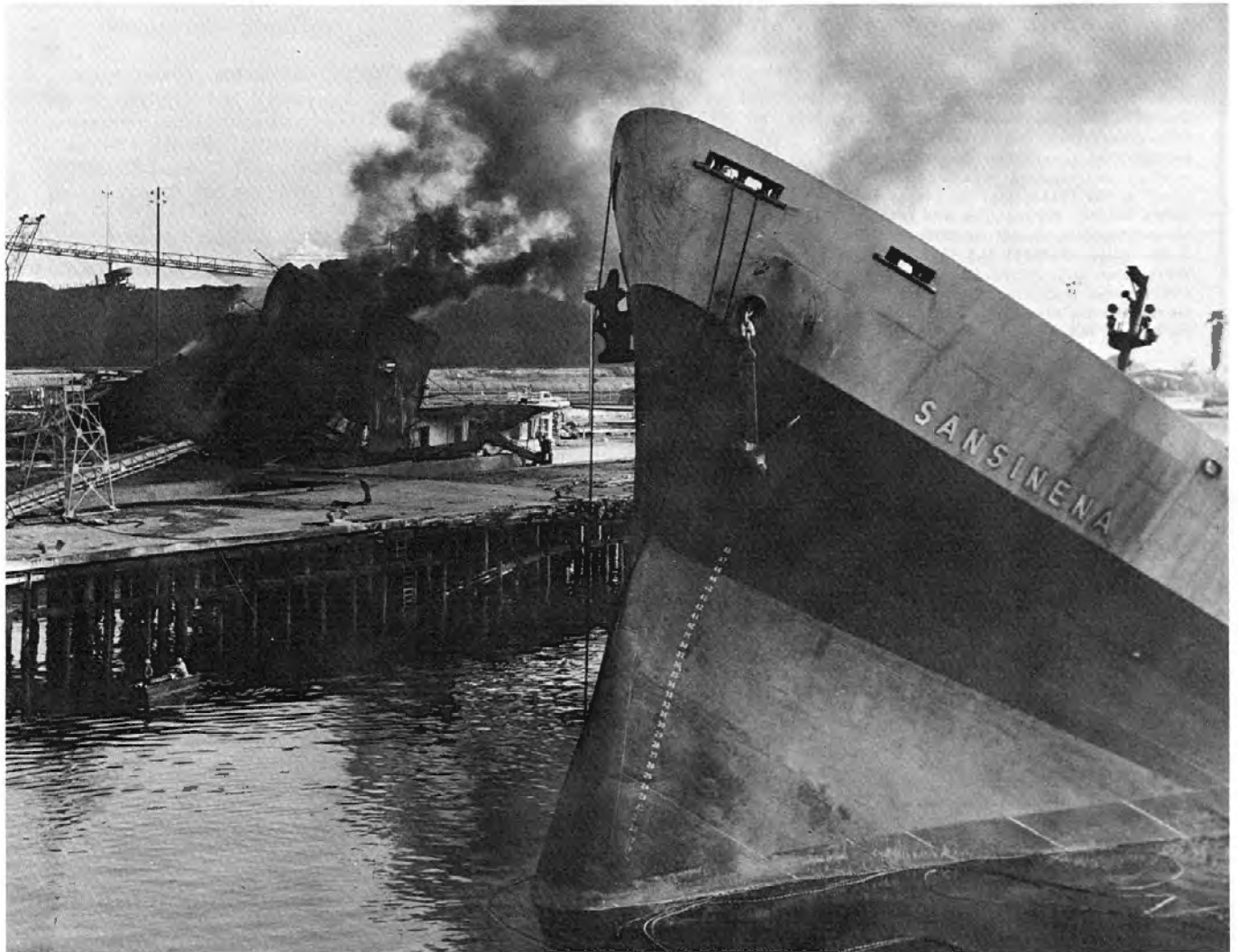


PROCEEDINGS **OF THE MARINE SAFETY COUNCIL**



DEPARTMENT OF TRANSPORTATION

UNITED STATES COAST GUARD

Vol. 35, No. 3

CG-129

March 1978

PROCEEDINGS

OF THE MARINE SAFETY COUNCIL

Published monthly by the Commandant, USCG, in the interest of safety at sea under the auspices of the Marine Safety Council. Special permission for republication, either in whole or in part, with the exception of copyrighted articles or artwork, is not required provided credit is given to the Proceedings of the Marine Safety Council. All inquiries and requests for subscriptions should be addressed to Commandant (G-CMC), U.S. Coast Guard, Washington, D.C. 20590. Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget, March 12, 1974.

Admiral O. W. Siler, USCG
Commandant

The Marine Safety Council of The United States Coast Guard

Rear Admiral G. H. P. Bursley, USCG
Chief Counsel, Chairman

Rear Admiral W. M. Benkert, USCG
Chief, Office of Merchant Marine Safety,
Member

Rear Admiral David F. Lauth, USCG
Chief, Office of Boating Safety, Member

Rear Admiral A. Fugaro, USCG
Chief, Office of Marine Environment and
Systems, Member

Rear Admiral N. C. Venzke, USCG
Chief, Office of Operations, Member

Rear Admiral B. L. Stabile, USCG
Chief, Office of Engineering, Member

Rear Admiral R. H. Wood, USCG
Chief, Office of Public and International
Affairs, Member

Captain G. Kirk Greiner, Jr., USCG
Executive Secretary

Lt. Commander W. L. Engelson, USCG
Deputy Executive Secretary

Angus C. McDonald
Editor

CONTENTS

FEATURE

Statistics of Casualties, 1977 36

DEPARTMENTS

Maritime Sidelights 35
Publications 43

COVER

The explosion of the SS Sansenina at San Pedro, California, December 17, 1976, was one of the more spectacular vessel casualties occurring during Fiscal Year 1977. It was also one of the most costly in terms of lives lost, injuries, and property damage.

Dramatic cases such as this, however, normally account for only a small portion of the deaths, injuries, and property losses suffered each year. Although they are widely publicized - often eventually leading to legislative or regulatory action looking toward prevention of their recurrence - they represent only a part of the picture. The overall picture can be presented only in numbers, which is the reason for the statistical summaries compiled each year by the Coast Guard and published in the Proceedings.

Interestingly, the figures show that there were about 15 percent fewer vessel casualties during this past year, with a decrease in deaths, injuries, and dollar losses from the previous year. The only exception was in the area of personnel injuries not caused by a vessel casualty.

DIST. (SDL No. 106)
A: acde(2); fghklmntuv(1)
B: n(50); c(16); e(5); f(4);
ghj(3); r(2); bkipq(1)
C: eglmp(1)
D: i(5); adgklm(1) .
E: mn(1)
F: kp(1)
Lists TCG-06, CG-13

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

maritime sidelights

POLLUTION REPORTING

Coast Guard pollution regulations require that when oil or a hazardous substance has been discharged into the navigable waters of the United States, the person in charge of the responsible vessel or facility must notify the Coast Guard immediately. Failure to report an incident can result in a fine of up to \$10,000, or imprisonment up to 1 year, or both.

The simplest and preferred way of reporting pollution incidents is by calling the toll-free number of the National Response Center. The Center, located at Coast Guard Headquarters in Washington, is manned 24 hours a day. It is specially equipped and staffed to facilitate reporting and to ensure the timely response necessary to minimize environmental damage.

To make a report to the National Response Center, dial:

800-424-8802

A FEW WORDS FROM A STATISTIC

Some time ago, we received the following letter from a reader serving on board a Military Sealift Command vessel.

It happens that this reader, as a result of the incident he describes, also appears elsewhere in this issue - as a number in the annual compilation of casualty statistics.

Dear Sir:

After reading an issue of "Proceedings of the Marine Safety Council," and the lists of shipboard accidents and their causes, I took it upon myself to write to you of a recent accident sus-

tained by myself, which may shed some newlight on future proceedings.

This accident was close to being fatal and happened enroute to Japan - midway from Pearl Harbor.

We (deck department) were all working on the foredeck painting cargo pipes midships. All day long we were taking on small seas from rather large northern swells. Most of them just lapped over the deck. Since there was little or no wind and it was a bright sunny day, no one paid much attention to the swells. These swells came from a typhoon operating in the north area.

I was walking aft from the paint locker in the fo'c'sle head and had reached around midships when a particularly large swell hit the deck behind me. I was caught up in it and completely engulfed, and was hurled down the deck in a spin from which I couldn't extricate myself.

I was hurled about 100 feet, and in the process tore open my shin and ripped open the back of my upper thigh on a deck cleat, sustaining a wound so deep and wide I could put my hand inside. It could have been my head or stomach, or I could have easily went over the side.

The thing I want to point out is that even though we had beautiful weather conditions, this still happened. The sea hit directly on the beam and, catching me inside it, held me there while the ship at 16 knots passed underneath me. I thought you could do a small article on this type of accident as a warning to keep people off the foredeck when large swells are running broadside. Needless to say all further work on the foredeck was secured.

Our 3rd Mate put 8 stitches in me as we were 6 days from port, and as of this writing, aside from some infection, am in good shape.

Hoping this experience will help someone else avoid it.

Best regards,
C. J. M.

The casualty statistics for the past year would seem to indicate that accidents of this sort are

not very common, compared to some other categories. No doubt this low incidence results from the fact that almost everyone has a healthy respect for the power of boarding seas, and the need for utmost caution under such conditions.

Still, the writer makes a point that should be taken to heart by everyone.

Hazardous conditions do not always look as hazardous as they are.

It does not take a "classic case" of heavy weather, or poor maintenance, or negligence, or sloppy housekeeping to cause an accident. Too often, the less obvious the condition, the more likely it is to lead to disaster.

One answer is increased awareness, particularly in unusual, though seemingly unthreatening, circumstances.

In short, "when you least expect it, expect it."

ICEBERG TRACKING

Scientists from the Coast Guard Research and Development Center at Groton, Conn., have tagged five large tabular icebergs in Baffin Bay with satellite-tracked "ice buoys".

The devices, called ADRAMS (for Air Deployable Random Access Monitoring System) icebuoys, are being tracked by the Nimbus 6 satellite. The satellite relays the external temperature of the buoy and computes the geographic location from which the signals are being beamed. Each buoy is assigned a number so that many can be monitored at the same time.

The buoys were parachuted from a Coast Guard C-130 aircraft sent from the Elizabeth City, N.C., Air Station. All of the icebergs were well north of the Arctic Circle at the time they were tagged, four being on the Baffin Island side of Baffin Bay, and one on the Greenland side.

The bergs, which were up to 1/2 mile in length, are expected to drift south toward the Grand Banks of Newfoundland during the next few months, where they will present a hazard to shipping.

Statistics of Casualties

1977

Annually the U.S. Coast Guard presents a statistical summary of commercial vessel casualties that were investigated by Coast Guard marine inspectors during the previous fiscal year. The public, industry, and the Coast Guard have used the findings of these investigations to establish standards and determine the need for legislation to improve the protection of safety of life and property at sea.

The master of a vessel is required by law to report a marine casualty as soon as possible after its occurrence to the Coast Guard Officer in Charge, Marine Inspection. Casualties involving commercial vessels are required to be reported to the Coast Guard whenever the casualty results in any of the following:

- (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 (with or without damage);
- (d) loss of life;
- (e) injury causing any person 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.

The statistical summary on the following pages represents casualties to commercial vessels which meet the above criteria. It is important to note that the summary represents casualties reported to Coast Guard Headquarters in fiscal year 1977, which ended September 30, 1977. Statistics concerning noncommercial recreational boating accidents can be found in CG-357, *Boating Statistics*, published by the Office of Boating Safety.

This summary also includes those casualties serious enough by reason of dollar damage or number of deaths and/or injuries to warrant the convening of a Marine Board of Investigation. Included in this year's statistics are the following Marine Boards of Investigation: the collision of the MV Frosta and the ferry George Prince with the subsequent capsizing of the latter vessel at Mile 126 of the Lower Mississippi River; the explosion and sinking of the tankship Sansinena at Long Beach, California; and the structural failure and swamping of the tankship Chester A. Poling near Gloucester, Massachusetts. These major marine casualties resulted in 87 deaths, 33 injuries, and property damage

amounting to \$2,890,000.

Every event involving a vessel or her personnel which meets any of the conditions of a reportable casualty is of great concern to the Coast Guard. A number of reportable casualties are not investigated by the Coast Guard each year simply because they are not reported. Thus it is of primary importance that the masters of all vessels ensure that all casualties are reported and investigated. Through the cooperation of the masters, owners, and agents of commercial vessels many of the unreported casualties can be investigated.

This statistical tabulation is intended to summarize the casualty experience for the entire commercial fleet. Because this summary is so all-encompassing, the use of the statistics may lead to erroneous conclusions unless the limitations of the data are well understood.

The Information and Analysis Staff of the Office of Merchant Marine Safety will gladly assist in quantifying those limitations for each specific need. Comments and recommendations for changes or improvements to these statistics should be addressed to Commandant (G-MA/83), U.S. Coast Guard, Washington, D.C. 20590.

Statistical Summary of Casualties to Commercial Vessels

1 October 1976 to 30 September 1977

Fiscal Year 1977

	Collisions: crossing, meetings, and overtaking	Collisions while anchored, docking, or undocking	Collision, fog	Collisions with piers and bridges	Collisions, all others	Explosion and/or fire - cargo	Explosion and/or fire - vessel's fuel	Explosion and/or fire - boilers, pressure vessels	Explosion and/or fire - structure, equipment, all others	Grounding with damage to vessel	Grounding without damage to vessel	Foundering, capsizings, and floodings	Heavy weather damage	Cargo damage	Material failure - structure and equipment	Material failure - machinery and engineering equipment	Casualty not otherwise classified	Total
Number of casualties.....	269	218	3	493	280	16	8	9	181	417	650	414	23	24	213	286	70	3574
Number of vessels involved.....	830	568	9	958	485	20	10	9	193	766	1077	498	34	26	243	308	106	6140
Number of inspected vessels involved....	213	159	1	295	161	7	1	8	55	210	324	45	13	21	135	170	36	1852
Number of uninspected vessels involved...	617	409	8	663	324	13	9	1	138	556	753	453	21	5	108	138	70	4288
PRIMARY CAUSE																		
Personnel fault:																		
Pilots-State.....	15	7	.....	22	2	.....	.....	.....	.....	8	34	2	.....	.....	.....	.....	3	93
Pilots-Federal.....	2	4	.....	15	.....	.....	.....	.....	.....	2	14	.....	.....	.....	.....	.....	.....	37
Licensed officer-documented seaman.....	144	107	1	274	89	2	.....	3	137	207	30	2	1	10	2	10	1019	
Unlicensed-undocumented persons.....	71	29	1	20	17	.....	1	8	70	84	37	3	.....	6	1	10	359	
All others.....	12	20	.....	33	8	8	.....	1	9	9	37	8	.....	5	6	3	164	
Calculated risk.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2	3	1	.....	.....	.....	.....	.....	8
Restricted maneuvering room.....	2	3	.....	9	1	.....	.....	.....	.....	3	3	.....	.....	.....	.....	.....	.....	22
Storms-adverse weather.....	8	10	.....	14	30	.....	.....	1	31	38	84	18	17	53	4	10	298	
Unusual currents.....	3	2	.....	6	2	.....	.....	.....	7	3	3	.....	.....	.....	.....	.....	4	30
Sheer, suction, bank cushion.....	11	1	.....	4	1	.....	.....	.....	6	6	.....	.....	.....	.....	.....	.....	2	31
Depth of water less than expected.....	1	2	.....	3	6	.....	.....	.....	64	155	3	.....	.....	.....	.....	.....	.....	234
Failure of equipment.....	14	21	.....	54	14	5	1	4	67	35	46	63	1	1	70	256	7	659
Unseaworthy-lack of maintenance.....	.....	.....	.....	2	1	.....	.....	.....	1	1	2	63	.....	.....	14	5	.....	89
Floating debris-submerged object.....	.....	.....	.....	13	90	.....	.....	.....	11	1	20	.....	.....	6	.....	.....	.....	141
Inadequate tug assistance.....	1	1	.....	6	1	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	13
Fault on part of other vessel or person.....	542	351	7	475	208	4	3	.....	13	355	429	141	10	2	65	23	36	2664
Unknown-insufficient information.....	4	10	.....	8	13	1	5	3	91	25	11	63	.....	.....	13	13	19	279
TYPE OF VESSEL																		
Inspected vessels:																		
Passenger and ferry-large.....	3	1	.....	12	2	.....	.....	.....	1	.....	4	.....	.....	2	5	8	1	39
Passenger and ferry-small.....	10	7	.....	6	8	.....	.....	.....	14	20	14	21	1	.....	6	20	3	130
Freight.....	26	47	.....	79	34	.....	.....	4	26	21	68	6	5	19	60	82	10	487
Cargo barge.....	2	.....	.....	4	5	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	1
Tankships.....	9	15	.....	25	19	1	.....	2	4	16	42	6	4	.....	31	37	3	214
Tank barge.....	154	70	1	167	87	5	.....	.....	8	147	191	7	3	.....	20	14	15	889
Public.....	6	11	.....	1	2	.....	.....	.....	3	4	5	.....	.....	3	6	2	4	45
Miscellaneous.....	3	8	.....	1	4	1	1	.....	2	.....	.....	.....	.....	.....	8	3	1	32
Uninspected vessels:																		
Fishing.....	98	60	2	22	34	1	4	1	61	93	125	203	4	.....	33	85	17	843
Tugs.....	255	139	3	355	174	3	2	.....	37	235	310	98	10	3	30	28	24	1706
Foreign.....	53	79	1	54	19	6	.....	1	13	27	101	4	1	.....	6	12	14	391
Miscellaneous.....	211	131	2	232	97	3	3	1	27	201	217	148	6	2	39	13	15	1348
GROSS TONNAGE																		
300 tons or less.....	437	287	4	374	232	6	9	2	132	326	402	405	16	6	90	141	56	2925
Over 300 to 1,000 tons.....	167	103	2	248	87	4	1	.....	15	240	290	66	4	2	24	9	8	1270
Over 1,000 to 10,000 tons.....	174	102	3	234	121	7	.....	3	22	159	222	15	8	6	61	52	23	1212
Over 10,000 tons.....	52	76	.....	102	45	3	.....	4	24	41	163	12	6	12	68	106	19	733
LENGTH																		
Less than 100 feet.....	374	235	4	305	178	3	9	1	118	274	323	356	10	3	69	124	47	2433
100 to less than 300 feet.....	380	221	3	503	221	11	1	1	36	423	535	128	13	3	78	47	24	2628
300 to less than 500 feet.....	26	21	2	26	38	2	.....	2	13	20	45	3	4	6	17	17	10	252
500 feet and over.....	50	91	.....	124	48	4	.....	5	26	49	174	11	7	14	79	120	25	827
AGE																		
Less than 10 years.....	395	241	5	434	194	10	5	2	72	326	481	119	12	9	77	118	47	2547
10 to less than 20 years.....	194	130	3	233	123	5	1	3	49	210	278	111	11	6	57	62	24	1500
20 to less than 30 years.....	77	67	1	132	68	1	1	23	106	138	88	5	2	47	51	10	818	
30 years and over.....	164	130	.....	159	100	4	3	3	49	124	180	180	6	9	62	77	25	1275
LOCATION OF CASUALTY																		
Inland-Atlantic.....	36	39	.....	90	65	4	.....	2	34	84	210	85	2	1	40	64	18	774
Inland-Gulf.....	108	55	1	137	63	5	3	2	45	80	112	74	4	1	18	15	11	734
Inland-Pacific.....	22	28	.....	46	33	2	1	.....	29	64	79	67	2	2	23	30	5	433
Ocean-Atlantic.....	9	4	.....	5	13	1	.....	1	11	14	6	47	4	8	39	55	13	230
Ocean-Gulf.....	12	13	.....	15	16	1	.....	.....	14	11	6	25	2	1	10	21	2	149
Ocean-Pacific.....	15	7	.....	3	8	.....	2	.....	19	21	10	38	5	6	24	40	4	204

Statistical Summary of Casualties to Commercial Vessels - Con.

1 October 1976 to 30 September 1977 Fiscal Year 1977		Collisions; crossing, meeting, and overtaking	Collisions while anchored, docking, or undocking	Collision, fog	Collisions with piers and bridges	Collisions, all others	Explosion and/or fire - cargo	Explosion and/or fire - vessel's fuel	Explosion and/or fire - boilers, pressure vessels	Explosion and/or fire - structure, equipment, all others	Grounding with damage to vessel	Grounding without damage to vessel	Foundering, capsizings, and floodings	Heavy weather damage	Cargo damage	Material failure - structure and equipment	Material failure - machinery and engineering equipment	Casualty not otherwise classified	Total
LOCATION OF CASUALTY - Continued																			
Great Lakes.....	6	9	.....	50	26	.....	.....	1	7	22	42	9	.....	1	.....	19	35	5	232
Western rivers.....	53	36	2	116	47	3	.....	2	15	109	154	66	.....	1	17	7	7	7	635
Ocean-other.....	3	12	.....	13	5	.....	.....	1	5	5	14	2	2	3	15	10	2	2	92
Foreign waters.....	5	15	.....	18	4	.....	.....	.....	2	7	17	1	1	.....	8	9	3	3	91
TIME OF DAY																			
Daylight.....	126	126	1	254	141	12	6	4	105	175	311	210	10	16	94	176	38	1805	1805
Nighttime.....	126	84	2	189	99	4	3	65	186	297	160	9	6	63	84	22	22	1399	1399
Twilight.....	17	8	.....	50	40	.....	2	2	11	56	42	44	4	2	56	26	10	370	370
ESTIMATED LOSSES (\$1000's)																			
Vessel.....	10459	5774	35	6804	10945	3842	677	492	26762	36335	0	21119	993	189	5440	7348	1927	139141	139141
Cargo.....	678	19	0	610	1211	18	2	1	1237	2552	0	3957	91	4612	475	1007	719	17189	17189
Property.....	2137	417	53	16577	640	3	5	0	6486	6754	737	683	0	26	58	84	227	34887	34887
VESSELS TOTALLY LOST																			
Inspected.....	.....	.....	.....	2	3	.....	.....	3	3	2	.....	9	1	.....	2	.....	.....	22	22
Uninspected.....	20	3	.....	8	18	3	3	2	39	35	.....	123	1	.....	14	1	2	2	272

Statistical Summary of Deaths/Injuries Due to a Vessel Casualty

1 October 1976 to 30 September 1977 Fiscal Year 1977		Collisions; crossing, meeting, and overtaking	Collisions while anchored, docking, or undocking	Collision, fog	Collisions with piers and bridges	Collisions, all others	Explosion and/or fire - cargo	Explosion and/or fire - vessel's fuel	Explosion and/or fire - boilers, pressure vessels	Explosion and/or fire - structure, equipment, all others	Grounding with damage to vessel	Grounding without damage to vessel	Foundering, capsizings, and floodings	Heavy weather damage	Cargo damage	Material failure - structure and equipment	Material failure - machinery and engineering equipment	Casualty not otherwise classified	Total
Number of casualties.....	21	8	1	5	2	9	4	2	19	4	1	41	0	0	6	5	5	5	133
Number of inspected vessels involved....	1	2	0	1	0	4	0	1	7	1	0	5	0	0	3	2	1	1	28
Number of uninspected vessels involved..	20	6	1	4	2	5	4	1	12	3	1	36	0	0	3	3	4	4	105
Number of persons deceased/injured.....	88/34	1/17	0/1	1/9	3/1	19/16	0/5	0/5	14/19	1/3	0/1	74/15	0/0	0/0	8/3	3/4	4/3	216/136	216/136
PRIMARY CAUSE																			
Personnel fault:																			
Pilots-State.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Pilots-Federal.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Licensed officer-documented seaman....	3	1	.....	3	1	1	.....	.....	1	1	.....	4	.....	.....	.....	.....	.....	1	16
Unlicensed-undocumented persons.....	8	1	.....	1	.....	.....	.....	.....	5	2	.....	4	.....	.....	.....	.....	.....	.....	21
All others.....	.....	.....	.....	.....	.....	3	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Error in judgement-calculated risk.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0

Statistical Summary of Deaths/Injuries Due to a Vessel Casualty - Continued

1 October 1976 to 30 September 1977
Fiscal Year 1977

	Collisions, crossing, meeting, and overtaking	Collisions while anchored, docking, or undocking	Collision, fog	Collisions with piers and bridges	Collisions, all others	Explosion and/or fire - cargo	Explosion and/or fire - vessel's fuel	Explosion and/or fire - boilers, pressure vessels	Explosion and/or fire - structure, equipment, all others	Grounding with damage to vessel	Grounding without damage to vessel	Foundings, capsizings, and Floodings	Heavy weather damage	Cargo damage	Material failure - structure and equipment	Material failure - machinery and engineering equipment	Casualty not otherwise classified	Total
PRIMARY CAUSE - Continued																		
Restricted maneuvering room.....																		0
Storms-adverse weather.....									1		1	15						18
Unusual currents.....												1						1
Sheer, suction, bank cushion.....																		0
Depth of water less than expected.....																		0
Failure of equipment.....						2			3	1		4						1
Unseaworthy-lack of maintenance.....															4	5		19
Floating debris-submerged object.....					1							1						1
Inadequate tug assistance.....												1						2
Fault of other vessel or person.....	10	6	1	1		2						4						0
Unknown-insufficient information.....						1	4	1	8			5			1		1	26
												5			1		2	22
TYPE OF VESSEL INVOLVED																		
Inspected vessels:																		
Passenger and ferry-large.....				/1					/1								/1	0/3
Passenger and ferry-small.....		/1								/1								15/2
Freight.....	/1								2/8			1/			1/			4/9
Cargo barge.....																		0/0
Tankships.....								/2				1/6			3/			4/8
Tank barges.....		/1			4/5		/1	1/									/1	5/8
Public.....																		0/0
Miscellaneous.....					2/2												/1	2/3
Uninspected vessels:																		
Fishing.....	3/11	/2			3/	1/	/1		3/2	1/1		37/5			3/			53/23
Tugs.....	/1	/3		1/6	/1		/3		2/1	/1	/1	7/2			/3			10/22
Foreign.....					9/9				/2							1/		10/11
Miscellaneous.....	85/21	1/10	/1	/2		3/	/1	/2	6/5			13/2			1/	2/2	2/1	113/47
PARTICULARS OF PERSON DECEASED/INJURED																		
Papers of deceased/injured:																		
Licensed by Coast Guard.....	/1	/1		/1					1/1								/1	1/2
Documented by Coast Guard.....	88/33	1/15	/1	1/8	3/1	10/7	/5	/3	11/9	1/2		2/7		3/	2/4	4/2		7/20
No license or document.....		/1				9/9			/3					4/3	2/4			197/101
Other-unknown-foreign.....														1/	1/			11/13
Status or capacity on vessel:																		
Passenger.....	76/18	1/9	/1	/1					2/2	/1		18/1				/1	/1	97/35
Longshoreman-harbor worker.....																1/1		1/1
Crewmember.....	12/16	/8		/6	3/1	16/13	/5	/3	10/10	1/2	/1	56/14		7/3	2/1	4/2		111/85
Other.....				1/2		3/3		/2	2/7					1/	/1			7/15
Activity engaged in:																		
Off duty.....	/3	/1		/2			/1		3/1			1/						4/8
Deck department duties.....	11/9	/5		/2		12/7	/2	/2	1/5	/1	/1	16/3		3/3	1/1	4/1		48/42
Engine department duties.....	/1	/1		/1		4/3	/2		1/1									5/9
Stewards department duties.....	/1					/3						2/						2/4
Handling cargo.....									/1			/1		1/	1/1			2/3
Fishing.....	1/2	/2			3/				2/	1/1		36/4		3/		/1		46/10
Drills.....																		0/0
Passenger.....	76/18	1/8	/1	/1					2/2	/1		4/1				/1	/1	83/34
Other and unknown.....				1/3	/1	3/3		/3	5/9			15/6		1/	1/1			26/26
Location of vessel:																		
At dock.....		/4				1/2	/1		1/1					1/				3/8
At anchor.....	10/18	/2		/2			/1		/1			3/		/3				14/26
Underway.....	78/16	1/11	/1	/7	3/1	18/14	/4	/4	13/18	1/3	/1	71/15		7/	3/4	4/3		199/102
Unknown.....																		0/0
PART OF BODY INVOLVED																		
Head and upper limbs.....	/1	/6		/3	/1	/5	/2		/2	/1						3/1		3/22
Back and lower limbs.....	/1	/7	/1	/3		/1	/1		/2									0/19
Chest.....	/1	/1		/1					/1	/1		/1						0/6
Extremities.....	/4	/2				/5	/1	/5	1/4	/1	/1	/4		/3	/2			1/32
Illness.....				/1								1/1						2/2
Drowning.....	85/	/1		/1	2/	1/			2/			53/		4/				150/0
Miscellaneous and unspecified.....	3/27	/1		/1	1/	18/5	/1		11/10	1/		20/8		4/	/1	2/1		60/55

Statistical Summary of Deaths on Board Commercial Vessels Not Involving a Vessel Casualty

1 October 1976 to 30 September 1977

Fiscal Year 1977

	Natural cause	Homicide	Suicide	Disappearance	Slips and falls - ladders	Slips and falls - gangways	Slips and falls - on deck	Slips and falls - other	Falls from vessel - into water	Falls into holds or tanks	Struck by objects; falling, dropped, or moving	Exposure and asphyxiation	Struck against, crushed, bumped into objects	Operating machinery and tools	Burns and scalds (other than electrical)	Electrical shock and burns	Caught in lines, chains or wire ropes	Pinching and crushing	Heavy weather	Overexertion, sprains, and strains	Cuts, lacerations, bruises, and punctures	Altercations and misconduct	Unknown or insufficient information	Total		
Number of deaths.....	114	0	10	13	2	1	1	8	77	5	14	11	4	0	2	4	1	4	0	0	0	0	0	1	272	
Number of uninspected vessels involved.....	38	0	6	7	1	1	1	4	64	2	9	4	3	0	1	1	0	2	0	0	0	0	0	0	144	
Number of inspected vessels involved.....	76	0	4	6	1	0	0	4	13	3	5	7	1	0	1	3	1	2	0	0	0	0	0	1	128	
CAUSE OF DEATH																										
Intoxication.....									6				1												7	
Physical deficiency or handicap.....	114																							1	115	
Unsafe movement or posture.....								1	12	3			1					1							18	
Psychological immaturity, insanity.....			10																						10	
Unsafe practice.....							1	2	13																16	
Violation of law or regulation.....								1	1									1							2	
Human errors.....							1	11	1	2	2	1			1										20	
Decks-slippery or cluttered.....								2																	2	
Weather conditions.....			1					2																	3	
Poor maintenance or housekeeping.....																									0	
Inadequate lighting.....																									0	
Inadequate rails or guards.....						1		1																	2	
Failure of equipment.....								2	3		11	3	1			1		2							23	
Inadequate supervision.....								1				2				1									4	
Inadequate life preservers.....								3																	3	
Inadequate tools or equipment.....									2																0	
Inadequate protective equipment.....															1										3	
Improper use of tools or equipment.....										1															1	
Miscellaneous causes.....				12	2			1	21	1		4				2									43	
TYPES OF VESSELS INVOLVED																										
Inspected vessels:																										
Passenger and ferry-large.....	16		3	1	1				2			2	1													26
Passenger and ferry-small.....	8																									8
Freight ships and barges.....	39			2					7	3	3							2								56
Tankships and barges.....	13		1	2				4	4			5			1	2	1									34
Public.....																										0
Miscellaneous.....				1							2					1										4
Uninspected vessels:																										
Fishing.....	12		2	4					13			3														34
Tugs.....	15		2	1					30		3					1		1								53
Foreign.....	4		1		1	1	1		3	2	2		1													16
Miscellaneous.....	7		1	2				4	18		4	1	2		1			1								41
TIME OF DAY																										
Daytime.....	79		4	3	1		1	6	40	1	11	7	3		2	3	1	3						1	166	
Nighttime.....	28		5	9	1	1		2	33	3	1	1	1													85
Twilight.....	7		1	1					4		1	2	3				1		1							21
PARTICULARS OF DECEASED																										
Papers of deceased:																										
Licensed by Coast Guard.....	4								1				1													6
Documented by Coast Guard.....	54		1	4				4	10	3	3	2			1			2								85
No license or document.....	53		8	9	1	1		4	62	1	11	7	4		1	4	1	2								169
Other-unknown-foreign.....	3		1		1		1		4	1		1														12
Status or capacity on vessel:																										
Passenger.....	25		3	1	1				3			2	1													36
Longshoreman-harbor worker.....	1			1					2	2	3				1											10
Crewmember.....	85		7	11	1		1	6	70	3	8	6	2		1	3		4						1	209	
Other.....	3				1			2	2	3	3	1				1	1									17
Activity engaged in:																										
Off duty.....	29		1	1					5																	37
Deck department duties.....	22			2	1		1	4	45	2	7	2	1			1		4								92
Engine department duties.....	9		1	1					2	1		2			1	1										19
Stewards department duties.....	8		1						1																	10
Handling cargo.....	1			1					1	1	4		1													9
Fishing.....	19		1	3					5			2														30
Drills.....											1															1
Passenger.....	15		3	1	1				2			1	1													24
Other and unknown.....	11		3	4			1		17	1	2	4	1		1	2										50

Statistical Summary of Deaths on Board Commercial Vessels Not Involving a Vessel Casualty - Continued

1 October 1976 to 30 September 1977
Fiscal Year 1977

	Natural cause	Homicide	Suicide	Disappearance	Slips and falls - ladders	Slips and falls - gangways	Slips and falls - on deck	Slips and falls - other	Falls from vessel - into water	Falls into holds or tanks	Struck by objects; falling, dropped, or moving	Exposure and asphyxiation	Struck against, crushed, bumped into objects	Operating machinery and tools	Burns and scalds (other than electrical)	Electrical shock and burns	Caught in lines, chains or wire ropes	Pinching and crushing	Heavy weather	Overexertion, sprains, and strains	Cuts, lacerations, bruises, and punctures	Alterations and misconduct	Unknown or insufficient information	Total
Location of vessel:																								
At dock.....	5	...	...	1	...	...	...	...	16	1	2	1	1	...	...	...	...	...	...	...	...	...	...	27
At anchor.....	8	...	1	1	1	...	...	...	6	1	2	2	2	...	...	...	...	...	...	...	...	...	...	22
Underway.....	101	...	9	11	1	1	1	7	55	3	10	10	3	3	2	4	1	3	1	...	...	...	...	223
PART OF BODY INVOLVED																								
Head.....	...	...	...	...	1	1	1	4	1	3	8	...	4	...	1	...	1	1	...	...	...	...	...	26
Back.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0
Chest.....	1	...	1	...	...	...	...	1	2	...	4	...	...	...	...	...	...	...	...	...	...	...	...	10
Extremities.....	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Illness.....	113	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	113
Drowning.....	...	...	6	...	...	...	...	1	60	...	...	...	...	...	...	...	...	...	...	...	...	...	...	71
Unspecified and miscellaneous.....	...	...	3	13	1	...	...	2	14	2	1	7	...	...	1	4	...	2	...	...	...	...	...	51

Statistical Summary of Personnel Injuries on Board All Commercial Vessels

1 October 1976 to 30 September 1977
Fiscal Year 1977

	Slips and falls - ladders	Slips and falls - gangways	Slips and falls - on deck	Slips and falls - other	Falls from vessel - into water	Falls into holds or tanks	Struck by objects; falling, dropped, or moving	Exposure and asphyxiation	Struck against, crushed, bumped into objects	Operating machinery and tools	Burns and scalds (other than electrical)	Electrical shock and burns	Caught in lines, chains, or wire ropes	Pinching and crushing	Heavy weather	Overexertion, sprains and strains	Cuts, lacerations, bruises, and punctures	Alterations and misconduct	Unknown or insufficient information	Total
Number of injuries.....	165	21	249	69	9	15	216	4	147	14	53	4	79	88	1	172	65	38	10	1419
Number of uninspected vessels involved.....	8	0	22	11	2	4	50	0	16	2	8	0	37	43	0	10	12	3	3	201
Number of inspected vessels involved.....	157	21	227	58	7	11	166	4	131	12	45	4	42	75	1	162	53	35	7	1218
CAUSE OF INJURY																				
Intoxication.....	7	1	5	2	...	...	1	...	4	...	...	...	...	1	...	1	1	4	...	27
Physical deficiency or handicap.....	5	...	6	4	...	...	...	...	2	...	...	...	...	...	...	18	...	1	3	39
Unsafe movement or posture.....	12	2	20	8	...	4	11	...	12	...	...	...	9	4	...	55	3	...	...	140
Psychological-immaturity, insanity.....	...	...	1	...	1	...	...	...	2	...	...	...	1	...	...	...	4	29	...	39
Unsafe practice.....	21	...	19	5	1	2	40	...	12	2	11	...	17	11	...	16	7	...	...	165
Violation of law or regulation.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3
Human errors.....	95	17	119	41	6	5	107	1	70	10	30	3	46	62	1	69	44	1	3	730
Decks-slippery or cluttered.....	9	1	59	...	...	2	1	...	5	...	...	...	2	1	...	5	...	...	...	85
Weather conditions.....	3	...	11	3	1	...	9	...	31	...	1	...	...	...	...	...	...	...	...	65
Poor maintenance or housekeeping.....	1	...	5	1	...	...	3	...	2	1	2	...	...	...	...	2	...	...	...	15
Inadequate lighting.....	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Inadequate rails or guards.....	...	...	1	1	...	1	...	...	1	...	...	...	...	...	...	...	1	...	...	5
Failure of equipment.....	9	...	1	4	...	...	36	3	2	...	7	1	3	2	...	...	...	...	1	69
Inadequate supervision.....	...	...	...	...	...	...	2	...	1	...	...	...	...	...	...	...	...	...	...	5
Inadequate life preservers.....	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	0

Statistical Summary of Personnel Injuries on Board All Commercial Vessels - Continued

1 October 1976 to 30 September 1977

Fiscal Year 1977

CAUSE OF INJURY - Continued	Slips and falls - ladders	Slips and falls - gangways	Slips and falls - on deck	Slips and falls - other	Falls from vessel - into water	Falls into holds or tanks	Struck by objects; falling, dropped or moving	Exposure and asphyxiation	Struck against, crushed, bumped into objects	Operating machinery and tools	Burns and scalds (other than electrical)	Electrical shock and burns	Caught in lines, chains, or wire ropes	Finching and crushing	Heavy weather	Overexertion, sprains and strains	Cuts, lacerations, bruises, and punctures	Altercations and misconduct	Unknown or insufficient information	Total
CAUSE OF INJURY - Continued																				
Inadequate tools or equipment.....							1		1											2
Inadequate protective equipment.....							4		1	1						1	2			9
Improper use of tools or equipment.....	1						1						1			1	2			6
Miscellaneous causes.....	2		1			1			1		1			1		4	1		2	14
TYPES OF VESSELS INVOLVED																				
Inspected vessels:																				
Passenger and ferry-large.....	13		13	8			7	1	21	3	1		2	5		7	2	3		86
Passenger and ferry-small.....			1			2			2									1		10
Freight ships and barges.....	116	18	165	39	4	8	117	1	85	6	33	4	25	49		117	37	22	6	852
Tankships and barges.....	25	3	40	10	2	1	27	2	19	2	10		9	15	1	35	13	9	1	224
Public.....	1						2		2				1							4
Miscellaneous.....	2		8	1	1		13		4	1	1		2	5		3	1			42
Uninspected vessels:																				
Fishing.....			7	1	1	1	18		4	1			15	7		3	7	1	3	69
Tugs.....	6		11	7	1	1	29		10	1	7		18	5		5	3			104
Foreign.....	1		1			2	2		2				1	1						7
Miscellaneous.....	2		3	3			1		2		1		3			2	2	2		21
TIME OF DAY																				
Daytime.....	105	4	160	40	3	10	160	4	109	9	42	4	60	69		121	53	15	8	975
Nighttime.....	51	14	79	28	5	4	46		31	3	9		18	15	1	36	6	15		361
Twilight.....	9	3	10	1	1	1	10		7	2	2		1	5		15	6	8	2	83
PARTICULARS OF PERSON INJURED																				
Papers of person injured:																				
Licensed by Coast Guard.....	3	1	4	3			5	1	1	2	1		2			5		1		29
Documented by Coast Guard.....	146	20	203	47	6	8	148	3	109	10	46	4	34	65	1	152	52	34	7	1095
No license or document.....	16		42	19	3	5	61		37	2	6		42	22		15	13	3	3	289
Other-unknown-foreign.....						2	2						1	1						6
Status or capacity on vessel:																				
Passenger.....	4		11	6	1	2	3	1	17					3		1				49
Longshoreman-harbor worker.....	1		1		1		1									1				7
Crewmember.....	157	21	230	62	7	10	198	3	126	13	52	4	74	77	1	170	64	36	10	1315
Other.....	3		7	1		3	14		4	1	1		5	6			1	2		48
Activity engaged in:																				
Off duty.....	18	8	16	9	1		7		8		2			3		1	5	9	2	89
Deck department duties.....	73	7	107	32	5	8	132		66	3	8		52	38	1	81	24	12	2	651
Engine department duties.....	51	3	63	13		1	42	2	35	8	29	4	9	15		49	12	3	2	341
Stewards department duties.....	11	1	32	5			8	1	15	1	11		1	12		28	18	4		148
Handling cargo.....	1						3							3		1				9
Fishing.....			5	2	1	1	7		11				12	4		3	3		3	52
Drills.....			1	1																2
Passenger.....	4		8	4		2	1		7				3			1				30
Other and unknown.....	7	2	17	3	2	3	16	1	5	2	3		5	10		8	3	10		97
Location of vessel:																				
At dock.....	5		5	2	1		5		3		3		1	2		5				32
At anchor.....	3		12	1		2	7		2		4		10	2		7	2	1	2	55
Underway.....	157	21	232	66	8	13	204	4	142	14	46	4	68	84	1	160	63	37	8	1332
PART OF BODY INVOLVED																				
Head.....	27	1	33	8	1	2	67		38	3	9	1	3	3		12	2	22	3	235
Back.....	40	4	62	18	1		8		16	1			2	2		94		3	1	254
Chest.....	13	3	19	10	2	2	11	4	16	1	1		3	4		20	2	1		112
Extremities.....	82	11	129	33	3	9	126		70	9	35	1	71	79	1	45	59	9	2	774
Illness.....		1							1									1		3
Drowning.....																				0
Unspecified and miscellaneous.....	3	1	6		2	2	4		6		8					1	2	2	4	41

MERCHANT MARINE SAFETY PUBLICATIONS

The following publications may be obtained from the nearest marine safety office or marine inspection office of U.S. Coast Guard. Because changes to the rules and regulations are made from time to time, these publications can be kept current between revisions only by referring to the Federal Register. (Official changes to all federal regulations are published in the Federal Register, printed daily except Saturday, Sunday, and holidays.) Following the title of each publication in the table below are the date of the most recent edition and the dates of the Federal Registers affecting each.

The Federal Register may be obtained by subscription (\$5 per month or \$50 per year) or by individual copy (75 cents each) from SupDocs, U.S. Government Printing Office, Washington D.C. 20402.

CG No.	TITLE OF PUBLICATION
101-1	Specimen Examinations for Merchant Marine Deck Officers (2d and 3d Mate) (4-1-77).
101-2	Specimen Examinations for Merchant Marine Deck Officers (Master and Chief Mate) (4-1-76).
108	Rules and Regulations for Military Explosives and Hazardous Munitions (4-1-72). F.R. 7-21-72, 12-1-72, 6-18-75.
115	Marine Engineering Regulations (8-1-77). F.R. 9-26-77.
123	Rules and Regulations for Tank Vessels (8-1-77). F.R. 8-17-77, 9-12-77, 12-19-77.
169	Navigation Rules - International - Inland (5-1-77). F.R. 7-11-77, 7-14-77, 9-26-77, 10-12-77, 11-3-77, 12-6-77, 12-15-77.
*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, 10-22-75, 2-5-76, 1-13-77, 11-3-77, 12-6-77.
174	A Manual for the Safe Handling of Flammable and Combustible Liquids and Other Hazardous Products (9-1-76).
176	Load Line Regulations (2-1-71). F.R. 10-1-71, 5-10-73, 7-10-74, 10-14-75, 12-8-75, 1-8-76.
182-1	Specimen Examinations for Merchant Marine Engineer Licenses (2d and 3d Assistant) (2-1-78).
182-2	" " " " " " " (First Assistant) (4-1-76).
182-3	" " " " " " " (Chief Engineer) (4-1-76).
184	Rules of the Road - Western Rivers (8-1-72). F.R. 9-12-72, 12-28-72, 3-8-74, 3-29-74, 6-3-74, 11-27-74, 4-16-75, 4-28-75, 10-22-75, 2-5-76, 3-1-76, 6-10-76, 7-11-77, 12-6-77, 12-15-77.
*190	Equipment Lists (5-1-75). F.R. 5-7-75, 6-2-75, 6-25-75, 7-22-75, 7-24-75, 8-1-75, 8-20-75, 9-23-75, 10-8-75, 11-21-75, 12-11-75, 12-15-75, 2-5-76, 2-23-76, 3-18-76, 4-5-76, 5-6-76, 6-10-76, 6-21-76, 6-24-76, 9-2-76, 9-13-76, 9-16-76, 10-12-76, 11-1-76, 11-4-76, 11-11-76, 12-2-76, 12-23-77, 4-4-77, 4-11-77, 4-21-77, 5-19-77, 5-26-77, 6-9-77.
191	Rules and Regulations for Licensing and Certification of Merchant Marine Personnel (11-1-76). F.R. 3-3-77, 8-8-77.
227	Laws Governing Marine Inspection (7-1-75).
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, 7-2-75, 7-7-75, 7-24-75, 10-1-75, 10-8-75, 6-3-76, 9-27-76, 2-3-77, 3-31-77, 7-14-77, 7-28-77, 9-22-77, 9-26-77, 12-19-77, 1-6-78, 1-16-78.
257	Rules and Regulations for Cargo and Miscellaneous Vessels (9-1-77). F.R. 9-26-77, 9-29-77, 12-19-77.
258	Rules and Regulations for Uninspected Vessels (4-1-77). F.R. 9-26-77.
259	Electrical Engineering Regulations (7-1-77). F.R. 9-26-77.
268	Rules and Regulations for Manning of Vessels (7-1-77).
293	Miscellaneous Electrical Equipment List (7-2-73).
323	Rules and Regulations for Small Passenger Vessels (Under 100 Gross Tons) (7-1-77). F.R. 9-26-77, 12-15-77, 12-19-77.
329	Fire Fighting Manual for Tank Vessels (1-1-74).
439	Bridge-to-Bridge Radiotelephone Communications (12-1-72). F.R. 12-28-72, 3-8-74, 5-5-75, 7-11-77.
467	Specimen Examinations for Uninspected Towing Vessel Operators (10-1-74).
497	Rules and Regulations for Recreational Boating (7-1-77). F.R. 7-14-77, 8-18-77.

Changes Published During January - February

CG-239, Federal Registers of January 6 and 16.

*Out of stock.

DEPARTMENT OF TRANSPORTATION

**U. S. COAST GUARD
WASHINGTON, D. C. 20590**

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE. \$300

POSTAGE AND FEES PAID

U. S. COAST GUARD

DOT-814

