times. Non-occupational injuries are the leading cause of premature death for residents of Bristol Bay Alaska. In this region, commercial salmon fishing occurs during two summer months and accounts for a large proportion of many households' annual income. I hypothesized that wide variations in income from commercial fishing would dramatically alter overall injury rates in Bristol Bay. I obtained injury data from the Bristol Bay Area Health Corporation's Severe Injury Surveillance System for the years 1996–2009; and economic data from Alaska's Commercial Fisheries Entry Commission. I calculated total income associated with commercial salmon fishing by identifying the number and gross earnings of fishing permit holders. Total annual per capita income data was obtained from the Alaska Department of Labor and the US Bureau of Economic Analysis. Over the 14-year period, the overall injury rate declined 34%, from 418 in 1996 to 266 per 10,000 in 2009. This decline was associated with an increase in median per capita income, from $22,572 in 1996 to $36,694 in 2009. There was no association between overall injury rates and annual income from salmon fishing, which ranged from $8,836 (2002) to $45,930 (2009). This surprising finding may have resulted from supplementary sources of income that maintained stable levels of total personal income in the face of wide variations in income from commercial fishing. Our next step is to identify these supplementary sources; and explore how specific types of injury (such as suicide attempts and domestic violence) might vary during lucrative and disappointing summers of commercial fishing.

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MARITIME DISASTERS AND OCCUPATIONAL FATALITIES IN ALASKAN ARCTIC WATERS, 1986–2011

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Objectives. To identify fatal maritime disasters in Alaskan Arctic waters between 1986 and 2011.

Study Design. As regional reconnaissance for an EPPR/Arctic Council project intended to promote worker safety and health during disaster response, events were identified using public and proprietary information sources for maritime disasters, defined here as a shipwrecks, fires, and vessel casualties, in Alaskan Arctic waters, defined here as being north of 60 degrees latitude plus the Bering Sea and Aleutian Islands. Events were limited to occupational incidents, within the defined geographic area and date range. Events were then broken down by vessel type and within vessel type by fatality occurrence. Concerted public/private efforts have been made since 1990 to prevent deaths in such events, and this study attempts to measure whether any progress has been made on that front.

Results. Preliminary data show between 1986 and 2011 there were 166 maritime disasters in Alaskan Arctic waters. 38 (23%) of these were fatal incidents, with 128 total fatalities. The majority of these (31 incidents and 110 fatalities) were in commercial fishing. Almost all of the commercial fishing related deaths happened along or near the Aleutian Islands. 3 fatalities occurred during the response to an earlier maritime disaster. The frequency of such events decreased from 7.4/year in 1986–1990 to 3.8/year in 2007–2011.

Conclusion. Arctic waters in Alaska provide a unique challenge to workers, in particular, commercial fishermen. This challenge extends to workers responding to maritime disasters as well. The marked progress made in reducing such events during the last quarter century gives hope and may provide useful examples for such efforts in other cold waters worldwide.

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WORK-RELATED AVIATION FATALITIES IN ALASKA: 2000–2010

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Background. Aviation is a vital industry in a remote region like Alaska. During the 1990s, a total of 108 fatal aviation crashes resulted in 155 work-related fatalities. In the early 2000s, several interventions were developed and implemented by the aviation industry, government agencies and nongovernmental organizations through a multifaceted public health approach to improve aviation safety. Aircraft crashes remain the second leading cause of work-related deaths in Alaska; efforts continue to be needed to address this high-risk means of transportation.

Methods. Data from the National Transportation Safety Board (NTSB) and the Alaska Occupational Injury Surveillance System (AOISS) were used to identify risk factors for work-related fatalities due to aircraft crashes. NTSB reports include information on aircraft, crash circumstances, pilots and crew, and a narrative outlining contributing factors. AOISS contains information on all fatal occupational traumatic injuries that occur in Alaska.

Results. During 2000–2010, a total of 54 crashes resulted in 90 work-related fatalities, an average of five fatal aircraft crashes and eight fatalities per year. Among those crashes, 21 (39%) were associated with intended takeoffs or landings at remote landing sites not registered with the Federal Aviation Administration (FAA). Fifteen crashes (28%) were associated with weather, including poor visibility, wind, and turbulence. In addition, 11 crashes (20%) resulted from pilots' loss of aircraft control;

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nine (17%) from pilots' failure to maintain clearance from terrain, water, or objects; and seven (13%) from engine, structure, or component failure.

Conclusions. Although aviation safety has improved greatly from the 1990s, efforts are needed to further reduce work-related fatalities resulting from aircraft crashes in Alaska. Future safety interventions should focus on providing weather and other flight information to increase pilots' situational awareness, maintaining pilot proficiency and decision making abilities including avoiding fatigue, and expanding the infrastructure used by pilots to fly by instruments.

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