

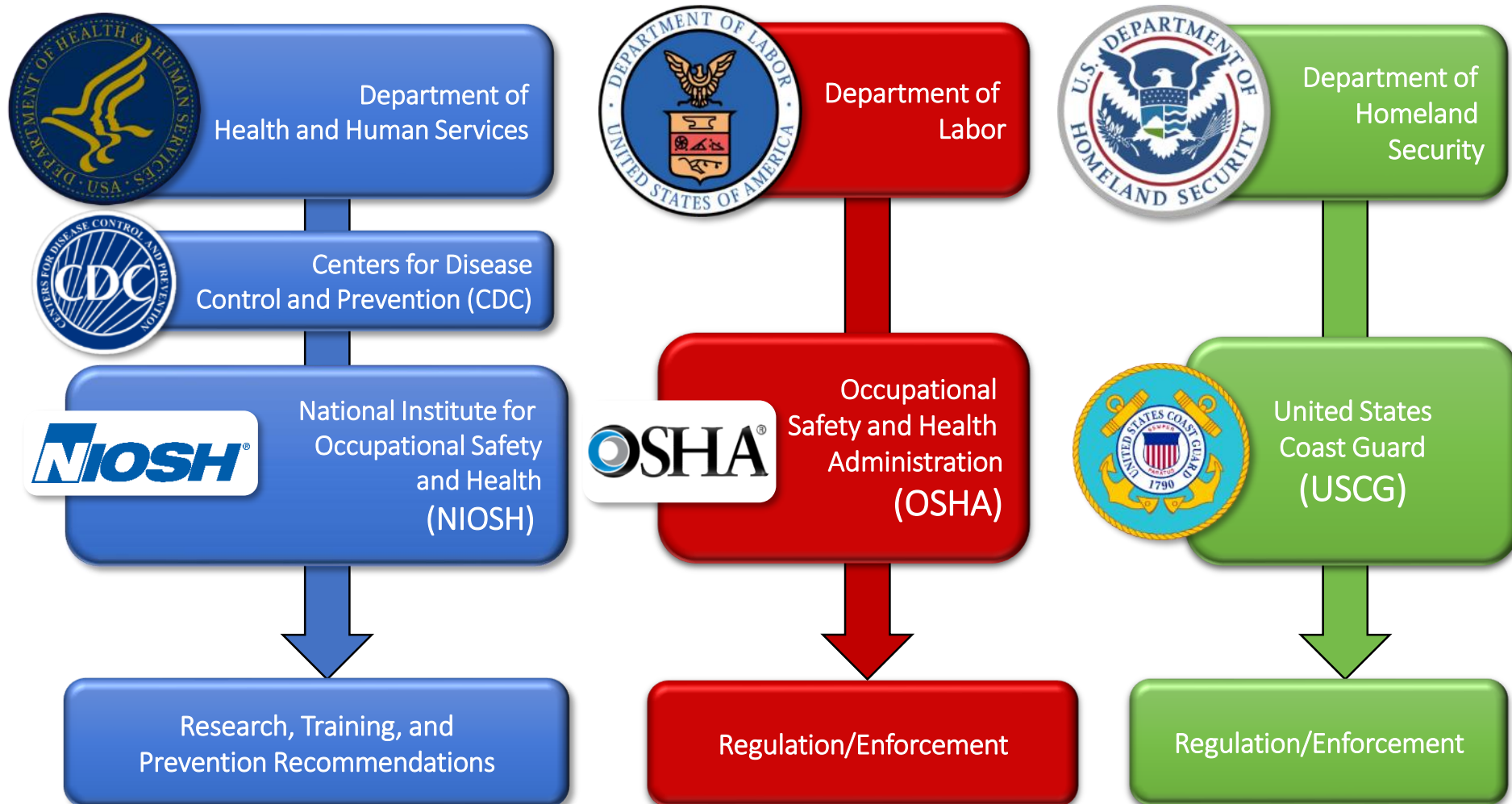
# **NIOSH Update: Safety and Health in Alaska's Commercial Fishing and Seafood Processing Industries**

**Presented to the  
North Pacific Fishery Management Council  
April 4, 2018**

**Samantha Case  
Laura Syron**

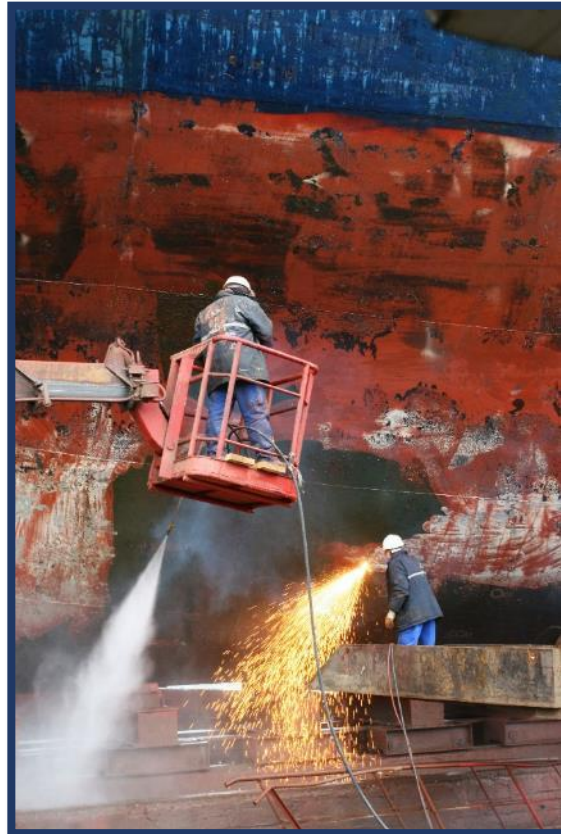


The findings and conclusions in this presentation have not been formally disseminated by CDC/NIOSH and should not be construed to represent any agency determination or policy.





# Center for Maritime Safety and Health Studies



- Brings focus to safety and health needs for maritime workers in:
  - **Commercial fishing**
  - **Seafood processing**
  - Aquaculture
  - Marine terminals
  - Shipyards
  - Marine transportation
- Works to understand problems and how to reduce them
- Collaborates with industry and workers

# Outline

- Commercial fishing
  - Fatalities in the US and AK
  - Recent and ongoing projects
- Seafood processing
  - Offshore processing in AK
  - Onshore processing in AK
- Plans for 2018



# Commercial Fishing Safety Research and Design Program

## Epidemiology



## Engineering



## Health Communication



# Collecting Data for Analysis

Marine casualty  
occurs



Coast Guard or local  
law enforcement  
investigates



NIOSH reviews  
reports



Information entered  
into database



DEPARTMENT OF HOMELAND SECURITY  
U.S. Coast Guard  
OMB No: 1625-0001  
Exp. Date: 03/31/2019

### REPORT OF MARINE CASUALTY, COMMERCIAL DIVING CASUALTY, or OCS-RELATED CASUALTY

**Section I - Reporting Vessel/Facility Information**

1. Vessel or Facility Name	2. Vessel Official Number or IMO Number	3. Vessel Flag
4. Vessel Length Feet <input type="text"/> Meters <input type="text"/>	5. Vessel Gross Tons	6. Vessel Propulsion Type
7. Vessel or Facility Type	8. Vessel or Facility Service or Occupation	

9. **FOR TOWING ONLY**

9a. Arrangement: <input type="checkbox"/> Pushing Ahead <input type="checkbox"/> Towing Astern <input type="checkbox"/> Towing Alongside	9b. Number of Vessels Towed: Empty <input type="text"/> Loaded <input type="text"/> Total <input type="text"/>	9c. Maximum Size of Tow/Tow-Boat(s): Length <input type="text"/> feet Width <input type="text"/> feet	9d. Did one or more of the barges in the tow cause or sustain damage in the marine casualty? <input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes complete and attach one or more CG-2692A forms to this report)
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**Section II - Reason for Submitting this Report (Check all that apply)**

10. The above vessel was involved in a Marine Casualty consisting in (46 CFR 4.05-1 and 4.05-10):

- ☐ 1. Unintended grounding or an unintended strike of (allision with) a bridge
- ☐ 2. Intended grounding or intended strike of a bridge that created a hazard to navigation, the environment or the safety of the vessel, or that meets any of the criteria in 3 through 8 below
- ☐ 3. Loss of main propulsion, primary steering, or any associated component or control system that reduces the maneuverability of the vessel
- ☐ 4. Occurrence materially and adversely affected the vessel's seaworthiness or fitness for service or route
- ☐ 5. Loss of life
- ☐ 6. Injury that requires professional medical treatment (treatment beyond first aid) and, if the person is engaged or employed on board a vessel in commercial service, that renders the individual unfit to perform his or her routine duties
- ☐ 7. Occurrence causing property damage in excess of \$25,000
- ☐ 8. Occurrence involving significant harm to the environment

**Victim and Survivor Data**

Incident ID: 2013111 Last Name: First Name:

**Demographic:**

Birthdate: 10/1/1990 Gender: Male ☐ Hispanic Origin: ☐ Race:  Cause of Death:  Status:  Survived:  Residence: WASHINGTON Time in Water:  Position: Deckhand Years Fishing: 0 Work Process: \$100 Location Onboard: Deck, unsp Alcohol Level:  WP Confidence: Full Confidence Alcohol:  Illegal Drugs:

**Classification Systems Coding**

**ICD Codes**  
Nature of Injury: 140 ICD 10 Diagnosis:  NAICS:   
Body Part: 322 ICD 10 External:  SOC:

**CFID Coding**  
CFID Source: 2112 CFID Event: 6229

**Injury Coding**  
Injury Agent: Mechanical Energy Injury Severity: Severe Confidence:   
Injury Response: USCG Helo Medevac  
Injury Treatment 1:   
Injury Treatment 2:   
Injury Treatment 3:

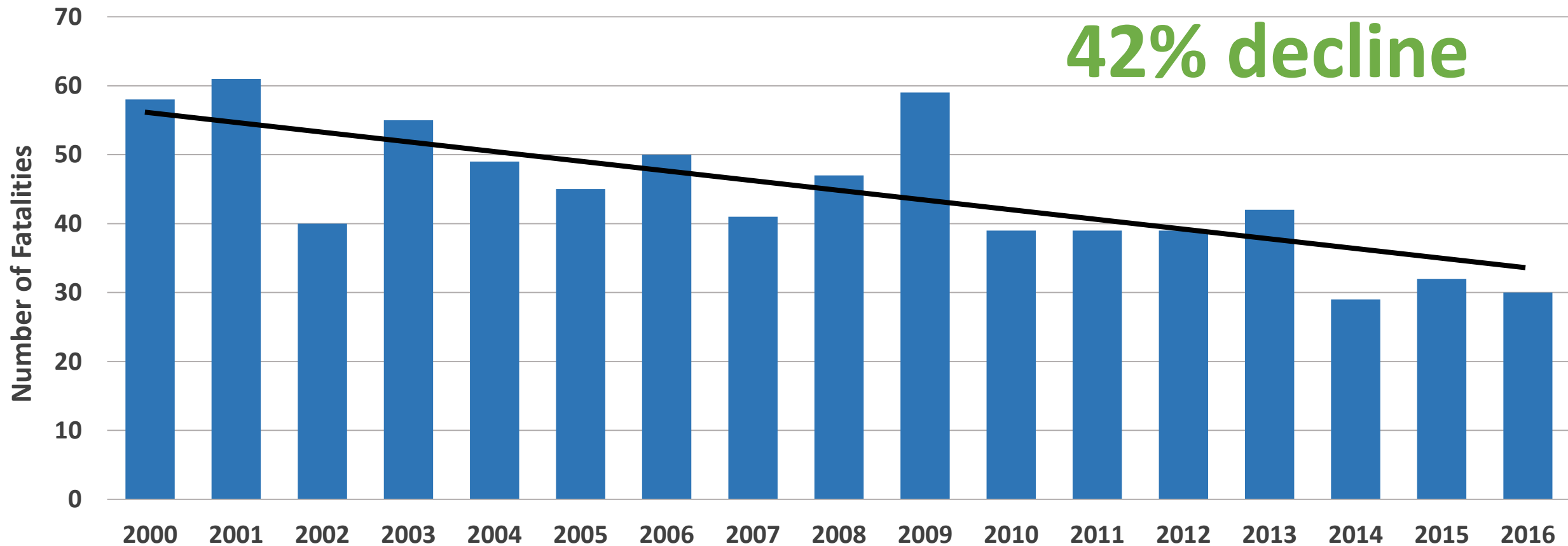
**Survival Equipment**

PFD Worn:  PFD Type:  Worn Properly:  Worn Error:  Location Donned:  Abandon To:  Why Water:  Other Equipment:

**Marine Safety Training**  
Train Year:

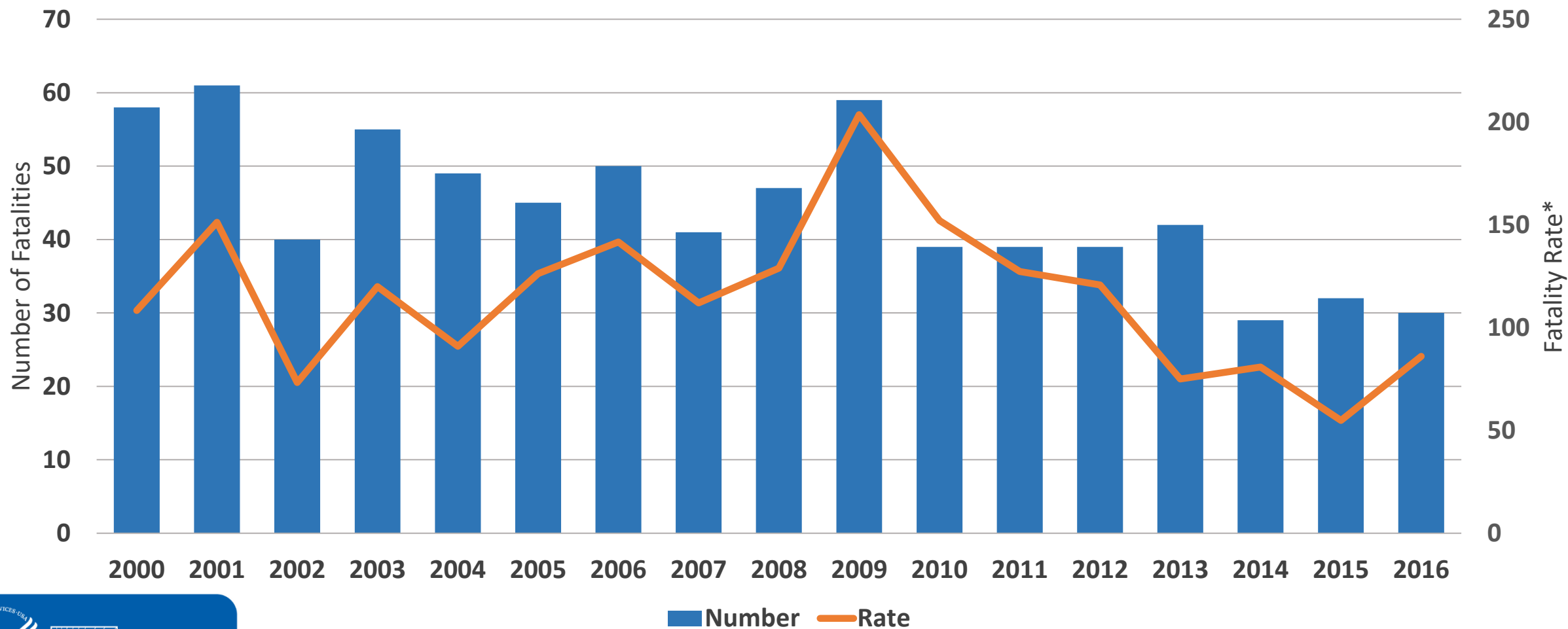
[Add A Fisherman](#) [Save and Close](#)

# US Commercial Fishing Fatalities, 2000-2016 (755 Total)



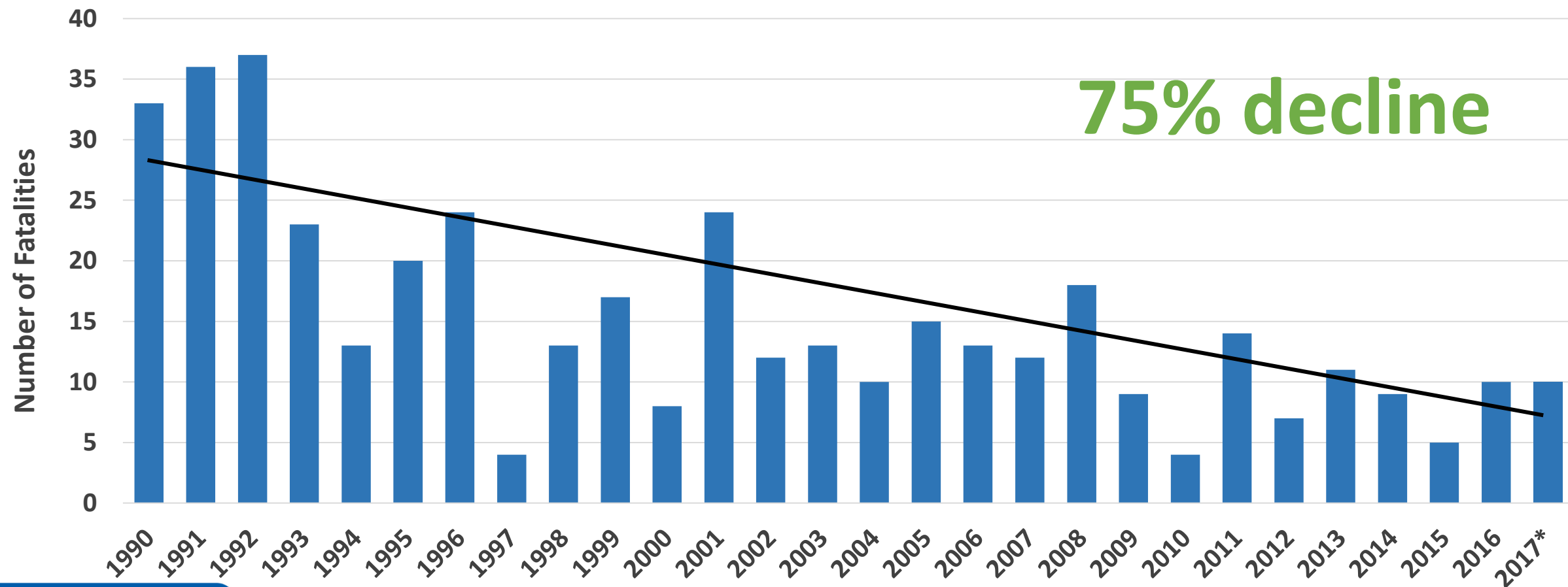


# US Commercial Fishing Fatalities, 2000-2016 (755 Total)





# Alaska Commercial Fishing Fatalities, 1990—2017 (424 Total)



# Updated Regional Summaries

## Commercial Fishing Fatality Summary

■ Alaska Region ■



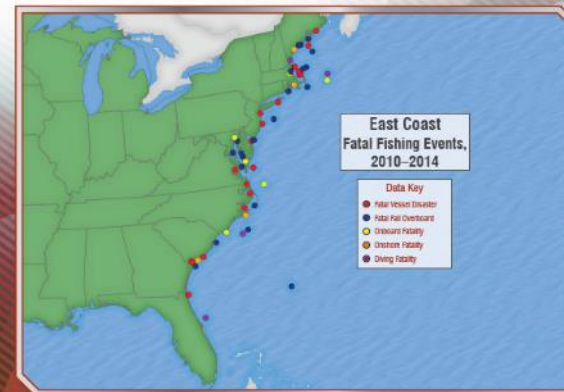
## Commercial Fishing Fatality Summary

■ West Coast Region ■



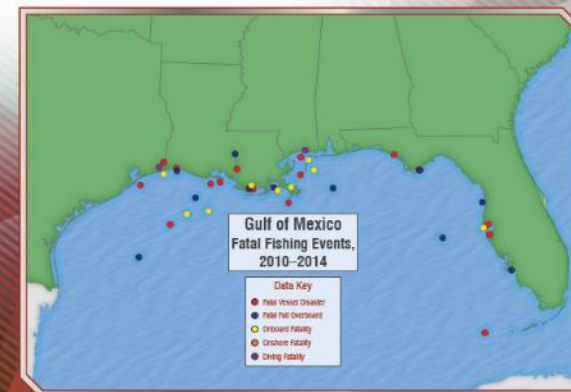
## Commercial Fishing Fatality Summary

■ East Coast Region ■



## Commercial Fishing Fatality Summary

■ Gulf of Mexico Region ■





# Surviving Fishing Vessel Sinkings



During 2000-2014:

- **187** fishing vessels sank or capsized in AK
- **617** total crewmembers were at risk

# Surviving Fishing Vessel Sinkings

- **Prevent the sinking**

- Avoid severe weather
- Ensure watertight integrity
- Maintain vessel's stability

- **Maintain lifesaving equipment**

- Immersion suit
- Life raft
- VHF radio/EPIRB

- **Train and drill**

- Take a marine safety training class
- Conduct monthly drills



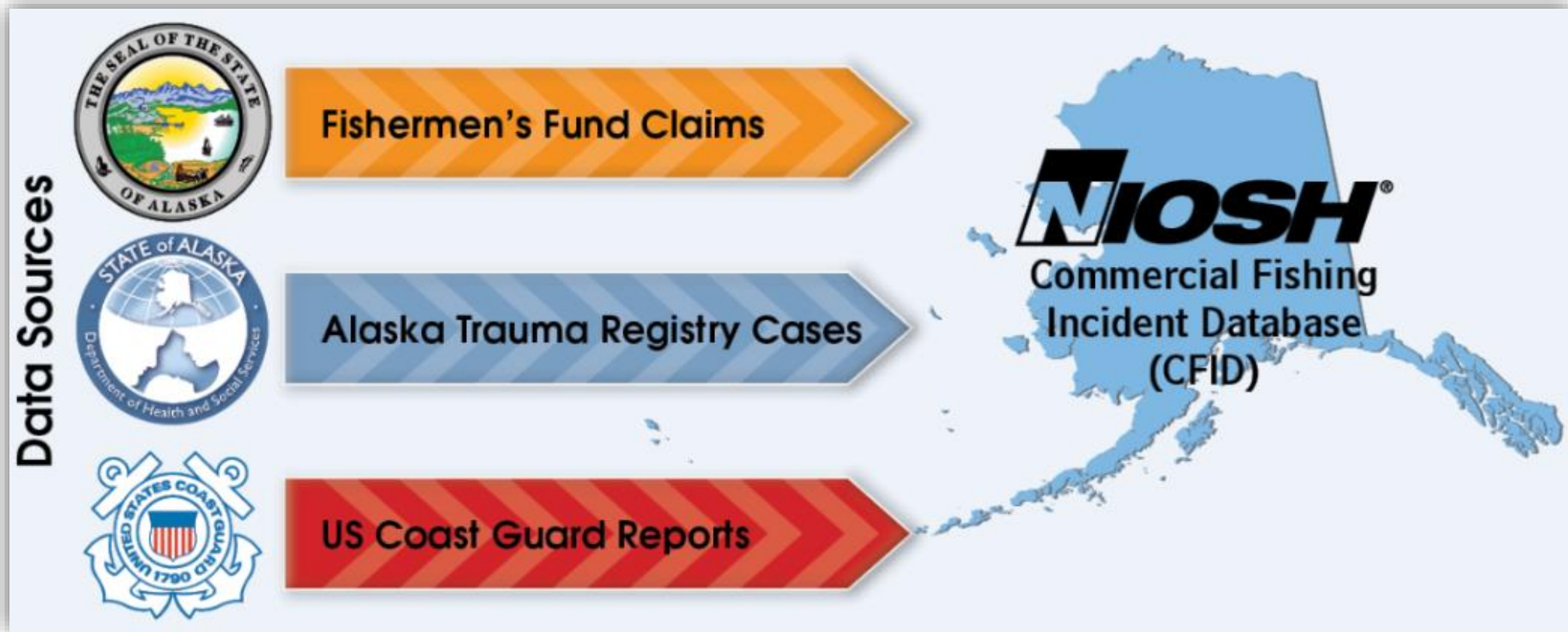


# New Study to Increase E-Stop Adoption

- Capstan winch can cause fractures, amputations, even death
- Emergency stop device licensed for commercial use in 2007
- Available as retrofit and with new hydraulic winches
- Only ~2% of the Pacific Northwest seine fleet has an e-stop – *why?*



# New Study to Investigate Nonfatal Injuries and Illnesses





# Alaska's seafood processing industry



# Outline

- Why research this industry?
- Study #1: Offshore processors
- Study #2: Onshore plant workers
- General conclusions

# Why research Alaska's seafood processing industry?



# High-hazard industry

## Offshore regulators



- All 3 regulators have:
- Classified the seafood processing industry as high-hazard
- Local emphasis programs

## Onshore regulator



State of Alaska  
Occupational Safety  
and Health Section

# High-risk for injuries & illnesses

## Fatalities in 2016

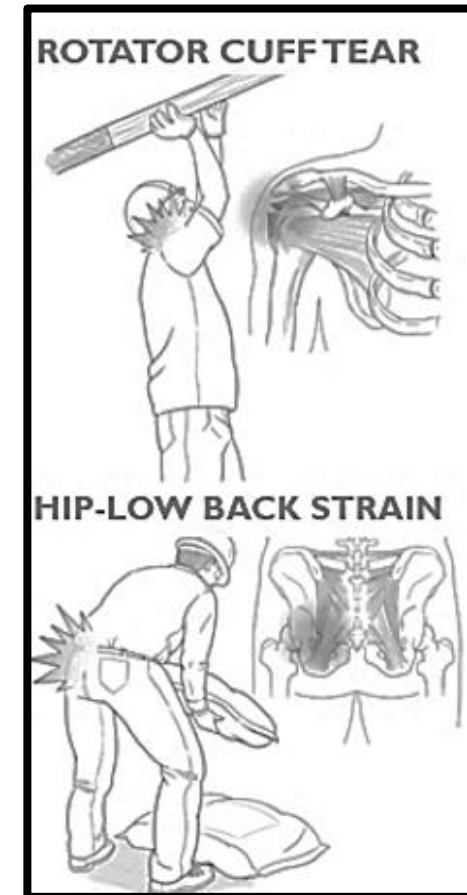
- NIOSH: Alaska Occupational Injury Surveillance System
  - **No** fatalities among offshore processors
  - **5** fatalities in onshore plants

## Nonfatal injuries & illnesses in 2016

- BLS & State of Alaska: Survey of Occupational Injuries and Illnesses
  - All-industry rate: **39 per 1,000 FTEs**
  - Broad “food manufacturing” industry rate: **88 per 1,000 FTEs**
    - Seafood processing: > 90% of all food manufacturing workers

# Importance of prevention

- Nonfatal conditions can be severe and result in:
  - Medical costs
  - Lowered productivity
  - Lost worktime and wages
  - Lowered quality of life
  - Disability





# Study # 1

# Traumatic injuries among offshore processors, 2010 – 2015:

## Analysis of US Coast Guard Reports

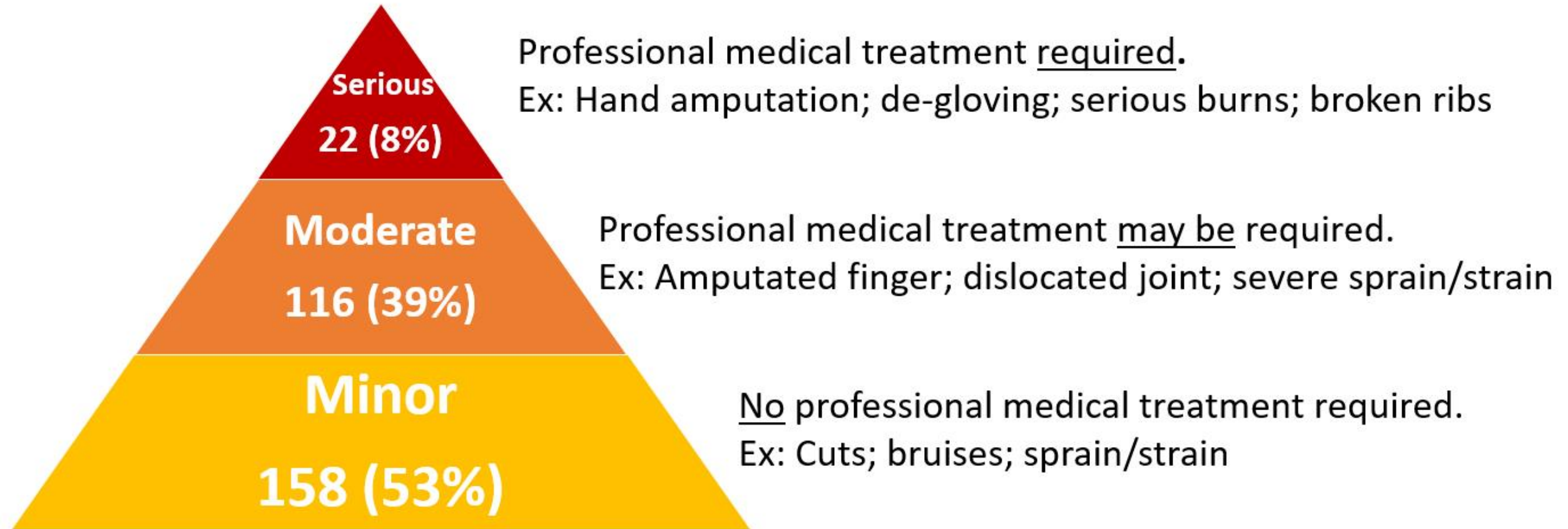


# Results

- During 2010 – 2015:
  - One fatality
  - 304 nonfatal injuries
    - Average of 51 nonfatal injuries reported per year
- Unable to calculate injury rates for processors
  - Lack of workforce data by occupation



## Nonfatal injury severity (n=296)

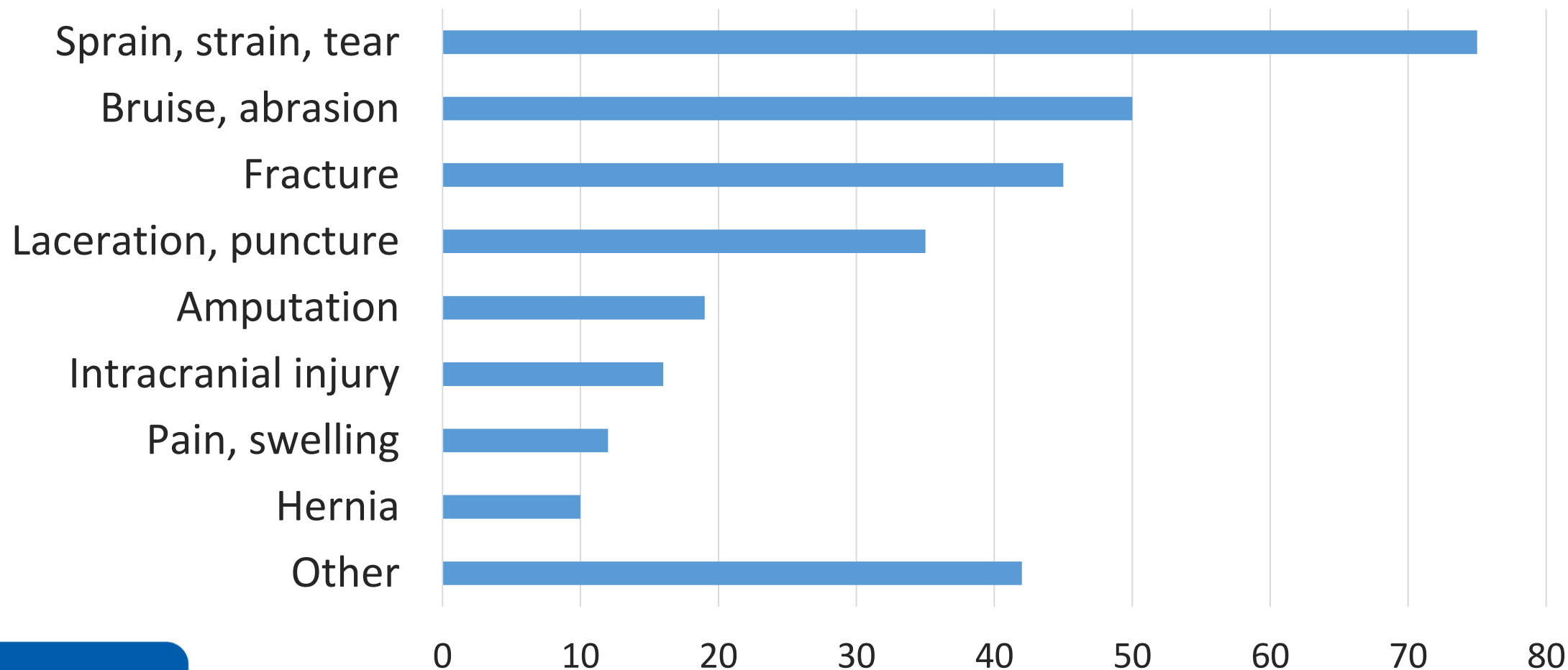


## Injury response (n=181)

- Coast Guard medical evacuation (8)
- Vessel returned to shore immediately (16)
- Vessel moored, to clinic immediately (21)
- Initial treatment on vessel, followed by:
  - Clinical treatment (68)
  - Continuing work (59)
  - Returning home (9)

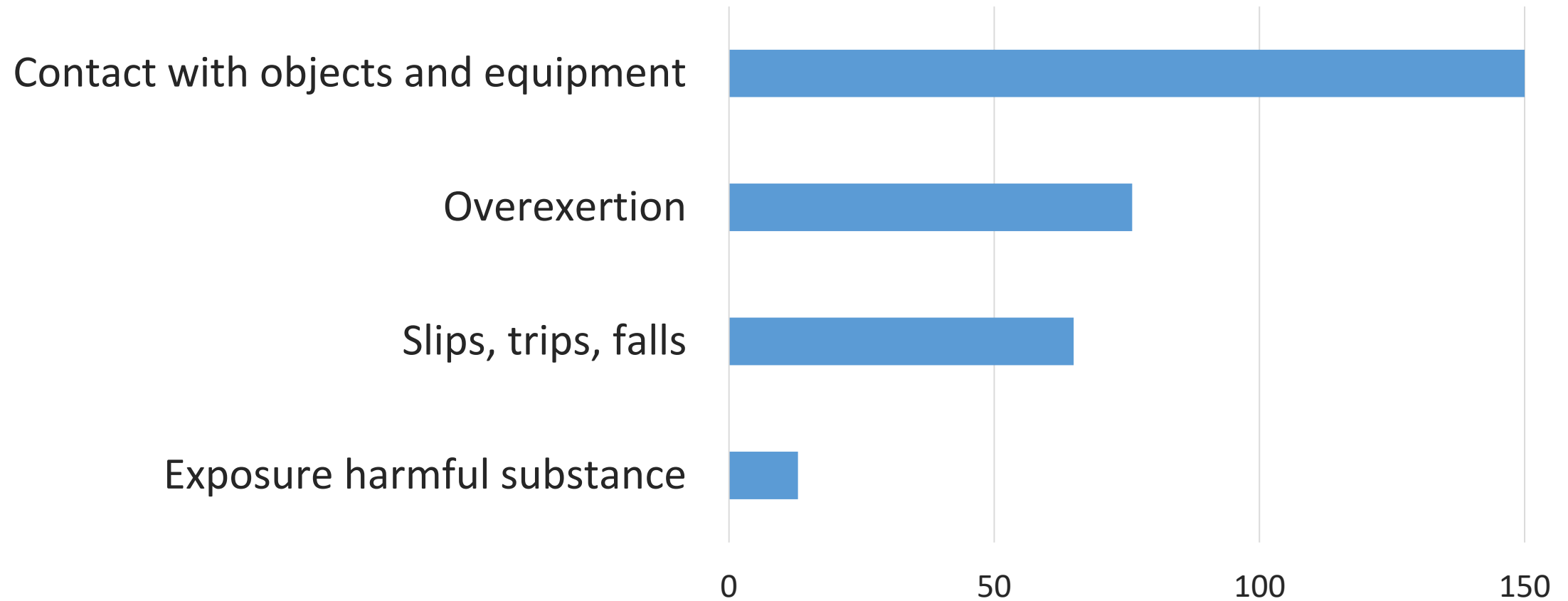


## Nature of injury (n=304)





# Event/exposure resulting in injury (n=304)



## Body part affected (n=304)

Shoulder, Arm, Hand  
**122 (40%)**

Head, Face, Neck  
**37 (12%)**

Back, Chest, Abdomen  
**75 (25%)**

Multiple Parts  
**11 (3%)**

Leg, Foot  
**54 (18%)**

Body Systems  
**3 (1%)**



# Study # 2



# Injuries and illnesses among onshore workers, 2014 - 2015:

## Analysis of workers' compensation claims

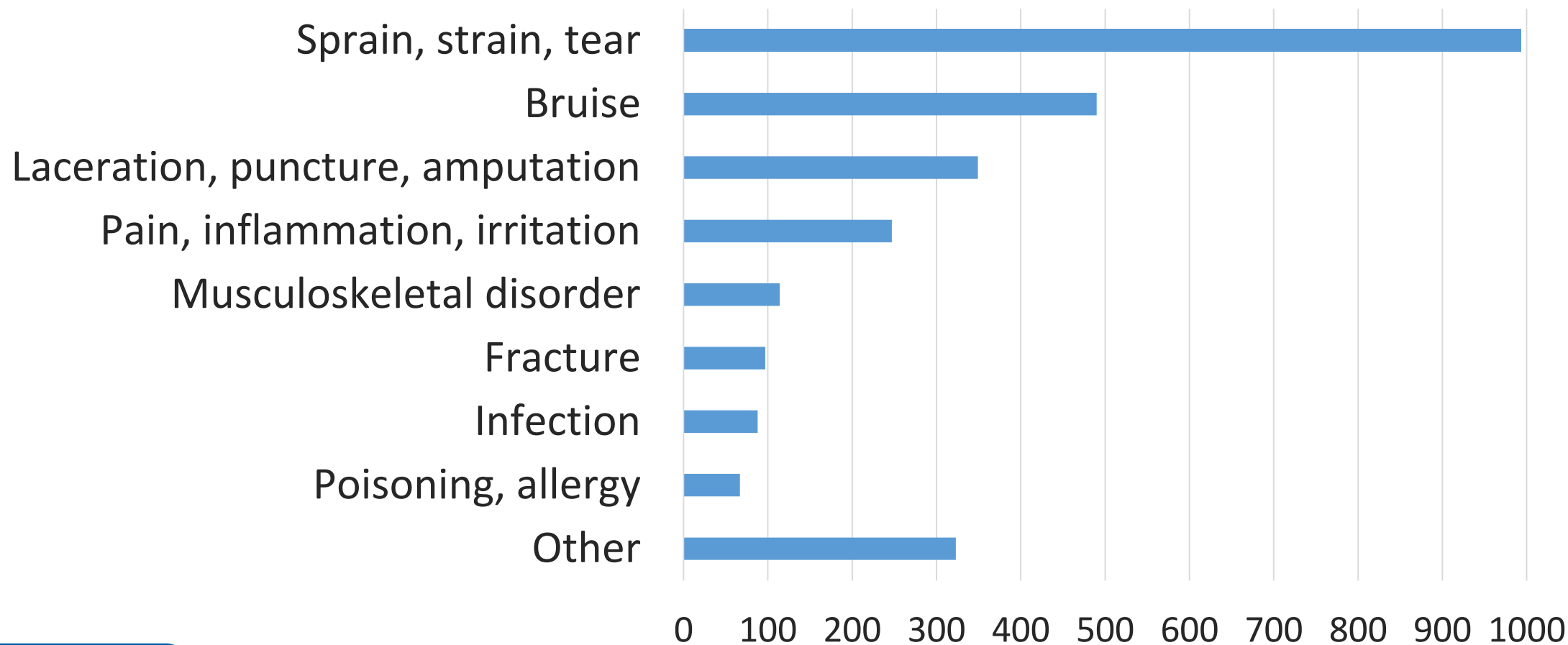


**Workers' compensation claims:  
Nonfatal injuries/illnesses in Alaska,  
2014 and 2015**

	<b># Claims</b>	<b>Average annual claim rate per 1,000 workers</b>
<b>All industries</b>	<b>37,240</b>	<b>44</b>
<b>Onshore seafood processing</b>	<b>2,889</b>	<b>63</b>

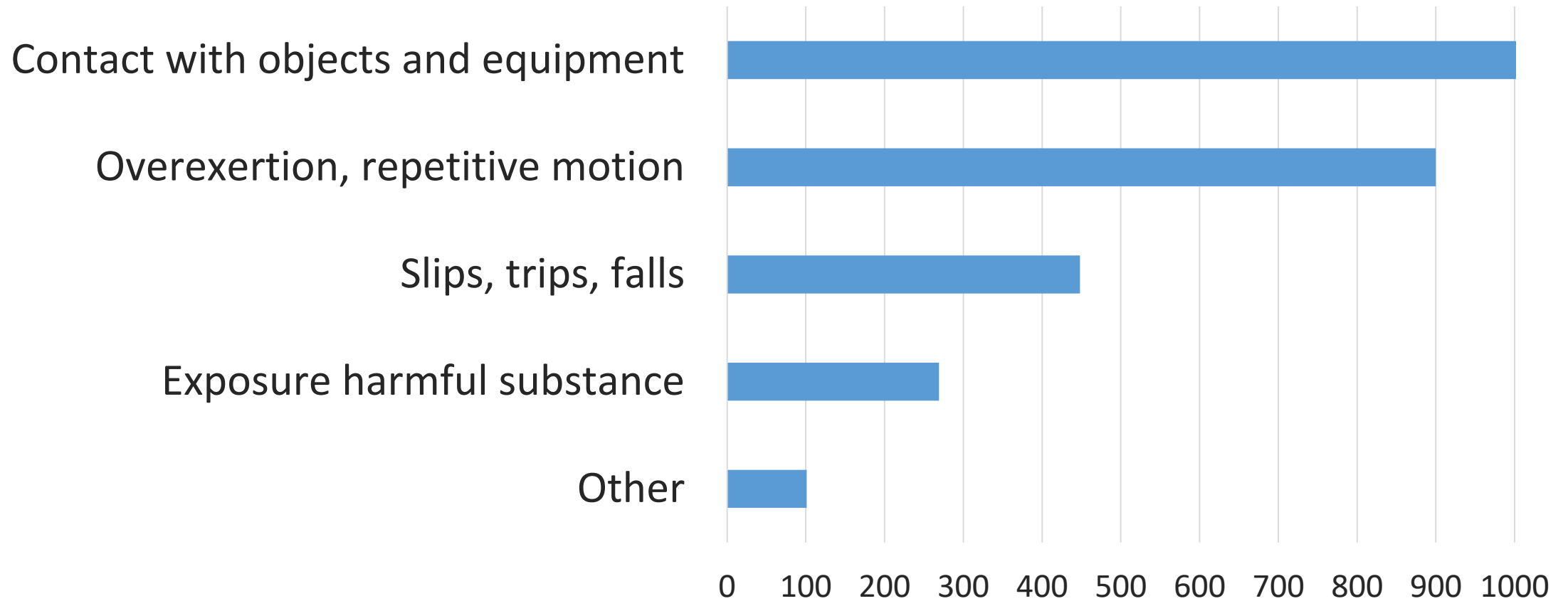
**Rate Ratio: 1.42 (95% CI: 1.37 – 1.48)**

## Nature of injury or illness (n=2,768)





# Event/exposure resulting in injury or illness (n=2,738)



## Body part affected (n=2,829)

Shoulder, Arm, Hand  
**1,212 (43%)**

Head, Face, Neck  
**355 (13%)**

Back, Chest, Abdomen  
**578 (20%)**

Multiple Parts  
**108 (4%)**

Leg, Foot  
**511 (18%)**

Body Systems  
**65 (2%)**



# General Conclusions



# Hazards to target for injury & illness prevention

- Vessels
  1. Overexertion from lifting and lowering
  2. Struck by: Equipment and falling boxes
  3. Slips, trips, and falls
  4. Caught in machinery
- Onshore plants
  1. Overexertion from lifting, lowering, pushing, and pulling
  2. Struck by: Trays, fish (fresh/frozen), and boxes/bags
  3. Slips, trips, and falls
  4. Exposure to harmful substances
  5. Repetitive motion

- Preventing musculoskeletal injuries to workers' upper extremities (e.g., sprains, strains, tears, MSDs) is paramount
- Ergonomic solutions could be developed, implemented, and evaluated





# Plans for 2018

- Develop products
- Expand partnerships
- Promote safety solutions





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