# PROCEEDINGS
## OF THE MARINE SAFETY COUNCIL


DEPARTMENT OF TRANSPORTATION UNITED STATES COAST GUARD

Vol. 32, No. 8 CG-129 August 1975

# PROCEEDINGS

## OF THE MARINE SAFETY COUNCIL

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**FRONT COVER**

The SS *Hillyer Brown* ran aground in Cold Bay Alaska on the night of 7 March 1973. Although the tanker floated free and was able to proceed to port, damage to the hull resulted in a spill of some 4,000 barrels of gasoline and diesel oil.

**BACK COVER**

A Coast Guard HH3F helicopter, used to survey the extent of the oil spill, lands on the north side of Lenard Harbor. In addition to the cutters *Klamath* and *Ironwood*, elements of the Coast Guard Atlantic and Pacific Strike Force Teams were sent to conduct containment and cleanup operations.

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# maritime sidelights

## VINYL CHLORIDE CARRIAGE REQUIREMENTS

Vinyl chloride monomer is one of the most important chemicals in the plastics industry. A gas under normal conditions, it is polymerized to form a very common and important plastic, Polyvinyl chloride (PVC). Vinyl chloride is transported and handled as a liquid, boiling point −13.9° C (+5° F). When vaporized, vinyl chloride is flammable and explosive. In 1973 over 338 million pounds of vinyl chloride were exported from this country by water. The amount of vinyl chloride transported by water domestically in 1973 is unknown. Statistics for domestic shipments of vinyl chloride in the past were not maintained.

The carcinogenic properties of vinyl chloride have been well publicized during the past year. Vinyl chloride is reported to cause angiosarcoma of the liver—an almost always fatal form of cancer—in persons routinely exposed to the chemical. Nineteen angiosarcoma deaths were reported in 1974. The carcinogenic properties of vinyl chloride monomer have been exhibited in laboratory rats exposed to concentrations of 50 parts per million parts of air (p/m) and less. The full impact and extent of vinyl chloride induced tumors in humans cannot be readily determined and assessed at this time because of the inherently long (15- to 25-year) latency period for the angiosarcoma. It was not until 30 years ago that vinyl chloride monomer became heavily used in industry to manufacture polyvinyl chloride plastic. It is impossible to guess how many workers who have been exposed to vinyl chloride in the past will develop cancer in the future.

Recognizing the insidious nature of vinyl chloride and the potential health hazard involved in handling this chemical, the Commandant, on 13 May 1974, disseminated by message emergency interim measures to prevent exposure of tank vessel personnel to vinyl chloride vapors during cargo transfer operations. On 23 July 1974, the Coast Guard published in the Federal Register proposed regulations which would require venting, gaging, and cargo transfer systems which would meet current OSHA exposure levels of vinyl chloride. The Coast Guard has published in the Federal Register, 16 April 1975 (40 FR 74), final vinyl chloride carriage requirements to become effective 16 July 1975. These requirements limit the exposure to vinyl chloride to a concentration of 1 p/m. These regulations require continuous monitoring for vinyl chloride vapor leaks during cargo transfer operations and prescribe action to be taken if the exposure limit has been exceeded. The regulation also requires closed gaging.

The Coast Guard has prepared an easy-to-read brochure describing the hazards of vinyl chloride and its handling requirements. This brochure can be obtained on request by contacting the Commandant (G–MHM–1/83), U.S. Coast Guard, Washington, D.C. 20590.

## LIFESAVING DEVICES

The mariner is surrounded by a hazard-filled environment. Failure to recognize and respect these hazards could be fatal! Here follows a short account of one mariner who failed to recognize the danger of his surroundings—and paid with his life.

Two crewmembers of a fishing vessel were working from a small skiff assisting in a process called "brailing." This entails maneuvering a net in close to the mother vessel until 90 percent of it is taken aboard where the fish can be scooped from the net. The weather was calm and clear, and the water was glassy.

The operator of the skiff had maneuvered along the port side of the mother vessel to allow the other crewman to disembark via a ladder. The skiff operator saw the man on the ladder, and a moment later saw him apparently slip and cling to a rung by one hand. As he backed the skiff away he watched the man lose his grip and fall into the water.

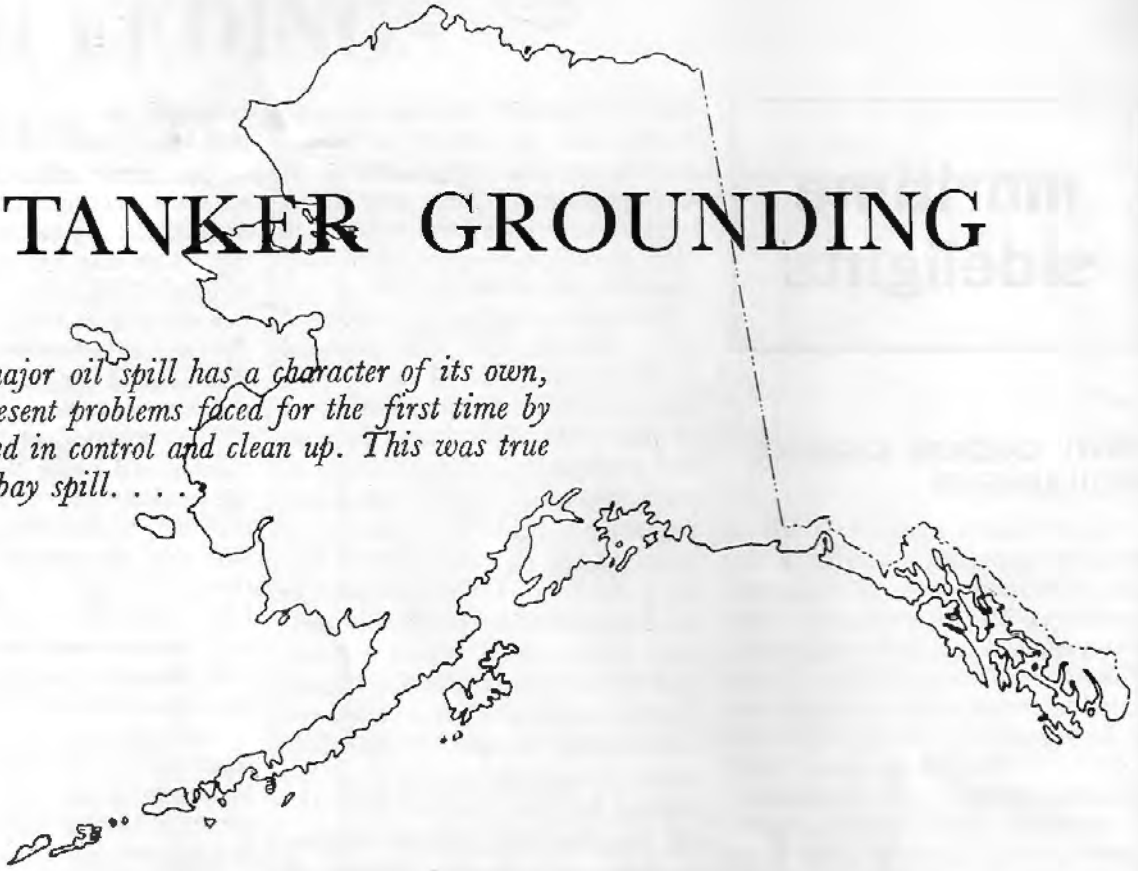
The men on deck were alerted immediately. Several crewmembers looked over the side and saw the crewman sinking. He was not wearing a lifesaving device. The water was very clear and the sinking crewman could be seen at an estimated depth of 10 feet. One of the crew jumped overboard to attempt a rescue, but he could not swim deep enough to reach him. When last seen the victim had his hand up to his forehead and the other one downward and he did not appear to be struggling. At least one other crewman made an unsuccessful rescue attempt. A search of the immediate area continued for some time until the master of the fishing vessel felt certain that the crewman had been lost.

The Coast Guard investigation concluded that the deceased probably struck his head, rendering him either unconscious or dazed. The investigation also concluded that had the deceased been wearing a lifesaving device he would probably have been recovered.

Lifesaving devices save lives—wear them!

# TANKER GROUNDING

*. . . each major oil spill has a character of its own, and may present problems faced for the first time by those engaged in control and clean up. This was true of the cold bay spill. . . .*



At 2120 Alaska standard time on 7 March 1973, the tankship SS *Hillyer Brown* grounded in Cold Bay, Alaska. The grounding took place near Kelp Point while the vessel was outbound from Cold Bay. As a result of underwater damage sustained in the grounding approximately 4,700 barrels of petroleum products were spilled into the navigable waters of the United States. There were no deaths or injuries reported as a result of the grounding.

The channel into Cold Bay is oriented in a nearly due north-south direction and is bounded by the 10-fathom curve on both the east and west sides. Lighted buoys Nos. 1 and 3 mark the western extremity while channel buoy No. 4 and Kaslokan Point Light normally mark the eastern extremity of the channel. However, at the time of the grounding buoy No. 4 was lying on the beach approximately 500 yards east of its charted position. Kaslokan Point Light is located 1,800 yards south of the charted position of the missing buoy. The light has an obscure sector from 186.5°T to 336°T. The channel nominally varies between 200 and 300 yards in width.

The *Hillyer Brown* arrived at the Cold Bay Channel entrance during the early morning hours of 7 March. At 0735 the *Hillyer Brown* passed Cold Bay Channel buoy No. 3 close aboard to port as the vessel made its entrance into Cold Bay. No significance was attached to the fact that the No. 4 buoy was not sighted because of its relative unimportance in a northerly transit into the bay, and because visibility at the time was very poor. The *Hillyer Brown* continued on into Cold Bay where she was forced to anchor because of heavy winds. Shortly after 1018 the winds abated sufficiently to permit the tanker to weigh anchor and proceed to the dock. At 2018 the vessel offloaded its cargo of No. 15 diesel oil and bonded jet fuel and made preparations for departure from Cold Bay. Twelve minutes later the last line was cast off and the vessel began its outbound transit. For the next 23 minutes the vessel was maneuvered on various courses until it reached a position abeam Delta Point Light at a distance of 1½ miles. At 2053 the vessel was steadied up on a 150°T course and its engines were turning 80 revolutions per minute corresponding to 14.66 knots.

The *Hillyer Brown* pilot was utilizing the variable range marker of the vessel's 10-centimeter radar on the 4-mile scale to assure himself that the vessel was remaining approximately 1½ miles from the western shore of Cold Bay. As the vessel progressed down the bay the master kept himself apprised of the general position of the vessel by ranging on various objects and geographical locations with the ship's 3-centimeter radar. Both the pilot and master were observing the various lighted aids

to navigation that were visible during the transit. In addition to radar ranges both men were taking bearings on both geographic points and the aids to navigation available during the transit. However, neither man obtained a visual bearing on any aid to navigation nor did they request such a bearing from any other person in the wheelhouse. As the vessel neared a point approximately 1½ miles from Kelp Point at least two of the aids to navigation were visible and three aids were discernible by radar. The two visible aids were Kaslokan Point Light and buoy No. 3. In addition the radar was able to detect buoy No. 1.

The *Hillyer Brown*'s rudder was put over "right 5°" at the same time the pilot determined that the 10-centimeter variable range ring, which was set on 1.5 miles, intersected Kelp Point. This rudder change was intended to bring the vessel around in sufficient time to steady on course 180°T for entrance into the channel. Approximately 1 minute later the pilot ordered that "right rudder" be increased to 15°. The vessel's heading at this time was 166°T and its rate of swing was 17° per minute. The rate of swing continued to accelerate until by 2119 it had reached 30° per minute. Shortly after 2119, after the vessel had achieved a heading of 220°T, the SS *Hillyer Brown* touched the bottom. The degree of this grounding became increasingly more extensive and at 2120 the vessel's master ordered "hard right rudder." Almost simultaneously with this rudder order the tanker ground to a stop and a "stop" bell was rung down to the engineroom.

The vessel was now hard aground at about dead low water and at a position approximately 0.34 mile due north of Kelp Point. Soundings taken shortly after the vessel ran aground revealed a 19-foot depth on the port side amidships, a 22-foot depth on the starboard bow, and at least 24 feet elsewhere within the sounded area. An installed fathometer was not

*oil slick spreads as strike team*

*moves to minimize damage.*

in operation during the outbound transit.

In the meantime the ship's captain began taking safety measures necessitated by his awareness of a sizable spill of light straight-run gasoline. Although it was completely dark, the presence of gasoline was obvious by the heavy accumulation of fumes. Tank ullages taken later revealed that approximately 1,004 barrels of gasoline and 3,367 barrels of diesel oil were spilled into the waters of Cold Bay, Alaska, as a result of bottom damage to the *Hillyer Brown*. Bottom damage included a hole in one tank containing gasoline and holes in three tanks containing diesel oil.

The weather conditions at the time of the grounding were generally fair with visibility estimated at 7 miles. There was a slight southerly sea and southerly winds of 20 to 25 knots with occasionally higher gusts. The tide was just at the turn with a low predicted at 2117. There was no reported current. The published range of the next floodtide was slightly over 7 feet.

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*Bottom damage included holes in one tank containing gasoline and in three tanks containing diesel oil.*

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At 0125 on 8 March the *Hillyer Brown* floated free from its grounded position. By 0200 the vessel was safely anchored 1.2 miles north of Kelp Point. At 0814 the vessel's captain concluded that the accumulation of gasoline fumes had diminished sufficiently for a radio transmission advising his employers of the casualty. This information was relayed to the Coast Guard Marine Inspection Office, Anchorage, Alaska, at 0915. This initial call merely recited the fact that the vessel was grounded. It was not until later that day that the officer in charge of Marine Inspection, Anchorage, confirmed that a major oil spill had accompanied the grounding. The presence of the oil spill was promptly relayed to the Commander, 17th Coast Guard District, whereupon Coast Guard air and surface units were dispatched to Cold Bay to determine the extent of pollution and to insure timely clean-up operations. In addition to the Coast Guard Cutters *Klamath* and *Ironwood*, elements of the Coast Guard Atlantic and Pacific Strike Force Teams were sent to Cold Bay. The Officer-in-Charge, Marine Inspection, Anchorage, was placed in overall charge as On-Scene Coordinator.

Air and ground reconnaissance discovered that the largest concentration of oil started at the anchored vessel and extended southeast into Lenard Harbor. By later afternoon of 9 March, the spill was rapidly dispersing. The continuing strong and variable winds accelerated the dissipation of the oil until by 14 March there was little evidence that any oil had been released. The only identified beach area contaminated was a section on the east side of Cold Bay. Although there is no evidence that the oil spill caused any damage to the waterfowl or sea life in Cold Bay, the long-range impact on the area cannot be predicted.

On 9 March, divers conducted a survey of the tanker to determine the location and extent of damage to the vessel's hull. This inspection revealed that the hull was breached in at least the following locations; starboard foredeep tank, forward and midships pumprooms, center cargo tanks 1 through 4, and center cargo tanks 6 through 9. With these hull breaches the extent of potential pollution was governed only by the amount of cargo in the tanks and the sealing effect of the water/oil interface. The damage to both pumprooms prevented the transfer of cargo. The inability to transfer the vessel's cargo prompted a request for a pumping system currently being developed by the Coast Guard. Two of these units, Air Deliverable Anti-Pollution Transfer Systems (ADAPTS), and one of its commercial counterparts were dispatched to the scene to effect the transfer of the vessel's cargo.

Offloading of cargo into the SS *J. L. Hanna* was completed on 18 March without incident. The transit from Cold Bay to San Francisco commenced on 22 March under the authority of a permit to proceed to another port for repairs. On 2 April the *Hillyer Brown* arrived in San Francisco where a drydock inspection was conducted.

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*Though there was no evidence of damage to wildlife in the area, the long-range impact cannot be predicted.*

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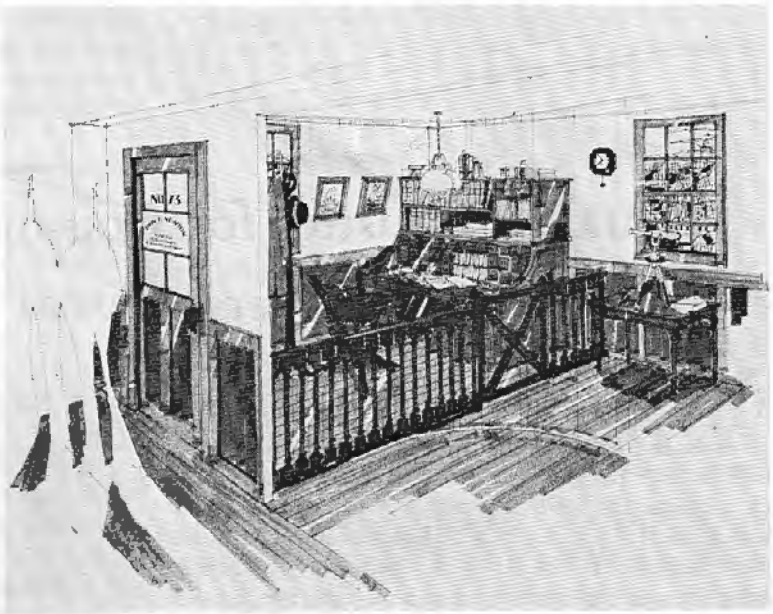
The Marine Board of Investigation concluded that the proximate cause of the grounding was faulty navigation on the part of the vessel's pilot and master. Their failure to take, or cause to have taken, visual bearings on the aids to navigation available during the vessel's transit from Cold Bay and to utilize installed sounding equipment during the same period does not reflect the prudence or competence expected of their offices.

The Board further concluded that the failure or inability of the pilot and master to properly interpret and evaluate the vessel's radar information constituted the misuse of a valuable navigational and collision avoidance aid. It was also concluded by the Board that the relatively isolated and widespread geographic area serviced by the pilots of the Alaska Marine Pilotage Corporation suggests that their organization needs to institute a more comprehensive method of monitoring safety broadcasts in order that pilots be aware of the status of aids to navigation and other safety matters. ⚓

# Marine Underwriters Display



*Artist's renderings of the 19th-century marine insurance office detail the number of artifacts used to recreate the scene properly. Each item, from desk to rug to coatrack, must be historically correct. Visitors to the Smithsonian will stand in the center part of the display, with the office in front of and on either side of them.*

A 19th-century marine underwriters office is being erected at the Smithsonian Institution in Washington, D.C., with a helping hand from the American Institute of Marine Underwriters.

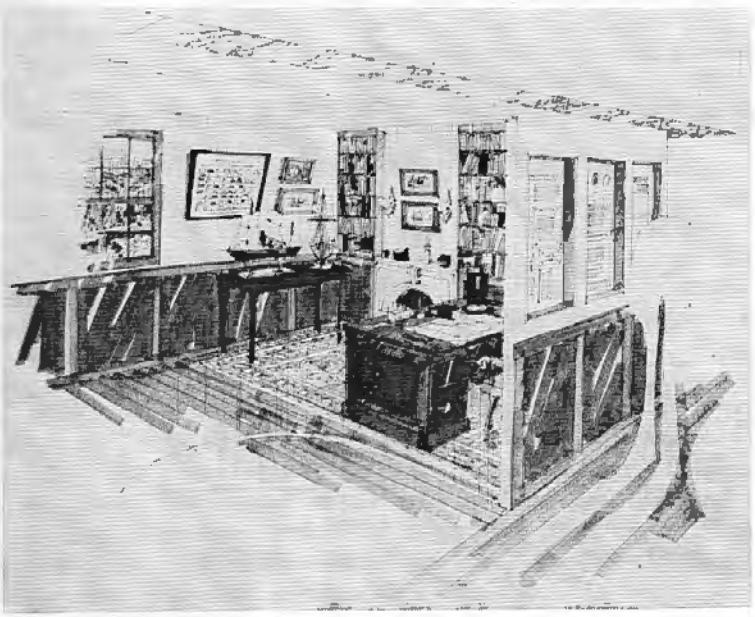
The insurance office, which will duplicate those found between 1840 and 1880, will be a part of the Hall of American Maritime Enterprise, an area of displays, exhibits, films, and models portraying the story of Americans afloat from the days of Columbus to the age of automation. (*See the April 1975 issue of the* Proceedings.)

The hall, along with its comprehensive insurance display, is expected to open its doors in time for the 1976 Bicentennial celebration. The Smithsonian estimates that some 14 million people each year will view the hall's hundreds of years of maritime history on display.

The AIMU Smithsonian Subcommittee began the task of gathering pertinent pictures, documents, furniture, and artifacts of a 19th-century provenance early this year.

However, there are still items that are needed to make it a complete office. Those companies, organizations, or brokers who would like to participate in this program are welcome to contact AIMU and discuss any materials they might have that would be appropriate.

Anyone having materials to donate should contact C. B. Mitchell at the American Institute of Marine Underwriters, 99 John Street, New York, N.Y. 20088. ⚓



# Casualty Statistics for Commercial Vessels on Western Rivers—Fiscal Year 1974

The economy of the central portion of the United States depends in large part on the vast network of inland waters which comprise the western rivers. Defined technically as the waters and tributaries of the Mississippi River between its source and the Huey P. Long Bridge just north of New Orleans, the western rivers serve as a major artery for the commercial vessel traffic of this Nation. A large percentage of this traffic is moved in barges under tow negotiating the narrow passages, tight bends, and congested areas of this river system.

These physical conditions expose the vessels operating on the western rivers to hazards not normally encountered by vessel traffic on the open seas. To better evaluate the impact these unique conditions have on commercial vessel traffic, the Office of Merchant Marine Safety, U.S. Coast Guard began an annual summarization of casualty data on western rivers in fiscal year 1972. The results of that summary were published in the November 1973 issue of the *Proceedings* and fiscal year 1973 statistics were published in the August 1974 issue of the *Proceedings*.

| Primary Cause | Type of Casualty | | | | | | |
|---|---|---|---|---|---|---|---|
| | Collisions, vessels | Rammings, fixed objects, piers, bridges | Collisions, other | Explosions, fires | Groundings | Material failure | Founderings, capsizings, other |
| Personnel fault | 63 | 114 | 7 | 4 | 33 | 2 | 12 |
| Equipment failure | 9 | 5 | 0 | 8 | 3 | 21 | 5 |
| Floating debris | 0 | 2 | 13 | 0 | 0 | 1 | 3 |
| Barge breakaway | 8 | 7 | 1 | 0 | 0 | 1 | 7 |
| Unusual current | 2 | 7 | 0 | 0 | 0 | 0 | 0 |
| Other causes | 12 | 15 | 5 | 6 | 19 | 14 | 18 |
| Number of casualties | 94 | 150 | 26 | 18 | 55 | 39 | 45 |

FIGURE 1.—*Vessel Casualties, Western Rivers, Fiscal Year 1974.*

| Primary Cause | Type of Casualty | | | | | | |
|---|---|---|---|---|---|---|---|
| | Collisions, vessels | Rammings, fixed objects, piers, bridges | Collisions, other | Explosions, fires | Groundings | Material failure | Founderings, capsizings, other |
| Personnel fault | 16 | 2 | 2 | 0 | 6 | 0 | 1 |
| Equipment failure | 4 | 1 | 0 | 1 | 1 | 3 | 0 |
| Floating debris | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| Barge breakaway | 3 | 2 | 0 | 0 | 0 | 0 | 1 |
| Unusual current | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other causes | 6 | 0 | 1 | 0 | 7 | 2 | 1 |
| Number of casualties | 29 | 5 | 5 | 1 | 14 | 5 | 4 |

FIGURE 2.—*Vessel Casualties, 110 ≤LMR 230, Fiscal Year 1974.*

The information on which those statistical summaries were based came from the reports which owners or operators are required to file with the Coast Guard in the event of a marine casualty. As defined by 46 CFR 4.05–1, a marine casualty results when any of the following occurs:

(a) Actual physical damage to property in excess of $1,500.
(b) Material damage affecting the seaworthiness or efficiency of a vessel.
(c) Stranding or grounding.
(d) Loss of life.
(e) Injury causing any persons to remain incapacitated for a period in excess of 72 hours; except injury to harbor workers not resulting in death and not resulting from vessel casualty or vessel equipment casualty.

Similar information compiled during fiscal year 1974 is displayed in the statistical tables that appear in this article. It should be noted, however, that unfamiliarity with the above requirements or the failure to report cas-

ualties results in a number of casualties that go unrecorded every year. The order of credibility of the data, therefore, is perhaps (d), (e), (b), (a), and (c). Thus there needs to be some multiplication applied to the lower order to gain a representative figure.

The casualty data were segregated by rivers in the following manner:

(a) Figure 1: Composite of all casualties on the western rivers, fiscal year 1974.
(b) Figure 2: Casualties on the Lower Mississippi River above the Huey P. Long Bridge to mile 230.
(c) Figure 3: Casualties on the Lower Mississippi River above mile 230, Upper Mississippi to mile 190, Arkansas River.
(d) Figure 4: Casualties on the Ohio River, Allegheny River, Monongahela River, Kanawaha River, Kentucky River, Green River, Cumberland River, and Tennessee River.
(e) Figure 5: Casualties on the Missouri River, Illinois River, Upper Mississippi River above mile 190.

Each of the matrices displays the type of casualty across the top and the primary cause of the casualty along the left margin. When a vessel casualty is reviewed, the vessel most at fault is coded as the primary vessel in the case. The cause recorded for each entry of these tables is the cause attributed to the primary vessel of that particular casualty. For example, as figure 1 shows, in 9 of the 94 vessel collisions the vessel most at fault was involved because of equipment failure.

| Primary Cause | Type of Casualty | | | | | | |
|---|---|---|---|---|---|---|---|
| | Collisions, vessels | Rammings, fixed objects, piers, bridges | Collisions, other | Explosions, fires | Groundings | Material failure | Founderings, capsizings, other |
| Personnel fault | 31 | 15 | 4 | 2 | 10 | 1 | 8 |
| Equipment failure | 3 | 0 | 0 | 2 | 1 | 2 | 3 |
| Floating debris | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| Barge breakaway | 4 | 2 | 0 | 0 | 0 | 0 | 4 |
| Unusual current | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Other causes | 3 | 2 | 2 | 3 | 8 | 2 | 6 |
| Number of casualties | 42 | 20 | 10 | 7 | 19 | 5 | 21 |

FIGURE 3.—*Vessel Casualties, LMR≧ 230–UMR <190—Arkansas River, Fiscal Year 1974.*

| Primary Cause | Type of Casualty | | | | | | |
|---|---|---|---|---|---|---|---|
| | Collisions, vessels | Rammings, fixed objects, piers, bridges | Collisions, other | Explosions, fires | Groundings | Material failure | Founderings, capsizings, other |
| Personnel fault | 11 | 51 | 0 | 0 | 5 | 1 | 1 |
| Equipment failure | 0 | 2 | 0 | 2 | 0 | 2 | 0 |
| Floating debris | 0 | 0 | 3 | 0 | 0 | 1 | 0 |
| Barge breakaway | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| Unusual current | 1 | 3 | 0 | 0 | 0 | 0 | 0 |
| Other causes | 3 | 9 | 1 | 1 | 0 | 1 | 1 |
| Number of casualties | 16 | 66 | 5 | 3 | 5 | 5 | 3 |

FIGURE 4.—*Vessel Casualties, Missouri River–Illinois River—UMR≧190, Fiscal Year 1974.*

To find the total number of casualties of each type described refer to the bottom row in each figure titled "Number of Casualties." Figure 1, for example, shows that during fiscal year 1974 there were 55 reported groundings and 18 explosions and fires.

As these figures indicate, collisions were the most frequent type of casualty on the western rivers in fiscal year 1974, rammings of fixed objects, piers, and bridges (150) being the largest category and vessel collisions (94) being the next largest. The majority of rammings of fixed objects occurred on the waters outlined in figures 4 and 5 while vessel collisions occurred primarily on the waters described in figures 2 and 3.

The histograms in figures 6 through 9 display the monthly distribution of casualties on specified segments of the western rivers. It is apparent in figure 6 that the majority of casualties on the LMR between the Huey P. Long Bridge and Baton Rouge occurred between December and May with December, January, and February accounting for 42 percent of the incidents. Casualties displayed in figure 7 began an increasing trend in August, reached a peak in December and then steadily declined until May, while casualties in figure 8 reached a low in December and then began an increasing trend which continued through the balance of the fiscal year. The trend pictured in figure 9 is similar to figure 6 and 7, peaking in the middle of the year, declining and then increasing again at the end of the fiscal year.

| Primary Cause | Type of Casualty | | | | | | |
|---|---|---|---|---|---|---|---|
| | Collisions, vessels | Rammings, fixed objects, piers, bridges | Collisions, other | Explosions, fires | Groundings | Material failure | Founderings, capsizings, other |
| Personnel fault | 5 | 46 | 1 | 2 | 12 | 0 | 2 |
| Equipment failure | 2 | 2 | 0 | 3 | 1 | 14 | 2 |
| Floating debris | 0 | 2 | 4 | 0 | 0 | 0 | 2 |
| Barge breakaway | 0 | 2 | 0 | 0 | 0 | 1 | 1 |
| Unusual current | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| Other causes | 0 | 4 | 1 | 2 | 4 | 9 | 10 |
| Number of casualties | 7 | 59 | 6 | 7 | 17 | 24 | 17 |

FIGURE 5.—*Vessel Casualties, Ohio and Tributaries, Fiscal Year 1974.*

During fiscal year 1974, nine deaths and four injuries resulted from casualties on the western rivers, of which six deaths and three injuries were due to collisions. Table A list the estimated dollar damage to vessels, cargo, and property resulting from casualties reported in fiscal year 1974.

The 1974 statistics were also analyzed to determine the monthly distribution of casualties on specific portions of the western rivers. The majority of casualties on the Lower Mississippi River between the Huey P. Long Bridge and Baton Rouge, for example, occurred between December and May with December, January, and February accounting for nearly half of the total incidents. Casualties on the Lower Mississippi River above mile 230 and below mile 190 on the Upper Mississippi River, and on the Arkansas River, began an increasing trend in August, reached a peak in December and then steadily declined until May.

On the Missouri, Illinois, and Upper Mississippi Rivers above mile 190, casualties reached a low in December and then rose steadily until the end of the fiscal year. The casualty pattern on the Ohio and tributaries was similar to that of the Lower Mississippi—peaking in January, declining in the spring months, and rising again in June.

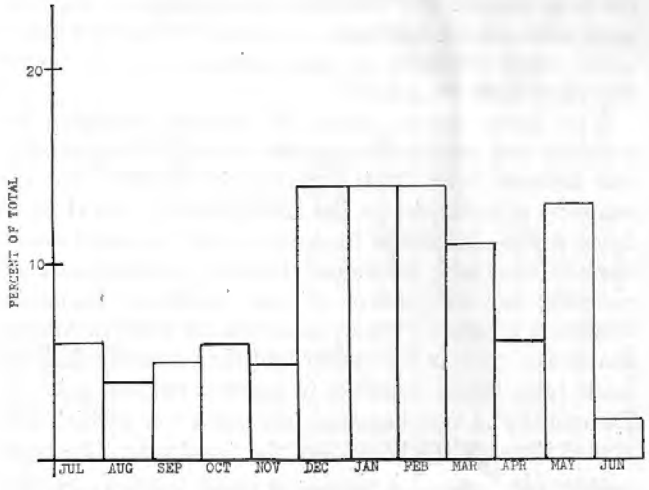



FIGURE 6.—*Monthly Distribution of Casualties, 110≦ LMR <230, fiscal year 1974.*

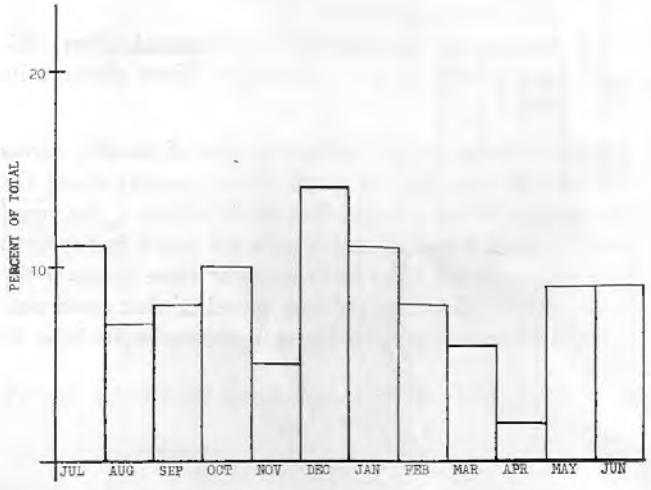



FIGURE 7.—*Monthly Distribution of Casualties, LMR≧ 230–UMR <190–Arkansas R., fiscal year 1974.*

One of the primary missions of the Coast Guard is the protection of life and property in marine commerce or recreation. Casualty records are continuously reviewed as a part of the effort to make the U.S. merchant fleet the safest in the world. Only with the cooperation of owners and operators in insuring that all marine casualties are reported can that mission be effectively accomplished.

This statistical summary encompasses a great deal of information which could lead to erroneous conclusions unless the limitations of the data are well understood. Any questions on the source or presentation of this material should be directed to Commandant (G–MIS/83) U.S. Coast Guard, Washington, D.C. 20590.

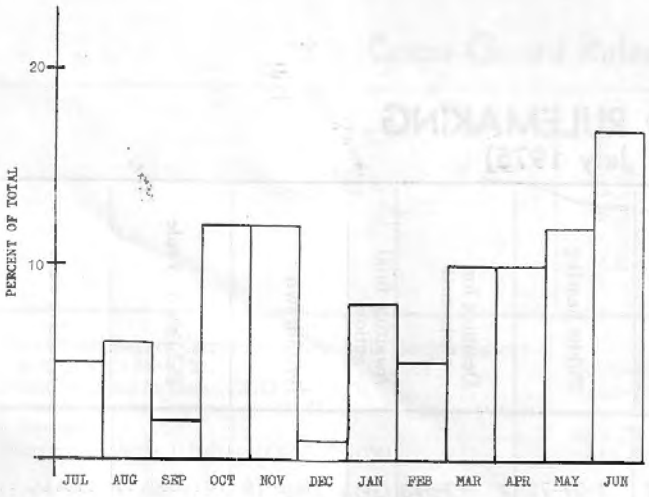



FIGURE 8.—*Monthly Distribution of Casualties, Missouri River–Illinois River–UMR≧190, fiscal year 1974.*

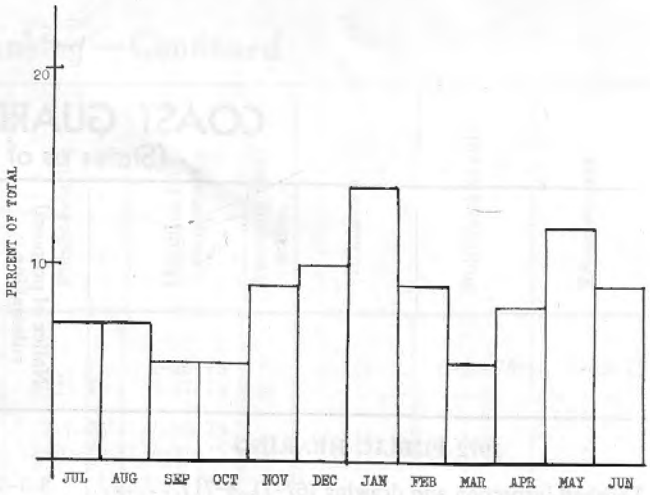



FIGURE 9.—*Monthly Distribution of Casualties, Ohio and Tributaries, fiscal year 1974.*

## TABLE A.—ESTIMATED DOLLAR LOSSES—WESTERN RIVERS FOR FY 1974

[In Thousands of Dollars]

| | Vessel | Cargo | Property |
|---|---|---|---|
| Ohio | 1,022 | 157 | 475 |
| Allegheny | 6 | 15 | 0 |
| Monongahela | 268 | 41 | 2 |
| Kanawaha | 1 | 4 | 3 |
| Kentucky | 0 | 0 | 0 |
| Green | 0 | 0 | 0 |
| Cumberland | 23 | 0 | 21 |
| Tennessee | 1,124 | 4 | 78 |
| Subtotal | 2,444 | 221 | 579 |
| Missouri | 160 | 19 | 40 |
| Illinois | 537 | 4 | 267 |
| UMR≥190 | 930 | 796 | 469 |
| Subtotal | 1,627 | 819 | 776 |
| LMR≥230 | 4,270 | 1,938 | 606 |
| UMR<190 | 582 | 81 | 109 |
| Arkansas | 258 | 0 | 2 |
| Subtotal | 5,110 | 2,019 | 717 |
| 110≤LMR<230 | 2,009 | 389 | 581 |
| Total | 11,190 | 3,448 | 2,653 |

# COAST GUARD RULEMAKING
## (Status as of 1 July 1975)

| | Notice of proposed rulemaking | Public hearing | Deadline for comments | Awaiting final action | Withdrawn | Published as rule | Effective date |
|---|---|---|---|---|---|---|---|
| **1972 PUBLIC HEARING** | | | | | | | |
| Tailshaft inspection and drawing (67-71, 4-71) | 3-1-72 | 3-27-72 | 4-3-72 | .... | 6-2-75 | ..... | ..... |
| **ANCHORAGE REGULATIONS** | | | | | | | |
| Los Angeles & Long Beach Harbors, CA (CGD 75-022) | 2-4-75 | ..... | 3-7-75 | X | ..... | ..... | ..... |
| **BOATING SAFETY** | | | | | | | |
| Lifesaving devices on white water canoes & kayaks (CGD 74-159) comment period extended 6-12-75 | 2-4-75 | ..... | 7-15-75 | .... | ..... | ..... | ..... |
| Safe loading and safe powering standards (CGD 73-250) | 3-6-75 | ..... | 4-21-75 | .... | ..... | ..... | ..... |
| Inboard safe loading standard (CGD 74-83) | 3-6-75 | ..... | 4-21-75 | .... | ..... | ..... | ..... |
| **BRIDGE REGULATIONS** | | | | | | | |
| Cheesequake Ck., NJ (CGD 73-162) | 8-10-73 | ..... | 9-11-73 | X | ..... | ..... | ..... |
| AIWW, Mile 342, Lauderdale By The Sea, FL (CGD 74-180) | 8-7-74 | ..... | 9-6-74 | .... | ..... | 5-5-75 | 6-9-75 |
| Chesapeake & Del. Canal, Del. (CGD 74-72) | 3-29-74 | ..... | 4-30-74 | .... | ..... | 5-5-75 | 6-2-75 |
| Chicago River, IL (CGD 74-137) | 6-3-74 | ..... | 7-16-74 | X | ..... | ..... | ..... |
| AIWW, Hallandale, FL (CGD 74-257) | 11-5-74 | ..... | 12 -5-74 | X | ..... | ..... | ..... |
| North Miami Beach, FL (CGD 75-013) | 1-21-75 | ..... | 2-21-75 | .... | ..... | 5-13-75 | 6-16-75 |
| Coney Island Creek, NY (CGD 74-300) | 1-29-75 | ..... | 3-4-75 | X | ..... | ..... | ..... |
| Matanzas River, FL (CGD 75-024) | 1-29-75 | ..... | 3-4-75 | X | ..... | ..... | ..... |
| Fox River, WI (CGD 75-035) | 2-6-75 | ..... | 3-7-75 | X | ..... | ..... | ..... |
| Oklawaha River, FL (CGD 75-062) | 3-27-75 | ..... | 4-29-75 | X | ..... | ..... | ..... |
| Mystic River, MA (CGD 75-053) | 3-27-75 | ..... | 4-29-75 | X | ..... | ..... | ..... |
| West Palm Beach Canal, FL (CGD 75-070) | 3-27-75 | ..... | 4-29-75 | X | ..... | ..... | ..... |
| Illinois River, IL (CGD 75-060) | 4-1-75 | ..... | 5-6-75 | X | ..... | ..... | ..... |
| Kent Narrows, MD (CGD 75-081) | 4-1-75 | ..... | 5-6-75 | X | ..... | ..... | ..... |
| Passaic River, NJ (CGD 75-052) | 4-4-75 | ..... | 5-6-75 | X | ..... | ..... | ..... |
| Back Bay of Biloxi, MS (CGD 75-088) | 4-30-75 | ..... | 6-10-75 | X | ..... | ..... | ..... |
| Lake Okeechobee, FL (CGD 75-076) | 4-30-75 | ..... | 5-29-75 | X | ..... | ..... | ..... |
| Peace River, FL (CGD 75-086) | 4-30-75 | ..... | 6-3-75 | X | ..... | ..... | ..... |
| Snake R. & Clearwater R., Lewiston ID & Clarkston, WA (CGD 75-099) | 4-30-75 | ..... | 6-10-75 | X | ..... | ..... | ..... |
| Coosaw R., FL (CGD 75-087) | 5-5-75 | ..... | 6-9-75 | X | ..... | ..... | ..... |
| Duwamish Waterway, WA (CGD 75-097) | 5-13-75 | ..... | 6-30-75 | X | ..... | ..... | ..... |
| Escatawpa R., MS (CGD 75-114) | 6-9-75 | ..... | 7-8-75 | .... | ..... | ..... | ..... |
| Gulf Intracoastal Waterway, LA (CGD 75-131) | 6-18-75 | ..... | 7-22-75 | .... | ..... | ..... | ..... |
| **HAZARDOUS MATERIALS** | | | | | | | |
| Miscellaneous Dangerous Cargoes (CGD 72-182) | 11-11-72 | 12-12-72 | 12-29-72 | X | ..... | ..... | ..... |
| Dangerous Cargo Regulations, miscellaneous (CGD 73-249) | 1-16-74 | ..... | 3-4-74 | .... | ..... | 6-18-75 | 9-17-75 |
| Sodium sulfide solution and sulfur dioxide (CGD 73-275) | 7-16-74 Corrected 9-5-74 | ..... | 12-5-74 | X | ..... | ..... | ..... |
| Vinyl chloride (CGD 74-167); supplementary notice 9-19-74 | 7-23-74 | 8-15-74 | 9-6-74 | .... | ..... | 4-16-75 | 7-16-75 |

# Coast Guard Rulemaking—Continued

| | Notice of proposed rulemaking | Public hearing | Deadline for comments | Awaiting final action | Withdrawn | Published as rule | Effective date |
|---|---|---|---|---|---|---|---|
| Unmanned barges carrying certain bulk dangerous cargoes (CGD 74–275) | 1–15–75 | ..... | 2–28–75 | .... | ..... | 5–20–75 | 8–18–75 |
| Unslaked lime in bulk (CGD 74–225) | 1–29–75 | 2–25–75 | 3–17–75 | X | ..... | ..... | ..... |
| Portable tanks, proposed DOT specification (CGD 74–292) | 6–9–75 | 7–1–75 | 7–16–75 | .... | ..... | ..... | ..... |
| Dangerous cargo labeling (CGD 75–050) | 6–18–75 | 7–16–75 | 7–31–75 | .... | ..... | ..... | ..... |
| **MARINE ENVIRONMENT AND SYSTEMS (GENERAL)** | | | | | | | |
| Pipelines, lights to be displayed (CGD 73–216) | 9–19–74 Corrected 10–18–74 | 10–21–74 | 11–4–74 | X | ..... | ..... | ..... |
| Oil and hazardous substance liability (CGD 73–185) | 12–4–74 | ..... | 1–16–75 | X | ..... | ..... | ..... |
| Mooring barges on the Mississippi (CGD 74–185) | 2–4–75 | 2–19–75 New Orleans | 3–17–75 | X | ..... | ..... | ..... |
| Security zone, New London Harbor, CT (CGD 74–188) | 3–12–75 | ..... | 4–14–75 | X | ..... | ..... | ..... |
| Great Lakes radiotelephone exemption (CGD 74–304) | 3–25–75 | 4–9–75 Cleveland | 4–24–75 | .... | ..... | 5–5–75 | 5–6–75 |
| Deepwater ports (CGD 75–002); corrected 5–19–75 | 5–7–75 | 6–6–75 | 6–23–75 | X | ..... | ..... | ..... |
| Demarcation line, Guayanilla Bay, PR (CGD 73–287) | 6–18–75 | ..... | 8–4–75 | .... | ..... | ..... | ..... |
| **MERCHANT MARINE SAFETY (GENERAL)** | | | | | | | |
| Oceanographic vessels, fire main systems (CGFR 72–20) | 2–4–72 | ..... | 3–19–72 | .... | 6–12–75 | ..... | ..... |
| Bulk Dangerous Cargoes, Inspection of Barges (CGD 73–271) | 3–11–74 | 4–15–74 | 4–30–74 | X | ..... | ..... | ..... |
| First Aid Certificates (CGD 73–272) | 4–2–74 | ..... | 6–15–74 | X | ..... | ..... | ..... |
| Carriage of Solid Hazardous Materials in Bulk (CGD 74–13) | 5–15–74 | 7–16–74 | 8–31–74 | X | ..... | ..... | ..... |
| Tank vessels in domestic trade (CGD 74–32) | 6–28–74 Corrected 7–23–74 | 7–23–74 Seattle 7–30–74 Wash. D.C. | 8–19–74 | X | ..... | ..... | ..... |
| Welding and brazing; adoption of ASME Code (CGD 74–102) | 9–26–74 Corrected 11–1–74 | ..... | 11–11–74 | .... | ..... | 6–30–75 | 7–29–75 |
| Load line regulations, rail height adjustment (CGD 74–164) | 10–4–74 | ..... | 11–15–74 | X | ..... | ..... | ..... |
| Construction and equipment of tank vessels (CGD 74–127); advance notice 9–5–74 | 4–21–75 | 5–21–75 | 6–5–75 | X | ..... | ..... | ..... |
| Great Lakes pilotage (CGD 74–233) | 11–5–74 | 11–20–74 | 11–26–74 | X | ..... | ..... | ..... |
| Manning of nautical school ships (CGD 74–201) | 1–21–75 | ..... | 3–6–75 | X | ..... | ..... | ..... |
| Licensing and certificating; apprentice mate endorsement (CGD 74–226); Comment period extended 3–7–75 | 1–23–75 | ..... | 4–9–75 | X | ..... | ..... | ..... |
| Marine engineering systems and components; miscellaneous amendments (CGD 73–254); corrected 5–6–75 | 4–3–75 | 5–7–75 | 5–15–75 | X | ..... | ..... | ..... |
| Bulk grain cargoes; intact stability requirements (CGD 74–182) | 4–17–75 | ..... | 5–31–75 | X | ..... | ..... | ..... |
| Oceanographic vessels (CGD 75–031) | 6–12–75 | ..... | 7–28–75 | .... | ..... | ..... | ..... |

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.

# *Nautical Queries*

This month's questions are selected from the specimen examinations for uninspected towing vessel operators (CG–182-1).

## General

1. Compare a twin screw tug to a single screw tug. All of the following are true concerning the twin screw tug EXCEPT:
   A. The failure of one engine does not mean loss of control of the tow.
   B. It is more maneuverable.
   C. It develops more bollard pull.
   D. It is generally subject to more propeller damage from debris in the water.

2. What could cause the water to boil up around a tow underway in a buoyed channel?
   A. a strong head current.
   B. a sudden cross current.
   C. a swift following current.
   D. shallow water.

3. A buoy in shallow water
   A. stands straighter than normal.
   B. tends to lay over sideways.
   C. bobs up and down more than usual.
   D. will be floating very low in the water.

4. To determine if a $CO_2$ fire extinguisher is fully charged, you would
   A. operate the trigger valve.
   B. weigh the extinguisher.
   C. test with a pressure gauge.
   D. read the date of last test.

5. If there is any doubt as to the proper operation of a radar, which of the following is true?
   A. Only a radar expert can determine if the radar is operating.
   B. All radars have indicator lights and alarms to signal improper operation.
   C. A radar range compared to the actual range to a known object can be used to check the operation of the radar.
   D. The radar resolution detector must be energized to check the radar.

6. A solid red buoy may show which of the following colored lights?
   A. red only
   B. white only
   C. either red or white
   D. green

## Rules of the Road

1. While underway at night your vessel suffers an engine failure. What lights should your vessel display to indicate that it is not under command?
   A. the anchor lights
   B. three red lights in a vertical line
   C. two red lights in a vertical line
   D. the side lights and stern light only

2. What action should you take when approaching a bend in a channel, where due to the height of the bank, you cannot see around the other side?
   A. Keep to the outside of the bend so as to be able to see any other vessel as soon as possible.
   B. Stay in the middle of the channel.
   C. Sound passing signals to any vessel that may be on the other side of the bend.
   D. Sound a whistle blast of at least 8 seconds duration.

3. While underway in fog you hear two short and one long blast on a whistle. This is a fog signal for a
   A. vessel or barge being towed.
   B. dredge moored in the vicinity of a channel.
   C. vessel underway, towing.
   D. vessel underway, not towing.

## Safety

1. A tank barge containing carbon tetrachloride is dangerous because the cargo reacts when exposed to fire by
   A. exploding.
   B. burning so hot that it will melt most metals.
   C. forming poisonous phosgene gas when in contact with hot metal.
   D. forming an acid which would cause extensive damage to the environment if it leaked into the water.

2. You are the operator of a towing vessel and you are purchasing an additional portable dry chemical extinguisher to be installed on board. Which of the following is correct? The extinguisher must be
   1. fitted with a pressure gauge or other indicating device.
   2. labeled with a marine type label.
   A. 1 only
   B. 2 only
   C. both 1 and 2
   D. neither 1 nor 2

## Navigation

1. To obtain a general description of each of the Great Lakes and Rivers you would use
   A. Coast Guard Light List, Volume IV.
   B. The Seaway Handbook.
   C. Great Lakes Pilot.
   D. St. Lawrence Seaway Masters' Handbook.

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## Answers

General
1. C 2. D 3. B 4. B 5. C 6. C

Rules of the Road
1. C 2. D 3. D

Safety
1. C 2. C

Navigation
1. C

# 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 Saturday, Sunday, and 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 $5.00 per month or $45 per year, payable in advance. The charge for individual copies is 75 cents for each issue, or 75 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.

| CG No. | TITLE OF PUBLICATION |
|---|---|
| 101 | Specimen Examinations for Merchant Marine Deck Officers (Chief Mate and Master) (1–1–74). |
| 101–1 | Specimen Examinations for Merchant Marine Deck Officers (2d and 3d mate) (10–1–73). |
| 108 | Rules and Regulations for Military Explosives and Hazardous Munitions (4–1–72). F.R. 7–21–72, 12–1–72, 11–14–74, 6–18–75. |
| 115 | Marine Engineering Regulations (6–1–73). F.R. 6–29–73, 3–8–74, 5–30–74, 6–25–74, 8–26–74, 6–30–75. |
| 123 | Rules and Regulations for Tank Vessels (1–1–73). F.R. 8–24–73, 10–3–73, 10–24–73, 2–28–74, 3–18–74, 5–30–74, 6–25–74, 1–15–75, 2–10–75, 4–16–75, 4–22–75, 5–20–75, 6–11–75. |
| 169 | Rules of the Road—International—Inland (8–1–72). F.R. 9–12–72, 3–29–74, 6–3–74, 11–27–74, 4–28–75. |
| 172 | Rules of the Road—Great Lakes (7–1–72). F.R. 10–6–72, 11–4–72, 1–16–73, 1–29–73, 5–8–73, 3–29–74, 6–3–74, 11–27–74, 4–16–75, 4–28–75. |
| 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 (3–1–73). |
| *176 | Load Line Regulations (2–1–71). F.R. 10–1–71, 5–10–73, 7–10–74. |
| 182 | Specimen Examinations for Merchant Marine Engineer Licenses (1–1–74). |
| 182–1 | Specimen Examinations for Merchant Marine Engineer Licenses (2d and 3d Assistant) (10–1–73). |
| 184 | Rules of the Road—Western Rivers (8–1–72). F.R. 9–12–72, 5–8–73, 6–27–73, 6–28–73, 3–29–74, 6–3–74, 11–27–74, 4–16–75, 4–28–75. |
| 190 | Equipment List (8–1–72). F.R. 8–9–72, 8–11–72, 8–21–72, 9–14–72, 10–19–72, 11–8–72, 12–5–72, 1–15–73, 2–6–73, 2–26–73, 3–27–73, 4–3–73, 4–26–73, 6–1–73, 8–1–73, 10–5–73, 11–26–73, 1–17–74, 2–28–74, 3–25–74, 4–17–74, 7–2–74, 7–17–74, 9–5–74, 10–22–74, 11–27–74, 12–3–74, 12–30–74, 1–15–75, 1–21–75, 2–13–75, 2–19–75, 3–18–75, 3–19–75, 4–9–75, 4–16–75, 5–1–75, 5–7–75, 6–2–75, 6–25–75. |
| 191 | Rules and Regulations for Licensing and Certification of Merchant Marine Personnel (6–1–72). F.R. 12–21–72, 3–2–73, 3–5–73, 5–8–73, 5–11–73, 5–24–73, 8–24–73, 10–24–73, 5–22–74, 9–26–74, 3–27–75, 6–2–75. |
| *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, 4–24–73, 11–26–73, 12–17–73, 9–17–74, 3–27–75. |
| *227 | Laws Governing Marine Inspection (3–1–65). |
| 239 | Security of Vessels and Waterfront Facilities (5–1–74). F.R. 5–15–74, 5–24–74, 8–15–74, 9–5–74, 9–9–74, 12–3–74, 1–6–75, 1–29–75, 4–22–75. |
| 257 | Rules and Regulations for Cargo and Miscellaneous Vessels (4–1–73). F.R. 6–28–73, 6–29–73, 8–1–73, 10–24–73, 3–18–74, 5–30–74, 6–25–74, 1–15–75, 2–10–75. |
| *258 | Rules and Regulations for Uninspected Vessels (5–1–70). F.R. 1–8–73, 3–28–73, 1–25–74, 3–7–74. |
| 259 | Electrical Engineering Regulations (6–1–71). F.R. 3–8–72, 3–9–72, 8–16–72, 8–24–73, 11–29–73, 4–22–75. |
| *266 | Rules and Regulations for Bulk Grain Cargoes (5–1–68). F.R. 12–4–69. |
| 268 | Rules and Regulations for Manning of Vessels (12–1–73). |
| 293 | Miscellaneous Electrical Equipment List (7–2–73). |
| 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) (9–1–73). F.R. 1–25–74, 3–18–74, 9–20–74, 2–10–75. |
| 329 | Fire Fighting Manual for Tank Vessels (1–1–74). |
| 439 | Bridge-to-Bridge Radiotelephone Communications (12–1–72), 12–28–72, 5–5–75. |
| 467 | Specimen Examinations for Uninspected Towing Vessel Operators (10–1–74). |

## CHANGES PUBLISHED DURING JUNE 1975

The following have been modified by Federal Registers:

CG–108, Federal Register of June 18
CG–115, Federal Register of June 30
CG–123, Federal Register of June 11
CG–190, Federal Registers of June 2 & 25
CG–191, Federal Registers of June 2 & 26

*Due to budget constraints or major revision projects, publications marked with an asterisk are out of print. Most of these pamphlets reprint portions of Titles 33 and 46, Code of Federal Regulations, which are available from the Superintendent of Documents. Consult your local Marine Inspection Office for information on availability and prices.


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