PROCEEDINGS

OF THE MERCHANT MARINE COUNCIL

UNITED STATES COAST GUARD

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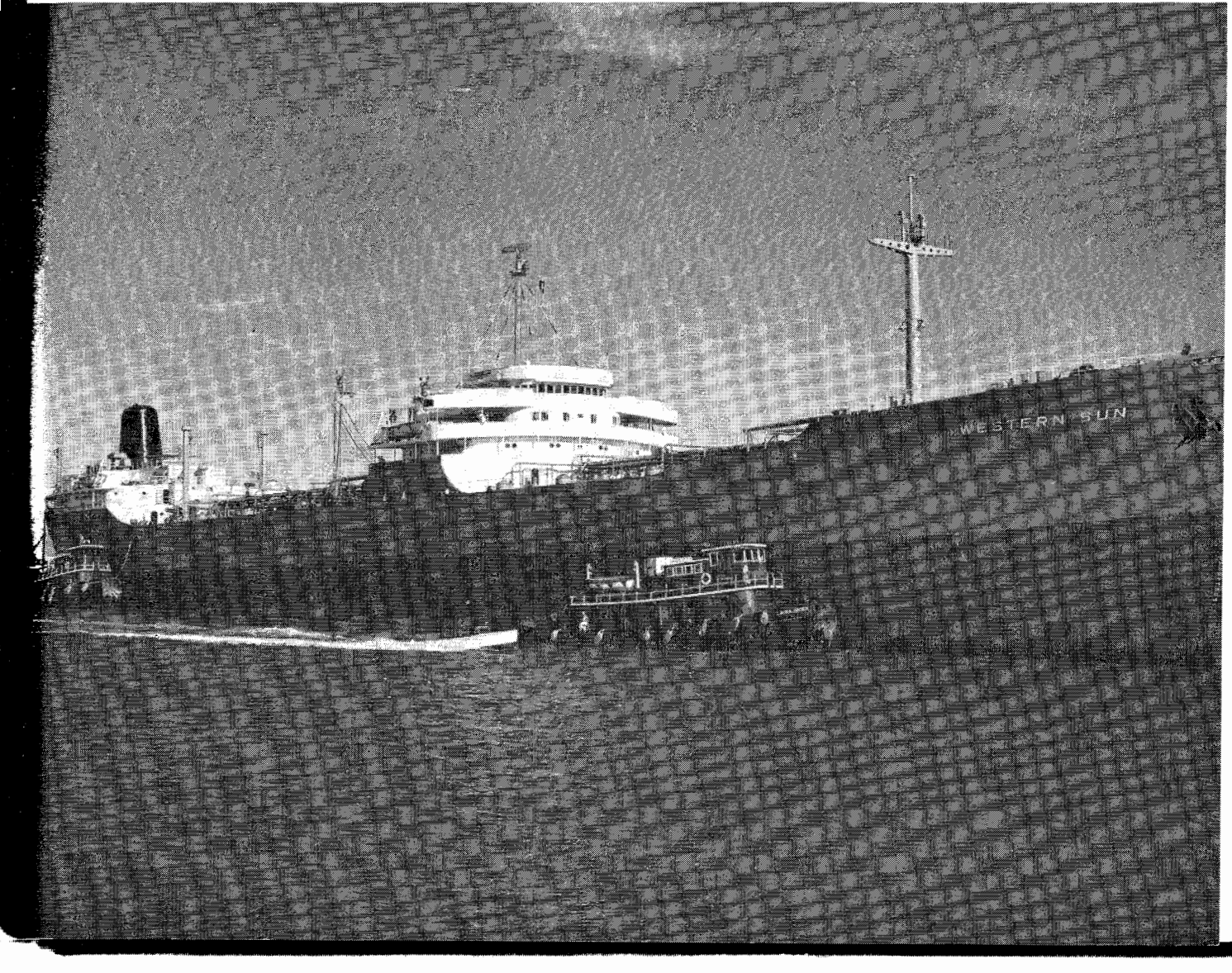

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THIS COPY FOR NOT LESS THAN 20 READERS—PLEASE PASS IT ALONG

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COVERS

Front Cover: Her vast cargo tanks empty, the supertanker S/S *Western Sun* rides high in the water as she is escorted by tugs to docking facilities at Ingleside, Texas, to pick up 224,000 barrels of crude oil. *Courtesy Sun Oil Co.*

Back Cover: The underdeck tunnel of this Texaco tanker provides a dry, safe passageway for crewmembers and protected housing for piping and electrical cable. It replaces the often wet and slippery catwalk that traditionally connects a tanker's midship house with the living and machinery spaces aft. *Courtesy Texaco Inc.*

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PROCEEDINGS

OF THE

MERCHANT MARINE COUNCIL

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INFLUENCE OF PERSONNEL FAILURE ON CASUALTIES

Captain Winford W. Barrow USCG
Chief, Merchant Vessel Inspection Division, Headquarters

The primary goal of this article is to analyze that part of the cause of marine casualties attributed to personnel failure or personnel fault.

AS MANY OF you may know, the Coast Guard is charged with the duty of investigating marine casualties in order to determine the cause of the casualty and the steps which can be taken to prevent recurrence. These causes are analyzed and presented yearly as a statistical summary of marine casualties for that year, including casualties to all forms and types of vessels, from the smallest uninspected towboat, manned by unlicensed personnel, to the largest inspected passenger liner, fully manned by licensed qualified personnel. Casualty statistics for fiscal 1967 reveal that 548 of a total of 2,701 persons in charge, masters or pilots, caused or contributed to casualties through personnel fault or failure. This would indicate a fertile field for study, discussion, and action, looking to reduction of accidents in this category.

As in the past, I would like to highlight some of the significant marine casualties which have occurred recently, and describe how analysis and review of these and other casualties lead to possible indications of corrective measures which might be taken. However, the main thrust of my presentation will be to outline in several of its aspects the specific category of casualties attributed to failures of personnel. As you are undoubtedly aware, maritime catastrophies involving heavy loss of life have been primarily responsible for most safety legislation, and while this is beneficial to future mariners, the better way would be to anticipate and prevent accidents before they happen.

From an address before the 1967 Marine Section, of the National Safety Congress and Exposition.

Those of us who work and are familiar with safety in various fields recognize that accidents don't just happen—they are caused. They are caused by material failure, by an unexpected sequence of circumstances and events, by unpredictable forces of nature, or by a very broad general category called personnel failure. The categorization of the cause of casualty as personnel failure can be broken down into a number of subdivisions. These subdivisions include (1) lack of knowledge of the proper steps required to be taken in order to avoid the casualty, (2) lack of experience, so that the hazardous situation is not recognized as developing, (3) the premeditated taking of risk without having at hand the basic factors upon which to make an intelligent judgment of the risks and hazards involved, (4) lack of training or understanding of a new procedure or a new device which requires a modification to the old standards of judgment, (5) the willful violation of a statute, or a regulation, or rule of operating procedure, which has been established by custom, law, or regulation, and which the person involved is duty bound to obey unless special circumstances or a special situation warrant a departure. These are the standards by which the commercial maritime casualties reported to the Coast

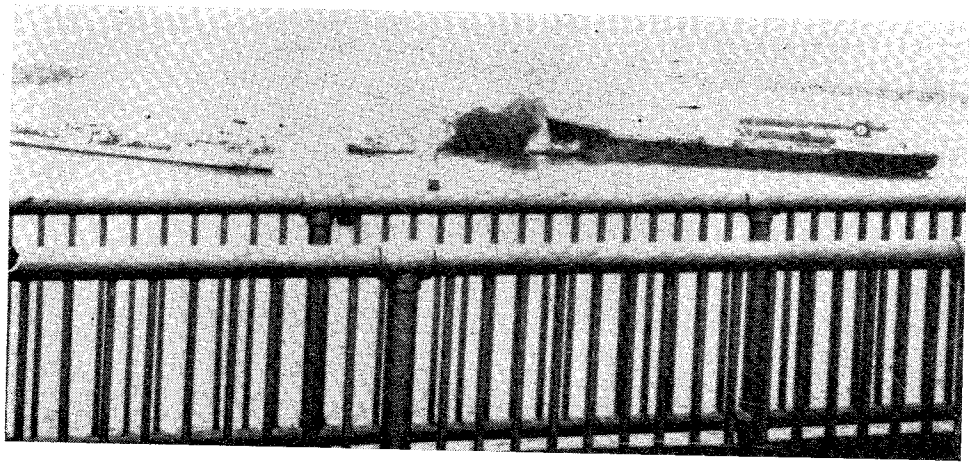


Figure 1.

Guard are classified when the casualty is attributed to personnel fault.

PERSONNEL FAULT

In assigning personnel fault as a cause of the casualty, the role played by the person involved is examined in two aspects: (a) Was his act or omission a substantial factor in bringing about the casualty? Ordinarily it is if the casualty would not have occurred without it; and (b) Did his act or omission constitute personal fault? The standard used is the response in the same or similar circumstance of a reasonable seaman, possessed of a minimal standard of nautical skill and knowledge commensurate with the statutory requirement, and exercising ordinary prudence. If this standard of action is met then the cause of the casualty must be found elsewhere; in reasonable errors of judgment, hazards and vagaries of weather, or unskillfulness not amounting to personnel fault.

An example of some of the other primary causes of commercial vessel casualties for fiscal 1967 can be seen on the table of the statistical summary of casualties to commercial vessels for fiscal 1967. (*See page 230.*)

The table across the top is divided into the nature of the casualty. Down the left side are primary and additional contributing causes and other statistical information. You will note that among the primary causes other than personnel fault are unseaworthiness, lack of maintenance, storms and other adverse weather conditions, failure of equipment, and error in judgment or calculated risk not amounting to a personnel fault.

RECENT CASUALTIES

At this time, let us take a look at some of the casualties of the recent past which indicate personnel fault as the primary cause. In June 1966, New York Harbor was rocked by an explosion and fire following a collision of the tankers *Texaco Massachusetts* and SS *Alva Cape.* The record of the Marine Board of Investigation indicates that the casualty occurred on a clear day, with both vessels in sight of each other in a crossing situation, with the *Alva Cape* the burdened vessel on the *Texaco Massachusetts'* port bow. The investigation revealed that there was no mechanical failure or any other special circumstance to justify lack of compliance with the Rules of the Road. The *Alva Cape,* burdened in a crossing situation and duty bound to reduce speed or to avoid crossing ahead, was struck on the starboard side releasing her cargo of naphtha. The resultant explosion and fire caused the death of 33 persons. Here is a dramatic sequence of pictures taken a few minutes after the collision by a witness watching the casualty from a nearby bridge. *Figure 1* shows the *Alva Cape* and the

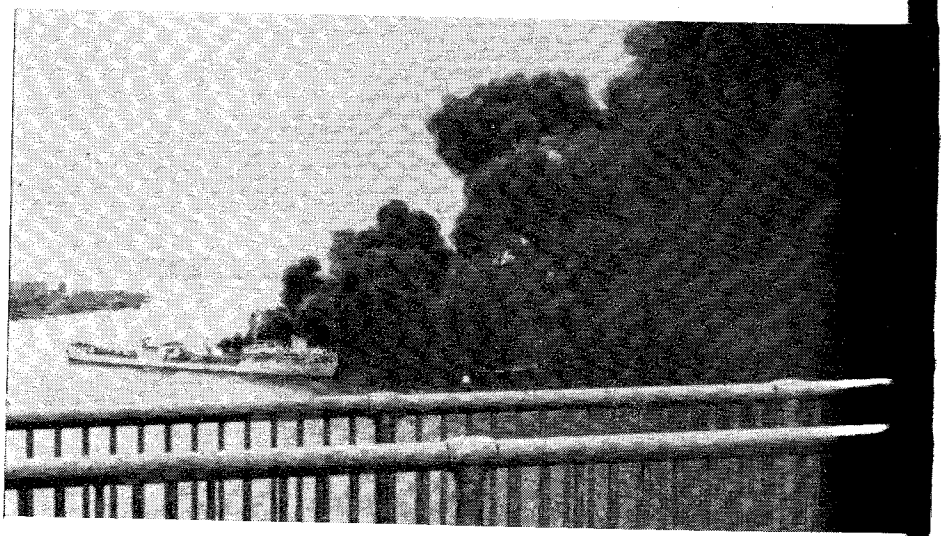


Figure 2.

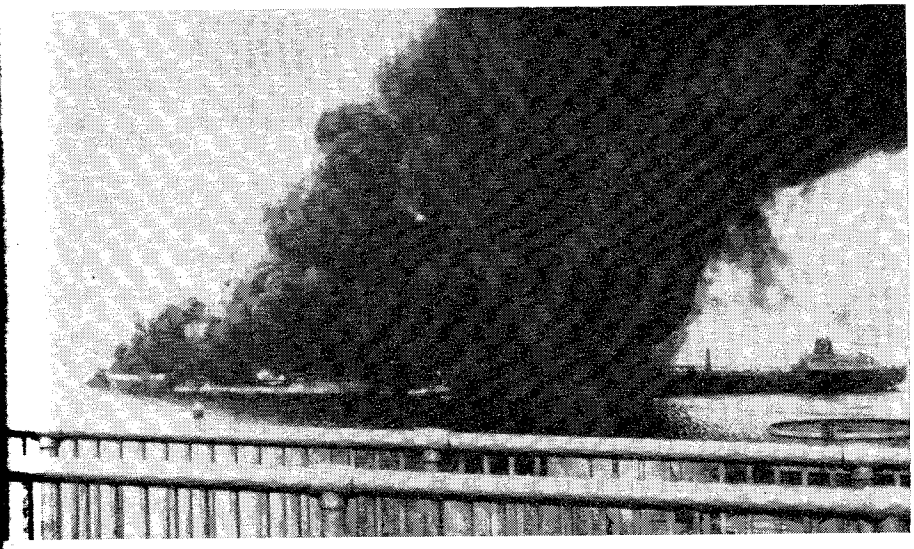


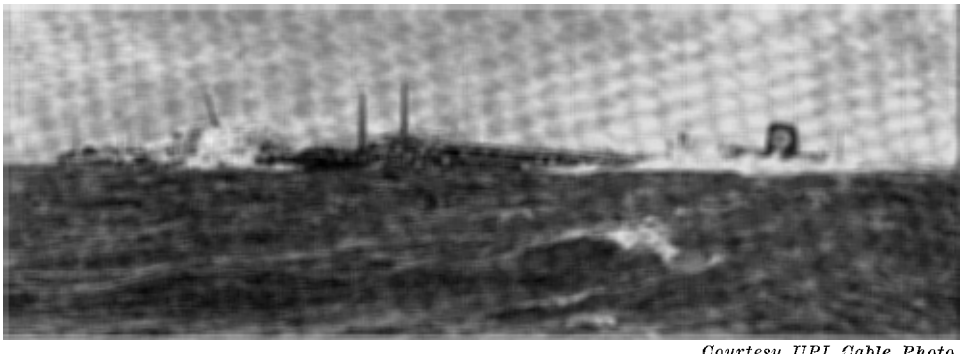
Figure 3.

Texaco Massachusetts adjacent to each other a few minutes after the collision and just prior to the ignition and explosion of the naphtha fumes. *Figure 2* depicts the rapid spread of the fire about one minute after ignition, when the fumes from the cargo flowing out of number one tank have been ignited by the adjacent tugboat. *Figure 3* shows the *Alva Cape* engulfed by smoke and flame. The Board concluded that the primary cause of the casualty was personnel fault—the failure of the person in charge of the *Alva Cape* to reduce speed and comply with the statutory Rules of the Road. Through heroic efforts of the firefighting forces on the scene, the fire was extinguished, but, unfortunately, the tragedy of the *Alva Cape* was not ended.

The vessel was towed to lower New York Bay where salvage efforts were commenced to remove the remaining naphtha cargo still aboard the vessel. In the course of discharge operations the vessel was wracked by another violent explosion and fire resulting in the death of four members of the salvage crew. Personnel fault and human error again played their part. The investigating officer determined the cause of the casualty to be an improper and inadequate attempt to inert the cargo tanks using carbon dioxide gas. The inerting process should have been under the supervision of a certified marine chemist. Had this been done, the personnel performing the operation might have benefitted from a warning of the hazardous possibility that a static spark could be generated. This warning was conveyed to the purchaser of the carbon dioxide gas, but, unfortunately, it was not relayed and translated into the necessary action to benefit those aboard the vessel. The investigator concluded that the source of ignition was a static spark generated by the discharge of carbon dioxide. Both casualties were attributed to personnel fault: The former was failure to operate the vessel in compliance with the statutory Rules of the Road; the latter was failure on the part of those involved to be made cognizant of the known procedure and hazards that inerting and controlling gaseous compartments involve.

TORREY CANYON

A casualty which did not occur within the investigative jurisdiction of the Coast Guard, but which does provide a striking example, as reported by the investigators, of the end product of personnel failure is that of the *Torrey Canyon* grounding off the English Coast near Land's End. (*See Figure 4.*) The *Torrey Canyon,* at the time of her casualty, was one of the largest vessels in the world, drawing 54 feet aft and 51 feet 3 inches forward, and carrying 119,328 tons of crude oil. The crisis generated by the loss of her cargo and the contamination of the sea and adjacent beaches is common knowledge. The vessel and cargo loss involved, coupled with the fantastic expense of efforts to protect and save the beaches of both England and France, have made this casualty one of the greatest monetary losses in the history of maritime commerce.



Courtesy UPI Cable Photo

Figure 4.

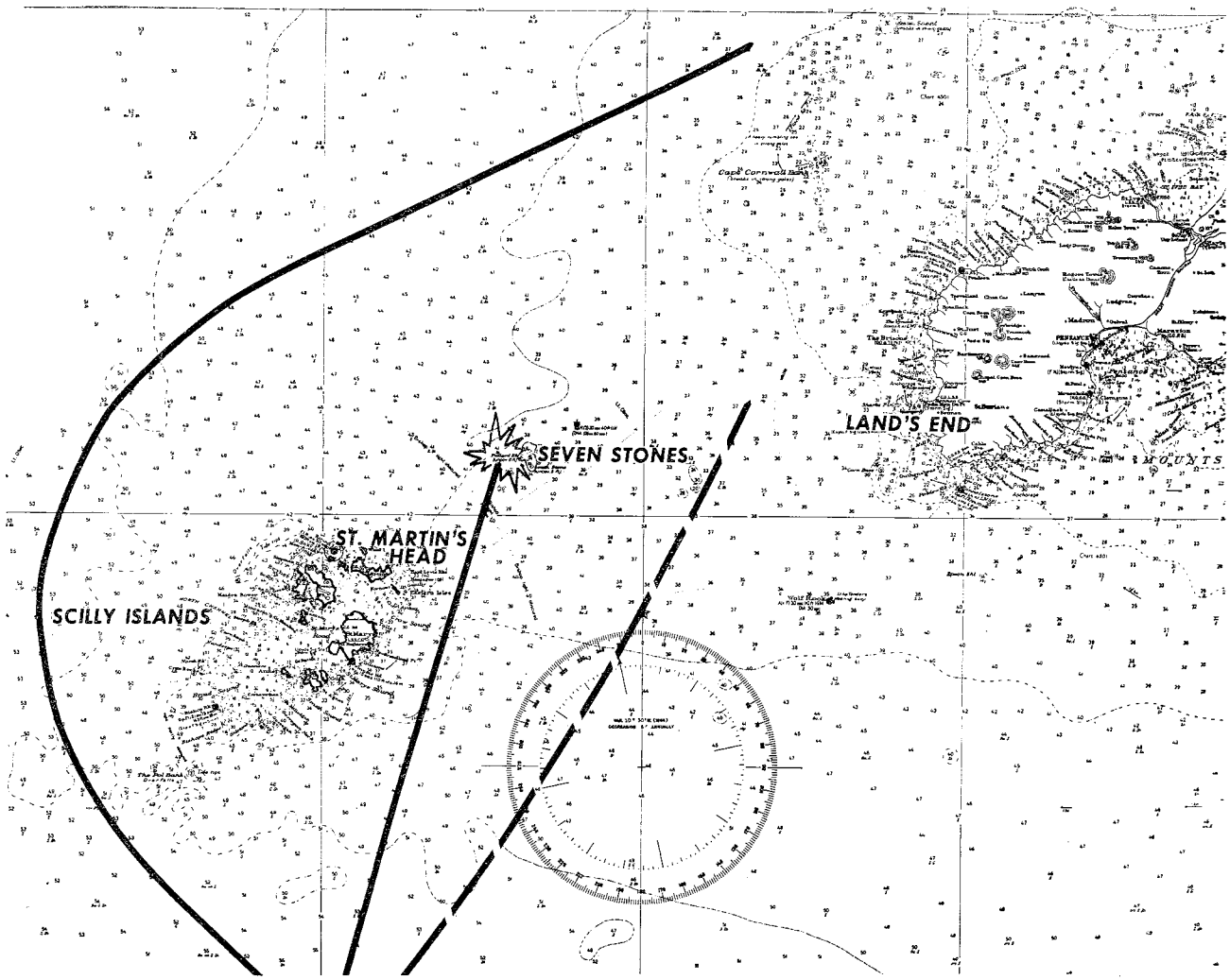


Figure 5.

The *Torrey Canyon* casualty was investigated by a Board of Investigation appointed by the Republic of Liberia. That Board concluded that there was no mechanical failure or defect aboard the *Torrey Canyon* of any kind that caused or contributed to the casualty. The cause was attributed solely to the human error of the ship's master, and the Board charged him with imprudence and negligence in several respects, including the following:

(1) His decision, to pass to the east of the Scilly Islands instead of the west, as originally intended, exposed the vessel to unnecessary risk which could easily have been avoided. (*See Figure 5.*)

(2) His attempt to pass between the Seven Stones and St. Martin's Head, rather than between Seven Stones Light Vessel and Land's End, was contrary to advice published in both the Channel Pilot and the Sailing Directions.

(3) His failure to have the vessel in hand steering, with a helmsman at the wheel, while transiting confined water with other vessels and fishing nets in the vicinity.

(4) His failure to reduce the speed of the vessel at any time prior to stranding, and especially when he realized that he was nearer to the Seven Stones than he had previously thought, and when an indicated course change was prevented by the presence of a fishing vessel on his port side.

(5) His failure to have established any regular or routine practice aboard his vessel in connection with the use of the automatic steering system, and specifically with regard to the operation of the selection lever controlling the steering wheel.

The failure of the master to have the vessel in hand steering apparently was given considerable weight by the Liberian Board, since the report indicates there was confusion upon the first emergency order of a drastic alteration of course away from the rocks. The helmsman, who was on the bridge wing serving as lookout, came in and turned the wheel while the vessel was still on automatic control, thereby making the rudder order ineffective. The Master thereafter arrived at the wheel console and shifted the vessel to hand steering and commenced the change of course. Unfortunately, it was too late.

RADAR-EQUIPPED VESSELS

Another type of casualty, that has as its primary cause either personnel fault or personnel failure, is that of collisions between vessels equipped with radar. This type of casualty shows a continuing and disturbing increase. The statistical summary of collisions involving radar-equipped vessels for fiscal 1967 indicates that such casualties have more than doubled over the previous 3-year average. It is indeed regrettable that perhaps one of the greatest electronic aids to safe navigation in our time is now, in some instances, being accused of causing or contributing to casualties.

In certain instances our investigating officers conclude, that in radar collision the cause of the casualty was the presence of radar; partly due to improper use or improper interpretation, but also because, apparently, the radar in periods of poor visibility has given masters a false sense of security. Usually, vessel speed has not been proportionately reduced, on the assumption that the all-seeing and all-knowing eye will provide the proper information. Statistics do not bear this out. The ship's master or a vessel's operator, with years of experience in judging by sight and observation the relative movement of other vessels, has lost a valuable part of his judgment when he exchanges direct visual observation for a dot on the radar screen. As a result, casualty investigations indicate that a number of casualties are attributed to a failure, inability or unwillingness of the master to take time to plot his targets. This failure has manifested itself in one single error which is causing casualty after casualty between vessels equipped with radar. Whether it be the *Faros-Sharon Lee, Greeley Victory-Occidental Victory, Ohio-Washington Mail,* or the famous *Andrea Doria-Stockholm;* all made one almost identical radar and vessel maneuvering error. This failure is so simple that it is sometimes beyond comprehension. Rather than outlining a narrative account of a particular casualty, let me instead give an example of how every one of these situations came about.

STANDARD MANEUVERING BOARD

Let's assume that this is a relative motion radar scope. *You* are in the center and you observe a large pip 4 miles off 20° on your port bow. By the high relative speed you know he is coming towards you, and you assume you are meeting port-to-port, and come right to give him more room.

Reciprocally, *he* sees you about 4 miles off 20° on *his* starboard bow. He likewise concludes that he is meeting you, but in a starboard-to-starboard situation. *He* comes left to give *you* more room. The inevitable result must be self-evident. You have altered course to the right to allow for port-to-port passage, and he has altered course to the left to allow for a starboard-to-starboard passage. The result is, Collision! Delay! Property damage! Loss of life! Without plotting the relative movement of the targets presented the operator cannot make proper use of the information available. Can not we say that the cause of the casualty was the presence of radar? In a sense the answer is yes. In this type of classic situation without radar and in poor visibility, neither vessel would have seen or been aware of the other until fog signals were heard, neither would have altered course on misinformation. They both probably would have been proceeding at reduced speed. The presence of radar gave each Master a false sense of knowing, a false sense of security. In some instances the targets are not spotted in sufficient time to work a proper maneuvering board plot. Ofttimes the vessel's excess speed in fog and reduced visibility is the main cause of this lack of sufficient time. Another important reason for the unnecessary number of radar collisions may be the inexperienced or unqualified operator of the radar. I will speak of this problem later.

If the navigational aids now provided, such as radar and automatic steering consoles, both of which have been in existence and in use for a number of years, can present problems to the personnel who must competently and efficiently use them, what more sophisticated problems may be presented with the automated vessels now in use and on the drawing boards? Technological improvements, automated enginerooms, automated navigational lookout, steering, hearing and visual aids must all be tested, tried and proved before significant reductions in manning can be effected. Still required are human operation, human evaluation and human judgment. If that human judgment is lacking, or deficient, or if the personnel involved are unqualified, unskilled or untrained, then of what value and of what use are the technological improvements provided? I suggest that the human element is still a necessary ingredient.

Another area of maritime safety, wherein personnel fault and personnel failure play a large part, is that in which vessels involved in casualties are manned by unlicensed personnel, whose physical and professional competence have not been established. Other than collisions with stationary objects, in order to have a collision you must have another vessel involved. If personnel from either vessel cannot understand or properly interpret the radar scope, or do not know their duty in reference to the rules of the road, a dangerous situation exists. The fact that large, integrated tows of over 100,000 tons are not unusual and that these tows are increasingly made up of dangerous and exotic cargoes, renders the situation doubly hazardous. An example of the actual and potential danger of such casualties is the collision of a large freighter and a tug and tow in the Neches River, that was caused by the failure of the tow to navigate a narrow channel on its own starboard hand. The freighter, after sounding two unanswered port-to-port signals followed by the danger signal, was so close to an oil facility dock that the pilot, drawing on 24 years of licensed experience, chose collision to possible disaster and came left and collided with the tow. The testimony indicates that the ship missed the oil facility dock on its starboard hand by only a few feet. Impartial testimony of the dock watchman indicated that the tug did not sound or answer any whistle signal until seconds before the collision.

One may consider marine safety as a circle or chain, which must remain intact or its effectiveness is seriously impaired, and its contribution to the health and welfare of all of us is considerably reduced. Of what use are electronic devices if they are improperly operated? How safe is a vessel properly manned, equipped with all the latest electronic devices and latest operational aids, when it meets another vessel whose operator may not be competent, or may not understand the requirements of the Rules of the Road, or other rules of safe navigation? The radar operator must not only have the academic knowledge on how to apply the rules of radar navigation in order to understand the information that the radar scope is presenting, he must also be well trained, qualified, and must possess the minimum degree of hearing and vision. If one operator is qualified and experienced and the other is not, then neither is safe.

This disparity, this obvious incomplete circle of marine safety, becomes more glaring, and more apparent, and more dangerous, to the general public when the type and degree of exotic cargoes transported on our waterways today are taken into consideration.

Here then, is the problem, personnel failure of varying degrees and types in varying situations. We might cite additional cases to prove the point; however, this would be mere repetition. The theme is the same. The problem is the same.

The Coast Guard has the primary statutory responsibility for safety of marine commerce. What has it done about it? What can it do? In some cases cooperative efforts with safety-minded maritime groups result in satisfactory corrective measures. In another, critical review and analysis of casualties point out critical failures of masters to properly utilize ship's equipment such as radar and, in response, our requirements for initial and subsequent proof of proficiency are updated. In still another, where there are basic gaps in our legislative authority which prove to be detrimental to safety, we recommend and support remedial legislation, such as that affecting towing vessels.

WATER POLLUTION

Concerning the dangers of a *Torrey Canyon* disaster polluting our beaches, the Coast Guard is approaching the problem from several directions. Internationally, the Coast Guard, as a member of the Intergovernmental Maritime Consultative Organization, is participating in a detailed study of the problem. Domestically, the Coast Guard has formed an oil spillage study group in cooperation with the Corps of Engineers and the Federal Water Pollution Control Administration, for the purpose of exploring feasible and effective means of coping with major oil spillage, or potential oil spillage, on the navigable waters of the United States, or on the high seas, where the public welfare may be jeopardized.

SAFETY IMPROVEMENTS

What are some of the other ways in which the casualty rate attributed to personnel fault could be improved? One of the first which comes to mind, and a method which has received a good deal of attention, is automation; that is, the provision of devices which would assume monotonous, repetitive duties, the performance of which is dependent upon physical senses which vary in capacity from person to person and from time to time, or development of devices which would automatically and continuously monitor and evaluate targets, together with generating course and speed recommendations to maintain the vessel in position of safety with relation to other objects. Of course, some may say that the prime purpose of this approach is to achieve safety by elimination of the seaman whose safety is in question. What, then, is the Coast Guard's position? Simply this, if overall safety is improved, we are for it. However, we are as befits a regulatory agency, a conservative body. While having no desire to inhibit progress, we have adopted a "show me" attitude. Technological advances and improvements must, in addition to indicating efficient performance at the moment,

prove out over a period of time; in other words, shipboard devices replacing human functions on which the vessel's safety depends must incorporate reliability.

Hand in hand with new devices and products must come education and training. Shipboard personnel must be thoroughly familiar with operating procedures, simple maintenance and trouble shooting on the devices upon which their safety is dependent. This, of course, is a cooperative effort. In most cases, the Coast Guard requires in the form of license examinations a basic knowledge of fundamentals, leaving to the ship owner or operator, training in a particular device or system.

Beyond the institution of measures dedicated to improving the skill and training of individuals involved, there are several actions possible which would tend to reduce personnel-influenced casualty rates. Those which immediately come to mind have as their primary aim the decreasing of situations requiring rapid decision-making on the part of masters and pilots, or those measures dedicated to improving communications between those required to make critical decisions. As may be seen, these possibilities center predominantly around measures to prevent collision.

SEA LANES

Three anticollision programs are in various stages of implementation. I am pleased to report that the sea lanes recommendations of last year have been approved and were established during April and May of this year. The sea lanes for the approaches to New York consist of 3 separate routes—Ambrose-Nantucket, Ambrose-Hudson Canyon and Ambrose-Barnegat. All converge on the perimeter of a circle having a radius of seven miles centered about the Ambrose Channel Light. The Delaware Bay lanes taper from their seaward ends to a circle having an eight mile radius around the Harbor of Refuge Light. The marking of these sea lanes has been effected by the relocation of the Nantucket and Barnegat Lightships, the establishment of seven new buoys, and the relocation of two existing buoys. Their use, while not mandatory, is strongly recommended as an aid in collision avoidance. Additional sea lanes are being studied for the approaches to Chesapeake Bay and San Francisco Bay, as well as other major shipping areas.

BRIDGE-TO-BRIDGE RADIOTELEPHONE

Another valuable anticollision navigational aid is bridge-to-bridge radiotelephone. The need for such a device has been recognized and under study for some time. In those areas where it has been used voluntarily it has provided a significant contribution to safety. A legislative proposal requiring certain vessels to be equipped with bridge-to-bridge radiotelephone has been prepared by the Coast Guard, forwarded to the Department of Transportation, and is now undergoing review within the Executive Department. It should be submitted to Congress shortly.

RULES OF THE ROAD UNIFICATION

The unification of the Rules of the Road has been under study and consideration by concerned advisory groups for several years. I am pleased to report that during the past year a proposal to replace the Inland, Great Lakes and Western Rivers Rules with a single set of rules, containing certain Great Lakes exceptions, has been approved by the Canadian Department of Transport; this step is necessary because the portions affecting the Great Lakes will apply to Canadian and the United States waters. The proposal has been placed in legislative form, forwarded to the Department of Transportation, and is now undergoing review in the Executive Department.

CONCLUSIONS

I hope that the pattern that has been developed is evident. The promotion of safety requires the cooperation of all groups involved. While owners, operators, seamen's unions and regulatory agencies are vitally involved, in the final analysis the single most important link in the safety chain must be the individual. By his experience, knowledge, safety consciousness, ability and willingness to utilize the tools which have been provided him, he can hold or break that chain. No amount of mechanical equipment or statutory regulation will fully make its contribution to safety unless the individual is recognized as the key. Radar must be used and properly evaluated by an individual. Lifesaving, firefighting equipment, and damage control organization must be properly maintained and intelligently used by an individual. Rules of the Road must be understood and obeyed by an individual. The fundamental safety rules must be understood, accepted, and used by individuals. The circle of safety that is formed to assist that individual in the safe operation of his vessel must include all groups involved. When the areas for improvement include legislation, regulation, training, education, personnel selection and supervision of the highest order, the remedy clearly involves all parts of the total industry, and no part can stand aside without breaking the safety circle. If we all do our part and provide the individual with the tools, knowledge, training, education and environment needed to do the job safely, it can be expected that personnel fault and personnel failure will play a decreasing part in the cause of marine casualties. ⚓

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TEXACO MASSACHUSETTS-ALVA CAPE COLLISION

The National Transportation Safety Board and the Commandant have announced their Actions on the Marine Board of Investigation convened to investigate the collision of S/S *Texaco Massachusetts* and British M/V *Alva Cape* with fire and loss of life on 16 June 1966.

NATIONAL TRANSPORTATION SAFETY BOARD'S ACTION

1. This accident was investigated by the U.S. Coast Guard under the authority of R.S. 4450 (46 USC 239) and the regulations prescribed by 46 CFR 136. The Marine Board of Investigation was conducted in a public proceeding in New York, N.Y., beginning July 5, 1966. The Coast Guard report of that investigation and the Commandant's action thereon is included in and made a part of this report.

2. The Department of Transportation Act, effective April 1, 1967, assigned responsibility to the National Transportation Safety Board for determining the cause of transportation accidents and reporting the facts, conditions and circumstances relating to such accidents. Accordingly, the Board has considered those facts contained in the Coast Guard report of the investigation pertinent to its statutory responsibility to make a determination of the cause. For the convenience of the public, the Board's action, the Coast Guard report of the Marine Board of Investigation,[1] and the Commandant's action are being published as one document. By such publication, the Board does not adopt the portions of the Coast Guard report which are directed to activities within the exclusive jurisdiction of the Department of Transportation and the U.S. Coast Guard.

3. The National Transportation Safety Board finds that the cause of the accident with attendant loss of life was failure of the persons in charge of the navigation of the SS *Texaco Massachusetts* and the MV *Alva Cape* to exercise due caution. The masters of both vessels were ultimately responsible for the safe navigation; however, the vessels were under the control of the pilots at time of the collision and it was their duty to provide expert direction to the safe navigation of the vessels. The *Alva Cape,* as the burdened vessel, failed to keep out of the way of the *Texaco Massachusetts,* and, in the opinion of the Board, the *Alva Cape* was primarily responsible for the accident. However, when collision was imminent, both vessels failed to sound the danger signal and to take evasive action as was incumbent upon them. The *Texaco Massachusetts* failed to sound the signal to indicate her engines were going at full speed astern. The fatalities were caused by the explosion and burning of the naphtha cargo which leaked from the *Alva Cape* after the collision.

By the National Transportation Safety Board:
October 16, 1967.

/s/ JOSEPH J. O'CONNELL, Jr.,
Chairman.

/s/ OSCAR M. LAUREL,
Member.

/s/ JOHN H. REED,
Member.

/s/ LOUIS M. THAYER,
Member.

/s/ FRANCIS H. MCADAMS,
Member.

COMMANDANT'S ACTION

1. The record of the Marine Board of Investigation convened to investigate subject casualty has been reviewed and the record, including the Findings of Fact, Conclusions and Recommendations, is approved subject to the final determination of the cause of the casualty by the National Transportation Safety Board and the following comments.

[1] Due to space limitations the Coast Guard report of the Marine Board of Investigation is not printed herein.

2. In order to reconstruct the sequence of events and times leading to the casualty, it is necessary to add one hour to the times reported by the *Texaco Massachusetts,* since they were on Eastern Standard Time, and to subtract about two minutes from the reported times of the *Alva Cape.*

3. The pilots of both vessels have wide experience in the piloting of large oceangoing vessels in restricted waters. They each have held a federal First Class Pilot's License for over 20 years. It is tragic that this casualty occurred while both vessels were under the control of qualified and experienced pilots, well versed in the Rules of the Road and the local peculiarities of current, custom and special circumstances. Both pilots testified that at first sighting there was no confusion or misunderstanding as to the developing crossing situation. The *Texaco Massachusetts* was privileged and the *Alva Cape* was burdened and thereby required to keep out of the way of the *Texaco Massachusetts* by directing her course to starboard so as to cross astern of the other vessel or, if necessary, to slacken her speed or to stop or reverse. At any rate she was duty bound to avoid crossing ahead as required by Article 22 of the Inland Rules of the Road. The *Alva Cape* acknowledged this situation by returning the one short-blast whistle of the *Texaco Massachusetts.* Neither vessel sounded the danger signal indicating that the course or intention of the other was in doubt. The testimony of the pilot of the *Alva Cape* indicates that he did not go full astern with the anchor down to help reduce the speed of his vessel until two minutes after he had acknowledged a crossing situation. This full astern was held for two minutes. At approximately a minute and a half before the collision the pilot of the *Alva Cape* thought he had checked his vessel and therefore stopped the engines. At about a half minute before the collision, the engines were again put at full astern and remained so until the collision.

4. At the time of the casualty the pilot of the *Texaco Massachusetts* was serving under the authority of his federal license since the vessel was under Enrollment and its navigation was required to be under the control of such federally licensed pilot. The pilot of the *Alva Cape* was also serving under the authority of his federal pilot's license since his employment was conditioned upon possession of a federal license.

5. Further investigation under the administrative procedures provided by the Suspension and Revocation Proceedings Regulations concerning the evidence of negligence and violations of the Rules of the Road for preventing collisions has been initiated. It is considered that such action at this time will adequately dispose of the remedial aspects and referral to the U.S. Attorney having jurisdiction for possible criminal prosecution is not indicated at this time.

6. In surveying the damage to the *Texaco Massachusetts* following the casualty, it is noted that despite being in the close proximity of the burning *Alva Cape* for a considerable period of time, only her structural appurtenances such as the starboard fibrous glass reinforced plastic lifeboat and the furnishings in two state rooms where the port holes were open were damaged by fire. This minimal damage and its confinement can only be attributed to the construction of the vessel's interior of incombustible material. In addition, none of the *Texaco Massachusetts'* empty, highly volatile and non-gas-free cargo tanks ignited. This is attributed to the prompt action of the foam monitors which were covering the after deck with a blanket of cooling foam and that her cargo tank openings were closed and her cargo tanks remained intact.

7. The Board concluded that this tragedy was marked by many instances of bravery and heroic action, not only on the part of some of the crewmembers of the vessels involved, but also of the many fire fighting and rescue vessels that unselfishly participated and assisted. This assistance was rendered by four Coast Guard tugboats, six Coast Guard 40-foot utility boats, five New York City fire boats, five New York City police launches, three Navy tugboats, one Coast Guard helicopter and ten commercial tugboats. Many of these vessels and their crews have been identified and recognized by numerous State and private organizations. In addition, the Coast Guard recommended and the Secretary of the Treasury has awarded Silver Lifesaving Medals to Mr. William B. Thorup, Jr. and Mr. Joseph B. Snyder, Second and Third Mates of the *Texaco Massachusetts.* Numerous Coast Guard personnel were recognized by appropriate awards or letters of commendation. The Secretary of Commerce on the recommendation of the U.S. Maritime Administration and with the concurrence of the Secretary of the Treasury awarded a Gallant Ship Citation and Plaque to the *Julia C. Moran* with ribbon bars to the crew; Distinguished Service Medal to her Captain, Mr. George Sahlberg, and Meritorious Service Medals to his crew and to Messrs. Thorup and Snyder, Second and Third Mates of the *Texaco Massachusetts.*

8. The value of bridge-to-bridge radiotelephone as an anticollision navigational aid has been recognized and under study for some time. In those areas where it has been used, it has provided a significant contribution to safety. A legislative proposal requiring certain vessels to be equipped with bridge-to-bridge radiotelephone has been prepared and is now being processed for submission to Congress.

P. E. Trimble,
Vice Admiral, U.S. Coast Guard,
Acting Commandant.

14 August 1967

LORAN

The Merchant Marine School of Seamen's Church Institute of New York has added a course in LORAN to its curriculum beginning September 11.

The course is sponsored by the Sperry-Rand Corporation, the Federal Maritime Administration and the Institute.

The LORAN equipment will be located atop the 13-story SCI building in a superstructure constructed in the form and shape of a ship's "bridge," the "bridge" complete with navigational chart tables.

LORAN is an electronic system for determining the geographical position of a ship by measuring the difference in time of arrival of synchronized radio pulses from transmitting shore stations.

The SCI school is one of the oldest marine schools in the country, training original 3rds and raise of grade in both deck and engine subjects. The LORAN course will be of one week duration, is offered at no cost to qualified seamen. A small fee will be charged others. ⚓

Bulletin on Shipyard Safety

The Bureau of Labor Standards of the U.S. Department of Labor has published a booklet entitled "Shipboard Ventilation for Hazardous Atmospheres" which the Bureau says is designed particularly for use of management and supervisory personnel in shipyards.

Subjects covered include types of ventilation and ventilation equipment; ventilation requirements for various shipyard operations; and installation and operation of ventilating equipment. The bulletin contains several illustrations and tables.

Copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., at 30 cents per copy. ⚓

New Division Chief

CAPT Eric G. Grundy assumes the duties of Chief, of Hazardous Materials Division and member of the Merchant Marine Council.

Captain Grundy is a graduate of the University of California with an A.B. degree majoring in Chemical Engineering. He also received credentials in General Secondary Teaching from Claremont College, California and did Graduate Study Administration at U.C.L.A., Los Angeles.

Captain Grundy's marine inspection service began in 1943 at Portland, Oregon as a Hull Inspector. In 1949 he was assigned to Headquarters in Merchant Vessel Inspection Division and Port Security and Law Enforcement Division. In 1957 he was assigned to the Marine Inspection Office in St. Louis as Senior Inspector of Personnel and Senior Inspector of Materiel, and in 1958 he was a hull inspector in the Marine Inspection Office, New York. He returned to Headquarters in 1962 as Chief, Chemical Engineering Branch. In 1966 he was Commanding Officer of the CGC Cook Inlet where he served until his present position. ⚓

Retirees

Two outstanding Federal aides with a combined service of some 61 years have recently retired from the Federal Government. They are Capt A. H. McComb, Jr., Deputy Chief, Office of Public and International Affairs, and Mr. James B. Robertson, Jr., Technical Advisor to the Chief of the Merchant Marine Technical Division.

Captain A. H. McComb, Jr., a 1937 graduate of the Webb Institute of Naval Architecture and Marine Engineering, began his maritime career with a temporary appointment as Assistant Surveyor for the American Bureau of Shipping.

His experience in government aspects of maritime safety dates back to January 1938 when, as a naval architect, he started to work for the U.S. Experimental Model Basin, and then in the Bureau of Marine Inspection and Navigation, Department of Commerce. When this Bureau was

Delegations to sessions of the IMCO Assembly, Council, and Maritime Safety Committee as well as some sessions of the subordinate technical bodies. In recognition of his work in the international field he was awarded the Legion of Merit and the Department of State Scroll of Appreciation.

He is a member of the Society of Naval Architects and Marine Engineers, the American Society of Naval Engineers, and the Propeller Club of the United States. ⚓

absorbed by the Coast Guard during 1942 he continued as a civilian naval architect assigned to the Merchant Marine Technical Division and remained in that status until after the war. Aside from his regular duties during the war, he lectured on Introductory Naval Architecture at the George Washington University.

He was commissioned as Lieutenant Commander in the Coast Guard in 1948 and served as Chief, Hull Arrangements Branch of the Merchant Marine Technical Division. He later became Assistant Chief of the Merchant Marine Technical Division and in March 1961, he became Chief, International Maritime Safety Coordinating Staff of the Office of Merchant Marine Safety. He served as Deputy Chief, Office of Public and International Affairs until he retired.

He has played an active role in developing U.S. positions for international conferences since the 1948 SOLAS Conference, and has been part of the U.S. Delegation to many of them including the 1960 SOLAS Conference, 1962 Oil Pollution Conference, the 1965 Conference for the Facilitation of Maritime Transportation, and the 1966 Load Lines Conference. In addition, since 1960, he has been a member of most U.S.

Mr. James B. Robertson, Jr., a 1932 graduate of the University of Michigan with a degree in Naval Architecture and Marine Engineering, spent the first few years of his career in the yacht design field before joining the staff of the National Advisory Committee for Aeronautics at Langley Field in October 1935.

He joined the Technical Division of the Bureau of Marine Inspection and Navigation, Department of Commerce, in June 1938 as an assistant naval architect and continued in this capacity when the Bureau was absorbed by the Coast Guard in 1942. Progressing through various stages of increasing responsibility, Mr. Robertson was appointed Technical Advisor to the Chief of the Merchant Marine Technical Division in 1951 and continued to serve in that capacity until his retirement.

Mr. Robertson has served as a member of the U.S. Delegations to the 1948 and 1960 International Safety of Life at Sea Conferences and to the 1966 International Load Line Conference as a technical advisor to the U.S. Delegation. He was the U.S. Representative to the Subcommittee on Subdivision and Stability Problems of the Intergovernmental Maritime Consultative Organization (IMCO) and served as the Deputy U.S. Representative to the Subcommittee on Bulk Cargoes and as a member of two other Working Groups of IMCO.

Mr. Robertson has served on technical committees of the American Bureau of Shipping, American Petroleum Institute, American Welding Society and International Institute of Welding. A member of the Society of Naval Architects and Marine Engineers since 1936, he has served as chairman or member of several task groups of the Society's Hull Structure Committee. He coauthored a paper entitled "Survival of Collision Damage vs. The 1960 Convention on Safety of Life at Sea," which was presented at the 1961 annual meeting of The Society of Naval Architects and Marine Engineers and for which he was jointly awarded the "Captain Joseph H. Linnard Prize." Recently, Mr. Robertson, at the request of the Society, rewrote Chapter III of the new "Principles of Naval Architecture." In recognition of this contribution he has been elected to "Member for Life" of the Society.

Mr. Robertson was awarded the Treasury Department's Meritorious Civilian Service Honor Award by the Secretary of the Treasury in 1962. ⚓

STATISTICAL SUMMARY OF CASUALTIES TO COMMERCIAL VESSELS*

1 July 1966 to 30 June 1967

Fiscal year 1967

	Nature of Casualty																	
	Collisions; crossing, meeting and overtaking	Collisions, while anchored, docking or undocking	Collision, fog	Collisions with piers and bridges	Collisions, all others	Explosion and/or fires—cargo	Explosion and/or fires—vessel's fuel	Explosion and/or fire—boilers, pressure vessel	Explosion and/or fire—structure, equipment all others	Grounding with damage	Grounding without damage	Founderings, capsizings and floodings	Heavy weather damage	Cargo damage	Material failure—structure and equipment	Material failure—machinery and engineering equipment	Casualty not otherwise classified	Total
Number of casualties	160	154	42	365	298	26	29	14	99	282	180	230	50	8	126	252	38	2,353
Number of vessels involved	483	344	108	540	418	33	29	14	100	336	198	255	51	8	128	252	76	3,373
Number of inspected vessels involved	147	135	33	248	164	23	7	12	23	113	130	33	47	8	93	135	25	1,373
Number uninspected vessels involved	336	209	75	292	254	10	22	2	77	223	68	222	4	------	35	117	51	1,997
Primary cause																		
Personnel fault:																		
Pilots—State	10	4	10	2	------	------	------	------	------	3	3	------	------	------	------	------	1	33
Pilots—Federal	------	1	------	1	1	------	------	------	------	1	------	------	------	------	------	------	1	5
Licensed officer—documented seaman	31	9	8	9	6	2	1	4	------	15	9	5	1	1	2	18	------	121
Unlicensed—undocumented persons	83	19	14	18	21	------	4	------	7	63	8	13	------	------	2	------	10	268
All others	12	7	9	15	11	12	------	------	7	14	9	10	1	1	9	7	3	177
Error in judgment—calculated risk	20	44	9	119	49	1	------	1	1	69	61	9	------	------	------	1	2	387
Restricted maneuvering room	11	22	------	95	13	2	------	------	------	11	22	------	------	------	------	------	1	177
Storms—adverse weather	3	19	------	10	28	------	------	------	------	38	12	26	47	6	10	1	2	202
Unusual currents	------	1	3	23	2	------	------	1	------	3	1	------	------	------	------	------	------	34
Sheer, suction, bank cushion	17	------	------	3	3	------	------	------	------	4	4	------	------	------	------	------	------	31
Depth of water less than expected	2	1	------	3	------	------	------	------	------	20	37	------	------	------	------	------	------	63
Failure of equipment	9	16	------	30	7	6	5	2	23	21	8	26	1	------	79	134	9	377
Unseaworthy—lack of maintenance	------	11	------	2	2	1	19	6	49	5	1	116	1	------	23	87	1	324
Floating debris—submerged object	------	1	------	------	147	------	------	------	------	3	1	2	------	------	------	2	1	157
Inadequate tug assistance	1	6	------	48	12	------	------	------	2	14	5	13	------	------	------	------	4	106
Fault on part of other vessel or person	282	183	55	162	111	5	------	------	7	50	17	33	------	------	2	1	39	947
Unknown—insufficient information	2	------	------	------	5	4	------	------	4	2	------	2	------	------	1	1	2	23
Additional contributing factors to cause of casualty																		
Hull and associated parts:																		
Plates and framing—steel	6	8	2	9	34	------	------	------	------	8	------	34	11	------	29	1	3	145
Planks and framing—wood	4	2	------	2	32	------	------	------	2	5	------	69	2	------	1	------	------	119
Tanks	1	------	------	2	------	4	------	------	3	1	------	7	4	------	6	------	3	31
Holds and hatches	------	------	------	------	------	5	------	------	------	1	------	8	4	2	5	------	------	25
Superstructure—bulkheads, decks	1	3	------	------	1	3	------	------	7	1	------	17	27	------	6	1	3	73
Ladders, gangways, rails and guards	1	------	------	------	------	------	------	------	------	------	------	------	2	------	2	------	------	5
Masts, booms and cargo gear	------	------	------	------	------	------	------	------	------	------	------	1	2	------	13	2	2	20
Rudder and stern tube	1	1	------	1	8	------	------	------	------	7	------	2	------	------	12	7	1	40
Watertight closures	------	------	------	------	------	------	------	------	------	1	------	33	1	1	2	------	------	38
Quarters and living spaces	------	------	------	------	------	------	------	------	6	------	------	1	------	------	1	------	------	8
Navigation and safety:																		
Lookout	50	19	10	2	18	------	------	------	------	8	2	1	------	------	------	------	------	110
Docks-piers—congested area	32	98	2	183	36	2	------	1	1	25	22	7	1	------	------	------	6	416
Channels—restricted areas	157	35	25	89	73	------	------	------	------	75	90	4	------	------	------	------	2	550
Buoys—aids to navigation	1	------	------	------	10	------	------	------	------	10	12	------	------	------	------	------	------	33
Excessive speed	25	12	27	9	4	------	------	------	------	3	5	3	------	------	------	------	2	90
Poor visibility	7	8	15	9	6	------	------	------	------	23	19	2	------	------	1	------	1	91
Steering gear	16	5	1	10	2	------	------	------	------	22	6	2	------	------	4	4	------	72
Radar	6	4	19	1	1	------	------	------	1	4	2	------	------	------	------	------	------	38
Fathometer—depth of water	------	------	1	------	17	------	------	------	------	5	------	1	------	------	------	------	------	24
Engine order telegraph	------	1	------	8	1	------	------	------	------	2	------	1	------	------	------	------	1	14
Navigation equipment—other	9	1	1	1	3	------	------	------	------	50	12	1	------	------	------	------	------	77
Navigation lights	7	3	1	------	10	------	------	------	------	1	------	1	------	------	------	------	------	23
Navigation signals	117	3	27	2	11	------	------	------	------	------	4	------	------	------	------	------	------	164
Weather (generally)	11	17	1	72	26	------	------	------	------	28	25	32	3	------	7	1	3	229
Currents and tides	48	36	4	141	29	2	------	------	------	32	31	7	------	------	------	------	4	334
Lifesaving equipment	------	------	------	------	------	------	------	------	1	------	------	4	3	------	11	------	4	23
Firefighting equipment	------	1	------	1	------	2	1	------	5	------	------	------	------	------	1	------	------	11
Miscellaneous:																		
Yard repairs	------	------	------	2	1	8	------	------	8	------	1	5	1	------	2	12	1	41
Improper loading or stowage	------	2	------	------	6	16	------	------	2	2	1	34	11	8	15	1	2	100
Tug assisting	161	42	21	174	74	3	------	------	2	62	19	25	------	------	2	------	4	568
Anchor equipment	2	46	4	5	10	------	------	------	------	35	7	4	1	------	18	2	2	136
Towing equipment	5	2	------	8	8	------	------	------	------	7	2	8	------	------	------	------	------	40
Mooring equipment	3	83	4	25	20	2	------	------	1	10	6	20	3	1	2	------	12	192
Fishing equipment	6	------	1	1	3	------	------	------	------	6	1	6	------	------	1	------	5	30
Deck equipment—all other	------	1	------	------	------	------	------	------	------	------	------	------	------	------	1	------	------	2
Engineering:																		
Main propulsion machinery	2	14	------	15	76	------	17	------	12	18	2	18	1	------	22	148	9	354
Boiler parts and accessories	------	2	------	3	1	3	17	21	7	1	2	11	2	------	4	131	------	206
Machinery—all other	------	------	------	------	4	------	------	------	1	------	------	32	1	------	1	------	------	39
Tools and working spaces	------	------	------	------	------	------	11	------	21	------	------	7	------	------	------	2	1	42
Generators and other electrical equipment	------	------	------	3	------	3	7	------	42	3	2	------	2	------	5	32	------	99
Wiring, lights, controls	------	1	------	1	1	4	1	------	15	1	------	------	------	------	2	3	1	30
Steward's department:																		
Galley and steward's department equipment	------	------	------	------	------	------	------	1	22	------	------	------	------	------	------	------	------	23

See footnote at end of table.

STATISTICAL SUMMARY OF CASUALTIES TO COMMERCIAL VESSELS*—Continued

1 July 1966 to 30 June 1967

Fiscal year 1967

	Nature of casualty																	
	Collisions; crossing, meeting and overtaking	Collisions, while anchored, docking or undocking	Collision, fog	Collisions with piers and bridges	Collisions, all others	Explosion and/or fires—cargo	Explosion and/or fires—vessel's fuel	Explosion and/or fire—boilers, pressure vessel	Explosion and/or fire—structure, equipment all others	Grounding with damage	Grounding without damage	Founderings, capsizings and floodings	Heavy weather damage	Cargo damage	Material failure—structure and equipment	Material failure—machinery and engineering equipment	Casualty not otherwise classified	Total
Type of vessel																		
Inspected vessels:																		
Passenger and ferry—large	------	6	1	11	6	------	------	1	------	3	2	------	------	------	1	1	------	32
Passenger and ferry—small	8	3	------	7	7	------	3	------	9	6	4	6	1	------	------	------	------	54
Freight	20	69	16	112	82	12	3	10	10	38	74	5	28	6	72	93	15	665
Cargo barge	5	9	2	7	14	------	------	------	------	9	5	8	2	1	2	------	2	66
Tankships	11	14	2	24	25	2	1	1	2	20	32	6	12	1	14	30	2	199
Tank barge	98	27	11	80	22	8	------	------	1	33	9	4	1	------	1	1	4	300
Public	1	4	------	3	4	------	------	------	------	1	3	2	2	------	3	4	------	27
Miscellaneous	4	3	1	4	4	------	------	------	1	3	1	2	1	------	------	6	2	32
Uninspected vessels:																		
Fishing	53	30	7	12	51	------	15	------	39	94	20	98	3	------	16	111	16	565
Tugs	168	52	28	172	103	3	4	1	14	69	16	61	------	------	3	4	6	704
Cargo barge	51	26	10	69	32	2	------	------	2	25	5	37	1	------	9	------	23	292
Foreign	33	63	25	25	13	4	------	------	4	25	23	1	------	------	1	1	4	222
Miscellaneous	31	38	5	14	55	2	3	1	18	10	4	25	------	------	6	1	2	215
Gross tonnage																		
300 tons or less	231	124	34	184	200	3	26	2	76	173	44	197	4	------	19	117	24	1,458
Over 300 to 1,000 tons	130	54	21	124	68	9	------	------	9	55	14	35	3	------	17	3	26	568
Over 1,000 to 10,000 tons	98	120	43	169	112	18	2	10	11	80	82	15	21	5	59	87	20	952
Over 10,000 tons	24	46	10	63	38	3	1	2	4	28	58	8	23	3	33	45	6	395
Length																		
Less than 100 feet	204	105	28	159	173	3	25	2	68	155	33	185	3	------	18	113	23	1,297
100 to less than 300 feet	218	89	43	200	121	12	1	------	19	102	34	55	6	------	18	13	30	961
300 to less than 500 feet	35	87	23	76	70	16	1	9	8	44	57	7	15	5	46	70	17	586
500 feet and over	26	63	14	105	54	2	2	3	5	35	74	8	27	3	46	56	6	529
Age																		
Less than 10 years	198	111	47	193	134	12	8	1	18	94	48	55	16	3	16	71	31	1,056
10 to less than 20 years	148	97	30	148	113	9	12	1	34	89	39	83	2	------	21	60	18	904
20 to less than 30 years	100	94	21	132	130	10	5	11	29	97	83	66	30	5	71	109	20	1,013
30 years and over	37	42	10	67	41	2	4	1	19	56	28	51	3	------	20	12	7	400
Location of casualty																		
Inland—Atlantic	17	23	7	53	40	6	3	2	16	67	49	29	1	------	15	10	5	343
Inland—Gulf	80	40	11	122	83	5	9	4	28	45	45	55	------	1	15	28	6	577
Inland—Pacific	6	25	4	31	47	4	6	1	17	47	21	35	3	1	11	9	3	271
Ocean—Atlantic	2	1	7	1	11	------	------	------	4	8	6	14	15	2	16	25	3	115
Ocean—Gulf	10	3	------	4	25	1	7	------	13	16	2	39	1	------	14	99	5	239
Ocean—Pacific	5	1	3	------	18	3	2	2	9	29	2	25	21	4	19	44	2	189
Great Lakes	4	11	------	64	14	1	2	1	4	32	27	3	------	------	16	10	2	191
Western rivers	26	10	6	54	21	3	------	1	4	19	5	24	------	------	7	1	6	187
Ocean—other	------	------	------	1	5	------	------	------	1	4	1	4	2	------	3	7	1	29
Foreign waters	10	40	4	35	34	3	------	3	3	15	22	2	7	------	10	19	5	212
Time of day																		
Daylight	75	91	24	219	165	19	15	5	54	136	97	134	27	5	83	136	26	1,311
Nighttime	79	58	18	128	120	6	9	6	39	128	72	84	23	3	39	101	12	925
Twilight	6	5	------	18	13	1	5	3	6	18	11	12	------	------	4	15	------	117
Estimated losses—units of thousands																		
Vessel	4,038	3,479	3,260	5,381	3,499	457	4,024	185	5,058	10,566	20	6,777	770	7	1,413	3,167	979	53,080
Cargo	3,152	509	51	218	102	275	782	------	188	1,700	------	1,325	46	1,124	65	3	261	9,801
Property	34	346	------	5,857	187	1	4	------	262	273	5	71	20	3	10	------	5,189	12,262
Vessels totally lost																		
Inspected	1	------	------	------	------	2	2	------	4	2	------	6	------	------	1	------	------	18
Uninspected	17	11	4	3	36	1	20	------	42	50	------	88	------	------	4	------	------	276

*Statistics concerning recreation and pleasure boating accidents are published in CG-357.

STATISTICAL SUMMARY OF DEATHS/INJURIES DUE TO A VESSEL CASUALTY*

1 July 1966 to 30 June 1967

Fiscal year 1967

Nature of casualty

	Collisions; crossing, meeting and overtaking	Collisions, while anchored, docking or undocking	Collision, fog	Collisions with piers and bridges	Collisions, all others	Explosion and/or fires—cargo	Explosion and/or fires—vessel's fuel	Explosion and/or fire—boilers, pressure vessel	Explosion and/or fire—structure, equipment all others	Grounding with damage	Grounding without damage	Founderings, capsizings and floodings	Heavy weather damage	Cargo damage	Material failure—structure and equipment	Material failure—machinery and engineering equipment	Casualty not otherwise classified	Total
Number of casualties	10	6	3	2	7	4	2	4	12	4	------	24	1	------	9	4	4	96
Number of deceased/injured—inspected vessels	--/8	------	--/1	--/1	------	4/3	8/2	2/4	3/3	------	------	3/--	------	------	28/3	--/5	7/2	53/32
Number of deceased/injured—uninspected vessels	42/16	1/9	1/1	--/1	5/7	9/1	--/3	------	11/12	--/6	------	44/6	--/3	------	9/16	1/--	--/5	123/86
Number of persons deceased/injured	42/24	1/9	1/2	--/2	5/7	13/4	8/5	2/4	14/15	--/6	------	47/6	--/3	------	37/19	1/5	7/7	178/118

Primary cause — Number of casualties

Personnel fault:																		
Pilots—State	1	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	2
Pilots—Federal	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Licensed officer—documented seaman	2	2	2	------	2	------	------	1	------	------	------	------	------	------	------	------	------	9
Unlicensed—undocumented persons	4	1	------	------	1	------	------	------	2	1	------	3	------	------	------	------	1	13
All others	3	------	------	------	2	1	------	------	1	------	------	1	------	------	------	------	------	8
Error in judgment—calculated risk	------	2	------	2	------	1	------	1	1	------	------	1	------	------	------	------	1	9
Restricted maneuvering room	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Storms—adverse weather	------	------	------	------	------	------	------	------	------	1	------	4	1	------	1	------	------	7
Unusual currents	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Sheer, suction, bank cushion	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Depth of water less than expected	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Failure of equipment	------	1	------	------	1	2	1	------	5	2	------	2	------	------	7	2	------	23
Unseaworthy—lack of maintenance	------	------	------	------	------	------	1	2	3	------	------	11	------	------	------	2	------	19
Floating debris—submerged object	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	1
Inadequate tug assistance	------	------	------	------	------	------	------	------	------	------	------	2	------	------	------	------	------	2
Fault on part of other vessel or person	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Unknown—insufficient information	------	------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	2	3

Death/injured by vessel type — Number of persons deceased/injured

Inspected vessels:																		
Passenger and ferry—large	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Passenger and ferry—small	--/5	------	------	------	------	------	------	------	------	------	------	1/--	------	------	------	------	------	1/5
Freight	--/1	------	--/1	------	------	------	------	1/2	2/2	------	------	------	------	------	28/3	--/5	7/2	38/16
Cargo barge	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Tankships	--/2	------	------	--/1	------	------	8/2	1/2	1/1	------	------	------	------	------	------	------	------	10/8
Tank barges	------	------	------	------	------	4/3	------	------	------	------	------	2/--	------	------	------	------	------	6/3
Public	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Uninspected vessels:																		
Fishing	------	1/--	------	------	--/1	------	--/3	------	2/4	--/3	------	28/4	--/3	------	1/--	------	------	32/18
Tugs	------	--/1	------	--/1	------	3/--	------	------	3/3	------	------	7/2	------	------	6/--	------	------	19/7
Foreign	40/11	--/2	------	------	------	4/--	------	------	------	--/3	------	------	------	------	--/15	1/--	--/4	45/35
Miscellaneous	2/5	--/6	1/1	------	5/6	2/1	------	------	6/5	------	------	9/--	------	------	2/1	------	--/1	27/26

Particulars of person deceased/injured — Number of persons deceased/injured

Papers of deceased/injured:																		
Licensed by Coast Guard	------	------	--/1	------	------	------	2/--	1/2	1/1	------	------	------	------	------	8/1	--/1	2/--	14/6
Documented by Coast Guard	--/2	--/1	--/1	--/1	------	6/1	6/2	------	2/--	------	------	4/--	------	------	20/1	--/4	5/1	43/14
No license or document	2/11	1/6	1/--	--/1	5/7	7/3	--/3	1/2	11/14	--/6	------	43/6	--/3	------	9/17	1/--	--/2	81/81
Other—unknown—foreign	40/11	--/2	------	------	------	------	------	------	------	------	------	------	------	------	------	------	--/4	40/17
Status or capacity on vessel:																		
Passenger	--/8	--/3	------	------	------	------	------	------	------	------	------	1/--	------	------	------	------	------	1/11
Longshoreman—harbor worker	------	------	------	------	------	6/2	------	1/2	1/3	------	------	1/--	------	------	--/16	1/--	------	10/23
Crewmember	2/4	1/4	1/2	--/2	--/3	7/2	8/5	1/2	6/7	--/3	------	39/6	--/3	------	35/2	--/5	7/5	107/55
Other and unknown	40/12	--/2	------	------	5/4	------	------	------	7/5	--/3	------	6/--	------	------	2/1	------	--/2	60/29
Activity engaged in:																		
Off duty	1/1	--/2	------	--/1	------	------	7/5	------	3/2	------	------	3/4	------	------	25/1	------	--/1	39/17
Deck department duties	1/--	------	--/2	--/1	------	2/--	------	------	1/--	--/2	------	4/1	--/1	------	3/--	------	------	11/7
Engine department duties	------	--/2	1/--	------	------	1/--	1/--	1/2	2/2	------	------	3/--	--/1	------	--/1	--/9	7/--	16/13
Stewards department duties	--/1	------	------	------	------	------	------	------	--/2	------	------	1/1	--/1	------	------	------	------	1/5
Handling cargo	------	------	------	------	------	10/3	------	------	------	------	------	1/--	------	------	--/16	1/--	------	12/19
Fishing	------	--/2	------	------	--/1	------	------	------	--/3	------	------	18/--	------	------	1/--	------	------	19/6
Drills	------	------	------	------	------	------	------	------	------	------	------	------	------	------	1/--	------	--/4	1/4
Passenger	--/8	--/1	------	------	------	------	------	------	------	------	------	1/--	------	------	------	------	------	1/9
Other and unknown	40/14	1/2	------	------	5/6	--/1	------	1/2	8/6	--/4	------	16/--	------	------	7/1	------	--/2	78/38
Location of vessel:																		
At dock	------	--/3	------	------	--/2	13/4	------	2/4	6/7	------	------	------	------	------	2/16	1/--	--/5	24/41
At anchor	------	1/2	--/1	------	------	------	------	------	6/5	--/1	------	------	------	------	1/1	--/1	------	8/11
Underway	42/24	--/4	1/1	--/2	5/5	------	8/5	------	2/3	--/5	------	47/6	--/3	------	34/2	--/4	7/2	146/66

Part of body involved — Number of persons deceased/injured

Head and upper limbs	--/3	------	------	------	--/1	2/--	--/1	--/1	--/2	--/1	------	--/1	--/1	------	--/1	--/2	--/1	2/15
Back and lower limbs	--/3	--/4	--/1	--/1	--/3	------	--/1	--/2	--/1	------	------	--/4	------	------	--/1	------	------	--/21
Multiple injuries (internal and external)	--/18	--/5	--/1	--/1	--/3	8/4	8/3	2/1	9/12	--/5	------	--/1	--/2	------	--/17	1/3	7/6	35/82
Death—heart	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Death—drowning	1/--	1/--	------	------	2/--	2/--	------	------	5/--	------	------	41/--	------	------	36/--	------	------	88/--
Death—other	41/--	------	1/--	------	3/--	1/--	------	------	------	------	------	6/--	------	------	1/--	------	------	53/--

*Statistics concerning recreational boating accidents are published in CG-357.

STATISTICAL SUMMARY OF DEATHS ON BOARD COMMERCIAL VESSELS*

(Not Involving a Vessel Casualty)

Total	1 July 1966 to 30 June 1967 Fiscal year 1967	Nature of death																				
	Cause of death	Natural cause	Homicide	Suicide	Disappearance	Slips and falls—ladders	Slips and falls—gangways	Slips and falls—on deck	Slips and falls—other	Falls from vessel—into water	Falls into holds or tanks	Struck by objects; falling, dropped or moving	Exposure and asphyxiation	Struck against, crushed, bumped into objects	Operating machinery and tools	Burns and scalds (other than electrical)	Electrical shock and burns	Caught in lines, chains or wire ropes	Pinching and crushing	Heavy weather	Overexertion, sprains and strains	Cuts, lacerations, bruises and punctures	Altercations and misconduct	Unknown or insufficient information
473																								
28	Intoxication	5		1	1	1	3		3	8		2	2											2
228	Physical deficiency or handicap	220		1	2	1				4														
5	Unsafe movement or posture								1	3		1												
46	Psychological-immaturity, insanity		5	16	1				1	23														
18	Unsafe practice		1						1	5	2	2	5			1								1
2	Violation of law or regulation									1		1												
82	Human errors				1	3			5	49	9	2	3			2	1	2	3				1	1
7	Decks—slippery or cluttered									7														
6	Weather conditions					1	1		1	3														
	Poor maintenance or housekeeping																							
1	Inadequate lighting										1													
7	Inadequate rails or guards						1		1	3	1	1												
19	Failure of equipment								2	4	1	11					1							
15	Inadequate supervision									4		5	2	2				1	1					
2	Inadequate life preservers									2														
2	Inadequate tools or equipment											1				1								
1	Inadequate protective equipment								1															
1	Improper use of tools or equipment									1														
3	Miscellaneous causes									3														
	Types of vessels involved																							
	Inspected vessels:																							
55	Passenger and ferry—large	43		6						3		3												
19	Passenger and ferry—small	10		3	1	1				3		1												
172	Freight ships and barges	104	2	4	2	5	3		10	19	4	8	5	1					2				1	2
43	Tankships and barges	26		4	1		1			3	2		4				1							1
5	Public	4					1																	
14	Miscellaneous	4							1	4	1	2				1	1							
	Uninspected vessels:																							
59	Fishing	14	4		1				2	32		2						3						1
46	Tugs	15								27		3				1								
28	Foreign	2		1					1	10	6	2	2	1		2			1					
32	Miscellaneous	3							2	19	1	5	1						1					
	Time of day																							
267	Daytime	135	5	7	1	3	2		12	54	11	17	3	2		2	2	2	4				1	4
184	Nighttime	82	1	11	3	3	3		4	54	3	8	9			2		1						
22	Twilight	8			1					12		1												
	Particulars of deceased																							
	Papers of deceased:																							
74	Licensed by Coast Guard	59		3		1	1		1	6		1						1	1					
163	Documented by Coast Guard	95	2	6	3	1	4		8	24	3	3	7	1		1	1		1				1	2
214	No license or document	70	4	8	2	4			7	79	7	21	3	1		1	1	2	2					2
22	Other—unknown—foreign	1		1						11	4	1	2			2								
	Status or capacity on vessel:																							
61	Passenger	43	2	8	1	1				6														
31	Longshoreman—Harbor worker	2				3			3	8	7	5		1					1					1
349	Crewmember	175	4	10	4	2	5		12	96	7	9	9	1		4	1	3	3				1	3
32	Other	5							1	10		12	3				1							
	Activity engaged in:																							
177	Off duty	111	1	8	4	1	5		2	36	1		5						1					2
99	Deck department duties	26	1	1		1			8	38	6	7	4	1		2	1		2					1
32	Engine department duties	19	1							5	3					2			1				1	
16	Stewards department duties	11	1							4														
14	Handling cargo	1				1			1	4	3	3		1										
30	Fishing	10							1	13		2						3						1
3	Drills	2							1															
59	Passenger	40	2	8	1	1				7														
43	Other and unknown	5		1		2			3	13	1	14	3				1							
	Location of vessel:																							
176	At dock	65	2	2		4	5		11	46	8	15	8	1		4			2				1	2
37	At anchor	14							1	13	1	4	1				1	1	1					
260	Underway	146	4	16	5	2			4	61	5	7	3	1			1	2	1					2
	Part of body involved																							
6	Head and upper limbs								1		1	3							1					
	Back and lower limbs																							
3	Multiple injuries (internal and external)					1			1		1													
195	Death—heart	194								1														
116	Death—drowning			7			5		1	99		2						1						1
153	Death—other	31	6	11	5	5			13	20	12	21	12	2		4	2	2	3				1	3

*Statistics concerning recreation and pleasure boating accidents are published in CG-357.

STATISTICAL SUMMARY OF PERSONNEL INJURIES ON BOARD COMMERCIAL VESSELS*

(Not Involving a Vessel Casualty)

1 July 1966 to 30 June 1967

Fiscal year 1967

Total	Cause of injury	1988	Slips and falls—ladders	Slips and falls—gangways	Slips and falls—on deck	Slips and falls—other	Falls from vessel—into water	Falls into holds or tanks	Struck by objects; falling, dropped or moving	Exposure and asphyxiation	Struck against, crushed, bumped into objects	Operating machinery and tools	Burns and scalds (other than electrical)	Electrical shock and burns	Caught in lines, chains or wire ropes	Pinching and crushing	Heavy weather	Overexertion, sprains and strains	Cuts, lacerations, bruises and punctures	Altercations and misconduct	Unknown or insufficient information
	Nature of injury																				
74	Intoxication		14	10	8	17	2	1	1		4		1			2		1	4	8	1
22	Physical deficiency or handicap		4	1	3	4			1		2							1			5
165	Unsafe movement or posture		6	3	6	27	3	1	4		5							108	1		1
29	Psychological-immaturity, insanity										2		1						7	17	2
95	Unsafe practice		22	3	5	23	2		12	1	1	5	2		7	2		4	4		2
	Violation of law or regulation																				
897	Human errors		129	15	65	136	6	7	124		64	8	44		29	64		36	57	80	33
151	Decks—slippery or cluttered		16	3	68	47		1			6		1		1			5	3		
154	Weather conditions		10	4	12	43	1		10		41	1	6		1	19	2	1	2		1
61	Poor maintenance or housekeeping		7	1	17	15			4		2		1					3	11		
20	Inadequate lighting		4		3	8		2			3										
10	Inadequate rails or guards		2			2	1		1			1			1						2
107	Failure of equipment		5		2	14			59		2	3	14		1	3			4		
97	Inadequate supervision				3	5			53		8	1	12		7	2		2	4		
	Inadequate life preservers																				
7	Inadequate tools or equipment							1					1	1				1	1		3
23	Inadequate protective equipment								4				7		1				9		2
72	Improper use of tools or equipment				1	3		1	21		6	12	4		1	3		3	13		4
4	Miscellaneous causes								2		1										1
	Types of vessels involved																				
	Inspected vessels:																				
247	Passenger and ferry—large		25	4	36	35		1	25		24	2	15		1	17		26	15	10	11
16	Passenger and ferry—small		2		2	5			4		1		1					1			
1417	Freight ships and barges		162	32	129	270	11	11	193		106	22	64	1	30	64	1	124	91	76	30
145	Tankships and barges		20	3	15	20		1	22	1	8	5	10			7		8	5	15	5
27	Public		7		3	4			4		1		1					3	1	1	2
26	Miscellaneous			1	1	1	1		10		1		2		1	2		3	3		
	Uninspected vessels:																				
57	Fishing				4	2	1		21		2	2			11	3			2	1	8
32	Tugs		1		2	3	1	1	12		2				4	1	1		2	2	
3	Foreign					1			1							1					
18	Miscellaneous		2		1	3	1		4		2		1		2				1		1
	Time of day																				
1389	Daytime		148	14	115	245	7	9	229	1	94	26	76	1	37	77	1	130	88	39	52
505	Nighttime		62	20	67	89	6	5	54		45	5	15		10	14	1	30	24	53	5
94	Twilight		9	6	11	10	2		13		8		3		2	4		5	8	13	
	Particulars of person injured																				
	Papers of person injured:																				
187	Licensed by Coast Guard		22	5	15	33		2	22		11	6	20		4	9		10	13	7	8
1654	Documented by Coast Guard		185	35	167	292	12	11	228		130	23	69	1	31	80	1	152	102	94	41
145	No license or document		12		11	18	3	1	46	1	6	2	5		14	5	1	3	5	4	8
2	Other—unknown—foreign					1										1					
	Status or capacity on vessel:																				
16	Passenger		4		2	7					1		1								1
15	Longshoreman—harbor worker		2		1	1			10				1								
1945	Crewmember		212	40	190	335	15	14	283	1	145	31	90	1	49	94	2	164	120	105	54
12	Other		1			1			3		1		2			1		1			2
	Activity engaged in:																				
374	Off duty		56	38	33	71	6	1	11		30		7			22		9	18	66	6
764	Deck department duties		61	2	90	127	7	9	180	1	59	12	10		37	29	1	80	42	11	6
419	Engine department duties		54		23	69		3	52		25	17	59	1	2	13		41	37	10	13
288	Stewards department duties		35		34	50			18		25		14		1	21		30	19	15	26
27	Handling cargo		1		3	10			8		1	1	1			2					
37	Fishing				3	1	1		15		1				8	3			1	1	3
25	Drills		1		3	5			5		3	1			1	3		2			1
14	Passenger		4		1	6					1		1								1
40	Other and unknown		7		3	5	1	1	7		2		2			2	1	3	3	2	1
	Location of vessel:																				
778	At dock		81	27	75	113	11	10	144	1	45	5	37		22	31		55	40	58	21
217	At anchor		23	12	24	32	2		20		15	4	11	1	5	5	1	18	20	16	8
995	Underway		115	1	94	199	2	4	132		87	22	46		22	59	1	92	60	31	28

*Statistics concerning recreation and pleasure boating accidents are published in CG-357

STATISTICAL SUMMARY OF PERSONNEL INJURIES ON BOARD COMMERCIAL VESSELS*—Con.

(Not Involving a Vessel Casualty)

1 July 1966 to 30 June 1967

Fiscal year 1967

Total	Part of body injured:	Nature of injury: Slips and falls—ladders	Slips and falls—gangways	Slips and falls—on deck	Slips and falls—other	Falls from vessel—into water	Falls into holds or tanks	Struck by objects; falling, dropped or moving	Exposure and asphyxiation	Struck against, crushed, bumped into objects	Operating machinery and tools	Burns and scalds (other than electrical)	Electrical shock and burns	Caught in lines, chains or wire ropes	Pinching and crushing	Heavy weather	Overexertion, sprains and strains	Cuts, lacerations, bruises and punctures	Alterations and misconduct	Unknown or insufficient information
142	Head and neck	21	3	15	19	2	----	30	----	15	2	2	----	----	1	----	1	5	24	2
57	Eye and face	----	----	3	7	----	----	11	----	----	----	8	----	1	----	----	----	9	12	6
167	Arm and shoulder	23	3	25	35	1	1	28	----	14	1	7	----	1	2	----	12	7	6	1
384	Hand	15	2	13	19	----	----	52	----	35	21	11	1	29	77	----	8	69	8	24
262	Leg and hip	20	7	34	65	5	2	61	----	21	5	8	----	4	5	----	11	8	2	4
282	Feet	37	16	27	44	2	----	57	----	20	1	13	----	10	7	----	23	16	1	8
256	Back	49	1	34	51	1	2	7	----	11	----	1	----	1	1	----	88	----	5	4
121	Body—external	12	2	12	29	----	2	13	----	8	----	20	----	----	----	----	5	3	13	2
115	Body—internal	16	3	14	25	2	3	16	----	15	----	----	----	----	1	1	6	----	11	2
12	Hernia	----	----	----	----	----	----	1	----	1	----	----	----	----	----	----	10	----	----	----
166	Multiple body injuries	23	3	15	45	2	3	19	----	7	1	22	----	3	----	1	----	2	19	1
24	All other injuries	3	----	1	5	----	1	1	1	----	----	2	----	----	1	----	1	1	4	3
	Additional contributing factors to cause of injury																			
287	Human element	22	7	12	29	2	1	32	----	12	3	16	----	4	13	----	8	13	105	8
43	Decks—slippery or cluttered	1	1	18	14	1	----	----	----	3	----	----	----	----	----	----	1	4	----	----
39	Weather conditions	2	3	14	10	----	----	3	----	1	1	----	----	----	4	----	----	----	----	1
23	Poor maintenance or housekeeping	2	----	6	7	----	----	3	----	2	----	----	----	1	----	----	----	2	----	----
8	Inadequate lighting	----	1	2	4	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----
5	Inadequate rails or guards	1	----	----	1	----	1	----	----	----	----	----	----	----	----	----	----	2	----	----
5	Failure of equipment	----	----	----	4	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----
35	Inadequate supervision	1	1	----	4	----	----	11	----	1	2	7	----	1	2	----	3	1	----	1
1	Inadequate tools or equipment	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----
9	Inadequate protective equipment	----	----	----	2	----	----	3	----	----	----	2	----	----	----	----	----	1	----	1
15	Improper use of tools or equipment	1	----	----	2	----	----	6	----	----	2	1	----	----	----	----	2	1	----	----
283	Hull structure	14	1	112	93	----	----	5	----	32	----	----	----	1	6	----	10	8	1	----
153	Holds, hatches, tanks	12	----	12	56	----	14	15	1	8	----	6	----	----	11	----	11	6	----	1
291	Ladders, gangways, stairs	199	39	3	6	7	----	6	----	10	----	----	----	2	5	----	11	2	----	1
145	Masts, booms, cargo gear	5	----	15	21	----	----	46	----	14	3	2	----	10	3	----	13	13	----	----
106	Watertight closures	1	----	7	15	----	----	10	----	13	----	2	----	----	51	----	2	3	----	2
201	Living spaces	15	----	23	78	----	----	4	----	26	----	6	----	----	18	----	11	6	11	3
33	Fishing equipment	----	----	----	1	----	----	14	----	1	1	----	----	10	3	----	----	1	----	2
18	Navigational equipment	1	----	6	5	----	----	----	----	4	----	----	----	----	1	----	1	----	----	----
34	Lifesaving equipment	----	----	2	9	----	----	9	----	3	1	1	----	4	3	----	1	----	----	1
2	Firefighting equipment	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	1	----	----	----
1	Communications equipment	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----
1	Yard repairs	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
69	Improper loading, stowage and ventilation	4	----	12	19	----	----	12	1	4	----	3	----	----	5	----	2	6	----	1
16	Ground tackle	1	----	1	1	----	----	4	----	2	----	----	----	3	2	----	2	----	----	----
47	Tugs and towing equipment	----	----	3	----	----	----	28	----	3	----	----	----	8	1	----	2	2	----	----
119	Mooring equipment	----	----	13	5	2	----	68	----	5	----	----	----	10	----	----	11	5	----	----
227	Miscellaneous deck department equipment	6	----	12	36	2	2	65	----	18	6	4	----	11	5	1	38	19	2	----
12	Main propulsion machinery	1	----	----	4	----	----	3	----	----	----	----	----	----	----	----	----	3	----	1
82	Boiler parts and accessories	2	----	1	7	----	----	9	----	5	----	46	----	----	----	----	6	3	----	3
318	Auxiliary machinery	36	----	13	61	----	----	47	----	26	22	27	----	2	11	----	34	27	2	10
21	Electrical equipment	1	----	----	----	----	----	6	----	1	2	2	2	----	----	----	2	4	----	1
206	Galley equipment	10	----	18	36	----	----	16	----	15	----	17	----	1	15	----	26	19	9	24

*Statistics concerning recreation and pleasure boating accidents are published in CG–357.

AMENDMENTS TO REGULATIONS

TITLE 46 CHANGES

SUBCHAPTER O—REGULATIONS APPLICABLE TO CERTAIN VESSELS DURING EMERGENCY

PART 154—WAIVERS OF NAVIGATION AND VESSEL INSPECTION LAWS AND REGULATIONS

Service Requirements for Certification of Certain Merchant Seamen as Able Seamen or Qualified Members of Engine Department

The provisions of section 13 of the act of March 4, 1915, as amended (46 U.S.C. 672), require that merchant seamen shall perform certain minimum periods of service on board merchant vessels of 100 gross tons and higher in order to qualify for certification as able seaman (AB) or qualified member of the engine department (QMED), which are endorsed on their Merchant Mariners' Documents. These statutory requirements are implemented by regulations in 46 CFR 12.05–1 through 12.05–11 for able seamen, and 46 CFR 12.15–1 through 12.15–15 for qualified members of the engine department.

Requests proposing alternates for certain minimum periods of service on board merchant vessels to qualify seamen for certain types of certification as able seamen or qualified members of the engine department have been received. These requests claim there is a shortage of qualified persons holding the required endorsements on their merchant mariners' documents to properly man the merchant vessels in the present merchant fleet; that there is unnecessary time consumed and expenses involved to complete the administrative procedures whereby waivers are granted to individual merchant vessels to permit employment of persons not having necessary endorsements when crew shortages exist; and that practical alternative arrangements are not completely effective so long as the law specifies minimum periods of actual service on board merchant vessels before certain certifications may be issued. Several requests have been received proposing that recognition be given to special training schools, with Coast Guard approved training programs, and that successful completion and passing of Coast Guard examinations be considered as qualifying merchant seamen for certification as able seamen or qualified members of the engine department in shorter periods of time than presently specified in section 672 of Title 46, United States Code.

After reviewing the individual waivers issued to merchant vessels with crew shortages, it is recognized there is continuing shortage of merchant seamen available with ratings required by law or regulation for the manning of seagoing merchant vessels. With respect to crew shortages in the ratings of oilers, firemen, and watertenders, the vessel needs are presently being met by seamen holding a wiper rating under individual waivers issued to the vessels by Officers in Charge, Marine Inspection. With respect to crew shortages in the rating of able seaman, the vessel needs are presently being met by seamen holding an ordinary seaman rating under individual waivers issued to the vessels by Officers in Charge, Marine Inspection. These waivers are authorized by the authority in 46 CFR 154.01. In order to improve the quality of merchant seamen holding wiper rating and capable of serving in a higher rating and to provide recognition for such seamen, in certain instances the cognizant Officer in Charge, Marine Inspection, has issued to such persons "Temporary Letters of Authorization," which are effective for one year from the date of issue. These letters will be recognized in filling crew shortages in the ratings of oilers, firemen and watertenders under individual waivers issued to the vessels under 46 CFR 154.01.

After informal discussions with representatives from the Office of Maritime Manpower of the Maritime Administration, Washington, D.C., and other interested persons concerned with manning merchant vessels, the opinions expressed informally indicated that alternatives to the present statutory requirements in section 672 of Title 46, United States Code, should be temporarily authorized, and revised procedures developed which would reduce the necessity to have individual waivers issued to merchant vessels having certain types of crew shortages. Both the National Maritime Union and the Seafarers' International Union have established special training schools for persons seeking to qualify for certification in certain qualified ratings as merchant seamen and have such ratings endorsed on their merchant mariners' documents. Most of the persons who begin a career at sea in the entry ratings with these unlicensed seamen's unions are now required to attend one of the union's training schools for at least four weeks presailing training prior to their initial assignment to shipboard duty in the merchant fleet. After specified periods of service on board merchant vessels, such persons return to school for further training. Upon completion of the training and passing the required physical examination, such persons then take the respective examinations for the ratings desired. Should they pass, a Temporary Letter of Authorization was issued under the direction of the Officer in Charge, Marine Inspection, effective for one year from date of issue. Upon completion of the re-

quired service on board a merchant vessel and presentation of an application with such service as proven by his discharges, the merchant seaman was issued a new Merchant Mariners' Document with permanent endorsements of ratings.

The purpose of the following waiver order designated § 154.20, as well as 33 CFR 19.20, is to waive the navigation and vessel inspection laws, and regulations issued pursuant thereto which are administered by the U.S. Coast Guard, to permit persons who have successfully completed approved courses in certain training schools approved by the Coast Guard after having served specified periods of time on board merchant vessels, and who have passed the required professional and physical examinations, to be issued merchant mariners' documents bearing the ratings the holders are qualified to fill, to permit such persons to serve on board merchant vessels without issuing to such vessels individual waivers to permit their employment, and to publish the terms of this waiver in the Federal Register. It is hereby found that compliance with the Administrative Procedure Act (respecting notice of proposed rule making, public rule making procedures thereon, and effective date requirements thereof), is impracticable and contrary to public interest.

§ 154.20 Service Requirements for Certification as Able Seaman or Qualified Member of the Engine Department.

(a) Because of the crew shortages occurring in the manning of merchant vessels, I hereby waive, as deemed necessary in the interest of national defense, compliance with the provisions of certain navigation and vessel inspection laws administered by the Coast Guard, as well as the regulations issued thereunder and published in this chapter, to the extent necessary to permit the manning of merchant vessels with persons holding ratings issued pursuant to this waiver order and who have complied with the alternate requirements set forth in this order.

(b) The provisions of section 672 of Title 46, United States Code, are waived to the extent necessary to permit the employment on board merchant vessels and to permit the issuance of a Merchant Mariner's Document with a rating of "Able Seaman—Any Waters—12 months" to any person who has successfully completed a Coast Guard approved course in a training school conducted by the National Maritime Union, the Seafarers' International Union, or other recognized maritime union or nonprofit organization together with satisfactory evidence of service in the deck department of a merchant vessel(s) for at least 6 months in any rating at sea or on the Great Lakes, and who has passed the required professional and physical examinations described in Part 12 of this chapter.

(c) The provisions of section 672 of Title 46, United States Code, are waived to the extent necessary to permit the employment on board merchant vessels and to permit the issuance of a Merchant Mariner's Document with a rating "Qualified Member of the Engine Department" (QMED) as oiler, fireman and/or watertender to any person who has successfully completed a Coast Guard approved course in a training school conducted by the National Maritime Union, the Seafarers' International Union, or other recognized maritime union or nonprofit organization together with satisfactory evidence of service in the engine department of a merchant vessel(s) for at least 3 months in a rating at least equal to that of coal passer or wiper and who has passed the required professional and physical examinations described in Part 12 of this chapter.

(d) Any organization desiring to have a course of training approved by the Coast Guard shall submit a letter request to the Commandant (MVP), U.S. Coast Guard, Washington, D.C. 20591, including descriptions of the proposed course, text books (if any), facilities, maximum class size, instructors, etc., as well as such other information which will show that graduates have been trained in the tasks covered by the rating(s) desired to be issued to such persons.

(e) No application from an alien for consideration under this waiver order shall be accepted unless the alien first complies with the requirements of § 12.02–10 of this chapter with respect to proof that he is lawfully admitted to the United States for permanent residence.

(f) No penalty shall be imposed because of failure to comply with any provision of law and/or regulation, the waiver of which has been made effective pursuant to the requirements of this waiver order.

(g) This waiver order shall remain in effect until December 31, 1969, unless sooner terminated by proper authority and notice of cancellation is published in the FEDERAL REGISTER.

(Federal Register of September 7, 1967)

SUBCHAPTER E—LOAD LINES

PART 45—MERCHANT VESSELS WHEN ENGAGED IN A VOYAGE ON THE GREAT LAKES

Subpart 45.01—Administration

SEASONAL LOAD LINES FOR VESSELS MARKED AND CERTIFICATED UNDER OR IN ACCORDANCE WITH INTERNATIONAL CONVENTION ON LOAD LINES OR FOR OCEAN DOMESTIC SERVICE

Under 46 CFR 45.01–75(b) special provisions are made for those vessels that are marked and certificated under the International Load Line Convention, 1930, when such vessels may be engaged on a voyage on the Great Lakes. The freeboards which may be assigned to U.S. vessels for ocean domestic service, in accordance with 46 CFR 43.15–98 or 43.30–75 or in accordance with 46 CFR 43.03–1(c) published in the FEDERAL REGISTER of January 6, 1967 (32 F.R. 77), may differ from those

permitted by the International Load Line Convention, 1930. In order to clearly indicate the freeboards which apply to vessels marked with International or coastwise load lines issued under 46 CFR Part 43 when in Great Lakes waters, the text of 46 CFR 45.01–75(b) is revised to describe the applicable marks and have the effect, in most cases, of permitting ocean vessels to operate on the Great Lakes at essentially the same drafts as heretofore.

In view of the fact that U.S. vessels in ocean domestic service may engage in Great Lakes voyages, and such vessels may be marked and certificated under provisions other than the International Load Line Convention, 1930, as provided by 46 CFR 43.15–98, 43.30–75 or 43.03–1(c), it is hereby found that it is necessary in the public interest to permit recognition and use of such markings and certificates while such vessels may be engaged in Great Lakes voyages. It is found that compliance with the Administrative Procedure Act (respecting notice of proposed rule making, public rule making procedures thereon and effective date requirements) is contrary to the public interest, and therefore, these actions are exempt from such requirements under the provisions of section 4 of that Act (5 U.S.C. 553). However, any person or organization who may feel aggrieved by these changes in the regulations, may submit an informal appeal (letter) to the Commandant (CMC) ,U.S. Coast Guard, Washington, D.C. 20591, within 60 days from date of publication of this document in the FEDERAL REGISTER setting forth those portions of the regulations in 46 CFR 45.01–75(b) to which objection is taken, the reasons or basis for such objection, the name and address of submitter, his business firm or organization (if any), and whether or not further written or oral arguments are desired to be submitted.

The following amendments shall become effective on and after the date of publication of this document in the FEDERAL REGISTER:

1. The authority note for Part 45 is amended to read as follows:

AUTHORITY: The provisions of this Part 45 issued under sec. 2, 49 Stat. 888, as amended; 46 U.S.C. 88a, Department of Transportation Order 1100.1, Mar. 31, 1967, 49 CFR 1.4(a)(2), 32 F.R. 5606.

2. Section 45.01–75(b) (including Table 45.01–75(b) and note) is amended to read as follows:

§ 45.01—75 Seasonal Load Lines.

* * * * *

(b) (1) For those vessels that are marked with international or coastwise load lines under Part 43 in this subchapter, the load line marks applicable to voyages on the Great Lakes shall be in accordance with Table 45.01–75(b)(1).

TABLE 45.01–75(b)(1)

Load line mark, salt water	*Season applicable*
Tropical (T)__	May 1–Sept. 30 (summer).
Summer (S)___	Apr. 16–30, Oct. 1–31 (intermediate).
Winter (W)___	Nov. 1–Apr. 15 (winter).

(2) Cargo and tank vessels, as defined in §§ 45.01–15 and 45.01–17 and bearing marks forward of the disk issued under Subpart 43.15 or Subpart 43.30 (exclusive of §§ 43.15–98 and 43.30–75), may be authorized to load to the tropical fresh water mark (TF) during the midsummer season. In such cases a special supplementary certificate shall be issued.

(3) Alternatively, vessels engaged in voyages in the St. Lawrence River no further west than Montreal may utilize their seasonal marks in accordance with the ocean seasonal limits which regularly apply to voyages east of the lines defined in § 45.01–1(d).

(4) Vessels loading in salt water and proceeding to fresh water shall load on the basis that the seasonal freeboards in each case are increased by the amount of the fresh water allowance stated in the load line certificate.

(Federal Register of September 27, 1967)

STORES AND SUPPLIES

Articles of ships' stores and supplies certificated from September 1, to September 30, 1967, inclusive, for use on board vessels in accordance with the provisions of Part 147 of the regulations governing "Explosives or Other Dangerous Articles on Board Vessels" are as follows:

CERTIFIED

CRC Chemicals, Division of C. J. Webb, Inc., Dresher, Pa., 19025: *Certificate No. 737,* dated September 7, 1967, CRC MARINE LECTRA CLEAN.

West Chemical Products, Inc., 42–16 West Street, Long Island City, N.Y. 11101: *Certificate No. 738,* dated September 19, 1967, WEST FORMULA #9500; *Certificate No. 739,* dated September 19, 1967, WESTOPINE.

Lehn & Fink Industrial Products, Division of Sterling Drug, Inc., 225 Summit Ave., Montvale, N.J. 07645: *Certificate No. 740,* dated September 20, 1967, FASOLV; *Certificate No. 741,* dated September 20, 1967, GRIMEX 100; *Certificate No. 742,* dated September 20, 1967, SUPER FASOLV; *Certificate No. 743,* dated September 20, 1967, GRIMEX SUPREME.

Zip Aerosol Products, 7230–40 Hinds Ave., North Hollywood, Calif., 91605: *Certificate No. 744,* dated September 20, 1967, D–5010 CORROSION PREVENTITIVE.

AFFIDAVIT

The following affidavit was accepted during the period from September 15 to October 15, 1967:

Ohio Injector Co., Main St., Wadsworth, Ohio 44281 _____	VALVES AND FITTINGS.[1]
Continental Equipment Co., Division of Fisher Governor Co., 200 Main St., Coraopolis, Pa. 15108_____	VALVES.[2]

[1] Rotary Pneumatic Actuators, 140 p.s.i. maximum.

[2] 150-Pound Flanged Rubber Lined Butterfly Valves Without Pneumatic Actuators.

MERCHANT MARINE SAFETY PUBLICATIONS

The following publications of marine safety rules and regulations may be obtained from the nearest marine inspection office of the U.S. Coast Guard. Because changes to the rules and regulations are made from time to time, these publications, between revisions, must be kept current by the individual consulting the latest applicable Federal Register. (Official changes to all Federal rules and regulations are published in the Federal Register, printed daily except Sunday, Monday, and days following holidays.) The date of each Coast Guard publication in the table below is indicated in parentheses following its title. The dates of the Federal Registers affecting each publication are noted after the date of each edition.

The Federal Register may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Subscription rate is $1.50 per month or $15 per year, payable in advance. Individual copies may be purchased so long as they are available. The charge for individual copies of the Federal Register varies in proportion to the size of the issue but will be 15 cents unless otherwise noted in the table of changes below. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1967 and Supplement dated July 1, 1967, are now available from the Superintendent of Documents, price basic book: $2.50; supplement: 40 cents.

CG No.	TITLE OF PUBLICATION
101	Specimen Examination for Merchant Marine Deck Officers (7–1–63).
108	Rules and Regulations for Military Explosives and Hazardous Munitions (8–1–62).
115	Marine Engineering Regulations and Material Specifications (3–1–66). F.R. 12–6–66.
123	Rules and Regulations for Tank Vessels (5–2–66). F.R. 12–6–66.
129	Proceedings of the Merchant Marine Council (Monthly).
169	Rules of the Road—International—Inland (9–1–65). F.R. 12–8–65, 12–22–65, 2–5–66, 3–15–66, 7–30–66, 8–2–66, 9–7–66, 10–22–66.
172	Rules of the Road—Great Lakes (9–1–66).
174	A Manual for the Safe Handling of Inflammable and Combustible Liquids (3–2–64).
175	Manual for Lifeboatmen, Able Seamen, and Qualified Members of Engine Department (3–1–65).
176	Load Line Regulations (1–3–66). F.R. 12–6–66, 1–6–67, 9–27–67.
182	Specimen Examinations for Merchant Marine Engineer Licenses (7–1–63).
184	Rules of the Road—Western Rivers (9–1–66). F.R. 9–7–66.
190	Equipment lists (8–1–66). F.R. 9–8–66, 11–18–66, 2–9–67, 6–6–67, 6–14–67, 6–30–67, 8–29–67.
191	Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel (2–1–65). F.R. 2–13–65, 8–21–65, 3–17–66, 10–22–66, 12–6–66, 12–13–66, 6–1–67.
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (5–1–67).
220	Specimen Examination Questions for Licenses as Master, Mate, and Pilot of Central Western Rivers Vessels (4–1–57).
227	Laws Governing Marine Inspection (3–1–65).
239	Security of Vessels and Waterfront Facilities (3–1–67). F.R. 3–29–67.
249	Merchant Marine Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (5–2–66). F.R. 12–6–66, 1–13–67, 4–25–67, 8–29–67.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (1–3–66). F.R. 4–16–66, 12–6–66, 1–13–67.
258	Rules and Regulations for Uninspected Vessels (3–1–67.)
259	Electrical Engineering Regulations (3–1–67).
266	Rules and Regulations for Bulk Grain Cargoes (11–1–66).
268	Rules and Regulations for Manning of Vessels (5–1–67).
270	Rules and Regulations for Marine Engineering Installations Contracted for Prior to July 1, 1935 (11–19–52). F.R. 12–5–53, 12–28–55, 6–20–59, 3–17–60, 9–8–65.
293	Miscellaneous Electrical Equipment List (4–1–66).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (10–1–59). F.R. 10–25–60, 11–3–61, 4–10–62, 4–24–63, 10–27–64, 8–9–66.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (1–3–66). F.R. 12–6–66, 1–13–67.
329	Fire Fighting Manual for Tank Vessels (4–1–58).

CHANGES PUBLISHED DURING SEPTEMBER 1967

The following have been modified by Federal Register:
CG–176 Federal Register, September 27, 1967.

U.S. GOVERNMENT PRINTING OFFICE: 1967