

# **Surveillance and Prevention of Occupational Injuries in Alaska:**

**A Decade of Progress, 1990-1999**

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

Centers for Disease Control and Prevention

National Institute for Occupational Safety and Health

**May 2002**

## **DISCLAIMER**

Mention of the name of any company or product does not constitute endorsement by the  
National Institute for Occupational 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

Publications Dissemination, EID  
National Institute for Occupational Safety and Health  
4676 Columbia Parkway  
Cincinnati, OH 45226-1998

Fax number: (513) 533-8573  
Telephone number: 1-800-35-NIOSH (1-800-356-4674)  
E-mail: [pubstaft@cdc.gov](mailto:pubstaft@cdc.gov)

For further information about occupational safety and health  
topics, call 1-800-35-NIOSH (1-800-356-4674), or  
visit the NIOSH Web site at [www.cdc.gov/niosh](http://www.cdc.gov/niosh).

**DHHS (NIOSH) PUBLICATION No. 2002-115**

## Foreword

The public health approach of conducting injury surveillance, epidemiologic analysis, planned interventions and evaluation has served as a blueprint for reducing the occupational injury rate in Alaska. Following this approach, the National Institute for Occupational Safety and Health (NIOSH) worked with numerous partners in the public and private sectors on collaborative efforts to prevent occupational injuries and fatalities in Alaska. These efforts included development of a comprehensive, statewide surveillance system that helped identify new and emerging problems, track hazardous conditions over time, target interventions, evaluate efforts and anticipate future problems. During the 1990s, occupational fatalities in Alaska decreased by nearly 50%. This document describes collaborative efforts that contributed to this decrease.

One primary goal in compiling this document was to create a resource that could be used by anyone interested in workplace safety in Alaska or other high-risk areas facing occupational injury challenges. While significant progress was made in the 1990s to reduce fatalities in Alaska's commercial fishing and helicopter logging industries, challenges remain in reducing the burden of fatal occupational injuries in commercial aviation and nonfatal injuries in construction and commercial fishing.

This document summarizes what is known about occupational injuries and fatalities in Alaska by defining problems, describing recent successes, and recommending approaches for preventing occupational injury events. Our hope is that this document will serve as a catalyst to broaden injury prevention efforts to further reduce occupational injuries and fatalities in Alaska and other regions.

Kathleen M. Rest, PhD, MPA  
Acting Director,  
National Institute for Occupational  
Safety and Health



## Contents

Foreword .....	iii
Acknowledgments .....	vii
Public Health Summary .....	ix
Executive Summary .....	xi
Introduction .....	1
Methods and Approach to the Problem .....	4
Overview of Alaska’s Work-related Fatalities .....	8
Helicopter Logging .....	12
Commercial Fishing .....	17
Commercial Aviation .....	29
Nonfatal Injuries to Alaska Workers .....	37
Conclusions and Future Direction .....	44
References .....	45
List of Acronyms .....	48



## **Authors**

This document was prepared by George A. Conway MD, MPH; Jennifer M. Lincoln MS, CSP; Diana S. Hudson, MPH; Diana M. Bensyl, PhD; Bradley J. Husberg, BSN, MSPH; and Jan C. Manwaring, MPH, REHS, all employees of the Alaska Field Station, Division of Safety Research, National Institute for Occupational Safety and Health (NIOSH).

## **Acknowledgments**

The authors are very grateful for the help of Katherine A. Moran, MAS, Rick P. Kelly, and Sharon E. Smith of the Alaska Field Station for their help and assistance in the preparation of this manuscript. We also are grateful for the technical assistance provided by Joyce R. Spiker of the Division of Safety Research in preparing the camera-ready copy, and to David Votaw of the Education and Information Division, NIOSH.

This manuscript would not have been possible without the help provided by George E. Kobelnyk, MS, Dan R. Perry and Anne Graham of the Federal Aviation Administration. We appreciate the reviews provided by Ron D. Perkins, MPH, Executive Director of the Alaska Injury Prevention Center, and Michael Beller, MDCM, MPH, formerly of the State of Alaska Department of Health and Social Services. We also gratefully acknowledge the comments provided by Craig Zwerling, MD, PhD, MPH, Director, Injury Prevention Research Center, University of Iowa.

The authors would further like to thank Hon Kagan Kinzie, Air Transport Pilot, and LCDR Chris Woodley, US Coast Guard 13<sup>th</sup> District, for the assistance they provided with this book.

The authors also gratefully acknowledge the review of text and graphics by colleagues at NIOSH, including Nancy A. Stout, EdD; Timothy J. Pizatella, MS; Herb Linn, MS; Linda Morton, MS; Ted Katz, MPA; and Rosemary Sokas MD.





## Public Health Summary

### **What are the hazards?**

During the 1980s, Alaska was identified as the state with the highest traumatic occupational fatality rate in the U.S. While considerable progress has been made in reducing the number of occupational deaths and injuries in Alaska, some workers in the state are still at elevated risk. These workers include commercial fishermen working in Alaska waters, and pilots and passengers on air taxi and commuter flights within the state. Many of the workers in these high-risk occupations work in remote locations and experience exposure to harsh and unpredictable weather. Male workers, who form an overwhelming majority of the workers in the highest risk occupations in Alaska, are also at much higher risk for occupational fatalities—96% of all traumatic occupational deaths during 1990-1999 occurred among men.

### **How can a worker be exposed or put at risk?**

Most Alaskan workers are exposed to many of the same risks as are other workers in the U.S. However, workers in the highest-risk occupations in Alaska also face unique and extreme environmental risk factors due to the size of the state, the remote locations of many work sites, and the lack of nearby rescue teams and/or emergency response systems. For example, commercial fishermen in Alaska work some of the coldest and roughest waters of the U.S., and are often under intense pressure to meet harvest deadlines. Cold weather and cold water contribute to worker fatigue and may exacerbate subsequent injuries. Pilots and work-related passengers on commuter flights and air taxis often encounter rapid weather changes as they travel from one remote site to another; the resulting changes in visibility can often contribute to crashes.

### **What recommendations has the federal government made to protect workers' safety and health?**

During the past decade, successful government/industry collaborations have resulted in multiple recommendations to prevent injuries in high-risk industries in Alaska. NIOSH has worked extensively with worker groups, industry representatives, and other government agencies to quickly and effectively address the high worker fatality rates for helicopter logging pilots and crew members through increased industry oversight and revised safety procedures at logging operations. NIOSH has worked with fishing groups; local, national and international government agencies; and industry representatives to promote on-board safety drills, engineering changes to vessels, and the increased use of personal flotation devices for commercial fishermen working in Alaska waters. NIOSH has also been active in promoting aviation safety campaigns for commercial pilots of air taxi and commuter flights around the state through its partnerships with state and federal agencies, flight operators, pilot associations and researchers.

### **Where can more information be found?**

The references at the end of this document provide a useful inventory of published reports and literature. A number of trade associations and occupational safety education organizations have also developed materials regarding occupational safety. Additional information can be obtained from NIOSH through:

1-800-35-NIOSH  
(800-356-4674)  
or at  
[www.cdc.gov/niosh](http://www.cdc.gov/niosh)



## Executive Summary

During 1980-1989, Alaska experienced 34.8 traumatic deaths for every 100,000 workers employed in the state, a rate that was five times the national rate of 7.0 per 100,000. From 1990 through 1999, 648 Alaskan workers died from job-related injuries: 217 commercial fishermen, 107 civilian pilots, 47 military personnel, and 26 loggers. They died from drowning (219), in aircraft crashes (192), by being crushed (53), from intentional injuries (47), in motor vehicle crashes (29) and from falls (26). Many of these deaths were among young people, resulting in over 17,000 worker years of potential life lost before age 65. Due to the high occupational fatality rate in Alaska, the Centers for Disease Control and Prevention, NIOSH responded by establishing a field station in Anchorage in 1991.

First, NIOSH established data-sharing with jurisdictional agencies and from direct on-site investigation of incidents. Comprehensive occupational injury surveillance was established for Alaska, and interagency working groups (of state and federal agencies and industry groups) were formed and facilitated, to address major factors leading to occupational death and injury in the state.

Since 1990, Alaska has experienced a 49 percent overall decline (from 82 deaths in 1990 to 42 deaths in 1999) in work-related deaths, including a 67 percent decline in commercial fishing deaths, and a very sharp decline in helicopter logging-related deaths. These are two of the occupations on which interagency/industry efforts were most focused. For example, the successes in commercial fishing are due in part to the U.S. Coast Guard implementing new safety requirements in the early 1990s. These safety requirements contributed to 89 percent of the commercial fishermen surviving vessel sinkings/capsizings in 1999, whereas in 1991, only 73 percent survived. Another dangerous area in the fishing industry is the deck of fishing vessels. Surveillance data for non-fatal injuries has led to an ongoing research project on deck safety.

Efforts in helicopter logging have also been successful. Crashes in that emerging industry killed 9 Alaskan workers (pilots, co-pilots, and loggers) and seriously injured 10 others during 1992-1993, but an interagency effort led to improvements in regulatory oversight, helicopter logging safety workshops, and formulating and disseminating safety recommendations. Since the first helicopter logging safety workshop in 1994, an international helicopter logging safety committee has been formed, and Alaska has only experienced one additional helicopter logging-related fatality through 1999. These efforts have led to major national and international government-industry collaborative efforts in improving safety in helicopter lift operations.

Although mortality due to crashes of fixed-wing aircraft showed modest decreases in Alaska in 1997-1999, it persists as the leading cause of death for Alaskan workers and is now a major area of concentration.

Using surveillance data as information for action, collaborative efforts have contributed to reducing Alaska's high occupational fatality rate. Results suggest that extending such a focused approach to other areas, and applying these strategies to the full spectrum of occupational injury hazards, could have a broad impact on reducing occupational injuries in other regions.