NON-FATAL INJURIES IN THE ALASKAN COMMERCIAL FISHING INDUSTRY

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In the past, there has not been extensive published research on work-related, non-fatal injuries. The main reason for this has been the lack of data available for tracking non-fatal injuries.

The Alaska Trauma Registry

In 1991 the Alaska Department of Health and Social Services began collecting certain information from hospitals in Alaska. These data are compiled in the Alaska Trauma Registry (ATR), and can be used for research in work-related injuries.

I would like to begin with a brief background on the ATR. To begin with, I'd like to point out that all 24 hospitals in Alaska contribute data and information to the ATR, making it a statewide, population-based data source.

The Alaska Department of Health and Social Services in Juneau oversees the collection, cleaning, and storage of ATR data. Our office in Anchorage has a partnership with the state and focuses on the analysis of work-related injuries in the ATR.

For an injury to be included in the ATR, it must meet specific criteria. First, the patient must sustain a traumatic injury. In addition, patients who suffer from the effects of hypothermia or near drowning are also included in the ATR. These patients must also be either admitted to a hospital, transferred to a hospital with a higher level of care, or declared dead in an emergency department. (Figure 1)

- Patients who sustain traumatic injuries;
- hypothermia; or
- near-drowning/drowning

and who are either:

- admitted to the hospital;
- transferred to a higher level of care; or
- declared dead in the emergency department

Figure 1. *ATR Case Definition*

You can see from the case definition that most of the injuries qualifying for the ATR would have to be of a serious nature. All the information I will give in this presentation will come from the ATR and focus on non-fatal, work-related injuries.

Presently, the ATR includes data from January 1, 1991, through December 31, 1995. It contains information on 20,842 injuries, of which 2,421 are work-related and of those, 392 are in the commercial fishing industry.

The ATR breaks down work-related injuries into 11 different target industries. Commercial fishing is one of these target industries, and currently rates highest in total number of non-fatal injuries. (Figure 2)

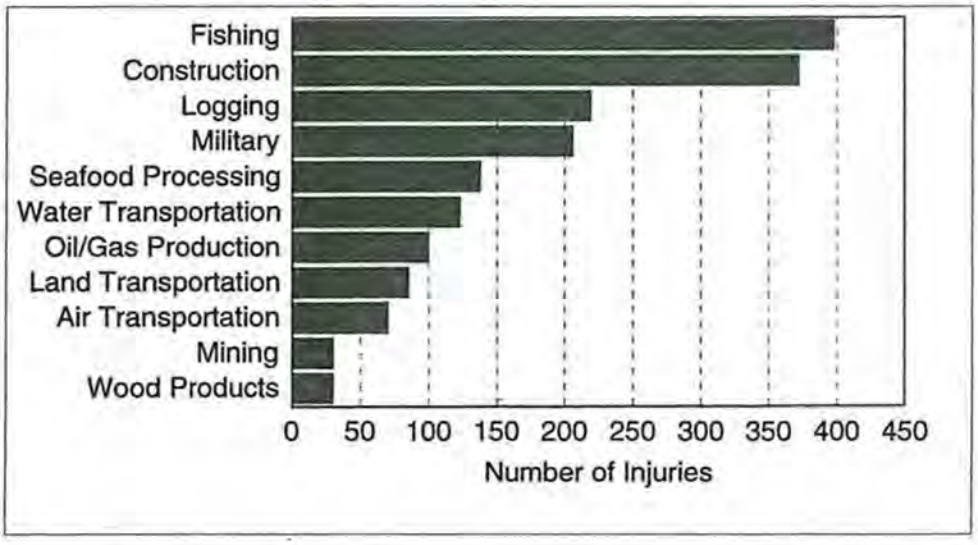

Figure 2. *Number of Injuries by Industry, Alaska Trauma Registry, 1991-1995*

Injuries in the Alaskan Commercial Fishing Industry

When the number of injuries are converted to a rate, which is comparing the percent of occurrence with the defined worker population, commercial fishing ranks sixth, below logging, water transportation, wood product manufacturing, construction, and mining. Using the ATR case definition, commercial fishing has a non-fatal injury rate of 459 per 100,000 workers per year. (Figure 3)

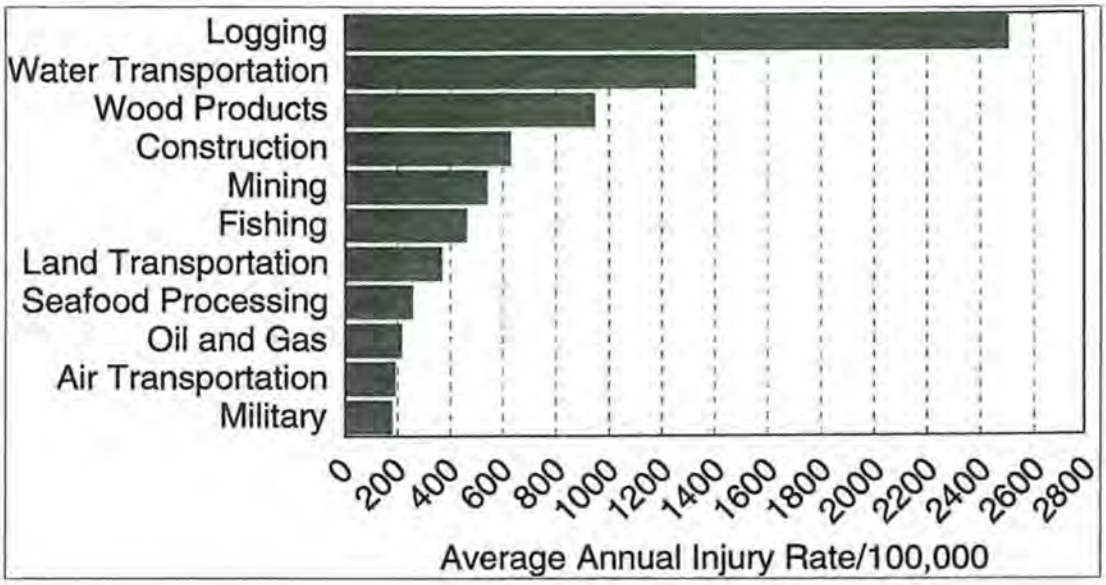

Figure 3. *Injuries/100,000 Workers/Year by Industry, Alaska Trauma Registry, 1991-1995 Preliminary Incidence Data*

To provide a better understanding of who is being injured in the Alaska commercial fishing industry, I've included information focusing on this group of workers.

Looking at age distribution, we find that the majority of injuries occur in fishermen between the ages of 20-49, with the 20-29 year-old group with the highest number of injuries. (Figure 4)

The majority of injuries occur during the summer months. However, there is also an increase in non-fatal injuries during the months of February and March. (Figure 5)

The bulk of the injuries occur in the geographic area of the Aleutian and Pribilof Islands, presumably in the Bering Sea, followed by Southeast Alaska, Kodiak, and Bristol Bay. (Figure 6)

To get an even better understanding of the injuries in the commercial fishing industry, I have included information on the cause of injury, body region injured, and type of injury. Information detailing the cause of injury is taken from the medical cause of injury, or ECODE, in the ATR. Unspecified injuries from machinery and falls, all occurring on a watercraft or boat, rank highest in the list for cause of injury in commercial fishing.

Another field in the ATR is the injury description field, which is an open-text field where the data abstractors can write a short description about the injury. This field has become extremely useful in gathering details of the injury event.

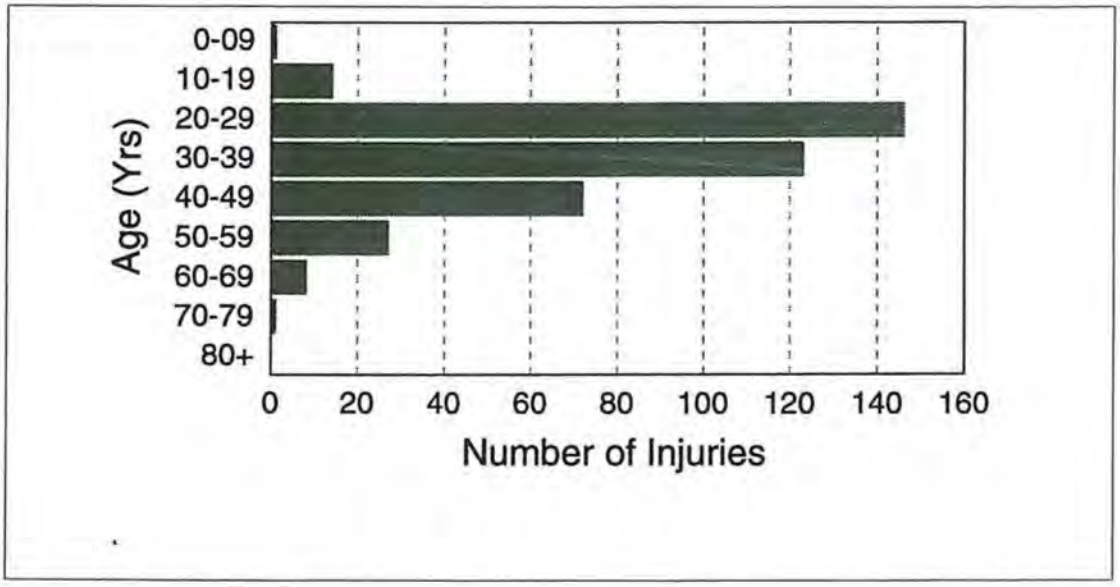

Figure 4. *Victim Age, Work-Related Injuries, Alaska Trauma Registry, 1991-1995*

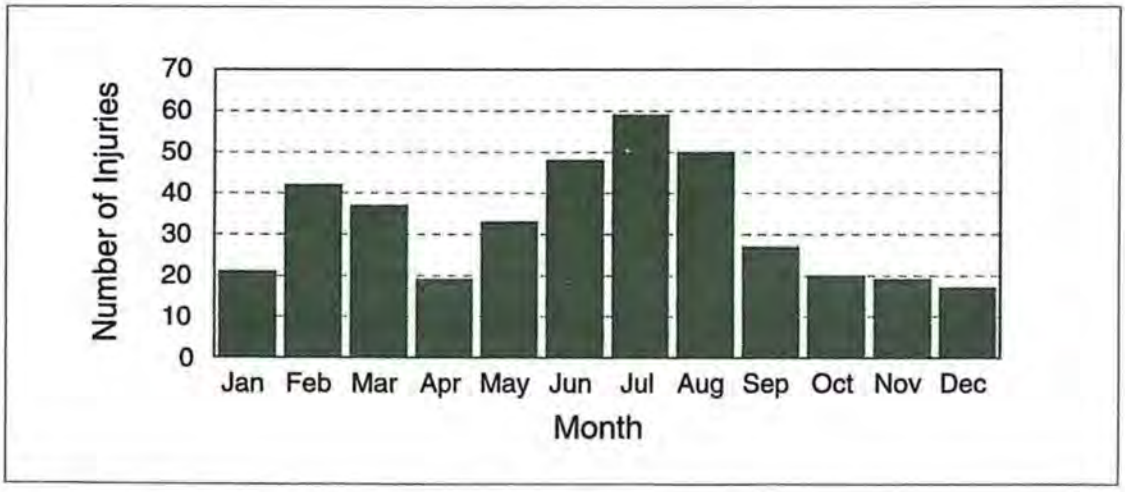

Figure 5. *Month of Work-Related Injuries, Alaska Trauma Registry, 1991-1995*

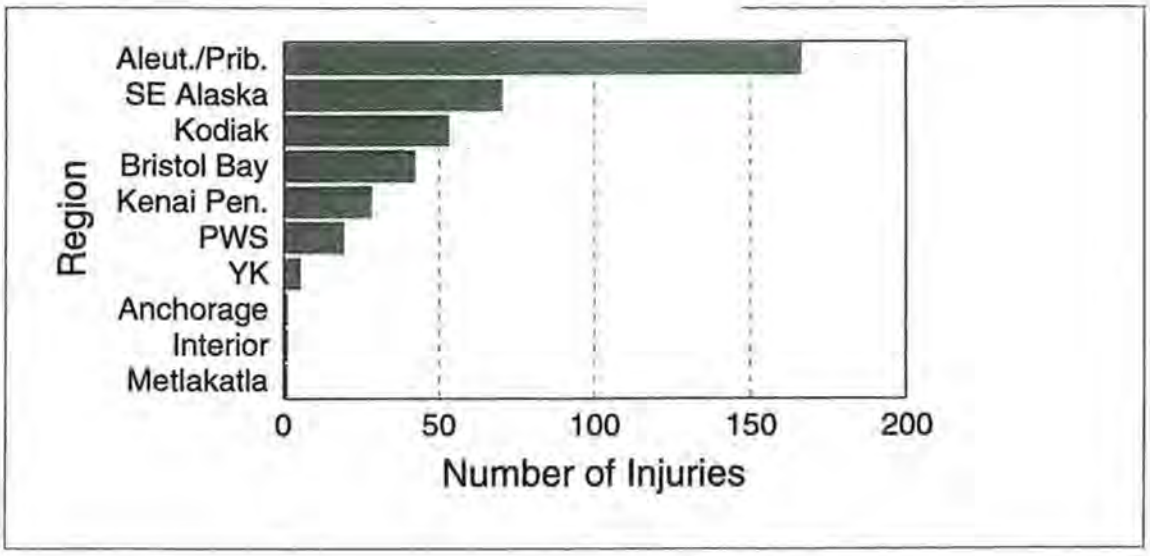

Figure 6. *Region of Occurrence, Alaska Trauma Registry, 1991-1995*

Cause of Injury

The top ranking category for cause of injury was unspecified injury occurring on a watercraft or a boat. From the injury description field we can look at the re-occurring themes that may be contributing to these injuries. Crab pot, net, line, and crushed between boats or a boat and pier were repeatedly mentioned as factors involved in the "unspecified" injury category.

A frequently mentioned factor in the injury description involving injuries with machinery on watercraft was the crab pot launcher. Pulley, winch, rollers, and bait chopper were also frequently mentioned.

For falls that occurred while on a water craft or a boat, falling from a ladder was mentioned most often. Other factors mentioned in the injury description include falling into a hold, or ice on deck, or rough seas that contributed to the fall. (Figure 7)

Body Region of Injury

The body region most often injured is the upper extremity, the arms and the hands, followed closely by the lower extremities, the legs and feet. Knowing the body region of injury can help in injury prevention planning, such as assessing for personal protective equipment needs and guarding on machinery and/or equipment. (Figure 8)

Figure 7. *Cause of Injury, Alaska Trauma Registry, 1991-1995*

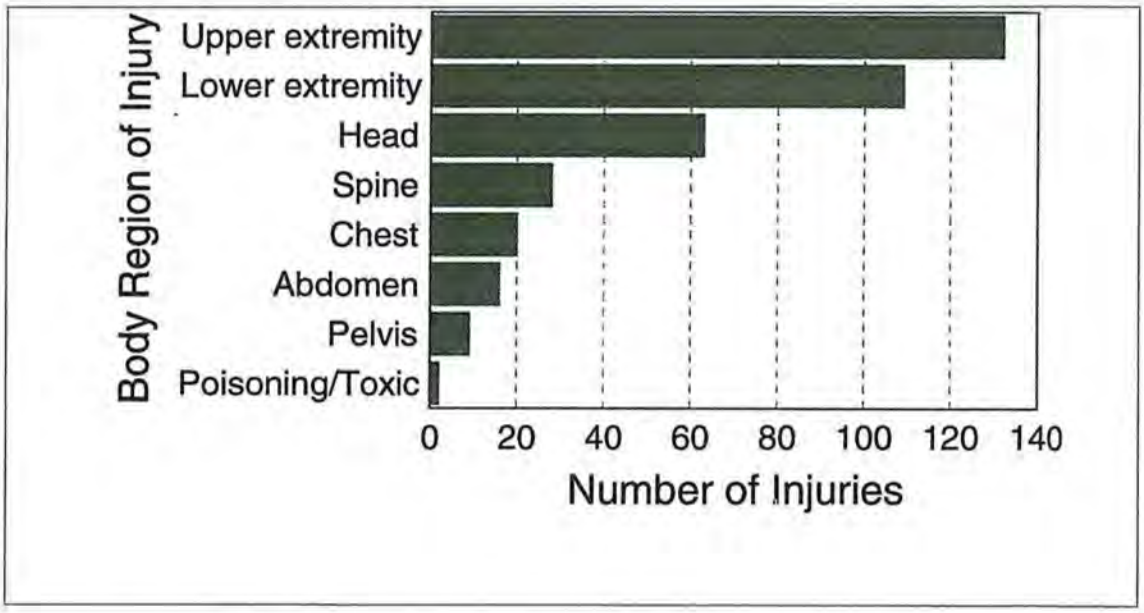

Figure 8. *Body Region of Injury, Alaska Trauma Registry, 1991-1995*

Type of Injury

We obtain the type of injury from the medical diagnosis field in the ATR. Fractured bones were the most common type of injury, comprising almost three times the number of injuries as open wounds, which ranked second. (Figure 9)

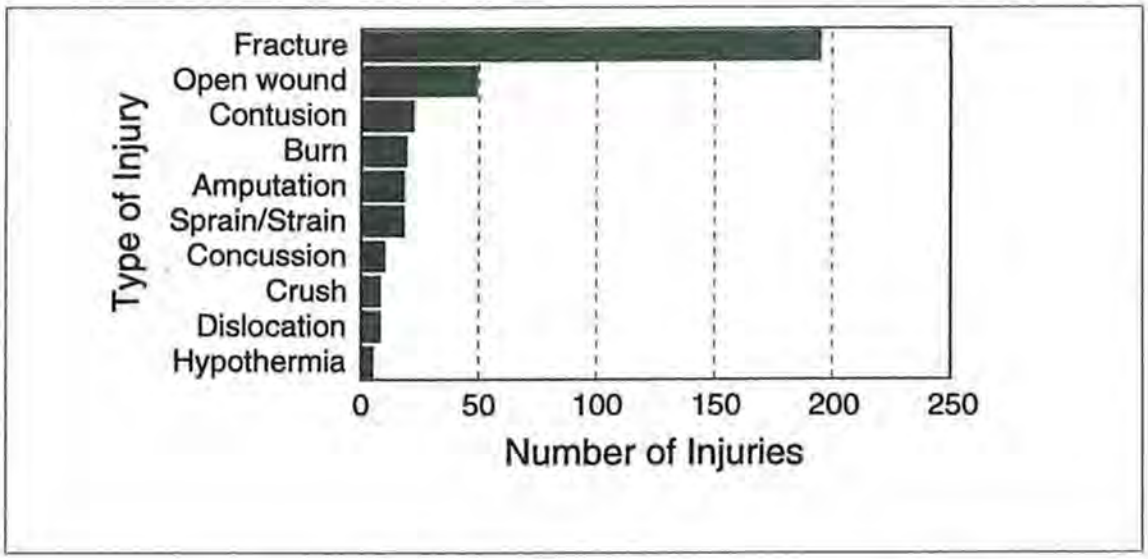

Figure 9. *Type of Injury, Alaska Trauma Registry, 1991-1995*

Injury Descriptions

To help understand more about these injuries, I thought I would read direct quotes from the injury description field, along with the results and medical diagnosis. The quotes I have chosen to read are representative of some of the most common injury scenarios in the ATR data.

The vessels that I've shown or will be showing on these slides are not the vessels where these injuries occurred, but they are of a similar type. Figure 10 shows a crab pot launcher, currently undergoing repairs on a fishing boat which is docked. For those not familiar with this type of equipment, I have drawn a box where the crab pot would be positioned before being slid over the side of the boat and into the water. Quotes from the injury description field include, "Caught foot in hydraulic pot launcher on fishing boat." This injury led to fractured metatarsal bones, which are bones in the foot.

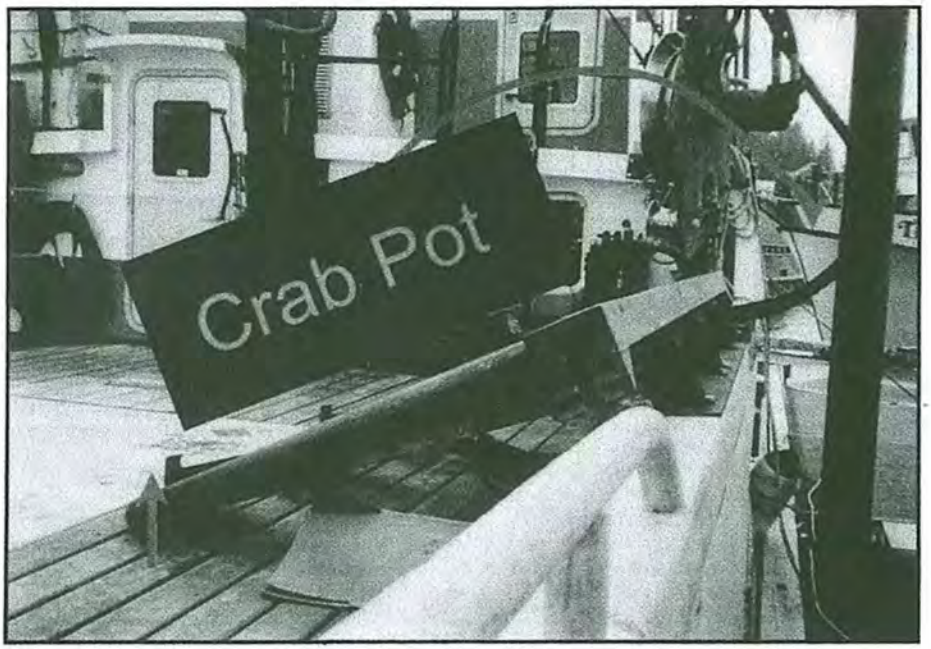

Figure 10. *Crab Pot Launcher*

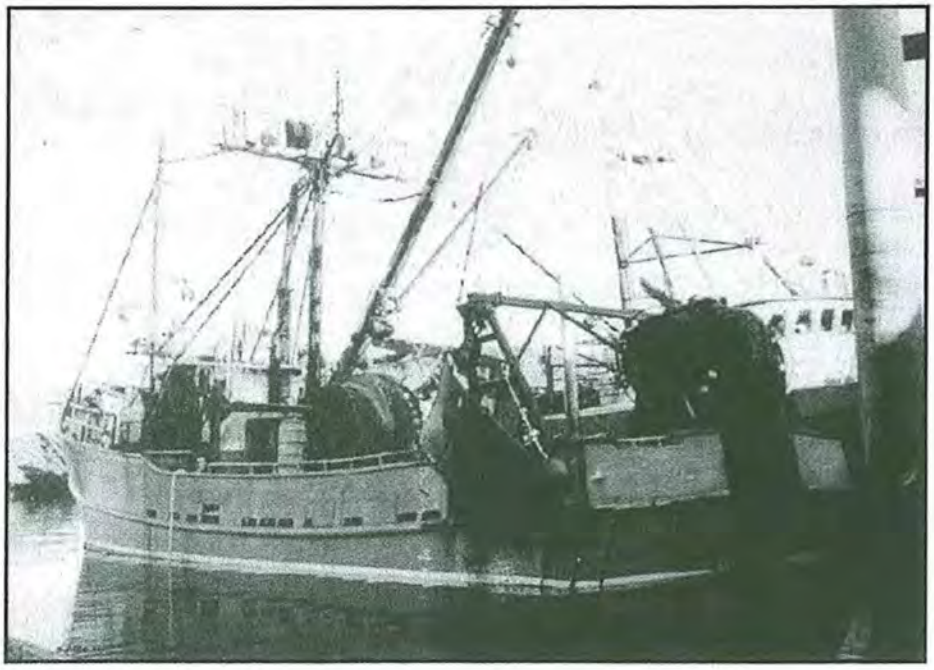

Figure 11. *Lines and Nets*

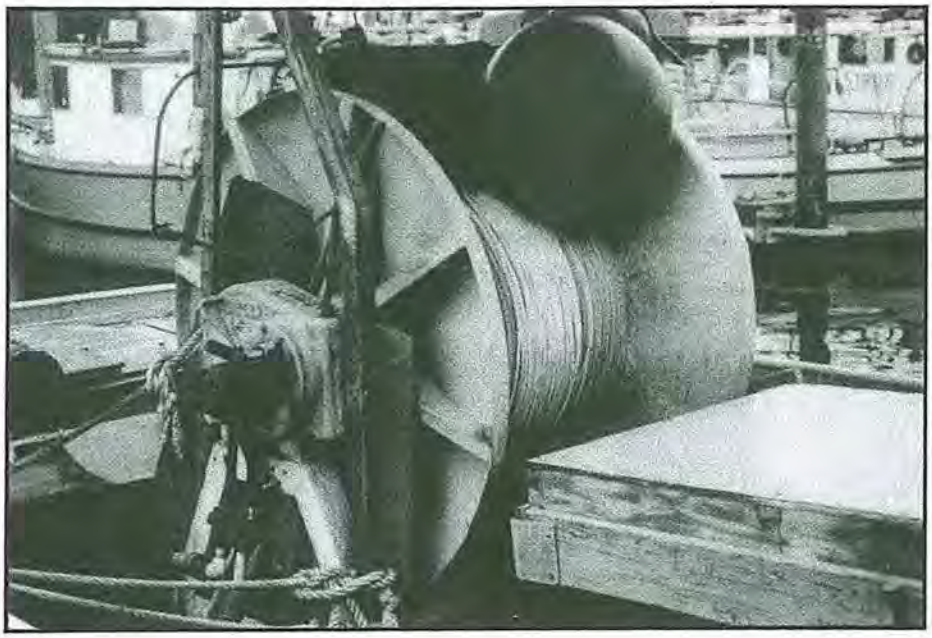

Figure 12. *Machinery on Fishing Vessels*

Another quote states, "Caught between crab pot launcher and crab pot. Sixteen hours out of port, immobilized on deck." This injury led to a fractured femur, which is the long bone in the upper leg.

Common descriptions of injuries using machinery besides crab pot launchers include working with lines and pulleys. (Figure 11) Another quote, "Working on boat during commercial salmon season. Caught finger between line and wheel." This injury led to an amputated finger.

Injuries with nets (Figure 12) were common, with some injuries resulting from a considerable amount of force. In one case the injury was described as, "Drug across trawler deck by net full of fish. Smashed and squashed into deck." This event led to a fractured upper leg, along with other injuries.

In conclusion, I'd like to reemphasize that the commercial fishing industry has the highest number of non-fatal injuries for any industry in Alaska. Quite a few injuries occurred in the crab fishery involving crab pots and/or crab pot launchers. Nets, lines, and falls also contributed to a high number of injuries in this industry.

I hope this information will be helpful to those of you attending the work group on non-fatal injuries in the commercial fishing industry that will be meeting tomorrow. I will have handouts with additional information on these injuries for those who attend that work group.

Are there any questions about the ATR or non-fatal fishing injuries?

MS. SWEENEY: Meg Sweeney, National Transportation Safety Board.

Has there been any attempt to associate injury severity with the Abbreviated Injury Scale?

MR. HUSBERG: Yes. The ATR includes a couple of different measures where you can look at severity, and one of them is the AIS, the Abbreviated Injury Scale. And I haven't focused on severity with fishing yet. However, I have done it with all ATR injuries as a whole.

In fishing, I've done a preliminary breakdown, looking at severity. But I haven't come up with anything in detail yet, but it is possible with the ATR.

MR. NOLL: I'm Barry Noll with OSHA, and it would seem to me that the ATR is only capturing part of the population, and that's injured people who are transported to shore. So how are you going to capture the information for those that are treated on the vessels, and don't actually land in Alaska, but may come to Seattle or somewhere else. How are you going to deal with that, because that's a rather large population you're missing?

MR. HUSBERG: Actually, not only does it not capture the people who are treated on the vessel, if they actually are transported ashore and treated in a physician's clinic or an outpatient clinic and not admitted to a hospital, they're not in the trauma registry either.

So, basically, one might best think of the ATR as containing the more severe injuries, not the less severe ones. There are some cases where they're actually transferred to a hospital outside of Alaska. For example in Southeast Alaska, there have been patients sent directly to Harborview Hospital and some of the other hospitals here in Seattle. We do collect data from Harborview Hospital. However, the data from Harborview would have to be manually entered in the ATR and some of the fields that we use in the ATR are not included in the data we receive from Seattle. At this time we have not entered the Harborview information into the ATR, but we have that information available.

MR. NOLL: Now, what about things like the Coast Guard 2692 form, Report of Marine Casualty, that a vessel operator is required to do anytime there is an injury on board the vessel, can you get that data? Because it seems to me it would be much more accurate.

MR. HUSBERG: Yes, actually, that would be a good source of data. In fact, that's an area that we might focus on in the future for looking at some of the less severe non-fatal injuries. That's a good suggestion.

DR. JARRIS: I'm Dr. Ray Jarris in Seattle with Maritime Health Services, which is a medical consultation service, and I'll talk about that during my presentation at the end of the day and present a study where we looked at about 900 cases of things that happened at sea. There are some very striking parallels to what you've learned from the ATR. But we have data available, and we'll certainly make it available to OSHA or NIOSH, whomever would like it.

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