

## **SURVEILLANCE FOR NONFATAL WORK-RELATED INJURIES IN THE ALASKA FISHING INDUSTRY**

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### **INTRODUCTION**

Information for injury surveillance can come from many different data sources. Fatality information is generally gathered from death certificates, which are a clearly defined endpoint. However, information for nonfatal injuries can be a little more difficult to define and locate. This point can be more clearly portrayed by looking at injuries in the commercial fishing industry. Recent injury surveillance has shown that work-related fatal injuries in the Alaska commercial fishing industry are more commonly a result of the loss of a vessel resulting in the loss of fishermen's lives [NIOSH 1997]. When nonfatal injuries occur in the commercial fishing industry it is more commonly a result of machinery or

falls that occur while working on deck. This paper will focus on hospitalized nonfatal injuries in the Alaska commercial fishing industry using injury surveillance data from the Alaska Trauma Registry (ATR).

## METHODS

The ATR is used as a tool for hospital quality assurance for the care of patients with traumatic injuries. It is also used extensively for injury surveillance in Alaska. Data are collected and maintained by the Alaska State Department of Health and Social Services, Division of Public Health, Section of Community Health and Emergency Medical Services in Juneau, Alaska.

There are many unique aspects regarding the use of the ATR for injury surveillance. One of these is the fact that all 24 acute care hospitals in Alaska contribute data to the registry. Also there are very few hospitals located across the Alaska border. The result is that few people who are injured in Alaska will be seen at a hospital outside of the state before being seen in an emergency department (ED) at a hospital in Alaska. These points make the ATR a useful population-based data source for injury surveillance.

The ATR only has information for patients admitted to a hospital in Alaska. To be included in the ATR a patient has to sustain a traumatic injury defined by an ICD 9 CM discharge diagnosis code ranging from 800.00 through 995.99. The patient also has to be either admitted to a hospital in Alaska; transferred to a hospital with a higher level of care after being admitted to a hospital or seen in an ED in Alaska; or declared dead in the hospital emergency department or after being admitted.

Cause of injury information is taken from the ICD 9 CM “E code.” Nature of injury and body region injured are extracted from the ICD 9 CM “N code” given to the primary discharge diagnosis. The ATR has a narrative “injury description” field where additional information on the cause and circumstances of injury can be obtained. Hospital costs are taken from hospital discharge information.

## RESULTS

Currently, the ATR contains complete data for the years 1991 through 1998. During this time period there were 34,306 injuries recorded in the ATR. Ten percent (3,582) of these injuries were work-related with 587 occurring to workers in the commercial fishing industry. For the years 1991 through 1997 the commercial fishing industry had the highest number of work-related injuries in the ATR [Husberg 1998]. With the inclusion of the 1998 data, the construction industry had the highest number of injuries for the eight-year period. Annual trends show a decreasing number of commercial fishing injuries where the construction industry has a gradually increasing trend.

When looking at injury rates by industry, commercial fishing ranks third, with four hospitalized injuries per 1,000 workers. The industries with the highest hospitalized injury rates in Alaska were logging (18/1,000) and construction (6/1,000).



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**Photo 1:** Pot being positioned on pot launcher by crane



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**Photo 2:** Pot launcher in up position launching a pot over the side of the boat

Leading causes of injuries in the commercial fishing industry include machinery (187), falls (149), and being struck by an object (98). The E code system does not have a further breakdown for the machinery injuries. However, after reviewing the injury description field in the ATR, it became obvious that most of these injuries were caused by crab pot launchers (CPL) and cranes. The injuries caused by falls can be broken down further using the E code. Most of the falls were from slips or tripping (37) followed by falls from a structure (7). The injury description field in the ATR shows that most of the objects striking workers were crab pots and fish nets.

The nature of injury listed most commonly included a fractured bone (279), open wound (73), and burn (29). Body regions most commonly injured include the upper extremities (184), lower extremities (171), and the spine (35).

Hospital costs ranged from U.S. \$219 to U.S. \$165,324. The average hospital cost was U.S. \$2,063.

## CONCLUSION

From review of the causes we find that many of the injuries occur in the crab fishery. The initial approach to the machinery injuries was to look at the CPL in depth. The CPL is a platform, approximately 7 ft. by 7 ft. square made of steel pipe. One side of the platform is permanently attached to the gunwale of the boat by hinges, the other side is free to raise and lower by hydraulic power. When a crab pot is ready to be placed in the water the hydraulic ram raises the free end of the CPL platform where the crab pot can slide into the sea. The free end rests on the deck except when it is raised to deploy a crab pot. An empty crab pot in the larger crab fisheries measures 7x7x3 feet and weighs approximately 700 pounds, empty.

Many of the injuries, caused by the CPL, identified by the ATR were crushing injuries to the lower extremities and feet. Possible injury prevention measures could be to weld two steel blocks (~4x4x4 inches) on the bottom of the free end of the CPL where it rests on the deck. This would reduce the contact surface with the deck and minimizing the area where feet and toes could be crushed. Another measure to prevent injuries working around the CPL is to paint a yellow boundary around area the CPL covers on the deck. This would increase fisherman's awareness of areas to avoid when the CPL is in operation. Finally, on some vessels the controls to the hydraulics for the CPL are located far away from the CPL itself making it difficult for the operator to have a clear view of the work (the controls for the CPL are usually located with the controls for cranes, and power blocks). Locating the CPL controls closer to the CPL or with a good view of the working area could help decrease these injuries. Another possibility is to locate an emergency shut off switch near the CPL to be used if someone was caught under the CPL platform.

The ATR has been very useful in identifying hazardous work practices and injury prevention measures in the commercial fishing industry. With information from the ATR, injury prevention programs focusing on machinery injuries in crab fisheries fishermen are underway.

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# **PROCEEDINGS OF THE INTERNATIONAL FISHING INDUSTRY SAFETY AND HEALTH CONFERENCE**

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October 23-25, 2000

Woods Hole, Massachusetts, U.S.A.

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

and

Occupational Health Program

Department of Environmental Health

Harvard School of Public Health

October, 2002

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Cover photograph by Earl Dotter

**DHHS (NIOSH) PUBLICATION No. 2003-102**



