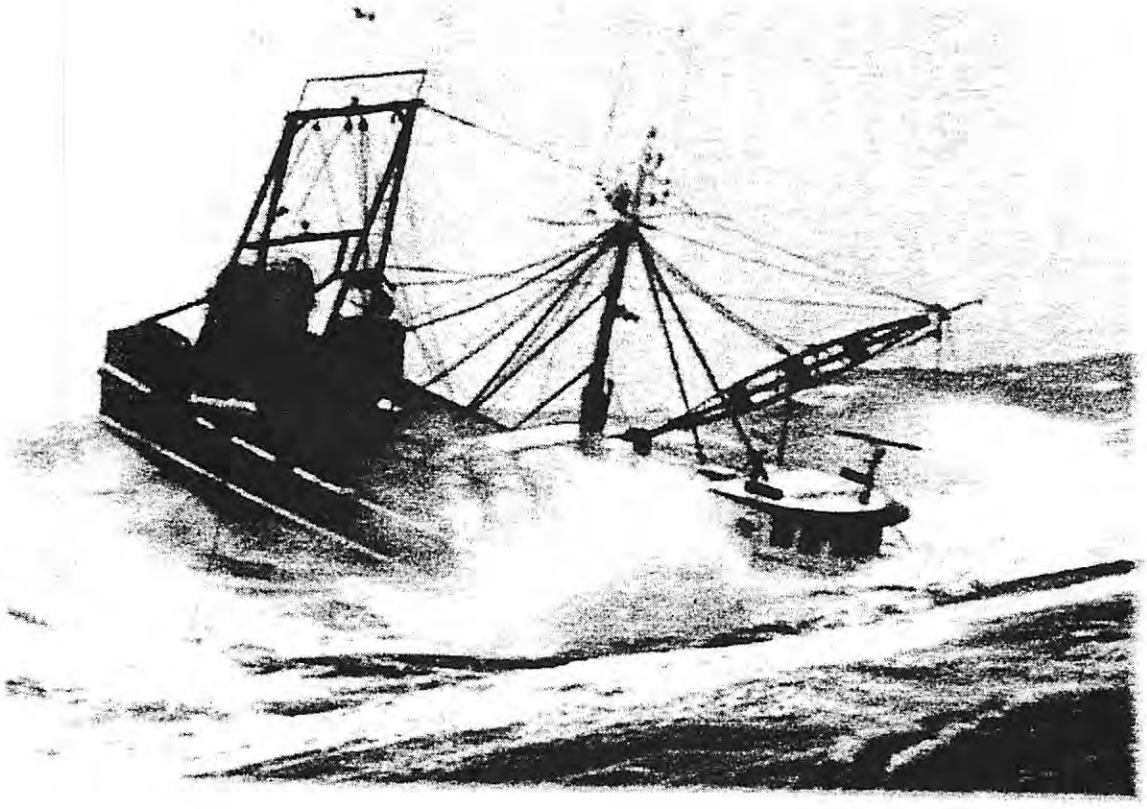
LIVING TO FISH



Fishing Vessel Casualty Task Force Report

March 1999

Captain James D. Spitzer, U. S. Coast Guard
Task Force Chairman

Acknowledgements

I am deeply appreciative of the knowledge, willingness to serve, and concern for fishing vessel safety that the Task Force members and industry advisors demonstrated. Their names and biographies are found in Appendices B and C.

The greatest burden was borne by many offices and individuals that supported the Task Force. Their level of thoroughness was never compromised, and a tight deadline was met through hard work, dedication, and professionalism.

The team developing the project plan and workshop preparations included Tim Farley, Ken Olsen, LT Bill Butler, LT Brian Lincoln, Jeff Ciampa, LT Brian Penoyer, LT Thomas Miller, LT Keith Janssen and YN2 Mark Walters. The Task Force workshop succeeded in large part due to the skilled facilitation of Doug Perkins, Tim Farley, LT Brian Penoyer, and Jim Law; and the recording skills of LT Joe Dufresne, LT Kirsten Martin, LT Karen Weaver, Dave Dickey, and LTJG Alex Foos. CDR Mark Thomas and LCDR Randy Clark were important guest contributors at the workshop. Sue Jorgensen and other Fishing Vessel Safety Coordinators and Examiners sampled the opinions of fishermen. My heartfelt thanks to many of the noted individuals and Task Force members who performed several tasks, including drafting parts of the report. Final thanks for assembling and editing the report go to Theresa Miller, Doug Rabe, and Jennifer Blain.

I was particularly impressed by the concern, enthusiasm, and passion expressed by participants in this effort, including concerned reporters and members of the fishing community. Many expressed a hope that their efforts not be in vain. The spirit of these individuals is characterized by:

They saw their duty and did it.

James D. Spitzer, Chairman
Captain , U. S. Coast Guard

Disclaimer

This report includes facts and conclusions that represent the collective wisdom of the Task Force members, industry advisors, and other sources. However, this report does not necessarily represent the official position of the organizations that employ the Task Force members.

CONTENTS

Page

Executive Summary v

1.0 Introduction ..... 1 – 1
1.1 Task Force Impetus and Objectives ..... 1 – 1
1.2 Task Force Members, Advisors, and Support ..... 1 – 1
1.3 Approach of Report ..... 1 – 2

2.0 Historical Overview ..... 2 – 1
2.1 Inspected Steam Vessels to Uninspected Fishing Vessels ..... 2 – 1
2.2 Marketing Voluntary Fishing Vessel Safety ..... 2 – 3
2.3 Tragedies Lead to Modest Standards ..... 2 – 4
2.4 Key Events Since the Act of 1988 ..... 2 – 7

3.0 Comparison of Standards ..... 3 – 1
3.1 Comparison of Mandatory Standards ..... 3 – 1
3.2 Operational Risks Relative to Standards ..... 3 – 3

4.0 Casualty Data ..... 4 – 1
4.1 Approach ..... 4 – 1
4.2 Recent Fishing Vessel Casualties ..... 4 – 2
4.3 Historical Overview of Fishing Vessel Casualties ..... 4 – 7

5.0 Conclusions and Recommendations ..... 5 – 1
5.1 Coordinate Fishery Management with Safety ..... 5 – 7
5.2 Establish Operator and Crew Standards ..... 5 – 9
5.3 Ensure Vessels Comply with Standards ..... 5 – 11
5.4 Establish Safety and Stability Standards ..... 5 – 13
5.5 Improve Program Management ..... 5 – 17
5.6 Conduct Research and Development ..... 5 – 21
5.7 Inform Fishermen ..... 5 – 23

Appendix A Fishing Vessel Casualty Task Force Charter ..... A – 1

Appendix B Fishing Vessel Casualty Task Force Members ..... B – 1

Appendix C Industry Advisors ..... C – 1

Appendix D Resources Consulted ..... D – 1

Appendix E Past Recommendations ..... E – 1

FIGURES AND TABLES

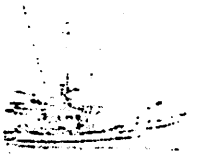
Figures

		Page
3 – 1	Commercial Fishing Vessels <79 ft; <16 POB	3 – 4
3 – 2	Unispected Passenger Vessels	3 – 4
3 – 3	Towing Vessels < 300 GT	3 – 4
3 – 4	Commercial Fishing Vessels <79 ft; <16 POB; Built after September 1991	3 – 5
3 – 5	Commercial Fishing Vessels ≥79 ft	3 – 5
3 – 6	Subchapter "T" Boats	3 – 5
4 – 1	Fishing Vessel Particulars	4 – 3
4 – 2	Fishing Vessel Casualty Information	4 – 3
4 – 3	Control Charts for Total Loss of Vessel for Fishing Vessels 1994-1998	4 – 9
4 – 4	Control Charts for All Deaths on Fishing Vessels 1994-1998	4 – 10
4 – 5	Fishing Vessel Deaths Associated with Vessels Casualties 1994- Jan 1999	4 – 11
4 – 6	Total Fishing Vessel Losses Comparison Before and After the Act of 1988	4 – 12
4 – 7	Total Loss of Vessel By Accident Type Before and After the Act of 1988	4 – 13
4 – 8	Fishing Vessel Total Losses By Length Before and After the Act of 1988	4 – 13
4 – 9	Fishing Vessel Deaths by Length of Vessel Before and After the Act of 1988	4 – 14

Tables

3 – 1	Weighting of Mandatory Standards Categories	3 – 2
5 – 1	Coordinate Fishery Management with Safety	5 – 8
5 – 2	Establish Operator and Crew Standards	5 – 10
5 – 3	Ensure Vessels Compy with Standards	5 – 12
5 – 4	Establish Safety and Stability Standards	5 – 14
5 – 5	Improve Program Management	5 – 19
5 – 6	Conduct Research and Development	5 – 22
5 – 7	Inform Fishermen	5 – 24

Executive Summary



It's no fish you are buying – it's men's lives.

Sir Walter Scott, *The Antiquary* (1816), Ch. 11

Main Points. Commercial fishing continues to rank at or near the top of the most hazardous occupations in the United States. The spate of recent losses of lives and vessels is not unique. A few advances in the long history of attempted voluntary and regulatory safety initiatives have modestly reduced losses. However, commercial fishing vessel safety standards are lower than standards for other domestic commercial vessels, and lower than international standards for fishing vessels. There have been many attempts to raise safety standards over past decades, however, the prevailing opposition to higher standards accepts the high risks of commercial fishing relative to the cost of those standards. The solutions are basic and straightforward: seaworthy boats, competent crews, adequate survival equipment, and safety conscious resource and industry management regimes.

Reluctance to Mandate Safety. Despite long-standing recognition of the serious hazards of commercial fishing, a long succession of proposed laws were not enacted. Federal safety initiatives have been dampened by tradeoffs with other programs, overriding policies, and legal limits. Notably, many fishermen have strongly opposed standards that might save their own lives. Many fishermen accept that fishing is dangerous, and lives are often lost. Many of those harvesting the bounty of our ocean frontier staunchly defend the independent nature of their profession, and vehemently oppose outside interference. The paradox is that fishermen attending a state legislative forum petition for a memorial to lost fishermen in one session, and at another session oppose requirements for basic survival and emergency communications equipment.

Limited Legal Mandate. For decades, the great majority of commercial fishing vessels have fallen into the category of "uninspected vessels," with relatively minimal safety requirements imposed on their operators, operations, and maintenance. The Commercial Fishing Industry Vessel Safety Act of 1988 (Act) and associated regulations and voluntary programs are the most important measures aimed at improving safety on these vessels. However, the Act narrowly addresses the reasons fishing vessels sink and

fishermen die; it focuses on surviving a casualty rather than preventing one. Notwithstanding this, it has improved safety.

Multiple and sustained initiatives to address the important factors of vessel condition and crew competency have not been adopted. Therefore, these critical factors are only influenced through awareness campaigns, voluntary programs, and routine business practices.

A comparison of domestic fishing vessel standards to similar types of domestic and international safety standards shows domestic fishing vessels have the lowest standards, and operate in the highest risk environments. The level of fishing vessel safety standards is analogous to *requiring* parachutes for an airplane crew, but only *marketing* voluntary measures to *encourage* a mechanically sound aircraft and a competent pilot and crew. Nevertheless, the Act and voluntary programs have advanced safety, and have fostered a limited safety culture affecting some boats and fishing communities.

Statistical Trends. Though tragic and shocking, the recent loss (December 1998 and January 1999) of eleven lives and four clam and conch fishing boats is not a departure from historical casualty rates. Comparing this period to the overall loss rates of the past four years shows no significant shift in casualty statistics.

Comparing fatality and vessel loss rates for a five-year, post-1988 Act period to a five-year, pre-Act period indicates an apparent ≈20% decrease of lives and vessels lost. This is not enough to meet a Coast Guard Marine Safety Goal to reduce fishing vessel casualties to levels approaching that of other commercial vessels. More is needed. Especially considering that analysis of specific casualties, including the recent two-month sample of casualties that resulted in loss of life or vessel, shows the causes of most casualties are eminently preventable through improved operational procedures, crew training and experience, and maintaining a seaworthy vessel.

Conclusions.

Recent Casualty Characteristics. Common conditions in many recent casualties are poor vessel or equipment condition, inadequate training to respond to emergencies and use survival gear, and lack of awareness of or ignoring stability issues.

Casualty Data. Recent casualties are indicative of historical casualty rates. Most casualties are preventable. The unsafe conditions and failed defenses that result in high casualty rates stem from inadequate safety standards, poor compliance with existing safety standards, and inadequate participation in voluntary safety initiatives. While casualty rates appear to have improved since the Act of 1988, there is great need to improve the quality of casualty data.

Industry Feedback. Recommendations that may be implemented immediately that may save lives concern improving fisherman awareness of particularly serious issues concerning stability, survival gear, and occupational safety. Recently developed information on vessel stability is now being widely distributed. Unfortunately, there are no quick solutions that will markedly improve safety.

Recommendations and Direction. Recommendations in Section Five are divided into seven categories in an action plan format. They comprehensively describe a recommended course that, in many areas, would require a broad cooperative effort between industry and government. Many recommendations can be done now. Those requiring more time generally require significant change in agency policy and more resources, cultivation of industry support, and often new legislative authority. The overall top ten ranking, by potential impact on reducing loss of life and property, are listed under each respective category as follows:

1. **Coordinate Fishery Management with Safety**
   - #8 Limit Entry into Fisheries

2. **Establish Operator and Crew Standards**
   - #3 Operator's License

3. **Ensure Vessels Comply with Standards**
   - #1 Safety Inspections (#2 was folded into #1)
   - #4 Safety Exam Prerequisite for Federal Fishery Permits
   - #6 Safety Examinations

4. **Establish Safety and Stability Standards**
   - #5 Good Marine Practices
   - #9 Registration/Documentation (harmonize federal/state)
   - #10 Safety Levels (use territorial sea baseline v. boundary line)

5. **Improve Program Management**

6. **Conduct Research and Development**
   - #7 Better Investigation Data

7. **Inform Fishermen**

Despite a unique approach, the Task Force's recommendations are generally aligned with recommendations from previous fishing vessel studies (see Appendix E).

Final Thoughts. The Task Force believes that it is right to strive for breakthrough levels of loss reduction in the fishing industry. And a decade after enactment of the current minimal standards, now is the right time to work for such a breakthrough.

However, the most difficult issues are beyond the scope of the Task Force's Charter. The public, fishermen, industry, regulatory agencies, and Congress must forge the public policy issues to determine: today's standard of acceptable risk for the industry (loss of property, environment, and injury/loss of life relative to a fishing effort or population); and a reasonable cost to reduce that risk relative to competing needs.

Unsuccessful legislative efforts to improve commercial fishing vessel safety did not meet the high political standards required for a controversial issue to prevail. Commercial fishing risks have been deemed acceptable when compared to the actual and perceived costs of meeting higher safety standards. However, we now have almost a decade of experience under the Fishing Vessel Safety Act of 1988 (came into force in 1991). As our knowledge and values have evolved during that period, so have our standards of what is an acceptable risk for the fishermen, and what we are willing to pay to reduce that risk.

It is time to reassess the level of risk, determine what levels of risk are acceptable, determine what costs are reasonable to reduce that risk, and to act. This report is a step in the journey that can lead to breakthrough advances in safety on board commercial fishing vessels.

Section One

Introduction

"Above all, he learned that a good fisherman didn't measure the danger of his occupation by how big or cruel the sea was, but by the potential margin for error. He learned to respect the smallest of margins."

On Fisherman Francis Barcott of Anacortes, Washington, *Lost at Sea.* Patrick Dillon, page 6

1.1 Task Force Impetus and Objectives

In a three-week period at the dawn of 1999, eleven lives and four clam/conch fishing vessels were lost off the mid-Atlantic coast. This quick succession of casualties in one fishery, in a small geographic area, shocked the regional fishing community. Questions were raised as to whether they represented a statistical anomaly or a worsening trend in fishing safety. Rear Admiral Robert C. North, the Coast Guard's Assistant Commandant for Marine Safety and Environmental Protection, chartered a Task Force to:

1. evaluate recent serious casualties;
2. examine recent casualties in the context of historical data;
3. provide quick feedback to the industry;
4. review the current fishing vessel safety program and past safety initiatives;
5. recommend significant measures to reduce loss of life and vessels; and,
6. develop direction for government and industry.

The Task Force was chartered on 27 January 1999 and this report was due to Admiral North on 19 March 1999. The charter is in Appendix A.

1.2 Task Force Members, Advisors, and Support

The Task Force was comprised of twelve government officials who were formally advised by five industry representatives. Biographies of the Task Force members and industry advisors are in Appendices B and C. Informal recommendations were received

from both government and industry sources through personal contact, telephone hot lines, the mail, and the Internet.

The Task Force and industry advisors met during a number of conference calls, and attended a 2 ½ day facilitated workshop to develop recommendations. Major research, preparations for the workshop, and drafting of this report were accomplished by a strong support team.

1.3 Approach of Report.

The approach of this report is as follows:

Section 2 details the history of fishing vessel safety during this century. It is largely a legacy of unsuccessful initiatives.

Section 3 shows the vessel standards resulting from that history. Domestic fishing vessels are not subject to any standards in many important areas of vessel safety, and minimal or modest standards in other areas. Furthermore, these minimal standards are lower than other classes of domestic commercial vessels, and substandard by international norms.

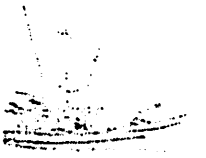
Section 4 describes the nature and extent of fishing vessel casualties and their usually preventable nature. It features recent casualties and places them into the context of historical data. Casualty statistics from before and after the Commercial Fishing Industry Vessel Safety Act (the Act) are compared.

Section 5 contains conclusions and recommendations for significantly reducing fishing vessel casualties and preventing their enormous cost in injuries, loss of life and property, and indirect costs such as environmental harm and search and rescue expenses. The recommendations are categorized and listed in an action plan format.

Appendices on the Task Force Charter, members and industry advisors, references, and past fishing vessel safety recommendations conclude the report.

Section Two

Historical Overview



"Those who cannot remember the past are condemned to repeat it."

The Life of Reason,
George Santayana, (1905 – 1906)

The Main Points. The history of fishing vessel safety has been an ongoing struggle between the rights of fiercely independent individuals willing or resigned to accept the hazards of their profession, and of those from within and outside of the industry who attempt to mitigate the extreme dangers of retrieving the ocean's bounty. This history shows numerous initiatives to raise the level of fishing vessel safety through the development of standards consistent with other sectors of the maritime industry. However, few of these efforts have succeeded.

2.1 Inspected Steam Vessels to Uninspected Fishing Vessels

Steam Propulsion Brings Standards in 1800's. After several significant casualties associated with steam plants on vessels, marine safety statutes established inspection and manning requirements for steam propelled vessels, including fishing vessels. As steam propulsion became less prevalent, subsequent legislation required the inspection of most passenger and commercial vessels, regardless of the means of propulsion. For example, the standards to improve vessel safety have strengthened in categories including the design and construction of vessels, training and licensing of operators, and fire fighting and life saving equipment. As a general rule, any vessel that requires inspection also must have a licensed master or operator. Efforts to gain comparable safety requirements for fishing vessels have been unsuccessful.

Motor Boat Act of 1910. This Act was the first statute to address safety on motor boats. The Act dealt primarily with navigation lights and sound signals, and required motor vessels to carry life preservers and fire extinguishers. It also required motor boats carrying passengers be operated by a licensed individual, although no license examination was required.

Draft Safety Legislation of 1930's; "Uninspected Vessels." Attempts to enact safety legislation for motor fishing vessels during the 1930's were defeated by the fishing vessel and towboat interests and, as a result, the classification known as "uninspected vessel" was established. With the classification, as "uninspected vessels", came serious limitations on the ability to develop safety regulations pertaining to fishing vessels.

There are no specific licensing requirements for masters, operators, or other personnel on commercial fishing vessels. A provision of the "Officer's Competency Certificates Convention, 1936" (46 USC 8304) does require licensed masters, mates, and engineers on all documented vessels over 200 gross tons operating on the high seas. However, this applies to fewer than 1.5% of domestic fishing vessels. Tonnage measurement rules permit many large fishing vessels to measure just under 200 gross tons, thereby avoiding licensing requirements.

Motor Boat Act of 1940 (MBA-40): Although MBA-40 applied to commercial and pleasure vessels, the law's primary emphasis was limited to a few safety measures directed at vessels used for recreation. The law was not intended to address commercial vessel safety, and did not include construction standards or provide for inspection. Operators were not required to be licensed unless the vessel was carrying passengers. The portion of the act applicable to commercial fishing vessels was codified in 1983 and entitled "Uninspected Vessels Generally" (46 USC 41). Only four simple requirements applied to commercial fishing vessels: fire extinguishers, life preservers, flame arrestors, and ventilation of engine and fuel tank compartments.

Fishing Vessel Safety Bill in 1941. A bill (H.R.3254) was introduced in 1941 specifically addressing fishing vessel safety. It proposed "to place fishing boats [15 gross tons or over, fishing outside inland waters] under the supervision of the Bureau of Marine Inspection and Navigation." It outlined specific requirements for watertight bulkheads, bilge pumps, ring buoys, life preservers, lifeboats, radio telephone, first aid kits, line throwing guns, annual inspection, and the licensing of operators. Hearings were held on the bill in October 1941, at which time the bill was supported by the Atlantic Fishermen's Union of Boston representing Northeast fishermen. However, most other segments of the fishing industry opposed the measure, particularly the provisions for watertight bulkheads and the licensing of operators. This initiative died due in part to the outbreak of war.

Federal Boating Act of 1958 (FBA-58). This act amended MBA-40, making it applicable to "every motor boat or vessel on the navigable waters of the United States..." FBA-58 required the numbering of all vessels of more than 10 horsepower, and required accidents involving numbered vessels to be reported to the state, and subsequently to be reported to the Coast Guard.

Creating Recreational "Uninspected Vessels" in 1971. The Federal Boating Safety Act of 1971 (FBSA-71) established manufacturer and operator requirements and a boating safety council to work with the Coast Guard in the adoption of regulations affecting recreational boating safety. FBSA-71 provided a new category of "uninspected vessel." This legislation created two distinct groups of uninspected vessels: *recreational boats* and all other *uninspected vessels*. Boats were defined as "a vessel manufactured or used primarily for noncommercial use; or leased, rented, or chartered to another for the

latter's noncommercial use; or engaged in the carrying of six or fewer passengers." FBSA-71 granted broad authority to establish recreational boating safety standards, including manufacturing requirements and mandatory safety equipment. Once again commercial fishing vessel s were excluded from comparable standards.

Alternative Safety Programs Report to Congress in 1971. The poor safety record of fishing vessels caused Congress to call for a report considering ways to reduce casualties. It was completed by the Coast Guard in 1971. The report documented the fishing industry's poor safety record and concluded that one of the primary causes was that fishing vessels, with few exceptions, had been exempted from safety regulations. The study recommended licensing of masters, mandatory safety standards including full inspection and certification of new vessels, and mandatory and voluntary standards combined with inspection and certification of existing vessels.

The 1971 report also compared fishing vessels with small passenger vessels noting that "Congress passed the first Small Passenger Vessel Safety Act in 1956 (PL 84-519) after investigations of a number of boating accidents revealed that paying passengers were being taken to sea in boats that were not structurally sound or were overloaded." PL 84-519 required inspection of all passenger vessels carrying more than six passengers, less than 65 feet in length, and between 15 and 100 gross tons. The passenger death rate went from 29 per year to five per year after passage of the PL 84-519. Presumably, the small passenger vessel owners at the time felt this burden would destroy their industry. Yet today the industry is healthy, and the death rate even lower as a result of further safety measures.

Fishing Vessel Safety Draft Legislation of 1971-1976. Fishing vessel safety legislation based on the 1971 study was prepared by the Coast Guard and forwarded to the Office of Management and Budget (OMB). The National Marine Fisheries Service (NMFS) of the Department of Commerce (DOC) recommended the Coast Guard defer action on any legislation requiring the inspection of commercial fishing vessels until NMFS concluded their study on commercial fishing vessel insurance. When the NMFS study was completed in January 1975, DOC recommended an alternative proposal to OMB for a voluntary safety program for commercial fishing vessels. In July 1975, the Department of Transportation advised OMB that the Coast Guard legislative proposal would be held back while a study of the DOC proposal was undertaken.

In July 1976, the Secretary of Transportation forwarded copies of the 1971 fishing vessel study to the Senate Committee on Commerce and the House Committee on Merchant Marine and Fisheries. However, the Secretary did not recommend the Coast Guard's legislative program, citing the inflationary impact to the economy and increased interest in a voluntary safety program by the fishing industry. This initiative for fishing vessel safety legislation died.

2.2 Marketing Voluntary Fishing Vessel Safety

Voluntary exams in 1978. The Coast Guard initiated a voluntary dockside uninspected vessel examination program. The Coast Guard's 1979 budget created forty-five new positions for a vessel examination program. The purpose was to improve safety throughout the uninspected commercial fleet, including commercial fishing vessels. A

project to develop a triennial dockside educational examination program was initiated; however, the positions were cut in July 1981 due to budget reductions.

Safety Concept in 1980. "Life Safety Approach to Fishing Vessel Design and Operation" was presented to the Ship Technology and Research Symposium of the Society of Naval Architects and Marine Engineers. The Coast Guard authors (J. E. DeCarteret, N.W. Lemley and D.F. Sheehan) suggested that training, combined with the recently initiated Coast Guard education and voluntary dockside boarding program, should reduce casualties. They also made specific recommendations regarding industry training in fire safety and personnel safety and requirements for lifesaving equipment. They noted, however, that if casualties continued to increase, there would be significant pressure for the government to intervene into fishing vessel design and operation.

2.3 Tragedies Lead to Modest Standards

Loss of the A-Boats in 1983. The fishing vessels *Altair* and *Americus* capsized and sank in the Bering Sea with the loss of fourteen fishermen. The report resulting from the two-year joint investigation, by the Coast Guard and the National Transportation Safety Board (NTSB), recommended that the Coast Guard require stability analyses of new or modified vessels, and seek authority to establish minimum competency standards and licensing of fishing vessel masters. The Commandant of the Coast Guard did not concur, preferring to turn the matter over to a new full-time Fishing Vessel Safety Initiative Task Force formed in August 1984, thus continuing the pursuit of voluntary approaches to fishing vessel safety.

Voluntary Program. The Coast Guard's Task Force developed a two-pronged voluntary program. One part of the initiative was intended to promote vessel safety through voluntary standards written by the Coast Guard in five Navigation and Vessel Inspection Circulars (NVIC). These voluntary standards were revised and consolidated into NVIC 5-86 (released in 1986). The voluntary standards were written primarily for fishing vessel designers, builders, outfitters, and marine surveyors. The second part of the initiative sought to promote crew safety through a safety guide which was developed by the Coast Guard and North Pacific Fishing Vessel Owners' Association (NPFVOA). The NPFVOA was developing a strong safety culture stemming from the 1983 loss of the A-boats. The safety initiative became part of the Coast Guard Marine Safety Program in January 1987.

Limited Standards for Fish Processor and Tender Vessel in 1984. The House Merchant Marine and Fisheries Committee's Subcommittee on Coast Guard and Navigation held a series of hearings on marine safety in 1984. During one of the sessions, the Committee heard testimony on fishing vessel safety from three individuals representing very different points of view: a marine safety consultant testified for the need to establish a comprehensive program for fishing vessel safety in the Coast Guard's Office of Marine Safety; a representative of the National Federation of Fishermen spoke in opposition to any mandatory standards for commercial fishing vessels, preferring to leave safety to the voluntary efforts of industry organizations; and a representative of the Pacific Seafood Processors Association, testified against requirements that fish

processors less than 5,000 gross tons and fish tenders less than 500 gross tons be inspected, preferring amendments to permit their continued operation as "uninspected vessels."

Congress amended the 46 USC by: 1) defining fishing, fish tender, and fish processing vessels; 2) exempting fish tender vessels less then 500 gross tons, and fish processing vessels less than 5,000 gross tons from inspection; and 3) adopting a new Chapter 45 to set forth requirements for "Fish Processing Vessels." Other statutes were amended to clarify the licensing and manning requirements for fish processing vessels.

Insurance Crisis Hearings in 1984. During the 1980's, a crisis in insurance availability was felt throughout the nation, but particularly in the commercial fishing industry. The fishing industry's poor safety record brought about a situation where many fishers could not obtain insurance, or, when available, could not afford to pay the premiums. In 1984, the Merchant Marine and Fisheries Committee began hearings on the availability and cost of insurance for commercial fishing vessels. The insurance industry cited as a major cost factor the special treatment afforded seafarers by the Unseaworthiness Doctrine under Admiralty Law, and the Jones Act (46 USC 688), which permits an injured seafarer the right to a jury trial. As a result of those field hearings, members of Congress began to develop legislative proposals addressing liability and insurance issues. But a notable tragedy accelerated the debate and the prospect of the nation's first fishing safety legislation.

Loss of *F/V Western Sea in 1985.* In August, the seventy-year-old purse-seiner *Western Sea* departed Kodiak, Alaska with a six-man crew to fish for salmon. There were no reports that the vessel was in trouble until fishermen recovered the body of crewmember Peter Barry from the sea. An intensive search by Coast Guard cutters and aircraft failed to locate any survivors. This tragedy had a profound effect not only on the families of those lost but also on the drive to improve fishing vessel safety. After the death of their son, Ambassador Robert Barry and Peggy Barry worked to galvanize safety advocates, government officials, Congress, and survivors and loved ones of other commercial fishermen lost at sea, to renew the campaign for Congressionally mandated safety standards.

Legislative Effort in 1986. Three bills (H.R. 4407, H.R. 4415 and H.R. 4465) were introduced in Congress in 1986 to address fishing vessel insurance and liability issues. Congressman Studds' bill was exceptional in its demands. It included mandatory standards for carriage of certain lifesaving equipment [emergency position indicating radio beacon (EPIRB), liferafts, and immersion suits] on commercial fishing vessels. In April 1986, three subcommittees of the House Merchant Marine and Fisheries Committee held hearings on these bills. At that time, it was the Coast Guard's position that "a voluntary program would be as effective as regulations, with little difference in cost to the fishermen, much less costly to the Government, and would achieve the desired results much more rapidly."

A compromise bill, "The Commercial Fishing Vessel Liability and Safety Act" (H.R. 5013), was reported to the House by the Committee. H.R. 5013 limited the liability of fishing vessel owners to a maximum of $500,000 in cases of permanent injury, except where there was gross negligence or willful misconduct. It also required additional

lifesaving equipment on fishing vessels, including visual distress signals, EPIRBs, liferafts, immersion suits, and radio equipment. The American Trial Lawyers Association strongly opposed any limit on liability, and on 13 August 1986, after the Association's intense lobbying effort, H.R. 5013 was defeated in the House. The defeat of this legislation placed added emphasis and urgency on the Coast Guard's voluntary safety initiative, and sparked the development of new bills for introduction in the next Congress.

Fishing Vessel Safety Standards at Last...with Limitations. In March 1987, two bills were introduced in the House dealing with fishing vessel safety and insurance liability. H.R. 1836, developed at the urging of Robert and Peggy Barry, dealt specifically with inspection, equipment requirements, licensing and training. H.R. 1841 addressed liability and safety, but did not propose inspection or licensing. Hearings were held in June on these bills, and on the companion Senate bill S.849 in September and December. During House testimony, the Program Manager of the Coast Guard Fishing Vessel Safety Initiative Task Force stated "the Coast Guard can support consideration for safety management in H.R. 1841, the stability criteria that is recommended by both bills and the record keeping by the insurance companies." At that time the Coast Guard did not "fully support or cannot support inspection, licensing, termination (of unsafe voyage), and the proposed advisory committee."

In September 1987, the National Transportation Safety Board (NTSB) published a comprehensive study on "Uninspected Commercial Fishing Vessels" (NTSB/SS-87/02). The NTSB added needed support for the passage of safety legislation by testifying at both hearings. Its recommendations included: safety training; basic lifesaving equipment including exposure suits, approved liferafts, emergency radios, and EPIRBs; flooding detection; dewatering systems; fire detection; fixed firefighting systems; periodic inspection; prohibition of alcohol or drug use when engaged in commercial fishing operations; and the need for research on stability issues.

The House Committee met again in April 1988 to consider a modified version of H.R. 1841. The revised bill had been separated into Title I containing liability and compensation issues, and Title II containing the safety issues. Efforts to reach an agreement on the provisions of Title I were unsuccessful, and liability provisions were dropped. Title II required lifesaving and fire fighting equipment to be placed on board all fishing vessels with added requirements, such as immersion suits and EPIRBs, for documented vessels operating seaward of the boundary line that differentiates between the use of international and domestic navigation rules. It also required that fish processing vessels meet the standards of the American Bureau of Shipping or similar organizations; that a study be conducted by the National Academy of Engineering (National Research Council) on the safety problems of fishing industry vessels and the need for inspections; that Coast Guard develop a licensing plan; and that a fishing industry advisory committee be established. The bill, as amended, was passed by Congress.

On 9 September 1988, the President signed into law the **Commercial Fishing Industry Vessel Safety Act of 1988 (P.L.100-424)**, the first safety legislation enacted in the United States applying specifically to commercial fishing vessels.

2.4 Key Events Since the Act of 1988

Fishing Industry Advisory Committee in 1988. The Commercial Fishing Industry Vessel Advisory Committee (Advisory Committee) was formed, and first met at the Department of Transportation, Washington, D.C., in April 1989.

Regulations Published in 1991. Following a six-month comment period and thirteen public hearings, the Coast Guard published Commercial Fishing Industry Vessel Regulations (46 CFR 28) on 14 August 1991. These rules became effective on 15 September 1991.

An overwhelming number of comments received addressed a few contentious issues, including stability requirements for vessels under 79 feet, survival craft on vessels operating inside or near the boundary line with fewer than four individuals on board, and administrative exemptions. As a result, these items were removed from the final rule, and the Coast Guard published a notice of supplemental rulemaking indicating these items would be addressed separately. The remainder of the rulemaking proceeded forward without delay, but the requirement for immersion suits for documented and state numbered vessels operating in seasonably cold waters was removed after the final rule was published because of considerable confusion over its application. A new workplan is currently being developed to address the remaining provisions of the Commercial Fishing Industry Vessel Safety Act (CFIVSA) that do not have implementing regulations.

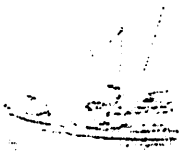
The Study of Fishing Vessel Safety Published. As mandated by the CFIVSA, the Secretary of Transportation arranged for the National Research Council (NRC) of the National Academies of Science and Engineering to conduct a comprehensive study on fishing vessel safety, including the need for vessel inspections. This report *"Fishing Vessel Safety, Blueprint for a National Program"* was published in 1991. On 12 November 1992, based on recommendations in the NRC report, the Secretary submitted a "Report to Congress for the Inspection of Commercial Industry Vessels." The report recommended a three-tiered inspection program for commercial fishing vessels compliance with the mandated standards in 46 CFR 28:

1. For new and existing vessels, less than 50 feet in length, it allowed for self-examination.
2. For new and existing vessels, greater than or equal to 50 feet but less than 79 feet in length, it allowed for third party examination.
3. For vessels greater than or equal to 79 feet in length, more extensive Coast Guard inspection and load line assignment would be required. Additional hull and machinery standards would apply to new vessels.

Licensing Plan of 1992. On 13 January 1992 the Coast Guard submitted "A Plan for Licensing Operators of Uninspected Federally Documented Commercial Fishing Industry Vessels" to Congress. The plan allowed a five-year implementation period, and for the first time permitted third-party training certification, rather than a Coast Guard examination, to demonstrate the required professional knowledge and skill levels for a license. The plan was to establish two new licenses; Master of fishing vessels less than 79 feet, and Master of fishing vessels less than 200 gross tons. Eligibility requirements

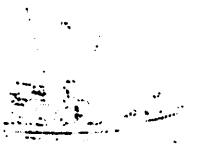
included age, character, experience, physical fitness, citizenship, recency of service and English language ability. On 24 May 1993 a revised plan was submitted based on proposals by a joint Coast Guard and Advisory Committee working group.

These plans on licensing and inspection were not implemented. Several other efforts to obtain the necessary budget, resources, and authority were also unsuccessful. The Coast Guard requested licensing authority again in its FY96 Authorization Act, but Congress denied the authority based on the estimated $1 million in costs and increased burden on a depressed fishing industry.



Section Three

Comparison of Standards



"While no vessel can ever be regarded as unsinkable, it should be capable of absorbing a number of errors and misfortunes before there is danger of sinking."

Statement of the Royal Institution of Naval Architects. Seatrader Review, December 1997, page 7

Main Points. Few standards, primarily concerning survival equipment, apply to the domestic commercial fishing fleet. The small impact of these standards is accentuated when compared to other domestic commercial fleets and international standards. Standards for domestic fishing vessels are all the more insignificant when the degree of operational risk is considered. The paradox is that our domestic commercial fishing industry has the fewest standards to maintain while possessing the highest risk for marine casualties.

3.1 Comparison of Mandatory Standards

This section describes a qualitative comparison among standards for small and large commercial fishing vessels, those of other domestic vessel types, and international fishing vessel standards. The subjects and regulatory standards chosen for this comparison are:

1) Uninspected Passenger Vessel Standards (46 CFR Subchapter "C")
2) Towing Vessel Standards, less than 300 GT (46 CFR Subchapter "C")
3) International Fishing Vessel Standards (Torremolinos Convention)
4) Small Passenger Vessel Standards (46 CFR Subchapter "T")

Since the Torremolinos Convention only applies to commercial fishing vessels greater than 79 feet, it should only be directly compared to the regulations for vessels greater than 79 feet. The Torremolinos Convention is not yet ratified. However, many nations with significant fishing fleets impose higher standards than the United States imposes on its vessels.

The regimes of mandatory standards are broadly categorized to simplify the comparison of detailed regulations. Each regulation category is weighted to represent the comprehensiveness of the set of regulations. Table 3-1 tabulates the weighting factors for each set of regulations. The category for fishing vessels greater than 79 feet excludes the

few vessels that are fishing processors, fishing tenders or over 200 net tons. Note that ıe amount of improvement in safety that would result from the application of the most comprehensive regulations in a particular regulation category cannot be inferred from this qualitative comparison.

Table 3-1. Weight of Mandatory Standards by Vessel Type

Regulations	Fishing Vessels < 79' < 16 POB	Uninspected Passenger Vessels	Towing Vessels < 300 GT	Fishing Vessels ≥79' < 16 POB	International Convention (Torremolinos)	Small Passenger Vessels
Drug Testing	0	3	3	0	0	3
Machinery & Electrical Installations	1	1	1	1	2	3
Fire Protection Equipment	2	2	2	2	3	3
Lifesaving Equipment & Arrangements	3	1	2	3	3	3
Stability & Seaworthiness	0	0	0	2[3]	3	3
Construction & Arrangements	0	0	0	0	3	3
Licensing	0	2	2	0	1	3
Inspection / Examination	1[2]	1[1]	0	1	3	3
Total	7	10	10	9	18	24

Weighting Factors:
0 No Standards
1 → 3 Least Comprehensive → Most Comprehensive

[1] Voluntary; Courtesy Marine Exam
[2] Voluntary, Voluntary Dockside Exam
[3] Only for new/converted since 1991
POB: Persons On Board

Explanation of Weighting Factors

- Drug Testing (46 CFR 16)
  This is an "all-or-nothing" category. Drug testing programs are required on vessels that must be operated by an individual licensed by the Coast Guard.
- Machinery & Electrical Installations (46 CFR 25.35, 46 CFR 25.45, 46 CFR 182, 183)
  Subchapter "T" small passenger vessels have thorough mandatory standards for this category, while the other vessel types have only limited requirements.
- Fire Protection Equipment (46 CFR 25.30; 46 CFR 181)
  Subchapter "T" boats have mandatory standards for built-in and portable fire extinguishing systems, while the other three vessel types require only portable fire extinguishers.
- Lifesaving Equipment & Arrangements (46 CFR 25.25; 46 CFR 180)
  Fishing vessels and Subchapter "T" small passenger vessels have regulations for this category that include emergency position indicator radio beacons (EPIRBs), life rafts, and survival suits. Uninspected passenger vessels have lifesaving equipment regulations, but do not require EPIRBs, or life rafts. Towing vessels are similar to uninspected passenger vessels, but include EPIRBs.
- Stability & Seaworthiness; Construction & Arrangements (46 CFR 177 - 179)
  Of the vessel types studied, the only regulations under these categories are found for Subchapter "T" boats and fishing vessels larger than 79 feet built or converted after 1991.

- Licensing (46 U.S.C.A § 7101)
  While uninspected passenger vessels and towing vessels have licensing requirements, the process of obtaining a license is not as thorough as it is for Subchapter "T" boats. Domestic fishing vessels do not have licensing regulations.
- Inspection / Examination (46 CFR 176; 33 CFR Subchapter S; Coast Guard Commandant Instruction 16711.13)
  Although commercial fishing vessels and uninspected passenger vessels are not inspected, a limited scope voluntary exam is available.

3.2 Operational Risk Relative to Standards

The mandatory standards for these different types of vessels cannot be compared directly, since their operations and characteristics are very different. A "dam analogy" is used to normalize the "quality" of operational weighted risks and standards to allow direct comparison.

Standards are written to ensure an adequate level of safety for people and the environment based on the operational risk of a vessel. Therefore, to judge the "quality" of a set of standards they must be weighed against the level of operational risk for which they were designed. The "dam analogy" illustrates this balance. Diagrams of this analogy for each regime of mandatory standards are found in Figures 3-1 through 3-6.

Operational Risk. The water represents the level of operational risk of the vessel type. Risk is quantitatively defined as (Probability x Consequence). The operational risk, therefore, is composed of two parts:

Consequence of Loss: The impact on the environment, property, or the injury or loss of human life that will result from a casualty (note: passengers are traditionally considered to have a higher consequence than crew).

Operating Conditions: The weather conditions under which the vessel normally operates, and the hazards associated with the nature of its work. This is correlated to the probability that a casualty will occur.

The combination of these two variables defines the height of the water and the operational risk of the vessel type. For example, although small passenger vessels usually operate in fair weather with consistent loading conditions and operations (operating conditions), the large number of passengers they carry results in a high consequence if the vessels are lost (consequence of loss). Commercial fishing vessels only carry a small crew; however, the probability of a casualty is much greater due to the range of weather conditions they encounter, variable loading conditions, and open holds and cargo handling while at sea.

Standards. The dam is composed of blocks representing each regulation category listed in Table 3-1. The size or existence of the block is based on the weighting factors listed in the Table 3-1's columns.

The figures clearly illustrate the relative insignificance of existing mandatory standards for domestic fishing vessels, especially relative to operational risk.

Figure 3-1.
Commercial Fishing Vessels
< 79 ft ; < 16 POB

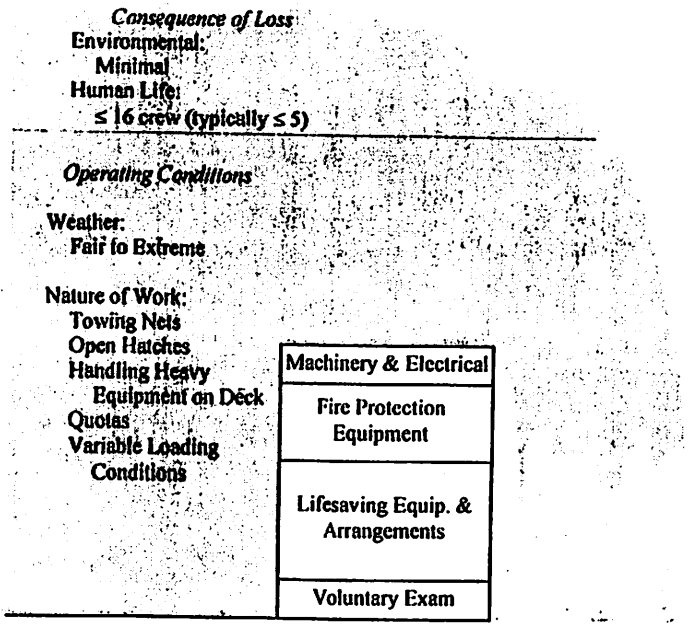


Figure 3-2.
Uninspected Passenger Vessels

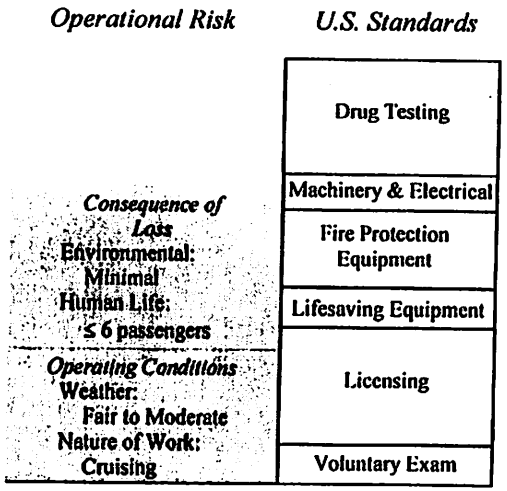


Figure 3-3.
Towing Vessels < 300 GT

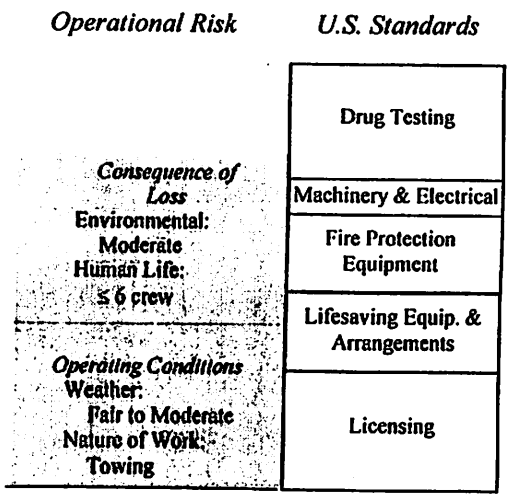


Figure 3-4.
Commercial Fishing Vessels
≥ 79 ft ; < 16 POB; Built after September 1991

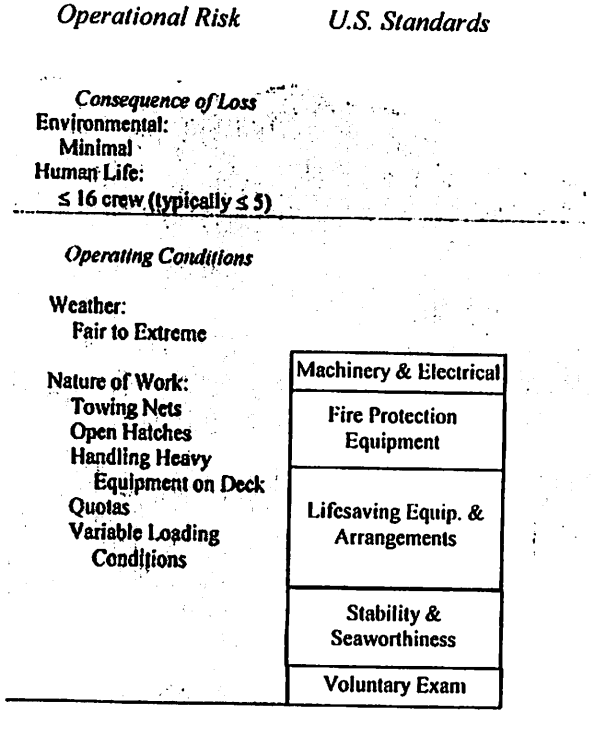


Figure 3-5.
Commercial Fishing Vessels
≥ 79 ft

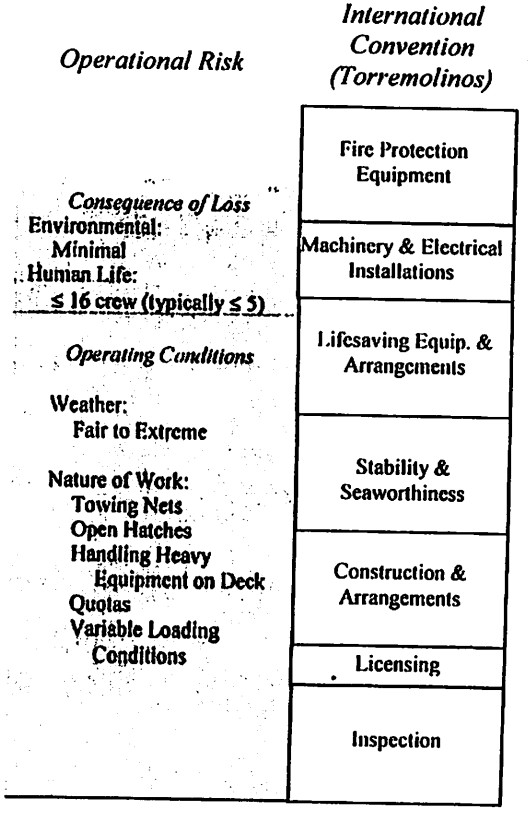
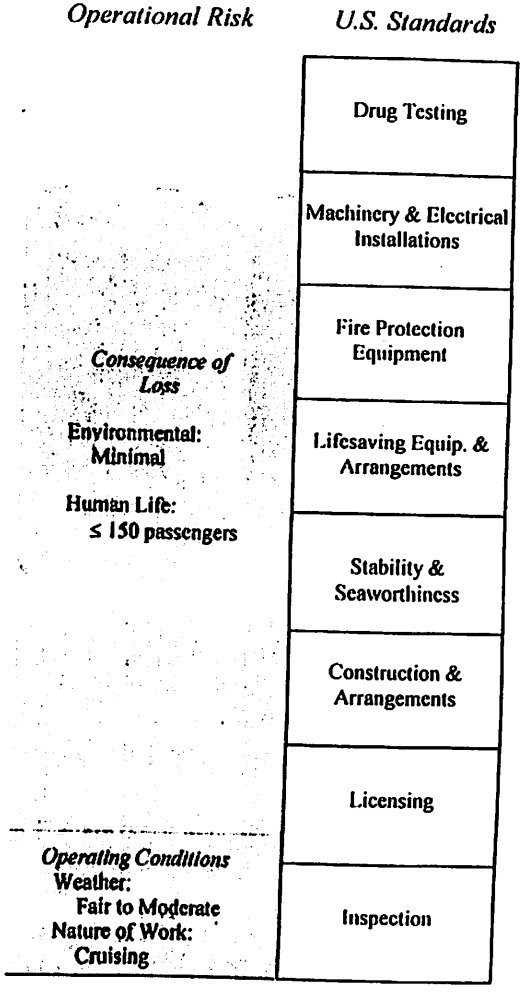


Figure 3-6.
Small Passenger Vessels



Blank Page

Section Four

Casualty Data

The accident rarely has a single overwhelming cause. Usually there are a number of elements, none necessarily of outstanding significance in isolation, whose combination proves fatal.

Seatrade Review, December 1994, p. 9

Main Points. On a national scale, the rash of fishing vessel losses and deaths during December 1998 and January 1999 is not unusual, nor are the causes types or causes of casualties unusual. Data shows that fishermen continue to be among the most dangerous occupations, having far higher fatality rates than fire fighters, police offices, and truck, taxi, and delivery drivers. In the great majority of fishing industry cases where causes can be determined, the casualties are preventable. Analysis of the numbers of casualties makes it appear the post-1988 Fishing Vessel Safety Act vessel losses and deaths are about 20% less than pre-1988 Act losses. However, the most serious deficiency in casualty statistics is the lack of total population data to normalize counts of casualties relative to the whole population, hours underway, total fish landed, or some other more suitable number. The bottom line is that casualty rates remain very high.

4.1 Approach

Data from recent fishing vessel casualties and historical data was reviewed to determine how recent casualties compare with other fishing vessel casualty trends since 1994. A review of Coast Guard Search and Rescue (SAR) data, data from the National Institute for Occupational Safety and Health (NIOSH), and data from the Bureau of Labor Statistics (BLS) were used to develop and confirm conclusions. An overview of the data in this section was presented at the workshop attended by Task Force members and industry advisors.

Data analysis was performed in five steps:

1. Acquire detailed information pertaining to the four shellfish vessel casualties. Identify other fishing vessel sinkings during December 1998 and January 1999.
2. Process and summarize basic information from the cases identified in step 1.
3. Compare historical fishing vessel casualty data from a period before the Act of 1988 implementation to a similar period following implementation.

4. Develop preliminary findings to stimulate the Task Force and their industry advisors in discussing and developing recommendations.
5. Review SAR data and costs associated with rescue efforts. Review NIOSH and BLS data.

4.2 Recent Fishing Vessel Casualties

The spate of clam and conch fishing vessel losses that occurred between 28 December 1998 and 18 January 1999 (the *Predator, Beth Dee Bob, Cape Fear,* and *Adriatic*) was the impetus for establishing the Task Force. To better analyze the nature of recent vessel casualties, case logs and reports were reviewed, and fishing vessel casualties meeting the following criteria were selected:

- engaging in commercial fishing (excluding sinkings at dock),
- occurring between 01 December 1998 and 31 January 1999, and,
- resulting in total loss of the vessel.

This filtering yielded in 20 cases. This sample represents a small fraction of the fishing vessels suffering casualties or fishermen being injured nationwide during this period.

Preliminary case information was sought from Coast Guard units investigating each of the 20 casualties. The intent was to develop as much information as possible, in a very short period. The survey allowed recent casualties to be reviewed relative to historical data, and to determine if the recent casualties represented a statistical anomaly or a significant shift in casualty trends.

The investigations of the twenty casualties are ongoing as this report is being completed. Three of the casualties described in more detail later are undergoing formal investigations and will not be complete for some time.

Overview of Recent Fishing Vessel Casualties. The 20 casualties this report covers are a sample of the serious recent vessel casualties. They show great diversity in all aspects: fishing type, hull material, vessel age, etc., and they stimulated ideas for identifying problems, solutions, and recommendations. This casualty information was presented at the Task Force Workshop.

Figure 4-1 summarizes characteristics of the 20 vessels and Figure 4-2 is a casualty synopsis. Since several vessels sank without survivors or were state-registered vessels, some information is unknown.

The preliminary findings from these 20 casualties show:

- ignoring stability issues,
- lack of preparation to use lifesaving equipment, and,
- poor maintenance of vessel and equipment.

Fishing Vessel Sinkings from 1 December 1998 to 31 January 1999.

Figure 4-1. Fishing Vessel Particulars

Vessel Name	Fishing Type	Gross Tons	Net Tons	Length (feet)	Breath (feet)	Depth (feet)	Hull Material	Year Built
CHIP AHOY!	Lobster			35.0			FRP	
CONQUEST		12	10	30.5	10.3	5.2	FRP	1972
LINDA E	Gilnetter	29	20	39.8	13.0	5.7	Steel	1937
CAPT. J. V.	Trawler	21	18	37.5	16.6	3.8	Wood	1978
CURRENT	Longliner	30	24	41.0	14.0	8.0	FRP	1993
SEA BUM	Live Fish							
LOVELY DAY	Live Fish							
KIM LENG	Shrimper			45.0				
CF8872JF	Dory Vessel			18.0				
BUTT UGLY								
PREDATOR	Conch	14	10	33.4	13.2	5.6	Wood	1979
BO-NITA	Shrimper	41	33	49.0	17.0	7.5	FRP	1990
BETH DEE BOB	Clammer	96	65	84.3	26.0	7.2	Steel	1990
CAPE FEAR	Clammer	188	127	105.0	24.0	13.5	Steel	1983
RAKE		11	10	38.0	12.7	3.4	Wood	1961
ADRIATIC	Clammer	134	95	74.1	22.0	11.2	Steel	1977
ELLIE B	Clammer	66	57	60.8	19.5	7.8	Wood	1978
NOWITNA	Crabber	198	134	124.9	30.2	9.8	Steel	1942
KAVKAZ		15	11	35.8	11.0	6.2	FRP	1976
ATLANTOS	Longliner	25	20	37.8	11.2	8.6	FRP	1982

Figure 4-2. Fishing Vessel Casualty Information

Vessel Name	Incident Date	Aprx Time	USCG Invest Port	No. Dead	Major Issues And Comments
CHIP AHOY!	02-Dec-98	1200	Bangor, ME	0	Load shift & capsized while dragging.
CONQUEST	08-Dec-98	0711	San Francisco, CA	0	25-ft. wave struck & capsized vessel.
LINDA E	11-Dec-98	0930	Milwaukee, WI	3	Missing vessel.
CAPT. J. V.	15-Dec-98	1000	Morgan City, LA	0	Struck submerged object.
CURRENT	15-Dec-98	1230	Kenai, AK	1	High center of gravity. Capsized.
SEA BUM	16-Dec-98	1900	Santa Barbara, CA	1	Anchor line wrapped around prop.
LOVELY DAY	17-Dec-98	0725	San Francisco, CA	2	Storm, vessel hit rocky coastline.
KIM LENG	20-Dec-98	0430	New Orleans, LA	0	Ran into unlit platform.
CF8872JF	20-Dec-98	0720	Los Angeles, CA	1	Dislodged cork plug.
BUTT UGLY	22-Dec-98	1025	San Francisco, CA	0	Line caught in prop, waves over stern.
PREDATOR	28-Dec-98	1130	Hampton Roads, VA	1	Overloaded. 113 conch pots o/b.
RAKE	02-Jan-99	1621	Tampa, FL	0	Unknown.
BO-NITA	05-Jan-99	0643	Savannah, GA	0	Problem with seachest suction.
BETH DEE BOB	07-Jan-99	1750	Philadelphia, PA	4	Stability issues.
CAPE FEAR	08-Jan-99	2115	Providence, RI	2	Stability, down flooding, w/t integrity.
ADRIATIC	18-Jan-99	1500	Philadelphia, PA	4	Stability issues.
ELLIE B	18-Jan-99	0600	Philadelphia, PA	0	Capt fell asleep. 896 clam bushels o/b.
NOWITNA	25-Jan-99		Anchorage, AK	0	Stability issues.
KAVKAZ	30-Jan-99	1700	Anchorage, AK	2	Icing on vessel affected stability.
ATLANTOS	30-Jan-99	1900	Anchorage, AK	0	Down flooding. Watertight integrity.

Four 1998-99 Clam and Conch Fishing Vessel Casualties were the impetus for chartering this Task Force. The investigations are not yet closed; therefore, incident facts here must be viewed as preliminary. In retrospect, each casualty appears to have been preventable through a combination of eliminating latent conditions that caused flooding, training to respond to emergencies, and the using of survival equipment.

(1) ***F/V Predator.*** **Sinking, 28 December 1998, one dead, one survivor.**

F/V Predator was returning to Ocean City, MD with 113 loaded conch pots stowed aft, each weighing 40 pounds. The Captain noticed water on the deck and slowed the vessel's speed to find the source. Water came over the stern, swamping the well deck within 45 seconds. The vessel remained afloat with 4-5 feet of the bow above the water. The Captain managed to issue a distress call but his radio was not set on a distress frequency. The life raft deployed hours later and both men swam to it. The Captain died of hypothermia overnight. The vessel was not reported overdue until 0830 the next day.

Preliminary Findings:

- The operator had his radio set to Channel 10, a working frequency, vice Channel 16 the distress radio frequency, and in his haste to scramble to safety on the bow had only enough time to say "Mayday" once.
- The immersion suits were inaccessible. Two persons were able to break the boat's plexiglas windows and retrieve lifejackets, but not the immersion suits that, if donned, would have prolonged the onset of hypothermia.
- The life raft and emergency radio beacon (EPIRB) were atop the pilothouse. Because the boat assumed a stern down attitude with 4-5 feet of the bow above water, the hydrostatic pressure was insufficient to release either device.
- The EPIRB was registered under the vessel's former name. The operator never re-registered the EPIRB when he bought the boat. Therefore, potentially vital information would not have been available to rescuers even if the signal was transmitted. Tests of the EPIRB showed it worked properly, but the canister and hydrostatic release were not recovered for testing.
- A crewmember attempted to free the life raft in the first few seconds by pulling on the straps. He was able to get only one strap off. He did not know he could release the raft by pulling the sea painter (a rope attached to the raft). The raft later deployed, most likely after the other strap gave way.

The preliminary findings point to an overriding problem - training. All the equipment in the world will not save fishermen's lives if they do not take the time to learn how to respond to emergencies. These two people had less than a minute to scramble to the vessel's bow. A common thread in many fishing vessel losses is the suddenness with which they sink. Either there is a significant situational awareness problem or the problems develop so fast there is little time to respond.

(2) ***F/V Beth Dee Bob*. Sinking, 6 January 1999, loss of four lives, no survivors.**

The F/V Beth Dee Bob left Point Pleasant, NJ for a 24 hour trip to dredge for ocean quahogs. After an uneventful trip, the vessel was returning home when the seas grew rough and the 84-foot vessel foundered and sank approximately 13 miles off Manasquan, NJ. The Coast Guard received a distress call at around 0540 local time, saying the vessel was taking on water. The sister ship *Danielle Maria*, two Coast Guard vessels, and a USCG helicopter raced to the location pinpointed by satellite receivers. An hour later, a crewmember was found by the helicopter floating in a life preserver, holding a strobe light and bobbing in a 39 degree heaving sea. He was airlifted to Jersey Medical where he died. Two empty rafts were found. The *Beth Dee Bob* sunk before help could arrive.

Preliminary Finding:

- A former Captain of the *Beth Dee Bob* stated he believed the vessel's stability letter did not serve its purpose. He knew the vessel had a stability letter, but never bothered to read it because he "knows better how the vessel should be loaded." He further stated "the more water in the hold, the better she rode - as long as you kept her on an even keel" and "the hatch covers were only to protect the clams from the sun and heat; after all, many boats have no hatches at all!" While the *Beth Dee Bob*'s stability letter seems to be very clearly written, there are indications that the only information of concern to the crew was the maximum number of full cages of clams.

(3) ***F/V Cape Fear*. Sinking, 8 January 1999, loss of two lives, three survivors.**

The *F/V Misty Dawn* reported the *F/V Cape Fear* was taking on water with five persons on board off of New Bedford, MA. Approximately 20 minutes before sinking, the *Cape Fear* Captain called the *Misty Dawn* and reported they "took two good ones," implying two hard waves or rolls. Later, the *Cape Fear* reported they were having "a problem" and asked the *Misty Dawn* to check on them when they got a chance. When the *Misty Dawn* called back the *Cape Fear* reported there was water everywhere and asked the *Misty Dawn* to call the Coast Guard. The *Misty Dawn* rescued three crewmembers.

The *Cape Fear* was laden with clams as she was returning to New Bedford. The vessel's Captain testified that the three deckhands were talking in the pilothouse, with "not a care in the world" when they initially noticed the stern was sinking. The vessel was operating with less than 18 inches of freeboard, fully loaded, and taking water over the stern while a port aft hatch cover was open approximately 6 inches. The weather was 6-10 foot seas, 25-30 knot winds, with rain and sleet.

Preliminary Findings:

- Vessel loaded with 130 cages of clams at 32 bushels per cages - 10 more cages than specified in its Stability Manual.
- Survivors testified emergency drills were only discussed, not performed as if an actual emergency. Crew did not have any training other than CPR. Drills were not logged.

- The clam tank hatches were not maintained in a watertight condition.
- The port aft clam hatch was open approximately 6 inches.
- The vessel sank within 5 minutes of when the crew noticed water had stopped shedding off deck at the aft clam tank.
- Two survival suit zippers (worn by the deceased members) were difficult to pull up. Only 1 of 5 survival suit lights worked and one suit (on a deceased crewman) did not have enough reflective tape.
- Divers found the EPIRB in the galley tethered to the EPIRB bracket. There was no time to manually deploy the liferaft; however, the hydrostatic release worked and the raft did deploy at some later time.
- The *F/V Misty Dawn* rescued the master, mate and one deckhand. These survivors had been in water approximately 30 minutes. One crewman remains missing; he was last seen with his survival suit half donned. The body of the other crewman was found the next morning washed ashore with his survival suit zipped-up to the waist only.

(4) ***F/V Adriatic.*** **Sinking, 18 January 1999, loss of four lives, no survivors.**

On 18 January 1999, Coast Guard Station Atlantic City, NJ received a call from a worker at Barney's Dock in Atlantic City reporting *F/V Adriatic* was overdue from a fishing trip. Two Coast Guard HH-65A Dolphin helicopters from Air Station Atlantic City and a 47-foot motor lifeboat from Station Barnegat, NJ, searched the area. The Coast Guard recovered a life ring with the name *F/V Adriatic* stenciled on it, and an unmarked survival suit six miles off shore. *F/V Adriatic* was located sunk about nine miles due east of Barnegat Light, NJ. No survivors were found; two bodies were later recovered in the vessel and two crewmembers are missing.

F/V Adriatic sent out a distress call but it was too garbled to understand, delaying a search that might have saved all four crewmembers.

Preliminary Findings:

- Vessel sank quickly in heavy weather with a full load of clams.
- Unintelligible "Mayday" call was picked up by rescue units, but units were unable to ascertain vessel's position or name.
- The video of vessel's exterior shows no evidence of hull fractures or failure. Video from the engine room reveals evidence of maintenance problems with the main sea suction valve and clam pump piping. The valve stem of the main sea suction valve was broken off, and a flange of 10" sea suction line was missing two bolts with two additional bolts loose. The sea suction valve was held in a fully open position with a pulling device called a come-along. There was no ability to close the main sea suction valve, and there was an approximately 1 inch gap in the flange.

- The EPIRB transmitted a signal, but did not deploy and float to the surface. A pin in the hydro release had not been replaced in accordance with the manufacturer's recommendation.
- The liferaft was initially caught in the railing of the vessel and was still attached to the sea painter and in the casing. Approximately six days after the casualty, the raft was found fully inflated after it washed ashore and was recovered by Station Barnegat.
- A sister vessel's stability analysis puts the maximum load at 30 cages of clams which was the amount being carried at time of casualty.
- There is no record of any members of crew having participated in safety training given by various entities in Mid Atlantic Marine Safety Association.
- Marijuana was found in a pocket of a deceased crewmember and a bong found in personal articles, but autopsies revealed no evidence of drug or alcohol influence.

4.3 Historical Overview of Fishing Vessel Casualties

This overview will focus on deaths on fishing vessels and total losses of fishing vessels. In both categories, the casualty will be counted only if the vessel was engaged in fishing at the time of the casualty, including transits between fishing location and the port. It does not include fishing vessel losses that occurred while moored or when the vessel was used for recreational purposes. It also does not include deaths from natural causes, e.g., heart attacks. This section also compares casualties that occurred prior to and after the Fishing Vessel Safety Act of 1988. Population data or other suitable information to reliably normalize the count of casualties (e.g., vessel losses per 100,000 operating hours) is a continued shortfall. Analysis of the numbers of casualties makes it appear the post-1988 Fishing Vessel Safety Act vessel losses and deaths are about 20% less than pre-1988 Act losses. However, the most serious deficiency in casualty statistics is the lack of total population data to normalize counts of casualties relative to the whole population, hours underway, total fish landed, or some other more suitable number. Depending upon the source, estimates of the number of workers in the fishing vessel industry range from 45,000 to 125,000. Part of the problem may rest with the fact that many fishermen fish part-time or seasonally. These numbers should be equated to full-time jobs. The bottom line is that casualty rates remain very high.

Regardless of how the data is displayed, the fatality rate within the fishing industry continues to be among the highest of all occupations. In 1995, there were 74 fishing vessel deaths in the fishing vessel industry. Assuming a population of 47,000 workers, this translates to a rate of over 160 deaths per 100,000 workers. Second that year were sailors and deckhands on other class of vessels at 115, and timber cutting and logging occupations was third at 101. The death rate for fishermen remained high at 181 in 1996, 134 in 1997, and preliminary data shows there were 179 for 1998. In 1996, fishermen death rates were 16 times higher than the protective service occupations such a fire

fighting, police and detectives, which was 11.3 fatalities per 100,000 employed, and almost 8 times higher than persons operating motor vehicles for a living at 22.7.

Workforce figures used above are based upon the U.S. Department of Labor Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries. Fishing vessel deaths came from a detailed analysis of deaths recorded in the Coast Guard's Marine Safety Information System. Together with BLS population data, the death rate per 100,000 workers was calculated. The Coast Guard's 1997 Business Plan recognizes significant problems with the worker population data by stating "since 1993, BLS population estimates have fluctuated dramatically from year to year, between 22 and 24 percent. Consultations with BLS statisticians indicate substantial estimating error exists in certain worker population estimates, particularly the fishing industry." The 1997 Coast Guard Business Plan estimates were indexed to a 1987 National Marine Fishery Service survey. Using the BLS figures in the 1997 Coast Guard Business Plan, death rates in the fishing vessel industry would be approximately one-half the rates shown above, still very high.

In order to make fatality statistics as accurate as possible, the Fishing Vessel Task force examined several different sources to identify fishing vessel deaths. As a result, additional deaths were identified that were not previously included in other reports. For example, a death previously attributed to a passenger vessel, upon further research, was found to be a fishing vessel death. Thus, the 66 deaths reported in the 1997 Coast Guard Marine Safety Business Plan increased to 74.

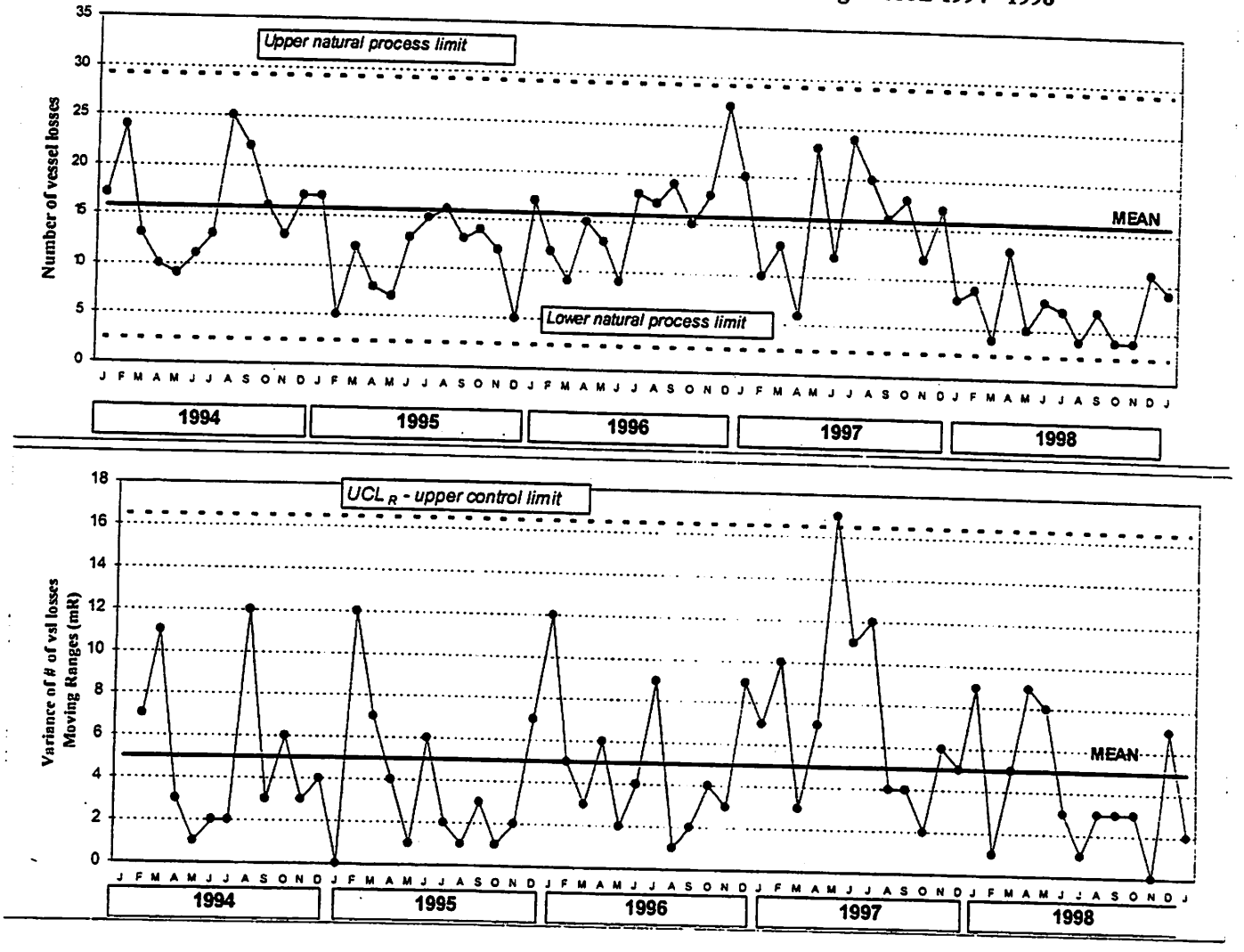
Control Charts. The control chart is a graphical and statistical tool that will test a process against the average and standard deviation of its theoretical distribution. It flags points that are "out of control," or beyond the predictable variability of the process. Control chart theory establishes three standard deviations as the limit beyond which a point is "out of control." The process here is the system that produces fishing casualties including Coast Guard policies, industry or company policies, economic fluctuations, and the extent of latent conditions and failed defenses that caused the casualties. When the process is determined to be "out of control," examination of all these factors under the total umbrella of the fishing vessel industry is needed to find the cause. Without normalizing the data, factors such as broadly declining operating hours due to fishery management restrictions will adversely influence the display.

Control charting can help explore and measure maritime community, public and private, marine safety process performance. In looking at a control chart, a process is considered out of control when a data point falls outside the natural process control limits. Also, a process is in trouble when five or more data points fall above or below the mean or average. The value of control charting is in its ability to test central tendency and natural variability of the processes within its normal state, and alert program managers to changes and conditions that require attention.

Figure 4-3 is a control chart. The top chart depicts the view of the variation of individual values as it relates to the upper and lower control limits that bound its natural process and is called an X-Chart. The bottom chart depicts the variation in the range between

consecutive values shown in the X-Chart as it relates to its upper control limit and is called a moving range chart or R-Chart. The X-Chart and R-Chart in this scenario are depicting a time series view of fishing vessel total losses and differences in losses from month to month (ranges) between 1994 and 1998. Any points that fall outside the limits are considered "out of control" and should be investigated. The mean and control limits were derived using 1994 as the base year.

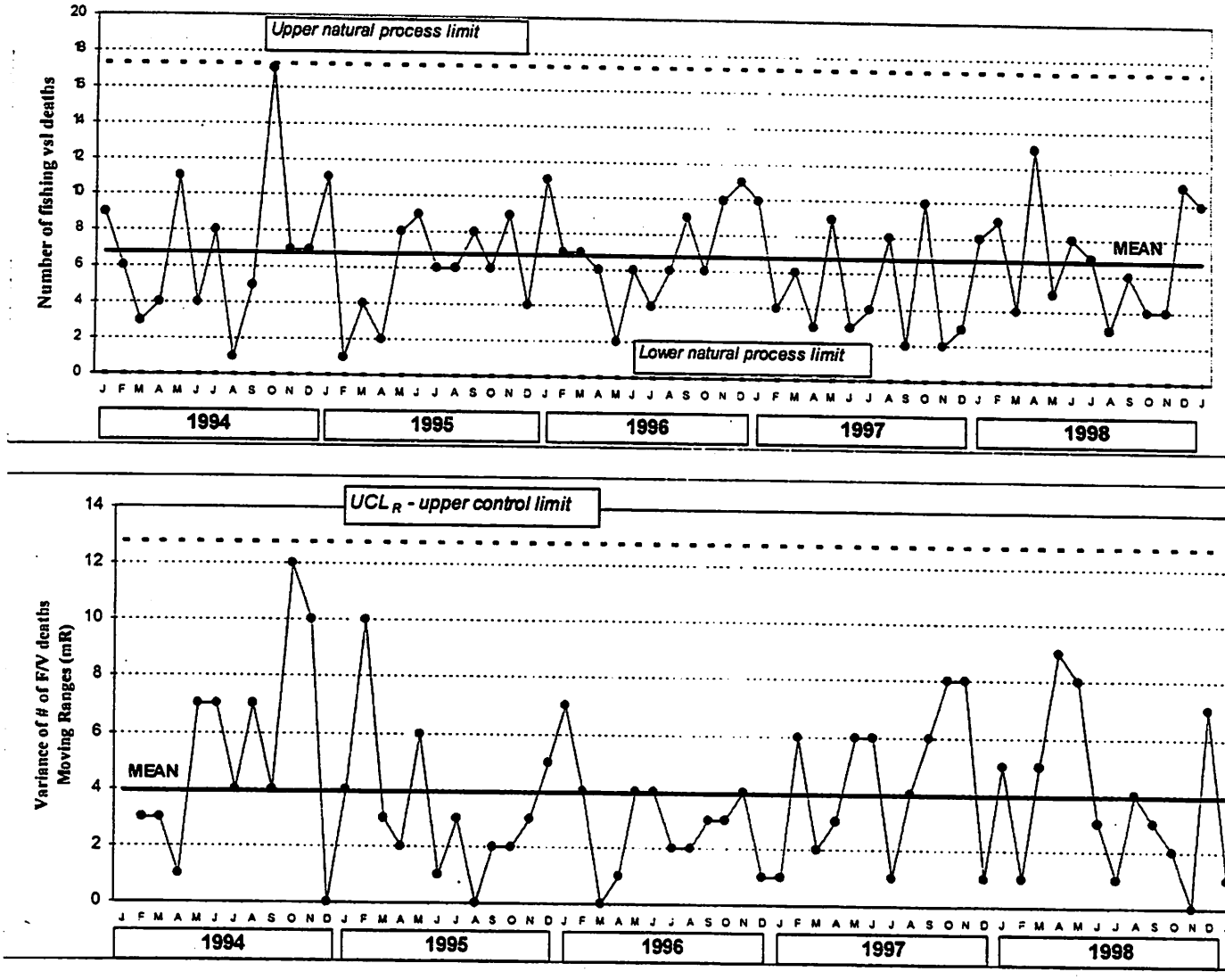
Figure 4-3. Control Charts for Total Loss of Vessel for Fishing Vessels 1994 - 1998



The control charts show in general that the fishing vessel process as it relates to total losses among vessels is functioning within predictable limits from an industry-wide perspective. This is not to say the number of fishing vessel losses isn't too high, but that it is an expected result for fishing vessel losses in any given month. Also shown on the X-Chart, or upper chart, is that the total number of losses appears to have been significantly reduced since 1996 as indicated by the number of data points below the average line. This reduction in the number of losses, especially in 1998, requires further

investigation. Although this is a positive sign, it begs for more research into the reasons why there is a reduction. The reason might be safer vessels, or it could be fewer operating hours due to fishery restrictions, milder weather due to climatic changes, or other reasons.

Figure 4-4. Control Charts for All Deaths on Fishing Vessels 1994 - 1998



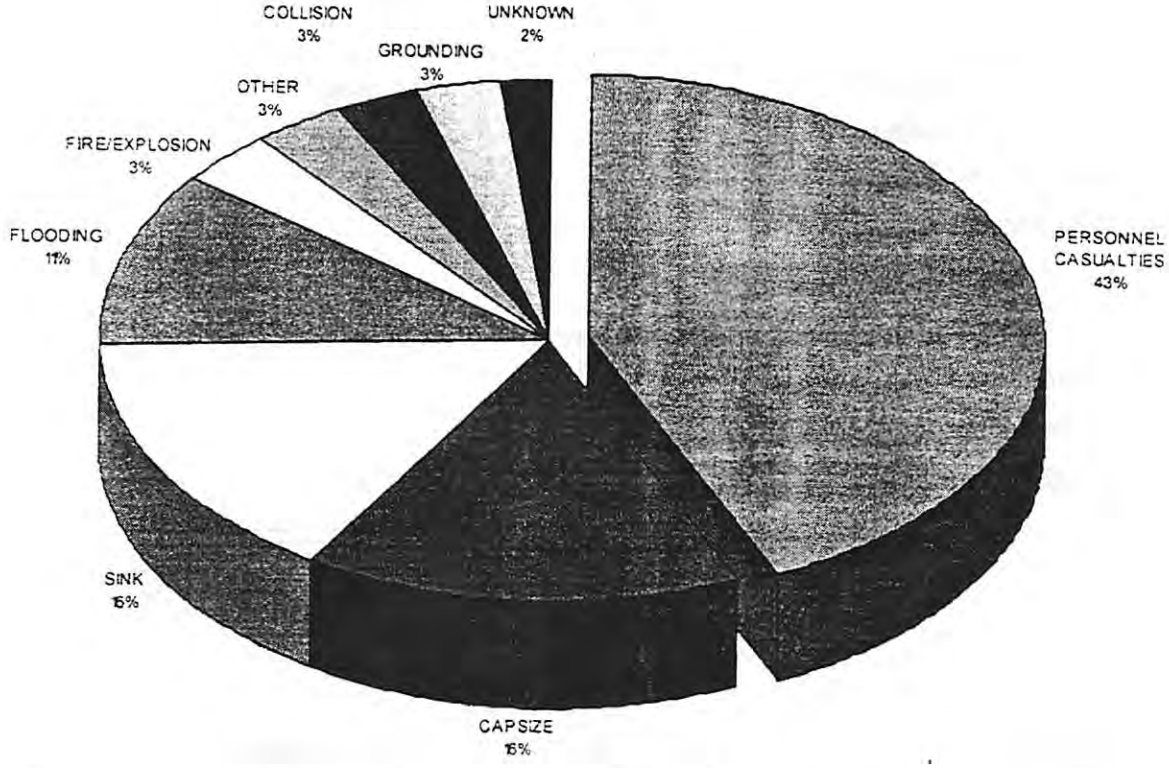
The number of deaths occurring on fishing vessels is shown in Figure 4-4. This is again an X-Chart (top) and an R-Chart (bottom) depicting a time series view of all fishing vessel casualty deaths and ranges by month between 1994 and 1998. The mean and control limits were also derived using 1994 as the base year. Fishermen reported missing and never found were presumed dead and counted as such in these charts.

The number of deaths per month also appears to be within predictable limits although unlike the fishing vessel losses, the number of deaths are not decreasing. The high peaks on the R-Chart point toward large fluctuations in the number of deaths from month to

month, and when matched with the upper X-Chart show those deaths come in spurts, usually during the months of December and January. It is not surprising, then, that there were a number of high incidents and deaths during this recent December and January.

Link between deaths and casualty type. The pie chart in Figure 4-5 illustrates how the deaths shown in the above control chart were associated with a vessel casualty. From 1994 – 1998, 396 fishermen lost their lives while fishing. We were able to show which of those personnel casualties resulted from a vessel casualty. These casualties, or specific events in an incident, are based on the first event in the casualty. There can be numerous events in an incident (e.g., a vessel can ground, causing it to flood, and then sink, resulting in a death by drowning or from other means). In this scenario, that casualty would be counted as a grounding in the pie chart since it was the first event that set off the sequence of events resulting in a personnel casualty. The category of "personnel casualty" is used when there was only one event in the casualty and the death was not a result of a vessel casualty. These deaths are most often associated with falling overboard, or getting caught in equipment.

Figure 4-5. Fishing Vessel Deaths & Personnel Casualties 1994 - Jan 1999



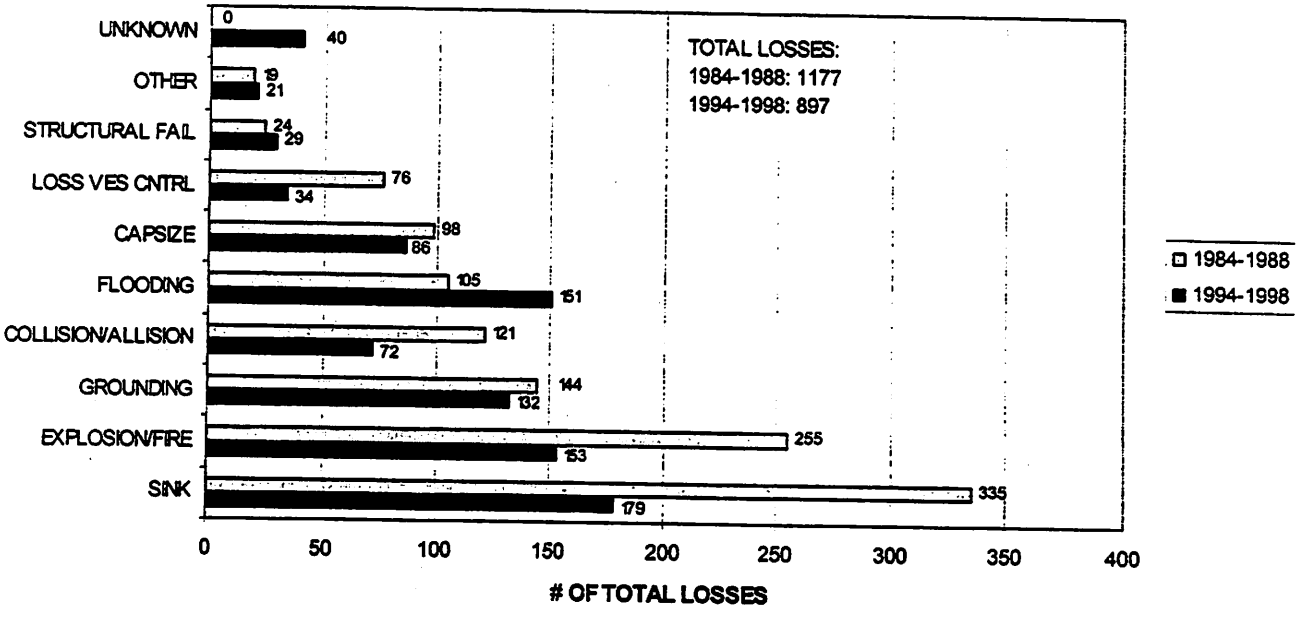
As shown in Figure 4-5, 57% of the deaths can be directly related to a vessel casualty. Most of those vessel casualties were from the vessel sinking, flooding, capsizing, or failure of vessel integrity. Last are those deaths associated with collisions, groundings, or

possible piloting errors. The "other" category includes abandonment, loss of vessel control, and other structural failures.

Comparison of Pre- and Post-1988 Data. To show the impact the Act of 1988 had on total vessel losses and deaths, two 5-year periods were compared - one before and one after the Act. Figure 4-6 is a chart on the number of fishing vessel total losses based on these time periods and distributed using the first event in an incident as explained earlier. Comparison of the periods show the total number of losses have been reduced by over 20%. The biggest declines come in explosions/fires and sinkings, with an increase in the number of floodings. However, a definite downward trend cannot be declared until the count of losses can be normalized.

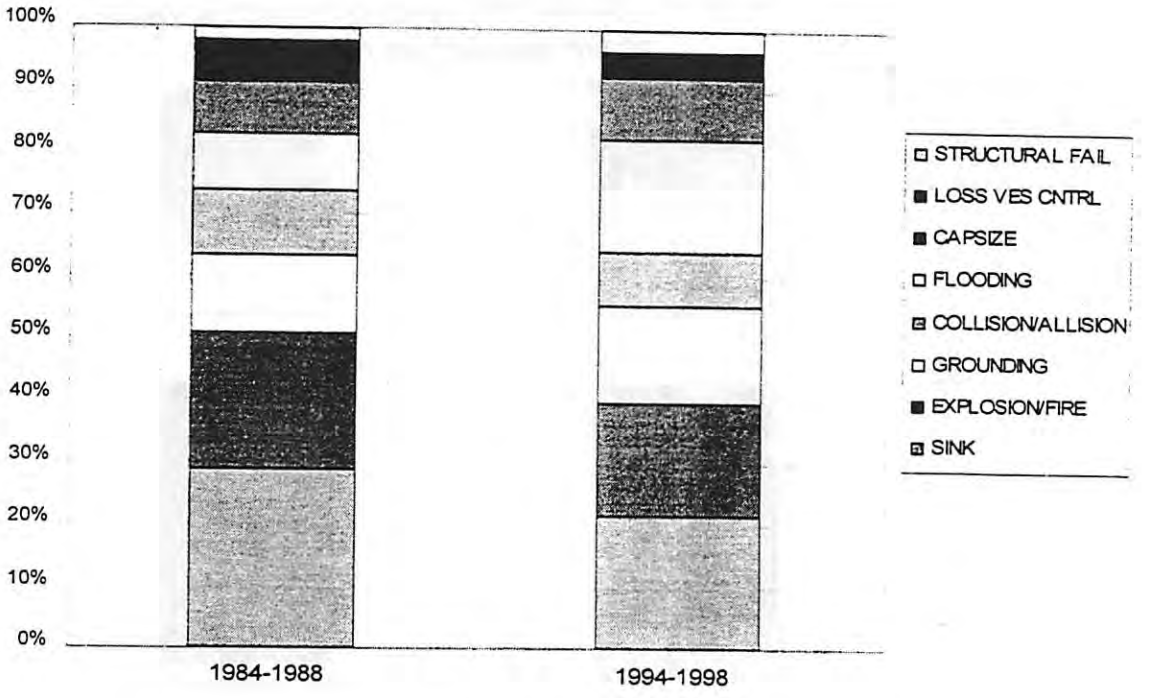
The "unknown" category for the post-Act time period reflects investigations that had not been completed by the date of the data extraction. The "other" category includes pollution incidents, abandonment, and disappearance without a trace.

Figure 4-6. Total Fishing Vessel Losses Comparison Before and After The Act of 1988



Although there was a decrease in the total number of fishing vessel losses between the two periods, the percentage makeup of the casualties is similar to that shown in Figure 4-7. There has not been a significant shift in the manner in which vessels are being lost.

Figure 4-7. Total Loss of Vessel by Accident Type Before and After The Act of 1988



Vessel losses and deaths as related to vessel length are shown in Figures 4-8 and 4-9. The length categories are directly related to the standards based on length. For example, the 1988 Act requires stability calculations for vessels over 79 feet for new or modified vessels since 1991. The comparison shows no significant change.

Figure 4-8. Fishing Vessel Total Losses By Length Before and After The Act of 1988

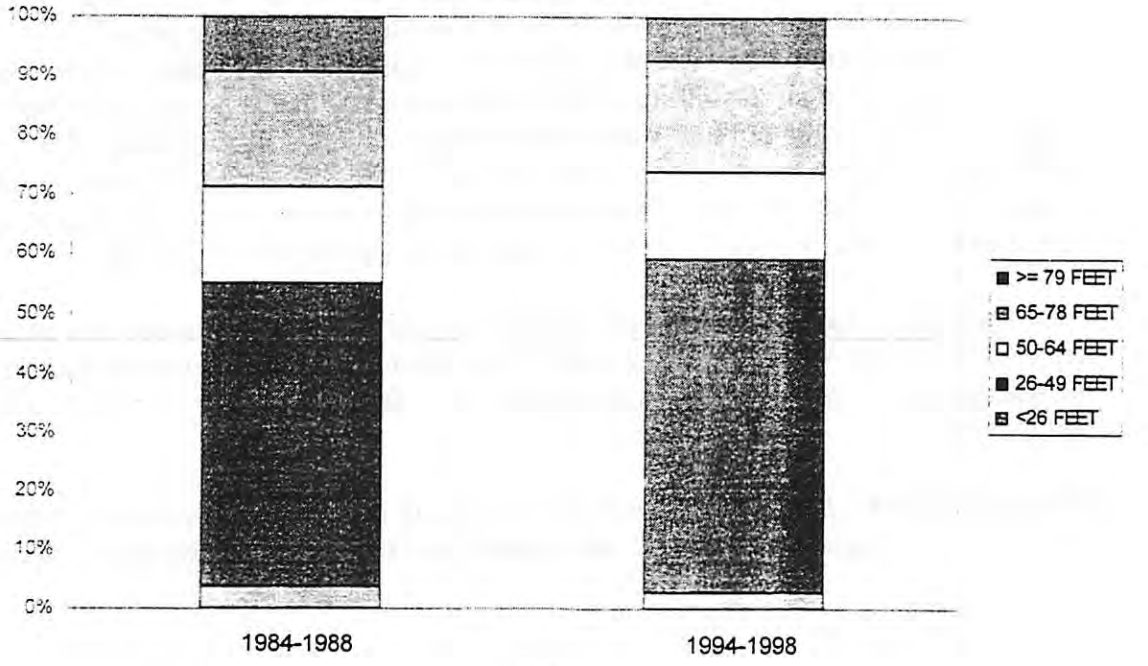
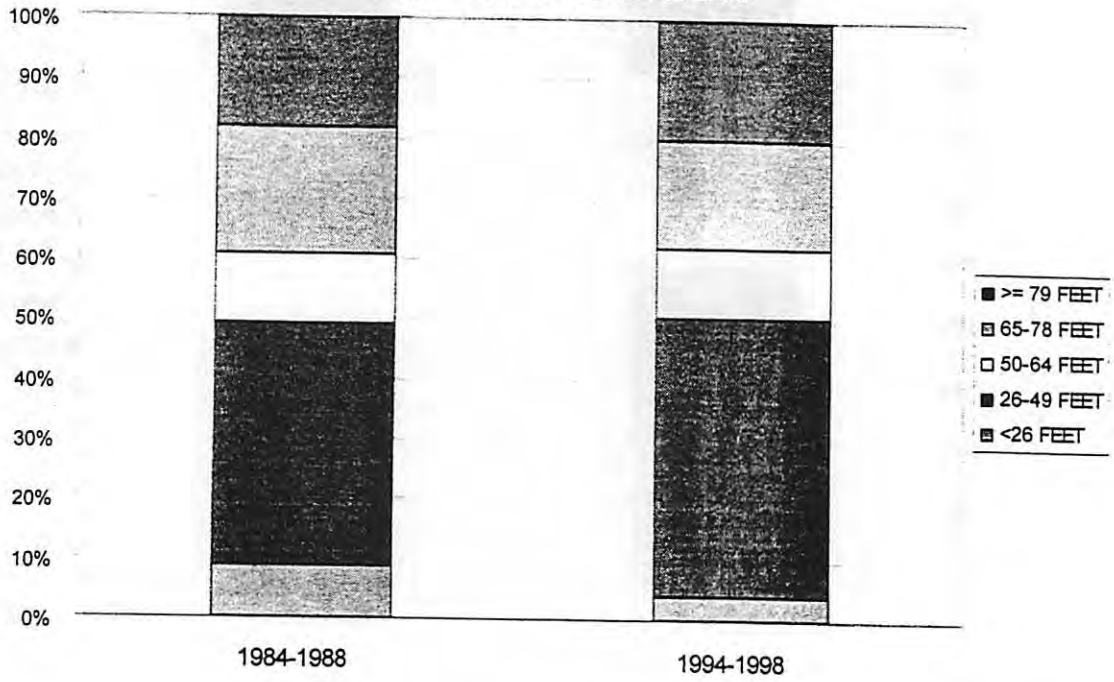


Figure 4-9. Fishing Vessel Deaths By Length of Vessel Before and After The Act of 1988



From 1984 – 1989, 519 fishermen lost their lives compared to 396 who died during from 1994 – 1998, about a 20% improvement. The types of deaths include being crushed, struck by an object, falling into the water, galley accidents or being caught in the lines.

We can determine from the data in both periods the total number of fishermen who ended up in the water. For this comparison, of the 519 deaths in the pre-Act period, 423 fishermen deaths were associated with the person ending up in the water from a vessel sinking, capsizing or simply falling in the water which resulted in a death from exposure, drowning, hypothermia or other water related means. In the post-Act period, 298 fishermen died in the same fashion. This accounts for 84.8% and 83.2% respectively of all the fishing industry deaths. [There were 20 unknown types of deaths in the pre-Act period and 38 in the post-Act which were not used in figuring the percentages.]

Fishermen are dying on the same size vessels today as they were in the pre-Act period as depicted by Figure 4-9, despite a number of regulations in the Act of 1988 that increased the standards for longer vessels. Around 40% of all deaths still occur on vessels over 49 feet in length.

Cost Statistics. Total loss of vessel and deaths are just the tip of the iceberg when identifying the property, injury, and other costs of ***all*** fishing vessel accidents. According

to the study "The Economic Impacts of Accidents on the Marine Industry,"[1] the figures are quite staggering. Taking into account both the direct costs and indirect costs such as drops in stock prices, insurance premiums, deductibles, co-payments, and P&I club payments, interruptions in operations or loss of contracts among many others, accidents cost the fishing industry over $240 million annually. This is more than three times the annual cost identified in that study for the tanker industry, and four times greater than the passenger vessel industry. The $240 million annual cost covers almost a quarter of the $1.1 billion the entire marine industry suffers from marine casualties including pollution, property damage, fatalities, and other indirect costs.

Not included in these statistics are losses of productivity, other indirect costs, and the cost of Coast Guard search and rescue (SAR) for fishing vessels. Available data for 1992 and 1993 shows the Coast Guard conducted over 8000 SAR cases for fishing vessels, expending over 38,000 resource hours at a cost of approximately $45.7 million.

[1] ICF Kaiser Consulting Group, Incorporated (ICF), Soza & Company, Ltd. (SOZA), Marine Research Associates, dated April 1997 and prepared for U.S. Coast Guard Standards Evaluation and Development Division, Washington, D.C.

Section Five

Conclusions and Recommendations

"We Fishermen used to have a more fatalistic attitude to our profession: we knew it was dangerous, and we knew lives were often lost. But we accepted this, thinking that this was simply the way of fishing and not much could be done about it. But we were wrong and you helped prove us wrong."

Letter of 19 November 1998 from North Pacific Fishing Vessel Owners Association member Robert Desautel of Nina Fisheries, Inc., to Leslie Hughes, Executive Director of the Northwest Pacific Fishing Vessel Owner's Association, upon her being awarded the U. S. Coast Guard's Meritorious Public Service Award

Main Points. The key question for policy makers is "Do the continued high loss rates in the commercial fishing industry represent an acceptable risk by today's standards?" The Task Force concludes that the risk is not acceptable, that pushing for breakthrough levels of reduced fishing industry losses is the right thing to do, and that the time is right to take on this challenge. Solutions must come from improvements to the broad system that determines the importance of safety in the fishing industry. Responsibility for this rests not only with fishermen, but also with line management, industry groups, and policy makers. The Task Force arrived at many of the same types of recommendations that were made in the past. Implementing the recommendations will result in profound reductions in injuries, loss of life, and loss of property.

Changing Public Policy. The Task Force believes that the comprehensive recommendations that follow are the right thing to do, and that the present is the right time to work for a breakthrough to significantly lower casualty losses. However, the most difficult issues are beyond the scope of the Task Force's Charter. For many recommendations, the public, fishermen, industry, regulatory agencies, and Congress will have to define today's standard of acceptable risk for the industry, relative to competing needs.

Unsuccessful legislative efforts to improve commercial fishing vessel safety did not meet the high political standards required for a controversial measure to prevail. Commercial fishing risks have been deemed acceptable when compared to the actual and perceived costs of meeting higher safety standards. However, we now have almost a decade of experience under the Fishing Vessel Safety Act of 1988 (implemented in 1991). As our knowledge and values have evolved, so have our standards of what is an acceptable risk for the fishermen, and what we are willing to pay to reduce that risk. This report is a step in the journey that can lead to breakthrough advances in safety on board commercial fishing vessels.

Conclusions. The history of safety in the industry, comparison of standards regimes, and analysis of safety data lead to the following sets of conclusions:

Recent Casualties Characteristics

1. Common conditions in many recent casualties are poor vessel or equipment condition, inadequate preparation for emergencies, and lack of awareness of or ignoring stability issues.
2. There is no common element that could enable a "quick-fix" solution.

History and Casualty Data

1. The continued top ranking of commercial fishing as the most hazardous of marine transportation occupations, and among the most hazardous of national occupations, is a call for corrective action.
2. Recent casualties are indicative of historic casualty types and rates.
3. Most casualties are preventable.
4. The minimal and largely voluntary scope of safety standards appears to have modestly reduced losses since implementation of the Safety Act in 1991. Data quality for determining casualty rates needs great improvement.
5. The history of fishing vessel safety clearly shows that a solid foundation of comprehensive standards was never built. Safety standards are low.
6. The dearth of industry standards has evolved to where a lax approach to vessel condition, operator knowledge, and other safety factors has defined the industry standard.
7. Within this framework unsafe conditions can proliferate, awaiting active failures and failed defenses to become casualties.
8. A foundation of standards must be developed and adhered to if a broad culture of safety is to develop.
9. After a culture of safety develops, there are improved prospects of evolving to successful self-regulatory and voluntary regimes.

Industry Feedback

1. Widespread release of this report will generate interest, debate, and bolster awareness of safety issues.

2. Some recommendations, especially in Section 5.7, are designed for quick development of practical safety issues for broad dissemination.

Recommendations and Direction

Recommendations are divided into seven categories in an action plan format later in this Section. They comprehensively describe a recommended course that, in many areas, would require a broad cooperative effort between industry and government. Many recommendations can be done now. Those requiring more time generally require significant change in agency policy and more resources, cultivation of industry support, and often new legislative authority. The overall top ten ranking, by potential for reducing loss of life and property, is listed under each respective category as follows:

1. **Coordinate Fishery Management with Safety**
   - #8 Limit Entry into Fisheries

2. **Establish Operator and Crew Standards**
   - #3 Operator's License

3. **Ensure Vessels Comply with Standards**
   - #1 Safety Inspections (#2 was folded into #1)
   - #4 Safety Exam Prerequisite for Federal Fishery Permits
   - #6 Safety Examinations

4. **Establish Safety and Stability Standards**
   - #5 Good Marine Practices
   - #9 Registration/Documentation (harmonize federal/state)
   - #10 Safety Levels (use territorial sea baseline v. boundary line)

5. **Improve Program Management**

6. **Conduct Research and Development**
   - #7 Better Investigation Data

7. **Inform Fishermen**

Many Recommendations. The Coast Guard, the National Institute of Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), the National Transportation Safety Board (NTSB), the National Marine Fisheries Service (NMFS), National Research Council (NRC), and other agencies and organizations have made numerous recommendations that would reduce the risk on fishing vessels. Some reports from these agencies contain analyses supporting the recommendations. Appendix E contains recommendations from notable NTSB, NRC, and NIOSH reports, and their comparison with Task Force recommendations.

How Recommendations Were Developed. There is no "Silver Bullet" to make the commercial fishing industry safe. Accidents don't just happen. And casualties rarely result from the sea overwhelming a seaworthy vessel and a first-class crew. Casualties are seldom attributable to a single factor that causes the event, the so-called "root cause."

The Task Force developed recommendations at its workshop using the International Maritime Organization's draft *Guidelines for the Investigation of Human Factors in Marine Casualties and Incidents*, a proposed Annex to the International Code for the Investigation of Marine Casualties and Incidents. The *Guidelines* draw on the cutting edge accident analysis techniques pioneered by Dr. James Reason. Using the *Guidelines*, the Task Force identified and addressed recommendations to reduce latent unsafe conditions in the commercial fishing environment that set the stage for an accident, as well as recommendations to reduce the likelihood of typical mistakes and failures.

Latent Conditions ➡ Active Failure ➡ Failed Defenses ➡ Casualty

If the number of unsafe conditions "hidden" or latent in the system can be reduced, there will be less likelihood that an active failure will evolve into an accident.

Unsafe Latent Conditions. The Task Force and industry advisors, while concerned with unsafe acts or active failures, focused on identifying unsafe latent conditions that allow active failures to evolve into accidents. A wide variety of active failures of both equipment and people cause accidents. A particularly high number of dangerous or unsafe conditions are permitted to be latent in the fishing industry, allowing a random confluence of these conditions and events to become an accident. For example, the decision to improperly load a vessel or to make an ill-advised vessel modification establishes unsafe conditions that are latent in the system until certain loading and sea conditions cause the active failure - a capsizing with often tragic results. These decisions occur both through ignorance and a disregard for safety.

Human error and equipment failures cannot be legislated out of existence; there are no "zero defect" mariners or vessels. However, it is possible to greatly reduce the number of unsafe conditions found in the system. Implementing the Task Force recommendations will greatly reduce unsafe conditions, the risk of active failures, and casualties.

Failures of the Human System. The Task Force recognized that the unsafe conditions latent in the system are **not** exclusively created by mariners themselves. While the Task Force did examine conditions created by the mariner, it focused on identifying failures in the "system," namely unsafe latent conditions on the vessel, in the company, and in the industry. These were conditions often created by people other than the mariner, which set the stage for an accident to happen. These unsafe conditions were created by the skippers, operating company managers, owners, insurance agencies, policy makers, and by larger market forces. Since, conditions created by the system can only be fixed by

altering the system, recommendations are directed to the entire range of people and groups involved.

Failures of Equipment. In looking at the active failures leading to capsizing, sinking, death, and serious injury, the Task Force concluded that both active equipment and active human failures are prevalent. In some industries, such as the nuclear power industry, active equipment failures have largely been eliminated. Similarly, ergonomic design, training, and education have helped reduce human error in some industries, such as the airline industry, to a bare minimum. This is far from the case in the fishing industry.

Gear, equipment, and vessels fail because they no longer meet the originally intended specification. Unsafe latent conditions are created when decisions are made to use equipment beyond its service life, use equipment in ways that were not originally intended, or apply faulty criteria for design, manufacture, or installation of the equipment. Inspection of vessels, stability criteria, and required equipment standards can greatly reduce equipment failures and unsafe conditions in the system.

Inspection proposals have been criticized in the past because inspection does not address the human component of accidents. However, the Task Force concluded that the prevention of prevalent equipment failures is critically important to improving safety in the commercial fishing industry, and that an inspection program, aimed at eliminating or reducing unsafe conditions, is an indispensable part of a comprehensive strategy to protect fishermen.

Defenses. As previously noted, there are no "zero defect" mariners or vessels. Active failures are unavoidable, but defenses can be built into the system that can prevent those failures from becoming a tragic accident or, at least reduce the consequences of that accident. Noting this, many recommendations are aimed at improving defensive systems and include improving manning and lifesaving equipment standards, vessel condition, safety regulation compliance, and search and rescue. There remain, however, some inherent hazards of fishing for which there are currently no good defenses. Several recommendations are aimed at developing defenses for these inherent risks.

Guide to Action Plan Rankings and Timetable. Task Force members and industry advisors developed forty-eight recommendations at the workshop and ranked them from 1st to 48th in two ways:

1. Impact in reducing the loss of life and property with #1 having the greatest impact and #48 the least.

2. Ease to implement with #1 being easiest and #48 most difficult.

Workshop developed recommendations are followed by a bracketed ranking, for example [Impact 4th / Ease 15th]. Notably, the alignment between Task Force and industry advisor rankings was very close. Not surprisingly, many high ranking measures were also the

most difficult to implement, often requiring new laws, being controversial, or both. For example, mandatory vessel inspections were rated first in impact, and last in ease of implementation.

There are gaps in rankings caused by the Task Force eliminating or combining a number of recommendations. After the workshop, the Task Force continued to develop recommendations and received suggestions internally and from the public through Fishing Vessel Safety phone lines and an internet web site. Acceptable recommendations were incorporated into the report. Post-workshop recommendations are not ranked.

Recommendations were divided among seven categories:

1. Coordinate Fishery Management with Safety
2. Establish Operator and Crew Standards
3. Ensure Vessels Comply with Standards
4. Establish Safety and Stability Standards
5. Improve Program Management
6. Conduct Research and Development
7. Inform Fishermen

The first two columns of the recommendation tables contain a time frame for implementation and identify the action organization(s).

Key to "Timing" and "Action Party" Columns of Recommendation Tables

Timing	Immediate	Implement in current year
	Short Term	Implement within 1-2 years
	Mid Term	Implement within 2-4 years
	Long Term	Implement in over 4 years
Action Party	USCG	United States Coast Guard
	NSC	National Safety Council
	RFMC	Regional Fisheries Management Councils
	Insurance	Insurance Industry
	NIOSH	National Institute of Occupational Safety and Health
	NMFS	National Marine Fisheries Service
	OSHA	Occupational Safety and Health Association

5.1 Coordinate Fishery Management with Safety

"Management" means, in the last analysis, the substitution of thought for brawn and muscle, of knowledge for folklore and superstition, and of cooperation for force. . . ."

Peter F. Drucker, *People and Performance*

Main Points. Fisheries management objectives must both protect marine resources and promote safe fisheries. Managing for different purposes, different agencies have set rules that inadvertently set the stage for accidents. Resource management decisions should encourage safe operations, or at least have a neutral safety influence. National level coordination and leadership must review national resource management rules, and set resource management standards that don't create unintended hazards. Courageous national policy is required to solve the problem of too many fishermen competing for too few fish, who in the process sometimes defer safety out of economic necessity.

Background. Fishery management decisions by the National Marine Fisheries Service (NMFS) and Regional Fisheries Management Councils (RFMC) are becoming increasingly complex. Overcapitalization of the industry has led to too many fishermen in fierce competition for diminishing fish stocks. While fishing vessel safety has few required standards, fisheries are regulated to a high degree in order to manage the resource. Fishermen typically encounter both state and federal limitations including quotas, time restrictions, limitations in terms of species, catch size and age, vessel size, crew sizes, and other regulatory controls. The Coast Guard has an opportunity to influence fisheries management through an NMFS liaison and as non-voting members of the RFMCs. However, the current orientation of these positions is to support resource protection rather than safety improvement.

Table 5-1 Coordinate Fishery Management with Safety

Timing	Action Party	Recommendation
Short Term	NMFS RFMC USCG	**1.1 Limit Entry into Fisheries.** Maintain resource stocks by limiting participation to enable economic success for fishermen and vessels that meet progressively higher safety standards. Increased earnings will support higher standard vessels and crews. Substandard vessels and crew should be phased out of fisheries, or brought up to standard. [Impact 8th / Ease 41st]
Immediate	NMFS RFMC USCG	**1.2 National Standard 10.** Emphasize safety elements of National Standard 10 of the Magnuson-Stevens Fisheries Management and Conservation Act when making fishery management decisions. National Standard 10 allows the USCG to review the NMFS regulations and advise NMFS on safety concerns. [Impact 16th / Ease 5th]
Short Term	USCG NMFS	**1.3 Fisheries Management Effects on Human Factors.** Determine the effect of fishery management regimes (quotas, Olympic method, etc.) on human factors casualties, and choose safer management regimes. [Impact 29th / Ease 11th]
Short Term	NMFS USCG	**1.4 Safety-based Crew Standards.** Reassess NMFS requirements that limit crew size (for example, seven vice eleven crew members are allowed aboard vessels operating in the scallop fishery). Meet fishery management objectives in ways that promote safe vessel operations. [Impact 31st / Ease 18th]
Short Term	USCG NMFC OSHA NIOSH	**1.5 National Fisheries Management and Safety Coordination Council.** Charter a high level organization to develop and coordinate national policy integrating fishery management and safety regimes; boldly address the problem of too many fishermen as a major influence on resource management and safety problems.

5.2 Establish Operator and Crew Standards

"Every other advanced country in the world has been or is licensing their fishermen. We feel it is appropriate at this time to license captains and crews in safety routines. This will promote professionalism, safety, and the lowering of the liability insurance in the long run. At the present time, on a two-hundred-ton fishing vessel, there are no or minimal federal or state license requirements for the captain. . . . There are more requirements for a person to obtain a moped license."

Pete Zimny, Anacortes WA fisherman, father of Mark Zimny who died as Captain of the *F/V Aleutian Harvester*; testimony of 11 June 1987 before House subcommittee overseeing wildlife conservation and the environment; *Lost at Sea*, Patrick Dillon, 1998, p. 234

Main Points. Fishing vessel operators should hold licenses and crew members hold certificates indicating they have met minimum competency standards. In addition to increased operator competency levels, licensed operators would be expected to maintain a drug free workplace and be subject to drug and alcohol testing requirements. Licenses could also expand the options available to fishermen as professional mariners. The specter of license revocation and suspension proceedings could increase the sense of responsibility and standard of care. Drill conductor training also needs improvement.

Background. The Coast Guard does not have the statutory authority to require the licensing of operators of federally documented commercial fishing vessels of less than 200 gross tons. Commercial fishing vessel operators are not required to meet a minimum experience, training, or competency standard for this dangerous occupation, even when other crewmembers are entrusted to them. The only prerequisite for working on a commercial fishing vessel of less than 200 gross tons is a willingness to step on board. This is one of the most disturbing aspects of commercial fishing. Lack of experience and training, and poor judgment can, has, and will continue to cost fishermen their lives.

The Commercial Fishing Industry Vessel Safety Act of 1988 required the Coast Guard to submit a plan to Congress outlining proposed licensing requirements for operators of federally documented commercial fishing vessels between 5 net tons and 200 gross tons. This plan was submitted in1992. However, draft legislation was not enacted into law. In 1996, the Coast Guard, due to continued lack of congressional sponsorship, discontinued submitting the licensing plan for inclusion in Appropriations Bills.

The fact that few realistic drills held on many vessels points to the need for more preparation as a defense against failures.

Table 5-2 Establish Operator and Crew Standards

Timing	Action Party	Recommendation
Short Term	USCG	**2.1 Drill Conductor Training.** Re-evaluate required training for drill conductors considering course content and duration, refresher training, and market-driven availability of third party organizations able and willing to train conductors. [Impact 13th / Ease 6th]
Long Term	USCG Congress	**2.2 Operator License.** Obtain legislative authority and require that operators of certain commercial fishing vessels hold a vessel operator's license. Practical considerations will call for various grandfather clauses, phase-in schedules, and exemption provisions; however, the extent of such exemptions should be minimized. [Impact 3rd / Ease 46th]
Long Term	USCG Congress NMFS	**2.3 Operator's License Prerequisite for Federal fishery Permits.** Obtain legislative authority and require that operators of commercial fishing vessels holding a federal fishery permit have a vessel operator's license. [Impact 11th / Ease 44th]
Long Term	USCG Congress	**2.4 Drug and Alcohol Testing.** Apply drug and alcohol testing requirements of 46 CFR 16 to operators and crew holding licenses or certificates. [Impact 30th / Ease 45th]
Long Term	USCG Congress	**2.5 Crew Competency Certificate.** Obtain legislative authority and require that certain crewmembers working aboard commercial fishing vessels hold a crew competency certificate similar to a merchant mariners' document. This initiative should follow the implementation of a licensing program for commercial fishing vessel operators. [Impact 34th / Ease 33rd]

5.3 Ensure Vessels Comply with Standards

"You could say, 'The sea rose up and smote those people down' – people have been saying that for thousands of years—but there was no honor in this. This is just tragic. Someone knew those boats were unstable and they accepted that risk. Now to say that they will accept voluntary standards and abide by them...that is just tragic."

Naval Architect and Professor Bruce Adee,
University of Washington, *Lost at Sea*,
Patrick Dillon , 1998, p. 192

Main Points. While some commercial fishing vessel owners and operators have made great strides in adhering to voluntary safety standards, many have failed to properly maintain their vessels, equipment, and even basic safety gear. Significant advances in safety awareness make it essential to improve the scope of voluntary vessel examinations and move toward mandatory inspections. Verified compliance with existing and improved standards will result in lower vessel loss and fatality rates. An evolutionary approach to the mandatory inspections is needed to reduce adverse economic impacts. The poorest quality vessels cannot economically be brought up to higher standards, and should leave the fishery.

Background. Many previous safety initiatives have concluded that compulsory vessel inspection is needed to ensure vessels are fit for the intended service. Authority to conduct mandatory, periodic safety inspections or examinations on commercial fishing vessels does not exist.

Without authority for mandatory inspections, the Coast Guard has had to rely on a program that is voluntary in character. Accordingly, the existing program is focused on voluntary dockside exams of limited scope, and on a variety of educational and outreach efforts.

Enforcement of federal laws is normally done at sea, on and around the fishing grounds, by boarding teams of relatively junior personnel. Teams are directed by boarding policies that vary with different law enforcement issues. Orders to zero in on a specific issue, for example, turtle excluder devices (TED) in the Gulf of Mexico, may result in numerous exams for TEDs compliance. Those exams may or may not check for compliance with safety regulations. Generally, enforcement teams will examine all the items listed on the boarding form. If a vessel has a decal indicating a satisfactory voluntary dockside exam, the boarding team may decide not to examine the vessel, or may spot check the "Big 5:" survival craft, personal flotation devices/immersion suits, fire extinguishers, visual distress signals, and the EPIRB.

Table 5-3 Ensure Vessels Comply with Standards

Timing	Action Party	Recommendation
Immediate	USCG	**3.1 Multi-Unit Law Enforcement (MULE).** Establish standard policy for the use of MULE teams comprised of both marine safety and fisheries expertise.
Immediate	USCG	**3.2 Compliance Exam Location.** Shift more (not all) compliance from at-sea locations to more efficient congregating locations such as the dock or icehouse.
Short Term	USCG	**3.3 At-Sea Compliance Policy.** Provide policy for more thorough at-sea compliance exams. [Impact 40th / Ease 21st]
Short Term	USCG	**3.4 Training.** Provide extensive training to boarding officers on the Commercial Fishing Vessel Safety Act of 1988 to permit full safety compliance and material condition exams.
Mid Term	NMFS	**3.5 Safety Exam Prerequisite for Federal Fishery Permits.** Require evidence of passing a safety exam prior to issuing a federal fishery permit. [Impact 4th / Ease 15th]
Mid Term	USCG Congress	**3.6 Safety Examinations.** Obtain legislative authority and require periodic vessel safety examinations of similar limited scope as the existing voluntary exam for compliance with 46 CFR 28. [Impact 6th / Ease 30th]
Mid Term	Insurance	**3.7 Safety Exam Prerequisite for Insurance.** Require evidence of passing a safety exam prior to issuing insurance. [Impact 25th / Ease 13th]
Long Term	USCG Congress	**3.8 Safety Inspections.** Obtain legislative authority to require commercial fishing vessels to undergo periodic vessel safety inspections. This effort would require the development of expanded standards in addition to the limited standards currently contained in 46 CFR 28. [Impact 1st / Ease 48th]
Long Term	USCG NMFS	**3.9 Uniform Enforcement Template and Vessel Inspection Management System.** Develop standard measures of safety condition and compliance to identify high risk vessels. Populate data base with conditions discovered during inspections and exams. Apply data to better use resources to target high risk vessels and encourage compliance. Mandatory vessel inspection program must exist, since this recommendation could adversely affect the voluntary program.

5.4 Establish Safety and Stability Standards

"The absence of jurisdiction over commercial fishing vessels does not allow for the imposition of regulations which apply to the inspected segments of our Maritime industry. . . . practices reflect the absence of an industry standard to the extent that a lax approach to decision-making defines the industry standard."

Marine Casualty Report on Capsizing of the F/V Altair and F/V Americus, U. S. Coast Guard Marine Board, 8 April 1985

Main Points. Regardless of future approaches to improve the safety of commercial fishing vessels (e.g., mandatory examinations, certificates of inspection, continued voluntary examinations, licensing), additional standards must be adopted to reduce latent conditions leading to accidents, and to enhance survival when a casualty does occur. The standards should be amended to better reflect the hazard exposure rather than arbitrary divisions such as whether a vessel is state registered or federally documented, or whether it operates inside or outside of a geographic line that poorly reflect hazard exposure. It is particularly important that standards be developed for all classes of commercial fishing vessels to foster stability and watertight integrity.

Background. Mandatory safety standards are minimal, and primarily address survival equipment. They do not address prevention of fishing vessel accidents. Common conditions and failures in serious fishing casualties are: lack of knowledge; shifting deck cargo; entanglement in and failure of fishing gear; faulty machinery; lack of stability; poor occupational safety awareness; inadequate watch standing; fatigue; man overboard; inadequate warning for fire, smoke, or flooding; and improperly use of emergency survival equipment. The current standards must be amended to address such conditions. In addition, certain standards are based solely on arbitrary factors such as the vessel's form of registration or area of operation relative to the boundary line, rather than actual risk to the vessel.

Many vessels could leave port with holes in the hull or in an unstable condition and be in compliance with existing regulations. Capsizing accidents occur suddenly and are particularly deadly. The Coast Guard has developed watertight integrity and stability regulations for vessels more than 79 feet in length that had their keels laid after 15 September 1991, and may implement such standards for smaller vessels built since 1991. But this covers few of the fishing vessels working today. No mandatory stability or watertight integrity standards apply to older uninspected fishing vessels.

Table 5-4 Establish Safety and Stability Standards

Timing	Action Party	Recommendation
Short Term	USCG	**4.1 Stability Regulation Project.** Complete project to require stability letters for all commercial fishing vessels greater than, or equal to, 50 feet in length. Also establish watertight integrity and subdivision requirements for commercial fishing vessels less than 50 feet in length. Evaluate impact and feasibility of eliminating "grandfather" provisions. [Impact 17th / Ease 8th]
Short Term	USCG	**4.2 Safety Awareness Drills.** Amend 46 CFR 28.270 to require: (1) safety awareness instruction for each crew member, (2) moving equipment hazards instruction for each crew member, and (3) vessel operator logging of drill dates/times, participants, and drill conductor. [Impact 20th / Ease 14th]
Short Term	USCG	**4.3 Stability Instructions and Documents.** Develop a specific form and criteria for stability testing and calculations. Establish stability documents specific to fisheries, vessel lengths, and hull types that are in plain English, user friendly, in a uniform and understandable format, consider likely adverse sea conditions, and include emergency stability procedures. [Impact 21st / Ease 31st]
Short Term	USCG	**4.4 Emergency Lighting/Smoke Detectors.** Require emergency lighting and smoke detectors in interior berthing spaces. [Impact 35th / Ease 17th]
Short Term	USCG	**4.5 International Warning Symbols.** Establish a regulation requiring international symbols on signs and placards required on commercial fishing vessels. [Impact 46th / Ease 23rd]
Short Term	USCG	**4.6 Safety Briefings.** Establish regulations requiring initial and periodic crew safety briefings pertaining to vessel specific machinery and deck hazards. [Impact 44th / Ease 10th]
Short Term	USCG	**4.7 Hazardous Area Warnings.** Establish a regulation requiring prominent warnings in hazardous areas, including areas around moving machinery, winches and lines. [Impact 47th / Ease 16th]

Mid Term	USCG Congress	**4.8 Registration/Documentation.** Harmonize regulations for federally documented and state registered vessels. [Impact 9th / Ease 47th]
Mid Term	USCG Congress	**4.9 Safety Levels.** Substitute "territorial sea baseline" for "boundary line" as primary statutory parameter for fishing vessel safety requirements. [Impact 10th / Ease 43rd]
Mid Term	USCG	**4.10 Wear PFDs on Deck.** Establish regulations requiring the wearing of personal flotation devices (PFDs) in designated areas on deck. Encourage innovation for designs (e.g., inflatable) that do not interfere with work. [Impact 26th / Ease 35th]
Mid Term	USCG	**4.11 Deck Gear and Cargo.** Research and establish mandatory safety standards for securing deck gear and cargo to improve stability. [Impact 32nd / Ease 27th]
Mid Term	USCG NIOSH OSHA	**4.12 Industrial Safety.** Develop standards and an inspection program for industrial applications on board fishing vessels, or develop an agreement and action plan with other agencies to address industrial safety issues.
Mid Term	USCG	**4.13 Re-write NVIC 5-86.** Re-write NVIC 5-86 to allow for substantial technical development and expansion of Coast Guard voluntary standards.
Long Term	USCG	**4.14 Good Marine Practices.** Develop good marine standards and practices for application to equipment, materials, designs, and operations on commercial fishing vessels. [Impact 5th / Ease 32nd]
Long Term	USCG	**4.15 Stability for Existing Vessels.** Phase in stability regulations for existing vessels greater than, or equal to, 79 feet in length. [Impact 11th / Ease 42nd]
Long Term	USCG	**4.16 Design/Require Systems to Recover People.** Require that fishing vessels be designed with some means of recovering people in the water using such as a platform, equipment, or techniques.
Long Term	USCG	**4.17 Safety Gear Exams.** Establish guidelines for the self-exam and replacement of certain lifesaving gear, including life jackets, survival suits, life rafts, etc. These guidelines should promote the replacement of gear before the point of material failure.

Blank Page

5.5 Improve Program Management

"We understand that high standards are imperative. We will excel as responsible stewards of taxpayers' resources. We will improve operational performance through the development of solid performance plans. We will build a 21st century decision-making architecture and the information system that supports it. We will use aggressive performance measures to track our progress. We will continuously improve our business processes and apply Information Technology creatively. We will be the leader in government for making the precepts of outcome-based performance and accountability work for the American people. We will make risk-taking, innovation, trust and empowerment central to our leadership culture."

Admiral James Loy's *Commandant's Direction*, U. S. Coast Guard, 1998

Main Points. While the Coast Guard's Commercial Fishing Vessel Safety (CFVS) Program significantly contributes to fishing vessel safety, the program needs continuous improvement. Key billets should be reprogrammed from military to civilian positions to foster program consistency and improved relationships with the commercial fishing community. Voluntary Dockside Examination (VDE) consistency and Dockside Examiner (DE) competency must be given emphasis. CFVS auditors need the full support of District Commanders. The scope and emphasis of the dockside exams needs to be improved.

Background. Historically, both the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC) Executive Director and the CFVS Program Manager have been Coast Guard military billets supported at times by civilian and military billets. In 1991, when the most recent Program was established, a separate Fishing Vessel Safety Section (FVSS) was set up at Coast Guard Headquarters within the Office of Marine Inspection and Documentation (G-MVI). The Section's Chief was a Commander who served as the CFIVAC Executive Director and was supported by four billets: a Lieutenant Commander Section Chief, a civilian GM-13 Fishing Vessel Safety Specialist, and two other officers.

The FVSS was responsible for all program management, regulatory development and rulemakings, and CFIVAC administration. This enabled a good working relationship with the commercial fishing industry. Both Coast Guard and the industry clearly understood who at Coast Guard Headquarters was working the regulatory and compliance issues at the decision-maker level. This allowed more insightful Coast Guard decisions as the FVSS personnel were able to understand the big picture.

During the G-M reorganization in 1995, the duties of the FVSS were redistributed

throughout the Marine Safety and Environmental Protection Directorate. All CFVS-related program management duties shifted to the Office of Compliance (G-MOC), and regulatory and CFIVAC duties moved to the Office of Operating and Environmental Standards (G-MSO).

Currently, the CFVS Program has a quality assurance program that oversees District activity. Additionally, a training program for Dockside Examiners consists of a resident training course, and a training and qualifications instruction (COMDTINST 16711.14) for personnel who conduct VDEs or at-sea compliance exams.

An important element of the VDE program has been to educate commercial fishing vessel owners and operators of the importance of having, maintaining, understanding the use of, and properly stowing marine safety equipment. For example, a nationwide promotional blitz in 1994 covered proper EPIRB use, stowage, registration, and mounting.

Table 5-5 Improve Program Management

Timing	Action Party	Recommendation
Immediate	USCG	**5.1 Program Accountability.** Continue CFVS Program auditing and evaluation of vessel examiner and district coordinator activities to assure fishing vessel resources are used within the CFVS Program. Full District Commanders support of auditors is required. [Impact 23rd / Ease 4th]
Immediate	USCG	**5.2 Quality Assurance.** Periodically evaluate vessel examiner skills to assure consistent, high-quality examinations.
Immediate	USCG	**5.3 Focus on Emergency Drills.** Vessel examiners should continue efforts to evaluate emergency preparedness drills during dockside vessel exams, and should assist/encourage fishing vessel crews to become familiar with the use of fire fighting gear, survival craft, donning immersion suits, etc.
Short Term	USCG	**5.4 HQ Fishing Vessel Safety Division.** Create a Commercial Fishing Vessel Safety (CFVS) division within the Office of Compliance (G-MOC). This division would be led by a high-grade civilian responsible for safety activities pertaining to the commercial fishing industry, including the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC), regulation maintenance and development, and the Commercial Fishing Vessel Safety Program. [Impact 19th / Ease 2nd]
Short Term	USCG	**5.5 Reprogram Personnel.** Reprogram key program billets from military to civilian positions, including the CFVS Program Manager and CFIVAC Executive Director. [Impact 19th / Ease 2nd]
Short Term	USCG	**5.6 Vessel Examiner Training.** Provide additional professional training for commercial fishing vessel examiners, such as wooden boat inspection training, fiberglass and reinforced plastics, inspection and investigation training, and human factors engineering training. [Impact 23rd / Ease 4th]

Short Term	USCG	**5.7 National/District CFVS Conference/Workshop.** Hold an annual national CFVS conference and periodic district examiner workshops in order to address/share important issues among program personnel. [Impact 23rd / Ease 4th]
Short Term	USCG Congress	**5.8 Resources.** Provide additional resources (funding and personnel) in order to support new safety initiatives and the expanded role of fishing vessel safety personnel.

5.6 Conduct Research and Development

"There are things about the sea which man can never know and can never change. Those who describe the sea as 'angry,' 'gentle,' or ferocious do not know the sea. The sea just doesn't know you're there – you take it as you find it, or it takes you."

R. M. Snyder, early oceanographer

Main Points. The government, insurance agencies, and fishermen must focus attention on latent hazardous conditions, apply solutions when they are known, and develop new solutions for currently unmanaged risks. Investigations and data quality must be of sufficient quality to focus safety initiatives on areas the will provide the greatest advances in safety.

Background. Major data and casualty investigation quality initiatives are being undertaken. However, these initiatives must capture information in a way that readily allows analysis, and is tailored to the hazards, gear type, and management considerations that greatly influence commercial fishing vessel safety. Multiple data bases and differing means of collecting data just within the Coast Guard should consolidated. This situation is inefficient, doesn't encourage development of the best analysis practices, and leads to conflicting data reports. It is of great importance to develop data to be used for normalizing casualty rates relative to measures such as full-time equivalent fisherman jobs, operating hours, fish landings, etc.

Several inadequate defenses to problems inherent in fishing require research or development.

Table 5-6 Conduct Research and Development

Timing	Action Party	Recommendation
Short Term	USCG	**6.1 Better Investigation Data.** Improve the quality of commercial fishing vessel investigations and data collection. Develop data to normalize casualty rates. Combine the best attributes of multiple data collection. [Impact 7th / Ease 19th]
Short Term	USCG	**6.2 Feedback from Investigations.** Develop methods for prevention information learned as a result of casualty investigations to reach fisherman and help development of a safety culture in the industry.
Mid Term	USCG	**6.3 Immersion Suits.** Develop an immersion suit that allows greater freedom of movement and is easier to don. [Impact 22nd / Ease 28th]
Mid Term	USCG	**6.4 Work Suits.** Develop a full-body protective suit that can allows freedom of movement, can be comfortably worn in moderate temperatures, and provides reasonable protection against hypothermia. [Impact 24th / Ease 25th]
Mid Term	USCG, Congress	**6.5 Coast Guard De-watering Pumps.** Develop and procure new emergency de-watering pumps that can more easily be started and operated than the existing P3 pump. [Impact 38th / Ease 36th]
Mid Term	USCG	**6.6 Continue Investigation Quality Enhancements.** Continue upgrading casualty investigation quality by improving data collection and analytical techniques. IMO *Guidelines for the Investigation of Human Factors in Marine Casualties and Incidents* should be in the mainstream.
Mid Term	USCG	**6.7 Investigation Training for Examiners.** Provide basic investigation training to commercial fishing vessel examiners. Some units require examiners to investigate fishing vessel casualties.
Long Term	USCG Congress	**6.8 Improve Communications.** Upgrade communications capabilities to improve distress communications. [Impact 36th / Ease 29th]
Long Term	USCG Insurance NIOSH OSHA NMFS	**6.9 Human Factors Engineering.** Study the occupational hazards of commercial fishing and consider developing human factors engineering standards aimed at making the fishing environment safer. Deck arrangements, exposure to the elements, machinery, control stations, and fishing gear should all be areas of consideration.

5.7 Inform Fishermen

"When you call up the Coast Guard, or the Air National Guard, or whomever, you are asking them to risk their lives to save yours. The rescuers neither ask for nor get much in return (those who make a career out of criticizing the Coast Guard all too often forget that), and they value their lives as much as we value ours.

It is the duty of those who go to sea to avoid getting into situations that require the aid of rescue services. Heed the season, equip your vessel properly, keep a sharp eye for weather changes, shake down a new vessel conscientiously, don't expect your ship to do something she can't, pump for your life if you're sinking, maneuver your vessel if you are not, and think ahead. Anything else and you will be asking more of others than you ask of yourself."

Peter Specter. "The Abandonment of the John F. Leavitt," *Wooden Boat*, March/April 1980

Main Points. Tragically, most fishing vessel accidents happen because fishermen are either unaware of hazards, or because they accept those hazards as the cost of doing business. Often conditions causing the casualty easily could have been corrected. Improved efforts to make fishermen aware of hazards will help clear the stage of conditions for accidents, and help build a safety culture.

Background. A recurring theme at the Task Force workshop was the idea that fishermen operate in a culture that discounts the need to protect against accidents that they have not personally seen. A crewman who has experienced stability problems, for instance, may pay more heed to stability practices than one who has not. Operators who have never experienced stability problems might also be more willing to jeopardize their vessel's stability, or will not know when that might occur. The best safety practices should be broadly publicized in the interest of sharing knowledge and stimulating a new safety culture. While some risks related to working so near the water are inherent, the majority of the risks can be controlled or defended against.

Table 5-7 Inform Fishermen

Timing	Action Party	Recommendation
Immediate	USCG	**Auto-deployable Survival Equipment Guidance.** Provide safety guidance on proper installation of auto-deployable survival equipment, describing the differences between float-free arrangements and other arrangements that employ hydrostatic release devices. Guidance should emphasize how overhead obstructions prevent the successful release of survival equipment. [Impact 18th / Ease 1st]
Immediate	USCG	**7.2 Occupational Safety Awareness.** Step-up public awareness efforts to emphasize the dangers of crew fatigue, rotating machinery, breaches of watertight integrity, running gear and lines, etc. These efforts should highlight the importance of effective communications, periodic hull and machinery maintenance, and the proper use of safety equipment. [Impact 28nd / Ease 3rd]
Immediate	USCG, Insurance	**7.3 Bilge Alarm Guidance.** Provide safety guidance on proper installation of automatic bilge pump switches and alarms in an attempt to reduce false alarms and crew intervention to deactivate alarms. [Impact 33rd / Ease 12th]
Immediate	USCG	**7.4 EPIRB Promotion.** Launch another promotional effort explaining the importance of the registration, maintenance, stowage, and proper use of emergency position indicating radio beacons (EPIRBs). [Impact 42nd / Ease 9th]
Immediate	USCG	**7.5 Develop Issues.** Develop other issues worth communicating such as the results of the formal casualty investigations that were the impetus for this task force.
Short Term	USCG	**7.6 National Newsletter.** Publish a national newsletter to address important commercial fishing vessel safety issues. The newsletter should take advantage of communications technology that would allow adding safety information from other agencies, and regional and local news for distribution in such locales. The design and distribution network should use network links to organizations who could easily adapt the information to their own newsletters. [Impact 45th / Ease 7th]

Appendix A

Task Force Charter

Purpose. The Fishing Vessel Casualty Task Force has been established to perform a fast-track examination of commercial fishing industry operational and safety issues that may have contributed to a recent increase in marine casualties. The Task Force shall:

- evaluate the factual circumstances of an apparent rash of serious accidents resulting in the loss of life and vessels during recent weeks (particularly the four clamming vessels undergoing current casualty investigations);
- examine these incidents in the context of historical data for loss of life and property;
- provide quick feedback to the industry as a follow-on to the industry alerts initiated in the First and Fifth Coast Guard Districts;
- review the current fishing vessel safety program and past recommendations that have great potential for reducing loss of life and property;
- recommend the most significant measures that have great potential for reducing loss of life and property; and
- develop direction to be pursued by the CFIVAC, the Coast Guard, and industry.

Discussion. In recent weeks the commercial fishing industry in the Mid Atlantic and Northeast regions have suffered a series of serious marine casualties resulting in loss of life and vessels. Four of the lost vessels were in the shellfish fishery. These casualties have galvanized renewed concern that commercial fishing industry risks are excessive. While individual investigations are ongoing and will likely not be completed before the task force meets, the task force will have the opportunity to communicate with Coast Guard investigators while events are still fresh in the memories of investigators and witnesses.

Deliverable. The Task Force will report their findings that focus on the purposes outlined above by 19 March 1999. Time is of the essence. Time restrictions do not allow employing exhaustive methods. The need for further inquiries, or reference to past efforts, shall be incorporated into the recommendations of the Task Force.

Timetable.

Identification of team members	22 January
Collection of data and information. Task Force Conference calls as required.	25 Jan - 12 Feb
Task Force meeting	mid February (17-19 tentative)
Task Force meeting	1-2 March (if required)
Draft Final Report	19 March

Methodology. The Chairman shall establish the methodology for achieving the purposes of the Task Force in consultation with the members. Quality principles should be used for all meetings and deliberations. Consider current programs and policy as well as past recommendations related to this issue that were not implemented.

Resources. The Task Force membership is comprised of:

G-M	**Captain James Spitzer**, Task Force Chairman, Chief, Office of Investigations and Analysis (G-MOA) **Commander Mark Prescott**, Ex. Director CFIVAC, (G-MOS) **LT George Paitl**, F/V Safety Program Manager (G-MOC), Task Force Member and Recorder
G-O	**CDR Mark Thomas**, Fisheries Enforcement Division (G-OPL-4) **Mr. Richard Schaefer**, Office of Search and Rescue (G-OPR)
Commander, Atlantic Area	**Mr. Robert Higgins**, 1st District F/V Safety Coordinator **Mr. Donald Midgette**, 5th District F/V Safety Coordinator
Commander, Pacific Area	**Mr. Ken Lawrenson**, F/V Dockside Examiner, MSO Portland, OR
National Marine Fisheries Service	**TBD**
Nat'l Transportation Safety Board	**Dr. Meg Sweeney**, Author of NTSB Fishing Vessel Safety Report

Headquarters Support. The Task Force will be supported by G-M Directorates and Offices and "Team Fish" members as required by the Chairman.

District Support. Support is hereby requested of District Commanders for the support of District Marine Safety Divisions and Marine Safety Offices for information on specific current or recent casualty investigations as specified by the Task Force.

Industry Professionals. The Task Force shall obtain the counsel of fishing industry professionals.

Authority to Act. The Task Force is authorized to collect information necessary for it to realize the goals of this charter and to use funding allocated for Marine Boards of Investigation for necessary travel and administrative costs.

/S/ 1/27/99

R. C. North — Date

Rear Admiral, U.S. Coast Guard

Assistant Commandant for Marine Safety and Environmental Protection

Appendix B

Task Force Members

CAPT James D. Spitzer, Task Force Chairman
Chief, Office of Investigations and Analysis (G-MOA)
U.S. Coast Guard Headquarters, Washington, D.C.

CAPT Spitzer is now responsible for Coast Guard investigation of marine casualties and for the analyses of casualty and marine safety data. His extensive experience in marine safety includes Commanding Officer of the Coast Guard Pacific Strike Team; Executive Officer at Marine Safety Office Detroit, MI; Chief of Port Operations at Marine Safety Office San Francisco, CA; and Hull/Machinery Inspector and Investigator at Marine Safety Office Hampton Roads, VA. He received his B.S. degree from University of Massachusetts and M.S. in Environmental Management from the University of Michigan.

CDR Mark Prescott, Task Force Vice Chairman
Executive Director, Commercial Fishing Industry Vessel
Advisory Committee (G-MSO-2)
U. S. Coast Guard Headquarters, Washington, D.C.

CDR Prescott presently serves as Chief, Vessel Facility Operating and Environmental Standards Division. Previous experience includes Staff Engineer at the Coast Guard Marine Safety Center in Hull and Engineering Divisions and evaluating small passenger vessel stability submissions and conducting vessel inclining experiments. He served as Chief, Prevention Division, which included commercial fishing vessel safety at Marine Safety Office Tampa, FL. He is a licensed Professional Engineer. CDR Prescott received his B.S. in Ocean Engineering from the Coast Guard Academy and M.S.E. Marine & Mechanical Engineering from the University of Michigan.

Dr. William Bellows
National Marine Fisheries Service (F/SF-3)
Washington, D.C.

Dr. Bellows' recent work in Sustainable Fisheries has involved the development and review of fishery management plans for Alaska and the Northeast. He coordinated the writing of the Sustainable Fisheries Act which mandated observer health and safety regulations. He began working at National Marine Fisheries in 1980 and held positions in Policy and Planning, Utilization Development, Trade and Industry Services, and Sustainable Fisheries. He has a Ph.D in Economics from the University of Massachusetts.

Mr. Robert Higgins
Fishing Vessel Safety Coordinator – First Coast Guard District
Boston, MA

Since 1991, Mr. Higgins has been District Fishing Vessel Safety Coordinator. He advised on the formal investigation of F/V HEATHER LYNN casualty in 1996. He reviewed all fishing vessel casualty cases and maintained statistics. He is an instructor in Coast Guard Fishing Vessel Safety Training Program. He has ten years experience as a commercial diver/supervisor diving systems, salvage, rigger, and marine biological research. He has twelve years experience with commercial fishing in lobster, gill net, urchin, trawler, ground fish and shrimp. He graduated from the College of Oceaneering in California 1973.

Mr. Ken Lawrenson
Fishing Vessel Safety Coordinator
U.S. Coast Guard Marine Safety Office, Portland, OR

Mr. Lawrenson is presently employed as the Fishing Vessel Safety Coordinator. He has served as a Deck Officer and Fisheries Boarding Officer in Pacific NW and Alaskan waters, and as a Marine Inspector specializing in the offshore and oil industry and new vessel construction. He worked at Christensen Motor Yacht as Quality Assurance Manager and Production Engineer. He graduated from the U.S. Coast Guard Academy and earned M.S.E. in Naval Architecture from the University of Michigan.

Donald Midgette
Fishing Vessel Safety Coordinator –Fifth Coast Guard District
U. S. Coast Guard Atlantic Area, Portsmouth, VA

Mr. Midgette serves as the Atlantic Area and Fifth Coast Guard District Commercial Fishing Vessel Safety Coordinator. He retired from Coast Guard active duty as a Master Chief Boatswain Mate with commands both ashore and afloat. He has worldwide experience as a commercial vessel inspector. His qualifications include Marine Inspector for Hull and Machinery, Law Enforcement Instructor and Boating Officer, and possession of Master Mariners License of 1600 GT.

CDR Louis J. Orsini
Deputy Chief, Office of Law Enforcement (G-OPL)
U. S. Coast Guard Headquarters, Washington, D.C.

CDR Orsini is Deputy Chief, Office of Law Enforcement. He is responsible for maritime law enforcement strategy and policy including that related to fisheries enforcement. Prior experience include command on two USCG Cutters conducting a variety of missions, including enforcement of safety, fisheries, drug and migration laws and regulations; search and rescue; defense operations; Boarding Officer for over 400 at sea boardings primarily on US and foreign fishing vessels in Northwest Atlantic waters; and Chief,

USCG Atlantic Area Fisheries Enforcement Branch responsible for developing policy for fishery enforcement efforts in the Atlantic and Gulf of Mexico.

LT George Paitl
Commercial Fishing Vessel Safety Program Manager (G-MOC)
U. S. Coast Guard Headquarters, Washington, D.C.

LT Paitl has served as the National Program Manager for Commercial Fishing Vessel Safety for the past two years. His prior experience in marine safety include Commercial Vessel Inspector, Marine Casualty Investigator, and Inspection Department Chief. He holds undergraduate degrees in avionics, instructional technology and management, and received a Masters of Public Administration (MPA) degree from George Mason University.

Mr. Richard Schaefer
Office of Search and Rescue (G-OPR)
U. S. Coast Guard Headquarters, Washington, D.C.

Mr. Schaefer is a Policy Analyst in the Office of Search and Rescue. He is also the editor of *On Scene*, the Coast Guard's search and rescue (SAR) periodical. Coast Guard active duty tours included deck watch officer on USCGC MACKINAW (WAGB 83) on the Great Lakes; SAR Controller at the 9th District Rescue Coordination Center in Cleveland, Ohio, Operations Officer for Group Sault Ste. Marie, Michigan; and Analyst in the SAR Division at USCG Headquarters. He currently is a member of the USCG Reserves. He received a B.S. in physics and his officer's commission from the U.S. Coast Guard Academy in 1979.

Mr. John Solheim
Department of Labor, Occupational Safety and Health administration (OSHA)
Washington, D.C.

Mr. Solheim works with OSHA's Directorate of Compliance Programs. He works primarily with OSHA field personnel and staff from other Federal agencies to resolve jurisdictional issues, pursuant to section 4(b)(1) of the OSH Act.

Dr. Meg Sweeney
Transportation Research Analyst, National Transportation Safety Board
Washington, D.C.

Dr. Sweeney is a Transportation Research Analyst in the Safety Studies Division.
Dr. Sweeney's area of expertise is human behavior/performance in transportation accidents. She has studied various ways to improve fishing vessel safety, including operator licensing and vessel inspection.
Dr. Sweeney received a B.A. in Psychology from Boston College and M.A. and Ph.D. degrees in Psychology from George Mason University.

CDR George E. White
National Oceanic Atmospheric Administration (NOAA)
Washington, D.C.

CDR White's twenty-three year career in NOAA includes over eight years sea duty on NOAA charting, oceanographic, and fisheries research vessels in the Atlantic, Pacific, Gulf of Alaska, and Caribbean Sea. His most recent sea duty was as Commanding Officer of the NOAA Survey Ship HECK. He currently assists the Director on a wide range of issues in fisheries management.

Appendix C

Industry Advisors

Mr. Erling Berg
Fisherman and Boat Manager
Cape May, NJ

Mr. Berg fished Georges Bank and the Mid Atlantic for scallops, surf clams, ocean quahogs and groundfish from 1958 to 1992. He was a Captain for 25 years and spent two years fishing in Oregon and Alaska. He has owned a 96-foot scalloper for 20 years. The last four years he has been boat manager for Atlantic Capes Fisheries. In 1991, he became a marine safety instructor.

Mr. James Herbert
Chairman, U. S. Coast Guard Commercial Fishing Industry Vessel Safety Advisory Committee
Fisherman, Fisheries Instructor
Seward, AK

Mr. Herbert has fished commercially in Alaska since 1971. As a crewman and vessel owner he has participated in salmon, halibut, crab and shrimp fisheries. Currently he teaches Maritime and Fisheries topics at Alaska Vocational Technical Center in Seward, Alaska during the winter and works summers at sea. He holds a USCG 1600GT Master's License.

Mr. Richard C. Hiscock, President
Principal Investigator
ERE Associates Ltd.
Orleans, MA

Mr. Hiscock is the founder, president and principal investigator for ERE Associates Ltd., and charter board member of the Marine Safety Foundation. He has been a fishing vessel safety advocate for over 20 years, authoring both the *Fisherman's Digest* for the First Coast Guard District and "Safety Notes" for Fishermen, testifying on fishing vessel safety, and drafting H.R. 1836 to require "licensing, inspection and additional safety requirements for fishing vessels" in 1987. He has served on the Commercial Fishing Industry Vessel Advisory Committee, and edited the Personal Survival and Emergency Drills Course: A National Standard Curriculum. He is a member of the Society of Naval Architects and Marine Engineers, and holds a Coast Guard License as Master.

Mr. Robert W. O'Sullivan
Executive Vice President, The Flagship Group Ltd.
Norfolk, VA

Mr. O'Sullivan is presently Executive Vice President of the Flagship Group Ltd., Norfolk, VA., an independent insurance agency handling all lines of commercial insurance with a specialty area in the maritime industry. The agency insures over 700 commercial fishing vessels on the East Coast and Alaska. He is a former member of the East Coast Fisheries Association Board of Directors. He graduated from the University of Tennessee in 1968.

Mr. Rick Savage
Member, Mid-Atlantic Fisheries Management Council
Fisherman and Fishery Consultant
Berlin, MD

Mr. Savage has been President of Savage Fisheries, Inc., (which owned and operated 3 surf clam vessels), President of Savage Marine Transport, Inc., (which owned and operated a freight barge on Chesapeake Bay), and Vice President of Savage Ice Company, Inc. (which owned and operated 2 ice plants serving the fishing fleet in West Ocean City). He has also been a member of the Mid-Atlantic Fishery Management Council for 15 Years, and a member of the Maryland Tidal Fishery Advisory Commission for 6 years. Additionally he has been a former President and Vice President of the Worcester County Watermen's Association, and a member of the Federal Investment Task Force to study over-capitalization in U.S. fisheries as mandated by the Magnuson-Stevens Act of 1996.

Appendix D

Other Resources Consulted

Coast Guard Studies and Reports:

A Cost Benefit Analysis of Alternative Safety Programs for U.S. Commercial Fishing Vessels, Volume 1 – Study, by Planning Staff, Office of Merchant Marine Safety, U.S. Coast Guard, 16 April 1971. A Coast Guard report that documents the fishing industry's poor safety record, due to a lack of safety regulations. It outlines a series of recommendations to improve fishing vessel safety and utilizes comparisons between small passenger vessels, citing the decline in fatalities on passenger vessels in the five year period following the introduction of the Small Passenger Vessel Safety Act of 1956.

A Safety Analysis of Fishing Vessel Casualties, by Commander William J. Ecker, U.S. Coast Guard, October 1978. This analysis was presented to the 66th National Safety Congress and Exposition, which explores fishing vessel casualties and concludes additional studies into incidents resulting in loss of life or vessel are warranted.

Fishing Vessel Safety, Blueprint for a National Program, by Committee on Fishing Vessel Safety, Commission on Engineering and Technical Systems, National Research Council, 1991. A comprehensive study on fishing vessel safety conducted by the National Research Council of the National Academies of Science and Engineering, as mandated by the Commercial Fishing Industry Vessel Safety Act of 1988.

Safety Project Activities Report, by Office of Marine Safety, Security and Environmental Protection, U.S. Coast Guard, 31 December 1989.

A Plan for Licensing Operators of Uninspected Federally Documented Commercial Fishing Industry Vessels, Commercial Fishing Industry Vessel Safety Act of 1988 (P.L. 100–24), by U.S. Coast Guard, 1988. A plan submitted to Congress January 13, 1992 as mandated by the Commercial Fishing Industry Vessel Safety Act of 1988. The plan recommended establishing two new licenses for fishing vessel operators: Master of fishing vessel under 200 gross tons and Master of fishing vessel less than 79 feet.

Hazard and Risk in the District 1 Fleet of Small Fishing Vessels, by Environmental Engineering Division (DTS-33) Volpe National Transportation Systems Center, 31 January 1999. A report prepared for the Coast Guard Prevention Through People program, which assesses vessel safety and risk in the commercial fishing industry.

Commercial Fishing Vessel...A Legislative History, by Commander Raymond G. Magno and Mr. Richard Hiscock, Proceedings of the Marine Safety Council (Vol. 48,

No. 6), November-December 1991. An article in a special commercial fishing vessel safety issue, which chronicles the legislative history of vessel safety from 1910 until the Commercial Fishing Vessel Safety Act of 1988.

Other Reports, Manuals and Literature:

Commercial Fishing Fatalities in Alaska, Risk Factors and Prevention Strategies (Current Intelligence Bulletin 58), by U.S. Department of Health and Human Services, Public Health Service, Center for Disease Control and Prevention, National Institute for Occupational Safety and Health, September 1997. A review of fatal fishing vessel casualties in Alaska, current efforts and successes in lowering the statistics, as well as recommendations to prevent further incidents.

Proceedings of the National Fishing Industry Safety and Health Workshop, by U.S. Department of Health and Human Services, Public Health Service, Center for Disease Control and Prevention, National Institute for Occupational Safety and Health, January 1994. The compilation of issues and recommendations raised at the National Fishing Industry Safety and Health Workshop (FISH), which addressed fishing vessel safety issues.

ALERT, Request for Assistance in Preventing Drownings of Commercial Fisherman, by U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, April 1994. A special bulletin based on the Alaska fishing industry, which cites drowning statistics of fishermen and encourages the use of Personal Flotation Devices (PFDs).

Uninspected Commercial Fishing Vessel Safety, (NTSB/SS-87/02) by the National Transportation Safety Board, 1987. A study to examine actions taken by agencies and organizations to address uninspected commercial fishing vessel safety.

Vessel Safety Manual, by the North Pacific Fishing Vessel Owners Association, with the assistance of the Coast Guard, 1986. A comprehensive fishing vessel safety manual developed as a part an overall safety enhancement program aimed at improving the safety record of commercial fishing vessels.

Stability for Fishermen, A Self-Study Course for the Commercial Fishing Industry of the United States of America, by National Cargo Bureau, Inc., 1989.

Lost at Sea, An American Tragedy, by Patrick Dillon, 1998. An account of the 1983 loss of two Alaska crabbing vessels, the *F/V Americus* and the *F/V Altair*, and the impact it had on future fishing vessel safety regulations.

Fishing Vessel Navigation and Vessel Inspection Circulars:

10-65 Stability Determination in Capsizing Cases Involving Uninspected Vessels. In the event an uninspected vessel capsizes, if possible, the cause should be determined in order to measure the effectiveness of existing stability standards and possible need for changes.

4-82 Safety of Uninspected Vessels. Provides fishing vessel owners and operators and Coast Guard personnel information pertaining to uninspected fishing vessel casualty trends and recommendations that may improve safety.

12-83 Stability of Towing and Fishing Vessels. Results of Coast Guard sponsored research on intact stability criteria of towing and fishing vessels.

5-86 Voluntary Standards for Fishing Vessels. Voluntary minimum standards for uninspected commercial fishing vessels, which address safety, operation, stability, maintenance, equipment requirements and general housekeeping.

12-91 Termination of Unsafe Operations Aboard Commercial Fishing Industry Vessels. Outlines actions that may be taken if a Coast Guard enforcement official believes a vessel is being operated in an unsafe condition or manner.

13-91 Fishing Industry Vessel Third Party Examination and Procedures for Designation of **"Accepted Organizations" and "Similarly Qualified Organizations".** Coast Guard approval of third party examinations by accepted organizations within the maritime industry in order to supplement the Coast Guard's uninspected fishing industry vessel boarding and examination program.

1-92 (CH 1) Lifesaving Equipment Requirements for Commercial Fishing Vessels. Outlines specific safety equipment for commercial fishing vessels, as well as information on equipment maintenance, inspection, stowage and use.

1-92 (CH 2) Implementation of Lifesaving Equipment Requirements for Commercial Fishing Vessels. Coast Guard policies and guidelines for enforcing commercial fishing vessel safety regulations

7-93 "Fishing Vessel Safety Instructors" and Course Curricula for Training "Fishing Vessel Drill Conductors" Guidelines for Acceptance.
Coast Guard requirements for acceptance as a Fishing Vessel Safety Instructor and approval of curricula for training Fishing Vessel Drill Conductors on procedures for conducting drills and instruction on federally documented commercial fishing vessels.

9-93 Emergency Position Indicating Radiobeacons (EPIRBs) and Other Radio Lifesaving Equipment for Inspected Vessels and Uninspected Commercial Vessels.

Information and recommendations on the use of the Emergency Position Indicating Radio Beacons and other radio lifesaving equipment.

Appendix E

Past Recommendations

Main Points. Three past commercial fishing safety studies and their associated recommendations were reviewed during the development of this of this report.

- The 1987 National Transportation Safety Board study, "Uninspected Commercial Fishing Vessel Safety."
- The 1991 National Research Council report, "Fishing Vessel Safety, Blueprint for a National Program."
- The 1997 National Institute for Occupational Safety and Health, Current Intelligence Bulletin 58, "Commercial Fishing Fatalities in Alaska, Risk Factors and Prevention Strategies."

There was considerable overlap in all three of the reports 'recommendations. When consolidated, they closely resembled the recommendations developed by this Task Force.

Note: Recommendations in **bold script** were also made by the Task Force. These recommendations may vary in wording or implementation method. Recommendations in *italicized script* indicate items already implemented. Those recommendations in standard script have yet to be implemented or recommended by this report.

National Transportation Safety Board (NTSB) Recommendations.

NTSB undertook the 1987 safety study to examine actions undertaken by agencies and organizations to address commercial fishing safety. The study focused on Coast Guard data from 1981 to 1984 and included a review of its own investigation activities from the previous 18 years. The study concluded "the commercial fishing industry is one of the highest risk industries in the world and has the poorest safety record of any industry in the United States." The study also concluded "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." The NTSB study made the following recommendations:

1. **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, fire fighting, watertight integrity, and the use of lifesaving equipment.**
2. **Seek legislative authority to require that stability tests be conducted and that complete stability information be provided to the captains of commercial fishing vessels.**

---

3. **Establish minimum safety training standards for all commercial fishermen, commensurate with their responsibilities, for all types of uninspected commercial fishing vessels.**
4. **Seek legislative authority to require uninspected commercial fishing vessel captains/owners to provide safety training to all crewmembers.**
5. *Seek legislative authority to require basic lifesaving equipment for uninspected commercial fishing vessels.*
6. *Seek legislative authority to require basic safety equipment for fish processing vessels built before January 1, 1988.*
7. *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.*
8. **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.**
9. **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.**
10. *Research and review casualty data on the potential for toxic gas exposure in unventilated spaces and publicize the danger to the commercial fishing industry if such action is warranted.*
11. *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 circulation water tanks and the need for basic stability testing requirements.*
12. *To the National Council of Fishing Vessel Safety 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.*

National Research Council (NRC) Recommendations).

NRC concluded commercial fishing is "inherently a dangerous undertaking and has one of the highest mortality rates of any occupation." NRC also concluded; "the industry's safety record is so poor that the availability and cost of insurance have become major sources of concern for many fishermen". The NRC study made the following recommendations:

1. **Update and expand safety data.**
   - assess data requirements, including fishing fleets and fishermen
   - provide compatibility between CG data including CASMAIN, SAR, SEER, & MSIS

- expand data acquisition and utilization capabilities in order to gather, standardize, evaluate and disseminate fishing vessel data, modify CG 2692 to include the fishery the vessel was engaged in
- coordinate data activities with OSHA, NOAA and state offices
- publish annual report on fishing vessel casualties

2. **Require vessel registration to include all commercial fishing vessels for regulatory tracking & improve future analytical capabilities.**
3. **Require professional registration.**
   - to ensure effective management of fisherman certification and operator licensing requirements and information.
4. **Establish minimum design, structural, stability and material condition standards.**
5. **Expand equipment requirements.**
6. **Improve human engineering of vessels, deck layouts, and machinery.**
7. **Continue compliance examinations.**
8. Require self-inspection system where vessel owners & operators not subject to more stringent inspection methods would be required to do a self inspection.
9. Require marine surveys.
10. Require load lines.
11. Require vessel classification.
12. **Require vessel inspection.**
13. **Remove unsafe, inefficient or excess vessels from service**
    - in concert with NOAA evaluate the merit of safety/economic programs for permanently removing vessels no longer fit from service.
14. **Establish risk communication/safety**
    - in conjunction with MARAD, NOAA and OSHA develop a program to inform, educate, and motivate fishermen on matters of safety.
15. **Publish and distribute safety publications.**
16. **Require emergency preparedness measures**
    - require regulations for emergency drills and safety orientation for all personnel.
17. **Develop and promulgate standard operating procedures.**
18. **Develop competency standards.**
19. **Promote education and training.**
20. **Require education and training with certification.**
21. **Require licensing.**
22. **Establish vessel manning and watch keeping criteria.**

23. Require manufacturers to provide installation, maintenance, and use requirements.
24. **Develop and require carriage of fishing industry-specific survival equipment such as effective deckwear and audiovisual aids on proper use and maintenance of equipment.**
25. Prohibit use of survival equipment that is not Coast Guard approved.
26. Establish flexible season openings.
27. Establish a voting position for a marine safety organization on each fishery management council.
28. **Expand safety emphasis of fishery management plans.**
29. Require insurance coverage
    - determined to not be practical under current structure and economic conditions.
30. Expand fishing-industry-specific weather services
    - NWS should research fishing industry weather advisory needs to determine if additional coverage is needed.

National Institute for Occupational Safety and Health (NIOSH) Recommendations.

NIOSH concluded "the Commercial Fishing Industry Safety Act primarily emphasizes the use and availability of safety equipment during and after a disaster at sea." The findings of this report demonstrate considerable reductions in fatalities in some sectors of this industry, while persistent problems remain in other areas. NIOSH recommended augmenting this approach by **preventing** these disasters in the first place, as well as continuing to prepare to react to them if they occur. Additional efforts must be made to reduce the frequency of vessel capsizing and sinkings, particularly during crabbing operations, and to prevent fishermen from falling overboard. The NIOSH study made the following recommendations:

1. **A requirement for periodic stability reassessment and vessel inspection of all vessels should be seriously considered, as equipping and retrofitting can substantially affect the stability of vessels.**
2. **Minimum specifications for watertight components and bulkheads sufficient to keep swamped or capsized vessels afloat should also be developed, implemented and evaluated.**
3. **A thorough assessment should be made of current training requirements and efforts, and deficiencies should be immediately corrected.**
4. **Consideration should be given to establishing adequate watch keeping and staffing for new safety and fatigue requirements for all vessels.**
5. **Consideration should be given to requiring the successful completion of basic fishing safety training, such as those programs currently offered by the Alaska Marine Safety Education Association (AMSEA), before an Alaskan (state) crew license or a commercial fishing permit is issued.**

6. **All current and proposed management regimes should be examined from a safety and health perspective.**
7. **Weather information should be more closely heeded.**
8. **All fishermen should wear PFDs when on the deck of any vessel.**
9. Man overboard alarms should be thoroughly evaluated and widely deployed if such evaluations demonstrate that the devices are effective.
10. Thorough study of the handling of lines, especially during deployment of crab pots, should be conducted to reduce worker exposure to this hazard.
11. A training curriculum should be developed, implemented, and evaluated for fishermen who are harvesting seafood or clearing lines or nets by diving.