

# Proceedings

of the Marine Safety Council

Vol. 43, No. 10



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October 1986

# Proceedings

of the Marine Safety Council

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## Cover

This Caribbean coastal freighter was loaded incorrectly and nearly capsized. Frank Perrini's article, beginning on page 223, gives an overview of the load line issue. (Official U.S. Coast Guard photo)

# Load Lines in the Caribbean Trade

Frank Perrini

Many small coastal freighters plying the waters of the Caribbean are registered in countries which are not party to the International Convention on Load Lines, 1966 (ICLL 66). Their cargoes are usually general in nature. Some vessels specialize in the carriage of bulk cargo, such as grain, or containers. Most of these vessels are in "tramp" service, having no set schedules and engaging in business wherever available. These vessel operations have gravitated to the Caribbean area because of the temperate climate and sheltered waters there and the relationship of many of the local countries with regard to the international conventions.

Some vessel owners, operators, and agents are not aware of U.S. load line requirements, nor do they know where to obtain such information. This article gives the maritime community a condensed overview of load line history, administrative procedures for obtaining freeboard assignment, and the technical requirements for certification. A few of the typical load line problems, based on actual experiences, are mentioned to assist the prospective owners/agents in avoiding expensive vessel delays.

The Coast Guard Office of Marine Safety, Security and Environmental Protection is responsible for the administration of the load line program which is designed to protect life, property, and the marine environment. Through Coast Guard oversight efforts, load line enforcement and the level of standards applied to vessels entering U.S. waters are being improved.

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*Mr. Perrini is a Staff Naval Architect in the Marine Technical and Hazardous Materials Division, U.S. Coast Guard Headquarters.*

## International Load Lines

Today there exist two load line conventions, the ICLL 66 and the 1930 Convention, the precursor of the ICLL 66. Over 100 nations of the world are party to the ICLL 66; the remaining nations are either party to the 1930 Convention or not party to any convention. The two treaties provide uniform load line standards of freeboard, conditions of assignment, watertight integrity, strength, and protection of the crew. Stability and strength standards are specified by the national administrations. Strength standards are usually based on classification society rules. The ICLL 66 applies to vessels over 79 feet in load line length engaged on international voyages.<sup>1</sup> Nations which are party to the conventions are obligated to require their flag vessels to meet convention standards and to enforce them via annual and periodic (5-year) load line surveys. They also agree to enforce these standards on foreign vessels in their home waters.

The 1930 Convention applies to vessels of 150 gross tons or more on international voyages. Gross tonnage is the vessel's volume cargo capacity determined by admeasurement rules. A few countries still utilize the 1930 Convention. Older vessels which were originally load lined under the 1930 Convention are known as "existing" vessels under the ICLL 66 and are permitted to retain the same standards provided the freeboard is not decreased and no

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<sup>1</sup>The load line length is defined as 96 percent of the total length on a waterline at 85 percent of the least molded depth measured from the top of the keel, or the length from the fore side of the stem to the axis of the rudder stock on that waterline, if that be greater.

other changes are made which reduce safety.

The load line assigning and issuing authorities are usually one of three categories:

- the national administration or home government
- an international classification society
- other non-government agencies (i.e., private surveyors)

National administrations often delegate load line functions to either classification societies or private surveyors. All of these load line agents acting on behalf of national administrations must receive appointment and authority from the governments to do so.

The primary functions of load line assigning authorities are as follows:

- calculation of freeboards
- determinations of conditions of assignment (i.e., requirements for vents, coamings, hatches, guardrails, etc.)
- periodic surveying and reporting
- annual inspection and reporting
- certification
- load line hull marking verification

Table 1, a partial list of nations and possessions in the Caribbean area, indicates their current status (as of the date of this article) with regard to the ICLL 66:

<u>Party Nations</u>	<u>Non-Party Nations</u>	<u>Possessions To Which the ICLL 66 Has Not Been Extended</u>
Bahamas	Cayman Islands	Montserrat (UK)
Barbados	Colombia	St. Vincent and the Grenadines (UK)
Brazil	Costa Rica	Turks and Caicos Islands (UK)
Cuba	Guatemala	
Dominican Republic	Haiti	
Honduras	Nicaragua	
Jamaica	Paraguay	
Mexico		
Panama		
Trinidad and Tobago		
Venezuela		

## U.S. Load Line Policy

The United States is party to the 1966 Convention and is no longer party to the 1930 Convention as suggested in Recommendation 1 of the ICLL 66. In the Caribbean, the United States has extended its party status to Puerto Rico and the U.S. Virgin Islands. Under the International Voyage Load Line Act of 1973, vessels arriving or departing from any port or place within the jurisdiction of the United States are subject to load line requirements. The load line regulations are found in Title 46 of the Code of Federal Regulations, Parts 42 through 46, which are known as Subchapter "E." These regulations which implement the act require foreign vessels entering U.S. jurisdictional waters to have either a valid ICLL 66 certificate, issued under the authority of a nation which is party to the ICLL 66, or to meet equivalent standards. Foreign vessels registered in countries which are not party to the ICLL 66 must obtain a U.S. load line certificate in order to prove equivalency. This certificate, commonly known as a "Form B," is authorized for issuance by the U.S. Coast Guard and is valid only for use in U.S. waters.

The United States recognizes the American Bureau of Shipping as its primary load line assigning and issuing authority. Other classification societies that are recognized to act as assigning authorities on a case-by-case basis at the request of vessel owners are as follows:

Bureau Veritas

Det Norske Veritas

Germanischer Lloyd

Lloyd's Register of Shipping

Registro Italiano Navale

In order to satisfy both the ICLL 66 and the Safety of Life at Sea Convention (SOLAS) stability requirements, all vessels loading grain at U.S. ports must obtain a Document of Authorization and Certificates of Loading from the National Cargo Bureau. The Document of Authorization verifies that the vessel's grain stability booklet meets the requirements of Chapter VI of SOLAS. The Certificate



*This Caribbean coastal freighter was loaded incorrectly, nearly resulting in the vessel's capsizing. The photo shows the vessel undergoing corrective unloading/loading. (Official U.S. Coast Guard photo)*

of Loading is required each time the vessel loads, attesting that the grain is loaded in accordance with SOLAS standards.

### **General Load Line Problems in the Caribbean Trade**

A few countries which are party to the ICLL 66 appoint private corporations to act as load line assigning and issuing authorities, some of which apply lax standards. Under Article 21 of the ICLL 66, the Coast Guard is obligated to enforce certain load line standards to ensure that foreign vessels are "fit to proceed to sea." Therefore, any load line authority acting on behalf of foreign governments which survey and certificate vessels which visit U.S. ports, fall under the scrutiny of Coast Guard field inspectors. This not only protects lives but also

protects U.S. waters and waterways from pollution incidents and navigational hazards. This is particularly important if the load line standards are the only safety requirements protecting these cargo vessels from the hazards of the sea as in the case of those under 500 gross tons.

Another problem in this area is that vessel ownership and registration change frequently, sometimes several times per year. Many owners register them under foreign flags and seek Form B load lines for operation in U.S. trade. These operations present an administrative problem for the Coast Guard with regard to recordkeeping, but more important, they sometimes present safety problems for our vessel inspectors.

The photograph accompanying this article shows a typical Caribbean coastal freighter which was loading scrap paper in Miami. The

vessel was from a Caribbean area nation which is party to the ICLL 66. The vessel's master loaded his vessel using intuitive judgment instead of the stability information required by the Convention. As the master loaded cargo, he pumped ballast water into the double bottom tanks to compensate for the high cargo weight. However, a deteriorated centerline bulkhead in the double bottom and a fractured vent pipe in the hold caused off-center flooding, nearly resulting in the vessel's capsizing. The problem was corrected before the vessel was permitted to put to sea. The photo shows the vessel undergoing corrective unloading/loading.

Many vessels have load lines marked with paint only, which becomes barely visible with age and corrosion. U.S. load line regulations and Regulation 8 of the ICLL 66 require that load line marks be permanently fixed on each side of the vessel and then painted with colors contrasting with the hull. The Coast Guard prefers that they are outlined either with weld beading or punch marks to ensure permanency.

### **Form B Load Lines**

Vessels registered in countries which are not party to the ICLL 66 are required to have a Form B (U.S.) load line certificate before entering the waters of the United States, its territories, and possessions. The procedures for obtaining a Form B load line are published in the Navigation and Vessel Inspection Circular (NVIC) No. 18-82 which is available through the U.S. Coast Guard (G-MP-2), 2100 Second Street, SW, Washington, DC 20593; telephone (202) 267-1483. Provisional (temporary) certificates are issued for a period not to exceed 5 months in order to allow vessel owners sufficient time to obtain approval of the vessel's stability information. Full-term (permanent) certificates are issued for a period of 5 years. The Coast Guard's Naval Architecture Branch reviews stability information to ensure that there is sufficient information for the vessel's master to determine stability for any loading condition. No minimum level of stability is required at present.

The American Bureau of Shipping is authorized to issue provisional Form B load line certificates without prior Coast Guard approval. However, ABS must obtain authorization to issue full-term certificates. All other classification societies must obtain both an appointment to act as an assigning authority and authorization to issue both provisional and full-term certificates on a case-by-case basis for each vessel.

Load line requests for authorization and appointment of recognized classification societies should be sent to the following address:

U.S. Coast Guard (G-MTH-3)  
2100 Second Street, SW  
Washington, DC 20593  
Telex: 892427  
(Response: COGARD WASH)

Requests should be in writing (either letter or telex) and should include the following information:

- Vessel name (and former name, if known)
- Vessel ID number (classification society ID/call sign)
- Country of registry
- Requested assigning authority (classification society)
- Full name, address, and telephone/telex number of owner/agent

### **Form B Problems**

Non-party flag vessels sailing in the Caribbean area often arrive in U.S. ports without the required Form B load line, assuming that their "home" government load line papers would suffice. In these cases, the local Coast Guard Marine Safety Office detains these vessels until the proper Form B certificate is obtained. The appropriate foreign consulate is notified of the detention. Also, vessels are frequently reflagged to a non-party nation while in a U.S. port. The number of reflagged vessels which have been idle for extended periods is increasing.

Many of these foreign-flag vessel owners expect to obtain Form B certificates immediately. We have informed vessel owners and their agents through the recognized classification societies that the Coast Guard requires at least 2 weeks of lead time to handle Form B load line requests. Load line surveys by the assigning can be time-consuming and require advanced planning. If the vessel is not classed or has not had a hull inspection in drydock within the last 5 years, a drydocking is required.

Some of the load line papers on board these vessels are either "national" certificates or ICLL 66 "look-alikes." Neither will satisfy

U.S. requirements, and the ICLL 66 "look-alike" is not permitted by the Convention itself. The "national" certificates are often issued by or on behalf of "home" governments. Often neither the issuing agents nor the home government have the expertise or facilities required to ensure ICLL 66 standards. The ICLL 66 "imitation" certificates look quite official to the untrained eye. To counter this problem, the Marine Safety Offices have been advised of their existence, and updated listings of party and non-party countries have been provided to them.

We have attempted to communicate through the State Department with nations which have issued the ICLL 66 "imitation" certificates addressing this problem. No responses have been received to date.

Vessel masters often neither understand stability nor heed stability information provided to them. Masters often rely on shoreside personnel to perform stability calculations, if they are done at all. A case similar to the mishap previously mentioned was the M/V POINCIANA which flooded until grounded while being loaded. The POINCIANA was loaded with cargo in its holds and above decks until it had negative stability. When tugs pulled the POINCIANA off ground into deeper water, it heeled over and sank, spilling a cargo of chemical pollutants into the Miami River.

Since Form B vessels change ownership frequently, vessel owners/agents have difficulty obtaining the original stability information provided to the vessel. Often the stability information submitted to the Coast Guard for approval is piecemeal, illegible, and incomplete. If owners/agents have had difficulty obtaining approval after several attempts, they are advised to seek the assistance of a naval architect who can generate the missing calculations and instructions and assemble the information into a comprehensive booklet. Stability information is often submitted with unidentifiable vessel names or names of sister vessels. In these cases, the submitters are requested to verify in writing that the stability information applies to the vessel being assigned a load line.

Many of the vessel crews are composed of several nationalities. Sometimes stability information is written in a language not familiar to the master or crew. This presents an administrative problem for the Coast Guard in specifying language requirements for approved stability information. In several cases, the Coast Guard has required the stability information to be translated.

## Load Line Program Improvements

Form B policy will be changed in the near future in order to upgrade the level of safety and to reduce the administrative burden on the Coast Guard. The Coast Guard is considering a stability requirement for a Form B load line certificate in order to improve the masters' interest in and intelligent use of proper stability and loading information. A stability criteria equivalent to that required for load lined U.S.-flag vessels of the same type will be required along with verification of lightship characteristics. The Coast Guard intends to delegate the review of Form B stability and stability test data to the recognized assigning authorities. These policy changes will be reflected in a change to NVIC 18-82 or a regulation revision.

The Coast Guard's Naval Architecture Branch will periodically audit the classification societies in the performance of these delegated functions, particularly in the areas of freeboard calculation and stability review. Officers in Charge, Marine Inspection (OCMIs), under the direction of the Coast Guard's Merchant Vessel Inspection Division, will oversee assigning authority inspections, surveys, certification, and hull marking verification. A critical area of concern for inspectors is the hull watertight integrity. Hull integrity requires that all hull closures, such as shell valves, watertight doors, portlights, and hatches are properly sealed and secured. Under NVIC 2-85, assigning authorities are obligated to report load line deficiencies and violations to the local OCMI.

U.S. Customs officers in the field are usually the first to board vessels arriving in U.S. ports. The Coast Guard is often dependent on its preliminary checks of vessel papers, including load line certification. The Coast Guard has established a working relationship with the Headquarters of the U.S. Customs Service in Washington, DC, to keep that agency informed of current load line policy and events. Customs Headquarters in Washington and its training facility in Georgia have both been provided with complete load line information packages, including the treaties, laws, regulations, and policy. Customs will also be attending load line "roundtable" meetings held yearly with the recognized assigning authorities at Coast Guard Headquarters.

*continued on page 232*

# The Sinking of the F/V ATLANTIC MIST

LCDR Christopher Walter  
and  
LCDR William J. Morani, Jr.

The captain of the F/V ATLANTIC MIST tried to keep his crew's spirits up that winter night in January 1985 as they floated through 10-foot seas in their exposure suits. He kept telling them that the Coast Guard knew where they were, that the helicopters were on their way. One man had already died; a second had just a few minutes to live.

The ATLANTIC MIST was returning to Ocean City, Maryland, after a successful clamming trip. Its hold was completely filled with its catch, and more was stored on deck. A total of over 72,000 pounds of clams were on board. This 68-foot, 110-gross-ton clammer had ten round openings in the deck, each 12 inches in diameter, that were used to shovel clams into the hold. Each of these holes was capable of being closed by a round plate which had a locking mechanism and a rubber seal to make it watertight. When the day's clamming was done, the crew secured the clamming gear, washed down the deck, and rinsed the clam loading holes. The round plates that were used to close these holes were not secured.

## The Casualty

Throughout the day, the wind and seas built gradually until, in the early evening, the wind was 25 knots, and the seas reached 8 to 10 feet. Seas washing across the deck flooded down into the clam hold through the unsecured clam loading holes. At about 1930, just two and

a half hours from safety, the captain noticed that the vessel was down by the stern. He opened the hold and saw that it was partially flooded with about four and a half feet of water. The captain told the mate to pump it out and then called the Coast Guard as a precaution. He told the Coast Guard Group Eastern Shore that he was flooding but not in danger at that time. As a further precaution, he ordered the crew to don exposure suits and opened the deckhouse doors to allow quick escape from the vessel.

The water that washed across the deck and flooded down into the hold through the unsecured deck openings also washed sand and debris from the load of clams. This debris settled in the bottom of the hold and clogged the suction for the vessel's installed pumps, rendering them ineffective in controlling the flooding. The mate then attempted to use a portable pump through the deck hatch — the full load of clams kept him from getting good suction. As a result, his efforts to pump out the clam hold were not successful, and the ATLANTIC MIST continued to settle in the water. When the hold flooded completely, the engineroom began to flood through openings at the top of the bulkhead between the hold and the engineroom. When the engineroom high water alarm sounded, the captain ordered the vessel abandoned. The crew launched the liferaft on the starboard side while the captain sent a distress message to the Coast Guard. The captain then jumped off the port side and, seconds later, the ATLANTIC MIST rolled sharply to starboard, righted itself, and sank quickly by the stern.

As the master left the vessel, three of the four crewmen boarded the liferaft. They and the raft were pulled underwater by the ATLAN-

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*LCDR Morani is a Member of the Coast Guard's Fishing Vessel Safety Task Force.*

TIC MIST's starboard outrigger when it rolled and the outrigger outhaul block snagged the raft's canopy. One man escaped through the liferaft door, a second man escaped through a tear in the canopy. The third man remains missing and is presumed dead.

### Exposure Suit Problems

The company which owned the ATLANTIC MIST purchased exposure suits for the crew 6 years before the casualty. Three of the exposure suits failed to function properly because the tube which inflates the float that keeps the wearer's head upright and out of the water separated from the float. Since these suits were purchased, the Coast Guard approval standards for exposure suits were changed to require a positive means of securing the inflator tube (a clamp); the ATLANTIC MIST's suits did not have securing clamps on the inflator tubes. One of the crewmen, realizing that his exposure suit was defective in this regard, donned a life preserver over his exposure suit. He and the captain, whose exposure suit functioned normally, helped the other two men keep their heads out of the water.

The captain kept encouraging his crew by telling them that the Coast Guard had heard their distress signal and knew where they were. "The helicopters are on the way," he told them.

One man was despondent about the loss of his cousin who had been in the liferaft. His exposure suit also shipped some water. As this man became more and more affected by the 40-degree water, he started to talk incoherently and eventually lost consciousness and died.

Unknown to the men in the water, the Coast Guard rescue aircraft were forced to abort their missions because of severely deteriorating weather conditions. A number of Coast Guard, Navy, and commercial fishing vessels searched for over 11 hours before the survivors were recovered. During the night and before the crewman died from exposure, the men in the water saw searchlights from rescue craft passing over them, but they were not seen until the rescuers were nearby.

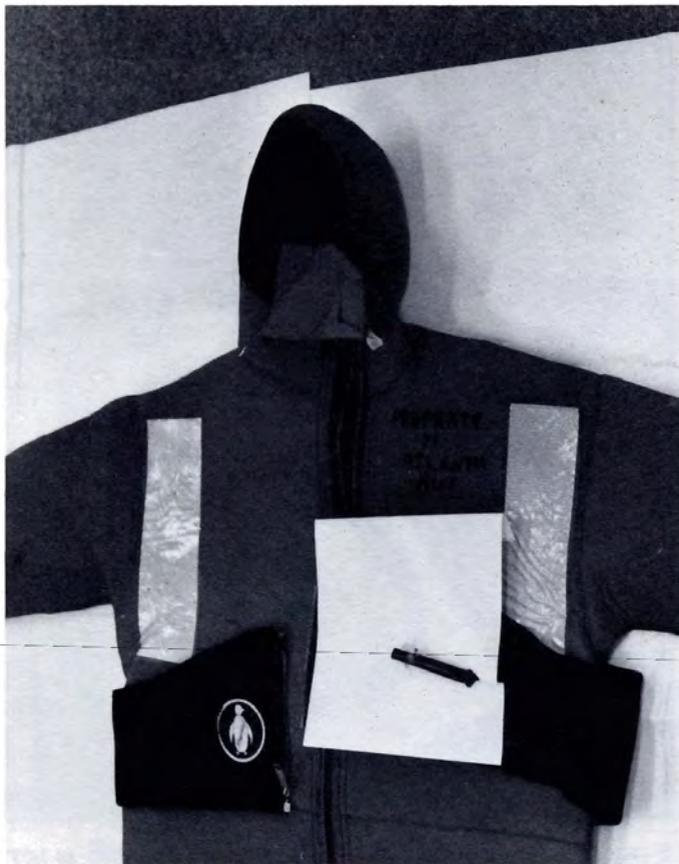
The owner did not equip the exposure suits and life preservers with the lights required by Title 46 Code of Federal Regulations 25.25-13. This regulation only applies to uninspected vessels on ocean, coastwise, or Great Lakes voyages. This vessel had been boarded before by the Coast Guard, and the lack of lights was not mentioned to the captain since his vessel was boarded in inland waters where this regulation does not apply. If the suits had been equipped with lights, the survivors might have been located and rescued before the second death occurred. In this connection, the National Transportation Safety Board, in its report entitled "Sinking of the United States Fishing Vessel ATLANTIC MIST, January 31, 1985, about 15 nmi East of Chincoteague Island, Virginia," made the following recommendation to the Coast Guard:



*Exposure suit used on the F/V ATLANTIC MIST. Note the intact inflator tube that is used to inflate the auxiliary means of buoyancy. (Photo by the author)*

*Require U.S. Coast Guard boarding personnel to notify masters and owners of non-complying uninspected commercial fishing vessels, known to operate in coastwise, ocean, or Great Lakes waters, in writing of the regulation requiring these vessels, when operating in such areas, to equip life preservers and exposure suits substituted for life preservers with lights even if the vessel is boarded in waters in which the regulation does not apply.*

(This quote was taken from the National Transportation Safety Board's Report Number NTSB / MAR-85 / 03 / SUM, "Sinking of the United States Fishing Vessel ATLANTIC MIST, January 31, 1985, about 15 nmi East of Chincoteague Island, Virginia," published by NTSB, Washington, DC, 1985.)



*Exposure suit used on the F/V ATLANTIC MIST. Note the missing inflator tube that is required to inflate the auxiliary means of buoyancy. (Photo by the author)*

### **Lessons Learned**

Several lessons can be learned from this tragedy. First, this casualty was caused by the failure of the vessel's crew to properly secure the watertight closures for the deck openings leading to the clam hold. Inflator tubes on exposure suits that are equipped with an auxiliary means of buoyancy should have clamps to hold the tube firmly in place. Owners of exposure suits that lack clamps should contact the manufacturer or supplier for assistance in obtaining them. The failure to provide lights for the exposure suits and life preservers may have contributed to the loss of one life. Owners of exposure suits and life preservers that do not have lights are encouraged to provide them, even if the vessel is used in water where the lights are not required. A regulatory project will be initiated by the Coast Guard to require that exposure suits on ocean, coastwise, or Great Lakes vessels be equipped with lights whether or not the exposure suits are carried as additional equipment (the current regulations in 46 CFR 25 do not require lights on exposure

suits unless the exposure suits are carried in lieu of life preservers.)

Several positive lessons came out of this casualty. First, the captain knew his vessel's location and reported his problem and location immediately even though he initially thought he was in no danger. The vessel was equipped with exposure suits and a liferaft. The captain organized his crew and had them don exposure suits immediately. If the captain had not taken these precautions, the loss of life probably would have been greater.

### **The Coast Guard's Fishing Vessel Safety Task Force**

As the sinking of the ATLANTIC MIST illustrates, commercial fishing is dangerous. In fact, the fishing industry has the worst safety record of any marine, industrial, or commercial activity in this country. In response to the poor safety record of uninspected commercial fishing vessels, the Commandant of the Coast Guard recommended a Fishing Vessel Safety Initiative to the Secretary of Transportation to reduce the number of casualties. The program was approved by the Secretary and is now a major safety initiative of the Coast Guard and Department of Transportation.

To develop the initiative, the Commandant formed a Fishing Vessel Safety Task Force. After visits to a number of port areas and soliciting advice and recommendations from industry representatives, government agencies and other Coast Guard personnel, it was determined that a voluntary program dealing with vessel standards and crew safety awareness and education was needed and could be effective in improving safety.

The vessel standards program originally consisted of a series of five Navigation and Vessel Inspection Circulars (NVICs), as follows: Stability (5-85), Radio and Shipboard Navigation Equipment (6-85), Fire Safety Measures (7-85), Lifesaving Equipment and Protection of the Crew (8-85), and Hull, Machinery, and Electrical Installations (9-85). They were published between June and September 1985. All five have been consolidated and published in NVIC 5-86 after allowing time for persons in the fishing industry to review, evaluate, and comment on our proposed safety standards.

To ensure wide circulation of these proposed standards, Task Force personnel distributed them to over 230 individuals, groups, and organizations throughout the United States who have an interest in fishing vessel safety (in addition to those already receiving NVICs

through the Government Printing Office). These groups included safety consultants, marine surveyors, naval architects, insurance underwriters, fishing vessel owners' associations, boat builders, fisheries unions, personnel associated with the National Oceanic and Atmospheric Administration Sea Grant program, and the National Marine Fisheries Service. Several sent detailed documents; all expressed a favorable reaction to the standards. Other methods also used to inform Coast Guard personnel and the public about the safety initiatives included Commandant Notice, Commandant's Bulletin, Fish Expo '85, industry-sponsored fishing vessel safety seminars and conferences throughout the country, Federal Register notice, and articles in industry periodicals.

NVIC 5-86 includes recommended voluntary standards intended to be used as guidelines for increased safety on board U.S. uninspected commercial fishing, fish processing, and fish tender vessels. It was assembled using a variety of sources, including feedback received from persons having an interest in fishing vessel safety; from classification society rules; from the Code of Safety for Fishermen and Fishing Vessels prepared by the Food and Agriculture Organization of the United Nations (FAO), the International Labor Organization (ILO), and the International Maritime Organization (IMO); from Canadian and United Kingdom fishing vessel requirements; from the American Boat and Yacht Council's (ABYC) Safety Standards for Small Craft; and from Coast Guard publications, applicable industry standards, and appropriate portions of federal regulations. NVIC 5-86 is one component of an overall safety program aimed at improving the safety record of commercial fishing vessels. The other components are the North Pacific Fishing Vessel Owner's Association/U.S. Coast Guard "Vessel Safety Manual" and industry-sponsored training courses.

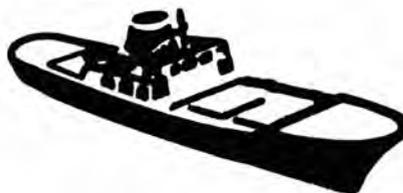
The safety awareness and education program was pursued by the Coast Guard in company with the North Pacific Fishing Vessel Owner's Association (NPFVOA). A looseleaf "Vessel Safety Manual" was published with chapters paralleling the vessel standards. Whereas NVIC 5-86 focuses on the technical aspects of fishing vessel design, construction, and equipment, the "Vessel Safety Manual" is specifically tailored for fishermen and addresses general operational concerns common to all commercial fishing vessels in different fisheries nationwide. It is easy to read and is illustrated with pictures and diagrams to facili-

tate teaching and learning. Fishing vessel owners, operators, and masters will find that the principles presented in the manual can be adopted to establish safety practices aboard their vessels. Associations and other interested groups may wish to add to this manual especially if a specific fishery has safety concerns unique to what now exists in the manual. Persons interested in purchasing a copy of the guide may do so by writing to NPFVOA Safety Program Office, Suite 207, Building C3, Fishermen's Terminal, Seattle, WA 98119; telephone (206) 283-0861. Those wishing to supplement the "Vessel Safety Manual" by developing specific local safety recommendations should contact Commandant (G-MTH-F/V), 2100 Second Street, SW, Washington, DC 20593. Printing plates for the "Vessel Safety Manual" can be made available for such purposes.

The "Vessel Safety Manual," in combination with the voluntary vessel standards contained in NVIC 5-86, gives persons in the fishing industry the framework necessary to develop and implement safety programs on their own. These voluntary vessel standards, coupled with the NPFVOA/USCG "Vessel Safety Manual" and private industry training courses, provides the commercial fishing industry with an overall fishing vessel safety enhancement program that will significantly improve its safety record by preventing casualties such as the sinking of the ATLANTIC MIST.

The Coast Guard recommends that vessel builders, marine surveyors, insurance underwriters, fishing vessel owners, operators, industry associations, and other interested parties (1) adopt and implement the voluntary vessel standards contained in NVIC 5-86, (2) develop regional specific safety recommendations and incorporate them into the NPFVOA/USCG "Vessel Safety Manual," and (3) develop and implement regional training programs using the NPFVOA/USCG "Vessel Safety Manual" as input into a curriculum outline and reference text.

Further information on fishing vessel safety and exposure suits can be found in the following articles published recently in this magazine: "Fishing Vessel Safety," June 1985, p. 137; "Exposure Suits," September 1985, p. 187; "The 'Penguin' and 'Susie' Saved My Life," February 1986, p. 31. †



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## From the Editor

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Dear Readers:

I'd like to thank all of you who promptly mailed in the subscription renewal postcards from the August 1986 issue of **Proceedings**. The heavy response indicates a genuine interest in the maritime safety issues that **Proceedings** tries to publicize each month. On behalf of the **Proceedings'** authors — individuals who contribute their time and talent to inform the maritime public — thanks for your interest and support.

Now for the bad news. It seems we have encountered a few unforeseen problems with the update of our mailing list. We've gotten a number of cards with handwritten messages asking us to delete four or five subscribers from the list — but to add another ten names. Some of you have asked not only to continue your subscription, but also to receive additional copies each month. And a few of you (only a few, thank goodness) mailed your cards to us, but you forgot to attach your mailing label, so we can't track your name and address to continue your subscription.

Because this magazine is published by a very small staff, and because updating the mailing list is basically a manual process, some of your requests may be accidentally overlooked. Please be patient with us. Presumably, we will complete our update by the first of the year. When the last of the renewal cards has been processed, I will publish a notice in **Proceedings** to let you know that the updated list has taken effect.

If you continue to have a subscription problem after the updated list is completed, please contact me at the address below and tell me what the problem is. We will do our best to

And thanks again.  
Editor, **Proceedings** Magazine

U.S. Coast Guard (G-CMC/21)  
Washington, DC 20593  
2100 Second Street, SW

*Sharon Chapman*

## LOAD LINES

*continued from page 227*

### Future Shipping Trends Affecting the Caribbean Trade

As fleets of the major world nations age and the world economy tightens, less money will likely be available for ship repair and maintenance. As a result, more foreign-flag vessels will be changing to operation in more temperate zones. It is safe to conclude that many of these vessels will end up in the Caribbean trade. This will require greater vigilance for the Coast Guard in the performance of its load line oversight functions. †

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## Marine Safety Center Telephone Numbers

In the May 1986 issue of **Proceedings**, we featured an article about the Coast Guard's Marine Safety Center (by LCDR John E. Veentjer, p. 95). The Marine Safety Center was established to consolidate many of the Coast Guard's activities in the Commercial Vessel Safety Program.

At the time LCDR Veentjer's article was published, the Marine Safety Center was in the process of moving into new office space. To avoid confusion for **Proceedings** readers, we decided to publish the Center's address and telephone numbers **after** the move was accomplished. After a brief delay due to telephone installation, the Center is now operational.

Telephone numbers for the Center's various divisions are listed below:

Commanding Officer — (202) 267-0795

Hull Division — (202) 267-1881

Engineering Division — (202) 267-0577

Cargo Division — (202) 267-0509

The Marine Safety Center also may be reached by writing to U.S. Coast Guard (G-MSC), 2100 Second Street, SW, Washington, DC 20593. †

## Henry E. Collins Awarded Coast Guard Meritorious Public Service Award

On July 31, 1986, U.S. Coast Guard Commandant Admiral Paul A. Yost awarded Henry E. Collins, Vice President for Governmental Affairs, Underwriters' Laboratories, Inc., the Coast Guard Meritorious Public Service Award, the highest recognition of its kind the Coast Guard may award to a private individual.

Mr. Collins was cited for distinguished public service in supporting U.S. Coast Guard safety programs for the past 25 years, and assisting the Coast Guard in adopting numerous industry standards for equipment and materials, as well as new approval procedures to benefit the government, the industry, and the public.

Mr. Collins has made valuable contributions toward a successful and timely transition from an era of Coast Guard approvals based upon intensive in-house review, testing and plant inspection, to an era of approvals based

upon industry consensus standards and independent laboratory certification. These initiatives allowed the Coast Guard to concentrate valuable resources on other important program areas, while maintaining an excellent level of safety.

The award was presented to Mr. Collins by RADM J.W. Kime, Chief of the Coast Guard's Office of Marine Safety, Security and Environmental Protection, at Mr. Collins' retirement ceremony, held at the U.S. Chamber of Commerce.

The Coast Guard has had a long history of working with voluntary standards organizations to develop industry standards for vessel design, marine systems, equipment, and components which can be adopted. The regulations for commercial vessels and recreational boats adopt a large number of industry standards, thus avoiding thousands of pages of regulations. Coast Guard regulatory policy requires the use of industry standards and third-party organizations to the maximum extent possible. Currently, over 200 industry standards are adopted. This results in a savings of over 20,000 pages of federal regulations. †

## Davis: New Merchant Marine Minority

Bob Davis (R-MI) has assumed the duties of the Ranking Minority Member of the House Merchant Marine and Fisheries Committee.

Congressman Davis was elected to the post by the House Republican Conference July 17, 1986, to fill the vacancy left by Norm Lent (R-NY) who moved to an identical slot at the House Energy and Commerce Committee. Congressman Lent replaced Jim Broyhill (D-NC) who was appointed to the U.S. Senate to fill the unexpired term of Senator John East, who died in early July.

"This is a great honor and a great challenge. I am pleased to be in a position of great influence on a Committee that has so much direct impact on Northern Michigan," said Congressman Davis, a Member of the Committee since coming to Congress in 1979.

In addition to retaining his position as Ranking Minority Member of the Coast Guard and Navigation Subcommittee, Congressman Davis also becomes an ex-officio Member of five other Subcommittees. Congressman Lent loses his ex-officio status on the Subcommittees but assumes Mr. Davis' membership on the Merchant Marine and Panama Canal/Outer Continental Shelf Subcommittees. †

Empty drums aren't always safe drums.



■ Don't smoke in areas where chemicals are used or stored.

(From the May 1986 *Safety Bulletin*, used with permission of the Chevron Shipping Co.)

# 1985 Merchant Marine Personnel Statistics

## Merchant Marine Officer Licenses Issued

	<b>Deck</b>			
	<u>Issues</u>	<u>Endorsements</u>	<u>Failures</u>	<u>Renewals</u>
Master, Any Gross Tons, Oceans	142	38	13	710
Master, Great Lakes	7	4	0	48
Master, Coastwise	13	3	0	40
Master, Lakes, Bays, Sounds/Rivers	598	300	17	1101
Master, Uninspected Vessels	72	41	0	185
Master, Fishing Vessels	12	7	0	40
Master, Ferry Vessels or MODUs*	64	4	0	34
Master, Freight and Towing Vessels	515	203	15	263
Master, Mineral and Oil Vessels	407	156	4	297
Chief Mate, Any Gross Tons, Oceans	171	65	4	160
Chief Mate, Limited Tonnage, Oceans	239	76	6	172
Second Mate, Any Gross Tons, Oceans	186	34	9	226
Third Mate, Any Gross Tons, Ocean	334	18	8	336
Mate, Uninspected Vessels	22	13	1	34
Mate, Fishing Vessels	12	1	0	37
Mate, Ferry Vessels or MODUs	14	1	0	3
Mate, Freight and Towing Vessels	168	44	8	40
Mate, Mineral and Oil Vessels	152	19	5	22
First Class Pilot	179	505	7	1180
Second Class Pilot	0	0	0	1
Operator, Uninspected Towing Vessels	509	135	23	1907
Second Class Operator, Uninspected Towing Vessels	119	13	8	12

\* MODU-Mobile Offshore Drilling Unit

# Engineer

	<u>Issues</u>	<u>Endorsements</u>	<u>Failures</u>	<u>Renewals</u>
Chief Engineer, Motor	104	143	5	226
First Assistant, Motor	89	105	2	119
Second Assistant, Motor	134	82	2	102
Third Assistant, Motor	230	25	3	596
Chief Engineer, Steam	108	14	7	559
First Assistant, Steam	178	8	5	253
Second Assistant, Steam	110	13	4	457
Third Assistant, Steam	160	4	2	217
Chief, Engineer, Steam & Motor	15	14	0	236
First Assistant, Steam & Motor	14	9	0	52
Second Assistant, Steam & Motor	47	13	1	70
Third Assistant, Steam & Motor	403	6	1	595
Chief Engineer, Uninspected Vessels	168	48	3	191
Assistant Engineer, Uninspected Vessels	75	9	5	84
Chief Engineer, Fishing Vessels	5	3	0	35
Assistant Engineer, Fishing Vessels	1	0	1	7
Chief Engineer, Ferry Vessels or MODUs	28	2	0	39
Assistant Engineer, Ferry Vessels or MODUs	5	1	0	2
Chief Engineer, Mineral & Oil Vessels	248	65	1	129
Assistant Engineer, Mineral & Oil Vessels	29	4	0	2

## Staff Officer Certificates of Registry Issued

Surgeon	3	Purser/HM	0
Professional Nurse	3	Senior Assistant Purser	0
Chief Purser	11	Senior Assistant Purser/PYA	0
Chief Purser/ PYA*	0	Senior Assistant Purser/HM	0
Chief Purser/HM**	1	Junior Assistant Purser	7
Purser	8	Junior Assistant Purser/PYA	0
Purser/PYA	0	Junior Assistant Purser/HM	1

\*PYA - Physician's Assistant

\*\*HM - Hospital Corpsman

# Operator Licenses

	<u>Issues</u>	<u>Endorsements</u>	<u>Failures</u>	<u>Renewals</u>
Small Passenger Vessels (Ocean)	3292	761	87	2415
Small Passenger Vessels (Inland)	1879	174	121	895
Uninspected Passenger Vessels	2887	143	145	1471

# Radio Officer License

	<u>Issues</u>	<u>Endorsements</u>	<u>Failures</u>	<u>Renewals</u>
Radio Officer	16	5	n/a	241

# Summary of All License Transactions

	<u>Issues</u>	<u>Endorsements</u>	<u>Failures</u>	<u>Renewals</u>
Deck (Less OUTV & 2/C OUTV*)	3306	1532	97	4929
OUTV & 2/C OUTV	628	148	31	1865
Engineer	2151	568	42	3971
Staff Officer	34	n/a	n/a	n/a
Operator (SPV & UPV**)	8058	1078	353	4781
Radio Officer	16	5	n/a	241
Radar Observer	n/a	8291	n/a	n/a
<b>TOTALS</b>	<b>14,193</b>	<b>11,622</b>	<b>523</b>	<b>15,787</b>
<b>TOTAL ALL TRANSACTIONS</b>	<b>42,125</b>			

\*OUTV & 2/C OUTV - Operator, Uninspected Towing Vessels and Second Class Operator, Uninspected Towing Vessels

\*\*SPV & UPV - Small Passenger Vessels and Uninspected Passenger Vessels

# Comparison

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Licenses Issued/Renewed	24,499	32,337	25,314	29,980
Endorsements	2,826	2,767	2,589	3,331
Failures	5,819	9,980	6,981	523
Radar Observer	1,510	3,552	3,064	8,291
<b>TOTAL TRANSACTIONS</b>	<b>34,654</b>	<b>48,636</b>	<b>37,948</b>	<b>42,125</b>

## Original Merchant Mariners Document Issued

<u>Yearly</u>	<u>Atlantic Coast</u>	<u>Pacific Coast</u>	<u>Gulf Coast</u>	<u>Great Lakes Region</u>	<u>Total</u>
January 1985	155	200	520	10	885
February 1985	85	202	271	7	565
March 1985	90	168	323	14	595
April 1985	211	214	268	11	704
May 1985	355	148	285	13	801
June 1985	503	218	275	13	1,009
July 1985	83	123	324	22	552
August 1985	116	195	215	10	536
September 1985	91	230	290	7	618
October 1985	56	178	21	8	493
November 1985	73	194	231	11	509
December 1985	78	153	209	11	451
<b>TOTAL</b>	<b>1,896</b>	<b>2,223</b>	<b>3,462</b>	<b>137</b>	<b>7,718</b>

## Original and Additional Endorsements Issued

	<u>Atlantic Coast</u>	<u>Pacific Coast</u>	<u>Gulf Coast</u>	<u>Great Lakes Region</u>	<u>Total</u>
AB-Any Waters, Unlimited	279	209	540	10	1,038
AB-Any Waters, Limited	261	91	89	6	447
AB-Any Waters, Special	128	41	63	2	234
AB-Great Lakes, 12 Months	3	0	0	1	4
AB-Other	28	14	70	1	113
Lifeboatman	1,039	241	586	37	1,903
Electrician	240	84	187	3	514
Oiler	346	160	39	7	552
Fireman/Watertender	284	110	89	2	485
Other Q.M.E. D. Ratings	1,951	400	55	20	2,426
Tankerman	449	200	175	19	843
Entry Ratings and Steward's Department including Temporary Documents	4,670	6,212	3,435	185	14,502
<b>TOTAL</b>	<b>9,678</b>	<b>7,762</b>	<b>5,328</b>	<b>293</b>	<b>23,061</b>

# Membership Invitation

The American Society of Mechanical Engineers (ASME) is seeking members for its Subcommittee on Boiler and Pressure Vessel Accreditation (SC-BPVA). The category of membership desired is that of General Interest which would include the general public, public educators, or consulting engineers. The committee currently is composed of a sufficient number of members representing the other categories, i.e., manufacturers, users, regulatory bodies, and inspection.

The SC-BPVA is responsible for establishing, reviewing, and implementing the activities which are managed and coordinated by ASME pertaining to accreditation programs associated with the Code Symbol Stamps issued by ASME to manufacturers of boilers and pressure vessels. The applicable Code Sections include SC-I for Power Boilers, SC-IV for Heating Boilers, SC-VIII Divisions 1 and 2 for Pressure Vessels, and SC-X for Fiberglass Pressure Vessels. The committee issues, renews, or withdraws the authority to use the Code Symbol Stamps based on quality assurance reviews of manufacturer operations. It also reviews and

evaluates reported code deficiencies, nonconformances, or alleged violations reported to the society. The subcommittee is charged with assuring the resolution of such deviations from accepted practices in accordance with prescribed procedures.

Title 46, Code of Federal Regulations, Subchapter F, Marine Engineering, adopts the ASME Code Sections I, IV, and VIII for boilers and pressure vessels that are to be installed on certificated vessels. The Coast Guard is firmly committed to the activities of the Accreditation Subcommittee. The Coast Guard participates actively on this subcommittee and the code committees to assure that equipment built to ASME Codes and installed on board Coast Guard certificated vessels satisfies the requirements of Subchapter F. Participation by the private sector is encouraged.

The ASME committees function best when all categories are represented. Anyone interested in serving in the General Interest category on the ASME Subcommittee on Boiler and Pressure Vessel Accreditation should contact one of the following:

Mr. Charles E. Ford  
Chairman, SC-BPVA  
Babcock & Wilcox Co.  
P. O. Box 351  
Barberton, OH 44203  
(216) 860-6542

Mr. Alan Bagner  
Secretary, SC-BPVA  
ASME  
United Engineering Center  
345 East 47th Street  
New York, NY 10017  
(212) 705-7646

CDR Paul J. Pluta  
U.S. Coast Guard (G-MV1)  
2100 Second Street, SW  
Washington, DC 20593  
(202) 267-1464

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## Free Lists of Government Publications

Users of government information can now find out about new publications in their field of interest as soon as they become available. The U.S. Government Printing Office (GPO) offers free Priority Announcement Service describing new books issued by the U.S. Naval Observatory and other federal agencies in the areas of astronomical data and phenomena, aviation, marine navigation, and much more. Annual titles include the **Nautical Almanac**, **Air Almanac**, and **Astronomical Phenomena**.

This service is being offered to increase public awareness of and access to government information. According to GPO's Public Printer, Ralph E. Kennickell, Jr., "Priority Announcements enable businesses across the nation to keep up with new government publications of interest to them."

To begin receiving free Priority Announcements of new publications on astronomy, aviation, and marine navigation, please write to the Superintendent of Documents, Dept. 36-SM, U.S. Government Printing Office, STOP: SM, Washington, DC 20401, and request to be placed on list N-511. (Reprinted from the June 1986 issue of *WWS/World Wide Shipping Magazine*.) †

# Retroreflective Material

The Coast Guard recommends that work vests, especially those used on towboats and barges, be equipped with Coast Guard-approved retroreflective material.

Although the term "retroreflective material" may not be familiar to many people, almost everyone sees it and uses it every day. It's just a technical name for those materials that reflect light back in the same direction from which it comes. Highway signs and road markings have been made with retroreflective material for many years so that light from the headlights of oncoming vehicles makes the signs appear brightly lit to the driver. Emergency vehicles, jogging clothes, bicycle tires, and many other items are now marked with retroreflective material to improve traffic safety in darkness.

On the marine side, dayboards, buoy markings, and other aids to navigation are marked with retroreflective material to improve their nighttime visibility. Since 1980, life preservers on commercial vessels have been marked with retroreflective material to make them more visible at night. Soon, almost all floating marine survival equipment for commercial vessels will be manufactured with retroreflective material already applied.

Work vests are not life preservers and are not included in the requirements to have retroreflective material. Work vests are intended to provide some basic flotation without being too cumbersome to work in, as a life preserver might be. Consequently, work vests do not have the same amount and arrangement of buoyancy as a life preserver and will not turn most people face-up automatically. Therefore, if someone wearing a work vest is injured in a fall overboard and is rendered unconscious or helpless, it is important to rescue the victim quickly. If the accident occurs at night, retroreflective material on the work vest would help locate a victim more quickly if rescuers used a searchlight, or even a good flashlight.

Although regulations do not presently require it, the Coast Guard recommends that work vests, especially those used on towboats and barges, be equipped with Coast Guard-approved retroreflective material. The Coast

Guard-approved material is very bright and is made so that it does not lose its retroreflectivity when wet. Several distributors make retroreflective material kits that include pre-cut material, adhesive, and instructions. These are generally available from marine suppliers.

A number of recent casualties indicate that retroreflective material on work vests might have saved the lives of crew members who fell overboard from barges. Here is a summary of a number of these accidents:

1. Just before sunrise, a deckhand fell overboard from a tow operating in a sound. He apparently tripped and was not seen or heard as he fell. The deckhand was wearing a work vest, and before he fell, he was working on one of the barges in an area illuminated by floodlights from the towboat. The deckhand was missed shortly after he went overboard, and a search began, first on the barges and the towboat, and then in the water using searchlights. Eventually, another towboat and Coast Guard boats and helicopters joined the search. The deckhand's body was found by a Coast Guard boat about 8 hours later, 3 miles from the point where he fell overboard, still wearing the work vest. His death was attributed to immersion hypothermia. If his work vest had been equipped with retroreflective material, he might have been seen falling since he was in an area illuminated from the bridge. He also would have been able to be spotted quickly by rescuers once the search in the water began.

2. In the early morning hours, while it was still dark, a deckhand fell into a darkened space between a barge and the bow of the towboat. The tow was against a riverbank and not underway at the time of the accident. Another crew member heard the splash, and a search got underway immediately. The deckhand was found about 15 minutes later about 800 feet downriver. Had his work vest been equipped with retroreflective material, he might have been found sooner and possibly saved.

3. About 10:30 p.m., a deckhand disappeared from a barge that was part of a tow stopped in

a river to remove and rearrange some barges. He was not seen or heard going overboard, but a search of the towboat and barges began as soon as the deckhands he was working with noticed that he was missing. When he was not found on board, the towboat's yawl was launched to search the river. The deckhand was found drowned soon afterward, still wearing his work vest. If the work vest had been equipped with retroreflective material, a quick sweep of the water with a searchlight might well have located the deckhand as soon as the search began. The time saved in locating him might have enabled him to survive.

44. In the early evening darkness, a deckhand was working alone at the head of a tow, trying to drop a line onto a moored barge. The pilot lost sight of the deckhand behind the covers of the lead barge, and he commenced a search about 3 minutes later after the deckhand did not reappear. When the deckhand could not be

found, the Coast Guard and state police were called in to help search. The deckhand was found drowned, still wearing his work vest, about an hour and a half later. If his work vest had been equipped with retroreflective material, he possibly could have been found much sooner and might have survived.

These cases all involved deaths that might have been prevented if work vests had been equipped with retroreflective material. There are other nighttime cases like these in Coast Guard casualty files that don't include enough detail to be included in this article, but certainly a number of them are similar. There are probably many other cases where there have been only minor injuries, or where a lot of time was spent looking for someone who had fallen overboard in the darkness. A few dollars invested in retroreflective material might have saved hundreds or even thousands of dollars in lost time and prevented needless deaths. †

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## U.S. Naval Institute

### the 25th Annual

### Naval and Maritime Photo Contest

The Government Systems Division of the Eastman Kodak Company has joined the U.S. Naval Institute as a sponsor of the Institute's annual naval and maritime photo contest.

Because of Kodak's co-sponsorship, the Institute will be awarding more cash prizes than ever before. First prize will be \$500, second prize will be \$350, and third prize will be \$250. Fifteen honorable mentions will be selected and awarded \$100 each.

Photo entries are due on December 31, 1986. All photos must pertain to a naval or maritime subject.

Winning photos are published each year in the monthly professional magazine of the Naval Institute, **Proceedings**.

The official entry rules for the contest are as follows:

1. Each photograph must pertain to a naval or maritime subject. (The photo is not limited to the calendar year of the contest.)

2. Limit: 5 entries per person.
3. Entries must be either black and white prints, color prints, or color transparencies.  
Minimum print size is 5 x 7.
- 4.
5. Minimum transparency size is 35 mm. (No glass mounted transparencies, please.)
6. Full captions and the photographer's name and address must be printed or typed on a separate sheet of paper and attached to the back of each print, or printed on the transparency mount. (No staples, please.)
7. Entries must arrive at the U.S. Naval Institute no later than December 31, 1986.  
Anyone is eligible to enter.
- 8.

Photographs not awarded prizes could be purchased by the Naval Institute. Those photos not purchased will be returned to the owner if accompanied by a stamped, self-addressed envelope.

For additional information or a list of contest rules, contact the Membership Department, U.S. Naval Institute, Annapolis, MD 21402, or call 1-800-233-USNL †

# Marine Safety Manual, Volume VI, Now Available

The **Marine Safety Manual (MSM)** is a 10-volume publication which provides information and guidance to Coast Guard personnel assigned to marine safety duties. First published in 1978, the MSM is being revised to update the subject matter and to comply with the Coast Guard Directives System. Volumes previously published were Volume IV, "Technical," December 1984; Volume II, "Materiel Inspection," October 1985; Volume III, "Marine Industry Personnel," December 1985; and Volume I, "Administration and Management," June 1986.

Seven of the volumes will be available to the general public when revision has been finalized:

<u>Volume No.</u>	<u>Title</u>	<u>COMDTINST No.</u>
I	Administration and Management	M16000.6
II	Materiel Inspection	M16000.7
III	Marine Industry Personnel	M16000.8
IV	Technical	M16000.9
V	Investigations	M16000.10
VI	Ports and Waterways Activities	M16000.11
IX	Vessel Documentation	M16000.14

The fifth of the revised **MSM** volumes, Volume VI, "Ports and Waterways Activities," is now available from the U.S. Government Printing Office (GPO). For your convenience, we are including a GPO order form for this publication.

Volume VI presents the authority, background, and rationale for the various programs associated with port and environmental safety (PES) duties and prescribes essential functions which must be performed in order to attain the overall PES objectives of the Coast Guard.

Similar notifications will be provided in the **Proceedings** when the remaining **MSM** volumes are published. ↓

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# Marine Safety Council Membership



**Rear Admiral  
Martin H. Daniell, Jr.**

Rear Admiral Martin H. Daniell, Jr., became Chief of the Office of Navigation at U.S. Coast Guard Headquarters in June 1986. As Chief, he is responsible for Coast Guard operations involving short-range aids to navigation, radionavigation aids, navigation systems safety, and bridge administration. RADM Daniell will also serve as a Member of the Marine Safety Council. He was assigned to Headquarters in 1983 and has since served as Chief, Operational Law Enforcement Division; Deputy Chief, Office of Operations; and Deputy Chief of Staff.

He commanded the Coast Guard Cutter MELLON, homeported in Seattle, from 1981 to 1983. He was Commanding Officer of Group and Base Mobile, Alabama, from 1978 to 1981. As such, he had operational control of ships and stations from Gulfport, Mississippi, to Appalachicola,

Florida, and inland along the navigable waters of Alabama and western Florida. He commanded the cutter YOCONA in Astoria, Oregon, from 1976 to 1977. From 1972 to 1976 RADM Daniell was Assistant Chief, Enlisted Personnel Division, at Headquarters. He was Commanding Officer of the cutter BITTERSWEET in Ketchikan, Alaska, from 1969 to 1972. Responsibilities onboard the cutters included Alaskan fisheries patrols, aids to navigation, search and rescue, and environmental protection.

RADM Daniell's early assignments included command of the cutter CAPE HORN, homeported in Provincetown, Massachusetts; Executive Officer of the cutter BLACKTHORN in Mobile, Alabama; and First Lieutenant onboard the cutter WINNEBAGO in Hawaii.

He was graduated *cum laude* from Dartmouth College, Hanover, New Hampshire, with a Bachelor of Arts degree in economics in 1957. RADM Daniell received a Master of Science degree in management from U.S. Naval Post Graduate School in Monterey, California, in 1966. He was assigned to the U.S. Coast Guard Academy in New London, Connecticut, as an assistant professor of economics and management from 1966 to 1969. He also attended the Industrial College of the Armed Forces at the National Defense University, Washington, from 1977 to 1978.

RADM Daniell's awards include the Meritorious Service Medal with gold star, and

three Coast Guard Commendation Medals with "O" device.

A Woodbridge, Connecticut, native, RADM Daniell is married to the former Carolyn Betancourt of Mobile, Alabama. They have three children: Abby, Jennifer and Martin III.



**Rear Admiral  
Theodore J. Wojnar**

Rear Admiral Theodore J. Wojnar, formerly Chief of the Office of Navigation at Coast Guard Headquarters and a member of the Marine Safety Council, is the new Commander of the Thirteenth Coast Guard District.

RADM Wojnar is a native of Holyoke, Massachusetts. He attended the University of Massachusetts for a year while earning an appointment to the Coast Guard Academy as a cadet. After graduation in 1953, he was commissioned in the U.S. Coast Guard and began his career on Arctic operations. His

first tour of duty was aboard the Boston-based icebreaker, EASTWIND. From there he went to Argentina, Newfoundland, and served with the International Ice Patrol as aerial ice observer and ice patrol duty officer. In 1957 he served on ocean station patrols aboard the cutter CHINCOTEAGUE out of Norfolk, Virginia.

After his Artic tours, he moved to Milwaukee, Wisconsin, to serve as Deputy Group Commander and Industrial Manager of Coast Guard Base Milwaukee. His responsibilities included aids to navigation and search and rescue operations on Lake Michigan. He earned his postgraduate degree in Civil Engineering from Rensselaer Polytechnic Institute in Troy, New York. He was then assigned to Honolulu, Hawaii, as Industrial Manager of Coast Guard Base Sand Island. Next he was named as Assistant Chief of the Civil Engineering Branch for the Fourteenth Coast Guard District as well as LORAN-C Site Survey Officer. He was based in Yokosuka, Japan, for 18 months, heading up a Project Team for the design and construction of the Northwest Pacific LORAN-C chain.

He returned to the U.S. mainland in September 1964 to Coast Guard Training Center Groton, Connecticut, where he served as Public Works Officer and Special Projects Officer. August 1967 saw then-Commander Wojnar assigned to U.S. Coast Guard Activities Europe in London, England, as Chief of the Engineering Division. During this assignment he worked closely with engineers from Iceland, Canada, Denmark, Germany, and Norway on improvements to the European LORAN-C facilities.

In addition to his European and Far Eastern assignments, RADM Wojnar served in the Indian Ocean where he conducted site surveys for the OMEGA Radionavigational Station at La Reunion Island.

In August 1970, he took over management of the Civil and Ocean Engineering support programs for the Third Coast Guard District in New York. In July 1973, he became Assistant Chief of the Civil Engineering Division at Coast Guard Headquarters and was promoted to Chief of the Division in April 1975. During his tour in Washington, DC, he was project officer for the development of the Coast Guard's Shore Facilities Plan and Boat Plan.

RADM Wojnar returned to field operations as the Eleventh District Chief of Operations. In August 1980, then-Captain Wojnar took the post of Chief of Staff in the Fifth Coast Guard District in Portsmouth, Virginia. He served there until July 1983 when he was awarded his third Meritorious Service Medal and was promoted to the rank of Rear Admiral.

Along with his three Meritorious Service Medals, RADM Wojnar has been awarded the Coast Guard Commendation Medal with two gold stars in lieu of second and third awards, the Coast Guard Achievement Medal, the Arctic Service Medal, and the Commandant's Letter of Commendation.

Rear Admiral Wojnar is married to the former Collette V. Mulligan of Westfield, New Jersey. They have four children: Mary-Gayle, Theodore, Jr., Pamela, and Stephen.



**Rear Admiral  
Peter J. Rots**

Rear Admiral Peter J. Rots is the new Commander of the Eighth Coast Guard District. RADM Rots formerly acted as Chief, Office of Marine Environment and Systems, U.S. Coast Guard Headquarters, and was a member of the Marine Safety Council.

RADM Rots was born June 30, 1934 in Pittsburgh, Pennsylvania, and graduated from Dormont High School. He received his Bachelor of Science Degree in Engineering from the Coast Guard Academy in 1957. He also holds a Master's Degree in Industrial Administration from the Krannert School of Business, Purdue University.

During his more than 28 years of Coast Guard service, RADM Rots has had a variety of operational, engineering, and administrative assignments. He earned his aviator's wings in Corpus Christi, Texas, in 1960. From 1965 to 1969, he was the Coast Guard's program manager for the HU-16E Albatross aircraft and the HH-52A helicopters. After a tour from 1970-1975 as the Chief of the Aviation Technical Training Division

## Keynotes

and later Executive Officer of the Aircraft Repair and Supply Center, Elizabeth City, North Carolina, he was assigned as Commanding Officer, Coast Guard Air Station Detroit.

He was selected to head a study group to establish an Office of Navigation at Coast Guard Headquarters after his graduation from the Industrial College of the Armed Forces in 1979. The office commenced operations in March of 1980, and he was assigned as the first Deputy Office Chief. He then served as Chief of Staff, Fifth Coast Guard District, Portsmouth, Virginia.

On July 1, 1985, he was promoted to the flag rank of Commodore (later Rear Admiral, Lower Half) and was made Chief of the Office of Marine Environment and Systems at Coast Guard Headquarters until his assignment as Commander, Eighth Coast Guard District, in New Orleans.

His many medals and awards include four Meritorious Service Medals with the Operational Distinguishing Device, the Coast Guard Commendation Medal, and the Achievement Medal. During his time in Alaska, he was awarded the Air Medal for the helicopter rescue of 34 stranded miners from an avalanche mine in British Columbia, Canada.

RADM Rots is married to the former Judith Johnson from Pittsburgh, Pennsylvania. They have two children, David and Susan.

*Editor's Note: The Office of Marine Environment and Systems and the Office of Merchant Marine Safety merged in mid-1986 to form the new Office of Marine Safety, Security and Environmental Protection, headed by RADM J.W. Kime.*

### Advance Notice of Proposed Rulemaking

CGD 81-010, Servicing of Inflatable Liferrafts (August 14)

The Coast Guard is considering a revision to the regulations governing the servicing of Coast Guard-approved inflatable liferafts used on merchant vessels. Due to an increased emphasis on the use of these devices, changes in the profile of the marine industry, and changes in the technology for constructing these devices, proposed changes to the requirement for periodic servicing are being considered that should decrease the Coast Guard's direct involvement while maintaining a Coast Guard oversight system for quality control. Any rules resulting from this advance notice should allow private industry the flexibility in servicing and inspection of inflatable liferafts necessary to meet the changing needs of the marine industry and minimize the role of U.S. Coast Guard inspectors in the inspection and servicing of inflatable liferafts used on inspected vessels. Comments must be submitted on or before November 12, 1986.

### Notice of Proposed Rulemaking (comment period extension)

CGD 84-024, Intervals for Drydocking and Tailshaft Examinations on Inspected Vessels (August 14)

This notice reopened the comment period on the notice of proposed rulemaking concerning the intervals between drydock and tailshaft examinations on all inspected vessels except mobile offshore drilling units (MODUs) inspected under 46 CFR Subchapter I-A and small passenger vessels inspected under 46 CFR Subchapter T. The comment period ended on September 30, 1986.

### Notice of Proposed Rulemaking

CGD 84-025, Incinerator Vessels; Safety Rules (August 25)

This notice proposes safety rules for incinerator vessels carrying bulk hazardous wastes for the purpose of incineration at sea. The rules incorporate standards in Chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code) of the International Maritime Organization (IMO) as well as standards in existing safety regulations that apply to chemical tank vessels. These rules would apply to vessels required to obtain an ocean incineration permit from the Environmental Protection Agency (EPA). EPA has recently proposed rules for obtaining a permit. Comments must be received on or before October 24, 1986.

Requests for copies of NPRMs should be directed to the Marine Safety Council. The address is Commandant (G-CMC), U.S. Coast Guard, 2100 Second Street, SW, Washington, DC 20593; telephone (202) 267-1477. The office, Room 2110, is open between the hours of 8:00 a.m. and 3:00 p.m. Monday through Friday. Comments are available for inspection or copying during those hours.

## Camphor Oil

Camphor (C<sub>10</sub>H<sub>16</sub>O) is a ketone which occurs naturally in the wood of the camphor tree (*cinnamomum camphora*), an aromatic evergreen indigenous to China and Japan. All of the tree's juices contain camphor. It is a simple process, usually steam distillation, to remove the camphor from the juices. Camphor can also be synthesized by converting pinene into bornyl chloride with HCl, thence to isobornyl acetate, thence to isoborneol, and finally oxidizing borneol to camphor. An alternate route which is being used more frequently for synthesis begins with pinene. Pinene is converted to camphene, which by treatment with acetic acid and nitrobenzene becomes camphor. Though the chief source of natural camphor is Taiwan, the majority of camphor used in the United States is synthesized domestically. Camphor oil is a solution of one part camphor and 4 parts cottonseed oil or olive oil.

Camphor has a variety of uses. It can be used medicinally on the skin as a counter-irritant, anesthetic, and mild antiseptic, and orally as an expectorant and respiratory and circulatory stimulant. It

*John Plunkett was a Second-Class Cadet at the U.S. Coast Guard Academy at the time this article was written. It was written under the direction of LCDR J.J. Kichner for a class on hazardous materials transportation.*

can also be used as a preservative in other drugs. Other uses include it as a plasticizer for cellulose nitrate and other explosives. It is used in insecticide, moth and mildew protectants, and in tooth powder. Currently, the chief use of camphor is as a flavoring material or fragrance.

Though pure camphor exists as a white crystalline solid, camphor oil is usually

shipped as an oily liquid in drums. The liquid can be colorless, blue, or brown, and it will usually float on water. Pure camphor will sublime (turn to vapor) at room temperature. Camphor is soluble in alcohol, ethane, chloroform, and fixed oils. Camphor oil gives off a familiar and penetrating odor. It tastes slightly bitter and cooling.

Since camphor oil is

<u>Chemical name:</u>	Camphor oil
<u>Formula:</u>	C <sub>10</sub> H <sub>16</sub> O
<u>Synonyms:</u>	Gum camphor camphor oil rectified white camphor
<u>Physical Properties:</u>	
boiling point:	sublimes
freezing point:	178.8°C (354°F)
vapor pressure:	
0°C (32°F)	53.559 mmHg
180°C (356°F)	8.799 mmHg
<u>Threshold Limit Values (TLV)</u>	
time-weighted average:	2 ppm
short-term exposure limit:	3 ppm
<u>Flammability Limits in Air</u>	
lower flammability limit:	0.6%
upper flammability limit:	3.5%
<u>Combustion Properties</u>	
flash point (cc):	65.5°C (150°F)
autoignition temperature:	466°C (871°F)
<u>Densities</u>	
liquid (water=1):	0.98
vapor (air=1):	5.3
U.N. Number:	1130
CHRIS Code:	CPO
Cargo compatibility group:	11 (Ketones)

classified as a flammable liquid by the United States Coast Guard, the Department of Transportation, and the Environmental Protection Agency, all open flames should be kept away from it while it is being stored and transported. Camphor oil will evolve flammable and explosive vapor when heated. Exact specifications for the Coast Guard regulations concerning camphor oil can be found in Part 150 of Title 46, CFR. Environmental Protection Agency regulations can be found in Title 40, CFR, and the Department of Transportation regulations can be found in Part 172 of Title 49, CFR.

Undiluted camphor oil has been observed to be a minor irritant to the skin after prolonged exposure; orally, it is toxic in large doses. If irritation of the skin occurs, rinsing with soap and water will speed relief. Within 5 to 90 minutes, the following symptoms may be noted in a person who has ingested camphor oil: nausea, vertigo, headache, skin warmth, irritability, and convulsions. In case of oral intoxication, administer gastric lavage, cathartics, diuretics, or sedatives. Do not use opiates or analeptics (drugs that stimulate the central nervous system).

Persons handling camphor oil should follow the procedures cited in the Code of Federal Regulations as well as those cited in Volume 1 of NIOSHA/OSHA Occupational Health Guidelines for Chemical Hazards. This includes a breathing device to avoid the vapor as well as rubber gloves, eye protection, and a protective suit. †

#### NEXT MONTH'S CHEMICAL:

**BUTYL ACRYLATE (monomer)**

## Nautical Queries

The following items are examples of questions included in the Third Mate through Master examinations and the Third Assistant Engineer through Chief Engineer examinations:

### ENGINEER

1. An impulse reaction turbine has

- A. impulse diaphragms with reaction rotor blading
- B. stationary nozzles set in a diaphragm and a rotating wheel containing bucket blades
- C. reaction stages followed by velocity-compounded blading
- D. velocity-compounded stages followed by reaction blading

**Reference:** Osbourne, Modern Marine Engineer's Manual, Vol. I

2. Engine condition is indicated by the color of the exhaust smoke. Blue smoke could be an indication of

- A. low compression pressure and low combustion temperature
- B. an overloaded engine
- C. clogged drain holes in the oil control rings
- D. complete combustion

**Reference:** Maleev, Diesel Engine Operation and Maintenance

3. A bridge gauge is normally used to determine turbine

- A. bearing oil clearance
- B. diaphragm tip clearance
- C. blade axial clearance
- D. bearing wear

**Reference:** Osbourne, Modern Marine Engineer's Manual, Vol. I

4. Copper tubing is often used in fluid power lines because it

- A. has good resistance to high temperature
- B. withstands heavy vibration under heavy system loads
- C. resists hardening under stress
- D. has a high resistance to corrosion

**Reference:** King, Modern Refrigeration Practice

5. Voltage failure of an AC generator may be caused by

- A. failure of the exciter generator
- B. a tripped bus circuit breaker
- C. high mica segments on the stator bus bar
- D. excessive prime mover speed

**Reference:** Hubert, Preventive Maintenance of Electrical Equipment

### DECK

1. In international waters, the lights shown below would be displayed by a vessel when it is

(R)

(W)

R - RED  
W - WHITE

(R)

(W)

- A. aground.
- B. not under command and is dead in the water.
- C. not under command.
- D. and is making way engaged in laying or picking up navigation marks.

**Reference:** COMDTINST M16672.2A

2. You are holding position above Gallipolis Lock and Dam when you hear two long blasts of the horn from the lock. This indicates that you should

- A. enter the riverward lock.
- B. hold position until two more upbound tows have locked through.
- C. enter the landward lock.
- D. hold position until the lower gates are closed.

**Reference:** 46 CFR 207.300

3. While on a coastwise voyage in the Aegean Sea, a spar buoy with the top mark illustrated below is sighted. Under the IALA-A Buoyage System, you must



- A. pass to the east of the buoy
- B. pass to the south of the buoy
- C. pass to the north of the buoy
- D. pass the buoy on either side but keep well clear

**Reference:** Light List

4. A loaded hopper barge with independent tanks has a placard, with alternating red and white quadrants on each side and end. Which of the following statements, concerning this barge, is true?

- A. The cargo will spontaneously ignite if released to the atmosphere.
- B. You must operate this barge as a lead barge.
- C. The barge should be spotted as far away from the towboat as possible.
- D. The barge must be in a protected position within the tow.

**Reference:** 46 CFR 151.45-5(b)

5. From LAT 07°12'N, LONG

80°00'W to LAT 47°12'S, LONG 169°18'E, the initial great circle angle course is 137.25°. How would you name this course?

- A. N 137.25° E
- B. S 137.25° E
- C. N 137.25° W
- D. S 137.25° W

**Reference:** Bowditch, American Practical Navigator

### ANSWERS

#### ENGINEER

1-D;2-C;3-D;4-D;5-A

#### DECK

1-A;2-A;3-D;4-D;5-C

If you have any questions about "Nautical Queries," please contact Commanding Officer, U.S. Coast Guard Institute (mvp), P.O. Substation 18, Oklahoma City, Oklahoma 73169; telephone (405) 686-4417. †

