

*Proceedings*



# Casualty statistics 1990

Every year, the Coast Guard's Marine Investigation Division publishes a summary of commercial vessels and related personnel involved in various types of casualties in *Proceedings*. The primary source of the statistics is the CASMAIN data base for commercial vessel casualty information. The current data base has been continuously updated and improved since 1981.

## Marine casualty reporting

The authority to require notification and reporting of a marine casualty is in 46 U.S.C. 6101. The authority to require reporting of casualties involving offshore oil and gas exploration, production and support activities is derived from the Outer Continental Shelf Lands Act, 43 U.S.C. 1331, et. seg.

The primary vehicle for reporting marine casualties is Form CG-2692, "*Report of Marine Accident, Injury or Death*." This form contains instructions and reporting criteria for casualties involving vessels, mobile offshore drilling units, outer continental shelf facilities and commercial diving, as well as personnel involved. Whenever possible, it is completed by personnel directly involved in the casualty, such as the vessel or facility owner or operator.

The completed form is submitted to a local field office, such as a marine safety office, marine safety detachment or marine inspection office, for verification, screening and possible further investigation. In the latter instance, the report is forwarded on to the Marine Investigation Division to undergo a thorough review and receive final approval. The data in the report is then processed and becomes part of the CASMAIN casualty data base.

## Reported casualties

The following casualties must be reported:

- accidental grounding;
- intentional grounding which also meets the other criteria or creates a hazard to navigation, the environment or vessel safety;
- loss of main propulsion or primary steering, or any associated component or control system, which reduces vessel maneuvering abilities; (Loss means that systems, component parts, subsystems or control systems do not perform their specified or required function.)

- an occurrence adversely affecting the vessel's seaworthiness or fitness for service or route, including, but not limited to fire, flooding, or failure of or damage to fixed extinguishing systems, lifesaving equipment, auxiliary power generating equipment or bilge pumping system;
- loss of life or serious injury; or
- an occurrence not included above, but resulting in more than \$25,000 in damages, including the cost of restoring the property to its condition before the casualty, but excluding the cost of salvage, gas freeing, dry-docking and demurrage.

## Casualties excluded

Casualties involving only pleasure craft are not represented in these statistics. Such incidents are contained in an annual report by the Auxiliary, Boating and Consumer Affairs Division of the Office of Navigation Safety and Waterway Services.

## 1990 casualties

In 1990, there were 3,428 marine accidents involving 5,496 commercial vessels. Of these, 400 resulted in a total loss of the vessels, 185 of which were fishing vessels. There were 5,069 vessels involved in accidents that did not result in a total loss. Of these, 1,146 were fishing vessels.

There were 44 deaths and 19 injuries in accidents with vessels which were a total loss. There were 27 deaths and 143 injuries from accidents with vessels not totally lost. In addition, there were 101 deaths and 1,113 injuries not associated with vessel casualties, such as persons falling overboard.

## Major casualties

Major marine casualties involve vessels, other than public vessels (as defined in 46 CFR 4.03-40), which result in one of the following:

- the loss of six or more lives;
- the loss of a mechanically propelled vessel of 100 or more gross tons;
- property damage initially estimated at \$500,000 or more; or
- a serious threat to life, property or the marine environment by hazardous materials.

## Two major casualties

### *Aleutian Enterprise*

On March 2, 1990, the fish processing vessel *Aleutian Enterprise* departed Dutch Harbor, Alaska, with a crew of 30 and headed for fishing grounds in the Bering Sea. During the following weeks, the vessel made several uneventful trawls and received two additional crew members, one of whom transferred onto another processing vessel.

At about 1:30 p.m. on March 22 (Alaska standard time) in relatively calm seas and wind with 31 crew aboard, a net failed while hauling the biggest catch of the trip, resulting in fish shifting on deck. This caused the vessel to list to the port side. With the cargo holds filled to capacity, the vessel listed further as the captain and chief engineer attempted in vain to adjust it.

With the port stern settling, the captain sent a May-Day to nearby vessels and activated the general alarm, which failed to go off. He went below decks to alert the crew and then abandoned ship.

The vessel capsized and sank at approximately 1:40 p.m. in about 400 feet of water at latitude 56 degrees, 13'22" north and longitude 169 degrees, 48'56" west. Nearby fishing vessels recovered 22 persons from liferafts and the water.

A subsequent search by Coast Guard aircraft and fishing vessels failed to recover additional crew members. Nine individuals are missing at sea and presumed dead.

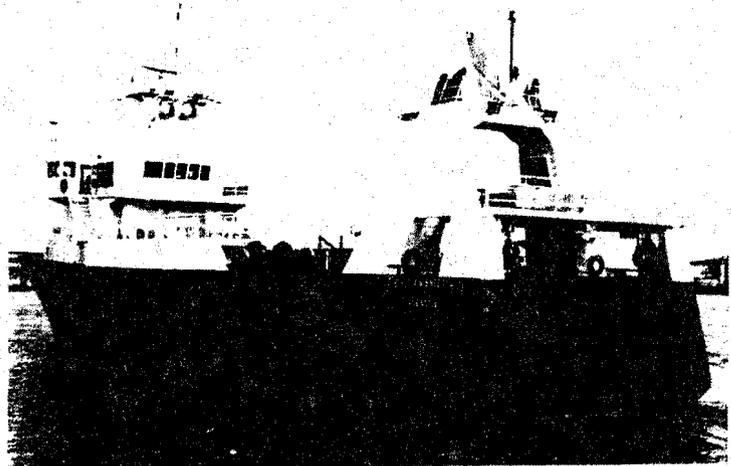
### *Surf City*

On February 20, 1990, the reflagged 760-foot United States tank ship *Surf City* departed Kuwait for ports in southern Europe. It was loaded with naphtha and automotive diesel oil.

At 10:12 a.m., on February 22, the master and the chief mate were standing at the No. 4 starboard water ballast tank access trunk when an explosion occurred. The tank and the area aft to the deckhouse on the starboard side were immediately engulfed in flames.

The crew abandoned ship in the port lifeboat and were rescued at 10:53 a.m. by the *USS Simpson* (FFG-56) a Navy-guided missile frigate. Another United States Navy vessel recovered the master's remains. The chief mate is still missing and presumed dead.

The fire burned for two weeks and 196,985 of the 606,245 barrels of cargo were lost. The damage loss amounted to \$31.53 million.



*Aleutian Enterprise*



*Surf City*

### Statistical summary

These statistics summarize casualties for the entire United States commercial fleet and foreign-flag vessels in United States waters. The Marine Safety Evaluation Branch of the Marine Investigation Division will explain data summary methods to those who request it.

Suggestions for changes or improvements in the statistics should be addressed to Commandant (G-MMI-3), United States Coast Guard, 2100 Second Street, S.W., Washington, D.C. 20593-0001. Telephone: (202) 267-1417.

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**Table 1 Commercial vessel total losses 1990**

	FOUNDERED							TOTAL		FOUNDERED							TOTAL
	FIRE/EXPLOSION	COLLISION	GROUNDING	HULL/MACH	DMG	MISSING	OTHER			FIRE/EXPLOSION	COLLISION	GROUNDING	HULL/MACH	DMG	MISSING	OTHER	
<b>FREIGHTSHIP</b>																	
<b>SUBTOTAL</b>	3	1	2	0	2	0	0	8		2	1	0	0	1	0	1	5
LT 100 GT		1	1					2									0
100-199								0		1						1	2
200-299								0									0
300-499	1							1									0
500-1599	2		1					3									0
1600-4999								0									0
5000-9999								0		1	1		1				3
10,000-19,000								0									0
GE 20,000					2			2									0
<b>PASSENGER SHIP</b>																	
<b>SUBTOTAL</b>	3	5	1	0	1	0	0	10		3	0	0	0	0	0	1	4
LT 100 GT	2	5	1		1			9		1						1	2
100-1599	1							1									0
1600-4999								0		2							2
GE 5000								0									0
<b>TUG/TOWBOAT</b>																	
<b>SUBTOTAL</b>	33	4	11	1	2	0	5	56		92	33	21	25	5	0	9	185
LT 100 GT	19	2	2		1		2	26		72	22	14	17	3		8	136
100-199	10		2	1	1		3	17		11	9	3	5	1		1	30
200-299	2		1					3				1	1				2
300-999	2	2	5					9									0
GE 1000			1					1			1						1
<b>TANK BARGE</b>																	
<b>SUBTOTAL</b>	0	0	5	1	1	0	1	8		19	0	25	2	1	0	36	83
LT 500 GT								0		1							1
500-999			1	1	1			3		10		21	2	1		31	65
GE 1000 GT			4				1	5		5					2	7	
<b>UNKNOWN</b>										3		4				3	10
<b>MISCELLANEOUS</b>																	
<b>SUBTOTAL</b>	13	1	2	1				17		13	1	2	1			17	34
LT 100 GT	9	1	2					17		9	1	2				17	29
GE 100 GT (SP)	3							3		3		1				4	
GE 100 GT (NSP)	1							1		1						1	
<b>U.S. TOTALS</b>								173									400
<b>FOREIGN FLAG</b>																	
<b>SUBTOTAL</b>	1	1	0	1	2	0	2	7		1	1	0	1	2	0	2	7
FREIGHT										1				1			2
TANK														1			1
OTHER	1				1			2		1		1			2		4

(cont. next col.)

**Table 2 Commercial vessel total losses 1990**

**VESSEL TOTAL LOSSES**

	0-4 YEARS	5-9 YEARS	10-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30+ YEARS	UNKNOWN	TOTAL
FREIGHTSHIP	1		1	1				4	1 8
TANKSHIP		1		2				2	5
PASSENGER	1	1	1	2	1			4	10
TUG/TOWBOAT		6	8	12	8	4	18		56
OSV		1	2	1					4
MODU									0
PLATFORM			1		1	1	3	1	7
FISHING	10	11	41	15	30	5	56	1	169
STATE #		1	2	1	1	2	5	4	16
IS									
T.			1	2	3		2		8
FREIGHT	2	8	16	13	13	12	10	9	83
MISC	3	1	2	4			7	17	34
<b>TOTALS</b>	<b>17</b>	<b>30</b>	<b>75</b>	<b>53</b>	<b>57</b>	<b>24</b>	<b>111</b>	<b>33</b>	<b>400</b>

FOUNDERED	3	7	27	16	21	10	64	25	173
FIRE/EXPLOSION	7	8	11	11	2	1	6	1	47
COLLISION	2	8	16	8	16	6	7	4	67
GROUNDING	2	6	2	4	2	1	11	2	30
HULL/MACH	3	1	2		2		4	1	13
OTHER			17	14	14	6	19		70
<b>TOTALS</b>	<b>17</b>	<b>30</b>	<b>75</b>	<b>53</b>	<b>57</b>	<b>24</b>	<b>111</b>	<b>33</b>	<b>400</b>

**(D)EATHS AND (I)NJURIES ASSOCIATED WITH VESSEL TOTAL LOSSES**

	FOUNDERED		FIRE/EXPLOSION		COLLISION		GROUNDING		HULL/MACH DMG		MISSING		OTHER		TOTAL	
	D	I	D	I	D	I	D	I	D	I	D	I	D	I	D	I
FREIGHTSHIP															0	0
TANKSHIP			2	2											2	2
PASSENGER		1		1											0	2
TUG/TOWBOAT	7			1											7	1
OSV		1													0	1
MODU															0	0
PLATFORM															0	0
FISHING	27	7		1	4	2		1							1	31
STATE #		1														1
BARGES															0	0
TANK															0	0
FREIGHT															0	0
MISC	3	1													3	1
<b>TOTALS</b>	<b>38</b>	<b>10</b>	<b>2</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>44</b>

LIC OFF	1														1	0
CREW	35	10	2	5	4	2	1								1	41
PASS	1														1	0
OTHER	1														1	0
<b>TOTALS</b>	<b>38</b>	<b>10</b>	<b>2</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>44</b>

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**Table 3 Commercial vessel non-total losses 1990**

	FLOODED							TOTAL		FLOODED							TOTAL
	FIRE/EXPLOSION	COLLISION	GROUNDING	HULL/MACH	DMG	WEATHER	OTHER			FIRE/EXPLOSION	COLLISION	GROUNDING	HULL/MACH	DMG	WEATHER	OTHER	
<b>FREIGHTSHIP</b>																	
<b>SUBTOTAL</b>	7	20	99	115	231	8	13	493	<b>TANKSHIP</b>	1	13	33	63	137	2	11	260
LT 100 GT	2	2	1	5	4		1	15	LT 100 GT		1			1			2
100-199				2	1		1	4	100-1599			5	5			1	11
200-299		2	1	2				5	1600-4999			3	2	5	1	2	13
300-499			6	2	1			9	5000-9999			4	6	4			14
500-1599	1	2	14	20	10		3	50	10,000-19,999		6	7	11	34		1	59
1600-4999		1	3	4	8	1		17	20,000-39,999		2	8	26	44	1	2	83
5000-9999		1	3	8	35		2	49	40,000-99,999	1	4	5	13	47		5	75
10,000-19,999	3	6	39	36	72	2	1	159	GE 100,000			1		2		3	
GE 20,000	1	6	32	36	100	5	5	185									
<b>PASSENGER SHIP</b>																	
<b>SUBTOTAL</b>	11	18	44	65	144	4	19	305	<b>OFFSHORE SUPPLY</b>	1	9	20	7	12	0	0	49
LT 100 GT	11	15	33	51	76	3	16	205	LT 100 GT		4	6	2	3			15
100-1599			6	6	43		3	58	100-199		1	1	1	2			5
1600-4999		1	3	4	20	1		29	200-499	1	4	12	4	5			26
GE 5000		2	2	4	5			13	GE 500			1		2			3
<b>TUG/TOWBOAT</b>																	
<b>SUBTOTAL</b>	17	26	374	574	110	7	77	1185	<b>FISHING VESSEL</b>	113	43	116	117	473	7	277	1146
LT 100 GT	4	6	71	99	28	3	41	252	LT 100 GT	82	22	60	74	294	4	171	707
100-199	7	11	133	195	41	1	19	407	100-199	21	12	36	26	107	3	75	280
200-299	2	5	49	54	14		4	128	200-499	1	3		3	9		1	17
300-999	3	4	106	202	20	3	12	350	500-999		1	2	1	1			5
GE 1000	1		15	24	7		1	48	GE 1000 GT		4	3	1	7		2	17
									STATE NUMBERED	9	1	15	12	55		28	120
<b>TANK BARGE</b>																	
<b>SUBTOTAL</b>	4	8	164	292	37	11	21	537	<b>FREIGHT BARGE</b>	4	5	317	440	45	0	122	933
LT 100 GT				4			1	5	LT 100 GT			1	3	1		4	9
100-499	2	1	2	3				8	100-199	1	4	239	344	28		103	719
500-999	1		41	58	8	3	6	117	GE 1000	3	1	58	84	11		9	166
GE 1000	1	7	121	227	29	8	14	407	UNKNOWN			19	9	5		6	39
<b>MODU</b>																	
<b>SUBTOTAL</b>	0	1	6	1	8	2	2	20	<b>MISCELLANEOUS</b>	4	8	53	16	23	1	10	115
LT 300 GT			2					2	LT 100 GT	2	5	36	8	11	1	6	69
GE 300 GT		1	4	1	8	2	2	18	GE 100 GT (SP)	2	2	8	5	10		2	29
									GE 100 GT (NSP)		1	9	3	2		2	17
<b>PLATFORM</b>																	
<b>SUBTOTAL</b>	2	4	10	1	6		3	26									
(cont. next col.)																	
<b>U.S. TOTALS</b>										164	155	1236	1691	1226	42	555	5069
<b>FOREIGN FLAG</b>																	
<b>SUBTOTAL</b>										2	13	64	105	115	0	14	313
FREIGHT										1	7	42	49	73		6	178
TANK											2	14	38	36		3	93
OTHER										1	4	8	18	6		5	42

**Table 4 Commercial vessel non-total losses 1990**

**NON-TOTAL LOSS  
VESSEL CASUALTIES**

**(D)EATHS AND (I)NJURIES  
ASSOCIATED WITH VESSEL  
NON-TOTAL LOSSES**

	0-4 YEARS		5-9 YEARS		10-14 YEARS		15-19 YEARS		20-24 YEARS		25-29 YEARS		30+ YEARS		UNKNOWN	TOTAL
	D	I	D	I	D	I	D	I	D	I	D	I	D	I		
FREIGHTSHIP	39	111	90	103	46	23	46	35	493							
TANKSHIP	20	39	72	49	27	10	33	10	260							
PASSENGER	62	43	51	32	16	22	71	8	305							
TUG/TOWBOAT	14	184	233	234	161	89	220	50	1185							
OSV		16	23	6	2	1	1		49							
MARITIME ARM		14	3	2			1		20							
FISHING	3	2	3	5	4		2	7	26							
STATE #	77	92	253	122	118	64	265	35	1026							
BARGES	12	13	12	17	13	6	29	18	120							
TANK	5	37	112	154	89	52	54	34	537							
FREIGHT	36	171	251	242	84	39	25	85	933							
MISC	13	17	14	21	12	7	20	11	115							
<b>TOTALS</b>	<b>281</b>	<b>739</b>	<b>1117</b>	<b>987</b>	<b>572</b>	<b>313</b>	<b>766</b>	<b>294</b>	<b>5069</b>							

	FLOODED		FIRE/EXPLOSION		COLLISION		GROUNDING		HULL/MACH DMG		WEATHER		OTHER		TOTAL	
	D	I	D	I	D	I	D	I	D	I	D	I	D	I	D	I
FREIGHTSHIP									11						0	11
TANKSHIP			1			1			4						1	5
PASSENGER	1			13	16		9		4						0	43
TUG/TOWBOAT			2	4	8		1	1	4				1	1	4	18
OSV			2	5	2				1						2	8
MODU				1					12						0	13
PLATFORM			1	1	7				2						1	10
FISHING	1			6	3	1			5				9	1	10	16
STATE #					2										0	2
BARGES																
TANK									1	2					0	3
FREIGHT				2											0	2
MISC			5	2	4	7	1		2						9	12
<b>TOTALS</b>	<b>0</b>	<b>2</b>	<b>11</b>	<b>34</b>	<b>4</b>	<b>46</b>	<b>1</b>	<b>11</b>	<b>1</b>	<b>46</b>	<b>0</b>	<b>2</b>	<b>10</b>	<b>2</b>	<b>27</b>	<b>143</b>

FLOODED	8	20	30	24	20	10	47	5	164
FIRE/EXPLOSION	12	25	32	29	23	8	23	3	155
COLLISION	60	191	242	271	148	71	121	132	1236
GROUNDING	72	286	408	378	180	110	188	69	1691
HULL/MACH	85	155	270	193	141	69	268	45	1226
WEATHER DAM.	3	4	11	10	7	3	4		42
OTHER	41	58	124	82	53	42	115	40	555
<b>TOTALS</b>	<b>281</b>	<b>739</b>	<b>1117</b>	<b>987</b>	<b>572</b>	<b>313</b>	<b>766</b>	<b>294</b>	<b>5069</b>

LIC OFF																	0	0
CREW	2		11	19		27	1	2	1	33	2		9	2	22		87	
PASS				13	3	18		8		2			1		4		41	
OTHER				2	1	1		1		11					1		15	
<b>TOTALS</b>	<b>0</b>	<b>2</b>	<b>11</b>	<b>34</b>	<b>4</b>	<b>46</b>	<b>1</b>	<b>11</b>	<b>1</b>	<b>46</b>	<b>0</b>	<b>2</b>	<b>10</b>	<b>2</b>	<b>27</b>	<b>143</b>		

Continued on page 20.

**Table 5 Commercial vessel non-casualty related deaths and injuries 1990**

	FREIGHTSHIP	TANKSHIP	PASSENGER SHIP	TUG/TOWBOAT	OFFSHORE SUPPLY	FISHING VESSEL	MOBILE DRILLING	PLATFORM	FREIGHT/TANK BARGE	MISCELLANEOUS	TOTAL	CREW (INCL. LIC. OFF.)	PASSENGERS	OTHERS	TOTAL
<b>DEATHS</b>															
SLIP/FALL	1		1	1	3	1	2	2			11	9	2	11	
OVERBOARD	5	1	2	8	13	1	1		4		35	28	2	5	35
DISAPPEAR		1		2	3						6	5	1	6	
STRUCK BY OBJ	3			3	2	2			1		11	9	2	11	
PINCH/CRUSH	2				1						3	3		3	
BURN/SCALD											0			0	
ELEC SHOCK											0			0	
CUT											0			0	
ENTANGLED			1		1						2	1	1	2	
ASPHXA	1		1	1	1	3		1	1		9	6	2	1	9
SPRAIN/STRAIN											0			0	
DIVING			6	1	1				1		9	1	6	2	9
UNK/NOC	5	1	2	4	2		1				15	13	1	1	15
<b>TOTALS</b>	<b>17</b>	<b>3</b>	<b>13</b>	<b>20</b>	<b>1</b>	<b>29</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>7</b>	<b>101</b>	<b>75</b>	<b>12</b>	<b>14</b>	<b>101</b>
<b>INJURIES</b>															
SLIP/FALL	87	53	40	49	20	36	40	51	4	8	388	333	21	34	388
OVERBOARD	1		5	1		4	1	3			15	9	5	1	15
DISAPPEAR											0			0	
STRUCK BY OBJ	23	22	4	20	12	46	17	24	3	9	180	166	2	12	180
PINCH/CRUSH	13	5	6	6	1	21	8	7	1	2	70	64	2	4	70
BURN/SCALD	6	6	3	1	1	2	2	8			29	27	2	2	29
ELEC SHOCK	3	1	2	1				1			8	7	1		8
CUT	14	6	7	5	2	11	5	13		3	66	62	2	2	66
ENTANGLED	4	1	3	4	5	11	3	1		2	34	33		1	34
ASPHXA	5	1		1		7					14	5	4	5	14
SPRAIN/STRAIN											0			0	
DIVING			11		1	7					19	2	16	1	19
UNK/NOC	62	38	19	36	13	36	29	46	1	10	290	246	20	24	290
<b>TOTALS</b>	<b>218</b>	<b>133</b>	<b>100</b>	<b>124</b>	<b>55</b>	<b>181</b>	<b>105</b>	<b>154</b>	<b>9</b>	<b>34</b>	<b>1113</b>	<b>954</b>	<b>73</b>	<b>86</b>	<b>1113</b>

**Table 6 Commercial vessel casualty summary 1990**

	FOUNDERED							TOTAL		FOUNDERED							TOTAL
	FIRE/EXPLOSION	COLLISION	GROUNDING	HULL/MACH DMG	MISSING	OTHER				FIRE/EXPLOSION	COLLISION	GROUNDING	HULL/MACH DMG	MISSING	OTHER		
<b>PERSONNEL</b>									<b>MATERIAL</b>								
<b>SUBTOTAL</b>	78	44	392	634	44	0	169	1361	<b>SUBTOTAL</b>	128	108	57	93	932	0	334	1652
INATT. TO DUTY	4		9	13			7	33	FAILED MATERIAL:								
ERROR JUDGEMENT	5	1	33	68	1		2	110	STRUCTURAL	89	35	22	27	318	128	619	
CARELESSNESS	6	10	7	9	10		25	67	MECHANICAL	11	32	22	28	358	100	551	
LACK KNOWLEDGE	1		3	1				5	ELECTRICAL	2	37		3	115	8	165	
FAILED TO:									CORROSION	2				15	1	18	
ACCT WIND/CRNT	1		25	15			1	42	NORMAL WEAR	1	2			16	2	21	
USE NAV EQUIP			2	4				6	IMPROPER WELDING	1				6		7	
USE RADIO								0	IMPROPER RIVETING							0	
DETERMINE POSN			5	8				13	STEERING FAILURE	1	10	9	16	5	41		
SET PASS AGREE			9	1				10	FOULED PROPELLER			6	15	69	90		
KEEP LOOKOUT	1		12	4				17	INADEQUATE:								
COMPLY RULE/REG	1	2	2	1	2			8	LIGHTING	1						1	
PROC. SAFE SPEED			2	1				3	STABILITY	15		1			1	17	
YIELD RT OF WAY			3					3	LIFESAVING EQUIP.							0	
STRESS							1	1	FIREFIGHTING EQUIP.		1					1	
FATIGUE			1	2				3	CONTROLS							0	
PSYCHOLOGICAL								0	LUBRICATION				2			2	
INTOXICATION				1				1	MAINTENANCE							0	
IMPROP LOADING	9			1			5	15	INSUFFICIENT FUEL		1		1	25	10	37	
IMPROP MAINT	9	6	1		6		38	60	PROPULSION FAIL	1		1	6	12	8	28	
IMPROP MOORING	2		3	4			14	23	FATIGUE FAILURE	1				11		12	
IMPROP RIGGING	2			1			6	9	OTHER	3	2	12	23	2	42		
IMPROP SAFETY	2	5			5			12									
OPERATOR ERROR	22	3	257	478	3		34	797									
OTHER	13	17	18	22	17		36	123									
<b>ENVIRONMENT</b>									<b>TOTALS</b>								
<b>SUBTOTAL</b>	29	1	76	209	48	0	52	415		235	153	525	936	1024	0	555	3428
ADVERSE WEATHER	8		16	32	10		22	88									
ADVERSE CURRENT	15		17	19	7		12	70									
DEBRIS			3		12		4	19									
ICE			1		4		5	10									
LIGHTNING	1							1									
SHOALING				121				121									
SUBMGD OBJECT	6		21	11	14		7	59									
CHANNEL HAZARD			11	23	1		1	36									
INADEQUATE ATON								0									
OTHER			7	3			1	11									

(cont. next col.)