potential risks. That is really much more complicated than we have time for today. I'll now move on to the subject of marine insurance.

The field of marine insurance is sufficiently different from all other kinds of insurance that usually you'll find the people in marine insurance are uniquely marine insurance people. Marine insurance is quite unique. It's far and away the oldest form of insurance and it can be the broadest type of insurance that can be arranged anywhere since it's a non controlled line.

For any of you that have ever read a marine insurance policy you are going to find that the wording is archaic in the main policy form. Some of those forms were written back in the 16th century and they use the same terminology today. The reason for that is the industry is very reluctant to change the terminology, the legal profession is very reluctant to change it. Most of the people in the field are professional enough that they understand what the policies mean and it's beneficial because there has been a great body of law built around each and every comma, dash and word in the policy and any modernization is going to start a whole new field of law all over. On the buying of marine insurance you deal with a broker. In Hawaii they say they deal with an agent. An agent represents insurance companies, technically a broker represents you the buyer. That broker can go to any number of markets and place the business where he can get the best terms and conditions and the best price. In going over the list of companies that were involved in the last program that was put together in 1975, I noticed that all of the universities dealt with the major brokers in the United States. With marine risks you are always better off in dealing with a major brokerage firm; they have the contacts, they have better access to the various markets.

On the subject of markets, there are basically two major markets you'd be concerned with either the American Market or the English Market. The American Market is made up primarily of stock insurance companies. There are some mutuals that are also in the marine field. The other major market would be the English Market. When you mention the English Market most people think of Lloyds. There are a number of English insurance companies. Lloyds is not a company. Lloyds is an odd thing that has grown up over 400 years. In Lloyds you walk into this enormous room in this enormous building down on Lime Street and they've got all these Englishmen running around in black suits and bowler hats that have been left on the table with their bumper shoots. There are a bunch of large, what they call boxes, which are very old fashioned wooden desks that are lined up. There is a gentleman sitting at the desk and he's got a bunch of books sitting in front of him and there will always be a long line of people waiting to talk to him. The people waiting to talk are the Lloyd's brokers. If you have an American broker, he refers your risk to a Lloyds broker. He then goes and talks to a Lloyds underwriter, he's the fellow that's sitting at the desk. He

writes for what in Lloyds is called the syndicates. That is he represents a certain compilation of syndicates that are made up of people who have pledged at least 100,000 pounds in personal assets. These people pledge so much money and you get into one or more syndicates and those syndicates are represented by that Lloyds underwriter and these brokers would go up to him and would say: I've got a university ship of such and such university. They will have picked an underwriter of such a reputation of having knowledge of research vessels operating wherever. He is called the lead underwriter. That lead may only write 5% of your risk, he may only write 2% of it. But once he signs his name down on that slip then the broker has a lead and he can go to other people and say as long as John Smith will write it I'll take 3% or 2% or what ever and he may take 3% that could be broken up amongst 4 syndicates which are comprised of 7000 people. It gets down to very finite numbers when you run down through the list. They used to attach the Lloyds syndicate sheets to policies; they don't do it anymore, they got so bulky. They kept on getting a finer and finer paper so that the policies would not be unwieldy. You have companies the same as you do in America. You have P&I clubs which are a separate item which I'll get into later and then you have other markets; the French, German, Belgium and the Japanese have developed into quite a big market. Poland has a very large market - one company. It's a state owned company. It's the one thing in Poland that seems to make money because it operates as a uniquely capitalistic venture in that country. Those are the markets.

You will be interested in two types of insurance. There may be others that you'd be interested in such as a builders risk policy on a new boat or ship repair policy if you had a facility where you did any repair work where you'd be handling other peoples' vessels. The two you get into most would be Hull insurance and P&I insurance. The question of hull insurance is you have basically two types of policies. There is the pleasure boat policy which most of you again would not be interested in and the commercial policy which is what you would use. The pleasure boat policy is the one marine policy that has been translated into a plain English policy where it says the terminology is "We the insurer will pay you for this etc". It's used primarily on yachts, motorboats and such - it's quite a broad policy. On my own boat and on most people I know in the marine insurance business who have boats will still write to a company that writes on a name perils policy because we know what the policy covers. Whereas there are still a lot of law suits being filed over the new, what they call "all risk" policies.

On commercial hull insurance policies there are many many forms of hull policies. They range from very very broad manuscript that are tailor written for fleets down to extremely limited forms such as, absolute total loss only policy. There is the London Institute Absolute total loss only and the American Institute form and that's all it will cover. It covers absolute total loss of the vessel. It would not cover constructive total loss. Constructive total loss would be where you had a vessel go on a reef somewhere and the vessel insured for a million dollars and you've got a probable half million dollars in damages 200,000 in salvage costs \$200,000 in sue and labor costs all of a sudden you're up to \$900,000 and you haven't even expended money to try to do anything yet. The underwriter is going to say you have a constructive total. You don't have that under an absolute total loss only policy.

Many of the restricted forms will have an absolute total loss only policy then start adding to it. You do that to build up a policy that you can afford and usually it's done with older vessels that have replacement values that are totally different than what the market value is. You may have the market value on a vessel of say \$50,000 and the replacement value could be a million dollars. This is done quite often with old sailing ships. You discuss it with your broker as to what kind of vessel you have, what your requirements are and where you're going to be operating - certain areas are more hazardous than others and arrange the insurance accordingly to a price you can afford. Deductibles under a policy are usually not complicated. The policy states that it has a deductible of X numbers of dollars. Those deductibles usually do not apply in the event of a total loss to the vessel. Most forms do not allow for imposition of the deductible when you have a total loss. You can also get into areas which is something that you may want to look into sometime in the future - these are called aggregate deductibles. Aggregate deductibles are put together on fleets. There is not a specific requirement that the fleets be commonly owned. You could have varied ownership on a fleet. As long as there is some common thread running through it such as university owned research vessels, either owned or chartered. An aggregate deductible works on the spreading of the risks. You have an underlying deductible - say you have a \$25,000 deductible and your fleet has a half a million dollar aggregate so each vessel would sustain every time you had a deductible you put together all your costs and if you have a \$50,000 claim then you've got a \$25,000 deductible you absorb and the \$25,000 over the deductible is put aside and if at the end of the year you have exceeded the half million dollar aggregate out of these claims that have been set aside, then you start getting money back from the insurance company. It's only a function that will work with a fleet such as huge tug and barge fleets use aggregates. Steam ship companies that have a fleet of vessels will quite often use an aggregate.

In addition to the normal readily understood marine perils where you expect to recover if your vessel hits a reef or sinks in a storm or collides with something, the policies have what is called the "Inchmaree" clause. The Inchmaree was a vessel back in the 1800's and they had a claim that was do to the negligence of the master and the mate they burned out a donkey engine. They filed a claim against the insurance company and the company said no that's not covered under the terms of the policy and they sued the insurance company and the courts ruled for the insurance company. Then having won their case they turned around like most insurance companies and offered it as an additional peril under the policy and of course at an additional premium and the Inchmaree Clause has been broadened over the years. It is not understood by a lot of people. I've seen many cases where people have not collected. It covers a number of items. It covers latent defects in the hull and machinery, it covers breakage of shafts, accidents in loading and discharge of cargo - stevedore damage, accidents in bunkering and fueling the vessel, explosions on board, bursting of boilers, accidents going on or off dry dock, ship repair negligence. The most interesting part of the coverage is latent defects and breakage of shafts. It also covers crew negligence. If you burn up an engine because your engineer screwed up and didn't watch his oil pressure, the damage to the engine is covered by the policy subject to the policy deductible of course. That's



crew negligence. If you had a shaft break, the cost of replacing the shaft is not covered but all the damage caused by the shaft breaking is covered. That can get interesting if you have a failure of a minor part (Example: an oil pressure relief valve failed, spring collapsed; all engine damage covered, spring was not covered).

Collision damage - the term collision in marine insurance only relates to the collision between two vessels, if one vessel collides with another. In marine insurance terminology a vessel does not collide with a dock. You strike a dock, you can run into a dock, you can run into a reef, strike a buoy, strike a piling; but you don't collide with them. You only collide with another vessel. And the collision clause in the hull policy is quite broad and it covers not only the damage caused to your vessel but it also covers the liability you have, to the other party. If you cause the collision, that clause in the hull policy covers the damage to his vessel. Remember, we're talking about a first party policy. We haven't gotten into a liability policy yet. The collision clause does cover your collision liability to the other vessel up to the limit of your policy. If you have a \$100,000 vessel and collide with another vessel, you have not only \$100,000 coverage on you boat but \$100,000 coverage for damage to his boat. It can also get complicated because there is an additional peril covered under the collision policy called the "sue and labor" clause which not only enables you but actually forces you to "sue and labor"; the terminology is sue and labor and travel around the defense of the vessel, again more of that archaic language. If your vessel is in straits, for one reason or another, and you have to do something to save that vessel, the cost to do that is covered. Now it could quite often be the case where you will get into doing something to save your vessel - let's say you had a collision with another vessel and your vessel runs aground, and in trying to save it you expend \$100,000; your vessel was insured for \$100,000. Then it turns out it's a total loss anyway, you collect \$100,000 for your vessel, \$100,000 for the "sue and labor" costs you run up, plus \$100,000 collision liability to the vessel you hit. The underwriter that insured your boat for \$100,000; all of a sudden finds himself paying \$300,000. It's one of the few insurance policies that you will find that will cover more than the face value of the policy. There will be a slight difference in your collision clause and a tug boat company's policy. If you read your collision clause in your policy - unless you're a tug boat company - it will exclude your liability as a tower. If you were towing another vessel and you caused that vessel to have an accident with something else, you would not be covered normally under the collision clause in your policy. Unless your policy has been endorsed to specifically cover tow liability which is a fourth coverage policy that is picked up, but usually you're going to pay a little more for that if you are towing.

Moving on to the P&I policy, which is important for the operations you people are involved in. From the point of view for the ship owner, the coverage available to you in the market place, in respect to your marine liabilities, is somewhat confused. We have certain liabilities, customarily covered under a policy of insurance, on the hull of the ship and others in what is known as the P&I policy. The term P&I arose as part of the name given to a mutual association of ship owners, formed in England in the middle of the 19th century. The reason for the

association came about as the result of a case in 1836 in England called the "Voll vs. Salvador", in which the offending ship owner in a collision case attempted to recover from his hull underwriters for damage to the third party vessel. The underwriter successfully defended their position and denied coverage. But, as is often the situation, having won their case they then turned around and offered it as an additional peril under the policy and that clause in the marine insurance policy is known as the RDC or Running Down Clause. It's commonly called the collision clause. Later we'll find that the running down clause was extended to include, on occasion, towing liability when the insured vessel on the policy is a tug. And further, certain insurances were to include damage done to third party property other than other vessels. Technically the RDC clause only covers the liability of the insured ship owner for damage done to another ship or vessel or the cargo onboard the other vessel.

There have been a number of cases defining what a vessel is or what a ship is, within that terminology. There are certain vessels, and here I don't mean ships terminology, I mean a boiler or some kind of floating fuel tank, that can be towed from place to place and they're not usually referred to as a vessel. In the middle of the 19th century, the underwriters of the day in London agreed to extend the hull policy to include collision liability in the running down clause; but to keep the ship owner honest, the underwriters of the day limited the coverage to 3/4 of the provable damage, to leave the owner to go with the other 1/4. The underwriters refused, at that time, to pick up the whole of the collision liability. They would only pick up 3/4 of it, so there was no insurance market available to pick up the other 1/4. So the ship owners, unable to pick up insurance, in 1855 joined together in a mutual association and the original charter said it was to protect and indemnify the members for the uninsured collision damage. It was the start of P&I as the terminology is used nowadays, to cover marine liabilities. As time passed additional liabilities were added, liabilities for damage to third party property, liability for cargo, most important liability for death or injury to members of the crew. For ship owners, if you are in a P&I club, you do not pay what is called a premium, you pay an advance call. That call is based on the tonnage of the vessel, it's not based on any limit, it's not a question of buying \$100,000 in coverage or a million dollars in coverage. The P&I insurance is unlimited liability and your premium is based on the tonnage of the vessel, so the estimated volume of claims that they estimate paying and have paid in recent times. Now if that club is paying X number of dollars for all the tonnage they have on their books and they're not covering their expenses; then the calls go up. If at any time, and again P&I clubs are mutual clubs, they do not have enough money to pay all the claims, they then come back with what is called supplemental calls. So it is a problem if you go into a P&I club, you don't know at the beginning, what the ultimate cost is going to be because they could have a supplemental on you. There is a limit to the call that they are allowed to make and that limit will vary from year to year. You'll have to determine, from your broker, the maximum limits that they can make. The oldest of the clubs formed was the Britannia Steamship Insurance Association which is still flourishing in London. That club, interestingly, was formed on Feb. 22, 1855. That is still the date used by that club. Their policy runs Feb. 22nd to Feb. 22nd, and if you go into that

club, your fiscal policy year will run from Feb. 22nd to Feb. 22nd. That seemed to work well for them and there is an interrelationship between some of the British P&I clubs, so they also use Feb. 22nd. So if your P&I is in a P&I club, your policy will start Feb. 22nd.

The reason for the name P&I is that the coverage provided Protection for the liabilities arising out of the ownership of the vessel and the Indemnity for the liability arising out of the employment of the ship. The main classes covered in a P&I club ( P&I club as opposed to an American Underwriter that covers P&I) are protection and indemnity war risks, freight war risks, freight demurrage and defense. There have been numerous attempts to form P&I clubs in the U.S., but only one, the American Steamship Owners Mutual P&I Association, was formed in 1917 and known as the American Club and is presently still in existence. Where in the United States, coverage against collision liabilities running down clause, has usually been on a 4-4 basis and the American Club wrote it that way and present P&I insurance in London is predicated on the same basis. A number of United States insurance companies provide P&I insurance coverage but only on non-blue water fleets. In marine terminology, a blue water fleet is a steamship or motor vessel carrying cargo for hire or carrying the owners own cargo, in the case of tankers. As operators of research vessels, you would probably be able to place your P&I coverage in the American market thru any number of companies or you could place it in Lloyds of the English market or in the P&I clubs. There are a number of markets available to you and when you talk to your broker, make sure they scour all the markets because there is a lot of flexibility and there is a lot of pendulum swinging in this business, it goes back and forth from year to year as to who is making money and who is not.

Insurance placements covering P&I risks can be divided into the following major categories of liabilities, some of which apply to you and some which don't. There is loss of life or personal injury, repatriation of crew, damage to third party vessels, damage to third party property, removal of wreck, damage to cargo, customs immigration or other fines and penalties, mutiny of the crew, extraordinary expenses in case of quarantine and deviation for the landing of an injured seaman. The question of deviation was discussed quite a bit by the last speaker and let me caution what I am saying here is in the P&I clubs. It will vary somewhat with P&I underwriters. P&I policies are written on a name of vessel basis and this has to be stressed that coverage is only in respect to the vessel named in the policy. Usually they have a limit of liability and insurance policy which is on a per accident basis. The policy is an indemnity type form that states that the insurer will indemnify the insured for that which he has become liable to pay and shall pay on account of his liabilities. Something to remember, that if you get into a large P&I claim, the underwriters will probably not advance you the money to settle the claim. It is an indemnity policy. They are only indemnifying you after you have paid it. There was some talk that they were going to modernize this but they are reluctant to do so because of a District Court in Louisiana. They have allowed direct intervention statutes where on the part of people who want to chase directly after an insurance company that insured somebody. The reason being that a person liable for an accident may be bankrupt; may be dead for that matter and he cannot be reached by the injured party; so that the injur-

ed party wants to go directly to the insurance company. As such, most P&I policies remain strictly indemnity policies. You may be in a situation where you have a claim for \$150,000 and the insurance company will probably make you pay it with your own check while their lawyer hands you a check 5 minutes later. Sometimes, if it is not too volatile a case, they will advance you the money on a loan receipt. You get a check, but on the back of the check it says it's not a check only a loan, and you sign it as a loan receipt.

The details of the coverage under the P&I policy are; loss of life and personal injury, this covers your liability to any person for loss of life or injury when arising out of the operation of the vessel and would include crew members, passengers, guests, etc. The clauses do exclude compensation, under any Workmen's Compensation for an employee of the insured, other than a seaman and would also cover the Longshoremen and Harbor Workers Compensation Act, which is a Federal Act as opposed to the State Workers Compensation Act. Those Acts usually exclude members of a crew or vessel under their policies; so they are mutually exclusive. There is no mention of the Jones Act or general maritime law remedies in the policy but the remedies are included in the P&I coverage and are one of the areas that cause the greatest concern to underwriters. It should be remembered that remedies covered under the Jones Act are limited to claims by crew members against their employer, for death or injury arising out of negligence on the part of the employer or the unseaworthiness of the vessel. You have a unique area in American law where vessel crews are not covered by a compensation act. They are entitled to certain remedies under General Maritime Law. They are entitled to wages to the end of the voyage or the normal pay period. They are entitled to maintenance until they are well or deemed not being able to get well. That's usually pretty limited and varies from \$8.00 to \$12.00 per day, depending on the area. They are entitled to cure, that is, their medical costs. They are not entitled to any wages as you have on a Workmen's Compensation Program. They are not entitled to any award for the injuries they have sustained, unless they prove the vessel negligent or unseaworthy which is quite easy to do nowadays, I might add, as far as the courts are concerned. The Unions will not give up the Jones Act. Congress has attempted to repeal that part of the Jones Act that relates to seamen and seamen's injuries and to put thru a compensation program for them. The Unions won't allow it because the American seaman is in a position where he can sue his employer which land based employees are not allowed to do. I saw a horrendous settlement where a seaman collected for slipping on a wet deck. The wet deck causing the ship to be unseaworthy.

The policy response to hospital and medical expenses, together with certain burial expenses for crew members who died during the voyage, covers repatriation of crew members. It also covers the costs of returning men to the country of domicile as required by statutory obligations. Most American seamen going foreign, sign articles and their articles require them to be taken home. This section also picks up wages of crew members, again as a result of statutory obligations in case the vessel is wrecked or lost. If a vessel sinks in some far off port, you not only have to bring the crew home but pay them wages until such time as they get home. It covers damage to others vessels also. Here we come to the original cause of the P&I policy in the first place.

The P&I policy will cover damage to any other vessel, cargo or property on board the vessel and the freight of the vessel - monies earned which would not be covered under a standard policy with a 4-4 clause. The interpretation of that is, you have a hull policy, the hull policy contains a collision clause then the collision liability, up to the value of your insured vessel, is paid by the hull policy. If there are expenses in excess of that, then that is called excess collision coverage and is picked up under the P&I policy. It also covers damage to a third party vessel not caused by collision, such as in the case of a wash damage. If you go through a crowded mooring, with boats banging against a dock, you haven't actually collided with anybody but you did cause damage. There is another situation where there is erratic navigation on the part of your vessel; you cause some other vessel to run aground, that would also be covered under the P&I policy. The P&I policy carries coverage by damage done by the vessel to dock, wharfs, buoys, etc. It has an interesting extension, that if it damages your own dock it pays for that also. This is a legal liability policy, you cannot be legally liable to yourself. Over the years, it has been extended to cover damage to your own dock if your vessel comes in and hits it, again, under your P&I policy. These, of course, are all subject to deductibles in your policy. It will only cover the dock, if the dock is not otherwise insured. If it's insured, you must go to that policy first. Concerning removal of wrecks; should the vessel be sunk or wrecked in the fairway or other part of the dock or navigable stream, where the local authorities require the removal of the wreck, then the P&I policy would pay for the cost of removal of the wreck up to the limit of the policy. Generally speaking, there is no requirement to remove wrecks at sea, thus no coverage for such liability is needed.

Damage to cargo on board the vessel - this is not of much interest to you since you do not carry cargo for hire. Examine your P&I policy carefully it may be it would cover some third party gear you may carry aboard. The policy may or may not depending on what form it is and how the policy is written. If it does not you could probably extend the policy to cover it. Again it's a legal liability policy and it would not cover prime insurance coverage on that equipment. That should be covered by the owner or you under the terms of your lease as it may be if you have it leased or borrowed. Your policy could be extended to cover it if you were legally liable - if you were doing something and you dropped it or didn't secure it properly or damaged it in some other way.

The policy covers customs immigration or other fines or penalties subject to a requirement of due diligence. Coverage is granted for fines or penalties arising out of the violation of the laws of the United States or other foreign countries.

Generally a pollution exclusion will be endorsed on the policy thus cutting out coverage for fines for pollution. On the subject of pollution - you have a liability as a vessel operator under the 1972 Clean Water Act. You may not have to carry a certificate of financial responsibility on board. You don't have to do that unless your vessel is over 300 gross tons or not you have a liability under the Clean Water Act for pollution. It runs either \$100 or \$150 per gross registered ton of the vessel. Whether it's \$100 or \$150 depends upon whether you carry fuel

for cargo. If you were to have a pollution incident and the Coast Guard would have to come in and clean it up then you are liable for it but only up to, in your case, \$100 per ton. Any excess to that is supposed to be covered by the Super-Fund. There has been a change if you are required to file a certificate of financial responsibility. Up to Sept. 19th you did that through the Federal Maritime Commission. You now have to do that through the U.S. Coast Guard. They are the ones responsible for the documentation and enforcement. If you're insured, you're insured through the W.Q.I.S. which is the Water Quality Insurance Syndicate in New York. This is a pool of a number of American Insurance Companies primarily who are marine writers and whether you're required to insure it or not it is cost effective to insure it. It's quite cheap insurance it's based strictly on tonnage of the vessel. Since most of you would operate small tonnage vessels it's worth buying, as opposed to having to pay the expense of a clean up.

The P&I policies cover expenses arising out of mutiny which is something you are not worried about. It covers quarantine expenses, if you have extraordinary expenses because the ship is quarantined in a given port. This is an obscure piece of coverage and not much impact in the world today. It does cover if the vessel has to deviate in her voyage to land a crew member who is injured or ill. The policy picks up additional costs such as port charges, agents fees, fuel. It will probably cover the cost of your fuel from the point of deviation to returning to the point from which you deviated. It would not cover consequential damages caused by that.

You should look into, at some time, the benefit of trying to utilize your premium dollars to the greatest extent possible. It's possible for an organization such as this to form an association and market your risk on a broad spectrum with all of the boats in it. This would probably work to the benefit of the greatest number of members. There may be some people that it would come out and hurt a little bit.

October 1983

Report of Workshop on Charter Vessel Policy  
Chairman, K. M. Palfrey, Marine Superintendent  
Oregon State University

Research Vessel Operators Council  
Annual Meeting 4-6 October 1983  
Honolulu, Hawaii

This workshop was held on the morning of 5 October and lasted about one hour. All RVOC members attending the annual meeting participated as did the UNOLS, ONR and NSF observers.

Discussion centered around a listing of clauses which should be considered in preparing time charter party documents. A copy of this listing as provided to the workshop is attached.

#### Conclusions

- a). The section of the UNOLS Research Vessel Safety Standards concerned with chartering of non-institution vessels should be updated and broken out of the operator's chapter (14) and allowed to stand as a separate chapter to add emphasis. The updating should include a statement on Coast Guard oceanographic research vessel designation letter and uninspected vessel examination. The chairman will prepare a draft as a part of the UNOLS Safety Standards update being undertaken by the RVOC.
- b). There is a continuing need to exchange vessel chartering policies and procedures between UNOLS institutions. The material collected by the chairman in the course of this workshop is attached with the permission of the institutions concerned. The chairman will continue to serve as a clearinghouse for this type of material.

Report of Workshop on  
Charter Vessel Policy  
October 1983  
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c.) All charters, whether in or out, should be documented according to the institution's business practice. The form may run from an informal memorandum of understanding and a purchase order to a formal time charter party agreement/contract. As the nature of each charter will probably be different, legal implications will dictate the degree of formality and binding clauses. A standard UNOLS policy, procedure or form for chartering out was not believed appropriate.



WORKSHOP  
ON

SHIP OPERATIONS AND MARINE TECHNICIAN COSTS

During the RVOC meeting in Hawaii 4 - 6 October 1984 a workshop was held on the ship operations and marine technician costs. The workshop was conducted by exchanging ideas on a series of budgeting problems then a discussion was held of a spread sheet [attachment (1)] which made a comparison of costs for ship operations for 1982. This is a summary of that workshop.

The following areas were discussed and variations between institutions noted for:

- (1) Calculations of overhead (indirect) cost
- (2) Insurance costs
- (3) Biennial/annual overhaul budgeting
- (4) Fuel cost projections
- (5) Size of shore support
- (6) Clearing of accounts annually or every 3 years
- (7) NSF blanket coverage items
- (8) Funds other than Federal dollars
- (9) Charges to outside users
- (10) Detailed labor costs
- (11) Marine Technician budgets

Calculation of overhead (indirect) cost

A review of each institution's procedure for calculating overhead costs reveals that each institution uses a different method. It was generally felt that the negotiations for the overhead rate was done without the knowledge or consultation of the Marine Office. Several institutions indicated that their Marine Office had to conduct internal negotiations to bring the overhead rate down to a level that would keep the daily ship rate competitive. General frustration was indicated in this area since Marine Offices had so little control. The attached spread sheet reflects the proportion of overhead cost to total operating costs for each ship. It varies from 0 to 20%.

Insurance Costs

Both insurance costs and extent of coverage varies considerably from institution to institution. Rates are higher in areas considered high risk. Several institutions suggested that their insurance was written and contracted at the University or even state level and they had very little to do with their coverage or cost. A discussion was held on insuring over the side equipment. Some institutions do this on a regular basis, however, most indicated they could not find coverage that was cost effective.

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### Biennial/annual overhaul budgeting

Most institutions overhaul their vessels biennially which causes an increase in spending for that year. Some institutions budget for these overhauls in the year they occur while others level budget and pass the funds from the less costly upkeep years to the more costly years that contain the overhaul. Level budgeting is not done in some institutions where their accounting procedures require annual clearing and they are not permitted to slide monies from one year to the next. Level funding seems to spread the cost of the overhauls more equitably so that all users are paying their share. Level funding is preferred by NSF.

### Fuel Cost Projections

Most operators take the average daily fuel consumption times the number of projected operating days times an estimate of fuel costs for the coming year to estimate the total fuel. The difficult figure in this formula is the estimated fuel cost. Some use the Navy contracted price as the estimated cost. Variations in fuel costs during an operating year can have significant impact on ones budget. In the past two years fuel prices have been much more stable and have therefore caused less of a budgeting problem. John McMillan explained a way to use Federal contracts to buy fuel overseas.

### Size of Shore Support

Local conditions at the various institutions dictate the size of shore support which are tailored to the individual needs. Where there is a physical separation of the ship from traditional repair facilities an inhouse group is developed. This is also the case for the multi ship institutions. Institutions where the ship operates most of the time away from their home port, shore support is non-existent. Some institutions set up a crew rotation program where the crew not aboard act as shore support.

### Clearing of Accounts Anually or Every Three Years

NSF requires grants to be cleared every three years with an additional six month extension. Using a provisional rate most institutions make necessary adjustments year to year so that the account can zero out after the third year. Several institutions require a clearing at the end of each year. This necessitates provisional rates changing several times during any one year. Some institutions have back charged non-NSF cruises to make up a deficiency at the end of a year. The procedures used at the individual institutions vary with their local accounting rules and regulations.

NSF Blanket Coverage Items

NSF presently coordinates the purchase of wire for the entire academic fleet. Other areas that are likely or potentials for blanket coverage are: Medical Advisory Service, Insurance and possibly overseas fuel.

Funds Other Than Federal Dollars

Several institutions receive support for their vessels from sources other than through the Federal Government. This includes guaranteed ship use time by the State, zero overhead, institutional support for maintenance and equipment purchase and return on overhead in excess of that taken from the budget. These monies or services help support the respective vessels' costs and therefore reduce specific cost categories. In most cases these cost savings are difficult to itemize and therefore represent a hidden saving to some operators.

Charges to Outside Users

Most institutions that provide research ship services to commercial users add a surcharge to their normal calculated rate. This amounts to a 10 or 15% addition. The additional monies are normally brought into the general income resulting, at least theoretically, in a reduced cost for the normal federal users.

Detailed Local Labor Costs

Attachment (2) to this appendix is a summary of labor cost to the ship operators. The spread sheet is a composite of the labor costs received by this writer. Shown is the highest, lowest and average wage for each position.

Marine Technician Budgets

The Marine offices at about half the institutions are responsible for preparing the budgets for the marine techs. The organization with respect to the marine tech vary greatly from institution to institution. It was generally felt that those organizations where the marine techs are a separate entity from the Marine Office have more flexibility and a balance to their organization. The marine tech budget is not clear cut like the ship's budget. It is filled with many variables due to the variable nature of the science and the requirements of the scientists. These variables make budgeting very difficult. More defined guidelines are needed for marine tech budget preparation although this would be difficult since each institution has developed a technician system based on their local needs. The result is a complex mix of talents, titles and organizational responsibility. The Users Manual is the place to define the individual institutions tech organizations. It was felt that even though the marine tech system is complicated because of the various institutional differences the tasks are valuable and necessary to the conduct of science at sea.

Attachment (1) to this appendix is a spread sheet on specific ship costs for 1982. This year was chosen since it was the latest year for which final costs are known. Caution should be taken in drawing conclusions on such a limited set of data. Variables such as ship operating mode (operating foreign or domestic) maintenance cycle, local labor conditions or number of operating days can skew any one ship's figures. However, these figures do permit operators to compare their operation with others and should be a useful comparison.

Summary

A multitude of variables exist from institution to institution which effect the cost of operating the respective research vessels. These include: institutional policies, local labor costs, operational modes and areas, charging techniques, age and condition of the vessel and complexity of science being conducted. These variables add or remove costs from the various vessels making a comparison very difficult. The value of this workshop is to illuminate some of these differences to permit the operators a chance to evaluate their costs against the other operators. Hopefully it will result in an increased efficiency of the fleet as a whole.

Attachment 1

1982 COST ANALYSIS

No.	SHIP	LENGTH	OPERATING DAYS	1982 TOTAL OF COSTS	1982 COST PER DAY	SOLICITS \$4 TO 75% OF COSTS	% AMOUNT TO TOTAL OF COSTS	% FUEL COST TO TOTAL OF COSTS	% STAFF COSTS TO TOTAL OF SALARIES	% OIL BUNKER COST TO TOTAL OF COSTS	FUEL COST PER DAY	FOOD COST PER DAY	COST PER TON MILE	PER TON MILE
07	MELVILLE	245'	175	2044432	11968	35.9	21.7	14.1	9.2	19.6	1753	7.14	413	5.9
25	KNORR	245'	058	2966985	11771	48.8	11.4	17.4	4.0	25.8	1594	7.92	267	11.5
19	THOMPSON	209'	265	2163956	8166	53.5	12.0	14.8	3.1	28.7	1212	5.44	425	5.8
15	CONRAD	209'	284	1933715	6818	55.8	6.7	15.1	5.9	22.5	1062	9.23	453	5.0
17	WASHINGTON	209'	240	2310103	9625	46.8	12.5	14.5	4.6	31.7	1377	7.47	566	7.1
02	ATLANTUS II	210'	-	673963	-	39.1	29.3	-	-	-	-	-	-	-
13	OCEANUS	179'	205	1281954	5738	49.2	11.9	19.6	4.2	15.7	1118	6.60	428	5.9
14	ENDEAVOR	177'	248	1376061	5549	52.6	12.4	17.7	8.7	28.3	986	6.63	447	5.7
14	WEGOMA	177'	236	1335324	6658	48.1	17.6	16.5	7.7	24.2	1301	7.47	354	5.6
02	GYRE	174'	236	1220000	7720	27.8	12.7	9.6	9.3	0	703	6.53	251	5.1
13	MORNA WAIVE	174'	365	1152225	3168	45.9	11.2	11.4	1.1	9.6	361	3.55	204	2.2
12	NEU HORIZON	170'	242	1444608	6052	39.5	15.7	22.4	10.5	20.1	448	3.24	405	5.6
13	COLUMBUS ESELIN	170'	-	716607	-	56.1	-	-	-	-	-	-	-	-
15	KANA KEOKI	157'	170	1124728	5720	44.2	9.6	12.1	1.6	15.2	1015	7.11	249	5.5
12	CARE FLORIDA	135'	203	728722	3690	49.3	18.1	12.8	2.6	5.8	498	6.33	249	7.2
12	CARE HATTERAS	135'	266	1102242	4144	38.5	10.1	17.9	2.0	20.3	726	2.59	245	7.7
12	ALPHA HELIX	133'	177	1240635	7007	52.6	21.0	12.5	1.1	39.2	877	5.51	467	12.1
12	CARE HENLORFN	128'	157	667978	3709	28.8	15.7	25.0	1.2	11.5	1062	4.39	308	12.4
12	VELERO IV	110'	147	651493	4452	58.7	11.2	5.8	1.5	5.8	277	2.81	497	6.2
11	WARFIELD	106'	97	462276	4772	45.1	25.0	12.9	2.3	5.1	444	6.56	302	8.2
R	E.B. SCRIPPS	95'	111	220560	2028	40.3	22.9	7.4	2.8	4.7	253	7.92	195	11.6
R	CAVUSE	80'	135	444160	3937	59.1	19.2	5.5	1.0	11.1	198	10.96	450	12.9
C	CALANUS	64'	126	377220	1578	25.7	21.8	4.5	6.2	25.0	79	2.19	203	15.2

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Attachment 2

Detailed Labor Costs  
Crew Pay Survey\*  
(Annual Base Pay)

<u>Number Considered</u>	<u>Position</u>		<u>Highest Pay</u>	<u>Lowest Pay</u>	<u>Average Pay</u>
10	Master		71064	19120	39387
7	1st Mate	Plus O.T.	28044	16577	24414
7	3rd Mate	Plus O.T.	26076	16247	21252
5	Bosun	Plus O.T.	23580	13764	18102
8	A.B.	Plus O.T.	21912	10100	14654
9	Chief Engr.		59976	17200	37004
4	1st Ass't Engr.	Plus O.T.	26700	23856	25761
7	3rd Ass't Engr.	Plus O.T.	23016	16247	19797
4	Oiler	Plus O.T.	21912	12295	15492
9	Steward/Cook	Plus O.T.	22452	9682	16390
6	Cook/Messman	Plus O.T.	18888	10388	13305

\*Ten institutions submitted wage figures. Various benefit packages were included however these wages shown do not include overtime, sea pay or other benefits with the exception of those for the Master and Chief Engineer. The following institutions contributed wage figures for this survey: U of Washington; U of Oregon; USC; Texas; Texas A & M; Skidaway; Johns Hopkins; Delaware; URI; WHOI.

Report of Workshop  
on  
UNOLS Safety Standards

Chairman T. K. Tex Treadwell  
Texas A & M University

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Interest in the subject of revised Safety Standards was high, and several important inputs were provided by both operators and agency representatives. Concerns emphasized such topics as diving safety, ship stability, emergency communications, explosives and dangerous materials, and procedures for maintaining overall safety.

It was generally agreed that the current edition of the UNOLS "Safety Standards" needs extensive rewriting and expansion into several areas not presently covered. Much of the original version consists just of quotes from the pertinent CFR or USC legal requirements, with little interpretation or expansion beyond these bare minimums. Since most operators prudently go beyond the legal minimums, discussion of such practices is desirable.

Re-writing of various sections, and preparation of some new sections, was assigned to several experts in RVOC and institutional marine operations offices. The rewriting will take place during the remainder of CY 1983, looking toward a meeting of a small group in early 1984, from which a consolidated new draft will emerge for review. Comments from operating institutions will be considered, and a final draft prepared for submission to UNOLS at the spring 1984 meeting.