

# ***Improving PFD Use Among Commercial Fishermen: Using Partnerships to Effect Change***

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**2017 Expanding Research Partnerships:  
State of the Science**

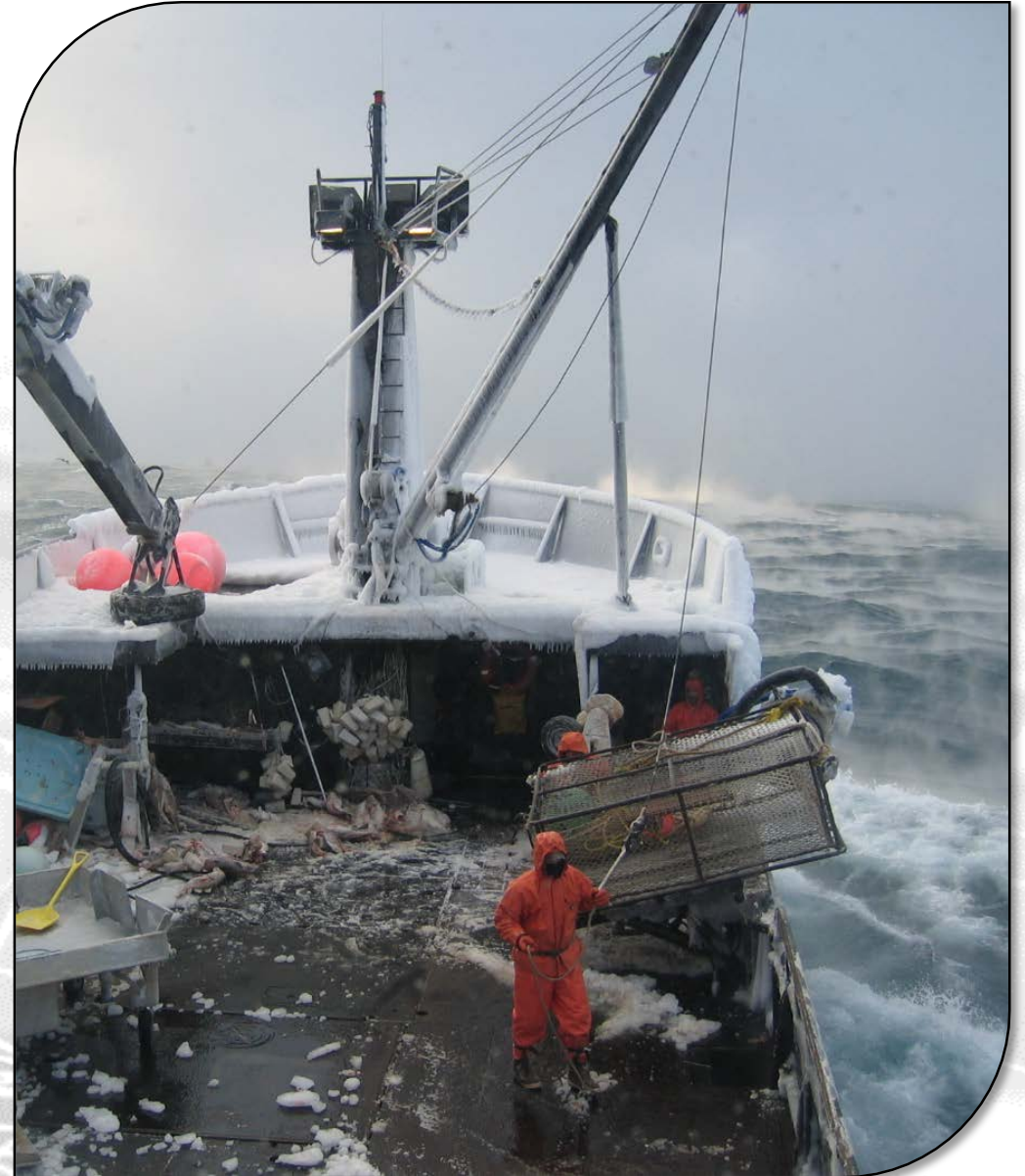
June 21, 2017



*The findings and conclusions in this report are those of the author(s) and do not necessarily represent the views of the National Institute for Occupational Safety and Health.*

# Overview

- Problem: Falls Overboard
- Initial NIOSH Study
- Partner Studies
- Outcomes
- Future Partnerships



# Falls Overboard in Alaska

- 1990 to 2005-- 71 fatal falls overboard
  - 24% of all fatalities
- Fatal falls overboard did not decrease
  - Major decreases in other types of fatalities
- The study's goals were to:
  - Conduct an in-depth analysis of the issue
  - Analyze circumstances of each incident
  - Identified possible areas for intervention



# Falls Overboard in Alaska – Findings

- None of the victims were wearing a PFD
- Other circumstances<sup>1</sup> of the incidents:
  - Working gear – 61%
  - Alone – 38%



# Recommendations

- Primary Prevention
- Secondary Prevention
- Personal Flotation Devices PFDs
  - Wearing a PFD is not a regulatory requirement

***“Why doesn’t somebody buy a bunch of PFDs and see which ones guys like to wear?” – f/v captain***



# Alaska PFD Study: Oct. 2008 – June 2009

- Measured perceptions of risks for falling overboard and preconceptions about PFDs
- Evaluated new styles and types of PFDs for comfort while working
- 400 fishermen from 4 gear types surveyed
- 216 PFD evaluations of 6 different designs



Sources: Lucas D. L., Lincoln J. M., Carozza S. E., Bovbjerg V. E., Kincl L. D., Teske T.D., Somervell P. D., & Anderson P. J. (2012). *Predictors of personal flotation device (PFD) use among workers in the Alaska commercial fishing industry*. *Safety Science* 53:177-185. Lucas D. L., Lincoln J. M., Somervell P. D., Teske T.D. (2011). *Worker satisfaction with personal flotation devices (PFDs) in the fishing industry: Evaluations in actual use*. *Applied Ergonomics* 43(4):747-52.



# Alaska Study Results

- Gap between perceived utility of PFDs and actual use
  - Salmon fishermen: 86% effective preventing fatalities
    - 55% never wore
  - Crabbers: 87% effective
    - 16% never wore
- Each group identified a PFD they can wear



Source: Lucas D. L., Lincoln J. M., Carozza S. E., Bovbjerg V. E., Kincl L. D., Teske T.D., Somervell P. D., & Anderson P. J. (2012). *Predictors of personal flotation device (PFD) use among workers in the Alaska commercial fishing industry*. *Safety Science* 53:177-185.



# Alaska Study – Lessons Learned

Fishermen want to talk to us

Different gear groups = Different PFD preferences





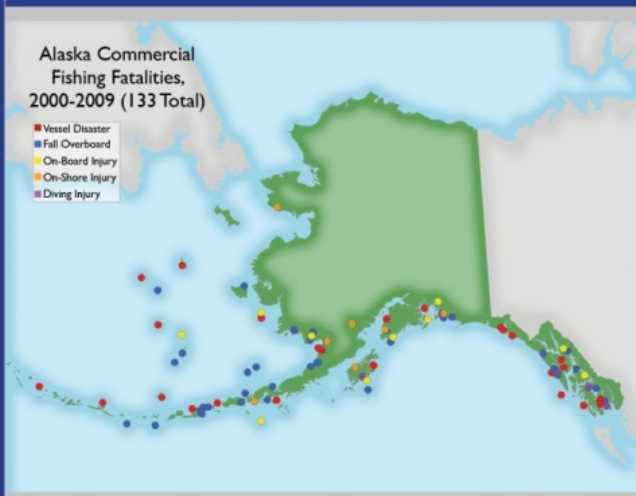
# Commercial Fishing Incident Database

## Regional Summaries, 2000-2009

### Fatal Occupational Injuries in the U.S. Commercial Fishing Industry: Risk Factors and Recommendations Alaska Region

Alaska Commercial Fishing Fatalities, 2000-2009 (133 Total)

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



### Fatal Occupational Injuries in the U.S. Commercial Fishing Industry: Risk Factors and Recommendations West Coast Region

West Coast Commercial Fishing Fatalities, 2000-2009 (86 Total)

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



### Fatal Occupational Injuries in the U.S. Commercial Fishing Industry: Risk Factors and Recommendations Gulf of Mexico Region

Gulf of Mexico Commercial Fishing Fatalities, 2000-2009 (116 Total)

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



### Fatal Occupational Injuries in the U.S. Commercial Fishing Industry: Risk Factors and Recommendations East Coast Region

East Coast Commercial Fishing Fatalities, 2000-2009 (165 Total)

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



# Expanding PFD Studies



**West Coast  
Crabbers**

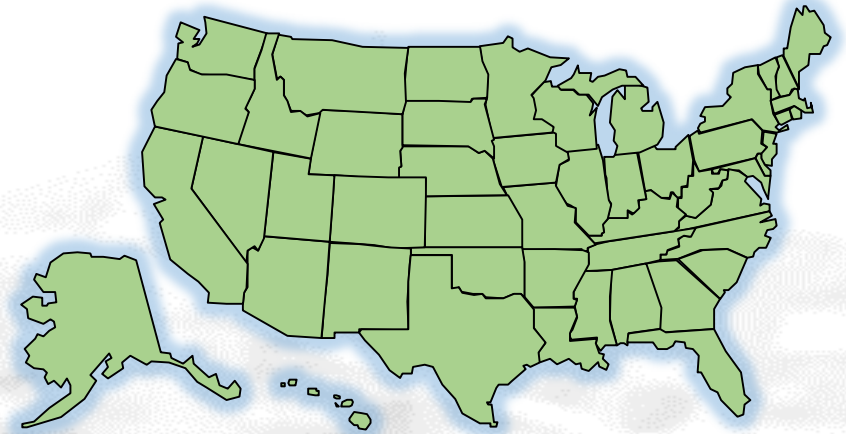
**New England  
Lobstermen**

**Gulf of Mexico  
Shrimpers**



# How do we Partner? Who do we Partner with?

- ERCs and Ag Centers
  - Motivated colleagues
- Tap into the talent and expertise
  - Enhance the approach and design
- What we offered to create synergy
  - Data
  - Advisory
  - Assistance with presentations and/or data collection
  - PFDs
  - Co-authorship
- Lets move forward



# The Power of Partnerships



# 2010: Oregon Crab Fishing Safety Assessment

- 87 safety surveys completed
- 50 PFDs randomly distributed
- Mustang Inflatable Vest
- Association created rebate program



Photo credits: Oregon State University

# 2010-2015: Marketing Safety and Health Among Vietnamese Commercial Fishermen

PI: Ann Carruth, DSN, RN Host Institution: Southeastern Louisiana University

## Dockside Safety Survey

- Falling overboard & other safety concerns
- 339 Surveys completed (English/Vietnamese)
- 3 Types of PFDs distributed to 29 fishermen

## Study Results

- Barriers: thermal load, cost, and PFD size



Photo credits: Southwest Center for Agricultural Health, Injury, Prevention, and Education



# 2017: The Impact of Thermal Load on PFD Use Among Shrimp Fishermen

PI: Ann Carruth, DSN, RN

## New PFD Study Underway

- Objectives:
  - To test the physiological impact of heat on PFD use
  - Sizing issues of PFDs
  - Design and test a multimodal and culturally appropriate social marketing campaign



Photo credits: Southwest Center for Agricultural Health, Injury, Prevention, and Education



# 2014-2015: The Use of PFDs in the Northeast Lobster Fishing Industry

## Interviews and focus groups

- Factors contributing to low PFD use
  - Lack of comfort and ease of use
  - Significant social stigma and superstition
  - Increased risk of entanglement
  - Costs
- Sought motivators to increase PFD use
  - Improvements to PFD design for comfort
  - Reduction in costs
  - Reframing the idea of a PFD to conform with the commercial fishing identity



Photo credits: Northeast Center for Occupational Health and Safety





# 2017: Giving Safety a Competitive Advantage: Increasing PFD Use Among Lobstermen

PI: Julie Sorensen (Director, NEC); Research Coordinator: Rebecca Weil (NEC); Research Coordinator: Liane Hirabayashi (NEC); Research Assistant: Jessica Echard (NEC)

## Current PFD evaluation and perceptions study:

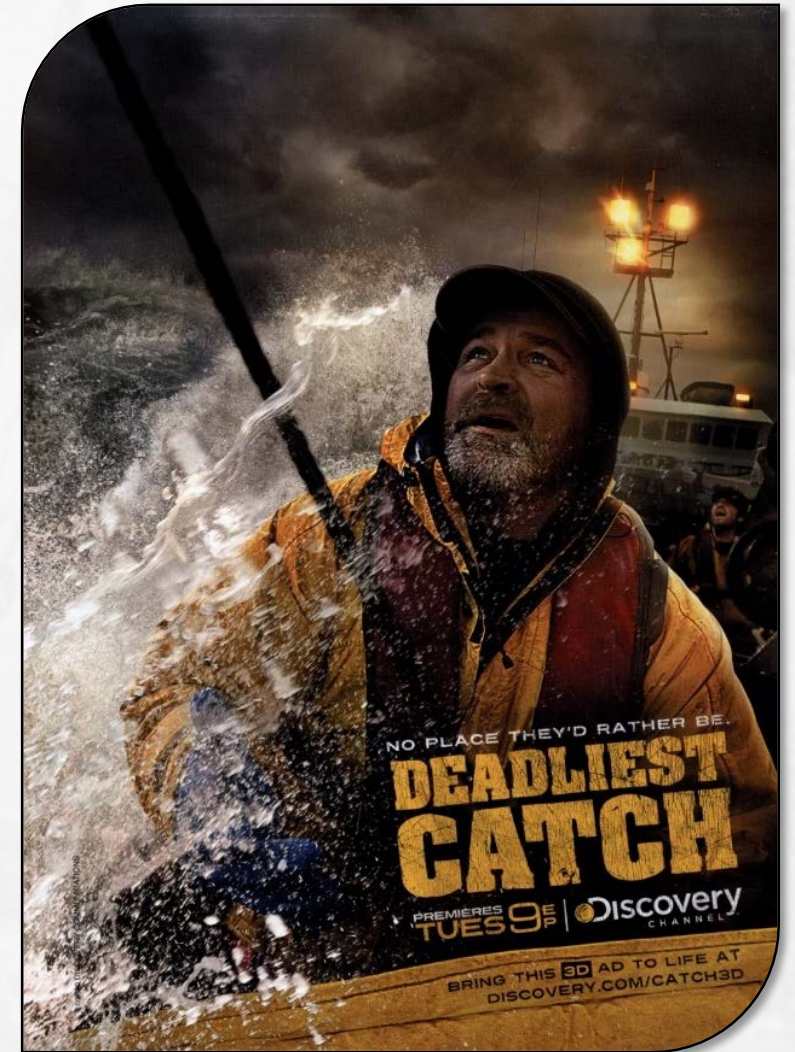
- Goal: increase wear rates of PFDs among NE lobstermen and increase their chance of survival following a fall overboard.
- Enrolled 81 lobstermen – winter evaluation
  - 8 PFD types
- Currently enrolling 80 more – summer evaluation
- Calling a random sample of 260 lobstermen
  - Assess “Stage of Change” regarding PFD use



Photo credits: Northeast Center for Occupational Health and Safety

# Outcomes

- *Fishing companies in Alaska have mandated PFD use for their vessels*
- *Manufacturers have modified designs and created new designs for PFDs*
- *PFDs seen more often– but lets measure it*
- *Greater percentage of Alaska Crab Fishermen report wearing PFDs*
  - *22% vs. 52%*



# The Power of Partnerships



NEC



Each iteration identified a unique problem, approach and/or solution

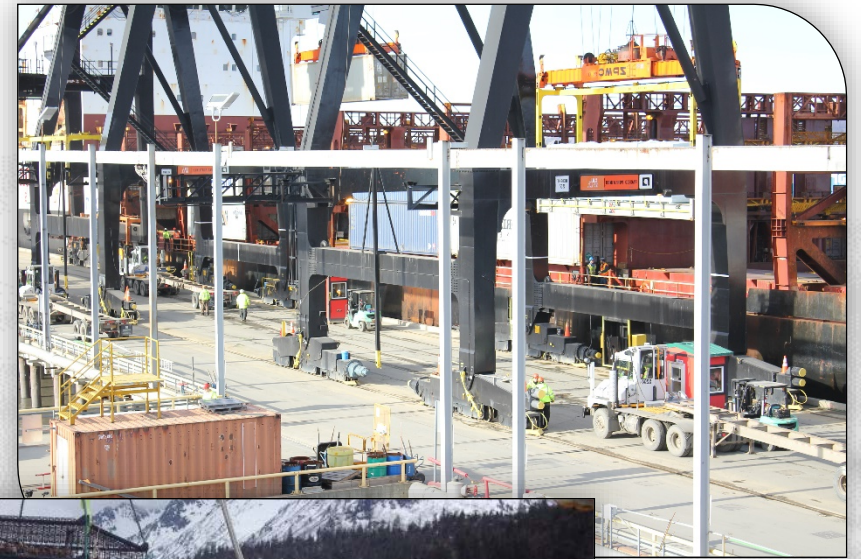
Together we better addressed the hazards

Lead to new opportunities for collaboration



# NIOSH Center for Maritime Safety and Health Studies

- Established November 2015
- Brings focus to the OSH needs of the Maritime Industry
- Understand the OSH hazards enough to reduce them
  - Through collaborative research with industry and workers



# Expanding Partnerships

- Yale University
  - Marine transportation (seafarers)
  - P6 - Risk factors for injury and illness in seafarers
- Oregon State University
  - Seafood processing
  - Commercial fishing
- Interested in establishing more synergy



# Thank you!

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NIOSH Center for Maritime Safety and Health Studies:

<https://www.cdc.gov/niosh/maritime/>

NIOSH Commercial Fishing Safety Program: <https://www.cdc.gov/niosh/topics/fishing/>

**\*\*\*\*Topic Table\*\*\*\***

*Partnerships– together we can go further*