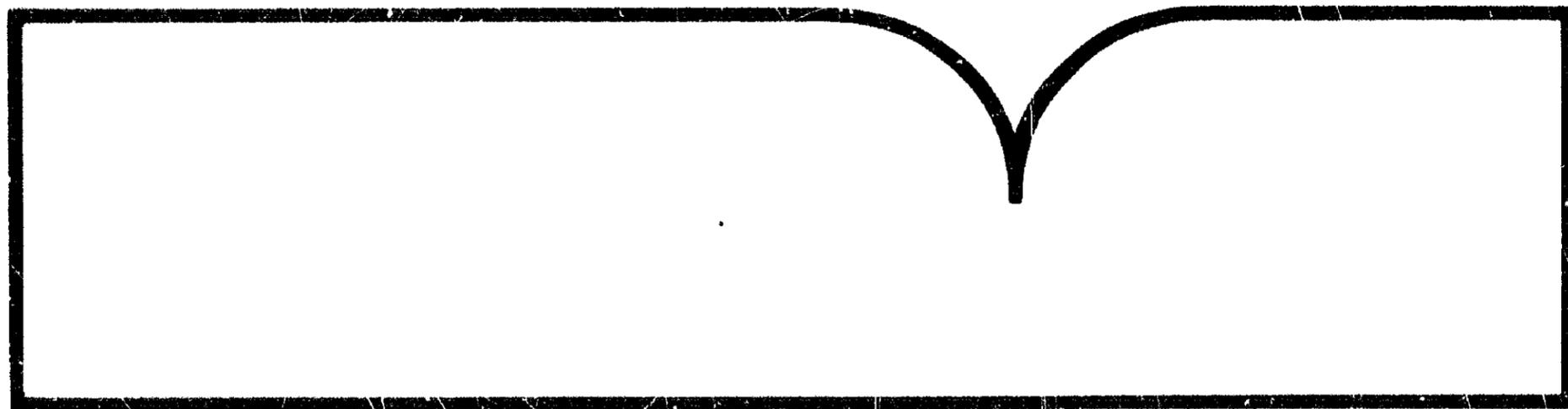


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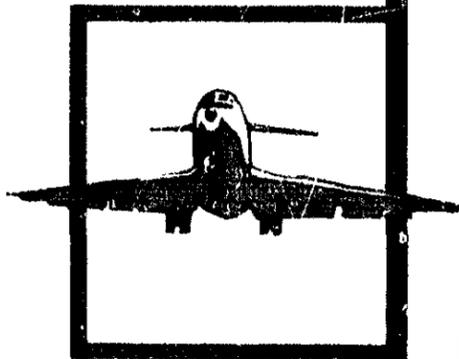
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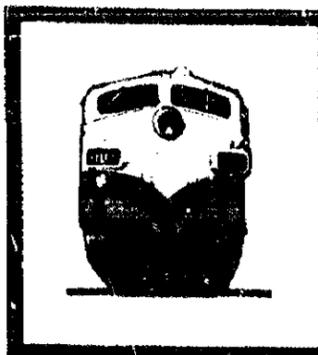


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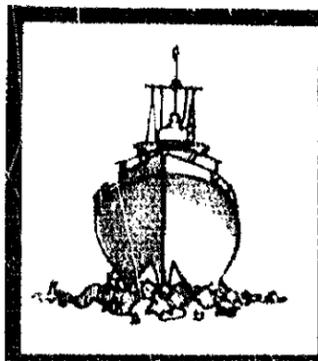


# NATIONAL TRANSPORTATION SAFETY BOARD

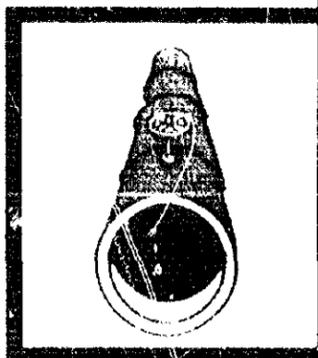
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## SAFETY STUDY



### UNINSPECTED COMMERCIAL FISHING VESSEL SAFETY



NTSB/SS-87/02



UNITED STATES GOVERNMENT

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NATIONAL TECHNICAL  
INFORMATION SERVICE  
SPRINGFIELD, VA 22161

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. NTSB/SS-87/02		2. Government Accession No. PB87-917003		3. Recipient's Catalog No.	
4. Title and Subtitle Safety Study-- Uninspected Commercial Fishing Vessel Safety				5. Report Date September 1, 1987	
				6. Performing Organization Code	
7. Author(s)				8. Performing Organization Report No.	
9. Performing Organization Name and Address National Transportation Safety Board Bureau of Safety Programs Washington, D.C. 20594				10. Work Unit No. 4696	
				11. Contract or Grant No.	
12. Sponsoring Agency Name and Address  NATIONAL TRANSPORTATION SAFETY BOARD Washington, D. C. 20594				13. Type of Report and Period Covered Safety Study--Marine	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract  In 1986, the National Transportation Safety Board undertook a safety study to examine actions undertaken by agencies and organizations to address uninspected commercial fishing vessel safety. Fishing vessel data reported to the U.S. Coast Guard for calendar years 1981 through 1984 indicated that annual losses of documented U.S. fishing vessels averaged nearly 250, a dramatic increase over the previous 10 years when losses ranged between 150 and 200 each year.  The rise of accidents from 1981 through 1984 focused attention on uninspected commercial fishing vessel safety. Further, several catastrophic casualties, such as the loss of the U.S. fishing vessels AMAZING GRACE, SANTO ROSARIO, AMERICUS, ALTAIR, WESTERN SEA, and others highlighted a number of safety issues. The Safety Board's study reviewed the results of its investigation activities over the past 18 years and the responses of organizations (public and private) to the Board's recommendations.					
17. Key Words commercial fishing vessel; uninspected fishing vessel; U.S. Coast Guard; licensing; stability; training; EPIRB; personal flotation device; alcohol use; drug use; toxic gas exposure; certification; exposure suits; bilge alarm; fire alarm; firefighting system; lifeboat; liferaft; Sea Grant.				18. Distribution Statement This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161	
19. Security Classification (of this report) UNCLASSIFIED		20. Security Classification (of this page) UNCLASSIFIED		21. No. of Pages 125	22. Price

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## EXECUTIVE SUMMARY

In 1986, the National Transportation Safety Board undertook a safety study to examine actions undertaken by agencies and organizations to address uninspected commercial fishing vessel safety. Fishing vessel data reported to the U.S. Coast Guard for calendar years 1981 through 1984 indicated that annual losses of documented U.S. fishing vessels averaged nearly 250, a dramatic increase over the previous 10 years when losses ranged between 150 and 200 each year.

The rise of accidents from 1981 through 1984 focused attention on uninspected commercial fishing vessel safety. Further, several catastrophic casualties, such as the loss of the U.S. fishing vessels AMAZING GRACE, SANTO ROSARIO, AMERICUS, ALTAIR, WESTERN SEA, and others highlighted a number of safety issues. The Safety Board's study reviewed the results of its investigation activities over the past 18 years and the responses of organizations (public and private) to the Board's recommendations.

The safety issues discussed in this report are:

- o Licensing with qualification requirements for captains of uninspected commercial fishing vessels;
- o Training requirements for captains and crewmembers;
- o Minimum standards for vessel stability and information requirements for captains/owners;
- o Requirements for basic safety equipment;
- o Alcohol and drug use in commercial fishing vessel operations; and
- o Fishing vessel safety oversight.

Recommendations were issued to the U.S. Coast Guard, the National Oceanic and Atmospheric Administration, and the National Council of Fishing Vessel Safety and Insurance.

Recommendations focused on the following safety concerns:

- o The need to establish minimum safety training standards;
- o The need to require uninspected commercial fishing vessel captains/owners to provide minimum safety training to all crewmembers;
- o The need for basic lifesaving equipment including exposure suits, flooding detection and dewatering systems, fire detection and fixed firefighting systems, Coast Guard-approved lifeboats or liferafts, and emergency radios;
- o The need for emergency position indicating radiobeacons (EPIRBs);
- o The need for safety certification and periodic inspection of uninspected commercial fishing vessels;

- o Prohibition of alcohol and drugs while engaged in commercial fishing operations;
- o The need to further publicize the dangers of toxic gas exposure in unventilated spaces on fishing vessels; and
- o The need to examine and research stability issues.

**NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.**

**SAFETY STUDY**

**Adopted: September 1, 1987**

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**UNINSPECTED COMMERCIAL FISHING VESSEL SAFETY**

The National Transportation Safety Board has had a longstanding commitment to improve the safety of uninspected commercial fishing vessels. The term uninspected commercial fishing vessel as used throughout this report denotes a vessel generally not subject to U.S. Coast Guard materiel inspection, certification, and standards in such areas as hull, machinery, lifesaving and firefighting equipment, and navigation equipment. Additionally, the vessels are not required to have licensed personnel nor documented seamen and there are no manning requirements. The National Transportation Safety Board has completed many investigations involving fishing vessel casualties. One catastrophic accident, the loss of the WESTERN SEA, illustrates many of the safety concerns that will be addressed in this study, such as stability, inspection of fishing vessels, safety equipment requirements, and alcohol/drug use.

**Loss of the U.S. Uninspected Commercial Fishing Vessel WESTERN SEA**

On August 15, 1985, the U.S. uninspected commercial fishing vessel WESTERN SEA departed Kodiak, Alaska, to fish for salmon at Izhut Bay, Afagnak Island. 1/ On August 20, 1985, the crew aboard the U.S. fishing vessel DUSK recovered a body, with a lifejacket on, which was floating in Marmot Bay about 14 nmi south by west of Marmot Island near Kodiak, Alaska. The body was delivered by the DUSK to Alaska State Troopers in Kodiak, who identified it as the body of a crewmember from the WESTERN SEA. About 1420 that day, the U.S. Coast Guard Support Center Kodiak was notified, and the Coast Guard Cutter RUSH and various Coast Guard aircraft from the Coast Guard Air Station Kodiak were dispatched to search for the unreported WESTERN SEA. The Alaska Department of Public Safety vessels VIGILANT and TROOPER and several commercial fishing vessels joined in the search. At 1740, a Coast Guard helicopter located a life ring buoy and a portion of the WESTERN SEA's wheelhouse floating about 10 nmi northwest of the position where the body had been recovered. About 2015, the U.S. fishing vessel DEEP WHALE recovered a piece of plywood about 4 nmi north-northwest of Spruce Island. The recovered plywood, which the crew of the DEEP WHALE turned over to the Coast Guard, had printed on it the WESTERN SEA's State Fishery No. 17789, which is required by the State of Alaska for vessels fishing in Alaskan waters. Several other pieces of flotsam from the WESTERN SEA were recovered, but none revealed the nature of the accident. On August 24, the Coast Guard suspended active search.

About 0945 on September 10, the Coast Guard Cutter MUNRO, on routine patrol, recovered a body with a lifejacket on, floating in the Gulf of Alaska about 16.5 nmi east of Cape Chiniak. About 1418 that day, the fishing vessel NUNIVAK recovered another body with a lifejacket, floating in the Gulf of Alaska about 25 nmi east of Cape Chiniak.

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1/ For more information, see National Transportation Safety Board's "Brief Format Issue Number 5 - Reports Issued March 3, 1987" (NTSB/MAB-87/01), p. 84, and NTSB Docket Number DCA85MM062.

The body was returned by Coast Guard helicopter to Kodiak, where it was turned over to the Alaska State Troopers for identification. Both bodies were badly decomposed, but the one recovered by the MUNRO was later identified as the master of the WESTERN SEA.

On the day the WESTERN SEA departed Kodiak, the winds were forecast to be westerly at 35 knots. The seas were forecast to be 15 feet high, but were to subside during the evening. (Figure 1 shows a fishing vessel under heavy sea conditions.)

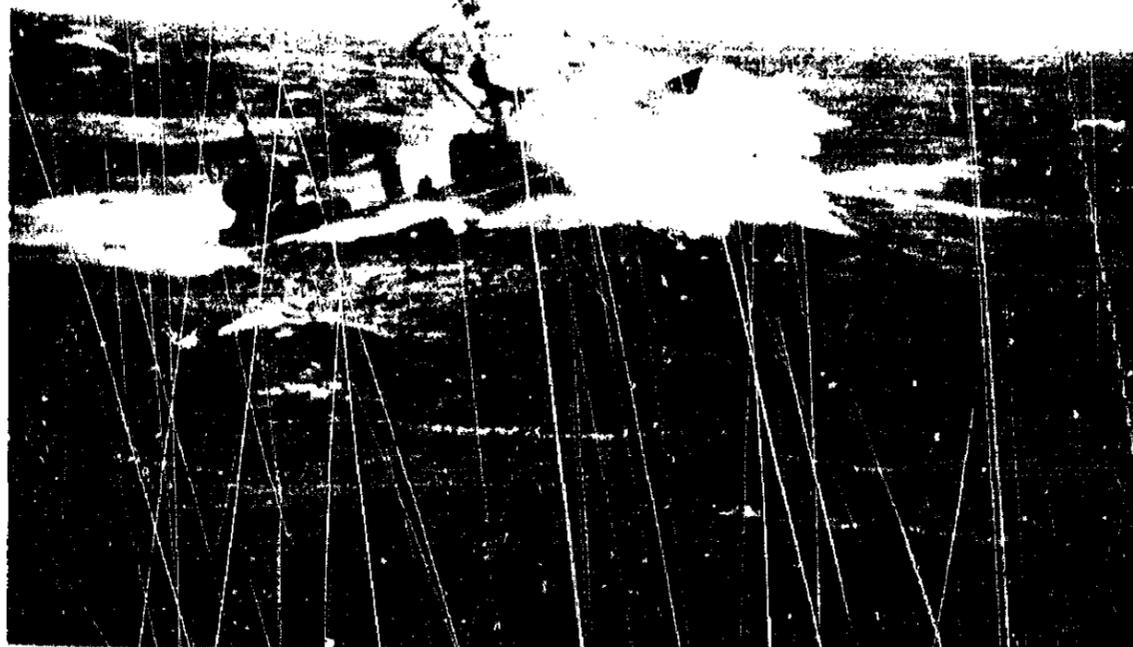


Figure 1--Photograph of fishing vessel under heavy sea conditions.

A marine surveyor's report dated June 10, 1983, showed that on that date, the WESTERN SEA was outfitted with Coast Guard-approved fire extinguishers and lifejackets. The vessel did not have and was not required to carry emergency position indicating radio beacons (EPIRBs), exposure suits for the crew, or an inflatable liferaft.

The WESTERN SEA carried an 18-foot aluminum skiff on its after deck. The skiff was propelled by an inboard 6-cylinder marine diesel engine; the additional weight of the skiff and engine may have had an adverse effect on the vessel's stability.

According to statements obtained from shipyard employees and a former crewmember, the vessel was in poor condition. Furthermore, the former crewmember said that the vessel rolled heavily in 4-foot seas because of the skiff on the after deck. However, contrary to these statements, the master's daughter, the master of the U.S. fishing vessel RHEA, and another former crewmember said that the WESTERN SEA was in good condition and that it rode well.

The master of the WESTERN SEA had been a fisherman for 35 years and he had been fishing in Alaskan waters about 20 years. He had owned and operated the WESTERN SEA for 8 or 9 years. The crew of the WESTERN SEA, however, was not very seasoned and included a number of young, inexperienced, and untrained persons.

According to a former crewmember and the master of the fishing vessel RHEA, the WESTERN SEA's master drank very little alcohol and did not allow alcoholic beverages on the vessel. However, toxicological tests of the master's body showed a blood alcohol concentration (BAC) of 0.08 percent and of 0.05 percent in the urine, and the drug screen was positive for benzoyllecgonine (cocaine metabolite in urine).

The Safety Board could not determine the probable cause of the disappearance of the WESTERN SEA. However, the Safety Board believes that the advanced age of the vessel, the reported rough sea conditions, and the master's use of drugs probably contributed to the loss of the vessel. Contributing to the loss of life were the apparent absence of an EPIRB, which allowed the accident to go undetected for some time; the absence of exposure suits, which drastically limited the survival time of crewmembers in the water; and the absence of an inflatable liferaft.

### INTRODUCTION

Commercial fishermen are involved in one of the highest risk industries in the world. The fishing industry in the United States has the poorest safety record of all U.S. industries. National statistics provided by the Coast Guard in testimony before the U.S. Congress <sup>2/</sup> indicate the following:

- o There are 33,000 documented U.S. commercial fishing vessels.
- o Annual losses of documented fishing vessels of more than 5 net tons averaged nearly 250 between 1981 and 1984. During the previous 10 years, losses had ranged between 150 and 200 each year.
- o The number of large (more than 100 gross ton) fishing vessels lost is five to seven times greater than the loss rate for U.S. oceangoing ships.
- o The death rate for fishermen is seven times the national average for all industry groups. Between 1981 and 1984, an average of 75 lives per year were lost in fishing vessel casualties.

In an agenda item dated February 19, 1987, prepared for upcoming meetings of the Maritime Safety Committee, International Maritime Organization, the Coast Guard noted that the average number of lives lost annually from U.S. fishing vessel casualties over the past several years has increased to 84. <sup>3/</sup>

<sup>2/</sup> Statement of Captain John E. DeCarteret, Chief, Marine Safety Division, District Thirteen, United States Coast Guard, before the House Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard and Navigation and the Subcommittee on Fisheries, and Wildlife Conservation and the Environment, July 27, 1985.

<sup>3/</sup> Submitted by the United States, Agenda Item 8, "U.S. Coast Guard Fishing Vessel Safety Initiatives," to the Maritime Safety Committee, International Maritime Organization, February 19, 1987.

This problem is not limited to the United States. Norway <sup>4/</sup> has documented the number of deaths per 10,000 person-years due to accidents in fishing and other occupations:

o	fishing	13.7
o	mining	10.0
o	shipping	10.0
o	supply vessels	3.6
o	construction/civil engineering	2.5
o	industry on land	1.5

The National Transportation Safety Board has reported on more than 203 fishing vessel accidents. From 1978 to 1986, the Safety Board reported on an average of 20 fishing vessel accidents annually. These were catastrophic, and they often involved fatalities and/or injuries. Further, these accidents met the definition of a "major marine casualty," defined in 49 CFR Part 850 as involving:

- (1) the loss of six or more lives;
- (2) the loss of a mechanically propelled vessel of 100 or more gross tons;
- (3) property damage initially estimated as \$500,000 or more; or
- (4) serious threat, as determined by the Commandant (Coast Guard) and concurred in by the Chairman (Safety Board), to life, property, or the environment by hazardous materials. <sup>5/</sup>

Because of the continuing and increasing problem of serious and catastrophic losses, the Safety Board undertook this study to examine current actions undertaken by responsible agencies and organizations and, more importantly, to address future corrective actions to minimize and reduce the number of fishing vessel losses.

As part of this study, the Safety Board has reviewed the results of its investigation activities over the past 18 years, all Safety Recommendations issued by the Safety Board, and the responses of the organizations to whom the recommendations were made. (See appendix A for list of selected safety recommendations.) Additionally, the Safety Board interviewed more than 100 persons directly involved in the commercial fishing vessel industry, including fishermen, marine surveyors, insurance brokers and underwriters, heads of fishing vessel associations, marine educators, Federal and State officials, naval architects, and others. (See appendix B for list of organizations.) The organizations and persons interviewed were a balanced segment of the commercial fishing vessel industry and a large number of those actively addressing the safety issues.

The Safety Board also reviewed applicable Coast Guard safety regulations for commercial fishing vessels as well as the voluntary Coast Guard safety programs designed to address safety concerns. Further, information on a variety of safety initiatives by fishing vessel associations, some foreign countries, marine surveyors, and others were reviewed and documented for the study.

<sup>4/</sup> Agenda Item 3, "Safety of Fishing Vessels, Including Possible Revision of the Torremolinos Convention for the Safety of Fishing Vessels, 1977," submitted by Norway, to the Maritime Safety Committee, International Maritime Organization, January 14, 1987.

<sup>5/</sup> Title 49 CFR Part 850, "Coast Guard-National Transportation Safety Board Marine Casualty Investigations."

The Safety Board's data on fishing vessel casualties indicate:

- o From 1978 to mid-1987, 203 accidents, involving 207 vessels and resulting in 147 deaths and 30 injuries, were investigated or caused to be investigated by the Safety Board. Property damage was estimated at \$165 million. (See appendix C for list of the 203 accidents.)
- o The 203 casualties occurred on the following waterways:

Atlantic Ocean	---	68 (33.5%)
Pacific Ocean	---	41 (20.2%)
Gulf of Alaska	---	37 (18.2%)
Bering Sea	---	26 (12.8%)
Harbors	---	23 (11.3%)
Gulf of Mexico	---	7 ( 3.5%)
Rivers	---	1 ( 0.5%)
- o Losses due to foundering, flooding, or capsizing accounted for 132 of the accidents (65 percent).
- o Losses due to fires and explosions accounted for 38 accidents (19 percent).
- o Losses due to grounding accounted for 21 accidents (10 percent). 6/

The Coast Guard reviewed its data sources and, based on vessel sinkings and fatal incidents involving the Coast Guard search and rescue and investigation activities, has indicated the general areas of safety concern from its perspective. The greatest contributor to losses, according to the Coast Guard, are foundering, flooding, and capsizing. Casualty data collected by the Coast Guard, which include a larger number of accidents than the Safety Board statistics, show that these events contributed to 43 percent of the vessel losses.

The Coast Guard has stated that some losses due to capsizing can be attributed to the way the fishing vessel was operated; for example, in some cases, the captain neglected to load or operate the vessel in accordance with recommended stability criteria. Some capsizings, however, were caused by safety equipment deficiencies. For example, had a bilge alarm had been installed in certain cases, it would have alerted the crew early to flooding of the vessel.

According to the Coast Guard, fires and explosions are the second major contributor to losses. Approximately 25 percent of the losses fall in this category. More than two-thirds of the fires and explosions resulting in casualties occur in engineroom spaces because of machinery or electrical failure. The Coast Guard has stated that if fire and smoke alarms had been installed in engineroom spaces, in many cases, this safety equipment could have alerted the crew to a fire in its early stages. 7/

6/ The other 6 percent were of unknown or miscellaneous causes.

7/ Statement of Captain DeCarteret before House Committee on Merchant Marine and Fisheries, July 27, 1985.

In the private sector, there is a relatively new database developed for the National Council of Fishing Vessel Safety and Insurance. This database is maintained by the Commercial Fishing Claims Register (CFCR) of the Marine Index Bureau. Data are collected from marine-related insurance companies on casualties and personal injuries. In the near future, the information contained in this database may provide a more complete picture of the casualties that occur in the commercial fishing industry. (Appendix D provides an example of the CFR data entry form.)

The following issues, identified during interviews and from previous Safety Board accident investigation reports, are addressed in this study:

- o Licensing with qualification requirements for captains of uninspected commercial fishing vessels--In many casualties, the captain of the fishing vessel had no formal training in vessel safety. There are no Federal or State requirements specifying the captain's qualifications.
- o Mandatory versus voluntary training requirements for captains and crewmembers-- Not only captains but also crewmembers typically have no formal training in such important vessel safety issues as navigation, radio procedures, first aid, and use of lifesaving equipment. In its investigation of a number of casualties, the Safety Board has concluded that training could have improved the outcome of the casualty.
- o Minimum standards or guidelines for vessel stability--Stability characteristics were factors in a number of Safety Board-investigated casualties. If the stability characteristics were understood and if guidance were available to captains on the proper loading of vessels, some of these casualties would not have occurred.
- o Requirements for basic safety equipment-- In many casualties, the absence of basic safety equipment drastically limited the ability of the captain and the crewmembers to survive in the sea's hostile environment. This study reviews the need for exposure suits, operable emergency radios, fire and bilge alarms, inflatable liferafts, and other equipment.
- o Telecommunications systems -- Better telecommunications could have assisted land-based rescuers searching for vessels and crews in dangerous seas. This study examines the role of EPIRBs, and the proposed new Global Maritime Distress and Search System (GMDSS) communication system.
- o Alcohol and drug use in commercial fishing vessel operations--Concern is growing that a number of fishing vessel casualties may have been brought about or worsened by the use of alcohol and/or drugs. (There is very little documented evidence of this because the casualties have not been investigated for such use.)

- o Fishing vessel safety oversight— A number of Federal agencies have fishing vessel safety responsibilities. Additionally, a number of private and educational institutions are involved in fishing vessel safety. The study reviews these organizations and how they can improve fishing vessel safety. It also looks at such entities as marine surveyors, naval architects, and the marine insurance industry (brokers and underwriters) and how each might impact fishing vessel safety.

### Examples of Commercial Fishing Vessel Operations

Commercial fishing vessel operations are extremely varied. They take place under many environmental conditions and in many different waters. The North Atlantic and Pacific Oceans and the Bering Sea generally are cold, windy, and often stormy. The Gulf of Mexico and the portion of the South Atlantic near the U.S. coast are generally warm and less prone to severe weather changes. Some fishing operations conclude in 1 day, while others last for long periods. There are many different types of fishing vessels. A description of one well-documented fleet (Washington State) <sup>8/</sup> may help demonstrate the variety of commercial fishing vessels involved in this industry.

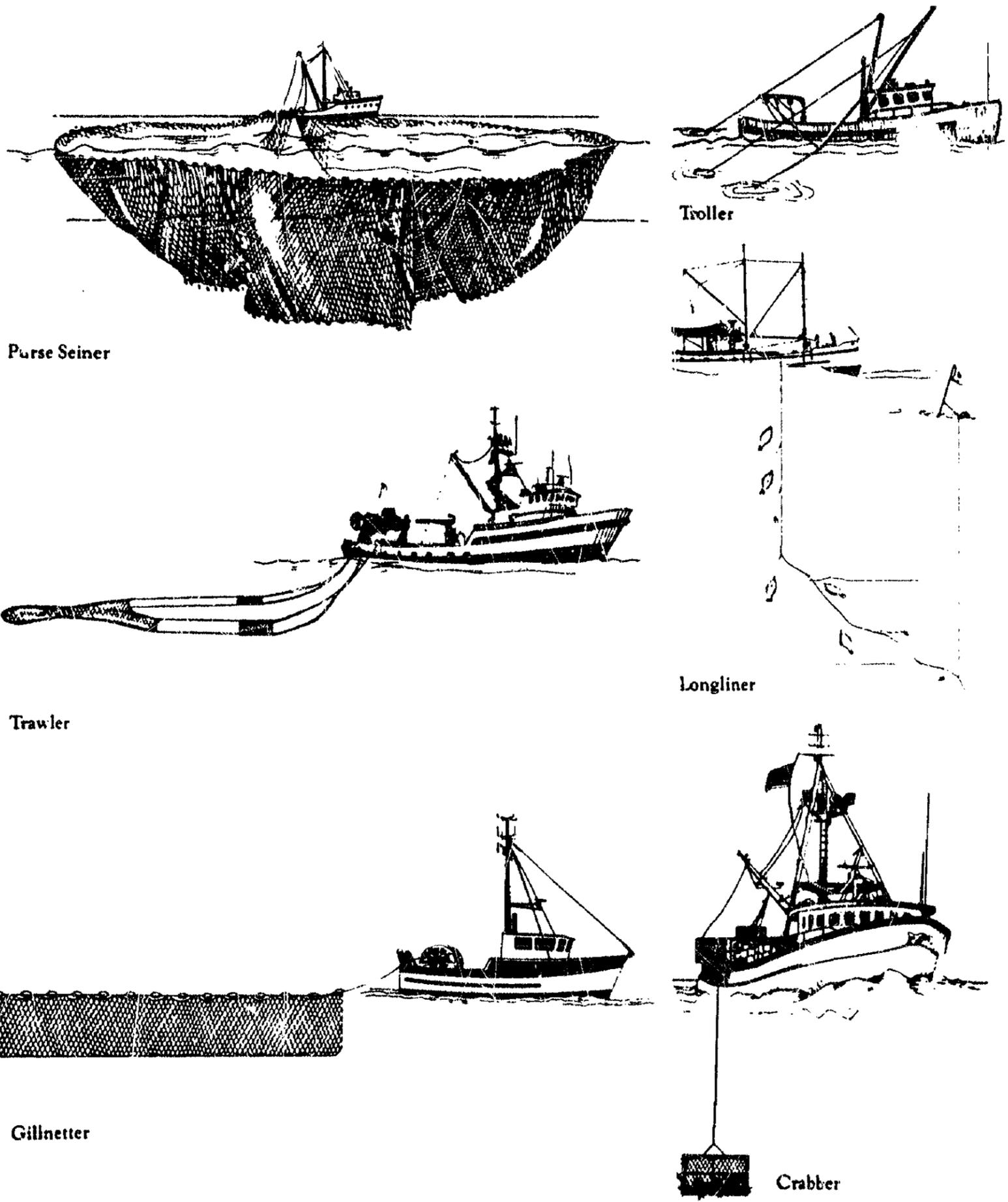
In 1985, the State of Washington documented more than 1,300 vessels in its "distant water" fleet. (The "distant water" fleet means vessels that operate outside of United States local waters and offshore coastal regions.) These vessels, ranging from 32-foot gillnetters to 300-foot factory trawler processors, provided work for more than 6,000 Washington fishermen. The Washington distant water fleets and fisheries are composed of several distinct operations, mainly purse seiners, trawlers, trollers, longliners, crabbers, and gillnetters. (See figure 2.)

Purse Seiners.--Approximately 210 vessels in Washington State are involved in purse seining for salmon and herring. (A "purse seine" is an encircling type of net designed to catch fish near the surface of the water.) Many of these vessels now set and retrieve their seine by use of a power-driven drum. The purse seiner also uses a seine skiff, often propelled by an engine as powerful as that used by the main vessel; the skiff circles the fish to ensure that they do not escape the net. (The WESTERN SEA previously referenced in this study was a seiner.) The average seiner has five to six crewmembers. Seiners range from 45 to 60 feet in length. The average value per vessel is estimated at \$190,000.

Trawlers.--Trawlers are of two sizes. "Factory" trawlers, also known as fish processing vessels, range from 130 to 300 feet in length; they usually operate with a crew of approximately 30. At least 11 factory trawlers operate in Washington. They process and freeze their catches entirely onboard. The estimated value of each factory trawler is about \$7 million.

The second type of trawler is the "joint venture" trawler. There are about 80 of these vessels in the Washington fleet, ranging in size from 60 to 120 feet, with an average crew of five. They generally use a funnel-shaped net towed astern to catch groundfish and shrimp. Many of the newer entrants to the shrimp fishery are vessels transferred from the Gulf of Mexico that use two nets side-by-side. The average value of one of these vessels is \$2.5 million.

<sup>8/</sup> See Natural Resources Consultants, "Commercial Fishing and the State of Washington: A Contemporary Economic Overview of Local and Distant Water Commercial Fisheries, 1986 (State of Washington Department of Fisheries).



Purse Seiner

Troller

Trawler

Longliner

Gillnetter

Crabber

Figure 2.--Diagrams of typical fishing vessels and their operations (courtesy of Natural Resources Consultants and the State of Washington).

Trollers.--Approximately 210 trollers are in use in Washington State. Baited lines set from poles are reeled alongside the vessel by a power gurdy spool and the hooked fish are landed. Trollers are generally 20 to 50 feet long and are operated by two fishermen. The vessels are valued at about \$100,000 to \$120,000.

Longliners.--In 1985, about 250 longliners, ranging in length from 40 to more than 100 feet and carrying an average crew of six, participated in the distant fisheries. These specialized vessels use baited hooks attached to separate lines called "ganglions". This type of vessel was introduced 60 years ago and the basic fishing operation has not changed. The average value of these vessels is estimated at \$350,000.

Crabbers.--The Washington crab fleet has about 110 vessels from 90 to 165 feet in length; the average crew size is five. These vessels use rigid pots and traps of various designs to trap fish or shellfish. The double-framed steel posts commonly used for harvesting king and Tanner crab measure 7 feet square by 30 inches high and weigh about 700 pounds each. Each of these pots can catch and retain more than 1,000 pounds of crab. Crabbers are worth, on average, about \$1.5 million.

Gillnetter.--A gillnet is an upright fence of netting; fish are caught as they swim into the mesh of the net. The Washington gillnet fleet consists of approximately 400 vessels of 20 to 40 feet, with an average crew of two. The vessels are valued at about \$100,000 each.

The Washington fleet more or less represents commercial fishing operations off the Atlantic and Gulf Coasts. However, some specialized fishing vessels in these fleets are not found in the Washington State fleet, such as scallopers, dredgers, clambers, and large tuna seiners.

## CHAPTER 1

### LICENSING WITH QUALIFICATION REQUIREMENTS FOR CAPTAINS

About 0430, on July 23, 1984, the 70.5-foot-long U.S. fishing vessel SANTO ROSARIO, while fishing about 35 nmi east of New Smyrna Beach, Florida, capsized and sank. Three crewmembers were rescued by a fishing vessel nearby, but the fourth, sleeping below deck, went down with the vessel and was drowned. 9/

About November 14, 1984, the 86-foot-long, uninspected U.S. fishing vessel AMAZING GRACE sank about 80 nmi east of Cape Henlopen, Delaware; there probably were seven crewmembers aboard. The AMAZING GRACE has never been located, and the crewmembers are missing and presumed dead. A 16-day search by the Coast Guard turned up only one of the two liferafts from the vessel. 10/

Both crews of the AMAZING GRACE and the SANTO ROSARIO were typical of most fishing vessels. The captains had no formal training in vessel safety. Like most captains, they had served as deckhand mates and as operators under captains who also had little formal training in stability, firefighting, or use of lifesaving equipment.

Currently, there is very little if any incentive for a captain to seek training. The only measure of a captain's worth is his or her ability to locate and catch fish. There is no incentive to take time off work to attend training courses, seminars, or expositions that address safety.

The Safety Board believes that a licensing program requiring captains to understand stability, firefighting, the use of lifesaving equipment, rules of the road, and watertight integrity, would provide some incentive for training and would therefore remedy the high loss of fishing vessels and lives. At this time, the Coast Guard does not require captains of U.S. uninspected commercial fishing vessels of 200 gross tons or less (such as the AMAZING GRACE and the SANTO ROSARIO) to have licenses that require demonstrated knowledge of these subjects listed above.

Approximately 1.5 percent (about 500) of the 33,000 documented commercial fishing vessels in the U.S. are more than 200 gross tons and require the captains to be licensed; 11/ therefore, captains of the other 98.5 percent of the U.S. fishing vessel are not required to have licenses. In contrast, operators of uninspected towing vessels are required by Coast Guard regulations to have a license (46 CFR Part 10.16, "Licenses for Operation of Uninspected Towing Vessel"). This regulation sets out eligibility requirements (time in service), knowledge requirements, and the applicability of other regulations to the license holder. Specifically, the applicant must pass a written examination on practical problems. (An oral examination in lieu of the written can be given if the examiner deems it necessary.) Examination subjects include:

9/ For more detailed information, read Marine Accident Reports, "Capsizing of the U.S. Fishing Vessel AMERICUS and Disappearance of the U.S. Fishing Vessel ALTAIR, Bering Sea, North of Dutch Harbor, Alaska, February 14, 1983" (NTSB/MAR-86/01), and "Sinking of the U.S. Fishing Vessel SANTO ROSARIO, about 35 Nautical Miles East of New Smyrna Beach, Florida, July 23, 1984" (NTSB/MAR-86/06).

10/ For more detailed information, read Marine Accident Report, "Loss of the U.S. Fishing Vessel AMAZING GRACE about 80 Nautical Miles East of Cape Henlopen, Delaware, about November 14, 1984" (NTSB/MAR-85/07).

11/ See Agenda Item No. 8, submitted by the Coast Guard to the Maritime Safety Committee, International Maritime Organization, February 19, 1987.

- o rules of the road;
- o practical use of the magnetic compass (except for western rivers);
- o operation and use of navigation instruments and accessories;
- o emergency signals;
- o practical use of charts in navigation;
- o aids to navigation;
- o lifesaving and simple first aid;
- o firefighting equipment and procedures and fire prevention; and
- o seamanship for most areas.

Additionally, the rules call for knowledge of the regulations and laws applicable to the operation of a towing vessel, pollution prevention and control, more indepth training in first aid, and celestial navigation for operations more than 200 miles offshore.

In contrast to these requirements, the captains of uninspected commercial fishing vessels do not have to meet any qualification requirements, including knowledge of safety practices. Therefore, in its report on the AMAZING GRACE accident, the Safety Board recommended that the Coast Guard:

M-85-68

Seek legislative authority to require the licensing of captains of commercial fishing vessels, including a requirement that they demonstrate minimum qualifications in vessel safety including rules of the road, vessel stability, firefighting, watertight integrity, and the use of lifesaving equipment.

This recommendation was also reiterated in the Safety Board's reports on the SANTO ROSARIO and the AMERICUS/ALTAIR accidents.

In their response of January 8, 1986, the Coast Guard replied that "this recommendation is not concurred with." The Coast Guard has emphasized a voluntary approach, based on a set of voluntary guidelines and a training program developed by an organization on the West Coast. Based on the Coast Guard response, the Safety Board classified the recommendation as "Open--Unacceptable Action," and asked the Coast Guard to reconsider its position because such voluntary programs have not been successful in the past, and the Board believes that mandatory licensing would be more effective.

During research for this study, the Safety Board staff discussed the licensing issue with fishing vessel fleet managers, captains, fishing vessel association leaders, and others. Basically, three positions were articulated. The first position reflected the notion that the sea will "take her own" no matter what safety programs are instituted, including licensing of captains. A second position is that a voluntary program of following standards issued by the Coast Guard (such as Navigation and Vessel Inspection Circular 5-86 (NVIC 5-86) "Voluntary Standards for U.S. Uninspected Commercial Fishing Vessels") and instituting a voluntary training program, such as that produced by the North Pacific Fishing Vessel Owners' Association (NPFVOA), would improve the safety picture over the next 5 to 10 years. This position, shared by the Coast Guard and a number of fishing vessel associations, includes the belief that a large number of captains would complete the voluntary training program and, upon understanding the NVIC 5-86, would be able to undertake their jobs without mandatory licensing qualification requirements.

The third position holds that one of the difficulties with a completely voluntary program is that, although safety in the short term may improve, many vessels will continue to operate without even the most fundamental safeguards (as did the WESTERN SEA) and that long-term improvements cannot be sustained without a required licensing program. Many of those interviewed held that voluntary programs would never reach more than 60 percent of the fishing vessel fleet and that a licensing program should be undertaken.

One maritime expert <sup>12/</sup> pointed out recently that every fishing vessel casualty includes at least four classes of possible victims: the injured or killed crewmembers and their families; Coast Guard personnel, who risk their lives in search and rescue operations; other fishing vessel owners, who pay for loss of vessels and the poor safety practices of others through increased insurance premiums; and the taxpayers, who ultimately pay for the extensive search and rescue programs maintained by the Coast Guard at least in part for the benefit of the fishing industry.

Because of the number of innocent persons involved in maritime tragedies, one manager of a large fleet stated that at least one person on a commercial fishing vessel should have to meet some type of qualification requirements. <sup>13/</sup> (This fleet's safety program includes a requirement that its captains have a Coast Guard license, as well as safety training for crewmembers and captains.)

Those interviewed made several suggestions as to natural divisions that should warrant licensing with qualification requirements. For example, marine surveyors interviewed in the New Orleans area stated that captains of vessels operating more than 20 miles offshore or on the high seas should be licensed, and should be knowledgeable in the rules of the road, firefighting, emergency procedures, the use of emergency equipment, vessel stability, and watertight integrity. <sup>14/</sup> A fleet manager in the Seattle area suggested that all vessels of 15 tons or more should have a licensed captain. <sup>15/</sup> A vice president of the Atlantic Offshore Fishermen's Association indicated that a survey of his association found his membership favoring a license for captains, particularly for vessels fishing in the Atlantic Ocean. <sup>16/</sup> Another suggestion was that the vessel length should be the determining factor. The length most often cited was 12 meters (approximately 40 feet). This length was cited apparently because the United Kingdom requires license certificates for captains of fishing vessels of this length.

A private marine investigator and former captain of several fishing vessels indicated that the distance from shore should not be a factor, since it is as dangerous a few miles offshore as on the high seas. This investigator provided numerous examples of Gulf Coast shrimp trawlers that had sunk close to shore. (See figure 3.) He believed that requiring a license for all captains of uninspected commercial fishing vessels could improve fishing vessel safety if the license and qualification requirements tested areas of knowledge specifically applicable to the industry. <sup>17/</sup>

<sup>12/</sup> Dennis W. Dixon, "Recent Developments in U.S. Commercial Fishing Vessel Safety, Insurance, and Law," Journal of Maritime Law and Commerce, Vol. 17, No. 3, July 1986.

<sup>13/</sup> Interview with Fleet Manager, Westward Travelers, Inc., Seattle, Washington, November 1986.

<sup>14/</sup> Interview with marine surveyors, Marine Surveyors Guild, Metairie, Louisiana, June 23, 1987.

<sup>15/</sup> Interview with fleet manager, Westward Trawlers, Inc., November 23, 1986.

<sup>16/</sup> Interview with vice president, Atlantic Offshore Fishermen's Association, January 1977.

<sup>17/</sup> Interview with private marine investigator/fishing vessel captain, Houston, Texas, April 1987.

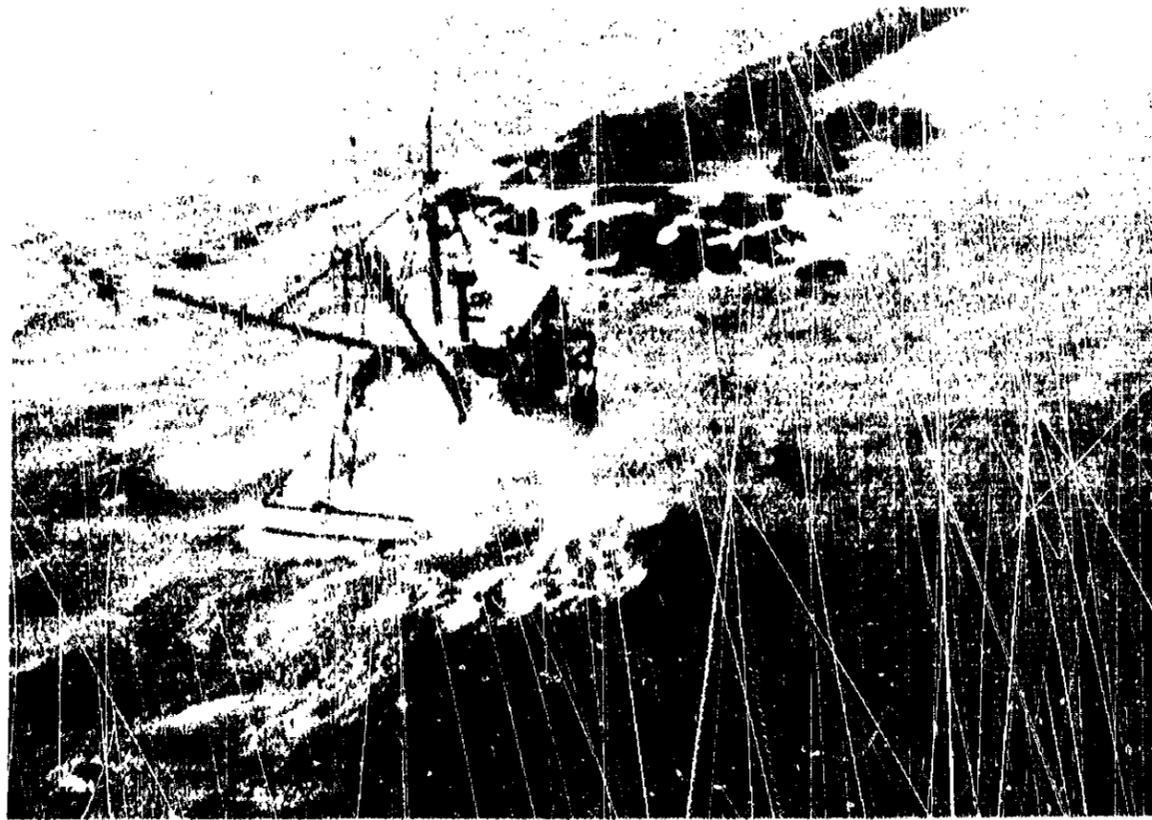


Figure 3.--Gulf Coast shrimp trawler casualty offshore.

The Safety Board continues to believe that fishing vessel captains should demonstrate knowledge of basic safety procedures and equipment. The mechanism to ensure that captains have completed the needed training would be a certificate or license of competency. All captains should be required to have a fishing vessel captain's license based on qualification requirements issued by the Coast Guard or under a program certified by the private sector but closely monitored by the Coast Guard.

To be issued a license, an applicant should be required to meet qualifications similar to those set out in 46 CFR Part 10.16 for uninspected towing vessel operators. The Coast Guard already has a structured program for licensing operators of uninspected towing vessels using the Officers in Charge, Office of Marine Inspection. This element of the Coast Guard could handle a similar licensing program for uninspected fishing vessel captains. Training requirements would obviously be an important element of this program, and are discussed in the next chapter.

## CHAPTER 2

### MANDATORY VERSUS VOLUNTARY TRAINING REQUIREMENTS FOR CAPTAINS AND CREWMEMBERS

On August 7, 1985, the U.S. uninspected fishing vessel SEA DANCER, with four persons onboard, sank in Bristol Bay, Alaska, approximately 55 nmi northwest of Cold Bay, Alaska. The seas were 16 to 20 feet high, and winds were 35 to 45 knots. The vessel began to take water from high seas through a door and hatchways to the fishholds. The captain informed the Coast Guard and several nearby fishing vessels that the vessel was taking on water and needed assistance. One fishing vessel, the PEGGY SUE, reached the SEA DANCER and assisted in the rescue of the captain and two others. One person aboard the SEA DANCER was reluctant to enter the water even though she was in an exposure suit. She had not been trained in the proper use of such lifesaving equipment and, as the vessel sank, she remained onboard. The captain testified that he saw her appear and then quickly disappear. She has never been seen again. The Safety Board determined that contributing to the accident was the owner's failure to ensure that the SEA DANCER's captain was adequately trained in vessel stability. 18/

The Safety Board has addressed the need for training captains and crewmembers in a number of other catastrophic accident reports, including its reports on the sinking of the SANTO ROSARIO, the loss of the AMAZING GRACE, the capsizing of the AMERICUS, and the disappearance of the ALTAIR. Other Safety Board reports, such as those on the sinking of the BONAVENTURE, the capsizing of the LIBERTY, and the sinking of the ATLANTIC MIST, highlighted the need for training in specific areas, such as watertight integrity. 19/

The Safety Board has attempted to address the training issue in three ways: through the Coast Guard, through fishing vessel associations, and through individual fishing vessel companies.

#### Training through the Coast Guard

As discussed earlier, the Board has recommended that the Coast Guard seek licensing authority. Such a license would be issued only after the applicant demonstrates minimum qualifications in vessel safety. The intent of the recommendation is that captains be trained to be proficient in such subjects as rules of the road, firefighting, vessel stability, watertight integrity, and the use of lifesaving equipment.

In response, the Coast Guard has agreed that training should be one component of an overall safety enhancement program but does not concur that training for captains should be required. Instead, the Coast Guard partially funded the preparation of a "Vessel Safety Manual" by a consultant for the NPFVOA. The manual is intended as a study and reference tool and addresses the areas recommended by the Safety Board for inclusion in

18/ For more detailed information, read Marine Accident/Incident Summary Report--"Bristol Bay, Alaska, August 7, 1985" (NTSB/MAR-86/01/SUM).

19/ For more detailed information, read Marine Accident/Incident Summary Reports, NTSB/MAR-85/02/SUM, p. 1 for the report of the BONAVENTURE and p. 11 for the report on the LIBERTY; Marine Accident/Incident Summary Report--"U.S. Fishing Vessel ATLANTIC MIST, Atlantic Ocean, Approximately 15 NMI East of Chincoteague Island, Virginia, January 31, 1985" (NTSB/MAR-85/03/SUM).

a mandatory education program for captains. It is designed to complement the Coast Guard's Navigation and Inspection Circular (NVIC) 5-85. In conjunction with the "Vessel Safety Manual," the NPFVOA offers the following courses as part of its voluntary Vessel Safety Program:

- o Firefighting and Control.--Hands-on practice at fighting fires under realistic conditions using a 147-foot vessel simulator and other "props" at the Washington State Fire Training Center.
- o Safety Equipment and Survival Procedures.--Survival theory followed by in-the-water simulations using exposure suits, inflatable liferafts, signalling devices, and other survival gear. Instruction covers man-overboard and abandon ship emergencies, including survival at sea and ashore, hypothermia, and cold-water near-drowning.
- o Medical Emergencies at Sea.--Hands-on practice at patient assessment, wound management, CPR, and other medical techniques. Includes discussion with Coast Guard flight surgeons and search and rescue experts.
- o Navigation and Stability.--Overview of navigation, piloting, rules of the road, collision avoidance, wheelhouse electronics, and stability.
- o Vessel Safety Orientation.--Under the guidance of the vessel captain and safety program instructor, development of contingency plans for dealing with various emergencies.

Each of these topics is taught in a separate 1-day course; the entire program costs approximately \$265. (The 1-day vessel safety orientation component, involving an entire vessel's crew, costs an additional \$300 for the captain/owner.) As of the writing of this study, approximately 5,000 copies of the NPFVOA "Vessel Safety Manual" have been published. About 420 captains and crewmembers have attended more than 50 classes in the Seattle area.

#### Training through Fishing Vessel Associations

The Safety Board has also recommended to the National Council of Fishing Vessel Safety and Insurance that, through its membership of fishing vessel organizations, it "foster the training of fishing vessel captains and their crews, as appropriate, in basic safety such as stability, watertight integrity, firefighting, and the use of lifesaving equipment" (M-85-82).

The primary purpose of the National Council of Fishing Vessel Safety and Insurance is to develop a nationwide program aimed at reducing loss of life, vessels, and equipment and at lowering insurance costs in the U.S. fishing industry. To date, this organization has not replied to the Safety Board's recommendation.

#### Training through Individual Fishing Vessel Companies

Finally, the Safety Board has issued recommendations directly to a few individual fishing vessel companies and/or owners involved in tragic casualties. As a result of the AMAZING GRACE casualty, for example, the Safety Board issued Safety

Recommendation M-85-78, advising several companies to "provide fishing vessel captains training in stability, watertight integrity, firefighting, and the use of lifesaving equipment, and [to] train their crews in basic safety procedures at the beginning of each voyage" (M-85-78). These companies replied favorably to the Board's recommendation and, based on the companies' responses, the recommendation was "Closed-Acceptable Action" on June 24, 1987.

The idea of voluntary fishing vessel safety training and the issuance of manuals in support of such training is not new. As early as 1968, a bulletin entitled "Safety Notes for the Alaskan Fisherman" was issued by the U.S. Bureau of Commercial Fisheries and the Coast Guard. This bulletin included sections on icing, abandoning ship, survival, first aid, safety equipment, and stability. More than 16,000 copies of this manual were distributed within 2 years. In 1973, the Alaska Fishing Safety Council recommended the reissue of this bulletin and requested that the University of Alaska Marine Advisory Program undertake this effort. This publication continues to be very popular in Alaska and is still available.

On the east coast, another type of document was prepared, reflecting the concern of some fishing industry professionals that a mechanism was needed to disseminate safety information to fishing vessel captains and crewmembers. In 1982, the "Atlantic Fisherman's Handbook" was published; unlike the Alaska publication, this was undertaken as a commercial venture. This handbook was issued only once and no Federal funds were used to publish it. This book included sections on: deck, engineering and pilot skills; stability; icing; vessel casualty prevention; search and rescue; weather; first aid; and other safety-related topics.

Persons who worked on both documents say they were developed and published to address the high number of fishing vessel casualties that existed more than 14 years ago. Indeed, during the 1973 to 1974 fishing season, 289 vessels were involved in marine casualties in Alaska, resulting in the deaths of 29 fishermen. The number of fishing vessel casualties continues to be high today. These persons indicated that a continuing, mandatory training program would provide a better way to improve safety than would a voluntary program, and that voluntary efforts are good but do not have the staying power to focus on an issue. Thus, they believed that the North Pacific Fishing Vessel Owners' Association's training and the "Vessel Safety Manual" would be helpful to those owners, operators, captains, and crewmembers who attend the training, but that they would have very little impact over the long term because most owners, operators, captains, and crewmembers would not attend due to the cost. 20/

#### Training Through Sea Grant Programs

The National Oceanic and Atmospheric Administration (NOAA) funds and directs the Sea Grant programs for coastal and Great Lakes state universities. Sea Grant programs were created by Congress in 1968 as part of a national network to "promote the understanding, wise use, and enhancement of State, regional, and national marine resources through a broadly integrated program of research, education, and public service."

20/ Interviews with Executive Director, United Fishermen of Alaska, November 24, 1986, and Vice President, Atlantic Offshore Fishermen's Association, January 21, 1987.

One-third of the Sea Grant program involves a network of State extension marine agents who work through the universities' Cooperative Extension Services. Some of these marine agents and their respective universities have initiated voluntary training programs. For example, the Virginia, Massachusetts, North Carolina, Connecticut, and Alaska Sea Grant programs have at one time or another addressed fishing vessel safety through films, seminars, courses, or specific safety equipment demonstrations. However, it has been reported to the Safety Board that the number of fishermen attending such courses and seminars has been small. <sup>21/</sup>

Historically, there has been little demand for fishing vessel safety courses because there were no Coast Guard requirements for such training. Similarly, the marine insurance industry has provided very little incentive for such training. At present, most marine insurance companies neither provide requirements regarding the experience or training of fishing vessel captains or crewmembers for vessels they insure, nor have they taken any actions to reduce premiums for owners/operators/captains who have undertaken voluntary safety training. Further, voluntary fishing vessel training courses may be popular for awhile if they can be attended at no cost; however, as soon as a cost is imposed, these courses, developed at considerable public/private expense, may not be sustained. As long as Federal funding is available, the training courses seem to be able to continue.

The voluntary initiatives developed by the Coast Guard have had some impact in the development of private responses by a few well organized fishing vessel associations. (The compelling reason for these initiatives has been to reduce insurance premiums through reduced claims.) These voluntary programs fall into two categories. The first includes efforts by individual associations to develop training similar to the NPFVOA's "Vessel Safety Manual." Efforts are underway in at least two associations, the Texas Shrimp Association and the Southeastern Fisheries Association, to create a training program tailored for their particular fisheries. The second category includes dissemination by associations of the NPFVOA "Vessel Safety Manual" and development of specific minimum safety requirements for their members. If a member in one of these associations does not improve the safety of his/her vessel over a specified period, the member would be asked to leave the association. By requiring members to meet some minimum improved safety level, these associations hope to improve the safety record of their vessels so that insurance companies will reduce their members' insurance premiums.

These efforts represent a sincere and dedicated approach by a number of highly motivated associations and individuals to improve fishing vessel safety. However, only an estimated 13,000 or fewer fishing vessels are in organized associations. This means that at least 20,000 fishing vessels are not subject to any safety training requirements through "voluntary" initiatives.

There is considerable evidence from accident investigations that most captains and crewmembers have not had any training in safety areas applicable to uninspected commercial fishing vessel operations. There is also a seasonal workforce that is lured to fishing ports by advertisements like the one found in Newsweek's campus edition of February 3, 1987: "Earn over \$5,000 this summer working in Alaska . . . Positions are now available for men and women on fishing vessels . . ." The Safety Board does not believe that inexperienced persons, such as some of the crew of the WESTERN SEA, should work in commercial fishing vessel operations without proper training. Indeed, the Safety Board believes that fishing vessel associations should adopt policies to hire only people who have attended formal training courses. It is not likely that new employees will be trained without some type of outside motivation.

<sup>21</sup> See note 10.

Therefore, the Safety Board believes that the Coast Guard should establish minimum training standards, since most of the 33,000 fishing vessels owners/captains/crew are not in any organized association that requires safety training. The minimum areas that should be addressed in a training program include rules of the road, the watertight integrity of the vessel, basic navigation principles, vessel stability and the "stability letter" or "book" provided by competent naval architects, firefighting methods, and the use of critical lifesaving equipment. The safety training to be undertaken by crewmembers should be commensurate with their responsibilities on a vessel. For example, a deckhand may not need training in navigation if he/she never has a reason to navigate a vessel.

The Coast Guard is fostering one (voluntary) training approach through the NPFVOA. Certainly, the marine agents of the Sea Grant Marine Advisory program could be another resource for the development of a nationwide training program; for example, the Coast Guard-approved NPFVOA training program could be accelerated nationwide through the Sea Grant Marine Advisory program network.

Further, the Safety Board believes that owners and captains have the responsibility to ensure that crewmembers have basic safety training in those areas critical to their survival, such as medical emergencies, use of safety equipment, survival procedures and contingency planning, firefighting, and (if appropriate) navigation and rules of the road.

Additionally, safety training could be reinforced if owners and captains of fishing vessels provided drills in the actual use of safety equipment on board the vessel before departing to sea, and if the captain's log noted such training drills.

### CHAPTER 3

#### COMMERCIAL FISHING VESSEL STABILITY

Two tragic casualties focused attention on the problem of fishing vessel stability. About 0230 on February 14, 1983, the fishing vessel ALTAIR departed Dutch Harbor, Alaska, for the crab fishing grounds near Pribilof Island in the Bering Sea. About 0330, the helmsman of another fishing vessel en route to Dutch Harbor saw the ALTAIR proceeding on a course toward Pribilof Island at about 10 knots. About 0830, the fishing vessel AMERICUS, a sistership to the ALTAIR, departed Dutch Harbor for the same crab fishing grounds. Both the AMERICUS and the ALTAIR on departure were fully loaded with crab pots. About 1430, the capsized hull of the AMERICUS was sighted about 30 nmi north of Dutch Harbor. The ALTAIR was never seen again. The AMERICUS' seven crewmembers and the ALTAIR's seven crewmembers are missing and presumed dead. The value of the two vessels was estimated at \$6.2 million. <sup>22/</sup>

The Safety Board concluded that the probable cause of the capsizings was the vessels' inadequate intact stability, caused by improper loading and the addition of trawling gear. Contributing to the accidents was the owners' failure to determine the stability characteristics of the vessels and to amend the vessels' stability information after trawling gear was installed, and the captains' failure to comply with the provisions of the existing stability information.

Maintaining proper stability on a fishing vessel is a critical factor that must be enforced by the captains. Stability may be reduced during certain fishing operations, such as hauling nets or pots. The stability of a vessel is constantly changing as fuel is used and cargo is placed in holds. As seen in the AMERICUS and ALTAIR casualties, stability can be detrimentally affected by installation of equipment or, as seen in the WESTERN SEA, by the additional weight of a heavy purse seine skiff.

Some basic stability tests and requirements can greatly improve commercial fishing vessel safety by providing captains/owners with needed stability information. For example, every vessel should have a stability test to locate the center of gravity and establish the weight displacement of the fishing vessel. With information from a captain/owner, the naval architect can determine the vessel's safe loading conditions, based upon a generally accepted stability standard. Currently, the most accepted standards, recognized by most European nations, are the International Maritime Organization (IMO) Fishing Vessel criteria (the "Torremolinos Convention") and the IMO's Severe Wind and Rolling criteria. These standards are accepted in the Coast Guard's voluntary safety guidelines with some modifications and are published in NVIC 5-86. <sup>23/</sup>The Torremolinos criteria cover initial stability with the vessel at rest, but also require a range of stability and a minimum total righting energy. Additionally, the Coast Guard's NVIC Circular 5-86 provides recommended damage stability criteria in the event that an uninspected commercial fishing vessel floods from some unexpected collision, grounding, or other flooding event.

<sup>22/</sup> For more detailed information, read Marine Accident Report--"Capsizing of the U.S. Fishing Vessel AMERICUS and Disappearance of the U.S. Fishing Vessel ALTAIR, Bering Sea, North of Dutch Harbor, Alaska, February 14, 1983" (NTSB/MAR-86/01).

<sup>23/</sup> For more detailed information, read the Coast Guard's Navigation and Vessel Inspection Circular No. 5-86, entitled "Voluntary Standards for U.S. Uninspected Commercial Fishing Vessels," August 18, 1986, and the "Stability" section of the NPFVOA's "Vessel Safety Manual," April 7, 1986.

As important as the determination of safe loading conditions is the need for naval architects to provide stability reports or "letters" that are easily understood by fishing vessel captains. Generally, the stability test data are provided on a Coast Guard form entitled "Stability Test Data." The test recommended by the naval architects interviewed during this study was an inclining test, completed and documented in accordance with Coast Guard NVIC 15-81, "Stability Tests and Procedures." This test costs about \$3,000 to \$4,000. The information on the stability reports reviewed during this study were easy to understand. (See appendix E for an example of a written stability report.)

Stability is affected by a number of factors bearing on the tendency of a vessel to right itself. These factors are cumulative, so that one factor or many may play a role in making a vessel unstable. The Safety Board has investigated many accidents in which the factors influencing stability have been causal. A brief discussion of some of these factors 24/ and relevant Safety Board cases follows.

### Load Height

Figure 4 shows a typical fishing vessel with its catch in the hold (condition 1). The vessel is basically stable, as seen from the righting arm illustration--the area shaded represents the large righting energy. If the same fish catch is moved up on deck (condition 2), there is a marked reduction in the righting energy. A vessel in this condition would be extremely vulnerable and could capsize from a roll. 25/

In condition 2, the rise in the center of gravity caused by the placement of the catch or by the addition of any new weight such as crab pots, heavy winches, and/or drums, and the burnout of fuel from bottom tanks could affect the stability of the fishing vessel.

The Safety Board has reported several such casualties resulting from increased load height. For example, on September 1, 1983, the GOLDEN VIKING was en route to the fishing grounds off St. Matthew Island, Alaska, where the captain planned to set crab pots. The crew had loaded 102 crab pots on deck from an underwater storage area approximately 70 nmi southeast of the island. The weather was calm. Three tons of fresh bait in containers were located on the port side of the pilothouse. The captain stated that the usual method of loading crab pots on the GOLDEN VIKING resulted in a slight port list; the list on this day was increased by the weight of the fresh bait on the port side. While the vessel was at the storage area, the engineer reduced the list by transferring fuel from the port to the starboard tanks. 26/

Northeasterly winds increased to 25 to 30 knots as the GOLDEN VIKING proceeded toward the fishing grounds. The waves were 4 feet high with 8- to 9-foot swells. The captain noticed an increase in the port list and altered his course.

Shortly after noon, the captain changed the vessel's heading. On this course, the seas were striking the vessel's starboard bow. At 1330, as the vessel was slowly turned to port in preparation for setting the crab pots, a large wave shipped over the starboard rail. The vessel listed to starboard and did not right itself.

24/ For more detailed information on stability factors, read the NPFVOA "Vessel Safety Manual", April 17, 1986, and the Coast Guard's NVIC 5-86.

25/ Figure 9 is taken from the NPFVOA's "Vessel Safety Manual."

26/ For more detailed information, read Marine Accident Report "Brief Format Issue Number 2-Reports Issued August 21, 1985" (NTSB/MAB-85/01), pages 55 and 56, and NTSB Docket Number DCA 83AM077.

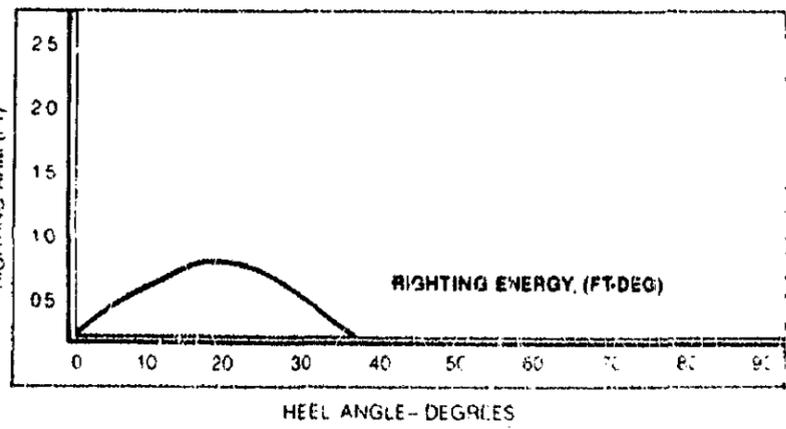
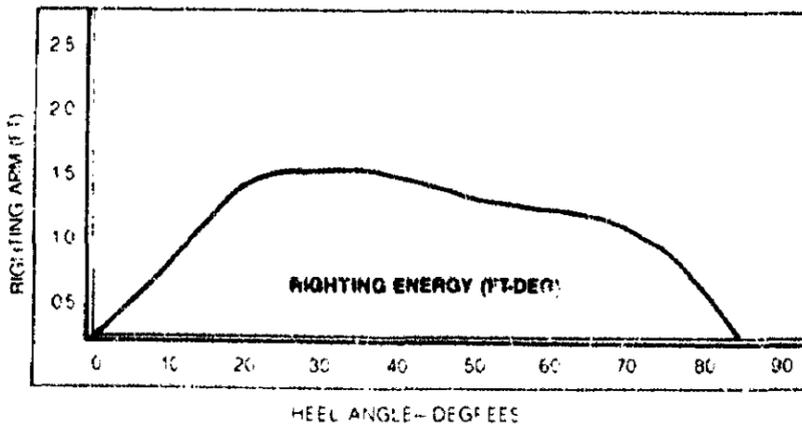
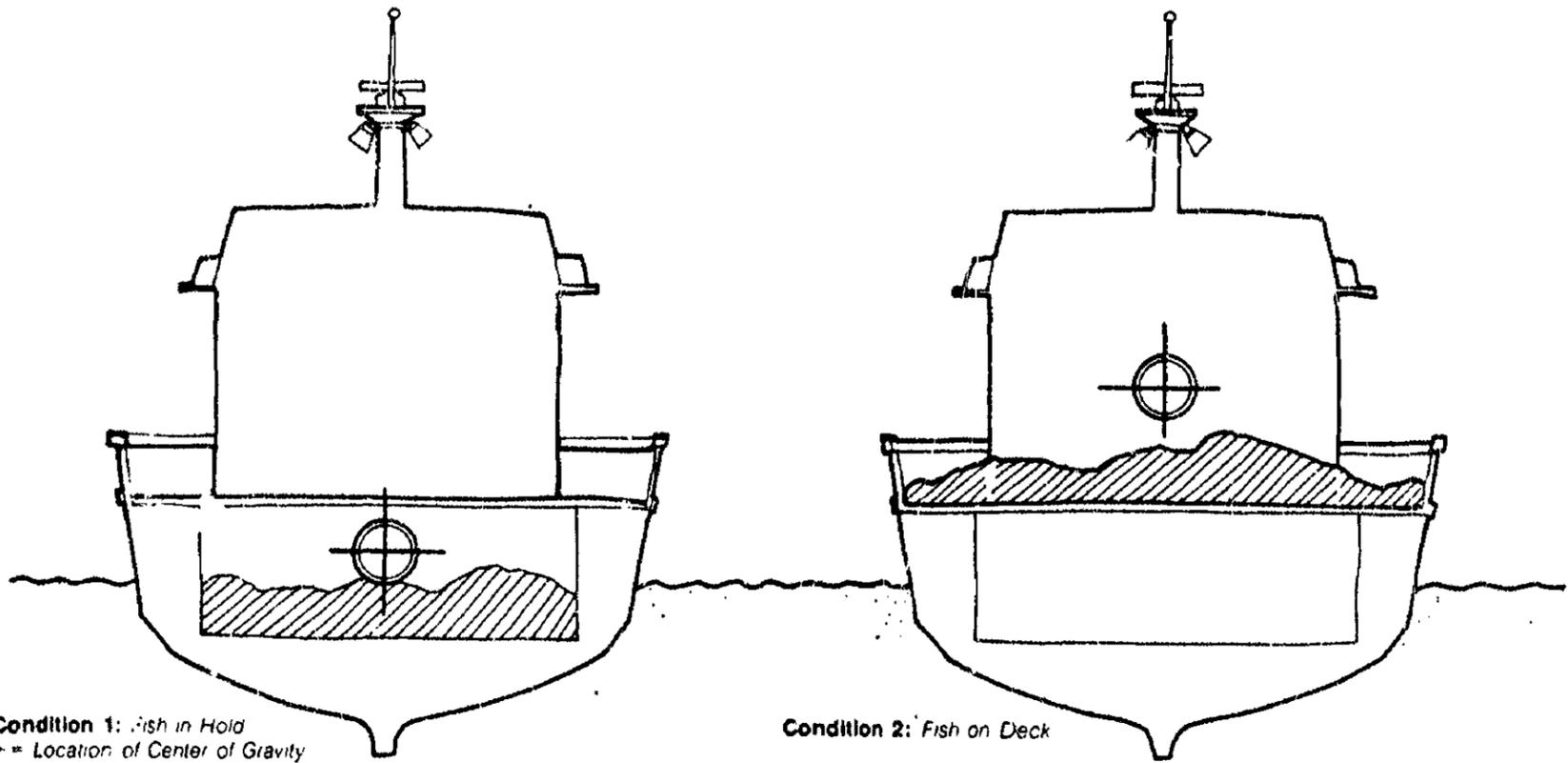


Figure 4--Diagram of stability factor: two conditions of load height.

The captain, who was also an owner of the vessel, had had a stability test performed on the vessel on January 28, 1983. The test summary recommended that the maximum deck load be 71 crab pots and, if port and starboard fuel oil tanks No. 5 were in use, that the hold should remain dry. The summary also stated that the forecastle door, pilothouse watertight doors, and the air ports should be securely closed while operating in heavy sea conditions.

Apparently, however, the captain had not considered the stability test recommendations when loading his vessel. He testified that the saltwater hold was full of water, and fuel oil tanks No. 5 were loaded with fuel.

A naval architect constructed stability curves for the GOLDEN VIKING and determined that the vessel had insufficient stability as loaded on September 1, 1983. The Safety Board determined the probable cause of the capsizing and sinking of the GOLDEN VIKING to be inadequate stability due to improper loading and the failure to secure the watertight doors of the pilothouse.

Another casualty reported to the Safety Board involved the U.S. uninspected fishing vessel ARCTIC DREAMER. On March 11, 1983, this vessel completed fishing operations off Sanak Island and was bound for Dutch Harbor, Unalaska Island, Alaska, proceeding on a south-southwesterly course at 8 knots. The wind on the vessel's stern was at 35 to 40 knots, and seas were 10 to 15 feet high. Shortly before 1500, the captain noticed the stern was awash and sinking. He attempted some corrective maneuvers, but they failed. The vessel rolled further to starboard until it heeled 90° and sank. 27/

The loading instructions for the ARCTIC DREAMER recommended that a maximum of 50 crab pots, loaded in one tier only, be carried on board the vessel, when one of the crab tanks was flooded. At the time of the accident, the ARCTIC DREAMER was loaded with 68 crab pots, secured in two tiers on the main deck aft. Eight crab pots were on the upper tier. The forward crab tank was loaded with crabs and the aft crab tank was empty. The Safety Board determined that the probable cause of the capsizing and sinking of the fishing vessel ARCTIC DREAMER was the improper loading of the vessel, which reduced its stability.

Another casualty involved the sinking of the U.S. uninspected fishing vessel EL RANCHO in the Gulf of Alaska about 35 nmi west of Cape Alitaka, Kodiak Island, Alaska, on February 7, 1985. The vessel was returning to Kodiak, Alaska, from a fishing trip. The EL RANCHO's two crab tanks were filled with an estimated total of 30,000 pounds of crab and were under continuous circulation by seawater. About 170 pyramid crab pots, each weighing 200 pounds, were stacked on the after deck (approximately 34,000 pounds). 28/

The wind was from the northwest at 25 to 30 knots, with 8- to 10-foot northwesterly seas. The EL RANCHO was riding mostly in the trough, and at about 2000, the vessel listed to starboard and did not recover. The captain and engineer attempted to correct the starboard list, but to no avail. As the list increased, the captain broadcast a

27/ For more information, read Marine Accident Reports, "Brief Format Issue Number 3-- Reports Issued December 18, 1985" (NTSB/MAB-85/02), pages 45 and 46, and Docket Number DCA83AM041.

28/ For more information, read Marine Accident Reports, "Brief Format Issue Number 5-- Reports Issued March 3, 1987" (NTSB/MAB-87/01), pages 80 and 81, and Docket Number DCA85MM031.

distress message over the vessel's radio. He then directed the crew to don exposure suits and inflate the four-person liferaft, where they took refuge. The five-person crew was rescued at about 2140 by a Coast Guard helicopter.

An inclining test to determine the EL RANCHO's stability characteristics had been performed on November 13, 1982. On January 11, 1985, a naval architect issued a stability letter containing deck load restrictions for the EL RANCHO based on IMO's recommendations for intact stability of fishing vessels. The stability letter stated that when both crab tanks were full and the vessel was loaded to 50 percent of its fuel and fresh water capacity (as the EL RANCHO was on February 7), no more than 61 crab pots of the stacking pyramid type, weighing 250 pounds each (approximately 15,000 pounds), could be carried. The EL RANCHO was carrying nearly twice the recommended crab pots and weight stipulated by the naval architect's stability letter.

The Safety Board concluded that the captain's failure to follow the loading restrictions provided in the vessel's stability letter contributed to the accident.

### Lifting Weights

The action of lifting a large amount of weight has a negative effect on stability. For example, lifting several heavy crab pots or a full net of fish can adversely affect stability. The Safety Board recognized this stability factor in the sinking of the U.S. fishing vessel MARCY J, which departed Seattle, Washington, on a voyage to test newly installed trawling equipment. Early on the morning of February 22, 1984, the first trawl was made. The net separated and about 20 tons of fish were lost.

After the net was repaired, another trawl was started. During this trawl, the engineer partially filled the after fish hold with chilled seawater from the filled forward hold, even though the vessel's stability letter indicated the holds should not be slack in a seaway. About 30 tons of fish were netted on the trawl, and the net was hauled over the stern ramp onto the main deck. This action, coupled with the shifting of water in the fish hold tanks, caused the vessel to become unstable, and it slowly rolled to starboard and capsized. 29/

### Icing

Icing can substantially shift a fishing vessel's center of gravity, thus reducing its stability. If a vessel is going to operate in water where icing is likely, the owner or captain should have a naval architect provide a stability analysis so that the effects of icing are clearly understood. (See figure 5.) The Coast Guard's NVIC 5-86 provides information on the icing problem and guidance as to what actions a captain can take to retard ice buildup, such as changing speed or heading and physically removing the ice. 30/

The Safety Board has investigated several catastrophic accidents in which icing was a probable cause. One was the loss of the U.S. fishing vessel ALERT, which sank off the southern end of Shelikof Straits, Alaska, on February 14, 1985.

About 0300, the captain of the ALERT informed the captain of the fishing vessel MARGARET LYN via radiotelephone that, due to heavy icing on his vessel, he had changed course and was heading for safe refuge in Bumble Bay, Kodiak Island, Alaska. The captain of the MARGARET LYN reported that there were 100 mph winds from

29/ See NTSB Brief Format Issue Number 3, p. 68, and Docket Number DCA84AM027.

30/ See Coast Guard NVIC 5-86, Section 1-27.



Figure 5.---Photographs of fishing vessel under icing conditions.

the northwest, heavy freezing spray, extremely low temperatures, and blowing snow. About 0400, the captain of the MARGARET LYN, which was about 10 nmi north of the ALERT, told the captain of the ALERT he likewise was going to head for Bumble Bay and they agreed to hourly communications. However, the ALERT never made another communication. The five crewmembers were never found. The Safety Board determined that the probable cause of the catastrophic loss of the ALERT was capsizing due to icing during severe weather. 31/

Another casualty occurred on March 12, 1983, and involved the loss of the U.S. fishing vessel SEA HAWK. 32/ The SEA HAWK was moving crab pots from the crab fishing grounds at Inanudak Bay, Umnak Island, Alaska, to another crab fishing area. A full load of about 40 crab pots was stacked on the aft deck. The 25-knot winds and the 6- to 8-foot seas were from the northwest. The air temperature was about freezing and ice had accumulated on the crab pots and on the vessel from freezing sea spray during the morning; some of the ice had been chipped off the crab pots about 1000.

About 1300, the rudder suddenly turned hard to starboard. The captain reduced the vessel's speed, disengaged the autopilot, and attempted to turn the rudder to port. The SEA HAWK did not respond. The captain then increased the vessel's speed. The SEA HAWK then turned sharply to starboard into the trough of a wave and capsized. There was one fatality. The Safety Board determined that the probable cause of the capsizing of the SEA HAWK was the combined effects of the reduction of intact stability, caused by an accumulation of ice on the vessel and the crab pots, and the heeling force caused by the vessel's sharp turn to starboard.

#### Watertight Integrity

Water entering the vessel results in progressive flooding and loss of the vessel's stability, and ultimately the sinking of the vessel. Loss of watertight integrity occurs because (1) a vessel's watertight doors, hatches, or other openings are not secured, or (2) because the vessel has non-watertight bulkheads.

The Safety Board determined that the loss of the \$2.04 million uninspected U.S. fishing vessel LADY SIMPSON on August 9, 1981, in the Bering Sea, about 72 nmi north-northwest of Dutch Harbor, was the result of downflooding when water flooded through an open galley watertight door that was not secured during adverse weather condition. 33/

On September 30, 1982, the U.S. uninspected fishing vessel ZERDA sank in the Atlantic Ocean about 90 nmi south of New Bedford, Massachusetts. The bulkheads in the vessel were not watertight so that flooding in the fish hold could not be controlled. Contributing to the accident was the progressive flooding of the vessel through non-watertight bulkheads. 34/

31/ For more information, read Marine Accident Reports, "Brief Format Issue Number 4- Reports Issued May 14, 1986" (NTSB/MAB-86/01), p.75, and Docket Number DCA85MM036.

32/ For more information, see NTSB "Brief Format Issue Number 2," p. 45 and Docket Number DCA83AM042.

33/ See NTSB "Brief Format Issue Number 4," p. 26 and Docket Number DCA81AM067.

34/ See NTSB "Brief Format Issue Number 4," p. 36 and Docket Number DCA83AM001.

Fortunately, neither of these two accidents resulted in personal injuries or fatalities.

The crew of the U.S. fishing vessel ALEUTIAN BOUNTY did not fare as well. About midnight on November 22, 1984, the crab boat departed St. Petersburg, Florida, with a crew of six, bound for fishing grounds about 150 miles southwest of St. Petersburg.<sup>35/</sup> During the voyage, the captain talked by radio with the captain of another crab boat, the A.L. No. 2, which was returning from the fishing grounds. The captain of A.L. No. 2 informed the captain of the ALEUTIAN BOUNTY of extremely bad weather conditions with waves of 20 feet and winds of 50 knots from the north. The captain of the ALEUTIAN BOUNTY informed the captain of A.L. No. 2 that the ALEUTIAN BOUNTY's lazarette (the aftermost compartment in a vessel usually above the rudder) had flooded, but he intended to continue on to the fishing grounds.

About midnight on November 23, crewmembers of the A.L. No. 2 talked by radio with a crewmember of the ALEUTIAN BOUNTY. The BOUNTY's crewmember reported that the vessel's lazarette was still flooded. About 0520, a crewmember of the A.L. No. 2 heard an abbreviated distress call from the ALEUTIAN BOUNTY and a response from the Coast Guard in New Orleans. The Coast Guard and other fishing vessels conducted an extensive search for the vessel, but neither it nor its crew were recovered.

A report by a marine surveyor dated April 23, 1984, stated that the ALEUTIAN BOUNTY was not being operated in accordance with the stability requirements posted aboard the vessel. The surveyor indicated that the forward cargo tank's watertight cover had been removed; the water thus permitted to enter the tank during severe weather would reduce the vessel's stability. Additionally, it was reported by persons knowledgeable of the ALEUTIAN BOUNTY's condition that (1) the lazarette hatch leaked, resulting in the flooding of the lazarette and engineroom during severe weather, and (2) there was no cover for the forward cargo tank. Further, these persons reported that the dewatering system could not completely pump out the forward cargo tank; that three large bilge pumps were inoperable, leaving only two small pumps for dewatering; and that bilge alarms were inoperable. The Safety Board concluded that the probable cause of the sinking of the ALEUTIAN BOUNTY was the captain's decision to proceed to the fishing grounds under adverse weather conditions with the vessel's lazarette flooded and with the vessel's watertight and dewatering system in poor condition.

The Coast Guard recognizes that the chances for fishing vessels to survive floodings would greatly increase if fishing vessels could withstand flooding of at least the lazarette and engineroom spaces. The Coast Guard in its NVIC Circular 5-86 recommends that new fishing vessels over 79 feet have watertight bulkheads, and a collision bulkhead without any watertight doors.

#### Other Stability Factors

Other factors that can have cumulative effect on a fishing vessel's stability include:

Free Surface--This condition is caused by a partially filled fish hold tank or any compartment in which the shifting of liquids can greatly reduce the righting energy of a vessel and result in capsizing.

<sup>35/</sup> For more information, see Marine Accident Report "Brief Format Issue Number 5-Report Issued March 3, 1987" (NTSB/MAB-87/01), p.70 and Docket Number DCA85MM015.

Excessive Trim—A vessel may exhibit excessive trim due to the cumulative effects of overloading fuel and water in after tanks and lifting a net; together, these effects can be disastrous. Excessive trim often leads to downflooding, in the stern compartment area particularly.

Water on the Deck—Water on the deck can seriously affect the stability of a vessel. The vessel should be designed so water can escape from the deck. Alterations should be undertaken if excessive water is a problem.

Following Seas—When the length of a wave in following seas is twice that of the vessel and the vessel's speed is the same as the wave speed, the vessel can sit on a wave. Thus, a large part of the vessel may be out of the water, reducing the vessel's righting energy and stability. The general rule is that following seas are to be avoided. The likelihood of a vessel being swamped by a wave are increased in following seas and a marginally stable vessel may capsize.

### Safety Board Stability Recommendations

As a result of various accident reports, the Safety Board has made a number of safety recommendations addressing the need for improved stability testing and the dissemination of easily understood stability information to fishing vessel captains/owners. From the joint accident report on the AMERICUS and ALTAIR casualties, the Safety Board recommended that the Coast Guard:

#### M-86-1.1

Seek legislative authority to require that stability tests be conducted and that complete stability information be provided to the captains of commercial fishing vessels.

The response to this recommendation, dated October 15, 1986, stated that the Coast Guard concurred with this recommendation in part. The Coast Guard agreed that fishing vessel operators should be provided with accurate and easy to understand stability information, and it indicated that this was being done through the publication of the NPFVOA's "Vessel Safety Manual." However, the Coast Guard did not concur with the intent of the recommendation to make stability tests and complete stability information mandatory for fishing vessels. The Safety Board believes that the Manual does describe general stability factors and provides some useful information; however, specific results of stability tests for specific fishing vessels must be required. The Board classified this recommendation as "Closed--Unacceptable Action."

Additionally, the Safety Board has made a number of specific recommendations to fishing vessel companies directly involved in the losses, to make their captains aware of the stability requirements. Generally, these recommendations have been acted upon by the individual companies.

In the Safety Board's review of vessel construction for this study, it became apparent that the construction of fishing vessels varies from locale to locale and this variation is a concern in the issue of stability. Many new fishing vessels are built in sophisticated boat yards and naval architects are involved in stability design from the outset of construction. However, some fishing vessels are built without stability reviews of any type. Indeed, these vessels are constructed without any vessel stability test and the vessel's only proof of stability is when it does not capsize or sink. Fortunately, most

of these vessels under construction, estimated at approximately 200 vessels in one region, apparently follow several traditional trawler designs that purportedly have safe records. (See figure 6.) Nevertheless, the manufacturing operations of such vessels designed for service off coastal waters do not exhibit good fishing vessel construction practices. For example, the vessels reviewed onsite during this study often did not have watertight integrity (there were no watertight bulkheads), the doors in the pilothouse were not sealed, the windows could be blown out because they were not fastened properly, fuel tanks were shifted and enlarged without any consideration of possible vessel stability reductions, and welds were not inspected by any recognized authority.

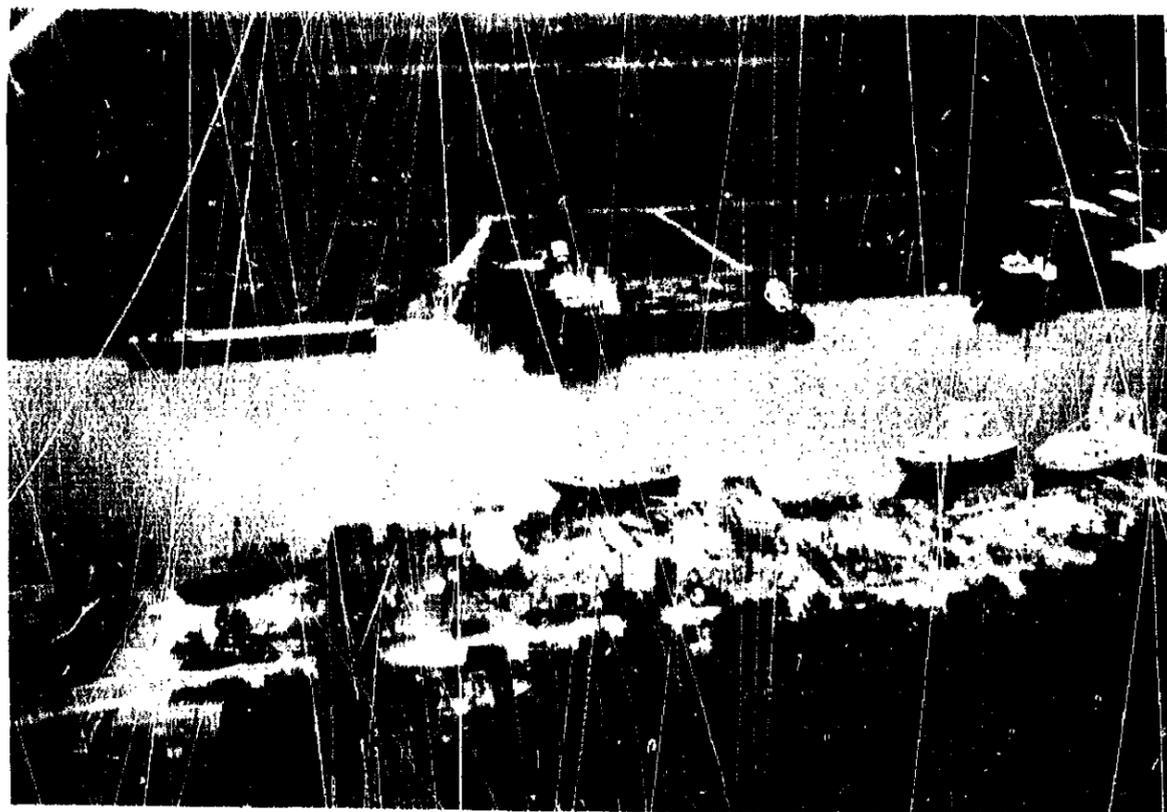


Figure 6.--Photograph of a Gulf boat building located on Bayou Fourches, Louisiana.

Unfortunately, a number of these vessels, which may be safe in inland waters and perhaps just offshore, are being sold in areas where the fishing vessel operations are considerably more severe, and the vessels operate great distances from shore, leaving no margin for error in a vessel's stability. A fleet manager on the West Coast indicated that there were several vessels from the Gulf Coast that one would not want to crew. He indicated that these vessels were unsafe in North Pacific waters. <sup>36/</sup>

The head of the University of Washington's Fishing Vessel Safety Center made it clear that if substantial modifications to fishing vessels are made, new stability tests should be undertaken. <sup>37/</sup> He had examined the loading conditions and stability of the

<sup>36/</sup> Interview with Fleet Manager, Westward Trawlers, Inc., November 23, 1986.

<sup>37/</sup> Interview with Professor of Mechanical Engineering, Fishing Vessel Safety Center, University of Washington, November 1986.

ALTAIR and AMERICUS from their sister ship ANTARES and a similar vessel, the MORNING STAR, which led to the discovery of 50 tons of unexplained weight increase on the vessels. This unexplained weight, along with the known addition of 35 tons of drag gear and 70 tons of crab pots, made the vessels unstable.

He recommended guidelines in the Washington Sea Grant Program's Biennial Report, 1983-1984:

Vessels adding and changing gear to equip for a new fishery have a stability test completed before any modifications are done. Then the safety of the conversion can be analyzed and assessed ahead of time and unsafe conversions avoided.

Seine boats deserve stability evaluations because they are small, which in itself may be a problem; they are rarely tested for stability; and some have added new circulating sea water tanks.

Boat owners/captains should not rely on the results of sister ship stability tests unless the vessels' dead weights are the same. If stability tests are performed, calculations must be included for anticipated fish loading conditions.

Marine surveyors, naval architects, and marine engineers <sup>38/</sup> who were interviewed agreed that stability requirements must be incorporated in standards for new vessel construction for vessels converted from one fishery to another, and for vessels with major structural additions that shift the vessel's center of gravity.

The Safety Board's position is that stability tests should be conducted periodically on all fishing vessels by naval architects, and that complete and easily understood stability information should be provided to the captains and owners of commercial fishing vessels. Indeed, the Board has held this view since the its investigation of the capsizing of the 82-foot-long fishing vessel PATTI-B in 1978. <sup>39/</sup> Subsequent investigations into the losses of the AMAZING GRACE, the SANTO ROSARIO, the AMERICUS, and the ALTAIR support the Safety Board's position. Additionally, the Board has documented stability as a causal factor in seven other casualties involving the losses of U.S. uninspected commercial fishing vessels: MARCY J, LADY SIMPSON, SEA HAWK, ATLANTIC PRINCESS, OREGON DAWN, GOLDEN VIKING, and ARCTIC DREAMER. <sup>40/</sup>

Therefore, the Safety Board continues to recommend that the Coast Guard take formal action to require a stability testing program and that the captain be properly notified of the vessel's stability limitations as determined by a recognized naval architect or equivalent. Safety Recommendation M-86-11, which was "Closed--Unacceptable Action," is being reiterated as a result of this safety study.

<sup>38/</sup> Interviews with naval architect, Blancke Marine Services, during March 16, 1987; Marine Surveyors Guild, during June 1987; mechanical engineer, University of Washington, during November 23, 1986.

<sup>39/</sup> For more detailed information, read Marine Accident Report, "Grounding and Capsizing of the Clam Dredge PATTI-B, Ocean City Inlet, Ocean City, Maryland, May 9, 1978" (NTSB-MAR-79-9).

<sup>40/</sup> For more detailed information, read Marine Accident Reports, "Brief Format Issue Number 1," page 11 for the OREGON DAWN, page 28 for the ATLANTIC PRINCESS; "Brief Format Issue Number 2," page 45 for the SEA HAWK, page 55 for the GOLDEN VIKING; "Brief Format Issue Number 3," page 68 for the MARCY J, page 45 for the ARTIC DREAMER; and "Brief Format Issue Number 4," page 26 for the LADY SIMPSON.

## CHAPTER 4

### COMMERCIAL FISHING VESSEL SAFETY EQUIPMENT REQUIREMENTS

The only equipment required by the Coast Guard for uninspected commercial fishing vessels is personal flotation devices (PFDs), fire extinguishers, a sound signaling device, and some safety equipment for gasoline engines.

The personal flotation requirements vary according to the length of the vessel; however, the intent is to have at least one PFD on board, suitable for each person, in serviceable condition and readily available. The specific requirements are:

Vessels under 40 feet of length must have serviceable Coast Guard approved type I, II, III PFD or exposure suit for each person onboard.

In addition, vessels 26 feet of length or more must have at least one serviceable Coast Guard approved type IV ring buoy which must be immediately available.

A Coast Guard approved exposure suit may be substituted for type I, II, or III PFDs.

The Coast Guard requires that each PFD, except ring buoys, carried on commercial fishing vessels engaged in ocean, coastwise, or Great Lakes voyages, must be equipped with a Coast Guard-approved PFD light and have reflective material. 41/

Coast Guard regulations that apply to commercial fishing vessels specify the number and type of fire extinguishers that should be on board. (The basic requirements for fire extinguishers are found in 46 CFR Part 25.) CFR Type B fire extinguishers--those that can put out fires involving flammable or combustible liquids, flammable gases, grease, and similar products--are approved for fishing vessels. The requirements spell out the minimum number of fire extinguishers of size B-I through III for commercial fishing vessels based on gross tonnage. 42/ These fire extinguishers may be filled with foam, carbon dioxide, or dry chemicals.

Finally, there is a requirement for a sound signaling device under the navigation rules:

A vessel of less than 40 feet (12 meters) must have some means of making an "efficient sound signal;" however, the means of accomplishing this, such as a whistle or a bell, are not specified. This requirement is specified in the Inland Navigation Rules, 1980 (Unified Rules) and in the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS).

Vessels over 40 feet (12 meters) to 328 feet (100 meters) must carry a whistle (horn) and a bell.

41/ See 46 CFR 25.25 - Life Preservers and Other Lifesaving Equipment Required.

42/ Size B-I and II are considered hand portable fire extinguishers. Size B-III is considered semi-portable.

These are the basic Coast Guard safety equipment requirements. There are two additional requirements (46 CFR 25) specifically for vessels that use gasoline and/or fuels with a flashpoint of 110° F or less, unless it is an open boat. These specify (1) at least two ventilator ducts fitted with cowls or their equivalent to properly and efficiently ventilate the bilges of every engine and fuel tank compartment on vessels using such engines, and (2) a backfire flame arrestor on all gasoline engines.

The Safety Board's review of fishing vessels on the three coasts found that some vessels exceeded the safety equipment required by the Coast Guard's regulations. Indeed, some of the vessels that operated in cold water, such as the Bering Sea, the Gulf of Alaska, or the Atlantic Ocean, carried exposure suits, inflatable liferafts, and at least two operable radios (one that operated off the vessel's generator and one that was independent of the vessel's engine system). Some carried EPIRBs, some had fixed fire extinguisher systems, some had fire and bilge alarms, and most had sophisticated navigation equipment. Conversely, a number of vessels like the WESTERN SEA in the North Pacific often only carry safety equipment required by Coast Guard regulations—life preservers, fire extinguishers, and a sound signaling device.

The Safety Board has identified several other types of equipment that should be basic requirements for uninspected commercial fishing vessel operations: exposure suits, alarms (bilge and fire), inflatable liferafts, and emergency radios.

#### Exposure Suits

The value of exposure suits in frigid waters has been demonstrated many times in commercial fishing vessel casualties. In the cold water casualties reviewed by the Safety Board, crews who were able to don exposure suits were more likely to survive. However, those crewmembers who did not have or were unable to don exposure suits before the vessel sank or capsized were not able to survive in the frigid waters.

The value of exposure suits is documented in a number of casualties reported to the Safety Board—for example, the loss of the U.S. fish tender ALASKA ROUGHNECK. The vessel grounded and subsequently sank off the Gulf of Alaska near Iliasik, Aleutian Islands, Alaska, about 1 1/2 miles south of Bald Cape. The casualty resulted in the total loss of the vessel valued at approximately \$1.02 million. Two persons were killed in the accident and one was injured. 43/

The ALASKA ROUGHNECK departed Akutan, Alaska, about 1600 on February 27, 1979, en route to Kodiak, Alaska, to offload 10 cargo containers of frozen crab. The captain and engineer had been up most of the night working on the vessel's boiler. The seas were rough and the crew had difficulty sleeping during the night. About 1100 on February 28, the captain changed course and headed into Iliasik Island, where his vessel became grounded. The grounding occurred before high tide; therefore, the captain decided to attempt to back the vessel off at the next high tide. About 1330, he did this and got underway. Almost immediately, the vessel assumed a bow down position in the water. The engineer checked the forward tanks and found them flooding. The captain notified the Coast Guard that the vessel had been refloated and was underway. He told them that the vessel was taking on water, but there was no immediate danger of sinking.

43/ See Marine Accident Report "Brief Format Issue Number 4", p. 2 and Docket Number DCA 79AM029.

About 1430, the vessel rolled hard to port and did not return to an upright position. The captain sounded the general alarm and broadcast a "MAYDAY." The engineer left the engineroom and joined the other crewmembers on deck. The crew attempted to remove the inflatable liferaft from its rack, but they did not know how to operate the hydrostatic release. At the same time, the cargo containers broke loose and fell into the ocean. The vessel rolled onto its port side, and the crew jumped into the water. The cook put on an exposure suit before he abandoned the ship. The cook was rescued by another fishing vessel. The cook saw the captain and mate swimming in the water, but neither was wearing a life preserver or an exposure suit; they are missing and presumed dead. There were sufficient exposure suits on board for all persons.

Another accident in which exposure suits saved lives involved the U.S. fishing vessel SAINT PATRICK, which was struck on its port beam by a large wave and rolled hard to starboard while riding out a storm in the Gulf of Alaska. <sup>44/</sup> According to a surviving crewmember, the winds were blowing at 60 to 70 knots, and the seas were 15 to 30 feet high. Two crewmembers wearing exposure suits abandoned the vessel, and the captain began to don his exposure suit. The captain's action was apparently perceived as a recommendation for other crewmembers to don exposure suits and abandon the vessel. However, three crewmembers could not find exposure suits and donned life preservers. Shortly thereafter, the vessel was struck by another wave. Water broke windows in the pilothouse and entered the engineroom. Both the main propulsion and electrical power were lost.

The captain gave the order to abandon ship and the remaining crewmembers walked off the starboard side of the vessel into 34° water. After about 45 minutes, the three crewmembers who were using only PFDs perished from hypothermia. Two crewmembers who were wearing exposure suits were washed ashore and rescued. (Ironically, the SAINT PATRICK did not sink. On November 30, it was discovered adrift in Izhut Bay, Afognak Island, by a commercial airline pilot.) In these two accidents, three lives were saved through the use of exposure suits.

Since 1974 the Safety Board has encouraged the Coast Guard to seek the authority to require exposure suits on commercial vessels and other vessels such as fishing vessels that operate in areas with cold air or sea temperatures. The Coast Guard now requires exposure suits on most oceangoing and coastwise vessels, and on mobile offshore drilling units, although it does allow exposure suits to be substituted for required life preservers on vessels operating at certain latitudes. For example, 33 CFR Part 33, Subchapter D outlines the Coast Guard's exposure suit requirements for tankships. It identifies the latitudes where exposure suits are not required if the vessel limits itself to operations in those latitudes. A similar requirement for exposure suits for uninspected commercial fishing vessels could be implemented by the Coast Guard. Persons interviewed on the North Pacific and Atlantic Coasts during this study believed that exposure suits should be required for fishing vessels operating in cold waters. <sup>45/</sup> Indeed, even persons interviewed on the Gulf Coast recommended that exposure suits be required if a shrimp vessel intends to fish during the winter months off the coast of Texas or in the Gulf of Mexico. <sup>46/</sup>

<sup>44/</sup> See Marine Accident Reports, "Brief Format Issue Number 4," p. 28 and Docket Number DCA82AM010.

<sup>45/</sup> Representatives of Westward Trawlers, Inc; the Fishing Vessel Owners' Association (Longliners); United Fishermen of Alaska; Atlantic Offshore Fisherman's Association; Point Club; Marine Surveyors Guild; and numerous insurance underwriters and brokers.

<sup>46/</sup> Interviews with the Marine Surveyors Guild and the Louisiana Department of Wildlife and Fisheries (Enforcement Division) during March and June 1987.

Additionally, persons interviewed during this study, most notably the Executive Director of the United Fishermen of Alaska and the head of the many fishing vessel associations, supported annual maintenance requirements for exposure suits, to ensure that the zippers functioned as intended and that the suits are not ripped. Training and drill requirements were also mentioned as being necessary.

The Safety Board believes that the Coast Guard should require commercial fishing vessels in cold waters designated by the Coast Guard to carry exposure suits for all crewmembers. Vessels like the U.S. uninspected fishing vessel WESTERN SEA should be required to have safety equipment that affords crewmembers at least the same level of protection now afforded to crewmembers on other commercial vessels. Further, the Coast Guard should require inspection schedules for exposure suits, so that the watertight integrity of the suits is maintained.

#### Alarms (Bilge and Fire)

The Safety Board has reported a number of accidents that could have had different outcomes, if a bilge or fire alarm had alerted the crew to the flooding or fire.

Bilge Alarm.—The Safety Board has determined that flooding has been a probable cause in no fewer than 32 fishing vessel accidents. This flooding most commonly occurs in the lazarette and the shaft alley. Several casualties illustrate the need for high water bilge alarms.

On August 20, 1981, the U.S. fishing vessel NORTHERN KING was lost due to flooding in the Bering Sea approximately 30 nmi west of Nelson Lagoon. Two crewmembers died and five were able to reach a beach. The vessel began taking on water when waves carried away the port and starboard doors of the deckhouse. Water entered the compressor room, the steering compartment, and the lazarette. High water bilge alarms for the engineroom and compressor room were aboard but not installed. Because the crew failed to detect the flooding of the compressor room early, the fixed bilge pump systems located in this room could not be used--flooding had already rendered the bilge pumps inoperable. 47/

About 1500 on April 4, 1983, the fishing vessel LOUISE departed Fairhaven, Massachusetts, en route to the fishing grounds on George's Bank. The wind was blowing from the west southwest at 10 to 20 knots. The seas were 1-foot high. According to the captain, the engineer checked the engineroom about 1715 and found everything satisfactory. About 1800, the captain was relieved by the mate and went to the engineroom to make a routine check. He found the floor boards awash and water spraying up in the forward part. The vessel was not equipped with a high water bilge alarm. The engineroom bilge suction valve was closed and was not accessible because of the flooding.

The Safety Board could not determine the probable cause of the flooding of the vessel's engineroom. Contributing to the loss of the vessel was the absence of a high water bilge alarm to alert the crew to the flooding before it reached a level that prevented reaching the engineroom bilge suction valve and positioning it to pump. 48/

47/ For more information, read Marine Accident Report, "Brief Format Issue Number 2--Reports Issued August 21, 1985" (NTSB/MAB-85/01), p. 23 and Docket Number DCA81AM063.

48/ See "Brief Format Issue Number 2--Reports Issued August 21, 1985," p. 46, and NTSB Docket Number DCA83AM048.

Fishing vessel captains, managers of fleets, marine surveyors, and naval architects interviewed during this study agreed that bilge alarms with some type of notification (audible and visible) should be a minimum regulatory requirement. Some fishing vessel associations, such as the Point Club and the American Tunaboat Association (ATA), do require such alarms. A review of the "Tuna Fishing Vessels Survey Requirements," published by the ATA (May 1979), indicates that this fishing vessel association has a longstanding procedure to ensure that vessels in its association are equipped with such alarms. The ATA's survey requirements, "intended to establish minimum uniform standards for the annual survey of Tuna Fishing Vessels of over 200 gross tons," require a bilge alarm at a minimum. Section 19 of the survey requirements states that each bilge "shall be provided with a bilge alarm to be audible on the bridge, galley and main deck with machinery operating . . . ." 49/

The Point Club in Rhode Island adopted "Commercial Vessel Minimum Recommendations" on December 9, 1986. The Point Club, which represents about 54 fishing vessels involved in an insurance pool, adopted 94 minimum safety standards as requirements for entry into the Club; 50/ these exceed present Federal safety standards. The Point Club's standard for bilge alarms is:

Bilge water alarms should be installed in all watertight compartments. Alarms for the system should be of sufficient volume and locations as to be audible and visible outside the vessel.

Some insurance companies are also providing guidance to marine surveyors indicating the safety equipment that the insurance companies believe is needed. Guidelines provided by a marine surveyor from the New Orleans area indicated that trawl fishing vessels were to be fitted with at least a high water bilge alarm to alert the crew to a flooding situation. Additionally, the vessel is to be fitted with at least two bilge pumps with different sources of power (one of which may be manual). 51/

As important as having a bilge alarm is the need to maintain it in good working order. In a number of casualties, the Safety Board determined that the failure of the high water bilge alarm contributed to the casualty. For example, on February 15, 1982, the U.S. tuna seiner BERNADETTE, loaded with fish, was en route to San Diego, California. At 0430, the chief engineer and another crewmember did not observe anything unusual while making a routine inspection of the engineroom. However, about 0500, after the lights suddenly went out on the vessel, the engineer immediately checked the engineroom and found water 1 1/2 feet above the deck grating of the lower engineroom. The engineroom was equipped with a high water bilge alarm sensor located about 12 inches above the bottom of the bilges, but the alarm had not sounded. The vessel sank; fortunately, the crew of 13 were rescued by the Mexican fishing vessel SANTA ADELA, which responded to the "MAYDAY" broadcast by the captain of the BERNADETTE. 52/

49/ See American Tunaboat Association, "Tuna Fishing Vessels Survey Requirements," Report No. TA-2003, May 1, 1979.

50/ See Point Club, "Commercial Vessel Minimum Recommendations," December 9, 1986.

51/ Letter from Technical Maritime Associates to the Safety Board, June 1987, outlining recommended safety requirements for shrimp trawl fishing vessels.

52/ For more information, read Marine Accident Reports, "Brief Format Issue Number 3--Report Issued December 13, 1985" (NTSB-MAB-85/02), p.20 and Docket Number DCA 82AM026.

A similar casualty occurred on March 21, 1985, when the U.S. fishing vessel OCEAN BOUNTY sank in the Gulf of Alaska approximately 275 nmi east of Kodiak, Alaska, in heavy sea conditions. About 2230, a crewmember checked the engineroom and found the bilges were dry and that the machinery was operating normally. About 2300, the same crewmember found the engineroom flooded to a depth of about 2 feet. The vessel was equipped with a high water bilge alarm, but it did not sound. The crew donned exposure suits and abandoned the sinking vessel into an inflatable liferaft. The next day the crew was rescued by a Coast Guard HH-3F helicopter. 53/

Both of these casualties highlight the need for regular maintenance and periodic inspection and tests of this critical safety component. If there is sufficient warning that the bilge is flooding, the crew may have a chance to save the vessel. In many cases, the flooding is not detected until the fishing vessel is already sinking. Therefore, the Safety Board believes that bilge alarms with adequate audible and visible warnings to the bridge and crew berthing quarters should be required. There should be defined inspection, maintenance, and testing requirements. Finally, the Safety Board believes that dewatering systems should automatically activate to minimize the loss of commercial fishing vessels from flooding.

Fire Alarms.—Of the 203 fishing vessel casualties reported to the Safety Board since 1978, 36 involved loss or serious damage by fire. Most of these fires occurred in unattended machinery spaces. The fires generally were caused by broken fuel or lubrication lines, or by faulty electrical systems. If the pilothouse had had rapid notification of a fire through fire alarms, actions might have been taken to mitigate the fire hazard before the vessel was placed in jeopardy. Unfortunately, the captains and crewmembers usually faced a fire that was already out of hand. Some examples of casualties involving fires at sea demonstrate the need for fire alarm systems.

About 1020 on June 25, 1981, the U.S. fishing vessel DOUG & DON II 54/ was underway in the Atlantic Ocean about 14 nmi southwest of Montauk, New York. The captain noticed that the speed of the main diesel propulsion engine had reduced from 1450 rpm to about 600 rpm. He left the wheelhouse and went to the engineroom to investigate the problem. When he opened the door to the engineroom, he was driven back by dense black smoke.

The crew attempted to get into the engineroom but were driven back by the smoke. The captain returned to the wheelhouse and contacted the nearby fishing vessel PAMLICO PRIDE. The crew then donned exposure suits and abandoned the vessel. The PAMLICO PRIDE rescued the crew. The vessel burned to the waterline and then sank. The vessel was not equipped with a fire alarm that could have provided earlier warning of the fire.

A similar accident occurred on July 7, 1985, when the U.S. fishing vessel MARIA AND AL caught fire and sank about 15 nmi east of Highland Point Light, Cape Cod, Massachusetts. About 0800, heavy black smoke and flames were discovered coming from the engineroom access. The captain immediately transmitted a "MAYDAY" on his

53/ For additional information, read Marine Accident Reports, "Brief Format Issue Number 4-Reports Issued May 14, 1986" (NTSB/MAB-86/01), p. 77 and Docket Number DCA 35MM045.

54/ For additional information, read Marine Accident Reports, "Brief Format Issue Number 4-Reports Issued May 14, 1986" (NTSB/MAB-86/01), p. 22. and Docket Number DCA81AM053.

radiotelephone. Shortly thereafter, electric power to the radiotelephone was lost, and the main propulsion engine ceased to operate. The crew abandoned the vessel into an inflatable 15-person liferaft, and moved away from the burning vessel. 55/

The Safety Board believes that audible fire alarms should be part of a minimum safety equipment requirement for uninspected commercial fishing vessels. The alarm(s) should be audible and visible in the wheel or pilothouse and crew berthing quarters as appropriate. Additionally, the alarms should meet specified maintenance and inspection requirements.

### Inflatable Liferafts

The loss of the WESTERN SEA highlighted a safety issue that the Safety Board believes must be addressed: the need to require inflatable liferafts or buoyant skiffs for commercial fishing vessels. The use of a heavy skiff or dory as an alternative to an inflatable liferaft or other buoyant skiff is not appropriate. Indeed, in a catastrophic occurrence, such as the WESTERN SEA casualty, a heavy skiff or dory probably will sink with the vessel, usually because the skiff/dory is firmly attached to the vessel and may be difficult to launch in an emergency. In many of the accidents reported to the Safety Board, the use of an inflatable liferaft was crucial to the survival of the crewmembers because it kept them out of cold waters until rescuers could reach them.

Some associations require liferafts on their members' fishing vessels. For example, the Point Club requires its members to: 56/

- o Equip the vessel with a liferaft currently inspected by the raft manufacturer or its designee and of sufficient capacity for all crew personnel. Liferafts should be designed and built to SOLAS [Safety of Life at Sea Convention] or Coast Guard specifications.
- o Secure the liferaft in a float-free rack or equip it with a pressure release device. Hydrostatic releases should be checked and maintained in working order.
- o Locate the liferaft to permit it to clear rigging in the event of automatic underwater release.
- o Secure the liferaft's painter [rope] to the vessel.

The American Tunaboat Association's survey requirements recommend:

...one or more life rafts with emergency supplies, of sufficient capacity for all hands. Inflatable life rafts to be inspected annually and tested at five year intervals by a licensed agency and so marked on the plate provided. This requirement may be waived when a buoyant purse seine skiff is carried and supplied for emergency use. 57/

55/ See Marine Accident Reports, "Brief Format Issue Number 4" (NTSB/MAB-86/01), p. 79 and Docket Number DCA85MM056.

56/ See Point Club's "Commercial Vessel Minimum Recommendations."

57/ See American Tunaboat Association's "Tuna Fishing Vessels Survey Requirements."

During the interviews for this study, it was clear that many fishing vessel owners, associations, and leaders of industry believed that no fishing vessel captain would fish in cold and frigid waters without an inflatable liferaft of some type. However, as seen in the WESTERN SEA casualty, this is not always the case. The captain of that vessel apparently relied on a heavy seine skiff as the emergency liferaft.

One of the problems found during the study was the size of Coast Guard-approved inflatable liferafts and the storage space they require on small fishing vessels. One liferaft manufacturer 58/ agreed that the current Coast Guard-approved liferafts may not be suitable for the smaller fishing vessels. However, he suggested that there could be categories for different types of operating conditions and liferafts designed for the conditions as follows:

- o Class 1 (Rescue Platforms) for use in sheltered waters, or for fishing vessels that go no farther from shore than 3 miles. This inflatable liferaft would be compact (approximately 2 cubic feet of space) and could be used on smaller fishing vessels.
- o Class 2 (Coastal Life Rafts or Search and Rescue Life Rafts) for use in water perhaps 3 to 20 miles offshore. This life raft would include a furlable canopy for protection.
- o Class 3 (Coast Guard-approved Life Raft) for use in waters 20 miles or more offshore. This type would be appropriate for fishing vessels operating in "open seas." (See figure 7 for example of a Coast Guard-approved liferaft.)

U.S. COAST GUARD APPROVED LIFE RAFTS

There is no better life raft available than one approved by the United States Coast Guard for use aboard inspected vessels. 58/ now available for private vessels and feature the Coast Guard approved Toroidal Stability Device (TSD).

- Capacity: 4, 6, 8, 10, 15, 20, & 25 persons
- Buoyancy: 217 lbs./person
- Floor Area: 4.0 sq. ft./person
- Container Size: 36.5" x 23.5" x 17"  
(6 person)

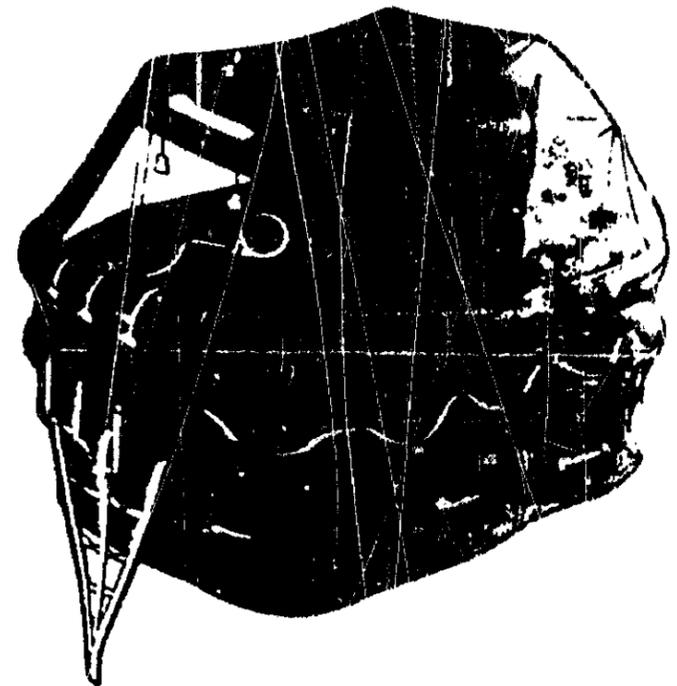
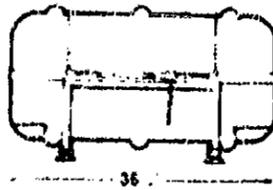


Figure 7.—Coast Guard-approved liferaft.

58/ Interview with Switlik Parachute Company, March 16, 1987.

There is no Coast Guard requirement for liferafts for the U.S. uninspected commercial fishing vessel fleet. Therefore, there is very little demand for small liferafts. This manufacturer estimated that only 10 percent of the "uninspected" market, which includes most commercial fishing vessels, are equipped with liferafts. This manufacturer stated there is little training in the proper use and activation of liferafts by fishing vessel crews, and he believed there is a general lack of interest in liferafts by the fishing vessel community. Mandatory training and licensing would greatly increase the fishermen's interest in liferafts.

The Safety Board believes that the Coast Guard should promulgate appropriate regulations to ensure that all fishing vessels have some level of buoyant liferaft capability. Additionally, there should be periodic maintenance and inspection procedures for this critical lifesaving equipment.

#### Operable Emergency Radio

Safety Board interviews with fishing vessel fleet managers, association heads, marine surveyors, and fishermen union leaders, indicated that commercial fishing vessels that operate in the "open seas" should be required to have an operable emergency radio with a power source independent of the fishing vessel's main propulsion system. In a number of accidents investigated by the Board, the propulsion system was rendered inoperable, and therefore the single radio onboard was of no assistance to the captain or crewmembers of the fishing vessels in distress.

For example, on June 25, 1981, the commercial fishing vessel FUGITIVE was underway in the Atlantic Ocean, about 18 nmi southeast of Chincoteague, Virginia, en route to a shipyard at Norfolk, Virginia. About 2130, the main engine's low water alarm sounded, and the captain went to the engine room to investigate. After he shut down the main engine, he discovered that a defective hose had caused the alarm to sound. The captain repaired the hose and attempted to restart the engine, but it would not start. At that time he heard a "pow" sound, so he went back into the engine room. As he started to descend the ladder, he saw smoke and smoldering wires and encountered fumes that nearly blinded him. The captain went back to the wheelhouse and ordered a crewmember to broadcast a "MAYDAY," while he attempted to fight the fire. The crewmember, however, could not broadcast a "MAYDAY," because there was no electrical power to the single radio onboard.

Efforts to fight the fire were futile because the crew could not get to the source. About midnight, the crew donned exposure suits and abandoned the fishing vessel in a liferaft. About 0320 on June 27, the captain released a distress flare that was sighted by a passing ship and reported to the Coast Guard. The crew was rescued by a Coast Guard helicopter. 59/

Another casualty involved the loss of the U.S. fishing vessel STAR LITE in Resurrection Bay, about 11 nmi south-southeast of Seward, Alaska. About 0900, on March 29, 1983, the STAR LITE departed Seward for Valdez, Alaska. About 1730, the vessel's port engine started to lose power and the captain ordered a crewmember to go to the engine room to determine the problem. The crewmember opened the hatch to the engine room and observed thick black smoke. Shortly thereafter, both engines failed and all electrical power was lost, including power to the radiotelephone. The captain decided

59/ See Marine Accident Reports, "Brief Format Issue Number--Reports Issued August 3, 1984," p. 43 and Docket Number DCA81AM054.

that the fire was uncontrollable and ordered the crew to gather exposure suits and assemble on the after deck. They abandoned the vessel in a motorized skiff, and were rescued. 60/

Commercial fishing vessels should be equipped with radios that can effectively communicate with land-based search and rescue operators in the event that the main power supply is disrupted. Several proposals were suggested by fishing vessel managers, association heads, and marine surveyors; the following framework prepared by a marine surveyor for operable emergency radio requirements appears to be a reasonable and balanced approach. 61/

- o Fishing vessels operating in inshore fisheries or State coastal waters no more than 3 miles offshore should have a citizen's band radio in addition to the radio operating off the main propulsion system.
- o Fishing vessels operating 3 to 20 miles offshore should have a VHF-radio in addition to the radio operating off the main propulsion system.
- o Fishing vessels operating 20 or more miles offshore should have a single side band radio in addition to the radio operating off the main propulsion system.

One additional piece of safety equipment that should be required for all uninspected commercial fishing vessels is an emergency position indicating radio beacon, discussed in the next chapter.

#### Cost of the Recommended Safety Equipment

The cost of the safety equipment addressed in the previous sections (plus EPIRBs) has been calculated by a Professor of Marine Affairs at the University of Rhode Island as approximately \$8,700 per vessel, itemized as follows: 62/

Liferaft	\$3,343
VHF radio	500
Single side band radio (for offshore vessels only)	3,330
EPIRB	375
Exposure suits (4)	1,060
Total	<u>\$8,608</u>

These estimates were developed for two Congressional bills, introduced in 1985, H.R. 4407 (Fishing Industry and Seaman's Protection Act of 1986) and H.R. 4415 (no short title, which also addressed the fishing industry and seaman's protection). Although there may be a range of cost for each item, the total cost is a reasonable estimate. The text accompanying these estimates indicates that exposure suits and liferafts have proven their effectiveness in increasing survival times at sea. EPIRBs, addressed in the next

60/ See Marine Accident Reports, "Brief Format Issue Number 3--Reports Issued December 18, 1986," p. 47.

61/ See letter to the Safety Board from Technical Maritime Associates, June 1987.

62/ See Nixon, Journal of Maritime Law and Commerce, Vol. 17, No.3, July 1986, p. 374.

chapter, and radios, would make the Coast Guard's work in locating disabled and sinking vessels much easier. Most of this equipment is already onboard new, large offshore trawler fishing vessels and would not have to be purchased. For a vessel like a longliner with a four-person crew, the cost of the vessel being \$400,000, the safety equipment would constitute only about 2 percent of the purchase price. For a new vessel like a joint venture trawler with sophisticated electronic equipment, the safety equipment would constitute only about 0.03 percent of the vessel's estimated \$2.5 million cost. Over the lifetime of a fishing vessel, many of which exceed 15 years, these costs are not prohibitive.

## CHAPTER 5

### **TELECOMMUNICATIONS SYSTEMS TO IMPROVE FISHING VESSEL SAFETY**

#### Emergency Position Indicating Radio Beacons (EPIRBs)

An EPIRB is a transmitter that sends an emergency alert signal to help emergency rescue personnel locate a vessel in distress. The signal can be received by a satellite or by aircraft flying overhead. As early as April 1980, with the investigation and report of the capsizing and sinking of the U.S. fishing vessel LOBSTA-1, 63/ the Safety Board called for EPIRBs on uninspected commercial fishing vessels:

#### M-80-23

[The Coast Guard should] seek authority to require the carriage of emergency position indicating radio beacons on documented U.S. fishing vessels and, in the interim period, pursue all available means to encourage their use.

The Coast Guard's responses to this recommendation, on December 23, 1980, and February 22, 1982, concurred with the overall intent but stated that the Coast Guard did not wish to seek legislative authority, and that it would await development of the satellite communication capability before pursuing a legislative initiative.

The Safety Board's position has been that fishing vessels are being lost as we wait for a completed satellite system and that action should be taken immediately to require EPIRBs on all commercial fishing vessels.

About November 14, 1984, the U.S. fishing vessel AMAZING GRACE was lost about 80 nmi east of Cape Henlopen, Delaware. The Safety Board's report 64/ again addressed the need for EPIRBs. The investigation noted that, since the Board's recommendation in 1980, more than 200 lives had been lost. The report pointed out that, although the Coast Guard actively promotes the voluntary carriage of EPIRBs, most fishing vessels still do not carry them. Further, the cost of providing the approximately 33,000 fishing vessels with EPIRBs was estimated at less than \$10 million. The search for the AMAZING GRACE alone cost \$12 million.

On June 26, 1985, the Safety Board reiterated to the Coast Guard its concern that this recommendation had not been implemented. The Coast Guard replied on September 19, 1985, that it concurred with the recommendation and that it would seek legislative authority to require EPIRBs on documented U.S. fishing vessels.

On October 16, 1986, Public Law 99-640, the Coast Guard Reauthorization Bill, was signed by the President. Section 18, "Vessel Safety," amended 45 CFR 4102 with the following language addressed to the Coast Guard:

63/ For more detailed information, read Marine Accident Report, "Fishing Vessel M/V LOBSTA-1 Capsizing and Sinking in the Atlantic Ocean, Point Judith, Rhode Island, September 23, 1978" (NTSB-MAR-80-6).

64/ See "Loss of the U.S. Fishing Vessel AMAZING GRACE about 80 Nautical Miles East of Cape Henlopen, Delaware, about November 14, 1984" (NTSB/MAR-85/07).

- (a) Each uninspected fishing, fish processing, or fish tender vessel operating on the high seas shall be equipped with the number and type of emergency position indicating radio beacons prescribed by regulation.

Currently, the Safety Board is awaiting the Coast Guard's Notice of Proposed Rulemaking on EPIRB requirements for the uninspected commercial fishing vessel fleet. The rulemaking will address the COSPAS/SARSAT <sup>65/</sup> satellite system and the new alerting frequency 406.025 MHz currently being proposed by the Federal Communications Commission (FCC).

The COSPAS/SARSAT satellite system is operational. Currently, there are four active satellites and one marginally functional satellite involved in this system. Alert and distress signals picked up by a satellite are retransmitted from the satellite to a ground base receiving station, called a Local User Terminal (LUT). COSPAS and SARSAT satellites provide identical services for 121.5 and 406 MHz signals. Both type satellites receive and retransmit the 121.5 MHz (U.S. also 243 MHz) but only when the satellites are in simultaneous view of the vehicle in distress and a ground station, which limits satellite system coverage to the northern hemisphere primarily. For 406 MHz transmissions, the satellites' processors store distress signals and downlink the information to the next available LUT in the satellites' passage, which provides global coverage. (Figure 8 illustrates how the system works.)

COSPAS is the Soviet Union's contribution to this search and rescue system, and they have launched several satellites and search and rescue payloads. (Bulgaria is to be a future participant with the Soviet Union.) SARSAT's major partners are the United States, whose NOAA weather satellites carry the SARSAT payload, and France and Canada, who provide the onboard equipment. The United Kingdom, Norway, Sweden, Denmark, Chile, Brazil, and India are now or will be participants. United States participating agencies, in addition to NOAA, are the National Aeronautical and Space Administration (NASA), the United States Air Force (USAF), and the Coast Guard. The system has reportedly provided alert and location data on 121.5, 243 and 406.025 MHz beacons in marine, aviation, and surface incidents worldwide. The results have been the rescue of an estimated 746 persons: 311 in marine accidents, 408 in aviation, and 27 in surface emergencies.

The United States operates ground stations at St. Louis; near San Francisco; at Kodiak Island, Alaska; at Scott Air Force Base in Illinois; and an experimental LUT at NASA's Goddard Space Flight Center, near Washington, D.C. The United States is considering installing LUTs in Hawaii and Puerto Rico. A recent commercial vessel casualty, the U.S. tankship OMI YUKON, highlighted a detection problem in the central Pacific Ocean <sup>66/</sup> that a LUT in Hawaii should minimize. Canada operates a LUT at Ottawa and is planning LUTs at Churchill, Edmonton, and Goose Bay. France operates a LUT at Toulouse, Norway, has one at Tromsø, and the United Kingdom has one at Lasham (406.025 MHz only). The Soviet Union operates LUTs at Moscow, Arkhangelsk, and Vladivostok and is planning a LUT at Novosibirsk. India, Australia, and Brazil are planning LUTs, and Chile has planned a LUT of somewhat lesser capability than the other operational units.

<sup>65/</sup> COSPAS: Russian acronym for Space System for Search of Vessels in Distress; SARSAT: Search and Rescue Satellite-Aided Tracking.

<sup>66/</sup> For more detailed information, read Marine Accident Report, "Explosions and Fires Aboard U.S. Tankship OMI YUKON in the Pacific Ocean About 1,100 Miles West of Honolulu, Hawaii, on October 28, 1986" (NTSB/MAR-87/06).

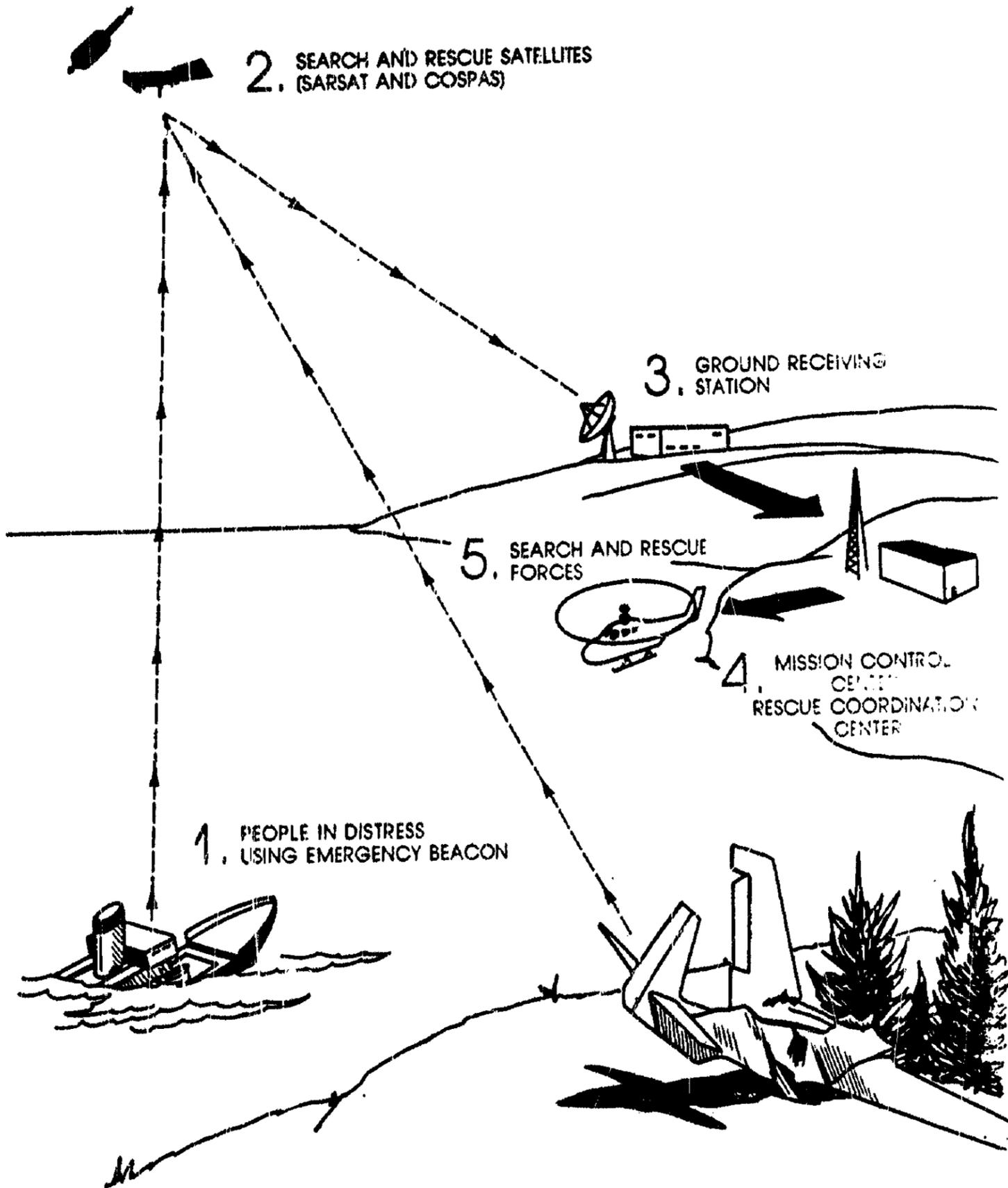


Figure 8.—Diagram of the COSPAS/SARSAT rescue system.

On October 24, 1986, the FCC issued an NPRM that would allow the voluntary use of a new 406.025 MHz EPIRBs by ships in distress (based on a petition for rulemaking filed by the NOAA). The current satellite system is fully capable of handling the new 406.025 MHz frequency. The effect of the proposed rule would be to permit ships to carry EPIRBs, which would be monitored by satellites participating in the COSPAS/SARSAT system. <sup>67/</sup>

This new EPIRB, which also may include a vessel's identification, may greatly reduce the Coast Guard's search and rescue response time. The Safety Board believes that the U.S. uninspected commercial fishing vessel fleet would benefit from the timely implementation of a new EPIRB frequency. The Coast Guard should issue proposed rules, as required by Public Law 99-640, to require EPIRBs on fishing vessels; these rules should include safeguards to minimize the current high false alarm rates considered unacceptable by the Safety Board. At a minimum, the Safety Board believes that the Coast Guard, upon issuance by the FCC of the final rule on the new 406.025 MHz frequency, should issue an accelerated rule proposal for uninspected commercial fishing vessels, including but not limited to, use of the new 406.025 MHz frequency EPIRB, annual maintenance and inspection procedures, and proper placement and/or location on an uninspected commercial fishing vessel for the new alerting frequency EPIRB equipment.

#### Global Maritime Distress and Search System

The Global Maritime Distress and Search System (GMDSS) refers to a global plan for maritime search and rescue based on international cooperation and support in responding to distress calls. The basic concept of GMDSS is that ground and sea search and rescue operations, as well as any shipping in the immediate vicinity, should be alerted quickly of any ship in distress. (Additionally, the system would be available for urgent and safety-related communications and the dissemination of marine safety information, such as navigation and weather data.) To do this, GMDSS pulls the various telecommunication systems into an integrated global search and rescue system to capitalize on the benefits of COSPAS/SARSAT, VHF and other radio frequencies, and any new and innovative communication networks such as geostationary satellite systems. The type of alert equipment appropriate for a vessel would be determined by the area in which the vessel sailed, not by vessel size. To participate in the system, any vessel should have the equipment needed so that at least two independent radio communications systems could hear them at all times.

The IMO has already started work on this safety system and has divided navigable waters into four sea areas. <sup>68/</sup> Currently, most fishing vessels are assumed to operate in areas designated as A1 and A2, areas close to shore that would rely on medium frequency (MF) shore station coverage. However, if a vessel went further than 160 km from shore,

<sup>67/</sup> See Federal Communications Commission Proposed Rule, "Marine Service; Proposed Amendment to Allow the Voluntary Use of 406.25 MHz Emergency Position Indicating Radiobeacons by Ships," 51 FR 43749, December 4, 1986.

<sup>68/</sup> The four sea areas are A1--30 km to 50 km offshore and within range of VHF coast stations; A2--50 km to 160 km offshore and within range of MF-based stations; A3--160 km or more and outside MF coverage but within range of INMARSAT geostationary communications satellites; A4--designated as any area not in A1 through A3 and outside coverage of geostationary satellites. Satellite coverage for A4 would be polar orbiting COSPAS/SARSAT satellites.

as many U.S. fishing vessels do, then the vessel would be covered under A3 and would use INMARSAT geostationary communications satellites. (INMARSAT is the International Maritime Satellite Organization and consists of three essential components: the INMARSAT space segment, the coast earth stations [CES], and ship earth stations [SES].) In practice, A3 will run between latitudes 70° north and 70° south.

Performance standards for several types of equipment to be utilized in the GMDSS have been finalized by the IMO's Radiocommunications Subcommittee and passed to the Maritime Safety Committee for further approval and ultimate consideration as an IMO Assembly Resolution. Performance standards in this status reported by the Radio Technical Commission for Maritime Services include: float-free VHF EPIRBs and survival craft two-way radiotelephone apparatus.

Although this system may not improve fishing vessel safety immediately, it certainly can provide a telecommunications approach for improving commercial fishing vessel safety in the future, particularly for fishing vessels that sail great distances, such as U.S. joint venture trawlers and U.S. tuna seiners.

## CHAPTER 6

### **SAFETY OVERSIGHT**

A number of organizations in the public and private sectors can affect commercial fishing vessel safety. Indeed, some of these organizations have actively pursued initiatives to improve the safety of fishing vessels and their crews:

Federal agencies like the Coast Guard, NOAA, and the Occupational Safety and Health Administration (OSHA).

Private organizations like marine surveyors represented by the National Association of Marine Surveyors and the Marine Surveyors Guild, the National Fishing Vessel and Insurance Council, a number of fishing vessel associations like the North Pacific Fishing Vessel Owners' Association, and the Texas Shrimp Association; labor unions like the Deep Sea Fisherman's Union of the Pacific and the United Fishermen of Alaska; and naval architects, as represented by the Society of Naval Architects and Marine Engineers.

State marine safety organizations like the Louisiana Department of Natural Resources Police and the Connecticut Department of Environmental Protection.

#### Federal Agencies

The Coast Guard has the primary responsibility for addressing uninspected commercial fishing vessel safety. The regulations for uninspected vessels issued by the Coast Guard that directly add to the safety of these vessels are found in 46 CFR Parts 24, 25, and 26. These address basic requirements for fire extinguishers, life preservers, and gasoline engine safety devices. Additionally, navigation regulations require a whistle and/or bell. <sup>69/</sup>

Safety equipment required for other boats or vessels that sail in the same waters as commercial fishing vessels is not required on fishing vessels because the Coast Guard states it does not have legislative authority to require such equipment on uninspected commercial fishing vessels. For example, recreational boats on coastal waters and the high seas are required to carry visual distress signals, but uninspected vessels, such as commercial fishing vessels, do not have to meet this requirement. The Safety Board believes that the authority of the Coast Guard should be expanded, if necessary, so that it can require needed lifesaving equipment on fishing vessels; and to allow the Coast Guard to promulgate appropriate safety regulations for exposure suits, operable emergency radios, liferafts, bilge and fire alarms, and EPIRBs.

As previously mentioned in this study, the Coast Guard has pursued a voluntary safety program for uninspected commercial fishing vessels. In 1984, the Secretary of Transportation set up a Fishing Vessel Safety Task Force to formulate ways to address the safety problems facing the commercial fishing vessel safety industry. The task force developed and issued the Coast Guard Navigational Vessel Inspection Circular (NVIC) 5-86

<sup>69/</sup> See Inland Navigation Rules Act of 1980 and International Regulations for Preventing Collisions at Sea, 1972 (COLREGS) issued in Coast Guard COMDINST M166672.2A.

in 1986. This technical circular was developed for use by naval architects, marine surveyors and engineers, and other specialists and technicians in the industry as guidelines to improve the safety levels on newly constructed uninspected commercial fishing vessels and as voluntary guidance for lifesaving equipment. A second initiative of the task force was the joint development of the training courses and the "Vessel Safety Manual" under the direction of the NPFVOA, described earlier in this study. This initiative also was completed in 1986.

In its February 19, 1987 agenda item submitted to the IMO's Maritime Safety Committee, the Coast Guard summarized its position on how to improve the safety of commercial fishing vessel operations. After stating that the Coast Guard relies on a voluntary initiative, it stated that ". . . the Fishing Vessel Safety Initiative (the NPFVOA's Vessel Safety Manual and the Coast Guard NVIC Circular 5-86) is the only comprehensive on-going governmental program aimed at improving the safety record of commercial fishing vessels." The Coast Guard went on to state that persons in the fishing industry could use the framework outlined in the Manual and Circular to reduce their vessel and human losses. <sup>70/</sup>

Recently, however, the Coast Guard reversed its position on the need for basic safety equipment requirements. In testimony on H.R. 1836 (Fishing Vessel Safety Act of 1987) and H.R. 1841 (Commercial Fishing Industry Vessel Safety and Compensation Act of 1987), the Coast Guard stated that "we support the equipment requirements in both bills." <sup>71/</sup>

Although the Safety Board supports voluntary programs and believes these programs can help reduce fishing vessel losses, the safety record of the fishing industry argues for more immediate and mandatory requirements for safety equipment, licensing and training of captains, and training of crewmembers.

The United Kingdom has some data on the impact of safety regulations on their accident rate for commercial fishing vessels. In 1975, the United Kingdom required that all registered fishing vessels 12 or more meters in length (approximately 40 feet) be subjected to comprehensive safety requirements covering hull and superstructure, freeboard and stability, machinery and equipment, structural fire protection, nautical equipment, and lifesaving appliances. The requirements are enforced through mandatory survey and certification by a component of the Department of Transport's marine survey group. <sup>72/</sup> In September 1986, the United Kingdom's Sea Fish Industry Authority, a government oversight agency for fishing vessel safety, concluded that the safety standards "had had an impact in decreasing the loss rate for vessels covered by 32 percent." <sup>73/</sup> The Deputy Chief Executive of the Sea Fish Industry Authority stated that

<sup>70/</sup> See United States position, Agenda 8 submitted to IMO, February 19, 1987.

<sup>71/</sup> Statement of Captain Gordon G. Piche, Chief, Marine Technical and Hazardous Materials Division, Office of Marine Safety, Security and Environmental Protection, USCG Headquarters, before the House Committee on Merchant Marine and Fisheries, June 11, 1987.

<sup>72/</sup> Submitted by the United Kingdom, Agenda Item 8, "Note by the Government of the United Kingdom, "Maritime Safety Committee, International Maritime Organization, January 13, 1987.

<sup>73/</sup> See Sea Fish Industry Authority Report, "Casualties to Fishing Vessels and Deaths of Fishermen: A Review Up to 1985," forwarded to Mr. Barry Gristwood, Sunderland Marine, from Mr. P.D. Chaplin, Deputy Chief Executive, Sea Fish Industry Authority, December 1, 1986.

"I feel that some qualitative conclusions can be reached, notably that the loss position regarding vessels covered by the 1975 Safety Rules has improved and the prospects of men surviving a loss got better." 74/

Likewise, the Norwegians have undertaken a series of studies on the safety of the Norwegian fishing vessel fleet and, in a paper for the IMO dated January 4, 1987, summarized the concern of the Norwegian Maritime Directorate. The Norwegian Permanent Commission for the Investigation of Certain Accidents in the Fishing Fleet has recommended priority action in the following areas: 75/

- o obligatory safety training;
- o a "Coastal Skipper Certificate" requirement for the captain of a vessel 35 feet or more in length (currently certificates are based on vessel tonnage--25 gross tons and about 15 m length);
- o construction rules in accordance with Nordic Boat Standards made applicable to all new fishing vessels;
- o all vessels 35 feet or over be subjected to a stability check (inclining tests) every 4 years;
- o all decked vessels under 50 gross tons and all undecked vessels with a wheelhouse and/or cabin carry a VHF radiotelephone;
- o an order for exposure suits;
- o an EPIRB to be carried by all fishing vessels 35 feet or longer when they are certified to fish beyond "fjord" fisheries;
- o inflated liferaft for seagoing fishing fleet; and
- o an EPIRB in the liferaft if fishing beyond 12 nmi from the coast.

Interviews confirmed that most owners, operators, and captains in organized fishing vessel associations would attempt to meet the voluntary vessel guidelines issued by the Coast Guard. However, only a minority of vessels are in organized associations, and the persons interviewed cautioned that the voluntary guidelines would not be followed by a large portion of the U.S. commercial fishing vessel industry because the guidelines are not mandatory.

NOAA has a cadre of marine extension agents interested in the education and training of persons in the maritime environment. A number of the NOAA-funded Sea Grant programs, particularly those in Alaska and Florida, have initiated safety training. These efforts are gratifying, but NOAA and the Coast Guard should cooperate to develop and implement a national training plan for commercial fishermen. NOAA's marine extension agents could develop and conduct training classes (using the material provided in NPFVOA's "Vessel Safety Manual") which could be funded initially through the Coast Guard and NOAA. Additionally, the NOAA marine extension agents located in fishing areas could tailor training programs to the local fisheries.

74/ Letter to Sunderland Marine, December 1, 1986.

75/ Submitted by Norway, Agenda Item 3, "Summary of the Studies on the Safety in the Norwegian Fleet," Maritime Safety Committee, International Maritime Organization, January 14, 1987.

Further, the Safety Board believes that the NOAA Sea Grant program should place more emphasis on research that addresses commercial fishing vessel losses and specific corrective actions for local fishing vessel operations, such as safety improvements in trawling equipment, stability studies of various vessel classes, etc. The Sea Grant program at the University of Washington has carried out some work like this on crabbing vessels, but it has been terminated for lack of funds. Research of this type should be undertaken on a number of stability-related issues, such as the effect of adding circulating water tanks on purse seiner vessels.

The National Marine Fisheries Service (NMFS) of NOAA also has funded some commercial fishing vessel safety-related projects through Saltonstall-Kennedy grants (S-K grants). <sup>76/</sup> Most notably, NMFS has funded the National Council on Fishing Vessel Safety and Insurance (NCFVSI) with about \$300,000 to date. The NCFVSI has undertaken the following safety-related projects:

- o indexing fishing vessel casualties;
- o providing national management and coordination of vessel insurance and safety initiatives;
- o publishing a national catalog of existing vessel safety and insurance materials; and
- o sponsoring national conferences on fishing vessel safety and insurance concerns.

Additional S-K grants have been used to fund marine safety education programs at the University of Alaska, the NPFVOA's Vessel Safety Program, and a video educational safety program for Gulf and South Atlantic Shrimpers (Southeastern Fisheries Association).

In early 1987, NMFS budget proposals omitted safety and NCFVSI funding for safety-related grants, but this funding was reinserted in the budget in mid-1987 because of Congressional and public interest in maintaining this funding. For example, the NPFVOA has requested an S-K grant for Fiscal Year 1988 through the NMFS Northwest Regional Office for an evaluation study, "Monitoring the Impacts of Voluntary Safety Enhancement Aboard Commercial Fishing Vessels." The Safety Board believes that NMFS support for commercial fishing vessel safety through S-K grants is necessary and that the NCFVSI provides an important forum for continued discussion of fishing vessel safety concerns through its membership.

OSHA, established pursuant to the Occupational Safety and Health Act of 1970 (84 Stat. 1590), is charged to protect the worker in the workplace. OSHA has developed and promulgated occupational safety and health standards; developed and issued regulations; conducted investigations and inspections to determine the status of compliance with standards and regulations; and issued citations and proposed penalties for noncompliance. The Safety Board has recommended that OSHA become involved in the safety of personnel aboard such uninspected maritime vessels as drilling barges and lift boats. These

<sup>76/</sup> Saltonstall-Kennedy (S-K) Fisheries Development and Utilization Research and Demonstration Grants awarded by NMFS are to be used for improving fishery management techniques and regulations.

uninspected vessels must meet the very limited Coast Guard safety regulations contained in 46 CFR 24 through 26, life preservers and fire extinguishers. As the result of its investigation of the U.S. Self-Propelled Lift Boat AMAY S, 77/ the Safety Board recommended in 1985 that OSHA "establish and enforce safety regulations which set forth lifesaving and firefighting requirements to protect industrial workers employed on uninspected self-elevating lift boats solely in state-controlled waters" (Recommendation M-85-116). As a result of the capsizing and sinking of the uninspected drilling barge TONKAWA, 78/ the Safety Board further recommended in 1986 that the OSHA "establish and enforce safety regulations to provide industrial workers aboard non-U.S. Coast Guard inspected drilling barges with a safe work environment." (Recommendation M-86-44).

OSHA replied on March 7, 1986, to Recommendation M-85-116 and stated that "Should the Coast Guard, for some reason, not address safety and health issues aboard these types of vessels, then OSHA would explore the promulgation of such regulations." The Safety Board holds this recommendation in an "Open--Acceptable Action" status. OSHA has not yet replied to M-86-440.

Like lift boats and drilling barges, the primary safety regulations applicable to uninspected commercial fishing vessels require only life preservers and fire extinguishers. Working conditions and life saving equipment on the vessels are not properly reviewed by an effective safety oversight organization, although there may be a review of life preservers and fire extinguishers if the Coast Guard boards a vessel.

One particular type of U.S. uninspected commercial fishing vessel--the fish processing vessel--appears to be in need of safety regulation like that provided by OSHA. Marine underwriters, brokers, marine surveyors, and others in the Seattle area spoke of this need. One marine surveyor made several of observations about these vessels: 79/

- o all the vessels navigate waters from Puget Sound to Alaska and transit in the open sea.;
- o all have been retrofitted with additional equipment including large refrigeration units, often with polyurethane foam (highly flammable and highly toxic if burned);
- o the vessels are not inspected for stability, seaworthiness, or safety by any responsible agency; and
- o naval architects have not reviewed stability data to reflect the safety limitations of the vessel's major alterations.

These vessels, which may have as many as 30 persons onboard who process fish, are exempt from any safety oversight. (See 46 U.S.C. 3302.) Because of the large numbers of industrial workers on these vessels and the absence of safety oversight by the Coast Guard or any safety agency, the Safety Board believes that OSHA should establish safety regulations for uninspected fish processing vessels. In addition, OSHA may have to

77/ See Marine Accident Report--"Capsizing of the U.S. Self-Propelled Lift Boat AMAY S While Under Tow of the U.S. Coast Guard Cutter POINT HOPE, Gulf of Mexico, October 17, 1984." (NTSB/MAR-85/10).

78/ See Marine Accident Report--"Capsizing and Sinking of the Drilling Barge TONKAWA in Bayou Chene Near Morgan City, Louisiana, May 20, 1985" (NTSB/AMR-86/07).

79/ Letter from Captain Harold D. Huyckes to the Subcommittee on Coast Guard and Navigation and the Subcommittee on Fisheries and Wildlife, July 25, 1985.

seriously consider ways to improve working conditions for all U.S. uninspected commercial fishing vessels, if the Coast Guard cannot effectively develop a regulatory program to ensure a safe workplace with proper safety equipment for commercial fishermen.

Because of a recent Congressional mandate (Commercial Fishing Industry Vessel Act, 98 Stat. 4467), the Coast Guard is developing regulations for uninspected fish processing vessels that enter into service after December 31, 1987, and that carry more than 16 persons.

The Coast Guard issued an Advance Notice of Proposed Rulemaking (ANPRM) on July 9, 1987 (52 FR 25890), "Equipment Standards for Uninspected Fish Processing Vessels," proposing regulations in six categories for new fish processing vessels:

- (1) navigation equipment;
- (2) lifesaving equipment;
- (3) fire protection;
- (4) the use and installation of insulating material;
- (5) storage methods for flammable or combustible material; and
- (6) fuel, ventilation, and electrical systems.

However, this proposal does not address the need for regulation of currently operating fish processing vessels. These vessels need regulatory safety oversight and the Coast Guard should act to address safety and lifesaving equipment for current fishing processing vessels. The Safety Board believes that the Coast Guard should appropriately address all fish processing vessels.

#### Private Organizations

In the private sector, marine surveyors somewhat fill the safety void by attempting to document, for marine insurance brokers and underwriters, whether a fishing vessel is seaworthy and should be insured. The marine surveyor is hired by a fishing vessel captain/owner to survey the vessel and provide reports for use by the captain/owner in obtaining insurance. However, marine surveyors can only recommend to a fishing vessel captain that safety corrections be made, since there is no requirement that standards on construction or safety be followed in the uninspected commercial fishing industry.

In any case, surveyors do represent the one source of suggestions for safety improvements for uninspected commercial fishing vessels. As one surveyor stated:

I think it pertinent at this point to say that marine surveyors are often the one and only hurdle which a vessel owner has to clear prior to obtaining insurance for his vessel. It is a fact that because we surveyors come from such a diverse field of experiences, backgrounds, training and knowledge, that more often the hurdles are run around than over. This is not to say that all vessel owners are intent on avoiding adverse survey reports and findings on their vessels. It does mean that because the surveyors are so different and are independent competing businessmen, as are marine insurance brokers and underwriters, that a vessel owner, intent upon finding the path of least resistance to obtaining insurance, can often do so. 80/

80/ See Captain Huyckes' letter to the House Subcommittees, op. cit.

Despite their pivotal role, marine surveyors generally are not certified or licensed by any governmental authority. Any person can become a marine surveyor by announcing that he or she is in the business. The Director of the Alaska Ground Fish Data Bank, representing Alaska trawl vessels and the Alaska Druggers Association, recently testified before the Subcommittees on Fisheries and Wildlife Conservation and the Environment, Merchant Marine, Coast Guard, and Navigation. He stated, "I've also been asked by my members to again suggest that marine surveyors be required to meet some training or experience standards." 81/

Marine surveyors can join two associations: the National Association of Marine Surveyors, in New York State, or the Marine Surveyors Guild, based in Louisiana. These two organizations promote the profession, exchange information, conduct specialized training, and inform their members of the latest approved and recommended practices. The Marine Surveyors Guild, recognizing that the professional level of the industry needs to be improved, has sought State legislation in Louisiana for qualifications and training requirements to lead to a marine surveyor's certificate. Recently, a bill was introduced in the Louisiana House of Representatives providing for qualification requirements, requirements for certification, and the formation of a Louisiana State Board of Professional Marine Surveyors. As of this writing, the bill has now passed both the Louisiana House and Senate and is awaiting the Governor's signature.

At this time, the marine surveyor is the safety professional who can have the most immediate impact on promoting and obtaining safety improvements in the uninspected commercial fishing vessel industry. The Safety Board envisions a vessel safety certification system based on the marine surveyor's inspection to ensure that a fishing vessel has complied with Federal safety standards before the owner can obtain insurance. Furthermore, the Safety Board believes that uninspected commercial fishing vessels should have to meet the Federal or State minimum insurance coverage.

Currently, a number of vessels (estimated by the Board at about 30 percent) operate with no insurance for the vessel or crew. Both bills before Congress provide that vessels show evidence of compliance with Federal standards, including Coast Guard NVIC Circular 5-86, if a certification is issued by the person providing insurance. Since insurance companies have little or no expertise in safety equipment for fishing vessels, a system in which marine surveyors conduct inspections for compliance may be feasible. This may require that Federal Standards for marine surveys be established. The Coast Guard indicates that the National Cargo Bureau and at least one classification society, Det Norske Veritas (Norwegian), are interested in inspection and classification aspects of uninspected commercial fishing vessels. The National Cargo Bureau currently is developing a fishing vessel inspection program based on the Coast Guard's voluntary standards. Det Norske Veritas also inspect fishing vessels and classify the vessels for insurance purposes if the vessels meet stringent safety standards. In addition to these organizations, other recognized associations, such as the American Bureau of Shipping and Lloyds's (U.K.), also have marine surveying expertise. Efforts by these recognized organizations can improve the safety levels on uninspected commercial fishing vessels that pay for these organizations' services.

81/ See testimony on H.R. 1841 and H.R. 1836, Bills Addressing Fishing Vessel Safety, delivered by Chris Blackburn, Director, Alaska Groundfish Data Bank, Before U.S. Congressional Subcommittees on Fisheries and Wildlife Conservation, and on the Environment, Merchant Marine, and Coast Guard and Navigation, June 11, 1987.

A number of fishing vessel associations have voluntarily addressed the safety problem, and several have already been mentioned in the course of this study: the National Fishing Vessel Safety and Insurance Council, the NPFVOA, the Point Club, the American Tunaboat Association, and others. These associations are attempting to upgrade the safety of the industry and their fleets by requiring stability, equipment, and training improvements independent of any efforts by surveyors, the Federal government, or others. The Safety Board is pleased to see these initiatives. However, these organizations (with the exception of the Point Club) limit their members to captains and owners of fishing vessels with a proven safety reputation. While the Safety Board supports and encourages these efforts, it believes that the National Fishing Vessel Safety and Insurance Council should undertake an aggressive effort to assist the industry in developing a program like that of the Point Club, to allow all uninspected commercial fishing vessels to enter such associations on a probationary schedule, contingent on their making the required safety improvements and passing stability tests.

Labor unions involved in the fishing vessel industry have also taken steps to ensure that some degree of safety is met on uninspected commercial fishing vessels. In its "Set Line Agreement" dated April 14, 1984, the Deep Sea Fishermen's Union of the Pacific has required liferafts, exposure suits, and a medicine chest. The Master Contract Between the Teamsters, Chauffeurs, Warehousemen and Helpers, Local No. 59, Fishermen's Division in New Bedford, Massachusetts, requires a medicine chest, inflatable liferaft, fire extinguishers, bilge alarms, fire alarms, and an EPIRB on fishing vessels on which its members work.

Naval architects also can play a very important role in fishing vessel safety through the construction of a stable fishing vessel and by informing the owner/captain of the vessel's stability characteristics. The Coast Guard recognizes the importance of stability in its NVIC circular and heavily emphasizes this area. However, stability tests are not required by regulation and thus many vessels never have such a test. Naval architects cannot improve the stability of commercial fishing vessels until the Coast Guard requires stability tests. The Safety Board believes that such action should be taken for all new fishing vessels and after modifications to existing vessels.

#### State Marine Safety Organizations

State marine safety organizations also play a limited role in improving the safety of commercial fishing vessels. The marine police in Louisiana and Connecticut do board commercial fishing vessels and inspect them for the Federal safety requirements of life preservers and fire extinguishers. State officials interviewed by the Board indicated that while commercial fishing vessel safety generally is a Coast Guard responsibility, 82/ any new Federal safety requirements would also be enforced by State marine police.

#### Congressional Initiatives

Currently, two legislative initiatives are underway in the 100th Congress that reflect some of the safety concerns addressed in this study. H.R. 1836 would establish operator licensing, inspection, and additional safety requirements for certain fishing vessels; H.R. 1841 (S.849 in the Senate) would establish guidelines for timely compensation for temporary injury incurred by seamen on fishing vessels and would

82/ State officials were interviewed in Alaska, Connecticut, Louisiana, and Washington.

require additional safety regulations for fishing industry vessels. (See appendix F for text of the bills.) These bills are similar in most respects. Both apply to the same types of vessel—fishing, fish tender, and fish processing. Both restate the existing equipment requirements (46 USC 41), most notably life preserver and fire extinguisher provisions, and add visual distress signal requirements. In addition, both bills require documented U.S. commercial fishing vessels, processing vessels, and tender vessels operating beyond the Boundary Line (the mouth of rivers and bays) to be equipped with additional basic safety equipment—EPIRBs, liferafts, exposure suits, and operable emergency radios. Both bills have identical operating stability requirements: currently operating vessels would be "grandfathered," and stability requirements would apply to all newly constructed vessels and/or vessels whose "physical characteristics are substantially altered . . . in a manner affecting the vessel's operating stability."

H.R. 1836 would make it unlawful to operate a vessel unless crew emergency assignments are posted and emergency drills are carried out. Additionally, H.R. 1836 authorizes the Secretary of Transportation to adopt other regulations as may be necessary to mitigate injury and loss of life. Further, H.R. 1836 includes requirements for:

- o training of crewmembers in vessel safety and emergency procedures;
- o DOT's approval of fishing vessel safety training schools;
- o licensing of operators of documented fishing vessels; and
- o inspection by the Coast Guard of all documented fishing vessels.

The Safety Board believes that this legislation addresses important safety needs and that the passage of either bill or a compromise bill combining the safety elements of H.R. 1836 and 1841 would help reduce uninspected commercial fishing vessel casualties and loss of life.

#### Recent Legal Decision

A recent ruling 83/ from a Federal judge in the U.S. District Court in Portland, Oregon, may have an impact on uninspected commercial fishing vessel safety. On November 15, 1985, the U.S. uninspected fishing vessel LASSEIGNE capsized about 20 miles off the Oregon coast near Siletz Bay with the loss of three fishermen. On May 8, 1987, in U.S. District Court Opinion 84-490 LE, the vessel owner of the LASSEIGNE was ordered to pay more than \$1 million in damages.

The decision held that the owner had "an absolute and undelegable duty" to provide safety equipment. In this case, the LASSEIGNE's owner had provided neither an exposure suit for every crewmember on board nor an inflatable liferaft.

Additional evidence presented during the 7-day trial showed that the LASSEIGNE was built in 1980 in Louisiana for shrimp operations and was later converted to groundfish trawling. The conversion added steel drums, doors, and winches, as well as heavy trawling nets. The judge found the owner negligent because the conversion rendered the vessel unstable. The judge noted, "No stability tests were ever performed despite the addition of this weight."

83/ See U.S. District Court Opinion 84-490 LE issued May 8, 1987, Portland, Oregon as reported in the National Fisherman, September 1986.

The judge stated that "at the time of the capsizing, a preponderance of the evidence shows that only one survival (exposure) suit, two webbed life rings, and three life jackets were aboard. I find as a matter of law that the lack of a suitable liferaft and survival suit for each crewmember rendered this vessel unseaworthy." Further, the judge cited negligence on the part of the owner, who was aware of problems with the bilge pump and the high water bilge alarm. Problems with this safety equipment contributed to the capsizing.

The ruling in this case may trigger the introduction of many new legal cases, because it establishes that "seaworthy" includes the provision of adequate lifesaving equipment.

## CHAPTER 7

### **OTHER SAFETY ISSUES**

#### **Alcohol and Drug Use in Fishing Vessel Operations**

There are few data on alcohol and drug use among fishing vessel captains and crew. The only commercial fishing vessel casualty report in the Safety Board's records that addresses alcohol and/or drugs is the report of the loss of the WESTERN SEA. (Use of drugs by the master probably contributed to the loss of the vessel.) However, many of those interviewed for this study voiced concerns over the impact of alcohol and drug use in accidents. The Point Club has taken an aggressive posture on this issue and, as one of the association's requirements, signs are placed on fishing vessels indicating that insurance is voided if alcohol and/or drug use is involved in an accident. Since neither the Coast Guard nor the Safety Board have had the authority to require alcohol and/or drug testing, there has been no way to document or reject alcohol and/or drug use as factor or cause in fishing vessel casualties. Discussion with fishing vessel industry representatives during this study has lead the Safety Board to believe that this is an area for fruitful investigation.

On February 9, 1987, the Coast Guard published in the Federal Register a Notice of Proposed Rulemaking (NPRM) addressing "Operations of a Vessel While Intoxicated." This rulemaking sets 0.10 percent blood alcohol concentration (BAC) as the standard for intoxication for persons engaged in commercial marine operations on vessels not subject to manning requirements and 0.04 percent for persons engaged in commercial marine operations on vessels subject to manning requirements. In its comments on the proposed rule, dated May 12, 1987, the Safety Board calls for a BAC of zero— i.e., no measurable alcohol for any commercial marine operations; this would include uninspected commercial fishing vessel operations.

Drugs and alcohol have no place in the dangerous work environment of commercial fishing vessel operations. The Safety Board looks forward to the implementation of the Coast Guard's final rule and stricter enforcement of the prohibitions against alcohol and drugs in uninspected commercial fishing vessels as the result of improved Coast Guard accident investigations.

#### **Toxic Gas Exposure**

During the Safety Board's investigation of fishing vessel safety issues, the problem of toxic gas exposure was brought to its attention. Although the Safety Board has no evidence on this matter from vessel casualty investigations, a 1979 study by the Center for Disease Control <sup>84/</sup> suggests that this issue should at least be brought to the attention of fishermen in warm climates. The fermentation of decaying organic products, chemical reactions in bilge water, and the misuse of chemicals like bisulfite (used in keeping shrimp fresh) can individually or collectively produce a toxic atmosphere in an enclosed hold. The CDC report described the death of two crewmen and hospitalization of the captain after exposure to the toxic atmosphere of a fishing vessel's hold. The conclusion of the CDC was that death by asphyxia among fishermen in unventilated fishing vessel holds is a greater problem than previously recognized. The CDC recommended that unventilated air spaces should be well identified and crewmembers alerted to the hazard.

<sup>84/</sup> See Center for Disease Control, "Asphyxia Deaths of Shrimp Fishermen Due to Toxic Gas Exposure," EPI-78-90-2, January 30, 1979.

The CDC's examination of Coast Guard records indicated that from 1968 to 1978, 12 such incidents occurred, resulting in 37 deaths. Most of the incidents involved Gulf shrimpers or fish trawlers in warm waters and during warm months of the year, and all of the casualties occurred in unventilated holds.

This issue was brought to the Safety Board's attention by a private accident investigator in Houston <sup>85/</sup> who indicated that toxic gas exposure is a continuing problem; he recommended that ventilation of bilge areas should be a safety requirement. The Safety Board believes that the Coast Guard should review its files to see if toxic gas exposure causing deaths to fishermen is a continuing problem and, if so, formally publicize the dangers.

### Fire Safety

The Safety Board has investigated many accidents (in several modes of transportation) involving the substantial fire and toxic smoke hazards introduced by the use of polyurethane foams without effective safeguards. Such hazards are certainly present in the commercial fishing vessel industry. If there is an ignition source, polyurethane foam will ignite and the speed of its spreading flame will overwhelm such devices as hand-held extinguishers. Additionally, the high temperatures and toxic gases of a polyurethane fire preclude crewmembers from fighting such a fire in confined location, as in a fishing vessel hold, for example.

The Safety Board has investigated three such casualties on uninspected commercial fishing vessels. Two of the casualties involved U.S. fish processing vessels (the AL IND ESK A SEA and the M/V WESTPRO) and one a Gulf shrimper (GOD'S GIFT). <sup>86/</sup> Fortunately, none of the accidents resulted in fatalities or injuries; the property damage losses were estimated at about \$16 million. Neither of the two fish processors had a fixed fire extinguishing system installed. Once fire ignited the polyurethane foam insulation, the crew was helpless to combat the flames because of the highly toxic gases that accompany burning polyurethane. In the casualty involving GOD'S GIFT, the captain attempted to control the fire with three CO<sub>2</sub> fire extinguishers, but the high heat, dense smoke, and toxic fumes produced by the burning polyurethane forced the captain to abandon ship.

There are two practical solutions that the Board believes should be considered. First, the use of polyurethane foam on any U.S. uninspected fishing vessel, particularly fish tenders and processors, should be allowed only if the vessel has a fixed fire extinguishing system capable of smothering such a fire. The Safety Board looks to the Coast Guard's ANPRM on fish processing vessels to address part of this concern. Second, the industry, perhaps through the National Fishing Vessel Safety and Insurance Council, should look for alternatives to polyurethane foam for insulation.

Fixed fire extinguishing systems are needed for other reasons as well. The Board has investigated many casualties in which a fire extinguisher did little to halt the fire. Even with the best of training, crewmembers have difficulty handling a fire at sea without an adequate fire extinguishing system (and functional fire alarms to provide some warning). The Safety Board reports issued as the result of fires and sinking of the uninspected commercial fishing vessels IBERIA, JEANNE D'ARC, SANDRA JANE,

<sup>85/</sup> Interview with private investigator/fishing vessel captain, Houston, Texas, April 1987.

<sup>86/</sup> For more detailed information, read Marine Accident Reports--"Brief Format Issue 1" p. 56 for the AL IND ESK A SEA; "Brief Format Issue 2," p. 59, for the GOD'S GIFT, and Brief Format Issue 3," p. 28, for the WESTPRO.

CHESAPEAKE, and the PACIFIC PIONEER <sup>87/</sup> document the need for fixed fire extinguishing systems for uninspected commercial fishing vessels, particularly those operating where assistance in an emergency is not readily available. Further, there are no requirements for structural fire protection for uninspected commercial fishing vessels.

Many of the larger trawlers already have fixed systems installed using halon or other chemicals. The Safety Board believes that the Coast Guard should require fixed fire extinguishing systems on uninspected commercial fishing vessels.

<sup>87/</sup> See Marine Accident Reports—"Brief Format, Issue Number 2" p. 22 for the CHESAPEAKE, p. 74 for the SANDRA JANE; Brief Format Issue Number 4" p. 4 for the IBERIA, p. 25 for the JEANNE D'ARC and p. 53 for the PACIFIC PIONEER.

### SUMMARY

In 1986, there were approximately 100,000 commercial fishermen and women operating 33,000 uninspected commercial fishing vessels. They participated in landing 60 billion pounds of fish valued at \$2.8 billion. <sup>88/</sup> They risk their lives daily in a hostile environment that demands safe operating practices, solid training in safety measures, and, in the event of an accident, adequate safety equipment in good working order.

However, there is no requirement that those who work on U.S. uninspected commercial fishing vessels have the training necessary to perform their jobs safely. And the Federal requirements for safety equipment applicable to uninspected commercial fishing vessels are inadequate.

The components to improve the safety level of the uninspected commercial fishing vessel fleet already exist. What is needed is for the Coast Guard to mandate the basic safety equipment requirements and implement licensing and training requirements at the Federal and private-sector level to:

- o provide training for captains and crewmembers;
- o establish licensing requirements, at a minimum for captains;
- o expand the basic safety equipment requirements; and
- o establish stability information requirements.

### Commercial Fishermen Training

Even though commercial fishing is a specialized and dangerous skill, with the potential for catastrophic consequences if tasks are performed incorrectly, there are no training requirements. Training is available from some proprietary fishing vessel organizations and some universities involved in fishing vessel safety. However, there are insufficient incentives for fishermen to enroll in any training courses, particularly if the training courses are not free.

Two recent developments could significantly improve commercial fishermen training: the training courses and "Vessel Safety Manual," prepared jointly by the Coast Guard and the NPFVOA, and the Coast Guard's NVIC Circular 5-86, which provides technical information used in the Manual.

The NPFVOA's training courses appear to cover basic safety concerns appropriate to uninspected commercial fishing vessel operations. However, these courses are voluntary. During 2 years, about 420 captains and crewmembers have attended the courses in the Seattle area; this is gratifying, but there are approximately 16,500 fishermen to train in Washington State alone. Mandating training for captains and crewmembers would accelerate attendance at such courses and would no doubt spark development of new private/public training centers.

The Coast Guard has already developed the framework for a mandatory national commercial fishing vessel training program by approving the "Vessel Safety Manual" and its accompanying training classes. The effort should now be accelerated to require training for all commercial fishermen and to develop training centers like NPFVOA's, which meets Coast Guard training criteria. To accomplish this, the Coast Guard should establish minimum safety training requirements.

<sup>88/</sup> U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Current Fishery Statistics No. 8385, "Fisheries of the United States, 1986," April 1986.

While Federal training requirements for captains and crewmembers will do the most to ensure that all commercial fishermen are adequately trained, action should be taken to prevent inadequately trained people from entering commercial fishing operations--for example, young and inexperienced college students. Fishing associations should immediately adopt policies to hire only people who have attended formal training courses and obtained a certificate of training.

Insurance companies can also assist by providing financial incentives in terms of premium reductions to promote formal training for commercial fishermen. Currently, a few fishing vessel associations have attempted to foster this concept by requiring formal training of their members in an effort to achieve reduced insurance premiums.

### Licensing

Training and licensing of uninspected commercial fishing vessel captains go hand-in-hand. There should be a Federal requirement that a captain of an uninspected commercial fishing vessel have a license and that it can be obtained only after meeting minimum safety qualifications. Most importantly, the captain should demonstrate minimum qualifications through written examination or oral examination if appropriate on practical problems in vessel safety, including rules of the road, vessel stability, firefighting, watertight integrity, and the use of critical lifesaving equipment. In addition, the captain should demonstrate eligibility through time in service to show proficiency in the skills required for commercial fishing operations.

The Coast Guard is equipped to institute such a licensing program and has already undertaken such programs for other marine operations--for example, the licensing of operators of uninspected towing vessels. Such a licensing program would raise the safety level in commercial fishing vessel operations in several ways. First, the captain would be better prepared to handle an unexpected life-threatening emergency; second, the captain could disseminate valuable emergency instructions and provide drills on the safety features of the vessel for his crew prior to departure; and finally, the training required for such a license could cause a greater appreciation of the need for the readiness of safety equipment and the periodic maintenance and inspection of that equipment.

### Stability and Safety Equipment Requirement

There is a definite need for stability tests and understandable stability information to be uniformly provided to captains of uninspected commercial fishing vessels. The Coast Guard recognizes this need in its voluntary Navigation Circular NVIC 5-86, which devotes considerable attention to stability. However, NVIC 5-86 provides only voluntary guidance and, therefore, cannot effectively address the stability issue.

In order to address stability in any meaningful fashion, stability testing for all uninspected commercial fishing vessels must be required. Additionally, any time a fishing vessel undergoes major structural alterations that shift the vessel's center of gravity, such tests should be required. Further, stability characteristics and guidance on proper loading of an uninspected commercial fishing vessel must be provided to captains in a form they understand, and stability information must be kept on the vessel where the captain can easily find it.

In many casualties, the absence of basic safety equipment drastically narrowed the chances that the captain and the crewmembers would survive in the harsh sea environment. The basic safety equipment necessary to effectively meet most unexpected occurrences at sea--fires, capsizings, and foundering--should be required on all

uninspected commercial fishing vessels. This includes exposure suits (in applicable waters), bilge and fire alarms, inflatable liferafts, an operable emergency radio, and EPIRBs.

The Coast Guard has addressed the need for such equipment but only on a voluntary basis (in the NVIC Circular 5-86 and in the Coast Guard-approved training courses). The need for safety improvements in uninspected commercial fishing vessel operations was perhaps best summarized by the president of the United Shell Fishermen's Association when he stated:

In conclusion, it should be the responsibility of the government to recognize those shortcomings in industry and take corrective measures and, in effect, say to those of us who formulate plans and who put profit before safety, "Your values are in error and we are going to insist that you straighten them out." 89/

### CONCLUSIONS

1. For the 10 years 1978 to mid-1987, the Safety Board reported on 203 major fishing vessel accidents. Of the 203 accidents, 132 involved capsizings, flooding, or foundering; 38 involved fire and explosions; and 21 involved groundings. These accidents resulted in 147 deaths, 30 injuries, and property damage estimated at \$165 million. Fishing vessel losses in the United States increased dramatically between 1981 and 1984, as compared to the previous 10 years.
2. The commercial fishing vessel industry is one of the highest risk industries in the world and has the poorest safety record of any industry in the United States.
3. Many U.S. uninspected commercial fishing vessels operate with inadequate safety equipment.
4. The Coast Guard does not require commercial fishing vessel captains to be licensed, and most captains of uninspected commercial fishing vessels do not have a license and have never passed any qualification requirements.
5. The Coast Guard has a structured program for the licensing of uninspected towing vessel operators that includes eligibility and knowledge requirements; a similar program could be established for commercial fishing vessel captains.
6. The Coast Guard does not have any published standards nor do they require training for captains or crewmembers of commercial fishing vessels, even in such crucial safety matters as firefighting, stability, watertight integrity, the use of lifesaving equipment, or rules of the road.
7. The Coast Guard has supported various voluntary training and other safety efforts for fishing vessel safety: the North Pacific Fishing Vessel Owners' Association vessel safety training program and a technical manual that addresses stability, safety equipment, and other subjects.

89/ Letter to the National Transportation Safety Board from President, United Shell Fishermen's Association, July 13, 1987.

8. The use of voluntary training and manuals to improve the poor safety record in the industry was started at least as early as 1968, but has not been successful.
9. U.S. uninspected commercial fishing vessels are not required to meet any construction standards, nor do they have to meet any minimum stability requirements or tests; many owners and captains do not know the factors that affect the stability of their commercial fishing vessels.
10. Many fishing vessels being built lack watertight integrity, and the stability characteristics of many vessels are unknown.
11. Some vessels operating on the high seas (20 miles or more offshore) have considerably more safety equipment than required by the Coast Guard including exposure suits, fire and bilge alarms, inflatable liferafts, two operable radios, and EPIRBs.
12. A number of commercial fishing vessel associations have developed safety equipment requirements that vessels in their associations must meet; these requirements often exceed Coast Guard requirements.
13. The Coast Guard has issued no requirements for maintenance, inspection, or drills in the use of safety equipment on uninspected commercial fishing vessels.
14. The estimated cost of the safety equipment needed on board uninspected commercial fishing vessel--EPIRBs, liferafts, operable emergency radios, and exposure suits--would be only about 0.03 to 2.0 percent of the total cost of new construction.
15. Congress recently mandated emergency position indicating radiobeacons (EPIRBs) for uninspected fishing, fish processing, or fish tender vessels operating on the high seas; implementing regulations are to be drafted by the Coast Guard. The regulations applicable to the fishing vessel industry should include the new alerting frequency, 406.025 MHz.
16. The recognized need for improved safety of uninspected commercial fishing vessel safety has led to the introduction of two bills in the 100th Congress H.R. 1836, Fishing Vessel Safety Act of 1987, and H.R. 1841 (S.849) Commercial Fishing Industry Vessel Safety and Compensate Act of 1987.
17. Fish processing vessels, which may carry a large number of industrial workers, are not required to meet any safety or health requirements; the Coast Guard has begun rulemaking on safety requirements for new fish processing vessels entered into service after December 31, 1987; the proposed rulemaking does not address current fish processing vessels.
18. There is a need for the Coast Guard or its recognized representative to certify and periodically inspect commercial fishing vessels for compliance with Federal regulations.
19. The role of alcohol and drugs in uninspected commercial fishing vessel casualties is not known.

20. Rulemaking underway by the Coast Guard addresses the operation of a vessel by any crewmember while intoxicated and proposes to establish a 0.04 percent blood alcohol concentration for commercial marine operations but 0.10 percent blood alcohol concentration for uninspected commercial fishing vessel operations; the Safety Board has consistently insisted that no measurable level of alcohol and/or drugs is acceptable in any commercial transportation operation.
21. Research by the Center for Disease Control suggests that toxic gas exposure in unventilated fishing holds on uninspected commercial fishing vessels is creating a hazard for workers on these vessels.
22. Polyurethane foam in fishing vessel holds or engine rooms presents a toxic hazard in the event of fire; there are no Coast Guard standards governing the use of polyurethane foam and the proper fire extinguishing system to be used if such foam is used in enclosed spaces.

### RECOMMENDATIONS

As a result of this Safety Study, the National Transportation Safety Board reiterates Safety Recommendations M-85-68 made July 9, 1985, and M-86-11 made January 14, 1986, to the Coast Guard:

#### M-85-68

Seek legislative authority to require the licensing of captains of commercial fishing vessels, including a requirement that they demonstrate minimum qualifications in vessel safety including rules of the road, vessel stability, firefighting, watertight integrity, and the use of lifesaving equipment.

#### M-86-11

Seek legislative authority to require that stability tests be conducted and that complete stability information be provided to the captains of commercial fishing vessels.

Also as a result of its Safety Study, the Safety Board made the following recommendations:

—to the U.S. Coast Guard:

Establish minimum safety training standards for all commercial fishermen, commensurate with their responsibilities, for all types of uninspected commercial fishing vessels. (Class II, Priority Action) (M-87-51)

Seek legislative authority to require uninspected commercial fishing vessel captains/owners to provide safety training to all crewmembers. (Class II, Priority Action) (M-87-52)

Seek legislative authority to require basic lifesaving equipment for uninspected commercial fishing vessels including but not limited to:

- o Exposure suits for each crewmember when the vessel operates in cold waters (Class II, Priority Action) (M-87-53)

- o Flooding detection alarms and automatic dewatering systems (Class II, Priority Action) (M-87-54)
- o Fire detection alarms and fixed firefighting systems for enginerooms (Class II, Priority Action) (M-87-55)
- o Coast Guard-approved lifeboats or liferafts sufficient to carry all persons onboard (Class II, Priority Action) (M-87-56)
- o Emergency radios with an independent power source (Class II, Priority Action) (M-87-57)

Seek legislative authority to require basic safety equipment for fish processing vessels built before January 1, 1988, including but not limited to:

- o Exposure suits for each crewmember onboard when the vessel operates in cold waters (Class II, Priority Action) (M-87-58)
- o Flooding detection alarms and automatic dewatering systems (Class II, Priority Action) (M-87-59)
- o Fire detection alarms and fixed firefighting systems for enginerooms (Class II, Priority Action) (M-87-60)
- o Coast Guard-approved lifeboats or liferafts sufficient to carry all persons onboard (Class II, Priority Action) (M-87-61)
- o Emergency radios with an independent power source (Class II, Priority Action) (M-87-62)

Establish standards for the implementation and use of the new 406.025 MHz emergency position indicating radiobeacon for uninspected commercial fishing vessels, including proper handling, placement on the vessel, maintenance, and inspection practices. (Class II, Priority Action) (M-87-63)

Seek legislative authority to require that all uninspected commercial fishing vessels be certified and periodically inspected by the Coast Guard or its recognized representative to ensure that the vessels meet all applicable Federal safety standards. (Class II, Priority Action) (M-87-64)

Include in the final rule on "Operation of a Vessel While Intoxicated" an absolute prohibition against the use of alcohol and/or drugs while engaged in commercial fishing operations. (Class II, Priority Action) (M-87-65)

Research and review casualty data on the potential for toxic gas exposure in unventilated spaces and publicize the danger to the commercial fishing vessel industry if such action is warranted. (Class II, Priority Action) (M-87-66)

--to the National Oceanic and Atmospheric Administration:

Through the Sea Grant programs at universities, examine stability issues relating to commercial fishing vessels and their particular fishing operations, including but not limited to the impact of adding equipment such as circulating water tanks and the need for basic stability testing requirements. (Class II, Priority Action) (M-87-67)

--To the National Council of Fishing Vessel Safety and Insurance:

Report to your member organizations the results of data collected by the Commercial Fishing Claims Register on major marine accidents and the causes assigned to those accidents to inform them of the continued need for safety improvement. (Class II, Priority Action) (M-87-68)

Provide written direction to your membership that the voluntary standards and training requirements promoted by the U.S. Coast Guard should be viewed as minimum safety requirements for uninspected commercial fishing vessels until mandatory requirements can be promulgated by the Coast Guard. (Class II, Priority Action) (M-87-69)

**BY THE NATIONAL TRANSPORTATION SAFETY BOARD**

/s/ JIM BURNETT  
Chairman

/s/ PATRICIA A. GOLDMAN  
Vice Chairman

/s/ JOHN K. LAUBER  
Member

/s/ JOSEPH T. NALL  
Member

/s/ JAMES L. KOLSTAD  
Member

September 1, 1987

**APPENDIX A  
SELECTED SAFETY RECOMMENDATIONS ISSUED BY  
THE NATIONAL TRANSPORTATION SAFETY BOARD  
THAT ADDRESS FISHING SAFETY IMPROVEMENTS**

Recommendation Number: M-80-023  
Issue Date: April 24, 1980  
Addressee: U.S. Coast Guard  
Status: Closed--Acceptable Action

Seek authority to require the carriage of emergency position indicating radio beacons (EPIRB) on documented U.S. fishing vessels and in the interim period, pursue all available means to encourage their use.

Recommendation Number: M-85-067  
Issue Date: August 12, 1985  
Addressee: U.S. Coast Guard  
Status: Open--Unacceptable Action

Resume research into seakeeping characteristics of small vessels to develop stability standards for fishing vessels such as the AMAZING GRACE.

Recommendation Number: M-85-068  
Issue Date: August 12, 1985  
Addressee: U.S. Coast Guard  
Status: Open--Acceptable Action

Seek legislative authority to require the licensing of captains of commercial fishing vessels, including a requirement that they demonstrate minimum qualifications in vessel safety including rules of the road, vessel stability, firefighting, watertight integrity, and the use of lifesaving equipment.

Recommendation Number: M-85-082  
Issue Date: August 12, 1985  
Addressee: National Council  
Fishing Vessel Safety and Insurance  
Status: Open--Await Reply

Promote through your organizations: (1) the carriage of emergency position indicating radio beacons (EPIRBs) on all commercial fishing vessels; (2) the training of fishing vessel captains and their crews, as appropriate, in basic safety such as stability, watertight integrity, firefighting, and the use of lifesaving equipment; (3) the deposit of crew lists by fishing vessel captains at a suitable location ashore before departure; (4) the scheduling of frequent radio communications by fishing vessel captains which includes their position to reduce delays in initiating a response in case of an emergency in which the vessel is unable to communicate; (5) the determination of the stability characteristics of fishing vessels by their owners and the provision of guidance to fishing vessel captains on proper loading; (6) the need to keep freeing ports open during adverse weather conditions; and (7) the development of contingency plans for emergencies by fishing vessel owners that include: (a) detailed information about each vessel, its communication equipment, and its crew; (b) procedures for contacting the U.S. Coast Guard and other authorities; (c) a list of other individuals or organizations to be contacted; and (d) procedures for coordinating search and rescue efforts with the U.S. Coast Guard.

Recommendation Number: M-86-011  
Issue Date: February 6, 1986  
Addressee: U.S. Coast Guard  
Status: Closed--Unacceptable  
Action 90/

Seek legislative authority to require to require that stability tests be conducted and that complete stability information be provided to the captains of commercial fishing vessels.

Recommendation Number: M-86-040  
Issue Date: May 23, 1986  
Addressee: National Council on  
Fishing Vessel Safety and Insurance  
Status: Open--Await Reply

Promote through your organization and member organizations: (1) the installation of a speaker or alarm in the crew berthing spaces on fishing vessels that is operable in the wheelhouse so that persons can be alerted to an emergency; and (2) the practice of stowing ring lifebuoys and liferafts so they can float free and of locating additional lifepreservers near work areas where they can be readily available.

90/ Reiterated on the basis of this study.

## APPENDIX B

### LIST OF FISHING VESSEL ORGANIZATIONS AND PERSONS CONTACTED AND/OR WHO PROVIDED WRITTEN INFORMATION FOR THE STUDY

#### Associations

North Pacific Fishing Vessel Owner's Association (Seattle, WA)  
United Fishermen of Alaska (Juneau, AK)  
National Council of Fishing Vessel Safety and Insurance (Washington, DC)  
Deep Sea Fishermen's Union of the Pacific (Seattle, WA)  
Fishing Vessel Owner's Association (Seattle, WA)  
American Tunaboat Association (San Diego, CA)  
Atlantic Offshore Fishermen's Association (Newport, RI)  
Point Club (East Greenwich, RI)  
Seafood Producer's Association (Austin, TX)  
Southeastern Fisheries Association (Tallahassee, FL)  
United Shellfishermen's Association (Chincoteague, VA)

#### Educational

Sea Grant Marine Advisory Program, University of Connecticut  
Sea Grant Marine Advisory Program, University of Alaska  
Sea Grant Marine Advisory Program, University of Rhode Island  
Fishing Vessel Safety Center, University of Washington  
University of Dundee  
John Sabella and Associates

#### Engineering

McNally Engineering Company  
Blancke Marine Services

#### Governmental

U.S. Coast Guard, 5th District  
U.S. Coast Guard, 13th District  
U.S. Coast Guard, 17th District  
Louisiana Department of Wildlife and Fisheries  
Connecticut Department of Environment Protection  
Washington State Parks and Recreation Commission  
Washington Department of Fisheries  
Alaska Commercial Fisheries Entry Commission  
Alaska Department of Fish and Game  
Occupational Safety and Health Administration  
National Oceanic and Atmosphere Administration  
Sea Fish Industry Authority (U.K.)  
International Maritime Organization submissions from the U.K., U.S., and Norway  
Federal Communication Commission  
Interagency Committee on Search and Rescue (ICSAR)  
House Subcommittee on Fisheries and Wildlife Conservation and the Environment  
Center for Disease Control (Atlanta)

Insurance

St. Paul Fire and Marine Insurance Company  
Ocean Marine Underwriters, Inc.  
Royal Insurance, RAMS International  
Lamorte, Burns and Company  
International Marine Underwriters  
Talbot, Bird  
Underwriters Marine Services, Inc.  
Fishermen's Insurance Service  
Sunderland Marine  
Pacific Marine Insurance Group

Marine-related Companies

The Boat Doc (liferrafts)  
Switlik Parachute Company, Inc. (liferrafts)  
Westward Trawlers, Inc.  
Safety Notes  
Maritime Health Information Service  
Crowley Maritime Corporation  
Capt. Neil Danque, Inc.  
Marine Index Bureau, Inc.  
CLS Group  
Commercial Fishing Claims Register

Marine Surveys

Marine Survey Guild  
Maritime Investigations, Inc.  
Technical Maritime Associates  
Hull and Cargo Surveyors, Inc.  
Latham and Associates, Inc.  
M.J. Schiehl and Associates, Inc.  
Rivers and Gulf Marine Surveyors  
Captain Davenport and Associates  
Learned Associates, Inc.

Legal

Bigham, Englar, Jones and Houston  
Clark, Ladner, Fortenbaugh and Young  
Madden, Poliak et. al.

Other

Robert L. Barry, Voice of America  
National Fish Policy Conference  
Third Fishing Vessel Safety Conference  
Radio Technical Commission for Maritime Services

APPENDIX C

NATIONAL TRANSPORTATION SAFETY BOARD  
MAJOR MARINE ACCIDENTS 1/ INVOLVING FISHING VESSELS

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA78AM005	Sinking	SIDS, USCG UTB 51335	Atlantic Ocean
DCA78AM011	Sinking	PARI PASU	Atlantic Ocean
DCA78AM012	Fire	MARGARELL	Pacific Ocean
DCA78AM019*	Capsizing	PATTI B	Atlantic Ocean
DCA78AM026	Capsizing	LIBERTY BELL	Harbor
DCA78AM027	Sinking	ROBERTA JEAN	Pacific Ocean
DCA78AM030	Fire	MERLE C. SOFFRON	Atlantic Ocean
DCA78AM031	Grounding	NORSEMAN	Pacific Ocean
DCA78AM034	Sinking	CAPTAIN COSMOS	Atlantic Ocean
DCA78AM035	Capsizing	LOBSTA-1	Atlantic Ocean

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA79AM005	Sinking	KEY WEST	Bering Sea
DCA79AM007	Collision	DON J. MILLER, II, WELCOME	Harbor
DCA79AM011	Capsizing	EPIC	Gulf of Mexico
DCA79AM020	Sinking	OCEAN CAPE	Gulf of Mexico
DCA79AM021	Sinking	MICHELANGELO	Pacific Ocean
DCA79AM022	Sinking	PRAIADA FIGUERIA	Atlantic Ocean
DCA79AM023	Sinking	PTARMIGAN	Pacific Ocean
DCA79AM029*	Sinking	ALASKA ROUGHNECK	Gulf of Alaska
DCA79AM030	Grounding	SIRIUS	Gulf of Alaska
DCA79AM035	Sinking	CITY OF SEATTLE	Gulf of Alaska
DCA79AM038	Sinking	JO ANN	Gulf of Alaska
DCA79AM040	Grounding	RB HENDRICKSON	Gulf of Alaska
DCA79AM047	Sinking	CALAFIA	Pacific Ocean
DCA79AM050	Grounding	BLUE PACIFIC	Pacific Ocean
DCA79AM057	Fire	BOBBIE	River
DCA79AM059	Ramming	RONNIE M, JONIAN REFERE	Pacific Ocean
DCA79AM061	Sinking	LELAND J.	Atlantic Ocean
DCA79AM060	Sinking	HOLY CROSS	Atlantic Ocean

1/ Major Marine Accident is defined by 49 CFR 850 as:

- (1) The loss of six or more lives;
- (2) The loss of a mechanically propelled vessel of 100 or more gross tons;
- (3) Property damage initially estimated as \$500,000 or more; or
- (4) Serious threat, as determined by the Commandant [U.S. Coast Guard] and concurred in by the Chairman [Safety Board], to life, property, or the accident environment by hazardous materials.

\* - Reports referenced in the text of this study.

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA80AM001	Sinking	JULIA B	Pacific Ocean
DCA80AM004	Sinking	LADY SARAH	Bering Sea
DCA80AM008	Grounding	RYUYO NO. 2	Bering Sea
DCA80AM010	Sinking	OCEAN PRIDE	Bering Sea
DCA80AM012	Capsizing	SUE CII	Atlantic Ocean
DCA80AM017	Grounding	ARCTIC WIND	Pacific Ocean
DCA80AM022	Miscellaneous	WAKKANAI	Harbor
DCA80AM025	Capsizing	GEMINI	Gulf of Alaska
DCA80AM030	Capsizing	PACIFICTRADER	Bering Sea
DCA80AM031	Sinking	HATTIE ROSE	Atlantic Ocean
DCA80AM033 *	Capsizing	OREGON DAWN	Gulf of Alaska
DCA80AM041	Capsizing	CAPELLA, ALASKA STANDARD	Gulf of Alaska
DCA80AM044 *	Fire	IBERIA	Atlantic Ocean
DCA80AM046	Sinking	MOTHER AND GRACE	Atlantic Ocean
DCA80AM047	Grounding	DISCOVERY BAY	Harbor
DCA80AM048	Capsizing	KATHI R.	Gulf of Alaska
DCA80AM051	Collision	GULFOIL, MISTY CAPE	Atlantic Ocean
DCA80AM054	Grounding	KAYAK, SITUK	Gulf of Alaska
DCA80AM055	Fire	CAROL JEAN	Gulf of Alaska
DCA80AM058	Fire	ST. GEORGE	Atlantic Ocean
DCA80AM062	Fire	PINELLAS EXPLORER	Atlantic Ocean
DCA80AM063	Capsizing	ARLON, USCG MLB44406	Pacific Ocean
DCA80AM073	Capsizing	NAVIGATOR	Atlantic Ocean
DCA80AM074	Sinking	GOD'S MERCY	Atlantic Ocean

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA81AM002	Fire	DIANEL	Harbor
DCA81AM003	Collision	PRESIDENT GRANT, MARTINA HIGGINS	Harbor
DCA81AM004	Sinking	TERRY T	Atlantic Ocean
DCA81AM006	Sinking	IRENE AND HILDA	Atlantic Ocean
DCA81AM007	Capsizing	EAGLE	Bering Sea
DCA81AM009	Sinking	AMERICAN EXPRESS	Pacific Ocean
DCA81AM011	Grounding	SEA FISHER I	Harbor
DCA81AM015	Sinking	COMMANDER	Gulf of Alaska
DCA81AM016 *	Capsizing	ATLANTIC PRINCESS	Atlantic Ocean
DCA81AM020	Sinking	CONNECTICUT YANKEE	Pacific Ocean
DCA81AM025		COREY P	
DCA81AM029	Fire	TEXAS GOLD	Gulf of Alaska
DCA81AM030	Sinking	ELEANOR EILEEN VIII	Atlantic Ocean
DCA81AM031	Sinking	MISS NEW YORK	Atlantic Ocean
DCA81AM035	Collision	D.E.C.O. XXVI, MARITIME HAWK	Atlantic Ocean
DCA81AM037	Sinking	LITTLE FLOWER II	Atlantic Ocean
DCA81AM044	Capsizing	COUNTRY ROSE	Pacific Ocean
DCA81AM047	Collision	AVE MARIA, ELIZABETH I	Atlantic Ocean

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA81AM051	Sinking	OUR LADY OF FATIMA	Harbor
DCA81AM052	Grounding	HOWARD REED	Harbor
DCA81AM053 *	Fire	DOUG & DON II	Atlantic Ocean
DCA81AM054 *	Sinking	FUGITIVE	Atlantic Ocean
DCA81AM060	Grounding	SHOSHONE	Pacific Ocean
DCA81AM061	Fire	CHESAPEAKE	Atlantic Ocean
DCA81AM062	Fire	NOVA	Bering Sea
DCA81AM063 *	Capsizing	NORTHERN KING	Bering Sea
DCA81AM066 *	Fire	JEANNE D'ARC	Atlantic Ocean
DCA81AM067 *	Capsizing	LADY SIMPSON	Bering Sea
DCA81AM070	Sinking	CITY OF SEATTLE	Gulf of Alaska
DCA81AM072	Sinking	GULF GYPSY	Pacific Ocean

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA82 AM004	Sinking	ELUSIVE	Gulf of Alaska
DCA82 AM009	Capsizing	MIDNIGHT EXPRESS	Pacific Ocean
DCA82 AM010 *	Miscellaneous	SAINT PATRICK	Gulf of Alaska
DCA82 AM013	Sinking	PIONEER	Atlantic Ocean
DCA82 AM014	Grounding	KALAIKH	Gulf of Alaska
DCA82 AM020	Sinking	BIERA MAR	Atlantic Ocean
DCA82 AM026 *	Sinking	BERNADETTE	Pacific Ocean
DCA82 AM032 *	Sinking	BONAVENTURE	Atlantic Ocean
DCA82 AM033	Fire	JUDITH LEE ROSE	Atlantic Ocean
DCA82 AM037	Fire	CAPT DAVE II	Gulf of Mexico
DCA82 AM042	Sinking	TOMMY P	Atlantic Ocean
DCA82 AM043	Sinking	MOTHER ANN	Atlantic Ocean
DCA82 AM044 *	Fire	WESTRO	Harbor
DCA82 AM045	Sinking	GINA MARIE	Pacific Ocean
DCA82 AM046	Sinking	SANTA ELENA	Pacific Ocean
DCA82 AM047	Sinking	KRISTIN LEIGH	Atlantic Ocean
DCA82 AM048	Sinking	COMMODORE	Pacific Ocean
DCA82 AM050	Sinking	SCORPIO	Atlantic Ocean
DCA82 AM053	Sinking	MERMAID	Pacific Ocean
DCA82 AM054	Fire	ELIZABETH ASHLEY	Harbor

## APPENDIX C

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<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA83 AM001 *	Sinking	ZERDA	Atlantic Ocean
DCA83 AM002 *	Fire	ALIND ESKA SEA	Harbor
DCA83 AM004	Sinking	DIANA C	Pacific Ocean
DCA83 AM005	Fire	LADY PACIFIC	Pacific Ocean
DCA83 AM012	Sinking	ROBERT J. POWELL	Atlantic Ocean
DCA83 AM013	Sinking	EASTERN SEA	Gulf of Alaska
DCA83 AM014	Grounding	LOIS JOYCE	Atlantic Ocean
DCA83 AM018	Sinking	ROSALIE MARIE	Pacific Ocean
DCA83 AM032 *	Capsizing	AMERICUS	Bering Sea
DCA83 AM033 *	Sinking	ALTAIR	Bering Sea
DCA83 AM040	Fire	No-NAME et. al.	Harbor
DCA83 AM041 *	Capsizing	ARCTIC DREAMER	Bering Sea
DCA83 AM042 *	Capsizing	SEA HAWK	Bering Sea
DCA83 AM044	Sinking	ANDALUCIA	Pacific Ocean
DCA83 AM046 *	Fire	STARLITE	Gulf of Alaska
DCA83 AM048 *	Sinking	LOUISE	Atlantic Ocean
DCA83 AM052	Capsizing	MISTY BLUE	Atlantic Ocean
DCA83 AM063	Sinking	HEATHER LYNN	Pacific Ocean
DCA83 AM064	Sinking	VITO CII	Atlantic Ocean
DCA83 AM071	Sinking	GIACOMO F	Atlantic Ocean
DCA83 AM072	Capsizing	OCEAN GRACE	Bering Sea
DCA83 AM073	Fire	PRINCESS TAMARA	Gulf of Alaska
DCA83 AM075	Sinking	THERESA R	Atlantic Ocean
DCA83 AM077 *	Capsizing	GOLDEN VIKING	Bering Sea
DCA83 AM079	Capsizing	ENDEAVOR	Pacific Ocean
DCA83 AM080 *	Fire	PACIFIC PIONEER	Pacific Ocean

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessels</u>	<u>Waterway</u>
DCA84 AM005	Capsizing	ELSinORE	Pacific Ocean
DCA84 AM012	Capsizing	LIBERTY	Harbor
DCA84 AM014	Fire	CURLEW	Atlantic Ocean
DCA84 AM015	Capsizing	MARY LOU	Gulf of Alaska
DCA84 AM016	Sinking	SPRAY II	Atlantic Ocean
DCA84 AM018 *	Fire	GOD's GIFT	Gulf of Mexico
DCA84 AM027 *	Capsizing	MARCY J	Harbor
DCA84 AM045	Sinking	ALEUTIAN INVADER	Bering Sea
DCA84 AM047	Sinking	MARY GRACE	Atlantic Ocean
DCA84 AM048	Sinking	SILVER CLIPPER	Bering Sea
DCA84 AM051 *	Fire	SANDRA JANE	Atlantic Ocean
DCA84 AM060	Sinking	ROSA D	Pacific Ocean
DCA84 AM061	Sinking	BILLY JO	Atlantic Ocean
DCA84 AM062	Sinking	PADRE PIO II	Atlantic Ocean
DCA84 AM063 *	Capsizing	SANTO ROSARIO	Atlantic Ocean
DCA84 AM065	Capsizing	GOLDEN PROVIDER	Bering Sea
DCA84 AM067	Capsizing	NOAH SMITH	Atlantic Ocean

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA85AM002	Explosion	FORAGER	Atlantic Ocean
DCA85AM004	Fire	BRANDIE LYNN	Harbor
DCA85AM011 *	Sinking	AMAZING GRACE	Atlantic Ocean
DCA85AM012	Fire	MADELYN G	Pacific Ocean
DCA85AM015 *	Sinking	ALEUTIAN BOUNTY	Gulf of Mexico
DCA85AM016	Fire	WINDRUNNER	Gulf of Alaska
DCA85AM017	Grounding	THEODORA MARIA	Harbor
DCA85AM019	Sinking	JUDY & JOE	Atlantic Ocean
DCA85AM020	Grounding	INTREPID	Gulf of Alaska
DCA85AM021	Sinking	PATTI B	Atlantic Ocean
DCA85AM030 *	Sinking	ATLANTIC MIST	Atlantic Ocean
DCA85AM031 *	Sinking	EL RANCHO	Gulf of Alaska
DCA85AM033	Capsizing	CHALLENGE	Atlantic Ocean
DCA85AM036 *	Sinking	ALERT	Gulf of Alaska
DCA85AM037	Fire	AZTECA 2	Harbor
DCA85AM039	Fire	ST. NICHOLAS	Atlantic Ocean
DCA85AM045 *	Sinking	OCEAN BOUNTY	Gulf of Alaska
DCA85AM046	Sinking	NORDIC PRIDE	Bering Sea
DCA85AM047	Sinking	THUMPER	Pacific Ocean
DCA85AM052	Sinking	ARCTIC MIST	Gulf of Alaska
DCA85AM054	Sinking	KIMBERLY	Bering Sea
DCA85AM056 *	Fire	MARIA AND AL	Atlantic Ocean
DCA85AM057	Fire	ALLIANCE, DAWN	Harbor
DCA85AM059 *	Sinking	SEA DANCER	Bering Sea
DCA85AM061	Fire	BELLE TRIX	Gulf of Mexico
DCA85AM062 *	Sinking	WESTERN SEA	Gulf of Alaska
DCA85AM063	Sinking	MIDNIGHT SUN	Gulf of Alaska
DCA85AM065	Fire	LEONARD	Atlantic Ocean
DCA85AM067	Sinking	KAREN KRISTIE	Pacific Ocean

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA86MM001	Ramming	GULF KING	Gulf of Mexico
DCA86MM002	Sinking	ODYSSEY	Bering Sea
DCA86MM012	Sinking	LASSEIGNE	Pacific Ocean
DCA86MM013	Sinking	CONTENDER	Gulf of Mexico
DCA86MM014	Sinking	ALEUTIAN HARVESTER	Gulf of Alaska
DCA86MM018	Sinking	PRINCESS AIRLINE	Gulf of Alaska
DCA86MM020	Fire	SARATOGA	Atlantic Ocean
DCA86MM022	Sinking	TONY & NINA	Atlantic Ocean
DCA86MM024	Sinking	FONNA LAJEAN	Gulf of Mexico
DCA86MM026	Sinking	ST. JUDE	Atlantic Ocean
DCA86MM030	Capsizing	GOLD N SUN	Bering Sea
DCA86MM031	Explosion	AMERICAN QUEEN	Pacific Ocean
DCA86MM033	Sinking	KARINA EXPLORER	Pacific Ocean

## APPENDIX C

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<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA86MM036	Sinking	WEST I	Pacific Ocean
DCA86MM042	Ramming	KATHY LYNN	Gulf of Alaska
DCA86MM043	Grounding	SUN LONG NO. 8	Harbor
DCA86MM046	Grounding	CAPE SARICHEF	Harbor
DCA86MM047	Sinking	NOMAR II	Bering Sea
DCA86MM051	Collision	SWIFT WATER II, NECESHES	Atlantic Ocean
DCA86MM052	Capsizing	OWOL	Pacific Ocean

<u>Accident No.</u>	<u>Accident Type</u>	<u>Involved Vessel(s)</u>	<u>Waterway</u>
DCA87MM002	Grounding	STORM	Harbor
DCA87MM008	Capsizing	NORDIC PROVIDER	Pacific Ocean
DCA87MM011	Collision	TRANS-PAC, SUMNAR SEA	Pacific Ocean
DCA87MM018	Sinking	LADY BLUE	Bering Sea
DCA87MM019	Sinking	SEAVIEW	Harbor
DCA87MM022	Sinking	PACIFIC STAR	Gulf of Alaska
DCA87MM028	Capsizing	DOLORES MARIE	Atlantic Ocean
DCA87MM032	Grounding	BRIGHT-N	Pacific Ocean
DCA87MM033	Grounding	ALL ALASKAN	Bering Sea
DCA87MM036	Grounding	NAKNEK	Gulf of Alaska

**APPENDIX D**

**COMMERCIAL FISHING CLAIMS  
REGISTER CASUALTY REPORTING FORM**

**CFCR**

**COMMERCIAL FISHING CLAIMS REGISTER  
CLAIMS REPORT FORM**

All reported data will be held CONFIDENTIAL and will be used in a research program to promote a Safety and Insurance program for the U.S. commercial fishing industry. (See reverse for Task Force sponsoring the program)

Enter all available data and return to CFCR, 17 Battery Place, Room 2233, New York, N.Y. 10004-1283

Name of Reporting Agency: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Name of Owner/Assured (Optional) \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Name of Vessel (Optional) \_\_\_\_\_ Registry No.: \_\_\_\_\_  
 Date of Incident: \_\_\_\_\_ Date Reported: \_\_\_\_\_ Time of Incident \_\_\_\_\_  Day  Twilight  Night

<p><b>TYPE OF FISHING</b></p> <input type="checkbox"/> Shrimp <input type="checkbox"/> Ground Fish <input type="checkbox"/> Salmon <input type="checkbox"/> Tuna <input type="checkbox"/> Oyster <input type="checkbox"/> Crab <input type="checkbox"/> Menhaden <input type="checkbox"/> Lobster <input type="checkbox"/> Clam <input type="checkbox"/> Scallop <input type="checkbox"/> Halibut <input type="checkbox"/> Snapper/Grouper <input type="checkbox"/> Processing <input type="checkbox"/> Other (specify) _____	<p><b>HULL MATERIAL</b></p> <input type="checkbox"/> Steel <input type="checkbox"/> Wood <input type="checkbox"/> Fiberglass <input type="checkbox"/> Aluminum	<p><b>AGE OF VESSEL</b></p> <input type="checkbox"/> Under 5 yrs. <input type="checkbox"/> 5 - 10 yrs. <input type="checkbox"/> 10 - 15 yrs. <input type="checkbox"/> 15 - 20 yrs. <input type="checkbox"/> 20 - 30 yrs. <input type="checkbox"/> Over 30 yrs.	<p><b>PRIMARY CAUSE OF CASUALTY</b></p> <input type="checkbox"/> Human Error <input type="checkbox"/> Engine Failure <input type="checkbox"/> Structural Failure <input type="checkbox"/> Equipment Failure <input type="checkbox"/> Vessel Maintenance <input type="checkbox"/> Fault of Other Vessel	<p><b>NATURE OF CASUALTY</b></p> <input type="checkbox"/> Collision <input type="checkbox"/> Ramming <input type="checkbox"/> Grounding <input type="checkbox"/> Fire/Explosion <input type="checkbox"/> Flooding <input type="checkbox"/> Foundering (sank) <input type="checkbox"/> Capsizing	<p><b>REGION</b></p> <input type="checkbox"/> New England <input type="checkbox"/> Mid-Atlantic <input type="checkbox"/> S Atlantic <input type="checkbox"/> Gulf <input type="checkbox"/> S.W. Pacific <input type="checkbox"/> N.W. Pacific <input type="checkbox"/> Alaska <input type="checkbox"/> Great Lakes
--	---	---	---	---	---

**ACTIVITY AT TIME OF INCIDENT**

 IN PORT      Details: \_\_\_\_\_  
 IN TRANSIT      \_\_\_\_\_  
 FISHING      \_\_\_\_\_  
 Length of Vessel \_\_\_\_\_ Weather Conditions \_\_\_\_\_

**HULL & MACHINERY**

**TOTAL LOSS**  
 Amt. Claimed \$ \_\_\_\_\_ Amt. Paid \$ \_\_\_\_\_  Settlement  Judgment Court & Location \_\_\_\_\_

**PARTIAL LOSS - Description of Damage** \_\_\_\_\_  
 \_\_\_\_\_  
 Amt. Claimed \$ \_\_\_\_\_ Amt. Paid \$ \_\_\_\_\_  Settlement  Judgment Court & Location \_\_\_\_\_  
 Claimant's Attorney  No  Yes Name \_\_\_\_\_ Address \_\_\_\_\_

**PERSONAL INJURY**

Name of Injured/Deceased (Optional) \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Soc. Sec.#: \_\_\_\_\_  
 Address: \_\_\_\_\_ Rating/Job Description \_\_\_\_\_  
 Name of Claimant's Physician: \_\_\_\_\_ Hospital \_\_\_\_\_  
 Claimant's Attorney  No  Yes Name \_\_\_\_\_ Address \_\_\_\_\_  
 Description of Injury (body part and type): \_\_\_\_\_  
 Evacuated (Give details) \_\_\_\_\_  
 Activity at Time of Injury \_\_\_\_\_  
 Length of Disability: \_\_\_\_\_ If fatal, cause  drowning  heart attack  injury  Other \_\_\_\_\_  
 Amount of Judgment \$ \_\_\_\_\_ Court & Location \_\_\_\_\_  State Comp.  Federal Comp.  
 Amount of Settlement \$ \_\_\_\_\_ Date of Settlement \_\_\_\_\_

**CAUSE OF ACCIDENT (specify)**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Striking Against          | <input type="checkbox"/> Fall on Same Level              | <input type="checkbox"/> Inhalation, Absorption, Ingestion |
| <input type="checkbox"/> Struck by                 | <input type="checkbox"/> Fall to Different Level         | <input type="checkbox"/> Contact with Electrical Current   |
| <input type="checkbox"/> Caught in/on/between      | <input type="checkbox"/> Bodily Reaction (hernia/strain) | <input type="checkbox"/> Other (specify) _____             |
| <input type="checkbox"/> Rubbed/Abraded/Penetrated | <input type="checkbox"/> Exposure to Temp. Extremes      |  |

Note: Please complete this form with as many details as are available. Supplemental reports may be submitted if & when additional information is received and after disposition of claim.

(over)

**APPENDIX E**

**EXAMPLE OF A STABILITY LETTER  
PREPARED BY A NAVAL ARCHITECT**

## STABILITY REPORT ON THE VESSEL "WESTERN OCEAN"

The fishing vessel "WESTERN OCEAN" was inclined at Port Norris, NJ, December 20, 1986. The inclining test was done in accordance with United States Coast Guard Navigational and Inspection Circular 15-81 (Stability Tests and Procedures).

Test results and the stability analysis was done as indicated on the completed CG 933 form. The stability criterion used IMCO resolution A.168 (Recommendations on Intact Stability of Fishing Vessels), 46 CFR 173.095 and NAVIC 5-86 (Voluntary Stability Standards for Uninspected Commercial Fishing Vessels).

## LOAD CONDITIONS

1. Light Ship
2. Departure, 50% fuel, 100% fresh water, 32 empty cages in wells.
3. On grounds, 50% fuel, 100% fresh water, 16 cages in aft wells, fwd wells flooded.
4. On grounds, 33% fuel, 100% fresh water, 16 cages in aft wells, 13 cages in fwd wells, fwd well flooded, 3 cages up with dredge, 3 empty cages in fwd wells.
5. Arrival, 33% fuel, 100% fresh water, 32 cages in wells.
6. On grounds, 33% fuel, 100% fresh water, 16 cages in aft wells 13 cages in fwd wells, fwd wells flooded, 3 empty cages in fwd wells, dredge off.
7. Arrival, 33% fuel, 100% fresh water, 32 cages in wells, 5 cages loose in fwd wells.
8. Burned out, no cargo, 10% consumables, ice loads.
9. On grounds, 33% fuel, 100% fresh water, 32 cages in wells, ice loads.

## GENERAL OBSERVATIONS

This vessel meets or exceeds all stability criteria for which it was evaluated, with the exception of the instance at which the dredge is up prior to dumping clams after the aft well has been filled with clams.

**LOADING**

The fishing vessel WESTERN OCEAN may load on all waters in the non-icing season (generally 1 Apr - 30 Nov)

- a. 32 cages in clam wells  
Equivalent of 5 cages loose in fwd clam above previously loaded clams

During the icing season (generally 1 Dec - 31 Mar) the fishing vessel WESTERN OCEAN may load on waters below 60 N latitude.

- a. 32 cages in clam well:  
No cages loose in clam well above:

**REQUIREMENTS**

1. Dogging wrenches must be provided at all water tight doors inside and out. This is nothing more than a length of pipe that fits over the the door handles. At sea all W.T. accesses must be closed.
2. 9000 pounds of lead ballast must be placed in the hull in the fore peak tank as low as possible. The bottom plating must be strengthened as necessary. See ballast summary.
3. 31350 pounds of lead ballast must be placed in the hull aft of the engine room forward bulkhead as low and as far forward as possible. The bottom plating must be strengthened as necessary. See ballast summary.
4. A rubber boot must be placed on the forward edge of the aft hatch cover to keep water out of clam wells.
5. Check valves must be placed in each clam well at 4'-3" above the clam well bottom. Butterfly valves must be in line with each check valve.
6. Forepeak tank must be completely drained. Disconnect the line to the deep water tank
7. A watertight door or closure must be provided at the engine room aft bulkhead leading to the clam wells.
8. No further modifications to the vessel shall be undertaken without analyzing its effect on stability.

**OPERATIONAL REQUIREMENTS**

1. During heavy weather, care should be exercised in keeping water from shipping into the clam wells. In heavy weather keep the well eductor on line to all wells.

2. The aft Lazarette hatch and Focsele hatches must be kept closed at sea at all times.
3. When making return trip from grounds, dredge must be stowed in low position, i.e. the bottom of the dredge must be 4 feet down from main deck line.
4. Clams may not be stored in the dredge, in the hopper, or on the conveyor. All clams must be stored in the wells.
5. No loose clams may be stored in the aft well.
6. Fuel oil tanks must not be filled more than one third filled with clams on board
7. Clams loaded loose must be restrained from shifting.
8. When loading last loads of clams on deck from dredge, vessel must be turned into head seas to diminish the amount of rolling.
9. The aft clam wells must be filled prior to filling the forward clam wells
10. The volume of water used in the clam wells during loading must be kept at 1/4 of the clam well capacity. Cages must be the vessel any time water is the wells.
11. In the event of a hangup, no more than 3/4 power may be used to break free.

#### GENERAL SUGGESTIONS

1. All doorways and other openings through which water can enter into the hull or deckhouses, forecstle, etc. shall be suitably closed in adverse weather conditions and accordingly, all appliances for this purpose shall be maintained on board and in good condition.
2. Hatchcovers and flush desk scuttles should be kept properly secured when not in use during fishing.
3. All portable deadlights should be maintained in good condition and securely closed in bad weather.
4. All fishing gear and other large weights should be properly stowed and placed as low as possible.
5. At any one time keep the number of partially filled tanks to a minimum.
6. Any closing devices provided for vent pipes to fuel tanks should be secured in bad weather.

7. Reliance on automatic fixed steering is dangerous as this prevents speedy maneuvering which may be needed in bad weather.

8 Be alert to all dangers of following or quartering seas. If excessive heeling or yawing occurs, reduce speed as a first precaution.

9. In all conditions of loading, necessary care should be taken to maintain a seaworthy freeboard.

10. Pay special attention to icing of a vessel and reduce it by all possible means.

**APPENDIX F**

**TEXT OF CONGRESSIONAL BILLS H.R. 1836 AND 1841 (S.849 in the Senate)  
ADDRESSING FISHING VESSEL SAFETY IMPROVEMENTS**

100TH CONGRESS  
1ST SESSION

# H. R. 1836

To establish crew licensing, inspection and additional safety requirements for certain fishing industry vessels.

---

## IN THE HOUSE OF REPRESENTATIVES

MARCH 26, 1987

Mr. LOWRY of Washington introduced the following bill; which was referred to the Committee on Merchant Marine and Fisheries

---

## A BILL

To establish crew licensing, inspection and additional safety requirements for certain fishing industry vessels.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **TITLE I—FISHING VESSEL SAFETY**

4 **SECTION 101. INSPECTION OF FISHING VESSELS.**

5 (a) **INSPECTION REQUIREMENT.**—Section 3301 of title  
6 46, United States Code, is amended by adding at the end the  
7 following—

8 “(13) fishing vessels.”

1 (b) EXEMPTION FOR UNDOCUMENTED VESSELS.—

2 Section 3302(b) of title 46, United States Code, is amended  
3 to read as follows:

4 “(b) A fishing, fish processing, or fish tender vessel that  
5 is not documented is exempt from section 3301(1), (7), (11),  
6 (12), and (13) of this title.

7 (c) REPEAL OF EXEMPTION FOR SMALL VESSELS.—

8 Section 3302(c) is repealed.

9 (d) EXEMPTION FOR VESSELS IN OPERATION OR  
10 CONTRACTED FOR.—Section 3302 of title 46, United States  
11 Code, is amended by adding at the end the following:

12 “(k)(1) Except when compliance with major structural  
13 or major equipment requirements is necessary to remove an  
14 especially hazardous condition, a fishing, fish processing, or  
15 fish tender vessel is not subject to regulations or standards  
16 for those requirements if the vessel—

17 “(A) was operating as a fishing, fish processing,  
18 or fish tender vessel before January 2, 1987; or

19 “(B) was contracted for before January 2, 1987,  
20 and entered into service as a fishing, fish processing, or  
21 fish tender vessel before the date of the enactment of  
22 the Fishing Vessel Safety Act of 1987.

23 “(2) After December 31, 1990, this subsection does not  
24 apply to a fishing, fish processing, or fish tender vessel that is  
25 at least 20 years of age.”.

1 (e) REGULATIONS.—Section 3306(g) of title 46, United  
2 States Code, is amended to read as follows:

3 “(g) In prescribing regulations for fishing, fish process-  
4 ing, or fish tender vessels, the Secretary shall consider the  
5 characteristics, methods of operation, and the nature of the  
6 service of fishing, fish processing, and fish tender vessels.”

7 SEC. 102. SHORT TITLE.

8 This Act may be cited as the “Fishing Vessel Safety  
9 Act of 1987”.

10 SEC. 103. FISHING VESSEL SAFETY REQUIREMENTS.

11 (a) REQUIREMENTS.—Chapter 45 of title 46, United  
12 States Code, is amended to read as follows:

13 “CHAPTER 45—FISHING VESSEL SAFETY

“Sec.

“4501. Application.

“4502. Safety standards.

“4503. Equivalency.

“4504. Prohibited acts.

“4505. Termination of unsafe operations.

“4506. Exemptions.

“4507. Penalties.

14 “§ 4501. Application

15 “(a) This chapter applies to a fishing, fish processing,  
16 and fish tender vessel not required to be inspected under  
17 chapter 33 of this title.

18 “(b) This chapter does not apply to the carriage of bulk  
19 dangerous cargoes regulated under chapter 37 of this title.

1 "§ 4502. Safety standards

2 "(a) The Secretary shall prescribe regulations requiring  
3 that a fishing, fish processing, and fish tender vessel shall—

4 "(1) if propelled by machinery, be provided with  
5 fire extinguishers, capable of promptly and effectively  
6 extinguishing a combustible or flammable fuel, that  
7 shall be kept in a condition for immediate and effective  
8 use and so placed as to be readily accessible;

9 "(2) carry at least one readily accessible life pre-  
10 server or other lifesaving device for each individual on  
11 board;

12 "(3) have the carburetors of each engine on board  
13 the vessel (except an outboard engine) using gasoline  
14 as a fuel, equipped with an efficient flame arrestor,  
15 backfire trap, or other similar device;

16 "(4) if using a volatile liquid as fuel, be provided  
17 with the means for properly and efficiently ventilating  
18 enclosed spaces, including engine and fuel tank com-  
19 partments, so as to remove any explosive or flammable  
20 gases; and

21 "(5) be provided with visual distress signals.

22 "(b) In addition to the requirements of subsection (a) of  
23 this section, the Secretary shall prescribe regulations for a  
24 documented fishing, fish processing, or fish tender vessel  
25 operating beyond the Boundary Line, for the installation,  
26 maintenance, and use of—

1           “(1) at least one readily accessible emergency po-  
2           sition indicating beacon, or similar electronic position  
3           indicating device;

4           “(2) lifeboats or liferafts sufficient to accommodate  
5           all individuals on board;

6           “(3) at least one readily accessible immersion (ex-  
7           posure) suit or similar device for each individual on  
8           board, on vessels operating on the waters described in  
9           section 3102(a) of this title; and

10           “(4) radio communications equipment sufficient to  
11           effectively communicate with land-based search and  
12           rescue facilities.

13           “(c) In addition to the requirements of subsections (a)  
14           and (b) of this section, the Secretary may prescribe regula-  
15           tions for minimum safety standards for fishing, fish process-  
16           ing, and fish tender vessels and associated equipment,  
17           including—

18           “(1) life saving equipment;

19           “(2) navigation equipment, including compasses,  
20           radar, echo sounders, radionavigation devices, radar  
21           reflectors, and nautical charts;

22           “(3) fire protection and firefighting equipment,  
23           including fire and smoke alarms, fire pumps, and fire  
24           extinguishing equipment;

1           “(4) first-aid equipment, including medicine  
2 chests;

3           “(5) ground tackle, including handling equipment;

4           “(6) bilge pumping systems, including highwater  
5 alarms;

6           “(7) the use and installation of insulation material;

7           “(8) storage of flammable or combustible materi-  
8 als;

9           “(9) steering, cooling, fuel, electrical, hydraulic,  
10 and ventilation systems;

11           “(10) deck safety equipment, including nonskid  
12 surfaces on decks and ladders, handrails on ladders,  
13 guardrails around winches and bollards, safety chains  
14 or straps on overhead and trawl blocks, guards on  
15 moving machinery, automatic level winds on winches,  
16 and the safety wiring of overhead shackles; and

17           “(11) the display of seals, labels, plates, insignia,  
18 or other devices for certifying or evidencing compliance  
19 with safety regulations and standards of the United  
20 States Government for these vessels and associated  
21 equipment.

22           “(d)(1) In addition to the other requirements of this  
23 section, the Secretary shall prescribe regulations for the  
24 operating stability of a documented fishing, fish processing,  
25 or fish tender vessel—

1           “(A) the keel for which was laid after Decem-  
2 ber 31, 1987; or

3           “(B) whose physical characteristics are substan-  
4 tially altered after December 31, 1987, in a manner  
5 affecting the vessel's operating stability.

6           “(2) The Secretary may accept, as evidence of compli-  
7 ance by a vessel with this subsection, a certification of com-  
8 pliance issued by the person providing insurance for the  
9 vessel.

10          “(e) In prescribing regulations under subsections (c) and  
11 (d) of this section, the Secretary--

12           “(1) shall consider the specialized nature and eco-  
13 nomics of the type of vessel operations and the charac-  
14 ter, design, and construction of the type of vessel;

15           “(2) shall consult with representatives of the pri-  
16 vate sector having experience in the operation of these  
17 vessels to ensure the practicability of these regulations;  
18 and

19           “(3) may not require the alteration of a vessel or  
20 associated equipment or of the construction of a vessel  
21 or manufacture of a particular item of equipment that  
22 was begun before the effective date of the regulation.

23   “§ 4503. Equivalency

24           “An uninspected fish processing vessel entered into  
25 service after December 31, 1987, and having more than 16

1 individuals on board primarily employed in the preparation of  
2 fish or fish products—

3           “(1) is deemed to comply with the requirements of  
4 section 4502 of this chapter if it has an unexpired cer-  
5 tificate of inspection issued by a foreign country that is  
6 a party to an International Convention for Safety of  
7 Life at Sea to which the United States Government is  
8 a party, and

9           “(2) may not be required by the Secretary to alter  
10 or replace the equipment or structural requirements re-  
11 quired under this chapter.

12 **“§ 4504. Prohibited acts**

13           “(a) A person may not operate a vessel in violation of  
14 this chapter or a regulation prescribed under this chapter.

15           “(b) A vessel to which this chapter applies may not be  
16 operated unless the owner, charterer, or managing operator  
17 of the vessel makes emergency assignments for individuals on  
18 board the vessel and conducts periodic emergency drills on  
19 board the vessel that comply with regulations prescribed by  
20 the Secretary.

21 **“§ 4505. Termination of unsafe operations**

22           “**I**f an official charged with the enforcement of this  
23 chapter observes a fishing, fish processing, or fish tender  
24 vessel being operated in an unsafe condition and, in the judg-  
25 ment of that official, the operation creates a hazardous condi-

1 tion, the official may direct the operator of the vessel to take  
2 immediate and reasonable steps necessary for the safety of  
3 individuals on board the vessel, including directing the opera-  
4 tor to return to a mooring and to remain there until the situa-  
5 tion creating the hazard is corrected or ended.

6 **“§ 4506. Exemptions**

“(a) The Secretary may exempt a vessel from any part  
8 of this chapter when, under regulations (including regulations  
9 on special operating conditions) prescribed by the Secretary,  
10 the Secretary finds that—

11 “(1) good cause exists for granting an exemption;

12 and

13 “(2) safety of the vessel or individuals on board  
14 the vessel will not be adversely affected.

15 “(b) A fishing, fish processing, or fish tender vessel is  
16 exempt from the provisions of section 4502(b)(2) if it—

17 “(1) is less than 36 feet in length; and

18 “(2) is not operating on the high seas.

19 **“§ 4507. Penalties**

20 “(a) If a vessel to which this chapter applies is operated  
21 in violation of this chapter or a regulation prescribed under  
22 this chapter, the owner, charterer, managing operator, agent,  
23 master, and individual in charge are each liable to the United  
24 States Government for a civil penalty of not more than  
25 \$5,000. The vessel also is liable in rem for the penalty.

1       “(b) A person willfully violating this chapter or a regu-  
2 lation prescribed under this chapter shall be fined not more  
3 than \$10,000, imprisoned for not more than one year, or  
4 both.”.

5       (b) CONFORMING AMENDMENT.—The analysis at the  
6 beginning of part B of subtitle II of title 46, United States  
7 Code, is amended by striking the item relating to chapter 45  
8 and inserting in lieu thereof the following:

“45. Fishing vessel safety ..... 4501”.

9       **SEC. 104. AMENDMENT OF DEFINITIONS.**

10       Section 2101 of title 46, United States Code, is  
11 amended—

12           (1) in paragraph (1)(A) by striking “recreational  
13 vessel;” each place it appears and inserting in lieu  
14 thereof “recreational vessel or a fishing, fish tender, or  
15 fish processing vessel;”;

16           (2) in paragraph (1)(B) by adding at the end “on  
17 recreational vessels.”; and

18           (3) by inserting immediately after paragraph 14  
19 the following:

20           “(14a) ‘length’ means a straight line measurement  
21 of the overall length from the foremost part of the  
22 vessel to the aftermost part of the vessel—

23           “(A) measured parallel to the centerline;

1           “(B) excluding bow sprits, bumpkins, raders,  
2           outboard engine brackets, and similar fittings or  
3           attachments; and

4           “(C) stated in feet and inches.”.

5   **SEC. 105. LICENSING AND TRAINING.**

6       (a) **CREW REQUIREMENTS.**—(1) Chapter 87 of title 46,  
7   United States Code, is amended by adding at the end the  
8   following:

9   “§ 8704. **Crew requirements on fishing, fish processing,**  
10           **and fish tender vessels** .

11       “The owner, charterer, or managing operator of a  
12   vessel to which chapter 45 of this title applies may engage an  
13   individual on that vessel only if—

14           “(1) the owner, charterer, or managing operator  
15       has trained the individual in vessel safety and emer-  
16       gency procedures based on a training manual approved  
17       by the Secretary; or

18           “(2) the individual possesses a certificate of satis-  
19       factory completion from a vessel safety and emergency  
20       procedures training course approved by the Secre-  
21       tary.”.

22       (2) The analysis at the beginning of chapter 87 of title  
23   46, United States Code, is amended by adding at the end the  
24   following:

“8704. Crew requirements on fishing, fish processing, and fish tender vessels.”.

1 (b) OPERATOR REQUIREMENTS.—(1) Chapter 89 of  
2 title 46, United States Code, is amended by adding at the end  
3 the following:

4 “§ 8907. Fishing, fish processing, and fish tender vessels

5 “A documented fishing, fish processing, and fish tender  
6 vessel shall be operated by an individual licensed by the Sec-  
7 retary to operate that type of vessel in the particular geo-  
8 graphic area, under prescribed regulations.”.

9 (2) The analysis at the beginning of chapter 89 of title  
10 46, United States Code, is amended by adding at the end the  
11 following:

“8907. Fishing, fish processing, and fish tender vessels.”.

12 SEC. 106. ACCIDENT DATA STATISTICS.

13 (a) UNIFORMITY REQUIREMENT.—Section 6101 of title  
14 46, United States Code, is amended by inserting after subsec-  
15 tion (b) the following:

16 “(c) In prescribing regulations under this chapter, the  
17 Secretary shall ensure that casualty reporting requirements  
18 are uniform for all vessels engaged in commercial service.”

19 (b) STATE RECREATIONAL VESSEL CASUALTIES.—  
20 Section 6102 of title 46, United States Code, is amended in  
21 the first sentence by inserting “recreational” before the word  
22 “vessels”.

23 (c) FISHING VESSEL CASUALTIES.—(1) Chapter 61 of  
24 title 46, United States Code, is amended by adding at the end  
25 the following:

1 "§ 6104. Fishing vessel casualty statistics

2 "(a) The Secretary shall compile statistics concerning  
3 marine casualties from data from insurers of fishing, fish  
4 processing, and fish tender vessels.

5 "(b)(1) A person underwriting primary insurance for  
6 fishing, fish processing, and fish tender vessels shall submit  
7 periodically to the Secretary data concerning marine casual-  
8 ties in accordance with regulations prescribed by the  
9 Secretary.

10 "(2) Information submitted to the Secretary under this  
11 subsection which is—

12 "(A) related to trade secret or other matter re-  
13 ferred to in section 1905 of title 18; or

14 "(B) authorized to be exempt from public disclo-  
15 sure by section 552(b) of title 5;

16 shall constitute confidential statistical data under section  
17 1905 of title 18.

18 "(3) Notwithstanding paragraph (2), the Secretary may  
19 release the totals of statistics compiled under this section.

20 "(c) After consulting with the insurance industry, the  
21 Secretary shall prescribe regulations under this section to  
22 gather a statistical base for analyzing vessel risks."

23 - (2) The analysis at the beginning of chapter 61 of title  
24 46, United States Code, is amended by adding at the end the  
25 following:

"6104. Fishing vessel casualty statistics."

1 (d) PENALTIES.—Section 6103 of title 46, United  
2 States Code, is amended—

3 (1) by inserting “(a)” before “An owner”; and

4 (2) by adding at the end the following:

5 “(b) A person failing to comply with section 6104 of this  
6 title or a regulation prescribed under that section is liable to  
7 the United States Government for a civil penalty of not more  
8 than \$1,000.”.

9 SEC. 107. FISHING VESSEL SAFETY ADVISORY COMMITTEE

10 (a) ESTABLISHMENT.—Title 46, United States Code, is  
11 amended by adding at the end the following:

“CHAPTER 132—FISHING VESSEL SAFETY ADVISORY  
COMMITTEE

“Sec.

“13201. Establishment

“13202. Membership

“13203. Consultation by Secretary

“13204. Compensation

“13205. Termination

12 “§ 13201. Establishment

13 “(a) The Secretary shall establish a Fishing Vessel  
14 Safety Advisory Committee (hereinafter in this chapter re-  
15 ferred to as the ‘Committee’).

16 “(b) The Committee—

17 (1) may advise, consult with, report to, and make  
18 recommendations to the Secretary on matters relating  
19 to fishing, fish processing, and fish tender vessels, in-  
20 cluding navigation safety, safety equipment and proce-  
21 dures, marine insurance, vessel design, construction,

1 maintenance and operation, and personnel qualifications  
2 and training;

3 "(2) may review regulations proposed under this  
4 title that affect commercial fishing, fish processing, or  
5 fish tender vessel operations;

6 "(3) may make available to the Congress any in-  
7 formation, advice, and recommendations that the Com-  
8 mittee is authorized to give to the Secretary; and

9 "(4) shall meet at the call of the Secretary, but  
10 not less than once during each calendar year.

11 "§ 13202. Membership

12 "(a) The Committee shall consist of 17 members, ap-  
13 pointed by the Secretary from among persons nominated pur-  
14 suant to subsection (b) who have particular expertise, knowl-  
15 edge, and experience with respect to the commercial fishing  
16 industry, as follows:

17 "(1) Ten members from the commercial fishing in-  
18 dustry who—

19 "(A) reflect a regional and representational  
20 balance; and

21 "(B) have experience in the operation of a  
22 fish processing vessel or as a crew member or  
23 processing line worker on a fish processing vessel.

24 "(2) Three members from the general public, in-  
25 cluding whenever possible persons recognized for their

1 involvement in safety issues and advocacy of improved  
2 safety in the commercial fishing industry, and a person  
3 who is a member of a national organization composed  
4 of owners of fishing, fish processing, or fish tender ves-  
5 sels and marine insurance interests.

6 “(3) One member from each of the following:

7 “(A) Naval architects or marine surveyors.

8 “(B) Manufacturers of fishing, fish process-  
9 ing, or fish tender vessel equipment.

10 “(C) Education or training professionals in  
11 the fields of fishing, fish processing, or fish tender  
12 vessel safety or personnel qualifications.

13 “(D) Underwriters engaged in insuring fish-  
14 ing, fish processing, or fish tender vessels.

15 “(b) The Secretary shall publish at least once each year  
16 in the Federal Register and in newspapers of general circula-  
17 tion in coastal areas a notice soliciting nominations for mem-  
18 bership on the Committee.

19 “(c)(1) Except as provided in paragraph (2), a member  
20 shall be appointed for a term of 3 years.

21 “(2) With respect to the members first appointed to the  
22 Committee—

23 “(A) one-third of the members shall serve a term  
24 of 1 year; and

1           “(B) one-third of the members shall serve a term  
2           of 2 years;  
3           to be determined by lot at the first meeting of the Committee.

4           “(3) A person may be appointed more than one time to  
5           serve a term as a member of the Committee.

6           “(4) A vacancy in the membership of the Committee  
7           shall be filled by a person appointed by the Secretary to fill  
8           the remainder of the term.

9           “(d)(1) The Committee shall elect one of its members to  
10          serve as Chairman and one of its members to serve as Vice  
11          Chairman.

12          “(2) The Vice Chairman shall act as Chairman in the  
13          absence or incapacity of, or in the event of a vacancy in the  
14          office of, the Chairman.

15          “(e)(1) The Secretary and the Secretary of Commerce  
16          shall, and any other interested agency may, each designate a  
17          representative of their agency to participate as an observer  
18          with the Committee.

19          “(2) Representatives designated under paragraph (1)  
20          shall, as appropriate, report to and advise the Committee on  
21          matters under the jurisdiction of the agency they represent  
22          - which relate to fishing, fish processing, or fish tender vessels.

23          “(3) The Secretary's designated representative shall act  
24          as executive secretary for the Committee and perform the

1 duties set forth in section 10(c) of the Federal Advisory Com-  
2 mittee Act (5 U.S.C. App. 1 et seq.).

3 **“§ 13203. Consultation by Secretary**

4       “(a) The Secretary shall, whenever practicable, consult  
5 with the Committee before taking any significant action re-  
6 lated to the safe operation of fishing, fish processing, or fish  
7 tender vessels.

8       “(b) The Secretary shall consider information, advice,  
9 and recommendations of the Committee in consulting with  
10 other agencies and the public or in formulating policy regard-  
11 ing the safe operation of fishing, fish processing, or fish  
12 tender vessels.

13 **“§ 13204. Compensation**

14       “(a) A member of the Committee who is not an officer  
15 or employee of the United States or a member of the Armed  
16 Forces, when attending meetings of the Committee or other-  
17 wise engaged in the business of the Committee, including  
18 travel time, may be paid—

19               “(1) compensation at a rate fixed by the Secretary  
20 at a rate not to exceed the daily equivalent of the cur-  
21 rent rate of basic pay in effect for GS-18 of the Gener-  
22 al Schedule under section 5332 of title 5; and

23               “(2) travel or transportation expenses under sec-  
24 tion 5703 of title 5.

1       “(b)(1) A member of the Committee may not be consid-  
2 ered to be an officer or employee of the United States or a  
3 member of the Armed Forces by reason of receipt of payment  
4 under this section.

5       “(2) A member of the Committee who is an officer or  
6 employee of the United States or a member of the Armed  
7 Forces may not receive additional pay based on the member’s  
8 service on the Committee.

9       “(c) The provisions of this section relating to an officer  
10 or employee of the United States or a member of the Armed  
11 Forces do not apply to a member of a reserve component of  
12 the Armed Forces unless that member is in an active status.

13       “§ 13205. Termination

14       “(a) The Federal Advisory Committee Act (5 U.S.C.  
15 App. 1 et seq.) applies to the Committee, except that the  
16 Committee shall terminate on September 30, 1992.

17       “(b) Not later than September 30, 1990, the Committee  
18 shall submit to the Congress a recommendation regarding  
19 whether the Committee should be renewed and continued  
20 beyond the termination date.”

21       (b) CONFORMING AMENDMENTS.—The analysis at the  
22 beginning of subtitle II of title 46, United States Code, is  
23 amended—

- 1 (1) by striking "PART I—STATE BOATING  
2 SAFETY PROGRAMS" and inserting in lieu  
3 thereof "PART I—SAFETY PROGRAMS"; and  
4 (2) by adding at the end the following:

"182. Fishing vessel safety advisory committee..... 18201".

5 SEC. 108. EFFECTIVE DATE.

6 The amendments made by sections 103 and 106 shall  
7 take effect on January 1, 19

8 TITLE II.—FISHERY MANAGEMENT SAFETY

9 SEC. 201. CONTENT OF FISHERY MANAGEMENT PLANS.

10 Section 303(a)(2) of the Fishery Conservation and Man-  
11 agement Act of 1976 (16 U.S.C. 1801 et seq.) is amended to  
12 read as follows:

13 "(2) contain a description of the fishery, including,  
14 but not limited to, the number of vessels involved, the  
15 type and quantity of fishing gear used, the species of  
16 fish involved and their location, the cost likely to be  
17 incurred in management, the likely effect of the select-  
18 ed, and any alternative, conservation and management  
19 measures on safety of persons and vessels engaged in  
20 the fishery, actual and potential revenues from the fish-  
21 ery, any recreational interests in the fishery, and the  
22 nature and extent of foreign fishing and Indian treaty  
23 fishing rights, if any;"

○

100TH CONGRESS  
1ST SESSION

# H. R. 1841

To establish guidelines for timely compensation for temporary injury incurred by seamen on fishing industry vessels and to require additional safety regulations for fishing industry vessels.

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## IN THE HOUSE OF REPRESENTATIVES

MARCH 26, 1987

Mr. STUDDS (for himself, Mr. JONES of North Carolina, Mr. DAVIS of Michigan, Mr. YOUNG of Alaska, Mr. LOWRY of Washington, Miss SCHNEIDER, Mr. HUGHES, Mr. MILLER of Washington, Mr. BENNETT, Mr. LIPINSKI, and Mr. BATEMAN) introduced the following bill; which was referred to the Committee on Merchant Marine and Fisheries

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## A BILL

To establish guidelines for timely compensation for temporary injury incurred by seamen on fishing industry vessels and to require additional safety regulations for fishing industry vessels.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 SECTION 1. SHORT TITLE.

4 This Act may be cited as the "Commercial Fishing In-  
5 dustry Vessel Safety and Compensation Act of 1987".

1       **TITLE I—COMPENSATION FOR TEMPORARY**  
2       **INJURY ON FISHING INDUSTRY VESSELS**  
3       **SEC. 101. COMPENSATION FOR TEMPORARY PERSONAL**  
4       **INJURY.**

5       The Act of March 4, 1915 (chapter 153; 38 Stat. 1164)  
6 is amended by adding at the end the following:

7       “SEC. 21. (a) In this section—

8           “(1) ‘fishing vessel’, ‘fish processing vessel’, and  
9           ‘fish tender vessel’ have the same meanings given  
10          those terms in section 2101 of title 46, United States  
11          Code.

12          “(2) an illness, disability, or injury shall be consid-  
13          ered temporary if, after cure, the seaman—

14           “(A) can return to the seaman’s previous (or  
15           equivalent) employment;

16           “(B) does not require further medical care  
17           with respect to the illness, disability, or injury;

18           “(C) does not have a substantial loss of  
19           sight, voice, or hearing; and

20           “(D) has not lost an appendage or suffered  
21           permanent disfigurement.

22          “(b) A civil action (including an action for contribution  
23          or indemnification) may not be brought under any law of the  
24          United States against the employer of a seaman, a vessel  
25          owner, or a vessel for loss suffered as the result of a tempo-

1 rary illness, disability, or injury suffered by a seaman during  
2 the course of the seaman's employment to a fishing, fish  
3 processing, or fish tender vessel if the employer or vessel  
4 owner makes payment for, or otherwise provides—

5           “(1) cure for the ill, disabled, or injured seaman;

6           and

7           “(2) maintenance during the period of illness, dis-  
8 ability or injury in an amount equal to—

9                   “(A) for each day that vessel is on a voyage,  
10           the greater of—

11                           “(i) 80 percent of the wage or share the  
12                           seaman would have received for that day if  
13                           the seaman had been employed on the vessel  
14                           for that voyage; or

15                           “(ii) \$30; and

16                   “(B) for each day that vessel is not on a  
17           voyage, \$30.

18           “(c) The Secretary of Transportation shall annually  
19 review the dollar figure in subparagraphs (A)(ii) and (B) of  
20 subsection (b)(2). The Secretary may periodically increase or  
21 decrease that figure, but not by more than the percentage  
22 increase or decrease in the Consumer Price Index for the  
23 period considered.

24           “(d) Subsection (b) shall not apply if—

1           “(1) the temporary illness, disability, or injury  
2 was caused by the gross negligence or willful miscon-  
3 duct of the owner or employer, as the case may be;

4           “(2) the temporary illness, disability, or injury  
5 was primarily caused by a violation of chapter 45 of  
6 title 46, United States Code, that was within the  
7 knowledge of the owner or employer, as the case may  
8 be; or

9           “(3) payment or provision of maintenance and  
10 cure is not made in the manner described in subsec-  
11 tion (b).”.

12 **SEC. 102. STATUTE OF LIMITATIONS.**

13           The first section of the Act entitled “An Act to provide  
14 a uniform three-year statute of limitations in actions to recov-  
15 er damages for personal injury or death, arising out of a mar-  
16 itime tort, and for other purposes” (46 App. U.S.C. 763a) is  
17 amended by striking “That,” and inserting “That (a)” and by  
18 adding at the end the following:

19           “(b) A civil action against the employer of a seaman or  
20 the owner of a fishing, fish processing, or fish tender vessel  
21 for recovery of damages for illness, injury, disability, or death  
22 suffered during the course of the seaman’s employment to a  
23 fishing, fish processing, or fish tender vessel may not be  
24 maintained unless started within 2 years from the date the  
25 cause of action accrued.”.

1 TITLE II—COMMERCIAL FISHING INDUSTRY

2 VESSEL SAFETY

3 SEC. 201. FISHING INDUSTRY VESSEL SAFETY REQUIRE-  
4 MENTS.

5 (a) Chapter 45 of title 46, United States Code, is  
6 amended to read as follows:

7 "CHAPTER 45—COMMERCIAL FISHING INDUSTRY  
8 VESSELS

"Sec.

"4501. Application.

"4502. Safety standards.

"4503. Equivalency.

"4504. Prohibited acts.

"4505. Termination of unsafe operations.

"4506. Exemptions.

"4507. Penalties.

"4508. Commercial Fishing Industry Vessel Advisory Committee.

9 "§ 4501. Application

10 "(a) This chapter applies to a fishing, fish processing,  
11 and fish tender vessel.

12 "(b) This chapter does not apply to the carriage of bulk  
13 dangerous cargoes regulated under chapter 37 of this title.

14 "§ 4502. Safety standards

15 "(a) A fishing, fish processing, and fish tender vessel  
16 must—

17 "(1) if propelled by machinery, be provided with  
18 fire extinguishers, capable of promptly and effectively  
19 extinguishing a combustible or flammable liquid fuel,  
20 that shall be kept in a condition for immediate and ef-  
21 fective use and so placed as to be readily accessible;

1           “(2) carry at least one readily accessible life pre-  
2 server or other lifesaving device for each individual on  
3 board;

4           “(3) have the carburetors of each engine on board  
5 the vessel (except an outboard engine) using gasoline  
6 as a fuel, equipped with an efficient flame arrestor,  
7 backfire trap, or other similar device;

8           “(4) if using a volatile liquid as fuel, be provided  
9 with the means for properly and efficiently ventilating  
10 enclosed spaces, including engine and fuel tank com-  
11 partments, so as to remove any explosive or flammable  
12 gases; and

13           “(5) be provided with visual distress signals.

14           “(b) In addition to the requirements of subsection (a) of  
15 this section, the Secretary shall prescribe regulations for a  
16 documented fishing, fish processing, or fish tender vessel op-  
17 erating beyond the Boundary Line, for the installation, main-  
18 tenance, and use of—

19           “(1) at least one readily accessible emergency po-  
20 sition indicating beacon, or similar electronic position  
21 indicating device;

22           “(2) lifeboats or liferafts sufficient to accommodate  
23 all individuals on board;

1           “(3) at least one readily accessible exposure suit  
2 for each individual on board a vessel operating on the  
3 waters described in section 3102 of this title;

4           “(4) radio communications equipment sufficient to  
5 effectively communicate with land-based search and  
6 rescue facilities; and

7           “(5) other equipment required to minimize the risk  
8 of injury to crew during vessel operations, if the Secre-  
9 tary determines that a risk of serious injury exists that  
10 can be eliminated or mitigated by that equipment.

11          “(c) For an uninspected fish processing vessel entered  
12 into service after December 31, 1987, and having more than  
13 sixteen individuals on board primarily employed in the prepa-  
14 ration of fish or fish products, the Secretary shall prescribe  
15 additional regulations for—

16           “(1) navigation equipment, including radars,  
17 fathometers, compasses, radar reflectors, lights, sound-  
18 producing devices, nautical charts, and anchors;

19           “(2) life saving equipment, including life preserv-  
20 ers, exposure suits, lifeboats or liferafts, emergency po-  
21 sition indicating radio beacons, signaling devices, bilge  
22 pumps, bilge alarms, life rails and grab rails, and medi-  
23 cine chests;

1           “(3) fire protection and firefighting equipment, in-  
2           cluding fire alarms, portable and semiportable fire ex-  
3           tinguishing equipment, and flame arrestors;

4           “(4) the use and installation of insulation material;

5           “(5) storage methods for flammable or combustible  
6           material; and

7           “(6) fuel, ventilation, and electrical systems.

8           “(d)(1) In addition to the other requirements of this sec-  
9           tion, the Secretary shall prescribe regulations for the operat-  
10          ing stability of a documented fishing, fish processing, or fish  
11          tender vessel—

12           “(A) the keel for which was laid after December  
13          31, 1988; or

14           “(B) whose physical characteristics are substan-  
15          tially altered after December 31, 1988, in a manner af-  
16          fecting the vessel's operating stability.

17           “(2) The Secretary may accept, as evidence of compli-  
18          ance by a vessel with this subsection, a certification of com-  
19          pliance issued by the person providing insurance for the  
20          vessel.

21           “(e) In prescribing regulations under this section, the  
22          Secretary—

23           “(1) shall consider the specialized nature and eco-  
24          nomics of the type of vessel operations and the charac-  
25          ter, design, and construction of the type of vessel;

1           “(2) shall consult with representatives of the pri-  
2           vate sector having experience in the operation of ves-  
3           sels to which this chapter applies to ensure the practi-  
4           cability of these regulations; and

5           “(3) may not require the alteration of a vessel or  
6           associated equipment or of the construction of a vessel  
7           or manufacture of a particular item of equipment that  
8           was begun before the effective date of the regulation.

9   **“§ 4503. Equivalency**

10          “An uninspected fish processing vessel entered into  
11          service after December 31, 1987, and having more than six-  
12          teen individuals on board primarily employed in the prepara-  
13          tion of fish or fish products—

14                 “(1) is deemed to comply with the requirements of  
15          this chapter if it has an unexpired certificate of inspec-  
16          tion issued by a foreign country that is a party to an  
17          International Convention for Safety of Life at Sea to  
18          which the United States Government is a party, and

19                 “(2) may not be required by the Secretary to alter  
20          or replace the equipment or structural requirements re-  
21          quired under this chapter.

22   **“§ 4504. Prohibited acts**

23          “A person may not operate a vessel in violation of this  
24          chapter or a regulation prescribed under this chapter.

1 **“§ 4505. Termination of unsafe operations**

2 “If an official charged with the enforcement of this  
3 chapter observes a fishing, fish processing, or fish tender  
4 vessel being operated in an unsafe condition and, in the judg-  
5 ment of that official, the operation creates an especially haz-  
6 ardous condition, the official may direct the operator of the  
7 vessel to take immediate and reasonable steps necessary for  
8 the safety of individuals on board the vessel, including direct-  
9 ing the operator to return to a mooring and to remain there  
10 until the situation creating the hazard is corrected or ended.

11 **“§ 4506. Exemptions**

12 “(a) The Secretary may exempt a vessel from any part  
13 of this chapter when, under regulations (including regulations  
14 on special operating conditions) prescribed by the Secretary,  
15 the Secretary finds that—

16 “(1) good cause exists for granting an exemption;

17 and

18 “(2) the safety of the vessel and those on board  
19 will not be adversely affected.

20 “(b) A fishing, fish processing, or fish tender vessel is  
21 exempt from the provisions of section 4502(b)(2) if it—

22 “(1) is less than 36 feet in length; and

23 “(2) is not operating on the high seas.

24 **“§ 4507. Penalties**

25 “(a) If a vessel to which this chapter applies is operated  
26 in violation of this chapter or a regulation prescribed under

1 this chapter, the owner, charterer, managing operator, agent,  
2 master, and individual in charge are each liable to the United  
3 States Government for a civil penalty of not more than  
4 \$5,000. The vessel also is liable in rem for the penalty.

5 “(b) A person willfully violating this chapter or a regu-  
6 lation prescribed under this chapter shall be fined not more  
7 than \$5,000, imprisoned for not more than one year, or both.

8 § 4508. Commercial Fishing Industry Vessel Advisory  
9 Committee

10 “(a) The Secretary shall establish a Commercial Fishing  
11 Industry Vessel Advisory Committee. The Committee—

12 “(1) may advise, consult with, report to, and  
13 make recommendations to the Secretary on matters re-  
14 lating to the safe operation of fishing, fish processing,  
15 and fish tender vessels, including navigation safety,  
16 safety equipment and procedures, marine insurance,  
17 vessel design, construction, maintenance and operation,  
18 and personnel qualifications and training;

19 “(2) may review proposed regulations under this  
20 chapter;

21 “(3) may make available to Congress any infor-  
22 mation, advice, and recommendations that the Commit-  
23 tee is authorized to give to the Secretary;

24 “(4) shall meet at the call of the Secretary, but  
25 not less than once during each calendar year.

1       “(b)(1) The Committee shall consist of seventeen mem-  
2 bers with particular expertise, knowledge, and experience re-  
3 garding the commercial fishing industry as follows:

4           “(A) ten members from the commercial fishing in-  
5 dustry who—

6           “(i) reflect a regional and representational  
7 balance; and

8           “(ii) have experience in the operation of ves-  
9 sels to which this chapter applies or as a crew  
10 member or processing line worker on a fish proc-  
11 essing vessel,

12          “(B) three members from the general public, in-  
13 cluding, whenever possible, an independent expert or  
14 consultant in maritime safety and a member of a na-  
15 tional organization composed of fishing, fish processing,  
16 or fish tender vessel and marine insurance interests;

17          “(C) one member from each of the following—

18           “(i) naval architects or marine surveyors;

19           “(ii) manufacturers of fishing, fish processing,  
20 or fish tender vessel equipment;

21           “(iii) education or training professionals relat-  
22 ed to fishing, fish processing, or fish tender vessel  
23 safety or personnel qualifications; and

24           “(iv) underwriters engaged in insuring fish-  
25 ing, fish processing, or fish tender vessels.

1       “(2) At least once a year, the Secretary shall publish a  
2 notice in the Federal Register and in newspapers of general  
3 circulation in coastal areas soliciting nominations for mem-  
4 bership on the Committee, and, after timely notice is pub-  
5 lished, appoint the members of the Committee. A member  
6 may be appointed to any number of terms.

7       “(3)(A) The term of a member is three years.

8       “(B) If a vacancy occurs in the membership of the Com-  
9 mittee, the Secretary shall appoint a member to fill the re-  
10 mainder of the vacated term.

11       “(4) The Committee shall elect one of its members as  
12 the Chairman and one of its members as the Vice Chairman.  
13 The Vice Chairman shall act as Chairman in the absence or  
14 incapacity of, or in the event of a vacancy in the office of, the  
15 Chairman.

16       “(5) The Secretary shall, and any other interested  
17 agency may, designate a representative to participate as an  
18 observer with the Committee. These representatives shall, as  
19 appropriate, report to and advise the Committee on matters  
20 relating to fishing, fish processing, or fish tender vessels  
21 under the jurisdiction of their respective agencies. The Secre-  
22 tary's designated representative shall act as executive secre-  
23 tary for the Committee and perform the duties set forth in  
24 section 10(c) of the Federal Advisory Committee Act (5 App.  
25 U.S.C.).

1       “(c)(1) The Secretary shall, whenever practicable, con-  
2 sult with the Committee before taking any significant action  
3 relating to the safe operation of fishing, fish processing, or  
4 fish tender vessels.

5       “(2) The Secretary shall consider the information,  
6 advice, and recommendations of the Committee in consulting  
7 with other agencies and the public or in formulating policy  
8 regarding the safe operation of fishing, fish processing, or fish  
9 tender vessels.

10       “(d)(1) Except an officer or employee of the United  
11 States or a member of the Armed Forces, a member of the  
12 Committee, when attending meetings of the Committee or  
13 when otherwise engaged in the business of the Committee, is  
14 entitled to receive—

15               “(A) compensation at a rate fixed by the Secre-  
16 tary, not exceeding the daily equivalent of the current  
17 rate of basic pay in effect for GS-18 of the General  
18 Schedule under section 5332 of title 5 including travel  
19 time; and

20               “(B) travel or transportation expenses under sec-  
21 tion 5703 of title 5.

22       “(2) Payments under this section do not render a  
23 member of the Committee an officer or employee of the  
24 United States or a member of the Armed Forces for any  
25 purpose.

1       “(3) A member of the Committee who is an officer or  
2 employee of the United States or a member of the Armed  
3 Forces may not receive additional pay on account of the  
4 member’s service to the Committee.

5       “(4) The provisions of this section relating to an officer  
6 or employee of the United States or a member of the Armed  
7 Forces do not apply to a member of a reserve component of  
8 the Armed Forces unless that member is in an active status.

9       “(c)(1) The Federal Advisory Committee Act (5 U.S.C.  
10 App.) applies to the Committee, except that the Committee  
11 terminates on September 30, 1992.

12       “(2) Two years prior to the termination date in this sec-  
13 tion, the Committee shall submit to Congress its recommen-  
14 dation whether the Committee should be renewed and contin-  
15 ued beyond the termination date.”.

16       (b) Of the members first appointed to the Commercial  
17 Fishing Industry Advisory Committee under section 4508 of  
18 title 46, United States Code—

19           (1) one-third of the members shall serve a term of  
20 one year and one-third of the members shall serve a  
21 term of two years, to be determined by lot at the first  
22 meeting of the Committee; and

23           (2) terms may be adjusted to coincide with the  
24 Government’s fiscal year.

1 (c) Subsection (e) of section 4102 of title 46, United  
2 States Code, is repealed.

3 **SEC. 202. ACCIDENT DATA STATISTICS.**

4 (a) Chapter 61 of title 46, United States Code, is  
5 amended by adding at the end the following new section:

6 **"§ 6104. Commercial fishing industry vessel casualty**  
7 **statistics**

8 "(a) The Secretary shall compile statistics concerning  
9 marine casualties from data compiled from insurers of fishing,  
10 fish processing, and fish tender vessels.

11 "(b) A person underwriting primary insurance for fish-  
12 ing, fish processing or fish tender vessels shall submit periodi-  
13 cally to the Secretary data concerning marine casualties that  
14 is required by regulations prescribed by the Secretary.

15 "(c) After consulting with the insurance industry, the  
16 Secretary shall prescribe regulations under this section to  
17 gather a statistical base for analyzing vessel risks."

18 (b) The analysis for chapter 61 of title 46, United States  
19 Code, is amended by adding at the end the following:

"§ 6104. Commercial fishing industry vessel casualty statistics."

20 (c) Section 6103 of title 46, United States Code, is  
21 amended as follows:

22 (1) before "An" insert "(a)"; and

23 (2) add the following new subsection:

1       “(b) A person violating section 6104 of this title or a  
2 regulation prescribed under that section is liable to the Gov-  
3 ernment for a civil penalty of not more than \$5,000.”.

○

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