CHAPTER II
DEFINING THE PROBLEM AND IDENTIFYING THE POPULATION AT RISK

EPIDEMIOLOGY OF VESSEL CASUALTIES AND COMMERCIAL FISHING FATALITIES IN ALASKA

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The NIOSH Alaska Field Station collects information on all types of occupational fatalities. Our comprehensive surveillance system collects data from a variety of sources including U.S. Coast Guard reports, National Transportation Safety Board (NTSB) preliminary and final investigative reports, Alaska State Trooper reports, medical examiner reports, death certificates, and local news media reports.

Commercial fishermen comprised a large portion (146, 34 percent) of the occupational fatalities in Alaska from 1991-1996, and have an occupational fatality rate of 140/100,000/year, 28 times the national average. The fatalities occurring in May, June, and July were primarily in the salmon fisheries. The high number in September were associated with the halibut derbies that took place in 1991-1994. The high numbers in January, February, and November represent the fatalities associated with the winter fisheries such as the crab fisheries in the Bering Sea. (Figure 1)

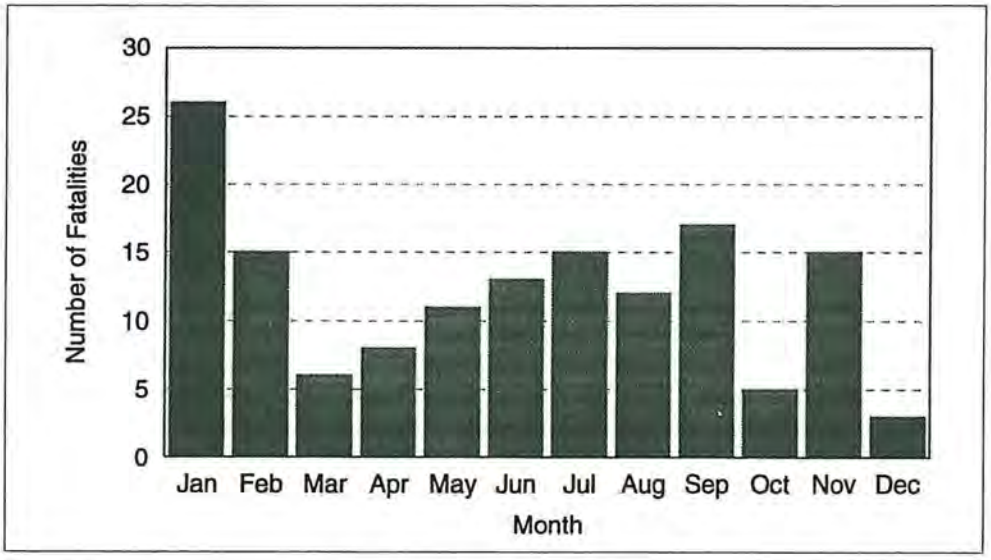

Figure 1. *Fishing Fatalities by Month, Alaska, 1991-1996, n=146*

Not surprisingly, most fishermen die as a result of drowning, usually combined with hypothermia. These deaths result from either vessel-related events (i.e., capsizings/sinkings), falling overboard, or diving-related incidents. Fishermen were also crushed by crab pots, entangled in winches, and asphyxiated in fires. (Figure 2)

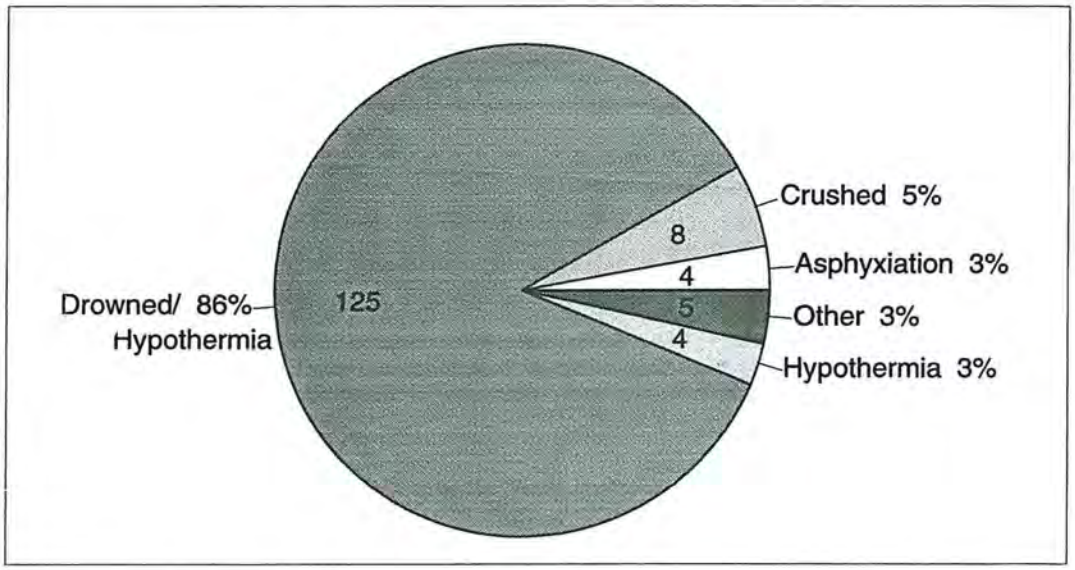

Figure 2. *Cause of Death for Fishing Fatalities, Alaska, 1991-1996, n=146*

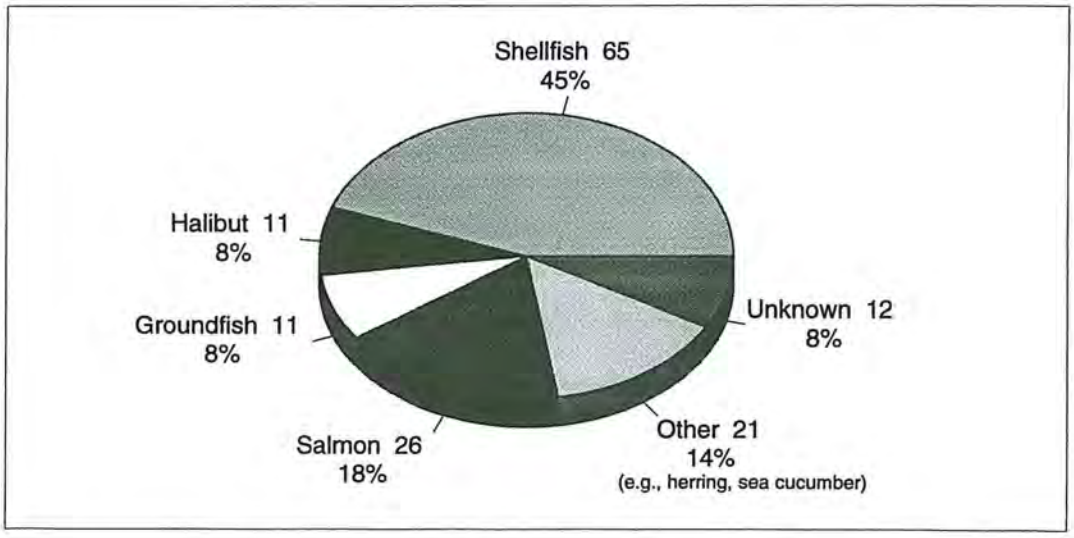

Figure 3. *Fishing Fatalities by Fishery, Alaska, 1991-1996, n=146*

Fisheries vary in a variety of ways: a) type of gear used, b) location of fishing grounds, c) duration, and d) time of year. The shellfish (crab) fishery makes up the highest number of fishing-related fatalities in Alaska. (Figure 3)

When we calculated rates, the shellfish fishery had a much higher rate than any other fishery in Alaska, followed by the herring fishery and halibut fishery. (Figure 4)

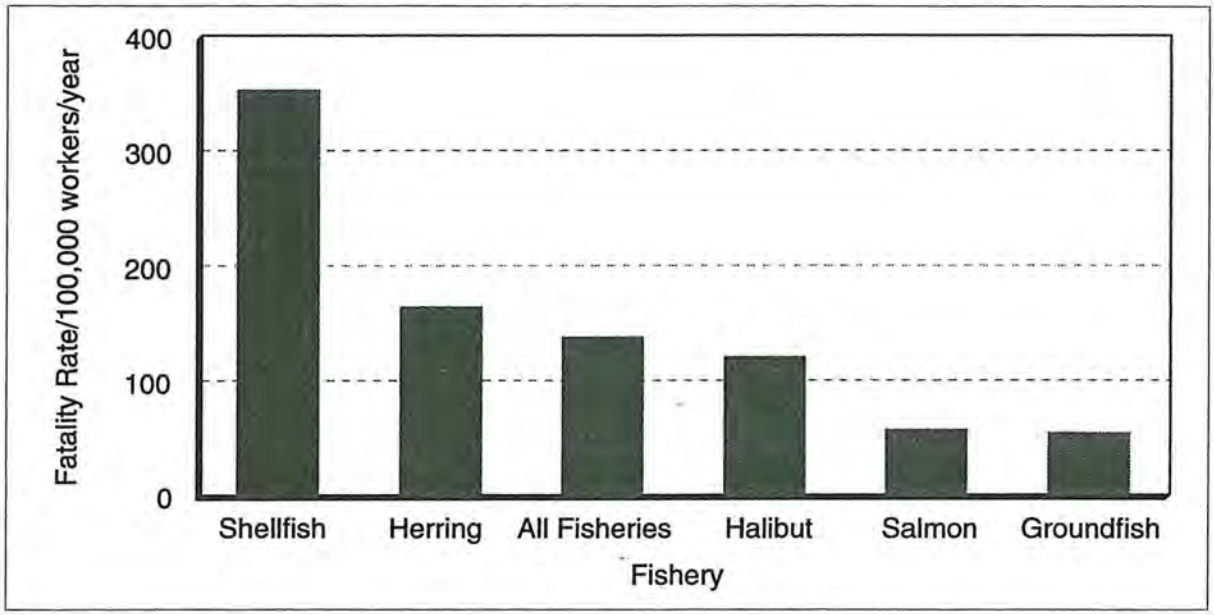

Figure 4. *Commercial Fishing Fatality Rates by Fishery, Alaska, 1991-1996*

There has been a reduction in fishing fatalities since the early 1990s. This reduction has occurred primarily in fisheries other than the shellfish fishery. People on board are calling the Coast Guard sooner and using emergency equipment that is required on board, such as electronic position indicating radio beacons (EPIRBs) and life rafts. I'd like to challenge this group to shift its focus on not just reacting to these events when they arise, but also preventing them from occurring in the first place.

The four areas that we're going to discuss tomorrow are areas of prevention on which we need to focus: a) vessel-related events, b) falling-overboard events, c) diving-related events, and d) non-fatal injuries.

Table 1. Recent Decrease in Case Fatality Rate, Alaska Commercial Fishing Industry, 1991-1996

Year	Number of Vessels Lost*	Persons on Board*	Fatalities**	Fatality Rate***
1991	39	93	25	27 %
1992	44	113	26	23 %
1993	24	83	14	17 %
1994	36	131	4	3 %
1995	26	106	11	10 %
1996	39	114	13	11 %

* SOURCE: U.S. Coast Guard, 17th District, Fishing Vessel Safety Coordinator.
** Fatalities from capsized or lost commercial fishing vessels only.
*** Fatality Rate = (number killed/number at risk) X 100 percent.

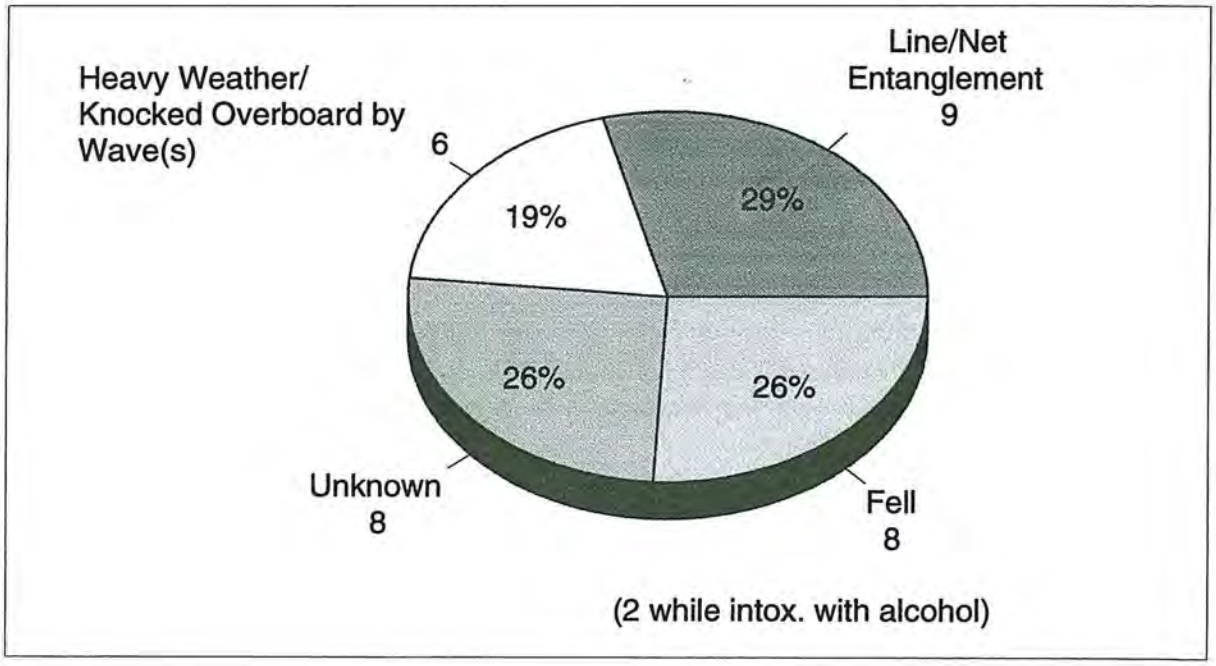

Figure 5. *Man Overboard Events by Circumstance, Alaska, 1991-1996, n=31*

Vessel-Related Events

There has been an increase in the number of people who are saved from distressed vessels; nowever, we still lose an average of 35 boats a year, putting approximately 100 people aboard these vessels at much greater risk of succumbing to Alaska's frigid waters. In 1991, 73 percent of the people involved in vessel-related incidents survived as compared to 89 percent in 1996. So this reinforces the fact that survival equipment is being used, and that people are being rescued after they get in trouble, but it also reinforces the fact that something needs to be done about preventing these vessel capsizings and sinkings in the first place. (Table 1)

Falling Overboard Events

Thirty-one fishermen fell overboard and drowned during the 6-year period from 1991-1996. None of them were wearing a personal flotation device (PFD). These falling-overboard fatalities can be divided further into the reasons for the victims being immersed in water: entangled in a net or line (9, 29 percent), unobserved fall (victim missing from vessel) (8, 26 percent) , observed fall (8, 26 percent), and washed or blown into the water (6, 19 percent) (Figure 5). The problem of falling overboard events needs to address two areas: a) preventing the fall, and b) retrieving the victim successfully.

Diving-Related Events

There was a one-day conference that took place on July 25, 1997, in Sitka, Alaska, to address dive-related emergencies. For the 3-year period from 1993-1995, there were six fishermen that died as a result of diving incidents. All six of them were white males, and they ranged in age from 20- to 32-years of age. Three of them were sea cucumber divers, and the other three were clearing either nets or lines from the boat propellers or the ocean floor. Four of them were using SCUBA equipment and two were using surface-supplied air. They were diving at water depths between 10 and 44 feet. They drowned after either getting entangled in what they were trying to untangle or exhausting their air supply. And it's unknown what happened to one victim. Only one of these men was highly trained, and the other five were either newly-certified recreational divers or had no training whatsoever.

Non-Fatal Injuries

Finally, the next presenter will discuss the non-fatal injuries that are collected by the Alaska Trauma Registry.

I hope bringing representatives from all sides of these issues will result in some attainable objectives to further reduce the unacceptably-high number of fatal and non-fatal injuries in the commercial fishing industry.

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