

## THE COMMERCIAL FISHING SAFETY RECORD A NATIONAL PERSPECTIVE

By Dr. Gunnar P. Knapp

Ms. Kathleen W. Johnson: This is Session Two of the National Fishing Industry Safety and Health (FISH) Workshop entitled *Definition of the Problem*. Our first speaker is Dr. Gunnar P. Knapp whose presentation is entitled *Commercial Fishing Safety Record: A National Perspective*. Gunnar P. Knapp is a Professor of Economics at the University of Alaska Institute of Social and Economic Research. A specialist in fisheries economics and fisheries management, he has studied the potential impacts of fisheries management on fishing safety, and has estimated commercial fishing fatality and injury rates. As a member of the National Research Council's Committee on Fishing Vessel Safety, he analyzed fishing safety data for Alaska and other regions of the United States. Dr. Gunnar Knapp:

### INTRODUCTION

Commercial fishing safety is an important problem in Alaska. As different speakers will no doubt point out, the kinds of problems that exist differ for different fisheries in Alaska. The safety problems in the Bering Sea crab fishery are different than those in the southeast troll fishery. This makes it more difficult to define the nature of the Alaska commercial fishing safety problem or to figure out how to deal with it.

The same things are true at the national level. Commercial fishing safety is an important problem throughout the United States. The safety problems in the Gulf of Mexico shrimp fisheries are different from those in Alaska fisheries. These kinds of differences contribute to the difficulty of defining or addressing the commercial fishing safety problem at the national level.

This conference will focus primarily on Alaska commercial fishing. But I would like to first review the commercial fishing safety record with a national perspective.

Two years ago, I served on the National Research Council's Commit-

tee on Fishing Vessel Safety, which prepared a report entitled *Fishing Vessel Safety: Blueprint for a National Program*.<sup>1</sup> In preparing this report, the committee looked at the kinds of safety problems that exist in fisheries throughout the United States and approaches for dealing with them.

Today I will briefly review with you the picture that emerged of safety problems at the national level. All of the data are from the committee's report, except that I have added some additional data for Alaska. Any opinions expressed are my own rather than the committee's.

### SOME TERMINOLOGY

Let me begin by defining some basic terminology, which is used by the Coast Guard and which our committee also used.

**Casualties** are any kind of incident that involves damage to a vessel or injury or death to a fisherman. **Vessel casualties** are incidents in which fishing vessels are damaged or lost.

There are many **natures** of vessel casualties, such as capsizings, floodings, collisions, fires, groundings, and equipment failures. Many

vessel casualties involve several natures, such as a grounding, which leads to flooding, or an equipment failure, which leads to a fire. Vessel casualties can have widely varying consequences. Some lead to serious vessel damage, and in the most extreme cases to **total vessel losses**. Some, but not all, vessel casualties result in injuries or deaths.

Although relatively few capsizings occur compared with other kinds of incidents, they are particularly serious causes of fatalities.

**Personnel casualties** are incidents in which fisher men and women die or are injured. Many, but not all, personnel casualties are **vessel-related**, such as when a boat capsizes and the crew drowns. But many personnel casualties are **non-vessel-related**, such as when fisher men or women fall overboard or are injured by equipment on board.

#### DATA SOURCE

The major data source for fishing vessel casualties in the United States is the Coast Guard's "main casualty data base," (CASMAIN), which is based on Marine Accident Reports. These are required to be filed with the Coast Guard for incidents that result in significant vessel damage, injury, or death.

The CASMAIN data base is far from perfect as a record of commercial fishing safety problems. Many incidents, including most non-serious incidents, are never reported to the Coast Guard. Only a fraction of non-fatal injuries are reported. Moreover, there is nothing in the CASMAIN data base that corresponds to the "near miss" data that the FAA collects for aircraft incidents.

Our committee reviewed major casualty incidents from the Coast Guard's CASMAIN data base for the six-year period from 1982-1987. We limited our analysis to those casualties that resulted in at least \$25,000 in damages, a fatality, or both. In other words, we studied only the most serious incidents reported to the Coast Guard, which are not necessarily the only serious incidents that occur.

#### NUMBER OF VESSEL CASUALTIES

On average, nationwide there were almost 1,100 major vessel casualties (resulting in more than \$25,000 damage) per year during the six-year period 1982-1987. Of these, there were an average of 216 total vessel losses per year nationally. Vessel casualties resulted in an average of 58 fatalities per year (but recall that there are numerous additional fatalities that do not result from vessel casualties).

#### NATURE OF VESSEL-RELATED CASUALTIES

The most frequent casualty natures resulting in total vessel losses are foundering and fires. However, the most frequent casualty natures resulting in fatalities are capsizing, foundering, and "disappearances"—many of which probably also resulted from capsizing or foundering. Although relatively few capsizings occur compared to other kinds of incidents, they are particularly serious causes of fatalities.

#### VESSEL CASUALTY AND TOTAL LOSS RATES

The rate of vessel casualties and total losses increases as vessel sizes increase. Perhaps this is because larger vessels are fished more intensively, and in more dangerous conditions.

I want to emphasize that the data on which these rates are based are not

particularly reliable. As I have said before, the Coast Guard data do not necessarily pick up all the casualties that occur. In addition, we do not have very good data on how many vessels there are in each size class. So these are crude estimates. But I think it is noteworthy that each year perhaps 2.9 percent of large vessels—those above 79 feet in length—are total losses.

#### **REGIONAL DISTRIBUTION OF VESSEL-RELATED CASUALTIES**

Vessel-related casualties, including total losses and fatalities, occur in all regions of the United States. However, the more serious casualties—total vessel losses and fatalities—occur disproportionately on the West Coast and in Alaska.

#### **DISTRIBUTION OF VESSEL-RELATED CASUALTIES BY VESSEL LENGTH**

Vessel-related casualties occur in all size classes. Most occur on smaller vessels, presumably because there are far more smaller vessels than larger vessels in the American fishing fleet.

#### **FATALITIES AND FATALITY RATES**

An average of 108 fatalities per year were reported to the Coast Guard nationwide during the six-year period 1982-1987. Of these, about half were vessel-related and about half were non-vessel-related. Based on crude estimates of the number of fishermen and fishing vessels, it appears that the average annual fatality rate is about 47 fatalities per 100,000 workers, which compares with rates in mining and construction.

However, this estimate does not take into account that a great number of these fisher men and women work in fishing only part of the time. Moreover, the estimated fatality rates are strikingly higher for larger ves-

sels—possibly more than 200 per 100,000 workers for vessels longer than 79 feet.

These fatality rates may well be understated. Researchers with NIOSH have demonstrated that the Coast Guard data significantly understate the total number of fatalities that occur in commercial fishing. Many incidents are never reported, for example, those that occur on inland rivers such as the Kuskokwim and the Yukon.<sup>2</sup>

#### **FATALITIES BY REGION**

Fishing fatalities occur in all regions with roughly equal numbers of total fatalities in the North Atlantic, the Gulf Coast, the West Coast, and Alaska.

#### **NATURE OF VESSEL-RELATED FATALITIES**

As I mentioned earlier, capsizings account for more vessel-related fatalities than any other nature of incident, followed by sinkings and "disappearances."

#### **NATURE OF NON-VESSEL-RELATED FATALITIES**

By far the largest number of non-vessel-related fatalities occurred as a result of crew falling into the water. However, a variety of other types of incidents also occur.

#### **CONCLUSION**

I would like to offer three simple conclusions to this brief overview of the national fishing safety record.

- First, the record shows that there has been a serious, nationwide problem in commercial fishing.
- Second, a review of the record demonstrates that fishing safety is not a single problem with a single cause and a single cure. Many different kinds of casualties occur in vastly different circumstances for very different reasons. This suggests that

there is no single solution to the problem.

- Third, we will not be able to describe or fully understand the problem until we have better data.

Many of you probably have personal experience with fishing safety problems. You may have been on vessels that were damaged or on which people were hurt, or friends and relatives may have had these experiences. But each of our personal experiences and knowledge can only add up to a small part of the overall picture. To understand the problem, we need reliable data.

But the data we have at present are not really reliable, and they are certainly not sufficient. Each figure that I have given you raises questions about why the numbers are what they are, but the data usually are not complete enough to say why. Let me give you two simple examples.

I have not talked about what fisheries in which these incidents occurred. That is because the Coast Guard's CASMAIN data base does not include any information about what fisheries they occurred in. The Coast Guard does not routinely collect this information. Before we can identify the kinds of safety problems that have been occurring in specific fisheries, we will need to review each casualty incident and attempt to determine the fishery in which it occurred.

I also have not said anything about non-fatal injuries in commercial fishing, although we know that many people are hurt on fishing vessels. That is because there are no reliable national data on fishing injuries. In the past no one collected this information. A new reporting requirement has been established, but there are as yet no procedures for obtaining the data. □

## REFERENCES

1. National Research Council. *Fishing Vessel Safety: Blueprint for a National Program*, National Academy Press, Washington, D.C. 1991. 282 pages.
2. Schnitzer, Patricia G., Deborah Landen, and Julie C. Russell, *Occupational Injury Deaths in Alaska's Fishing Industry, 1980-1988*. National Institute for Occupational Safety and Health, Division of Safety Research. Presented in part at the 40th Annual Epidemic Intelligence Service Conference, Atlanta, Georgia, April 8-12, 1991, and the 24th Annual meeting of the Society for Epidemiologic Research, Buffalo, New York, June 12-14, 1991.

# Proceedings of the National Fishing Industry Safety and Health Workshop



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control and Prevention  
National Institute for Occupational Safety and Health



---

**PROCEEDINGS**

**of the**

**NATIONAL FISHING INDUSTRY**

**SAFETY AND HEALTH WORKSHOP**

---

Edited by

Melvin L. Myers, M.P.A.

and

Michael L. Klatt, M.S.

---

October 9-11, 1992  
Anchorage, Alaska

Convened 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

January 1994

## **DISCLAIMER**

Sponsorship of the FISH Workshop and these *Proceedings* by the National Institute for Occupational Safety and Health (NIOSH) does not constitute endorsement of the views expressed or recommendations for use of any commercial product, commodity, or service mentioned. The opinions and conclusions expressed in the papers are those of the authors and not necessarily those of NIOSH.

Recommendations are not to be considered as final statements of NIOSH policy or of any agency or individual who was involved. They are intended to be used in advancing the knowledge needed for improving worker safety and health.

This document is in the Public Domain and may be freely copied or reprinted. Copies of this and other NIOSH documents are available from:

**Publication Dissemination, DSDTT  
National Institute for Occupational Safety and Health  
4676 Columbia Parkway  
Cincinnati, Ohio 45226  
FAX (513) 533-8573**

For information on other occupational safety and health problems, call:  
**1-800-35-NIOSH**