Epidemiology of Commercial Fishing Fatalities in the United States, 2000-2014

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Photo: Dutch Harbor, Alaska
Ted Teske (NIOSH)

Department of Homeland Security

Department of Health and Human Services

United States Coast Guard

USCG

Centers for Disease Control and Prevention

CDC

National Institute for Occupational Safety and Health

NIOSH

Regulation/Enforcement

Research, Training, and Prevention Recommendations

Commercial Fishing Safety Research and Design Program

- Scientific research on safety problems and solutions
- Provide high quality, relevant information
- Research findings used by
  - Fishing industry
  - Government agencies
  - Marine safety trainers

USCG/NIOSH Partnership

Memorandum of Agreement (MOA)

- Access to USCG investigations
- Conduct statistical analyses of data for USCG
- Identify causes of hazards leading to deaths and injuries

March 2014 Signing to expand Memorandum of Agreement

Coast Guard Rear Adm. Joseph Servidio and NIOSH Director, Dr. John Howard

Marine Casualty Occurs

Coast Guard Investigates

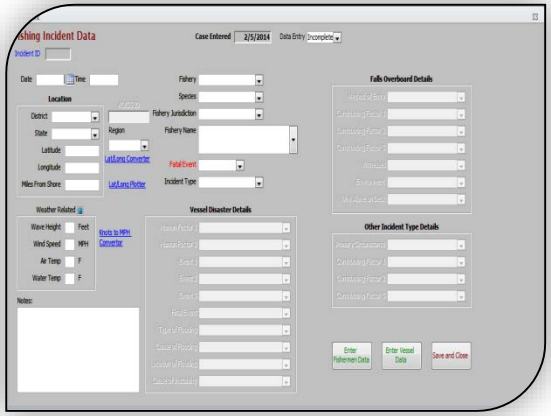
NIOSH Reviews case

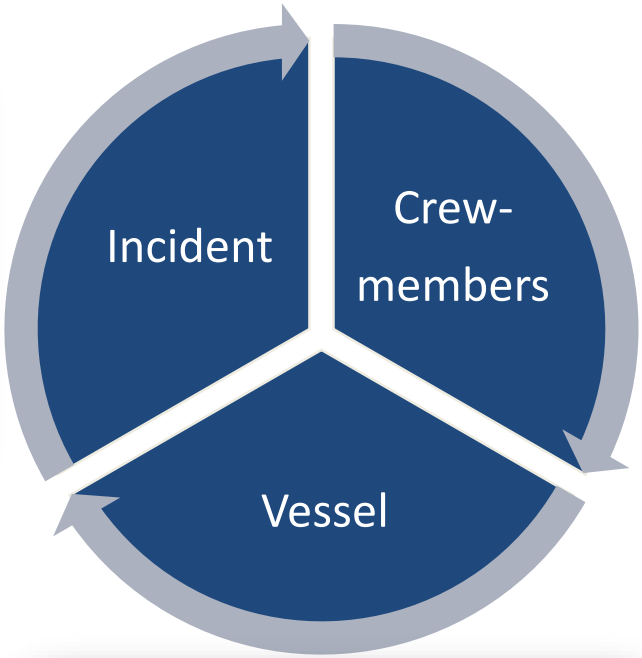
Information entered into CFID

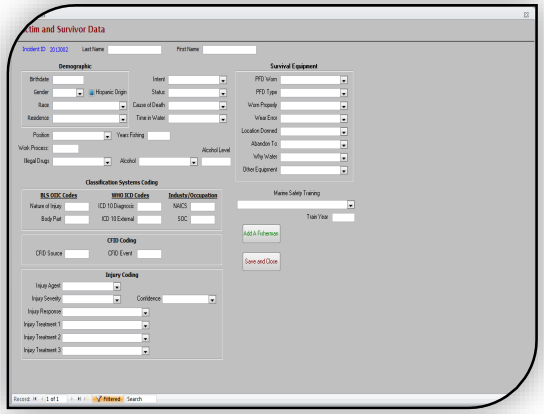
DEPARTMENT OF HOMELAND SECURITY
U.S. Coast Guard
REPORT OF MARINE CASUALTY
SECTION I. GENERAL INFORMATION

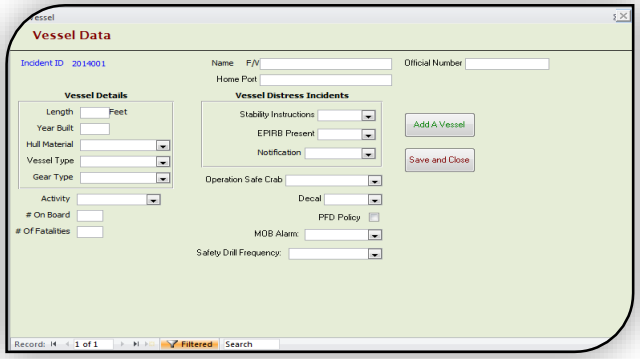
	2. Official No.	3. Nationality	4. Call S
.) 7. Length	8. Gross Tons	9. Year Built	10. Prop
12. Draft *(Ft. - in.)* FWD / AFT.	13. If Vessel Classed, By Whom: *(ABS, LLOYDS, DNV, BV, etc.)*		14. Date
			17. Estin
Operating Co.			VE

Data Entry Process







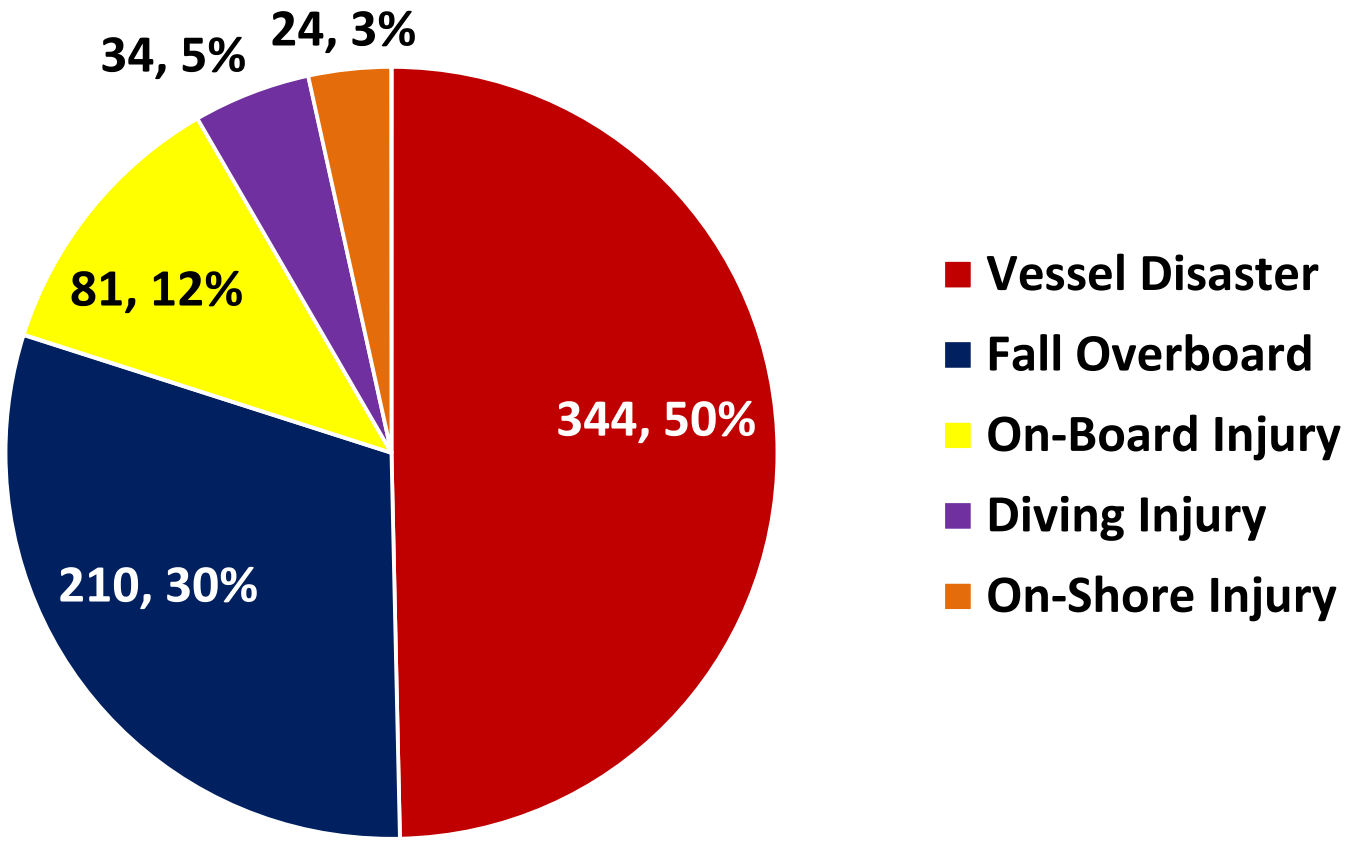


Commercial Fishing Incident Database

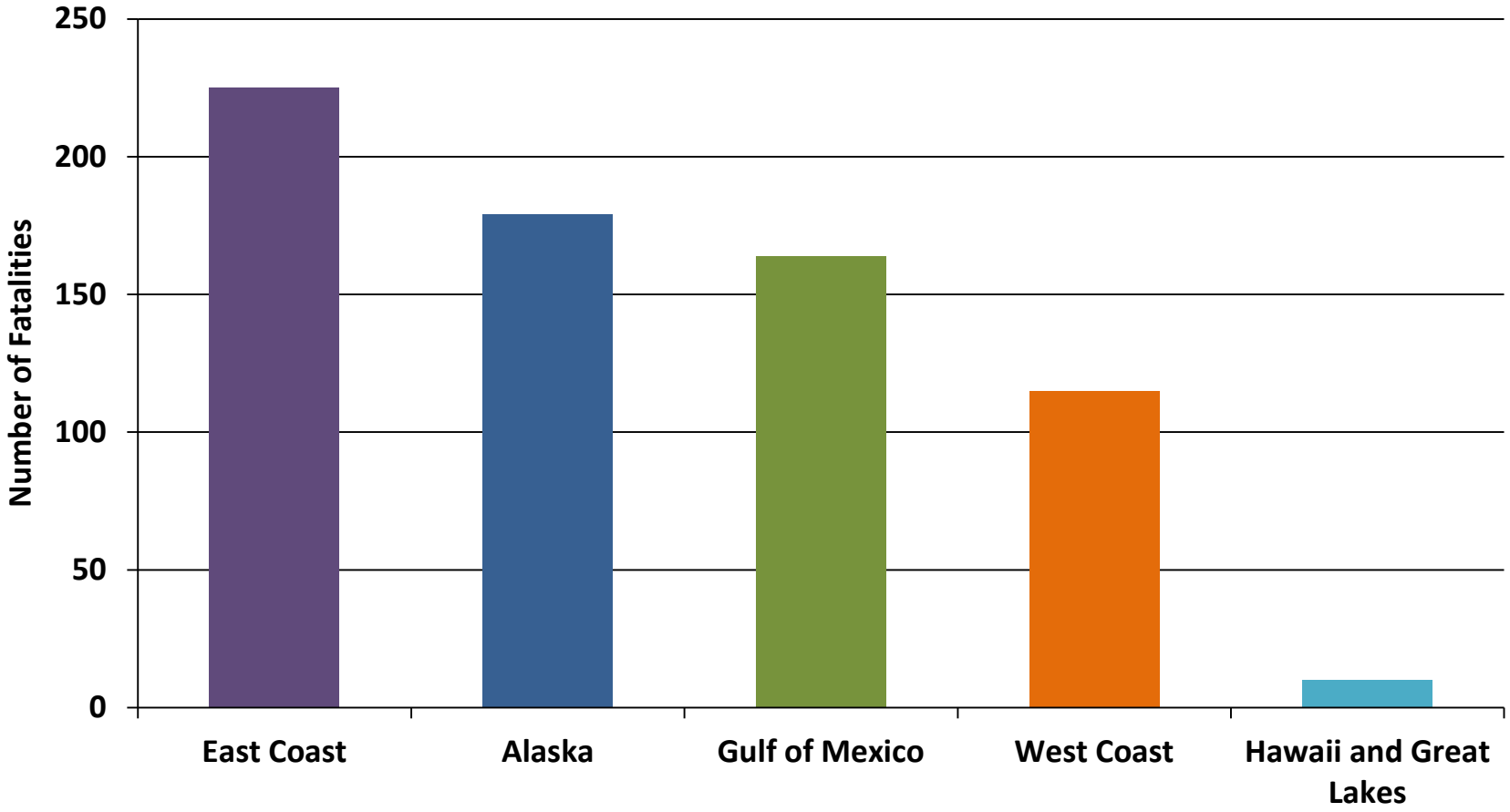
- Nationwide
- Fatal injuries **2000-2015***
- Nonfatal vessel disaster data for West Coast and Alaska: **2000-2014**
- Nonfatal vessel disaster data for Gulf Coast and East Coast: **2010-2014**

*2015 data are preliminary

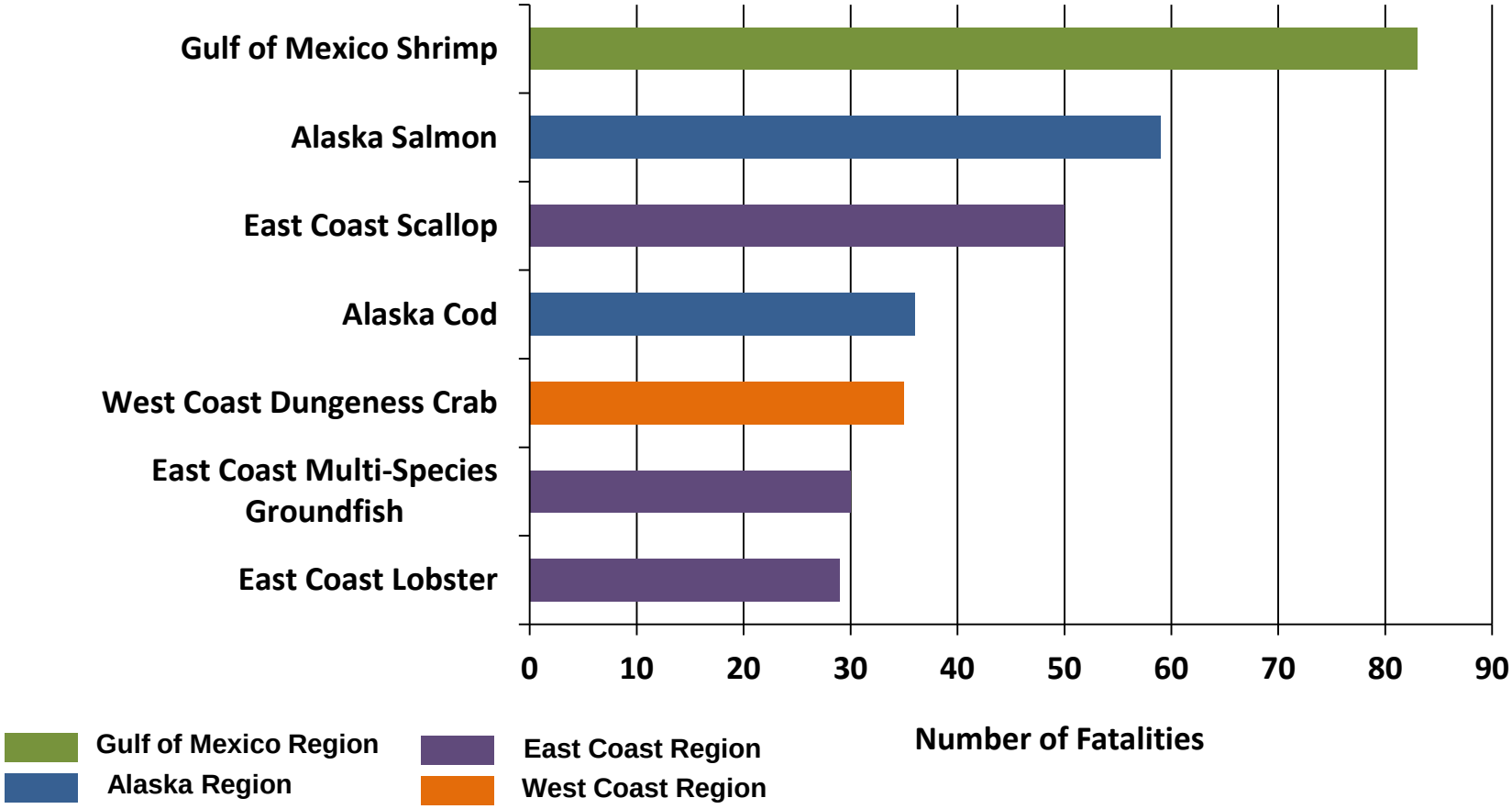
US Commercial Fishing Fatalities by Incident Type, 2000-2014 (n=693)



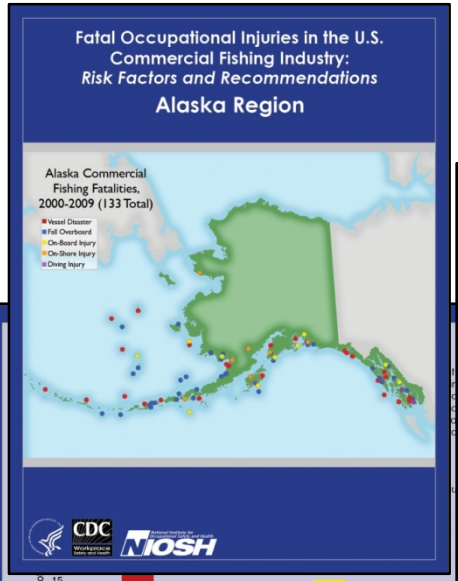
US Commercial Fishing Fatalities by Region, 2000-2014 (n=693)

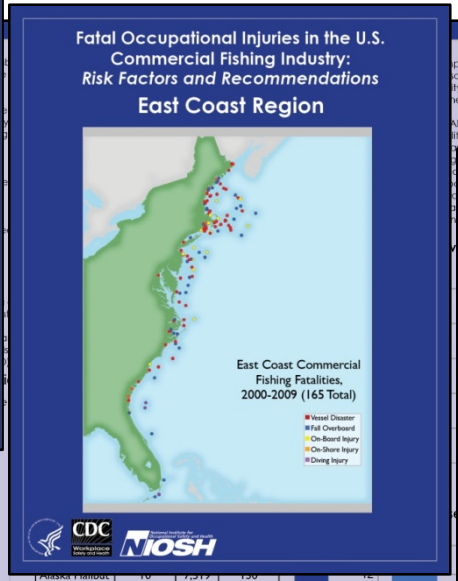


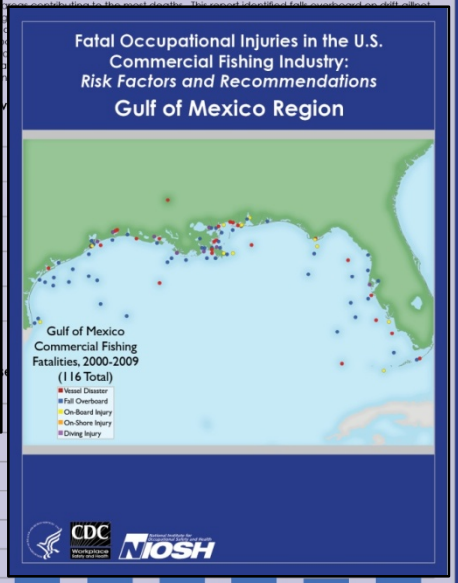
US Fisheries with the Highest Number of Fatalities, 2000-2014 (n=322)

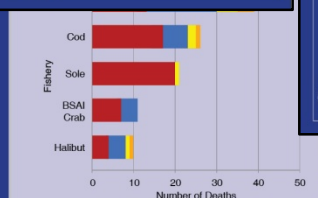


Regional Summaries of Fatality Data









Alaska Salmon	39	34,287	115

** Rates were calculated by dividing the total number of fatalities for the 10 year period by the total annual FTE.*

Data Key
- Vessel Disaster
- Fall Overboard
- On-Board Injury
- On-Shore Injury
- Diving Injury

Conclusions

The Coast Guard has developed tailored prevention programs for specific fisheries in Alaska that mitigate hazards found in high risk fisheries such as the Bering Sea crab fleet, as well as the Bering Sea Aleutian Island trawl fleet that fishes for sole and cod. As a result of these efforts, the fatality rate in the Bering Sea crab fisheries declined by 60% during 1990-2009. This improvement was due to the implementation of a preseason dockside enforcement effort developed by the Coast Guard in concert with vessel operators. Additionally, in 2005 the largest crab fisheries underwent changes in the way they were executed. The previous "race to fish" was "rationalized" meaning that each vessel was awarded the rights to catch a certain amount of crab. This change resulted in a slower paced fishery and a consolidation of the fleet. A different Coast Guard program known

Timeline of Fisheries Management and Safety Activities

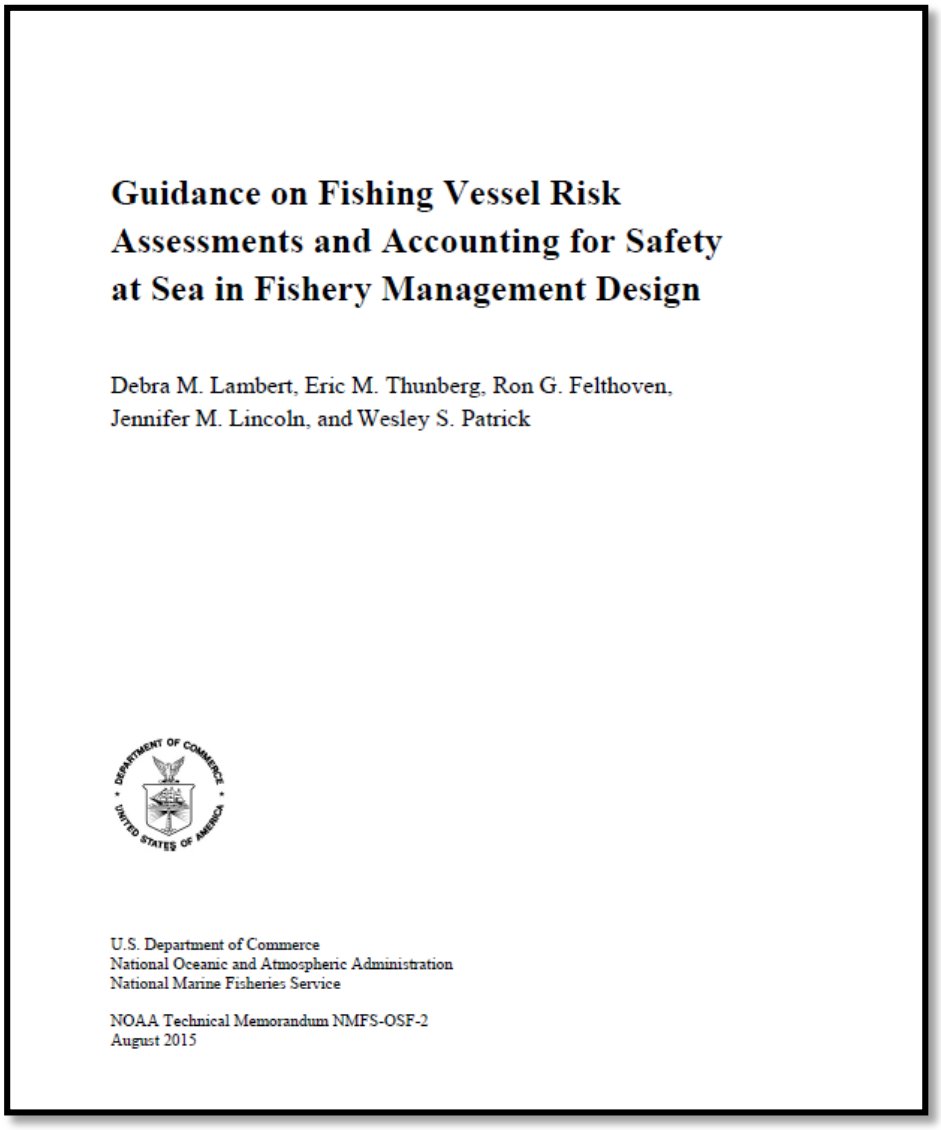
2006
- Ergomare, Lorient, France

2007
- International Synthesis Study

2008
- FAO Expert Consultation

2010
- US Fishing Vessel Safety Forum

- Safety Checklist
- Risk Assessment Procedures
  - data to collect
  - and where to get it



Guidance on Fishing Vessel Risk Assessments and Accounting for Safety at Sea in Fishery Management Design

Debra M. Lambert, Eric M. Thunberg, Ron G. Felthoven, Jennifer M. Lincoln, and Wesley S. Patrick

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

NOAA Technical Memorandum NMFS-OSF-2
August 2015

Safety Checklist– 13 items total

Will the proposed management measure:	Response y/n	Likely to have impact on safety y/n	Potential mitigation measure
Cause vessels to operate substantially further offshore?			
Increase distance between where vessels operate and SAR assets?			
Restrict transit through defined areas?			
Place restrictions on vessel replacement?			

Safety Checklist

Will the proposed management measure:	Response y/n	Likely to have impact on safety y/n	Potential mitigation measure
Cause vessels to operate substantially further offshore?			
Increase distance between where vessels operate and SAR assets?			
Restrict transit through defined areas?			
Place restrictions on vessel replacement?			

Safety Checklist

Will the proposed management measure:	Response y/n	Likely to have impact on safety y/n	Potential mitigation measure
Cause vessels to operate substantially further offshore?			
Increase distance between where vessels operate and SAR assets?	yes	yes	Require mandatory safety training and safety checks more frequently
Restrict transit through defined areas?			
Place restrictions on vessel replacement?			

Show Up and Share Data

- *North Pacific Fishery Management Council*
  - *Alternate Delivery*
  - *Vessel Replacement Restrictions*
  - *Crab Rationalization 5-year review*
  - *Amendment 80 Review*
  - *Crab Rationaliation 10-year review*
  - *BSAI Pollock*
  - *Halibut/Sablefish*
  - *Annual Report on research activities*

- Numerous requests for data from around the country for others to do analyses

Take Away Points

- Fishery management is a complex challenge
- Managers can take practical steps and acknowledge the relationship between their decisions and putting fishing crews at risk
- Data are available to understand hazards
- Show up and Share data

Contact Information

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cdc.gov/niosh/topics/fishing
@NIOSHFishing

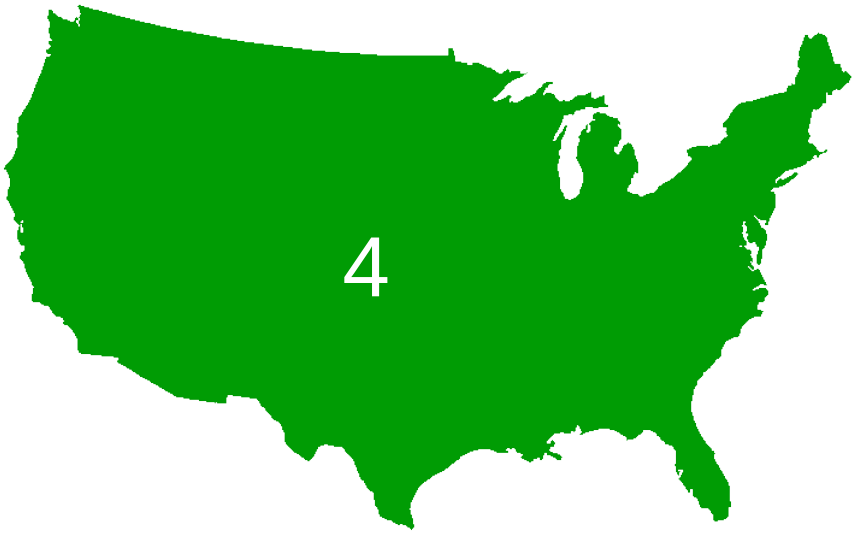
2014 U.S. Commercial Fishing

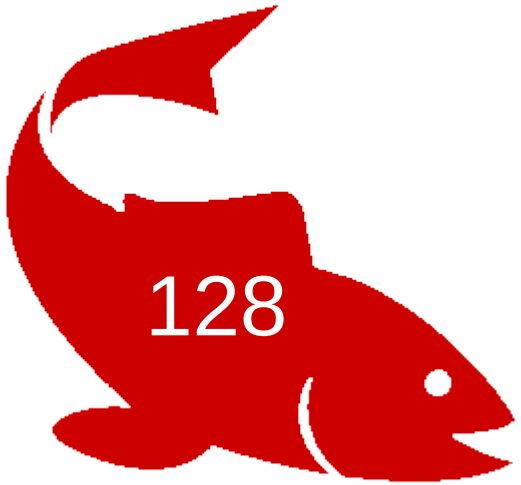
- 9.5 billion pounds of seafood
- Earning over $5.4 billion
- Approximately 115,000 harvesters
- Dutch Harbor, Alaska
  - 762 million pounds (highest volume for U.S.)
  - $191 million
- New Bedford, Massachusetts
  - 140 million pounds
  - $329 million (highest-valued catch for U.S.)

Source: NOAA Fisheries Statistical Report

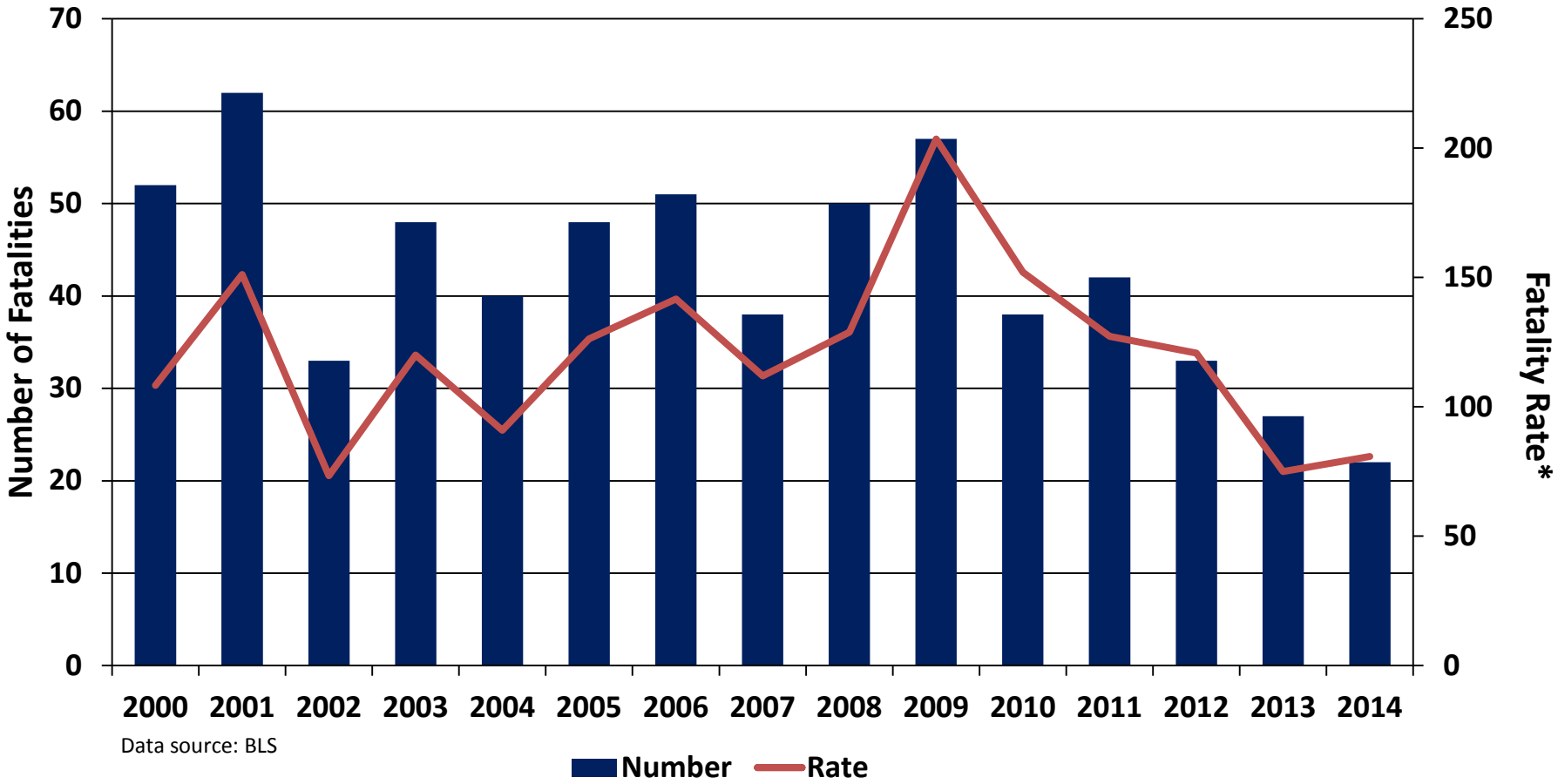
US Occupational Fatality Rates per 100,000 Workers, 1992-2014

Source: BLS





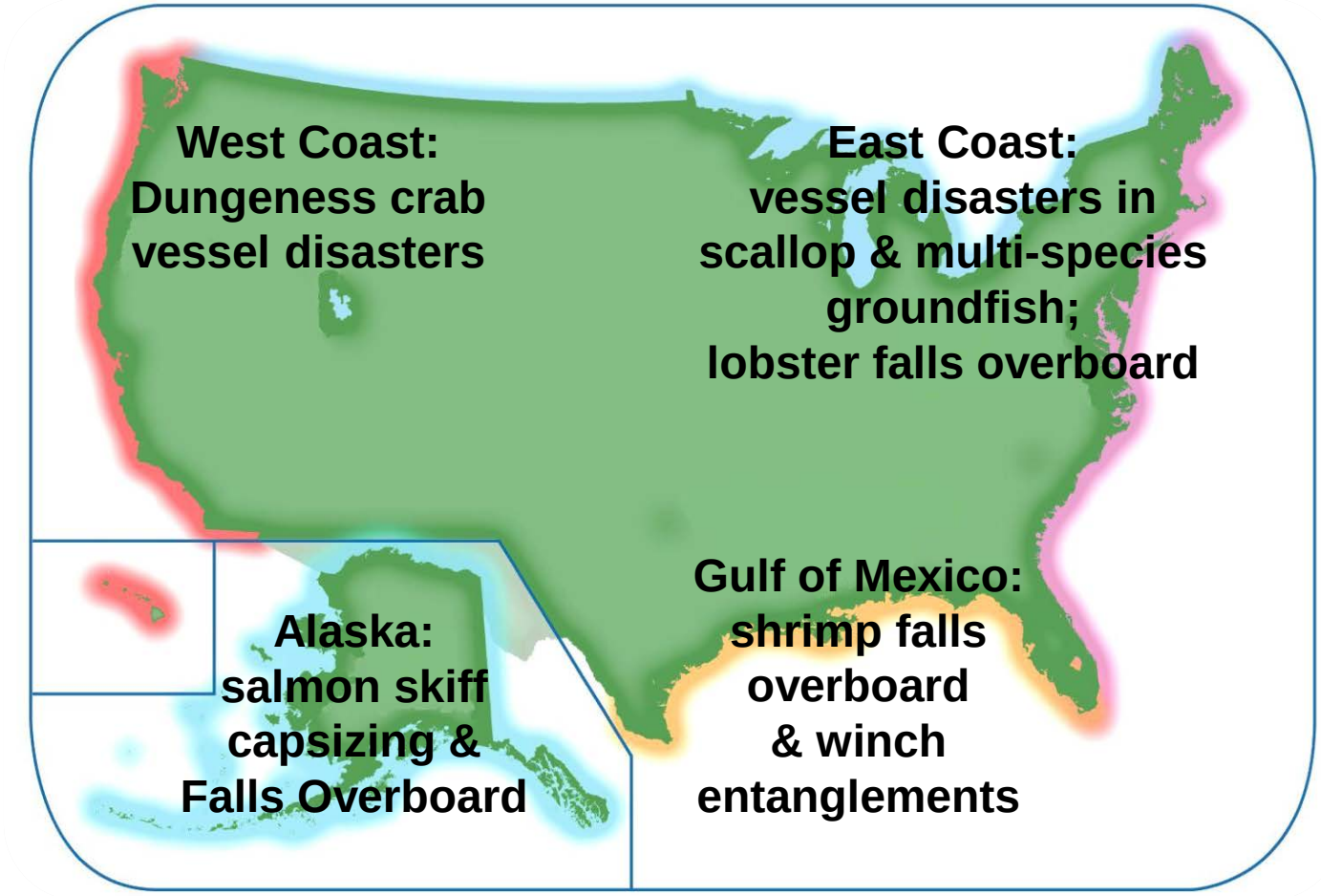
US Commercial Fishing Fatalities, 2000-2014



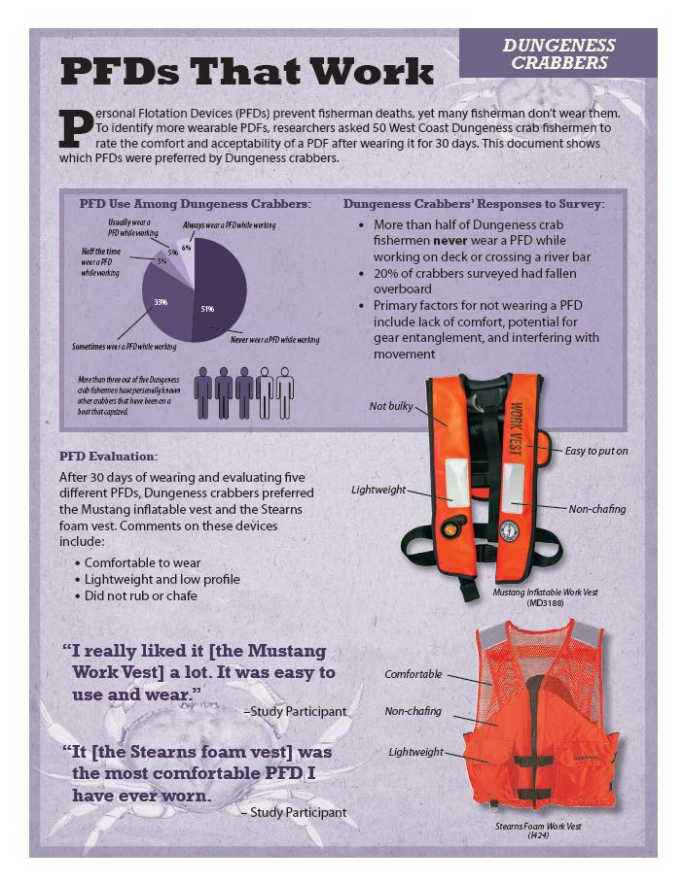
Data source: BLS

*2000-2005: per 100,000 workers; 2006-2014: per 100,000 full-time equivalent workers

Most Hazardous Fisheries & Events



West Coast



PFDs That Work

DUNGENESS CRABBERS

Personal Flotation Devices (PFDs) prevent fisherman deaths, yet many fisherman don't wear them. To identify more wearable PDFs, researchers asked 50 West Coast Dungeness crab fishermen to rate the comfort and acceptability of a PDF after wearing it for 30 days. This document shows which PFDs were preferred by Dungeness crabbers.

PFD Use Among Dungeness Crabbers:

Dungeness Crabbers' Responses to Survey:

- More than half of Dungeness crab fishermen **never** wear a PFD while working on deck or crossing a river bar
- 20% of crabbers surveyed had fallen overboard
- Primary factors for not wearing a PFD include lack of comfort, potential for gear entanglement, and interfering with movement

PFD Evaluation:

After 30 days of wearing and evaluating five different PFDs, Dungeness crabbers preferred the Mustang inflatable vest and the Stearns foam vest. Comments on these devices include:

- Comfortable to wear
- Lightweight and low profile
- Did not rub or chafe

Mustang Inflatable Work Vest (MD3188)

"I really liked it [the Mustang Work Vest] a lot. It was easy to use and wear."
–Study Participant

"It [the Stearns foam vest] was the most comfortable PFD I have ever worn.
– Study Participant

Stearns Foam Work Vest (1424)

Int Marit Health
2015; 66, 4: 207–210
DOI: 10.5603/IMH.2015.0041
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ISSN 1641–9251

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ORIGINAL PAPER

Reported traumatic injuries among West Coast Dungeness crab fishermen, 2002–2014

Samantha Case[1], Viktor Bovbjerg[2], Devin Lucas[1], Laura Syron[2], Laurel Kincl[2]

[1]National Institute for Occupational Safety and Health, Western States Division, Alaska Office, Anchorage, Alaska, United States
[2]College of Public Health and Human Sciences, School of Biological and Population Health Sciences, Oregon State University, Corvallis, Oregon, United States

ABSTRACT

Background: *Commercial fishing is a high-risk occupation. The West Coast Dungeness crab fishery has a high fatality rate; however, nonfatal injuries have not been previously studied. The purpose of this report was to describe the characteristics of fatal and nonfatal traumatic occupational injuries and associated hazards in this fleet during 2002–2014.*

Materials and methods: *Data on fatal injuries were obtained from a surveillance system managed by the National Institute for Occupational Safety and Health. Data on nonfatal injuries were manually abstracted from Coast Guard investigation reports and entered into a study database. Descriptive statistics were used to characterise demographics, injury characteristics, and work processes performed.*

Results: *Twenty-eight fatal and 45 nonfatal injuries were reported between 2002 and 2014 in the Dungeness crab fleet. Most fatalities were due to vessel disasters, and many nonfatal injuries occurred on-deck when fishermen were working with gear, particularly when hauling the gear (47%). The most frequently reported injuries affected the upper extremities (48%), and fractures were the most commonly reported injury type (40%). The overall fatality rate during this time period was 209 per 100,000 full-time equivalent workers and the rate of nonfatal injury was 3.4 per 1,000 full-time equivalent workers.*

Conclusions: *Dungeness crab fishermen are at relatively high risk for fatal injuries. Nonfatal injuries were limited to reported information, which hampers efforts to accurately estimate nonfatal injury risk and understand fishing hazards. Further research is needed to identify work tasks and other hazards that cause nonfatal injuries in this fleet. Engaging fishermen directly may help develop approaches for injury prevention.*

(Int Marit Health 2015; 66, 4: 207–210

Key words: commercial fishing, occupational safety, injuries

INTRODUCTION

Commercial fishing remains one of the highest-risk occupations in the United States, with a fatality rate nearly 23 times greater than that of all workers [1]. Research has found that some fleets have higher risks than others due to specific hazards associated with fishing gear, operating season, and location. In the United States, the Dungeness crab fishery has been identified as hazardous for risk of fatal injuries [2, 3].

The West Coast Dungeness crab fishery is economically significant, with 52.8 million pounds landed generating $177 million in revenue in 2012 [4]. Approximately 3,200 captains and deckhands participate in this fishery [5]. Fishing operations are conducted close to shore in shallow waters, exposing fishermen to treacherous weather and surf conditions, particularly during the winter season opening. Using hydraulic blocks, crews can set and haul hundreds of pots each day [6, 7].

Commercial fishing safety research in the United States has primarily focused on the epidemiology of fatal injuries. The literature on nonfatal injury research in the industry is limited to a few specific fisheries, regions, or injury types [8]. Nonfatal injuries in the West Coast Dungeness crab fleet have not been studied. These injuries may be life-threat-

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East Coast

AMERICAN JOURNAL OF INDUSTRIAL MEDICINE 59:73–80 (2016)

The Use of Personal Flotation Devices in the Northeast Lobster Fishing Industry: An Examination of the Decision-Making Process

R. Weil, MS,[1*] K. Pinto, EdD,[2] J. Lincoln, PhD,[3] M. Hall-Arber, PhD,[4] and J. Sorensen, PhD[1]

Background *This study explored perspectives of Northeast commercial lobstermen regarding the use of personal flotation devices (PFDs). Researchers sought to identify factors contributing to low PFD use, and motivators that could lead to increased use of PFDs.*

Methods *This qualitative research (n = 72) included 25 commercial fishermen who participated in in-depth, semi-structured interviews, and 47 attendees of Lobstermen's meetings who engaged in focus groups.*

Results *The results showed substantial barriers to PFD use. Fishermen described themselves as being proactive about safety whenever possible, but described a longstanding tradition of not wearing PFDs. Key factors integrally linked with the lack of PFD use were workability, identity/social stigma, and risk diffusion.*

Conclusion *Future safety interventions will need to address significant barriers to PFD use that include issues of comfort and ease of use, as well as social acceptability of PFDs and reorientation of risk perceptions related to falls overboard.* Am. J. Ind. Med. 59:73–80, 2016. © 2015 Wiley Periodicals, Inc.

KEY WORDS: personal flotation device; falls overboard; drowning; occupational health; commercial fishing safety

INTRODUCTION

Drowning is the leading cause of death among commercial fishermen in the United States and often occurs after a vessel disaster or a fall overboard [Lincoln and Lucas, 2010]. Commercial fishing has had one of the highest fatality rates of any occupation. From 2000 to 2013, a total of 665 fishermen died, 336 from vessel disasters and 198 from falling overboard. None of the victims who died from falling overboard were wearing a personal flotation device (PFD) [NIOSH, 2010].

Pollnac et al. [1995] and Poggie and Pollnac [1997] assert that many fishermen believe danger affects *other* careless fishermen, presenting what the authors term the "denial and trivialization" of risk. Although they may deny their own personal risk for an injury or accident, Northeast U.S. fishermen are most concerned about falls overboard versus other dangers (e.g., fires). Yet, self-reported PFD use by fishermen attending safety training courses in Massachusetts is fairly low with 78% across fisheries and 84% of lobstermen (n = 19) reporting not wearing a PFD (n = 186). Although PFD use is low, these fishermen believe that on a scale of 1–10 (with 10 being most dangerous), fishing is a 7.8 [Pinto, 2014].

Similar contrasts between perceived risk and safety were noted in a study of risk perception among Norwegian offshore

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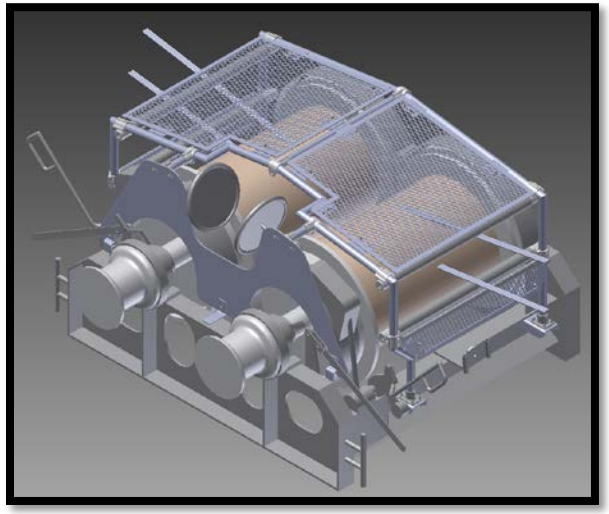
Accepted 9 September 2015
DOI 10.1002/ajim.22537. Published online 7 October 2015 in Wiley Online Library (wileyonlinelibrary.com).

Gulf of Mexico

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 62 / No. 9
March 8, 2013

Fatal and Nonfatal Injuries Involving Fishing Vessel Winches — Southern Shrimp Fleet, United States, 2000–2011



Alaska


WORK VEST


KENT


If you can swim the Bering Sea, you're a better man than me.
AND YOU AIN'T.
-Angus Iversen
Choose the right PFD for your work. Wear it on board. And live to be the old salt everyone looks up to. Choose your PFD at livetobesalty.org
LIVE TO BE SALTY