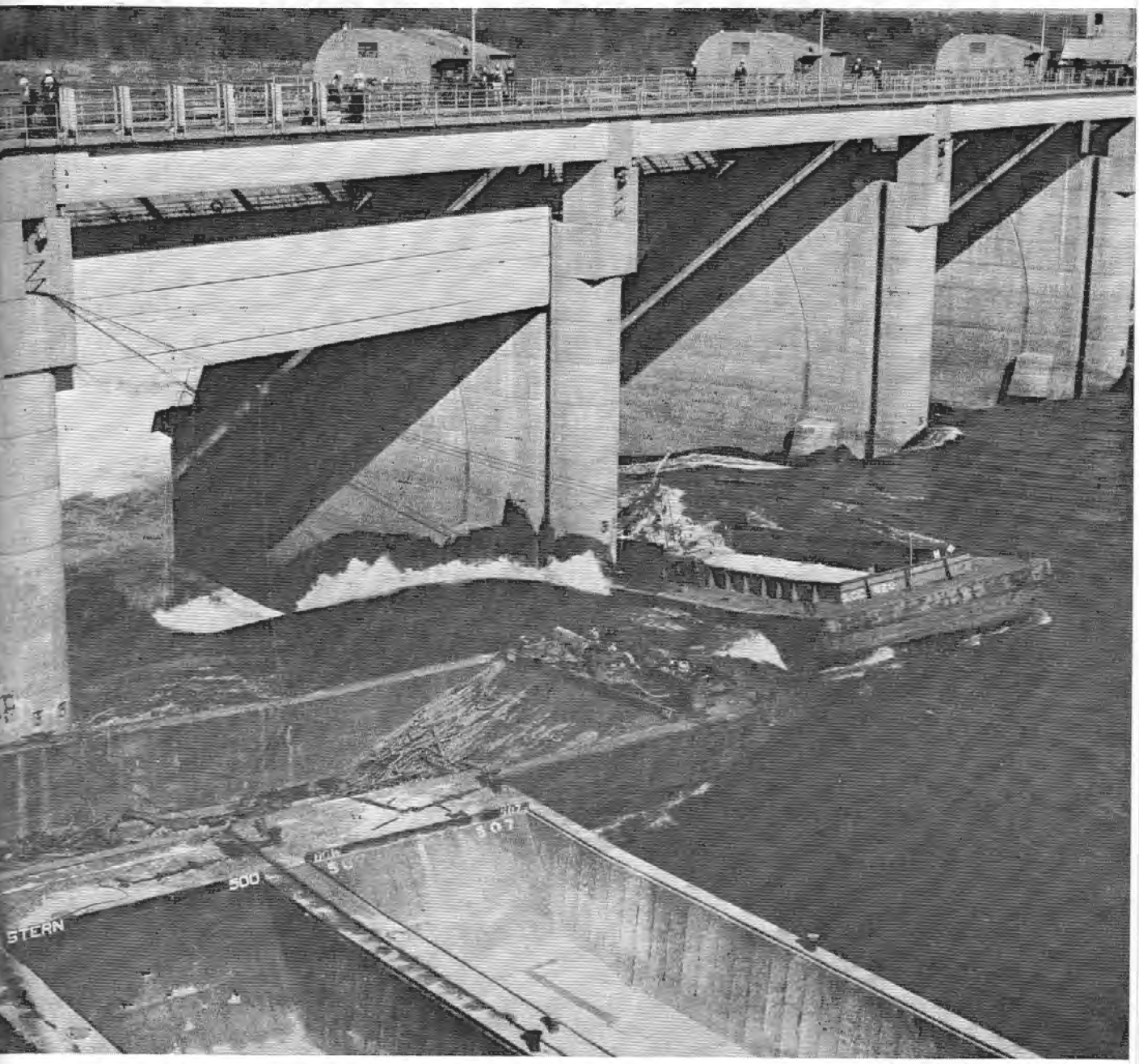
PROCEEDINGS
OF THE MARINE SAFETY COUNCIL



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COVERS

FRONT COVER: This month's feature article concerns a grounding on the Ohio River near Louisville, Ky., and the salvage of a chlorine barge and its cargo. The cover photo, taken during the early days of the salvage operation, shows how empty barges were utilized to provide a temporary dock for the salvage vessels.

BACK COVER: This view of the chlorine barge, *SSC 620*, which was taken from the top of the spillway structure of the dam on which the barge was lodged, shows the hatch covers which had to be protected from the water before offloading procedures could begin.

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Lieutenant (jg) A. W. Vander Meer, Jr., Editor

CHLORINE THREAT SAFELY REMOVED

The Ohio River near Louisville, Kentucky has never been particularly kind to commercial water transportation; during the early history of the area cargoes that were being barged on the river had to be offloaded and carried around the "Falls of the Ohio," a 40 foot drop over a rock shelf. Though this nuisance was circumvented in the 1820's as the first Louisville and Portland Lock was built, strong currents, flood stage water levels, and shifting bars have made the approach to the lock an occasionally tricky maneuver. These natural forces and apparent personnel error combined on March 19, 1972 to force the M/V *James F. Hunter* and its tow of nine barges aground on the head of Shippingport Island on the approach to the Louisville and Portland Locks, which allow passage of the McAlpine Dam site.

With that grounding began a 29 day drama that was to test the ingenuity, skill, and courage of dozens of individuals. The problem—salvage of one of the barges that had broken loose from the tow after the grounding. The complication—the barge, loaded with four tanks of liquid chlorine, was lodged in an open spillway gate of the McAlpine Dam; if the barge broke loose from this precarious perch or failed structurally from the force of the current, the tanks would undoubtably rupture, allowing the chemical to assume its gaseous state. The yellow-green gas, if inhaled, causes violent inflammation of the lungs; prolonged exposure can be fatal. If all four tanks on the barge were to rupture, a University of Louisville engineer calculated, a cloud of the deadly gas two miles long, one mile wide, and 1,000 feet high would be produced in the Louisville metropolitan area. Chlorine gas is heavier than air; once released it tends to hug the ground and therefore would offer a very great and persistent hazard to surrounding population centers many miles away from its original release point. The following is a chronological account of the events that might have brought disaster and of the efforts of dedicated men who may have saved countless lives.

March 19—Shortly after 5:00 a.m. the M/V *James F. Hunter* proceeding down river with its tow of nine barges cleared the Clark Memorial Bridge and sounded one long blast to alert the attendant to open the Pennsylvania Railroad Bridge across the Louisville and Portland canal. Receiving no response from the bridge tender, the pilot of the *Hunter* backed his engines to slow and then to full for five to ten minutes. During this time the tow was being set away from the Kentucky shore, so the pilot stopped his engines to let the head of his tow drop down into the entrance of the lock. At about 5:20 a.m., the tow drifted sideways in the unusually high current and the starboard lead barge (*SSC 620*) grounded on the southeast tip of Shippingport Island.

Under normal conditions, the river current would be expected to carry a barge into the proper channel. However, with water pouring over the weirs, the outflow tended to carry the *Hunter* out of the channel toward the dam.

Five barges, the *SCC 620, EIDC 5, MV 6618, CHEM 80,* and *CBC 27,* broke loose from the tow and each other after the grounding. As the bridge tender sounded the siren to attract attention, the current carried the *Hunter* and the remaining barges around the tip of the island to the northeast side. Although the *Hunter* retrieved the *CHEM 80* and held it and the four other joined barges against the northeast side of Shippingport Island, the four loose barges drifted free toward the dam and a drop of nearly 50 feet.

One of five towboats responding to the alarm caught the *MV 6618* but had to release it as the current proved too strong for its engines. The *CBC 27* was retrieved by the assisting boats and the *EIDC 5* eventually landed against the esplanade of the Louisville Gas and Electric Company hydroelectric dam. It was successfully removed a week later. The freight barge *MV 6618,* which was loaded with chrome ore, passed over the dam at the lower weirs, disappeared, and apparently sank in the pool beneath the dam. It has not been located.

The *SSC 620* was lodged on Pier No. 2 of the McAlpine Dam tainter gate structure and remained fixed for approximately 7½ hours. (The midships area rested against Pier No. 2 and the stern rake rested against Pier

In this view of the McAlpine Dam and locks area, Number 1 indicates the eastern tip of Shippingport Island, against which the downbound *James F. Hunter* and its tow of nine barges grounded. The vessel and tow were proceeding toward the McAlpine locks (Number 2) when the unusually strong current set them toward the island. After the grounding the four barges that had broken loose from the tow were carried by the current to the dam site (Number 3) where the chlorine barge eventually came to rest in a spillway gate.

No. 3.) At approximately 1:00 p.m. the stern rake end lost its grip on Pier No. 3 and the barge pivoted on Pier No. 2 to come to rest in the spillway of No. 2 gate.

March 20—Flood conditions made access to the dam and the *SCC 620* extremely difficult as the footwalk to the spillway structure was covered with water and driftwood. The Corps of Engineers and the Coast Guard immediately began to gather the forces necessary to safely recover this barge and its deadly cargo. All major salvage contractors on the Ohio River were called and technical aid regarding the cargo was requested of the chemical detachment at Fort Knox. The Chlorine Institute, an organization of firms familiar with the transportation and handling of this particular chemical, was notified by the barge owners of the incident and sent experts to the scene.

March 21—Coast Guard and Corps of Engineers personnel, salvage contractors, and hazardous materials experts met to discuss various salvage procedures. Though other barges lodged in a dam are usually removed by a process of "flushing through" by manipulation of the tainter gates, there was doubt that this barge could withstand such a "flushing" process forcing it through the gate. The risks were simply too high to attempt this solution.

Discussion then centered on the procedures required to approach the barge and offload the cargo while it remained in the gate. In the opinion of most participants, approaching the barge at high water with unobstructed water flow through all four bays of the spillway structure—a highly dangerous maneuver—appeared to be the only way to insure that the craft would not become dislodged and pos-

sibly break apart as it shot through the spillway. The meeting ended with a general agreement to (1) Secure the barge in its present position, (2) Offload the cargo with the barge in position, (3) Remove the barge from the dam.

March 22—General discussion in a second meeting emphasized the fact that initial impact had destroyed most of the mid-section strength on one side of the barge. It therefore became imperative that the barge be secured to the dam structure. Calculations indicated that the force and direction of the current were holding the barge in place, however, and that any major disruption of the water flow might cause the barge to go crashing through the gate. The final consideration, offered by the representatives of the Chlorine Institute, was that the cargo could be offloaded only after a dry platform was provided around the four valve domes located at the center of the barge. To accomplish this either the river level would have to be lowered or a shielding structure would have to be built around the center of the barge.

In light of these somewhat conflicting considerations, various methods were proposed to secure the barge with the least effect on the present water flow. The dam itself was first examined as a means for securing the barge, but because the heavy equipment needed to fully utilize the structure could not be used while the river was in flood stage, its value remained minimal. A bulkhead lifting crane located on top of the dam was considered as a means of support of the barge bow but was dismissed becaused the load could not be fully supported by the crane only.

A salvage contractor with a unique catamaran constructed of two surplus World War II PC hulls joined by a heavy cross beam offered to position his vessel such that a sling could be passed underneath the bow of the barge. By lifting the sling it was anticipated that the bow would be firmly supported. That means, together with two other forms of longitudinal restraint, was considered safe enough to provide for effective offloading of the cargo. Lashing the barge to the pier provided the most important means of insuring that any unplanned shift in water level or current would not dislodge the barge. A combination of ground tackle and "deadmen" (anchors buried on Shippingport Island) was also suggested as a form of longitudinal support. The function of this tackle would be to hold the barge in a fore and aft direction to assist in restraining the barge from any tendency to wash through the weir.

March 23—Contracts were signed and various pieces of equipment were beginning to move to the site. Because the necessary heavy equipment to approach the barge was not available locally and time would be needed to transport it to the site, a round the clock warning watch was established to insure prompt notification of any change in the position of the barge. Transits were set up to detect any movement and a full radio communication network assured that the Corps of Engineers and the Coast Guard would know immediately of any changes in position. RADM Owen W. Siler, Commander of the Second Coast Guard District, set up shop in Louisville to oversee the safety aspects of the operation.

March 24 through March 29—Preparations were made for the approach of the salvage contractor's catamaran. An empty chlorine barge for the transfer of *SCC 620*'s cargo was located and transported to the McAlpine Dam site. While piping contractors were laying piping across the dam, the first 3 of six deadmen (anchors) were buried on Shippingport Island. These deadmen, estimated to sustain a load of 400 tons, were constructed by burying six 12″ by 12″ timbers 21 feet long underground and wrapping them with 6 parts of 1½″ wire.

It was during this preparatory period that more thorough research of the support characteristics of *SCC 620* was conducted. According to the initial calculations based on the visible damage and the design characteristics, *SCC 620* should have broken in half from the strain of the current. Careful consideration of the river currents became increasingly important as the calculations demonstrated that the river current rather than the river level was the sole factor in the stabilization and support of the barge, much like a water ski being supported at high speeds.

By March 28, however, it was realized that the tainter gates in McAlpine Dam would have to be lowered in order to keep the upper pool from dropping and thereby lowering the speed of the current. By carefully controlling the water flow through the Markland Dam, 75 miles upriver, the Hydraulic Section of the Corps of Engineers was able to maintain a relatively stable and constant current at the McAlpine site.

March 29—On the basis of calculations during the preparatory period, tainter Gate No. 4 of the McAlpine Dam was lowered a foot at a time to allow close observation of the effect backwash eddies had on the barge.

March 30—No. 3 gate, which was adjacent to the gate in which SCC 620 was lodged was lowered inch by inch. There was no noticeable effect upon the stability of the barge.

April 1—At 9 a.m. evacuation of 4,800 persons in the immediate vicinity of the dam site was begun. Voluntary evacuation was recommended for 20,000 persons in the surrounding area as the most critical phase of the operation, the placement of the catamaran against the barge, began. Most residents returned to their homes late the next day.

Though all the equipment was ready, No. 1 tainter gate had to be inserted into the surface stream of Gate No. 1 to slow the current to prevent the carrying away of mooring lines as the heavy equipment moved into position at the top of the spillway.

Prior to moving the catamaran into position, several empty barges were placed in the "corner" to provide a

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reasonably fixed guide against which the catamaran could bear during its movement. The catamaran had been inched forward all afternoon and was almost in place as darkness fell on April 1. Though the maneuver had been planned to scale before the operation began, possible variations of 1 or 2 degrees in the orientation of the barge produced an unknown of several feet, making visual placement imperative. The coming darkness required securing the efforts for that evening. The catamaran was secured just 30 feet short of its goal and workmen made necessary adjustments in preparation for the next morning.

April 2—On Easter Sunday morning at 1100, almost two weeks after the barge lodged in the dam, the catamaran was in place and the sling "secured under the bow of the barge." But the drama had not reached its climax; yet to be accomplished was the offloading of the cargo.

Chlorine requires special handling in order to protect the people around it. The only safe method was to push the liquid out of the tanks by pumping nitrogen gas in on top of it at approximately 200 psi. In order to effect the transfer from the damaged barge to a receiving barge near the power plant, three lines of piping had to be carefully laid across the dam, two for chlorine and one for nitrogen.

Even with this elaborate scheme, a high risk remained. As the cargo was offloaded, the barge might easily lift off the baffle blocks and crash over the dam. Or the bow might become excessively buoyant as weight was removed from the bow tanks and might tear away in the heavy river current. Or still worse, the port side (the upstream side) might become lighter than the starboard side and allow the barge to roll. In order to prevent this, two saddles were fabricated, but one could not be placed due to the rushing current, and another alternative had to be considered. This would entail placing structural iron work in Gate Bay No. 2, a very time consuming procedure. Because the time could not be afforded for such a maneuver, this alternative was also scrapped, and a decision was made to rely on sideways moments to prevent overturning. By starting the offloading from the starboard tank two hours before the port tank and maintaining this time lag throughout the operation it was hoped that the barge would not change its position.

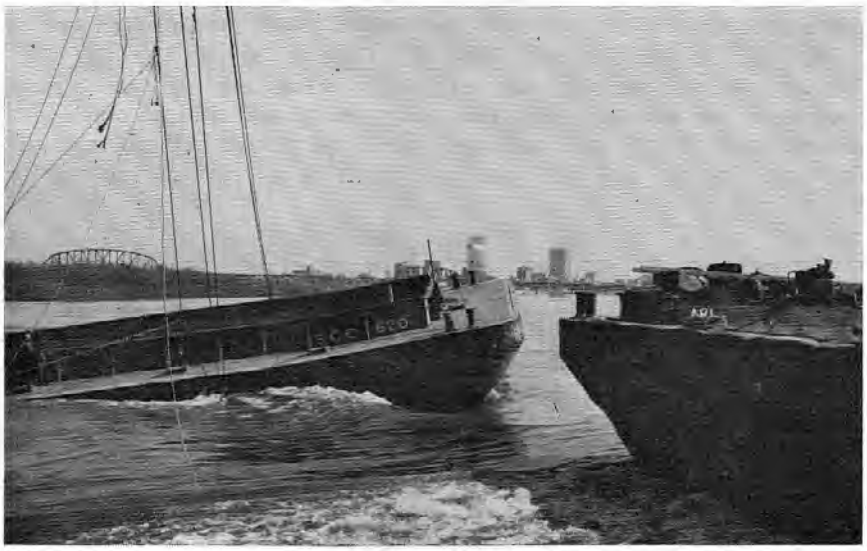
The bow of the barge was completely unsupported except for the river current. If the stern tanks were unloaded first, this might cause a lifting of the stern which could cause the stern to free itself. Therefore, it was decided to offload the bow tanks first, taking care to be sure that the starboard tank was always lighter than the port tank to prevent overturning. The remainder of Easter Sunday was devoted to installing splash shields.

April 3—By late afternoon, chlorine was flowing through the flexible stainless steel pipe between the barge and the dam. The cargo that threatened Louisville was slowly beginning to reach safe storage. Safety valve restrictions in the liquid lines caused blockages to occur, however, and it was not until the next morning that the lines were cleared.

April 4—Although full flow through the offloading lines was achieved, a priority problem arose on the afternoon and evening of April 4th. While the offloading of the bow tanks continued, it appeared that the stern tanks, having been noticed to be loose in their saddles, might be held down only by the 160 tons of cargo in each. It was feared that they might at any time lift themselves out of their saddles and break free of the barge, causing an uncontrolled release of a portion of the cargo.

The work of securing the tanks had to be accomplished during the night. An idea for welding steel beams across the deck between the barge coamings amidships and bracing downward to the stern cargo tanks adjacent to the valve domes was discarded. There were too many problems in lifting, hauling, cutting and fitting steel beams by hand in the dark only a few feet from the active flexible stainless steel hoses which were still purging the remaining liquid in the bow tanks.

Courage supplemented technology to solve the problem as a diver volunteered to go under the waterfall into the flooded after hopper section and secure several turns of wire rope to the bottom saddle framing on the



The Louisville skyline is the backdrop for this photo of SCC 620. The primary concern of Civil Defense, Coast Guard, and Corps of Engineer personnel during the first few hours after the casualty was the safety of the people in the immediate area of McAlpine Dam.

port, starboard and centerline. This permitted 8 parts of 1" wire rope to be drawn tight across the top of both stern tanks. Wedges were then driven under these wire ropes to make a simple but tight holddown arrangement which effectively prevented serious movement in the upper forward ends of both stern tanks (midships on the barge.)

April 5—Most of the chlorine in the bow tanks had been transferred to the second barge, and liquid offloading of them was secured.

Yet to be offloaded, however, were the stern tanks. Little difficulty was experienced in transferring the offloading yokes from bow to stern and during the evening these tanks had also been emptied of much of their cargo.

But this was not all the chlorine. There still remained approximately 100 tons in each of the stern tanks that could not be pushed off due to the combined factors of the angle of the barge as it sat on the spillway of the dam and the lack of a low pipe suction in the tanks. The liquid loading pipes were at the forward ends of the stern tanks under the valve domes. This end was higher than the stern end since the entire barge was trimmed at approximately 10–12 degrees.

During discussions held during the early days of the operation many methods of emptying the remainder of the cargo were suggested.

The remaining liquid could be allowed to "boil" off as gas, and then this chlorine gas could be removed by some safe process, but the proposal finally adopted as the safest overall approach was to construct a large tank right on the McAlpine Dam to "scrub" the chlorine by mixing it with caustic soda, thereby changing it chemically to bleach. The bleach could then he released into the fast moving water and be effectively dissipated.

April 6—Because the boil-off gas would flow at a maximum rate of approximately 1 ton per hour from each tank, the wreck would have to be kept in position for another 8–10 days. Observations of the barge during the preceding three days revealed many problems. The stern tank holddown wires were not tight—the strength of the current made it impossible to check the position of the barge relative to the sill—no instruments were handy for measuring the 30–50 mph currents that flowed down the spillway—sagging developed when the bow became buoyant—a widening crack at the midships impact point caused some worry about the remaining strength for the forward end of the vessel.

Improvised but effective splash shields protected the hatch cover area of the barge from the torrents of water that raced through the spillway while the offloading operations were underway. The splash shields can be seen on each side of the hatch cover area in this photo.

April 7—The lower pool started rising and continued to rise throughout the remainder of the operation.

April 9—The upper Ohio began rising sharply. As it did, the lightened bow lifted up against the overhead beam of the catamaran. To avoid fracturing the barge, the catamaran was moved back releasing the sling, but retaining fore and aft control of the barge. It was even necessary to halt the cargo offloading process until it became apparent that the barge was still fixed in place and in no immediate danger due to the sudden change in river level.

April 10—The gas valves were reopened and the cargo was allowed to continue boiling off for the next five days.

April 15—Only a small amount remained in each tank and the final removal would be very slow since only gaseous chlorine remained. With the river rising rapidly on both sides of the dam, a decision was made to secure the venting procedure and try to remove the barge from the dam.

In order to float the barge free of the dam on its four empty cargo tanks, an upstream lead had to be used. During the previous week, three additional deadmen anchors had been placed on Shippingport Island farther east than the original set.

As the night crew was making final adjustments to the two-inch hawsers, the unexpected happened! The stern lifted and the barge broke clear of the dam and swung free. Rather than risk lives in a hazardous attempt to pull out the barge during the night, it was secured afloat "on the bottles" in Gate Bay No. 2.

April 16—The barge rode out the night. By using the two main falls on the deck of the catamaran, the barge was pulled free of the dam in three

A salvage contractor's catamaran constructed of two World War II patrol craft hulls joined by a crossbeam provided both a stable working area and an important anchor for the chlorine barge. These pictures indicate how the unique craft was used to straddle SCC 620 and hold it in place by means of a wire rope sling passed under the barge's bow.

successive pulls of approximately 80 feet each. In the morning as soon as it was clear and moved alongside the other barges, both hopper sections were dewatered easily and the remaining wing compartments were secured.

What had begun as a routine passage had resulted in the complete loss of one barge, the near loss of two others, and the placement of four large tanks of chlorine in a position that threatened a city.

Who was to blame? The Coast Guard Investigation determined that the pilot of the M/V *James F. Hunter* was at fault. His error in failing to properly judge the effect of the out draft current in the approach to the canal resulted in his losing control of the tow in the cross current. In his preoccupation with trying to maneuver the tow, he did not realize that the bridge had opened. In any event, the pilot should have repeated his whistle signal (in accordance with 33 CFR 117.555) if he had had doubts about the bridge opening in sufficient time. Even at this point, had he been uncertain as to the position of the bridge, he could have entered the canal and stopped the tow before reaching the bridge.

What else did the investigators discover? There was evidence of two additional violations of Federal regulations. The first was that contrary to 46 CFR 31.15–5, there was neither a licensed officer nor certificated tankerman on board the towing vessel. *Any time there is a tank barge in tow that is not required to be manned, there must be a licensed operator or certificated tankerman on board the towing vessel.* The second possible violation was in the absence of a cargo information card or shipping papers (on board the towing vessel) for the chlorine and sulphuric acid barges. 46 CFR 151.45–3 and 46 CFR 151.45–7 clearly require *the carriage of this information aboard any tows carrying these and certain other hazardous materials.*

What could be done to avert recurrence of such potential tragedy in the future? One recommendation was that the Coast Guard continue to support early enactment and implementation of legislation to require licensing of the persons in charge of navigation of towing vessels. Early this summer the President signed the Towing Vessel Operator Licensing Act into law. The Coast Guard published proposed regulations on August 11, 1972, and has held regional public hearings to consider implementation of the law. (See page 238 for further details on this program) This will not automatically avert casualties of this sort, but it should insure that the personnel operating towing vessels have demonstrated the necessary knowledge for their jobs and also should provide the Coast Guard with a mechanism for disciplinary action in those cases where a licensed operator has been found to be at fault.

A second recommendation was that a radiotelephone be installed and used on the Pennsylvania Railroad Bridge at mile 604.4 Ohio River. The Second Coast Guard District is considering this proposal under the provisions of 33 CFR 117.1 (e).

The final recommendation was that the owner and master of the M/V *James F. Hunter* be cited for violation of 46 CFR 31.15–5 in that there was neither a certificated tankerman or a licensed operator on board the vessel. Violation cases are now pending.

NOTE: The above casualty was investigated by a Coast Guard one-man formal board of investigation under the provisions of 33 CFR 136.07. "Chlorine barge salvage, McAlpine dam, Louisville, Ky., March 19–April 16, 1972" is the title of a paper by H. Boatman, U. S. Army Corps of Engineers, and W. A. Cleary, Chief, Hull Scientific Branch, Office of Merchant Marine Safety, U. S. Coast Guard Headquarters. That paper was presented at the 8th Annual meeting, Marine Technology Society in September, 1972. It is from the report of the board of investigation and the last mentioned paper that the above article was written. The views presented are not to be construed by themselves as official or as reflecting the views of either the Coast Guard or the Army. ⚓

IMCO AND THE MARINE INDUSTRY[1]

By *Capt. L. W. Goddu, Chief, Planning and Special Projects Staff*
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Introduction

ONE OF THE MOST SIGNIFICANT EVENTS in the history of maritime safety was the creation of the Intergovernmental Maritime Consultative Organization (IMCO). Established as one of the twelve specialized agencies of the United Nations, IMCO, as it is most commonly called, is the first world body solely concerned with the problems of international maritime safety. Probably best known today for its initial role in conducting the 1960 International Safety of Life at Sea Conference, the relatively young organization has since assumed a variety of formidable projects, all of which directly or indirectly affect the mariner. While the effects of IMCO action have already been felt by the world's maritime community, some of its past recommendations, present projects, and future hopes have escaped wide publicity. Considering IMCO's ever-increasing importance to shipping in general and to the mariner in particular, especially in regard to safety of life at sea, it seems both appropriate and timely to review the progress of this pertinent organization and its relationship to the United States.

To begin with, the formation of IMCO was not the result of an impulsive whim but the inevitable climax of numerous attempts aimed at setting common standards for international shipping. The expansion of seaborne commerce saw proportionate increases in international agreement. Some of these agreements operated for a time and then vanished; others were merely transitory functions established during periods of need, such as in wartime. The need for some continuity of intergovernmental agreement was apparent to those who have studied the complexities of maritime activities. The solution to the problem appeared to be a permanent international maritime organization.

Creation

The international convention calling for the establishment of IMCO was drawn up and opened for signature at a United Nations conference held in Geneva in 1948. This convention could not enter into the force until twenty-one states had become parties to it, including seven which had at least one million gross tons of shipping. It was not until 1958 when sufficient countries had ratified the convention that IMCO was finally brought into being. Seventy-two nations are now members of this first international organization for maritime affairs.

Historically, IMCO is the outgrowth of periodic international maritime committees, councils and organizations dealing with safety and economics of the shipping industry. While, prior to its establishment, it had been necessary for nations to deal with such problems by special international agreements. IMCO now offers a world forum meeting regularly to negotiate maritime problems on an international basis in view of their relative importance and urgency. IMCO, therefore, provides the catalyst by which the cooperative efforts of many maritime nations can be directed on a continuing basis to economic and technical maritime problems.

Purpose

The purpose of IMCO is to achieve the highest practicable standards of maritime safety and efficient navigation by facilitating cooperation among governments in technical maritime matters of all kinds affecting shipping. It has a special responsibility for safety of life at sea. IMCO also provides for a wide exchange of information between nations on all technical maritime subjects. Another purpose of IMCO is to discourage discriminatory, unfair and restrictive practices affecting ships in international trade, so as to promote the freest possible availability of shipping services to meet the needs of the world for overseas transport. IMCO advises other United Nations agencies dealing with labor questions, telecommunications, meteorology, oceanography, aviation, atomic energy and health.

Functions

The functions of IMCO are consultative and advisory. In addition to providing machinery for consultation and exchange of information between governments on shipping matters, it is responsible for convening international conventions or agreements on shipping questions. It may consider and make recommendations upon any maritime subject submitted by its member states, by an organ of the United Nations family, or by any other international body.

Composition

IMCO is a specialized organization under the auspices of the United Nations, and resembles the parent organ in its general setup. It is composed of four bodies, the Assembly, the Council, the Maritime Safety Committee, and the Secretariat (Fig. 1).

The Assembly is the main body of IMCO which must approve any action to be taken by the Organization. All member states, both large and small, and regardless of the size of their merchant fleet or of the amount of their interest in shipping matters, have an equal vote in the Assembly. The Assembly regularly meets once every two years.

The Council, which meets at least once a year, is primarily concerned with other than technical matters and acts for the Assembly when the latter is not meeting. There are 18 member states represented on the Council, elections being held every two years. The nations are elected to the Council under the following principles: six states with the largest interest in providing international shipping services; six states with the largest interest in international seaborne trade; and six states not otherwise represented which have a special interest in maritime transport and navigation and which will provide geographic distribution.

The Maritime Safety Committee is the workhorse of the Organization and it handles all matters of a technical nature. Regular meetings of the Committee are held twice each year. There are a number of Subcommittees and Working Groups under the Maritime Safety Committee which may meet more often or may even be continually engaged. There are 16 member states on the Maritime Safety Committee who are elected by the Assembly for a term of four years: the first eight elected from the ten largest shipowning states, the next four elected to assure geographic representation, and the last four those not otherwise represented.

To assist in its technical responsibilities, the Maritime Safety Committee established Subcommittees on such topics as subdivision and stability, carriage of dangerous goods, containers and cargoes, fire protection, marine pollution, safety of fishing vessels, lifesaving appliances, radio communications, ship design and equipment, safety of navigation, and standards of training and watchkeeping.

The Secretariat consists of a group of international civil servants who service the Organization under the direction of the Secretary General. This is the office staff which keeps the Organization going on a daily basis and arranges for the various meetings, and prepares the agenda and necessary working documents. The Secretariat may also he involved in special studies when so ordered by one of the other bodies of the Organization.

It will thus be seen that IMCO provides for its own set of checks and balances. The majority of the real work of the Organization is accomplished by the Maritime Safety Committee and the Council. However, any final action must be approved by the Assembly where all member countries have a voice in the proceedings.

IMCO derives its authority from its member states which have ratified the Convention, and it can only increase the level of maritime safety by agreement among those members. The work of its principal organs—the Assembly, the Council, the Maritime Safety Committee and the Secretariat—will often touch upon the work of other agencies in the United Nations family. IMCO, therefore, maintains close contact with them, working on projects of mutual concern. A formal agreement exists with the United Nations. IMCO also has a formal agreement with the International Labor Organization, which has a particular interest in the employment conditions of seamen everywhere. Another body with which IMCO has an agreement is the International Atomic Energy Agency, whose program of work includes such items of interest as the application of atomic reactors to ship propulsion and the disposal of radioactive wastes from nuclear-powered ships.

One of the big troubles with the earlier conventions was the fact that they contained no usable machinery with which to make amendments. Consequently, when a particular convention became outdated or inadequate, a new international conference would have to be called to draft a new convention. In the case of the SOLAS Conventions, new conferences had to be called in 1929, 1948 and again in 1960. Inasmuch as there is generally a lapse of from six to ten years or more between the preliminary maneuvers leading to the calling of a new conference and the final coming into effect of the new convention, it is easy to see that this procedure is far from satisfactory. Due to its responsibilities and Convention drafting, IMCO will be able to amend conventions in the future so that the need for a new international conference will be restricted to major overhauls or other unusual circumstances.

As has been stated, IMCO evolved from an international concern over the safety of ships plying the waters of the world. We have just seen that one of its first functions was the conference which brought forth the International Convention for the Safety of Life at Sea, 1960. IMCO's concern with maritime safety did not stop there. The efforts of the Intergovernmental Maritime Consultative Organization during the past years have been many and varied. A short discussion of several would seem to be the most effective means to highlight these activities. For illustrative purposes, I will discuss the International Conference on Load Lines, 1966, and actinns taken with reference to fire safety, safety of navigation, marine pollution and cargo containers.

Load Line Conference, 1966

An International Conference on Load Lines, convened by IMCO and attended by 60 countries, ended on Ap-

ril 5, 1966, with the signing of an agreement—the International Convention on Load Lines, 1966. To quote from the preamble to the Convention, the Conference was motivated by a recognition that the "establishment by international agreement of minimum freeboards for ships engaged on international voyages constitutes a most important contribution to the safety of life and property at sea." Prior to this time the Assembly of IMCO decided, at its third regular session in October 1963, that the Organization should convene an international conference on load lines in the spring of 1966 in order to draft a new convention and thus bring the load line regulations into accord with the latest developments and techniques in ship construction. The U.S. delegation, headed by Admiral Roland, felt that the resultant Convention is one that will accomplish improvements in safety as well as in the economics of shipping.

There was lengthy discussion on the relationship between freeboards and subdivision and stability; and, as a result, the subdivision concept has been introduced into the assignment of freeboards for large ships. Large tankers and large ore carriers which meet the prescribed subdivision and other conditions will have their freeboards reduced about 10–15 percent. Large dry cargo ships having steel hatch covers will have their freeboards reduced about 10 percent. Such vessels having dogged-type hatch covers and complying with subdivision conditions may be permitted further freeboard reductions with a maximum total reduction of 20–25 percent. On the other hand, the freeboards of small ships under 300 ft in length, when fitted with little or no superstructure, will be slightly increased in order to improve the range of stability and other safety conditions. For small ships having wooden hatch covers, a further freeboard increase of about two inches applies.

As compared with the 1930 Load Line Convention, it is evident the new Convention will allow considerable reduction in freeboards for large ships. To reduce this to a practical example, a 700-ft tanker constructed in accordance with the new Convention will be able to load sixteen inches deeper than previously. For a normal tanker of this size it will mean approximately 2400 additional tons of cargo.

The 1966 Load Lines Convention came into force on July 29, 1968, which is twelve months after it was accepted by at least fifteen countries, seven of which possess not less than one million gross tons of shipping. To date fifty-nine countries, including the United States, have deposited their instruments of acceptance with IMCO.

Fire safety

The IMCO Assembly in November 1966 and October 1967 adopted a series of amendments to the International Convention for the Safety of Life at Sea, 1960 dealing with fire safety measures for existing and future passenger ships. These amendments were occasioned by serious fire casualties in recent years to old passenger ships, such as the *Lakonia*, *Yarmouth Castle*, and *Viking Princess*. The new fire regulations provide higher standards for the fire safety of passenger ships, both already in service and to be built in the future.

For those ships to be constructed in the future, the proposed amendments call for a single unified system embodying the concept of the maximum use of incombustible materials and appropriate use of automatic sprinkler and fire detection systems. The proposed new method permits two variations of construction. These variations may be summarized as:

(*a*) The subdivision of accommodation and service spaces by incombustible fire retarding divisions establishing a high degree of fire integrity, together with the installation of an automatic fire detection and fire alarm system.

(*b*) The installation of an automatic sprinkler and fire detecting and fire alarm system, together with construction employing incombustible divisions which may have a lesser degree of fire integrity than that expressed above.

These amendments will come into effect one year after acceptance by two-thirds of the contracting governments to the 1960 SOLAS Convention has been deposited with IMCO. At the present time sixteen countries, including the United States, have indicated their acceptance to IMCO.

In addition IMCO has drawn up several recommendations and guidelines on fire test procedures for fire-resisting and fire-retarding bulkheads used on board ship, on deck coverings, and on evaluating the fire hazard properties of materials. IMCO has also developed recommendations and guidelines on fire safety of special types of vessels and craft, such as hydrofoil boats, air-cushion vehicles and offshore mobile drilling units.

The safety of ships carrying inflammable products and, in particular, petroleum products, is a matter of universal concern in view of the rapid increase in recent years in the size and tonnage of oil tankers. To improve the protection of tanker crews as well as port personnel from fire risk, IMCO is developing new requirements for structural fire protection and fire extinguishing equipment for tankers which will lead to amendments to the existing Safety Convention.

Safety of navigation

Considerable effort has been made to introduce measures and policies designed to increase the safety of nagivation. Among the most important are those concerning the compulsory carriage of navigational equipment and the application on a voluntary basis of the principle of ships routing and separation of traffic at sea.

Navigational equipment such as radar, echo sounders, gyrocompass and direction finders which have so far been

carried at the discretion of the owner or master will now be made mandatory to ships above a certain size.

Traffic separation schemes have been established in some 50 areas where there is dense or converging traffic with the object of reducing the number of ships meeting on opposite or nearly opposite courses, thus lessening the risk of collision. Detailed descriptions are included in national maritime publications, charts, etc. and a comprehensive publication has been issued by IMCO. The subject is continuously under review, existing schemes are updated or new ones introduced as necessary.

In addition to these measures a number of recommendations have been addressed to governments concerning the provision of pilotage and port advisory services, electronic position-fixing equipment and identification lights for deep-draft ships in narrow channels, and other subjects concerning safety at sea as the need arises.

An attempt is now being made to work out a first international set of performance specifications and testing procedures for radar, gyrocompasses and echo-sounding devices.

An important study in hand is the preparatory work for revising the International Regulations for Preventing Collisions at Sea with a view to holding a Conference in 1972 for that purpose. This study includes, inter alia, measures for improving the efficiency of navigation lights and of sound signals.

Marine pollution

Another international problem that has captured the fancy of a variety of people is marine pollution. The International Convention for the Prevention of Pollution of the Seas by Oil drawn up by an international conference held in London in 1954 came into force in July 1958. Administered by IMCO since 1959, this Convention was reviewed in 1962 by a conference which adopted a number of amendments aimed at extending its scope and laying down more stringent provisions. These amendments came into force on June 28, 1967. The Conference also did much to encourage international cooperation with the view to preventing and controlling pollution of the sea by oil. Forty-two governments including the major maritime countries are now parties to this Convention.

In 1967, IMCO launched an 18-point program arising from the *Torrey Canyon* disaster covering both technical and legal aspects. The IMCO Assembly at its session in November 1968, which was especially convened to consider this program, approved measures designed to prevent the occurrence of similar incidents and to promote rapid and efficient action in dealing with them should they occur. They included recommendations to improve antipollution action at international and national levels and to reinforce the application of clauses of the 1962 Oil Pollution Convention. IMCO has also decided to convene, in 1973, an international conference on marine pollution for the purpose of preparing a suitable international agreement for placing restraints on the contamination of the sea, land and air by ships, vessels or other equipment operating in the marine environment.

A major objective to be achieved by 1975, if this can be done, but certainly within this decade, is the complete elimination of the voluntary pollution of the seas by oil as well as by other noxious substances. The United States has pushed this objective internationally through the aegis of IMCO. As a result of our efforts, along with considerable support by other major maritime nations, IMCO will now have this objective as its principle goal for the 1973 Conference.

In preparation for this Conference, agreement has been reached to have nine studies underway at the same time. In each case the study will be led by an individual country with other countries furnishing information as they are able. IMCO now is moving forward on a nine-front basis rather than on the single-front basis as had been employed heretofore. We hope that using this means will enable IMCO to produce a meaningful conference on marine pollution in 1973. The nine areas of study are as follows:

1. Segregated ballast tanks.
2. Dual-purpose tanks with means to isolate oil or noxious materials from water.
3. The retention of oil on board.
4. Cleaning tanks for ballast prior to vessel sailing.
5. Retention of dirty ballast on board for in-port disposal.
6. Environmental and financial consequences of pollution from ships.
7. Collection and disposal of ship-generated dry garbage.
8. Ship-generated sewage treatment and holding systems.
9. Pollution caused by the discharge of noxious substances other than oil through normal operational procedures of ships engaged in bulk transport.

At its October meeting, the IMCO Assembly adopted new vessel construction standards aimed at limiting the possible size of oil spills resulting from a tanker collision or grounding. Future tankers, built in accordance with new standards, will now have a limit of 30,000 cubic meters on the hypothetical maximum oil outflow resulting from a single incident involving grounding or collision. This applies to tankers up to about 420,000 tons deadweight. The maximum permissible oil outflow then gradually increases to 40,000 cu m at one million deadweight tons and levels off there. In addition, the proposed amendment limits the volume of a wing tank to 75 percent of the maximum outflow as set forth above. The size of a center tank will not be permitted to be bigger than 40,000 cu m.

Scientific and technical means for preventing and controlling marine pollution are under continuous review, including formulation of specifications for oily water separators and oil content meters for use on board ships and

preparation of a manual as a guide to governments concerned with developing contingency plans fnr dealing with such spillages.

Cargo containers

Containers and their carriage by sea or by ships have also been looked at by IMCO. The question of container transport safety was raised at the Maritime Safety Committee in 1968 in connection with a proposal submitted by the government of the United Kingdom. The Maritime Safety Committee recognized that it was the responsibility of IMCO to deal with any safety concerns involving containers in the marine mode and instructed its Subcommittee on Containers and Cargoes to consolidate safety proposals in such form as to enable further work on the development of suitable international instruments.

Subcommittee members disagreed as to the need for a Container Safety Convention. One view suggested that the safety record of container movements was such as to obviate the need for a convention; another indicated the inevitability of unilateral regulations should there be no convention. The Subcommittee felt that a plethora of dissimilar national regulations would be at variance with the objective of facilitating global traffic and concluded that a convention should be drafted which would give proper recognition to the construction characteristics of existing containers having proven safety records.

A draft convention was prepared by the IMCO Subcommittee and was referred to ECE for additional consideration from the perspective of the land modes. A revised draft which appears to meet the safety needs of all surface modes and will allow continued use, on an equal basis with new equipment, of existing equipment of proven safety was developed during two recent Joint IMCO/ECE meetings. After further refinement the draft will be considered as one of the agenda items for a diplomatic Conference on Containers scheduled for late 1972.

As you can see IMCO is involved in a wide variety of subjects all dealing with the maritime industry. Now the question arises as to how government and industry actually become involved and how their thoughts and ideas are coordinated into activities with which IMCO is concerned.

Coast Guard participation

Although the Department of State has the prime responsibility to establish U.S. positions on these problems, it looks to the U.S. Coast Guard, an agency under the Department of Transportation, as the organization having the trained personnel and technical knowledge of all maritime safety activities to enable effective United States participation in an implementation of international agreements in this specialized field. The Coast Guard is represented at most meetings of the various IMCO bodies. It heads the United States delegation to the Maritime Safety Committee and furnishes representatives to many of the IMCO Subcommittees.

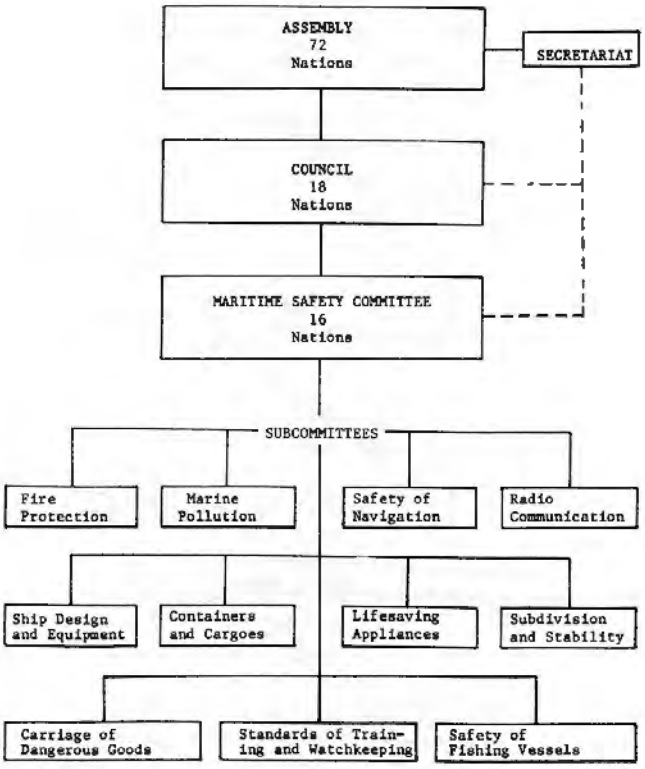


Fig. 1 Intergovernmental Maritime Consultative Organization

The purpose of Coast Guard participation in these organizations and conferences is twofold. First, they provide a means of increasing U.S. knowledge, thus helping to keep the U.S. merchant marine at a high level. Second, it provides a means for influencing and improving the safety standards of other nations, thus reducing hazards to passengers, other shipping and ports, and also minimizing the unfair competitive impact of less expensive but unsafe maritime practices.

Organization within the United States for handling IMCO matters

As IMCO matters are of an international character, all official contacts between IMCO and the United States must be made through the Department of State. Each time there is to be an IMCO meeting, an agenda and explanatory documents for the meeting are sent to the Department of State. The Department of State is responsible for the preparation of a U.S. position for each agenda item and for sending a delegation to the meeting to put forward that position. A special interdepartmental committee has been established pursuant to invitation issued by the Department of State to recommend, for most subjects, the U.S. positions and the makeup of the delegation. This is the Shipping Coordinating Committee (SHC). Another somewhat similar group is the U.S. National Committee for the Prevention of Pollution of the Seas by Oil.

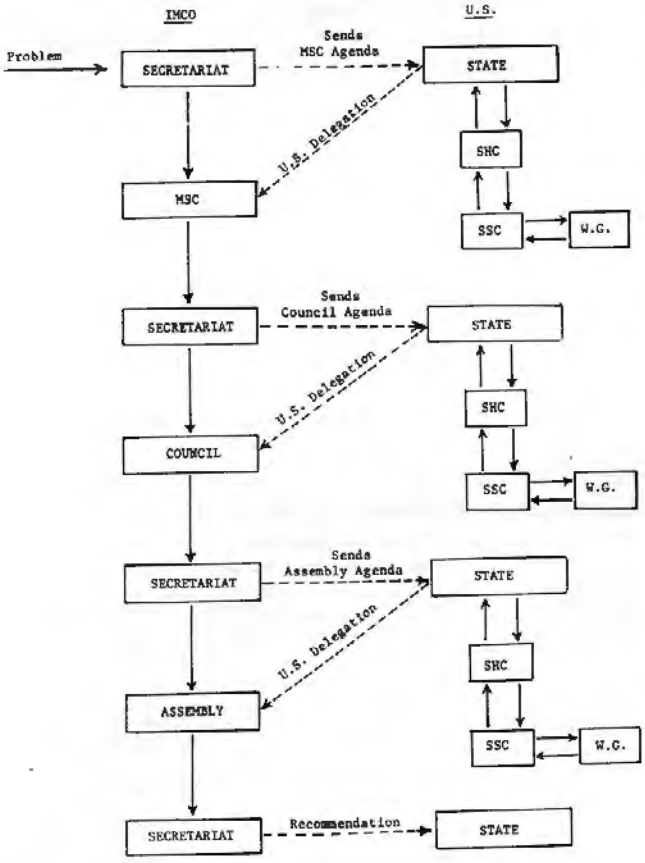


Fig. 2 Flow diagram for international maritime safety problems

When IMCO matters reach the Department of State, they are transmitted to the SHC for consideration and a recommendation of the United States position. To assure that its decisions are taken after full consideration of the various viewpoints involved, the SHC is composed of representatives of all government agencies having an interest in these matters. The representative of the Department of State is the chairman. In addition, representative industry organizations, including management and labor, are included in an advisory capacity.

In order to expedite action, standing committees have been established under the SHC to handle different types of problems. These are working groups geared for immediate action on any matters under their cognizance. One such group is the SOLAS Subcommittee (SSC) which handles technical IMCO matters relating to maritime safety. Other similar subcommittees handle tonnage and maritime law problems.

Restricting the problem to SSC matters, this Subcommittee is chaired by the Coast Guard and has as regular members other Government agencies and representative industry groups with general interest in such matters. When a problem is received from the SHC this Subcommittee immediately considers it and returns a recommended solution to the SHC, or to the Department of State when SSC meetings and clearances are deemed to have given all members and advisers with substantial interest an opportunity to present their views.

If the problem is a complex one or one that could not readily be handled at a regular SSC meeting, it is referred to a working group of government and industry experts on the particular subject who study the problem and recommend a solution to the SSC.

With regard to International Conferences, these are handled through the Department of State in a manner similar to IMCO matters. The matter will either be handled through existing groups such as the SHC or the SSC, or special working groups of government and industry representatives may be established to recommend United States positions.

Interaction between government and industry

The questions now to be considered are those regarding IMCO and its effect upon the maritime industry of the United States. Can industry influence IMCO decisions? By what procedures are IMCO decisions made binding upon industry? Can industry have a voice in these procedures? Just what are an individual's allegiance and duty when he is involved in IMCO work?

The answers to these questions are not simple. They presuppose a knowledge of how items are processed through IMCO as well as an understanding of the organization and procedures that the United States has developed to handle these matters.

To begin with, industry, including management and labor, can and does have an influence upon what emanates from IMCO. Anything relating to adopting, or amending, maritime safety regulations coming from the Organization must be passed by the Assembly, and most items require prior approval by the Council and the Maritime Safety Committee (MSC). The United States is represented on all three of these bodies, and accordingly, is able to present its position and discuss it at all stages. Let us take a typical technical item relating to maritime safety. This will have to be acted upon by all three IMCO bodies, and it will be necessary for a United States position to be established before the item is brought before each body. In the establishment of each of these three positions, industry will generally participate twice—once as a member of the SOLAS Subcommittee (SSC) and again at the Shipping Coordinating Committee (SHC) level unless the subject is purely technical and it can be assumed that all members and industry members are included in the United States Delegation to the Council and MSC meetings. This general procedure is shown on the flow chart (Fig. 2). In the case of International Conferences which may be held under the sponsorship of IMCO, the procedure may be slightly different but again

industry will participate in the formulation of the United States positions, and will generally be represented on the United States Delegation to the Conference.

With regard to how an IMCO decision is made binding upon the United States and the public in general, this depends to some extent upon the subject. To begin with, it should be clearly understood that IMCO decisions are not automatically binding upon the various governments, as IMCO recommends the decisions to the government for adoption. It is then up to the individual governments to decide if they want to adopt IMCO's recommended action. In this country, if the IMCO recommendation relates to an International Convention or an amendment to an International Convention, it would not be binding upon industry or the public until:

(*a*) The Department of State recommends the subject to the President.

(*b*) The President ratifies the Convention, or amendment, with the advice and consent of the Senate, an instrument of ratification is deposited, and the Convention or amendment, enters into force with respect to the United States pursuant to its terms.

(*c*) Implementing legislation is passed (if needed).

(*d*) Regulations (if needed) are promulgated in the normal manner (in the case of Coast Guard Regulations this includes a public hearing).

If the IMCO recommendation did not relate to an International Convention, it would not be binding upon industry or the public until:

(*a*) The Department of State refers the matter to the appropriate agency (in the case of a technical maritime safety matter, this would probably be the Coast Guard).

(*b*) Implementing legislation is passed (if needed).

(*c*) Regulations (if needed) are promulgated in the normal manner (in the case of Coast Guard Regulations, this includes holding a public hearing).

As industry has an opportunity to express itself before any of these steps are taken, it is obvious that it has a voice in the procedures whereby IMCO recommendations are accepted or rejected.

From the foregoing, it will be seen that IMCO actions are not rushed into, but are considered and deliberate. In this country, industry and government work together as a team to promote the objectives of the United States.

With regard to the last question as to the individual's allegiance and duties when involved in work pertinent to IMCO, this will depend upon the work in which the individual is engaged:

(*a*) An individual from government or industry engaged in SHC activities including those of the SSC and other subcommittees and working groups under these subcommittees, attempts to conclude the particular project on which he is engaged in such a manner as to be in the best interest of the United States. In accomplishing this, he views the project through the eyes of the organization which he represents. The Department of State considers all views presented to it, through the SHC mechanism or otherwise, before saying "this is the United States position."

(*b*) An individual from government or industry who is a member of an official United States Delegation to an IMCO Assembly, Council or MSC meeting or an International Conference loses his identity both as an individual and as a member of any particular organization. At the meeting he is no longer Mr. John Doe or a representative of the Blank Organization, but he becomes a representative of the United States. In this capacity, he may speak and act only in accordance with the established United States position. The Department of State, acting for the President, and having the responsibility in the field of foreign relations, has the duty to establish such positions.

(*c*) An individual from government or industry designated by the Department of State as a United States expert to an IMCO Subcommittee or Working Group has been selected for his ability and intimate knowledge of a particular subject, and has been "loaned" to IMCO to assist in a preparatory project. IMCO Subcommittees are groups established by the MSC to give expert advice on specific maritime subjects. On this assignment, the individual speaks for himself as an expert on the subject and can in no way commit the United States by word or deed. However, this individual should and must have a firm understanding of government and industry feeling of the matter in question in order not to invalidate any established U.S. position.

Procedure for processing an item through IMCO

As I have stated previously, IMCO is comprised of the Assembly, the Council and the Maritime Safety Committee. These are the action and decision-making bodies of the Organization which meet at specified intervals and which decide within their respective scopes what recommendations to governments will be made by IMCO. In addition, there is the Secretariat, which is, in effect, the full-time office staff.

With regard to processing an item through IMCO, there is an infinite number of types of problems and a similar number of variations or procedures. However, for this purpose, we will trace the action taken for a typical technical question relating to maritime safety which is brought to the attention of IMCO. The problem would probably first be received by the Secretariat, who would place it on the agenda for the next MSC meeting. The problems would be studied at the MSC meeting on the basis of the instructions given to the members of the MSC by the governments they represent, and comments or a recommended solution will be referred via the Council to the Assembly for approval.

If the work involved in this study is outside the established work program of the Organization or is such that a great expenditure of unbudgeted funds will be neces-

sary, the MSC would normally recommend to the Assembly via the Council that the item be included in the Organization's Work Program and that funds be made available. Generally, the MSC would not start work on the subject until the Assembly's approval was received together with the necessary funds.

In the event that the problem is of a complex nature, it might be convenient for the MSC to have a subcommittee established to make a preliminary study of the problem before taking action. In this case, the various nations wishing to participate in the work appoint representatives to the subcommittee. These nations may include any nation belonging to the Organization and do not have to be members of the MSC. The Subcommittee would meet as necessary to study the problem and would submit the results of its study to the MSC for consideration. If accepted, the results will be adopted by the MSC and be referred to the Assembly via the Council in the normal manner.

The Council must transmit the MSC's comments or recommendations unchanged to the Assembly. However, in so doing, the Council can send with the MSC's comments or recommendations its own recommendations relative to acceptance or nonacceptance by the Assembly. The Council's recommendations presumably would relate budgeting, staffing, or policy considerations, and would not question the Maritime Safety Committee's conclusions on the technical aspects.

The Assembly considers the matter referred to it by the MSC together with the recommendations of the Council and either approves or disapproves the proposal.

If the Assembly approves the item, it is recommended by IMCO to the member nations for adoption.

The foregoing internal procedure for processing an item through IMCO can be expressed in the simplified flow diagram shown in Fig. 3.

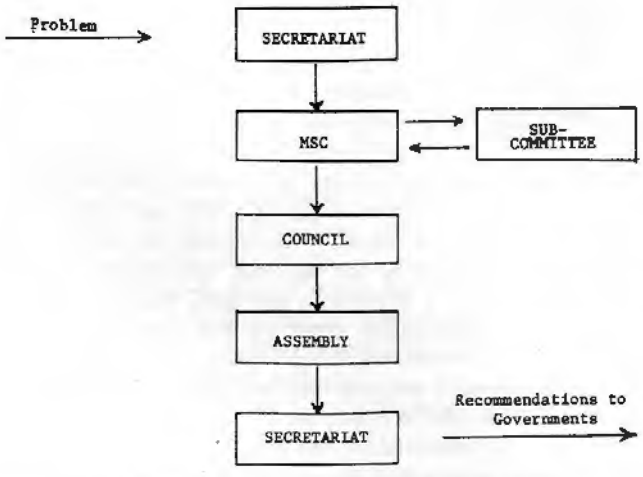


Fig. 3 Flow diagram of problems through IMCO

International Conventions are handled by IMCO in a different manner. Here, the idea to hold a diplomatic conference may pass through the steps previously mentioned, but with regard to the conference itself IMCO merely makes the arrangements for it. This includes the sending out of notices, arranging for the meeting, preparing the agenda and the necessary working papers, and providing translation and secretarial services. IMCO would assume depository functions as provided in the convention as finally formulated, such as arranging for signatures, submitting authenticated copies to the Governments, and acting as depository for acceptance by the various governments. IMCO will assume all other Bureau duties called for by the convention. In the case of the 1948 SOLAS Convention and the 1954 International Convention for the Prevention of Pollution of the Seas by Oil, provisions were made in each Convention for IMCO to assume the Bureau duties when and if it came into being. For, as you recall, IMCO did not come into being until 1958. However, in the case of the 1930 Load Line Convention, similar provisions were not made, as IMCO was not in existence or contemplated at that time. Accordingly, the United Kingdom was designated the Bureau Power by the terms of the Convention. Even though an international conference was held in 1966 and a new international load line convention brought forth, the United Kingdom has no authority under the terms of the 1930 Load Line Convention to relinquish its Bureau duties for that Convention to IMCO.

A need for IMCO

As can be seen, IMCO has maintained a very active schedule in fostering the tenets of its convention "to encourage the general adoption of the highest practicable standards in matters concerning maritime safety and efficiency of navigation." It has been stated that "The ship is the prime instrument of this ceaseless movement around the globe. The ship carries both precious human lives and valuable cargo, and she represents a considerable capital sum; seaworthiness and safety of navigation are therefore imperative. Safety of the ship and safety of navigation—these are the aims to which the Intergovernmental Maritime Consultative Organization is devoted."

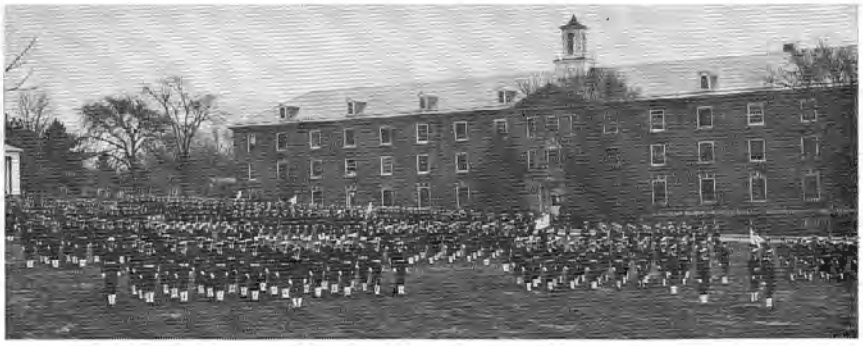
One may wonder why the United States is so interested in IMCO. Whether we like it or not, we are involved in shipping matters on an international plane. We are in on the ground floor by having membership in IMCO not only on the Assembly, but on the Council and the Maritime Safety Committee as well. This is our opportunity to assure that the actions taken at IMCO are in our best interests.

The various interested government agencies and industry groups have uniformly supported the need for merchant marine safety regulations. The Department of State

has highlighted the United States policy which has favored high international maritime safety standards. To protect American citizens traveling on foreign vessels, the United States has encouraged other governments to make their safety standards more nearly approach those of our country. This we can attain only through active participation in IMCO.

In the early days of IMCO, there were many doubts as to the success of the venture. The whole procedure for getting something through the Organization seemed too cumbersome. These thoughts appeared to be justified for a short time, as little in the nature of concrete achievements was produced in the first few years. However, now that it has passed its organizational stages, it is concentrating on the real problems. Accordingly, we hope to see accomplishments in the near future which would have been just about impossible to achieve if IMCO was not in being. For these reasons there is quiet confidence that this is but a prologue to greater international maritime safety. ⚓

U.S. Coast Guard Academy Announces Annual Competition



A scene from the U.S. Coast Guard Academy.

The U.S. Coast Guard Academy has announced that it is now accepting and processing applications for appointment as Cadet, U.S. Coast Guard, Class of 1977. Appointments to the Coast Guard Academy are tendered solely on the basis of an annual nationwide competition with no congressional appointments or geographical quotas. Applications for appointment must be submitted to the Director of Admissions, U.S. Coast Guard Academy, prior to 15 December 1972, and candidates must arrange to participate in the prescribed College Entrance Examination Board tests prior to or including the 2 December 1972 administration. The competition for appointment as Cadet is based on the candidate's high school rank, his performance on the CEEB (1) Scholastic Aptitude Test, (2) English Composition Achievement Tests, and (3) either Level I or Level II Mathematics Achievement Test, and his leadership potential as demonstrated by his participation in high school extracurricular activities, community affairs or part-time employment. Most successful candidates rank in the top quarter of their high school class and demonstrate proficiency in both the mathematical and applied science fields.

To qualify for the competition, an applicant must be unmarried and must have reached his 17th but NOT his 22nd birthday by July 1, 1973. The minimum educational requirement is a high school diploma; however, high school seniors assured of graduation by June 30, 1973 are eligible to compete provided they have at least 15 credits by that time. Applicants must have completed three units in English, and three in mathematics including algebra and plane or coordinate geometry or their equivalents, and must fulfill the basic physical and moral requirements.

Coast Guard cadets obtain an excellent undergraduate education at no personal cost and, in addition, receive pay and allowances fully adequate to fulfill all their ordinary living expenses. The constantly updated Academy curriculum offers liberal arts, engineering, and professional subjects, with a choice of thirteen academic options which include: general, ocean, marine, electrical, nuclear and civil engineering; mathematics; computer science; ocean science; physics; chemistry; history/government; and economics/management. These areas of academic interest, combined with the varied elective courses, establish a solid foundation for a challenging career. Graduates of the Academy are awarded a Bachelor of Science degree and are commissioned as Ensigns in the U.S. Coast Guard. Selected officers may pursue further post-graduate education and specialized training in many leading civilian and military graduate or professional schools in such fields as aviation, business administration, electronics, engineering, law, naval architecture, and oceanography.

Should you know of a young man who is interested in the above fields, please inform him of this outstanding educational opportunity offered by the Coast Guard Academy. Any young man coming within the prescribed age limits who believes he meets the scholastic, physical, and character standards and is interested in a professional career as a Coast Guard officer is encouraged to make application.

Applications and additional information may be obtained by writing to: Director of Admissions, U.S. Coast Guard Academy, New London, Conn. 06320. ⚓

Towboat Operator Licensing

Are you the operator of a towboat somewhere on the navigable waters of the United States? An owner of a towboat? Or just someone who hopes to operate a tug someday? If your answer is yes to any of these questions, then the Coast Guard's recently proposed regulations to implement the Towing Vessel Licensing Act (Public Law 92–339) should be of particular interest to you. As a matter of fact, you had better read the following very carefully.

The complete text of the Towing Vessel Licensing Act is reprinted on the opposite page. *Towing* is defined there as "pulling, pushing, or hauling alongside or any combination thereof." *Towing vessel* means "a commercial vessel engaged in or intended to engage in the service of towing which is twenty-six feet or more in length, measured from end to end over the deck, excluding sheer." *Uninspected* further limits the application of this statute to vessels not required by law to have a valid certificate of inspection.

The law goes on to say that all towing vessels as defined above must be under the direction of a licensed operator and that that operator may not "work a vessel while underway or perform other duties in excess of a total of twelve hours in any consecutive twenty-four hour period, except in case of emergency." Towing vessels of "less than two hundred gross tons engaged in a service or preparing or intending to immediately engage in a service to the offshore oil and mineral exploitation industry, including construction for such industry, where the vessels involved would have as their ultimate destination or last point of departure offshore oil and mineral exploitation sites or equipment," are specifically exempted from the application of the law.

The Congress further directed the Secretary of Transportation (who in turn directed the Commandant of the Coast Guard) to conduct a study "concerning the need for engineers on uninspected towing vessels and submit to the Congress a report on this study." A Study Group has been formed at Coast Guard Headquarters under the direction of Captain John Yager. Their task will be to determine if the presence of engineering personnel on such vessels would improve their overall safety. Data will be gathered, surveys conducted and interviews scheduled so as to ensure a broad and comprehensive input to the analysis. All segments of the towing industry will be offered the opportunity of submitting their views. Interested persons should contact Capt. Yager at phone 202–426–2210 for additional information.

Finally, the statute provides that the law shall become effective six months after promulgation of final regulations. The Notice of Proposed Rule Making announcing the proposed rules appeared in the August 11, 1972, Federal Register. Comments are being accepted through October 31, 1972. Sometime after that date (hopefully in January, 1973), when all comments have been reviewed, the final regulations will be published in the Federal Register. It is from that date of publication and not August 11, 1972, or October 31, 1972, that the new requirements will go into effect.

Applicants will then have six months in which to apply for licenses. Once six months have elapsed, no unlicensed person may operate an uninspected towing vessel covered by the law on the navigable waters of the United States. The Coast Guard Marine Inspection Offices will make every possible effort to handle all applicants as swiftly as possible. The Coast Guard believes that it is essential *not* to disrupt the livelihood of the men and businesses in the industry and will make every effort to insure that unnecessary inconvenience does not result.

Four reginnal public hearings bave been conducted on the proposed regulations in Seattle, New York, St. Louis, and New Orleans during the month of September. In addition, numerous written comments have been received at Coast Guard Headquarters. At the time of writing, the Marine Safety Council had not formally considered all the comments. For this reason, the text of the proposed regulations has not been included in this issue of the *Proceedings*. Instead, the proposal will be summarized and the final rules published in the issue of the *Proceedings* immediately following publication of the final rules in the Federal Register. It is important to emphasize that some of the statements made in the following paragraphs may be changed by the Commandant following the Marine Safety Council review of the comments received. The provisions of the law, however, as outlined above, cannot be changed without Congressional action.

The proposed regulations would create two operator's licenses:

The first, an operator's license, would require an applicant:

(1) to be at least 21 years of age,

(2) to have at least 3 years of experience,

(3) to pass a practical job oriented examination covering a variety of subjects ranging from Rules of the Road and navigation to firefighting and pollution,

(4) to meet the present Coast Guard medical standards for all applicants for original licenses.

During the first year that these

rules become effective, the experience requirement could be satisfied with one year in charge of a towboat. In addition, the examination and medical requirements would also be reduced for applicants in this category.

An applicant who meets all these requirements would be issued a license endorsed for use in one or more of the following geographical areas—inland waters, Western Rivers, Great Lakes, Oceans, Oceans not more than 200 miles offshore, or a limited local area designated by the Officer in Charge, Marine Inspection. In the case of an applicant requesting a limited local area endorsement, the examination would be modified to cover only that area.

A second class operator's license would require an applicant:

(1) to be at least 19 years of age instead of 21,

(2) to have at least 18 months' experience instead of 3 years,

(3) to pass the same practical job oriented examination as would be required of applicants for an operator's license,

(4) to meet the present Coast Guard medical standards for all applicants for original licenses,

(5) to operate only when a holder of a license as operator of uninspected towing vessels or master, mate (except mate of inland steam or motor vessels) or pilot is onboard that vessel.

The holder of a second class operator's license would be issued an operator's license at such time as he meets all the necessary requirements insofar as age and total experience.

Questions on the proposed regulations or other matters relating to the Towing Vessel Licensing Act should be directed to U.S. Coast Guard Headquarters (GMVP/82), 400 Seventh Street SW., Washington, DC. 20590. ⚓

An Act

To provide for the licensing of personnel on certain vessels.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 4427 of the Revised Statutes (46 U.S.C. 405) is amended by inserting "(a)" immediately before the first word thereof and by adding at the end thereof the following new subsection:

"(b) (1) As used in this subsection—

"(A) the term 'Secretary' means the Secretary of the department in which the Coast Guard is operating;

"(B) the term 'towing' means pulling, pushing, or hauling alongside or any combination thereof;

"(C) the term 'towing vessel' means a commercial vessel engaged in or intended to engage in the service of towing which is twenty-six feet or more in length, measured from end to end over the deck, excluding sheer;

"(D) the term 'uninspected' means not required by law to have a valid certificate of inspection issued by the Secretary.

"(2) An uninspected towing vessel in order to assure safe navigation shall, while underway, be under the actual direction and control of a person licensed by the Secretary to operate in the particular geographic area and by type of vessel under regulations prescribed by him. A person so licensed may not work a vessel while underway or perform other duties in excess of a total of twelve hours in any consecutive twenty-four-hour period except in case of emergency.

"(3) Paragraph 2 of this subsection shall not apply to towing vessels of less than two hundred gross tons engaged in a service or preparing or intending to immediately engage in a service to the offshore oil and mineral exploitation industry, including construction for such industry, where the vessels involved would have as their ultimate destination or last point of departure offshore oil and mineral exploitation sites or equipment."

SEC. 2. The Secretary of Transportation shall conduct a study concerning the need for engineers on uninspected towing vessels and shall submit to the Congress a report on this study, together with any legislative recommendations not later than ten months after the enactment of this legislation.

SEC. 3. The amendments made by the first section of this Act shall become effective on January 1, 1972, or on the first day of the sixth month which begins after the month in which regulations are first issued under section 4427(b)(2) of the Revised Statutes (as added by the first section of this Act), whichever date is later.

Approved July 7, 1972

COAST GUARD RULEMAKING

(Effective October 1, 1972)

	Notice of proposed rulemaking	Public hearing	Deadline for comments	Awaiting final action	Withdrawn	Published as rule	Effective date
1971 PUBLIC HEARING							
PH 8–71 Specification:							
8a. Lifeboat winches	2–24–71	3–29–71	5–15–71	X			
8b. Lifeboats	2–24–71	3–29–71	5–15–71	X			
8c. Line-throwing appliances	2–24–71	3–29–71	5–15–71	X			
8d. Inflatable liferafts	2–24–71	3–29–71	5–15–71	X			
PH 9–71 Fibrous glass-reinforced plastic construction of small passenger vessels	2–24–71	3–29–71	5–15–71				
(Second Notice of Proposed Rulemaking due to revisions of original proposal)	4–6–72	None	5–8–72	X			
1972 PUBLIC HEARING							
Synthetic fiber rope for line-throwing appliances (35–70, 27–71)	3–1–72	3–27–72	4–3–72			6–11–72	11–20–72
Tailshaft inspection and drawing (67–71, 4–71)	3–1–72	3–27–72	4–3–72	X			
Stability-wind heel criteria for cargo and miscellaneous vessels (43–71)	3–1–72	3–27–72	4–3–72	X			
Definition of international voyage (12–70)	3–1–72	3–27–72	4–3–72	X			
Portable foam firefighting equipment—tank vessels (17–71)	3–1–72	3–27–72	4–3–72	X			
Subchapters D, H, and I, safety factors for cargo gear (20–71)	3–1–72	3–27–72	4–3–72	X			
Visual acuity requirements, original licenses (23–71)	3–1–72	3–27–72	4–3–72	X			
ANCHORAGE REGULATIONS							
Casco Bay, Maine	6–16–72		7–19–72	X			
Henderson Harbor, N.Y.	6–28–72		8–1–72	X			
Puget Sound Area, Wash. (CGFR 72–13)	2–3–72		3–5–72	X			
St. John's River, Fla. (CGFR 71–162)	12–22–71		1–31–72	X			
St. Marys River, Mich	6–7–72	7–6–72 7–12–72	7–15–72	X			
San Francisco Bay Area (CGD 72–78)	4–28–72	5–24–72 San Francisco	5–27–72	X			
San Juan Harbor, P.R. (CGFR 72–12)	2–1–72		3–4–72	X			
Willington River, Ga. (CGFR 71–153)	11–25–71		12–27–71	X			
BOATING SAFETY (GENERAL)							
Defect notification (CGD 72–55)	4–5–72	5–3–72	5–11–72			8–4–72	11–1–72
Manufacturers requirements (CGD 72–60)	4–22–72	5–17–72	5–31–72			8–4–72	11–1–72
Numbering and casualty reporting (CGD 72–54)	4–19–72	5–17–72	5–31–72	X			
BRIDGE REGULATIONS							
Bear Creek, Md. (CGFR 72–17)	2–2–72		3–7–72	X			
Black Water River, Fla. (CGD 72–87)	5–10–72		6–13–72	X			
Chattahoochee River (CGFR 71–166)	12–29–71	1–26–72 Florida	1–27–72	X			
Idaho State Memorial Bridge, Clearwater River, Lewiston, Idaho (CGFR 71–169)	12–29–71	2–1–72	2–1–72	X			
Interstate I–90 at Lake Washington (CGFR 71–168)	12–21–71	1–27–72 Washington	1–27–72	X			
Nanticoke, Del. (CGFR 71–142)	11–24–71		12–24–71	X			
Ogden Slip, Chicago, Ill. (CGFR 72–16)	2–2–72		3–7–72	X			

	Notice of proposed rulemaking	Public hearing	Deadline for comments	Awaiting final action	Withdrawn	Published as rule	Effective date
Sacramento River, Cal. (CGFR 71-165)	12-29-71	.....	2-7-72	X	.....	.....	.....
Saginaw River, Mich. (CGFR 72-18)	2-2-72	.....	3-7-72	X	.....	.....	.....
Union Pacific RR Co., Columbia River (CGFR 71-167)	12-29-71	2-23-72 Washington	1-27-72	X	.....	.....	.....
Carrabelle River, Fla	6-24-72	.....	7-28-72	....	.....	9-26-72	11-1-72
Fort Caswell Bridge, N.C	6-21-72	.....	7-25-72	X	.....	.....	.....
Mare Island, Cal	6-30-72	.....	8-7-72	X	.....	.....	.....
Ohio River at Huntington	6-10-72	7-13-72	7-27-72	X	.....	.....	.....
Ortega River, Fla	6-21-72	.....	7-25-72	X	.....	.....	.....
Alabama River, Ala. (CGD 72-159P)	8-22-72	.....	9-26-72	X	.....	.....	.....
Clear Creek, Tex. (CGD 72-165P)	8-26-72	.....	10-3-72	X	.....	.....	.....
New River, Fla. (CGD 72-170P)	8-30-72	.....	10-3-72	X	.....	.....	.....
Pompano Beach, Fla. (CGD 72-158P)	8-22-72	.....	9-26-72	X	.....	.....	.....
Portage River, Ohio (CGD 71-69a)	.....	.....	.....	....	.....	8-26-72	10-1-72
St. Lucie River, Fla. (CGD 72-168P)	8-26-72	.....	10-3-72	X	.....	.....	.....
West Palm Beach, Fla. (CGD 72-167P)	8-26-72	.....	10-3-72	X	.....	.....	.....
Back Bay of Biloxi, Miss. (CG 72-173R)	.....	.....	.....	....	.....	9-7-72	10-2-72 through 3-3-73
Great Canal, Satellite Beach, Brevard County, Fla. (CGD 72-175PH)	9-13-72	10-30-72	11-13-72	....	.....	.....	.....
Debbies Creek, Manasquan, N.J. (CGD 72-138R)	9-14-72		10-24-72	....	.....	.....	.....
Danvers River, Mass. (CGD 72-138R)	.....	.....	.....	....	.....	9-11-72	10-1-72 through 10-31-72
Isthmus Slough, Oreg. (CGD 72-184R)	.....	.....	.....	....	.....	9-16-72	9-1-72 through 11-1-72
Drawbridge Operations: Milwaukee, Menomonee, and Kinnickinnic Rivers, Wis: Correction (CGD 72-191RC)	.....	.....	.....	....	.....	9-30-72	9-30-72
AIWW, Mile 342, Fla.; Drawbridge Operations (CGD 72-190P)	9-30-72	.....	11-1-72	....	.....	.....	.....
HAZARDOUS MATERIALS							
Cold compressed gases (CGFR 72-10)	10-16-71	1-11-72	1-18-72	X	.....	.....	.....
Etiologic agents (CGFR 71-170)	[1] 1-21-72	[1] 2-22-72	[1] 2-29-72	....	.....	9-30-72	12-30-72
Radioactive materials (CGFR 71-62)	1-7-72	3-28-72	4-4 72	X	.....	.....	.....
Radioactive materials (CGFR 71-136)	7-9-71	8-24-71	8-31-71	X	.....	.....	.....
Radioactive materials packages (CGD 72-91)	11-20-71	2-22-72	2-29-72	X	.....	.....	.....
Compressed Gas Cylinders (CGD 72-115PH)	5-24-72	6-20-72	6-27-72	X	.....	.....	.....
Dangerous Cargoes—Dichlorobutene (CGD 72-162PH)	8-31-72	9-28-72	10-2-72	X	.....	.....	.....
Etiologic Agents—Supplemental Notice (CGD 72-148PH)	8-30-72	10-24-72	10-31-72	X	.....	.....	.....
Dangerous Cargoes—Phosphorus Pentasulfide (CGD 72-171PH)	8-9-72	9-5-72	9-12-72	X	.....	.....	.....
Dichlorobutene, Corrected, F.R. 9-20-72, Hazardous Cargoes (CGD 72-162PH) [2]	9-6-72	10-24-72	10-31-72	....	.....	.....	.....
Regulations Governing Use of Dangerous Articles as Ships' Stores and Supplies on Board Vessels (CGD (71-12C)	8-30-72	10-24-72	10-31-72	....	.....	.....	.....
Sodium Methylate Alcohol Mixtures; Correction (CGD 71-139CR)	.....	.....	.....	....	.....	9-23-72	9-23-72
	.....	.....	.....	....	.....	9-26-72	9-26-72
MARINE ENVIRONMENT AND SYSTEMS (GENERAL)							
Oil pollution prevention (CGFR 71-160, 161)	12-24-71	2-15-72	4-21-72	X	.....	.....	.....
Atlantic Intracoastal Waterway, Vero Beach, Fla. (CGD 72-155P)	8-16-72	.....	9-19-72	X	.....	.....	.....

	Notice of proposed rulemaking	Public hearing	Deadline for comments	Awaiting final action	Withdrawn	Published as rule	Effective date
MERCHANT MARINE SAFETY (GENERAL)							
Buoyant devices, special purpose water safety (CGFR 72–5)	1–29–72	.....	3–15–72	X	.....	.....	.....
Documentation ports (CGFR 72–19)	2–4–72	.....	4–4–72	X	.....	.....	.....
Fire extinguishers, marine type portable (CGFR 72–36)	3–9–72	4–18–72	4–24–72	X	.....	.....	.....
Incombustible materials (CGFR 72–47)	3–9–72	4–18–72	4–24–72	X	.....	.....	.....
Oceanographic vessels, fire main systems (CGFR 72–20)	2–4–72	.....	3–19–72	X	.....	.....	.....
Washroom and toilet facilities (CGFR 72–4)	1–15–72	.....	3–20–72	X	.....	.....	.....
Water lights, floating electric (CGFR 72–48)	3–9–72	4–18–72	4–24–72	X	.....	.....	.....
Great Lakes Maritime Academy, List as a Nautical School-Ship (CGD 72–92P)	8–9–72	.....	9–15–72	X	.....	.....	.....
Revocation of Fernandina Beach as a Port of Documentation (CGD 72–75P)	8–9–72	.....	9–12–72	X	.....	.....	.....
Ship's Maneuvering Characteristics Data (CGD 72–132PH)	8–22–72	9–28–72	10–13–72	X	.....	.....	.....
Boundary Lines of Inland Waters—Pollack Rip Entrance and Great Round Shoal, Mass. (CGD 72–111R)	7–11–72	.....	8–14–72	....	.....	9–12–72	10–16–72
Miscellaneous Amendments to Chapter; Correction (CGD 72–104CR)	.....	.....	.....	....	.....	9–13–72	9–13–72
Fees and Charges for Certain Records and for Duplicate Documents, Certificates, or Licenses (CGD 72–62R)	.....	.....	.....	....	.....	9–27–72	10 30–72

[1] Extension of comment period and second public hearing.
[2] Corrected, F.R. of 9–20–72.

NOTE: This table which will be continued in future issues of the Proceedings is designed to provide the maritime public with better information on the status of changes to the Code of Federal Regulations made under authority granted the Coast Guard. Only those proposals which have appeared in the Federal Register as Notices of Proposed Rulemaking, and as rules will be recorded. Proposed changes which have not been placed formally before the public will not be included.

AMENDMENTS TO REGULATIONS

Title 33—NAVIGATION AND NAVIGABLE WATERS

Chapter I—Coast Guard, Department of Transportation

[CGD 72–111R]

PART 82—BOUNDARY LINES OF INLAND WATERS

Pollock Rip Entrance and Great Round Shoal Entrance, Mass.

The purpose of this amendment to the regulations is to redefine the lines of demarcation for inland waters at Pollock Rip Entrance and Great Round Shoal Entrance, Mass., to bring them into conformance with recent changes in aids to navigation in the affected location. The amendment is based on a notice of proposed rulemaking (CGD 72–111) issued on July 11, 1972 (37 F.R. 13557) which described the changes and solicited comments from interested persons. No comments were received.

The amendment is adopted without change as set forth below.

In consideration of the foregoing, Part 82 of Title 33 of the Code of Federal Regulations is amended by revising § 82.15 to read as follows:

§ 82.15 Nantucket Sound, Vineyard Sound, Buzzards Bay, Narragansett Bay, Block Island Sound, and easterly entrance to Long Island Sound.

(a) A line drawn from Chatham Light to Pollock Rip Lighted Horn Buoy "PR"; thence to Great Round Shoal Channel Entrance Lighted Whistle Buoy "GRS"; thence to Sankaty Head Light.

(b) A line drawn from the westernmost extremity of Smith Point, Nantucket Island, to No Mans Land Lighted Whistle Buoy 2; thence to Gay Head Light; thence to Block Island Southeast Light; thence to Montauk Point Light on the easterly end of Long Island, N.Y.

(Sec. 2, 28 Stat. 672, as amended, sec. 6(b)(1), 80 Stat. 938; 33 U.S.C. 151, 49 U.S.C. 1655(b), 49 CFR 1.46 (b))

Effective date: October 16, 1972.

Dated: August 31, 1972.

T. R. SARGENT,
Vice Admiral, U.S. Coast Guard,
Acting Commandant.

(Federal Register of September 12, 1972)

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 will be furnished by mail to subscribers, free of postage, for $2.50 per month or $25 per year, payable in advance. The charge for individual copies is 20 cents for each issue, or 20 cents for each group of pages as actually bound. Remit check or money order, made payable to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Regulations for Dangerous Cargoes, 46 CFR 146 and 147 (Subchapter N), dated January 1, 1972 are now available from the Superintendent of Documents price: $3.75.

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 (4–1–72). F.R. 7–21–72.
115	Marine Engineering Regulations (7–1–70) FR. 12–30–70, 3–25–72, 7–18–72.
123	Rules and Regulations for Tank Vessels (5–1–69) F.R. 10–29–69, 2–25–70, 6–17–70, 10–31–70, 12–30–70, 3–8–72, 3–9–72, 6–14–72, 7–18–72.
129	Proceedings of the Marine Safety 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, 9–12–72, 9–7–66, 10–22–66, 5–11–67, 12–23–67, 6–4–68, 10–29–69, 11–29–69, 4–3–71, 3–15–72, 6–21–72, 6–28–72, 7–21–72, 9–12–72.
172	Rules of the Road—Great Lakes (9–1–66). F.R. 2–18–67, 7–4–69, 8–4–70, 3–15–72, 6–21–72, 6–28–72.
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 (2–1–71) F.R. 10–1–71.
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, 2–18–67, 5–11–67, 12–23–67, 6–4–68, 11–29–69, 4–3–71, 3–15–72, 6–21–72, 6–28–72, 7–7–71, 7–21–72.
190	Equipment Lists (8–1–70). F.R. 8–15–70, 9–29–70, 9–24–71, 9–30–71, 10–7–71, 10–14–71, 10–19–71, 10–30–71, 11–3–71, 11–6–71, 11–10–71, 11–23–71, 12–2–71, 1–13–72, 1–20–72, 2–4–72, 2–19–72, 3–3–72, 3–9–72, 9–14–72, 3–14–72, 4–4–72, 4–28–72, 5–10–72, 5–17–72, 6–14–72, 6–21–72, 7–4–72, 8–9–72, 8–11–72, 8–31–72, 9–14–72.
191	Rules and Regulations for Licensing and Certification of Merchant Marine Personnel (6–1–72).
200	Marine Investigation Regulations and Suspension and Revocation Proceedings (5–1–67). F.R. 3–30–68, 4–30–70, 10–20–70, 7–18–72.
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 (5–1–68). F.R. 10–29–69, 5–15–70, 9–11–70, 1–20–71, 4–1–71, 8–24–71, 2–15–72.
249	Marine Safety Council Public Hearing Agenda (Annually).
256	Rules and Regulations for Passenger Vessels (5–1–69). F.R. 10–29–69, 2–25–70, 4–30–70, 6–17–70, 10–31–70, 12–30–70, 3–9–72, 7–18–72.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (8–1–69). F.R. 10–29–69, 2–25–70, 4–22–70, 4–30–70, 6–17–70, 10–31–70, 12–30–70, 9–30–71, 3–9–72, 7–18–72.
258	Rules and Regulations for Uninspected Vessels (5–1–70).
259	Electrical Engineering Regulations (6–1–71). F.R. 3–8–72, 3–9–72, 8–16–72.
266	Rules and Regulations for Bulk Grain Cargoes (5–1–68). F.R. 12–4–69.
268	Rules and Regulations for Manning of Vessels (10–1–71). F.R. 1–13–72
293	Miscellaneous Electrical Equipment List (9–3–68).
320	Rules and Regulations for Artificial Islands and Fixed Structures on the Outer Continental Shelf (7–1–72). F.R. 7–8–72.
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (12–1–71). F.R. 3–8–72, 3–25–72, 6–24–72, 7–18–72.
329	Fire Fighting Manual for Tank Vessels (7–1–68).

CHANGES PUBLISHED DURING SEPTEMBER 1972

The following have been modified by Federal Registers:

CG–190, Federal Register of September 14, 1972.
CG–169, Federal Register of September 12, 1972.