

SURVEILLANCE FOR WORK-RELATED FATALITIES IN THE ALASKAN COMMERCIAL FISHING INDUSTRY

By LCDR George A. Conway, USPHS

Ms. Bernice W. Carmon: This is Session Three of the National Fishing Industry Safety and Health (FISH) Workshop entitled *Identifying the Population at Risk*. Our first presenter is Dr. George Conway, whose presentation is entitled *Surveillance for Work-Related Fatalities in the Alaskan Commercial Fishing Industry*. George A. Conway, M.D., M.P.H., is the Chief of the NIOSH Alaska Activity here in Anchorage. For the four years prior to his Alaska assignment, he was a medical epidemiologist with the HIV Seroepidemiology Branch of the Division of HIV and AIDS at the National Center for Infectious Diseases, Centers for Disease Control, in Atlanta, Georgia. He is a graduate of the University of New Mexico School of Medicine, was trained in Family Medicine at the University of Wyoming and Preventive Medicine at the University of South Carolina, and is a former EIS Officer with the Centers for Disease Control. Dr. Conway is board-certified in Public Health and General Preventive Medicine. LCDR George Conway:

Good afternoon. Before I get to the substance of my talk, I think there are a few acknowledgements that are in order. I want to reiterate the fine job that Mike Klatt has done in pulling everything together for the conference: I really appreciate his doing that, and his help in preparing this presentation. The other acknowledgement I would like to make here is of Lt. Richard Kennedy.

Mr. Kennedy collaborated with me in preparing this talk and really helped a lot with the substance of it. So, I want to be sure that he is mentioned up front and I will also mention him during the talk in hopes that you will address most of your technical questions toward him.

As the title indicates, I will be talking about *Surveillance for Work-Related Fatalities in the Alaskan Commercial Fishing Industry*. Our approach to making estimates of the population at risk includes determining the size of the work force, estimating the number of annual employees, conducting occupational injury surveillance, calculating injury rates,

and then drawing conclusions from rate comparisons.

The historical contributions to the estimation of the number of annual employees in the Alaska commercial fishing industry have come from a collaborative effort among the Alaska Department of Labor (AKDOL), Bureau of Labor Statistics (BLS), and the Alaska Commercial Fishing Entry Commission (CFEC). Starting in the late 1970's, and terminating with the 1984 report, AKDOL used CFEC data to produce yearly estimates of fisher employment. The computational algorithm, based on the work developed by George Rogers, made use of four constituent components:

1. Fish ticket landing receipts.
2. Vessel permits.
3. Crew size estimates (from survey).
4. Vessel trip length estimates (from survey).

A follow-up to the AKDOL and CFEC work was done by the McDowell Corporation, a group of Alaskan economic and market consultants. In May 1989, they published Alaska Seafood Industry Study: A Technical Report. That report contained, based on 1986 data, information such as statements of earnings, seafood harvest and production, and detailed employment estimates for the five major Alaskan fisheries: salmon, halibut, groundfish, herring, and shellfish.

Estimating the risk of different factors such as weather, vessel size, condition and equipment, fishing practices, short seasons, and use of protective and survival equipment involves a multifaceted approach starting with surveillance.

In 1991, Drs. Knapp and Smith of the University of Alaska, Institute for Social and Economic Research, published the Seafood Industry Sector Report, which used similar methodology to McDowell's, but with refinements to crew size and trip length.

First, I would like to discuss the methodologic approach that we have used for these problems. A substantial collaborative effort toward estimating the size of the work force has been made by the AKDOL and the CFEC. From the late 1970's to 1984, this effort employed the eclectic methodology that had been developed by George Rogers. This method made use of fish tickets, vessel permits, cruise size estimates, and trip-length estimates.

The McDowell Corporation's technical report, published in 1989 and based on 1986 data, and Drs. Knapp and Smith seafood-industry-

sector report in 1991 made use of similar methodology with considerable refinements. Mr. Kennedy will refer in more detail to those. Current collaborative efforts are being made by CFEC, AKDOL, the National Marine Fisheries Service, the U.S. Coast Guard, and our office here as well as NIOSH personnel in Morgantown, West Virginia.

Estimating the risk of different factors such as weather, vessel size, condition and equipment, fishing practices, short seasons, and use of protective and survival equipment involves a multifaceted approach starting with surveillance. Fatal injuries are recorded and described by two evolving national systems. The first, NTOF or National Traumatic Occupational Fatality program is a single national system with limitations including the under-reporting of fatalities and the lack of precise work force estimates.

The FACE or Fatality Assessment and Control Evaluation program contains a number of components: one within the NIOSH DSR Alaska Activity, and state-based programs in nine states, now including the coastal states of Alaska, Massachusetts and New Jersey. I want to mention Gary Bledsoe who is the Occupational Injury Prevention Program Manager in the Epidemiology Section for the Department of Health and Social Services, Alaska.

We believe that commercial fishing fatality surveillance is now relatively complete in Alaska. Fatal and non-fatal injuries are recorded in Alaska by the Alaska Trauma Registry. The U.S. Coast Guard marine casualty system (CASMAIN) and search and rescue (SAR) dataset both provide vessel casualty and limited fatal injury data.

The FACE program conducts detailed surveillance for occupational

fatalities through close collaboration with federal, state and local agencies. Data are acquired through record reviews and a very active investigative process. In Alaska, this occurs through a very interesting hybrid of Gary Bledsoe and his associates — located within the state government — collaborating with our office.

Table I. Estimated Fisher Employment, Alaska, 1986 versus 1991 (counts are annualized full-time employee equivalents).

Fishery	McDowell [1986]*	NIOSH [1991]**
Salmon	6,800	7,500
Shellfish	1,850	3,600
Herring	600	500
Groundfish	2,200	4,600
Halibut	1,000	1,500
Miscellaneous	150	300
Total	12,600	18,000

* Seafood Industry Technical Report, McDowell Corporation, 1989

** Alaska Activity Denominator Project, Unpublished Data, 1992

The data gathered include demographics and detailed information on circumstances surrounding an event. This is compiled using state-of-the-art computers and data base software, then analyzed for descriptive and analytical reports. These analyses in turn enable the development of intervention strategies and the testing and evaluation of the effectiveness of such interventions.

I would like to give some very limited results. Shellfish and the groundfish fisheries annualized employment has roughly doubled (Table I) during 1986-1991, with all other fisheries showing a modest increase and a possible decrease in the herring fishery.

So far, the NIOSH Alaska Activity has compiled reports for 1991 of

79 fatalities in all industries; 35 of which were fatalities among commercial fishers. This works out to be a commercial fishing fatality rate of 200 per 100,000, which is very high even compared to other occupations in Alaska.

The 1992 fatalities as of September 30 in the commercial fishing industry have so far counted 29. It is quite possible that we will exceed the number that we had last year.

One of the basic questions we ask in epidemiology is, how good is the data that we are receiving? There has been a concerted effort to ascertain the completeness for occupational fatalities in Alaska. For 1991, by death certificate review, we believe that our surveillance is at least 95 percent sensitive, or that we have collected 95 percent of the available documented deaths in Alaska.

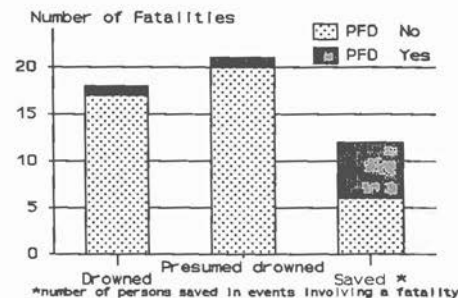


Figure 1. Personal Flotation Device (PFD) Usage for Persons Drowned, Presumed Drowned, or Saved, Alaska, January 1991 - September 1992, N=51.

Figure 1 displays personal flotation device (PFD) usage when that information was available. Shown are the 51 out of 71 persons drowned, presumed drowned, or saved in events involving at least one fatality in the Alaska commercial fishing industry during the period January 1991 through September 10,

1992. (Source: Alaska Activity, DSR, NIOSH)

Among the 17 individuals who drowned, only one was wearing a PFD. Of the 20 or so that were presumed drowned, only one had on a PFD. For survivors in severe settings where at least one other person died, one-half of these individuals were wearing PFDs. This data strongly support the assumption that PFDs have saved lives and also support recommendations made by a number of agencies to make concerted attempts to increase PFD use. I think that this is a good application of some of the risk and circumstance information that we are obtaining as part of our surveillance efforts.

Conclusions from the very limited information that I have had time to show here include that the knowledge of Alaska fisheries has improved throughout the last decade. It also shows that surveillance for fatal

events is now adequate to provide meaningful counts of fatalities and begin to define causality and measure the effectiveness of interventions.

In the future, the NIOSH Alaska Activity will be focusing not only on fatal events, but also on doing our best to provide technical assistance and other efforts to improve surveillance for non-fatal occupational injuries in Alaska. Collaboration will be very important in the surveillance phase of the activities we are talking about.

As we develop interventions, logically based on the surveillance data that we are obtaining, collaboration will be very important among government agencies, research organizations, safety and prevention groups, and very importantly, industry. We look forward to a more productive collaboration, especially with industry, in the near future. Thank you very much. □

Proceedings of the National Fishing Industry Safety and Health Workshop



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health



PROCEEDINGS
of the
NATIONAL FISHING INDUSTRY
SAFETY AND HEALTH WORKSHOP

Edited by

Melvin L. Myers, M.P.A.

and

Michael L. Klatt, M.S.

October 9-11, 1992
Anchorage, Alaska

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

January 1994

DISCLAIMER

Sponsorship of the FISH Workshop and these *Proceedings* by the National Institute for Occupational Safety and Health (NIOSH) does not constitute endorsement of the views expressed or recommendations for use of any commercial product, commodity, or service mentioned. The opinions and conclusions expressed in the papers are those of the authors and not necessarily those of NIOSH.

Recommendations are not to be considered as final statements of NIOSH policy or of any agency or individual who was involved. They are intended to be used in advancing the knowledge needed for improving worker 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:

**Publication Dissemination, DSDTT
National Institute for Occupational Safety and Health
4676 Columbia Parkway
Cincinnati, Ohio 45226
FAX (513) 533-8573**

For information on other occupational safety and health problems, call:
1-800-35-NIOSH