

# NIOSH Fishing Safety Program Update

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CFSAC Meeting  
Seattle, WA  
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# Outline

- NMFS Safety Tech Memo
- 2014 Surveillance Data
- NIOSH/USCG/OSU Collaboration using Marine Casualty Data to Assess Hazards in D13





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# NMFS Safety Tech Memo: Guidance on Fishing Vessel Risk Assessments and Accounting for Safety at Sea in Fishery Management Design

- In response to concerns about fishing safety, Congress added National Standard 10 (NS10) to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in 1996.
- A procedure for conducting a risk assessment
- NMFS document
- NIOSH co-author
  
- Released in January 2016







# Outline

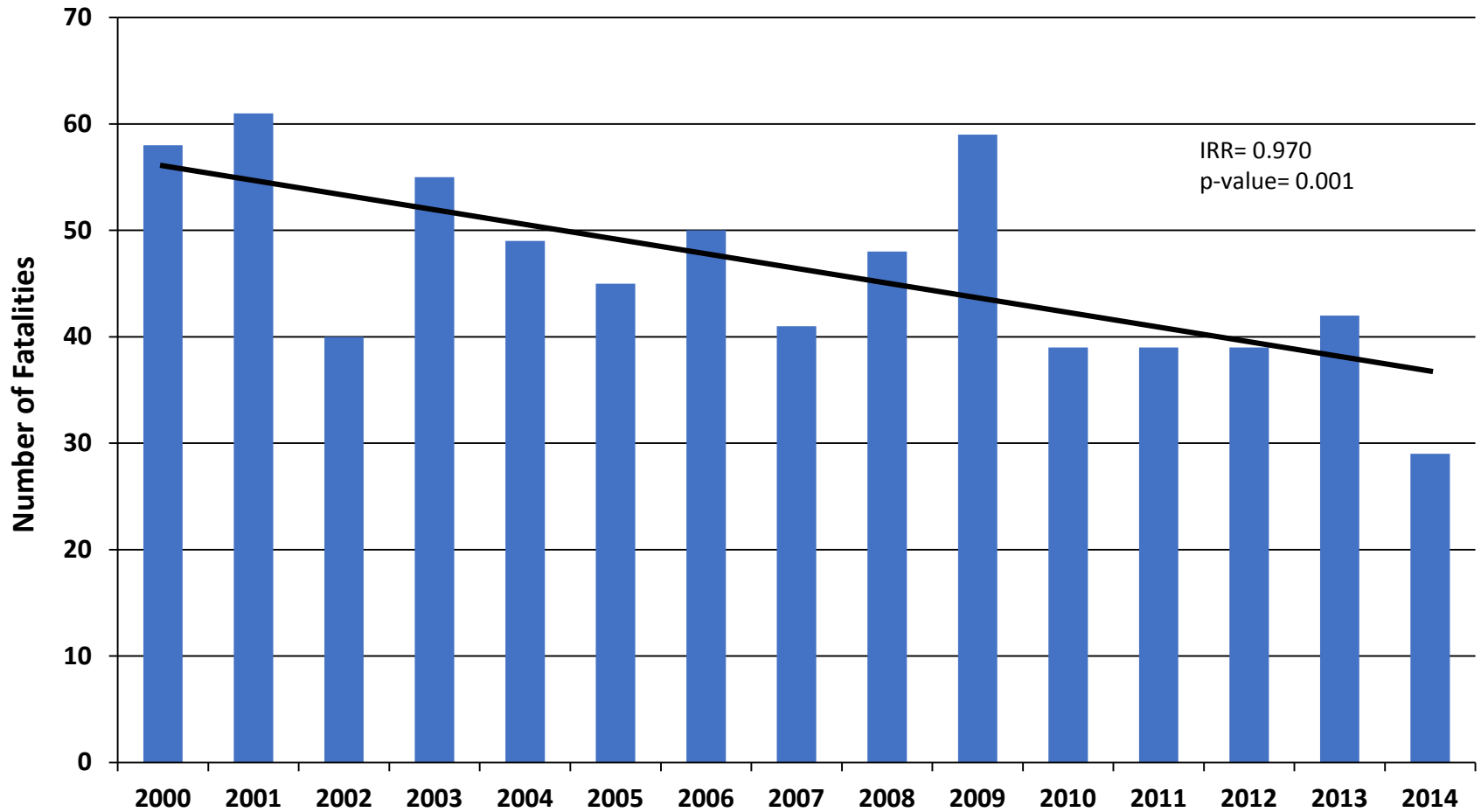
- NMFS Safety Tech Memo
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# U.S. Commercial Fishing Fatalities, 2000-2014

(N=694)

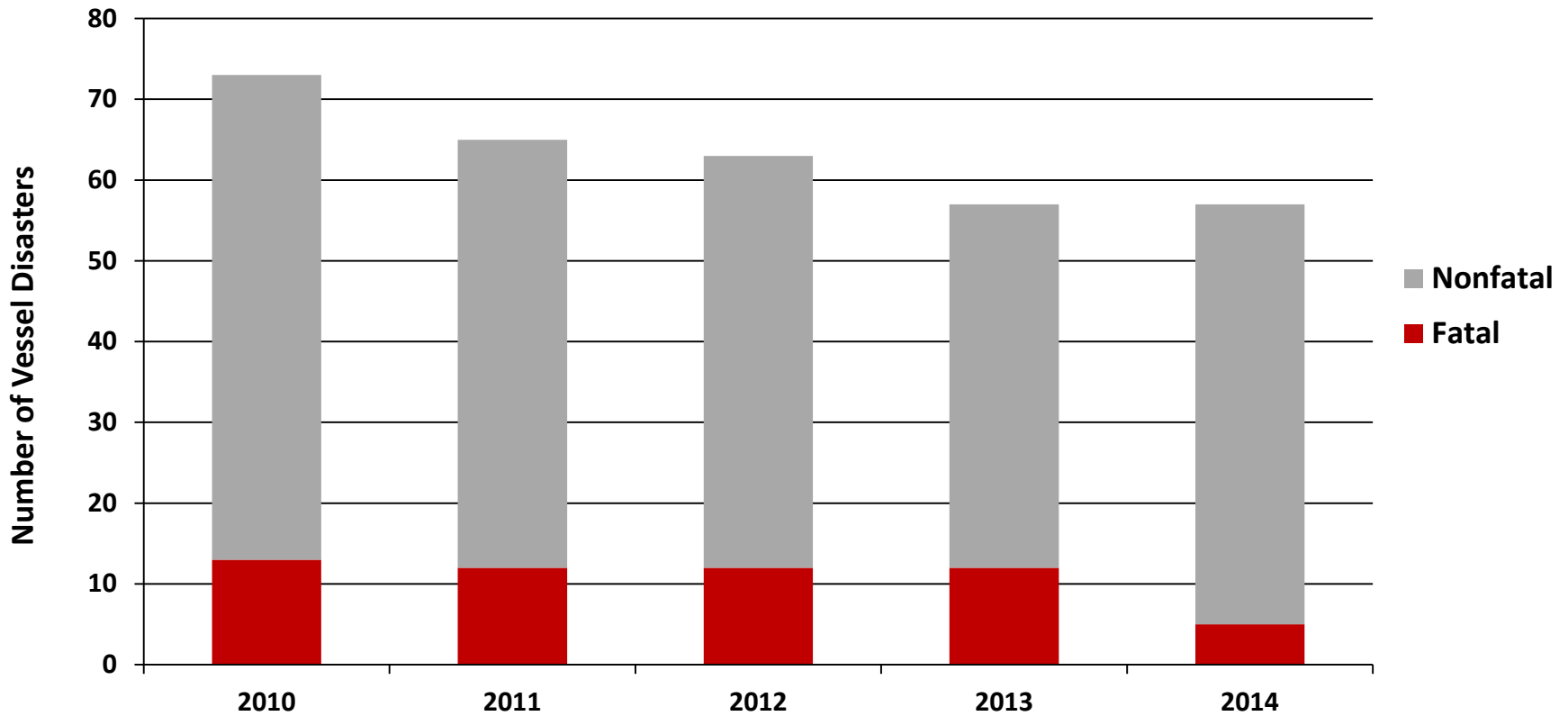


34% overall decline in fatalities



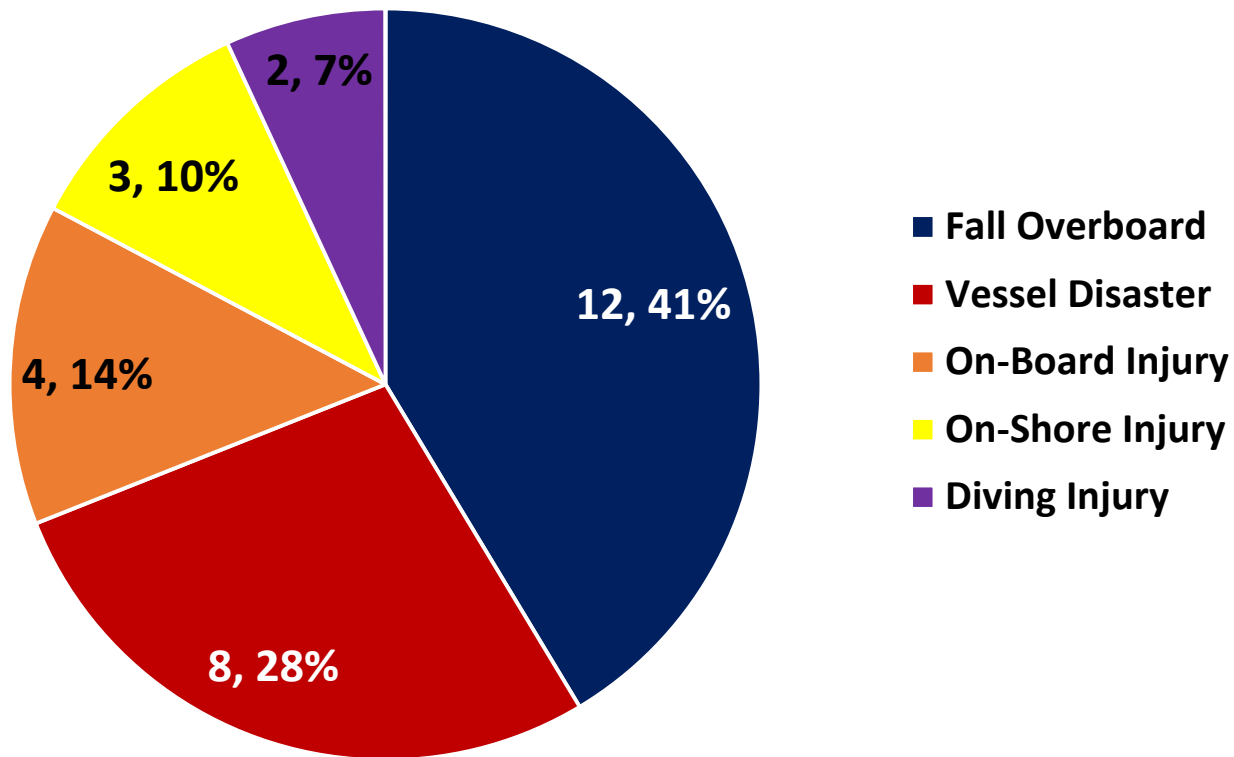


## U.S. Commercial Fishing Vessel Disasters, 2010-2014 (N=315)





## U.S. Commercial Fishing Fatalities by Incident Type, 2014 (N=29)







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# What we already know:

- Fishing regions and fishing fleets have different hazards
- ASCPs will be most effective if they address actual problems (evidence based) in specific regions
- NIOSH already has detailed, fleet specific data on all fatalities and vessel disasters (both fatal and non-fatal disasters)

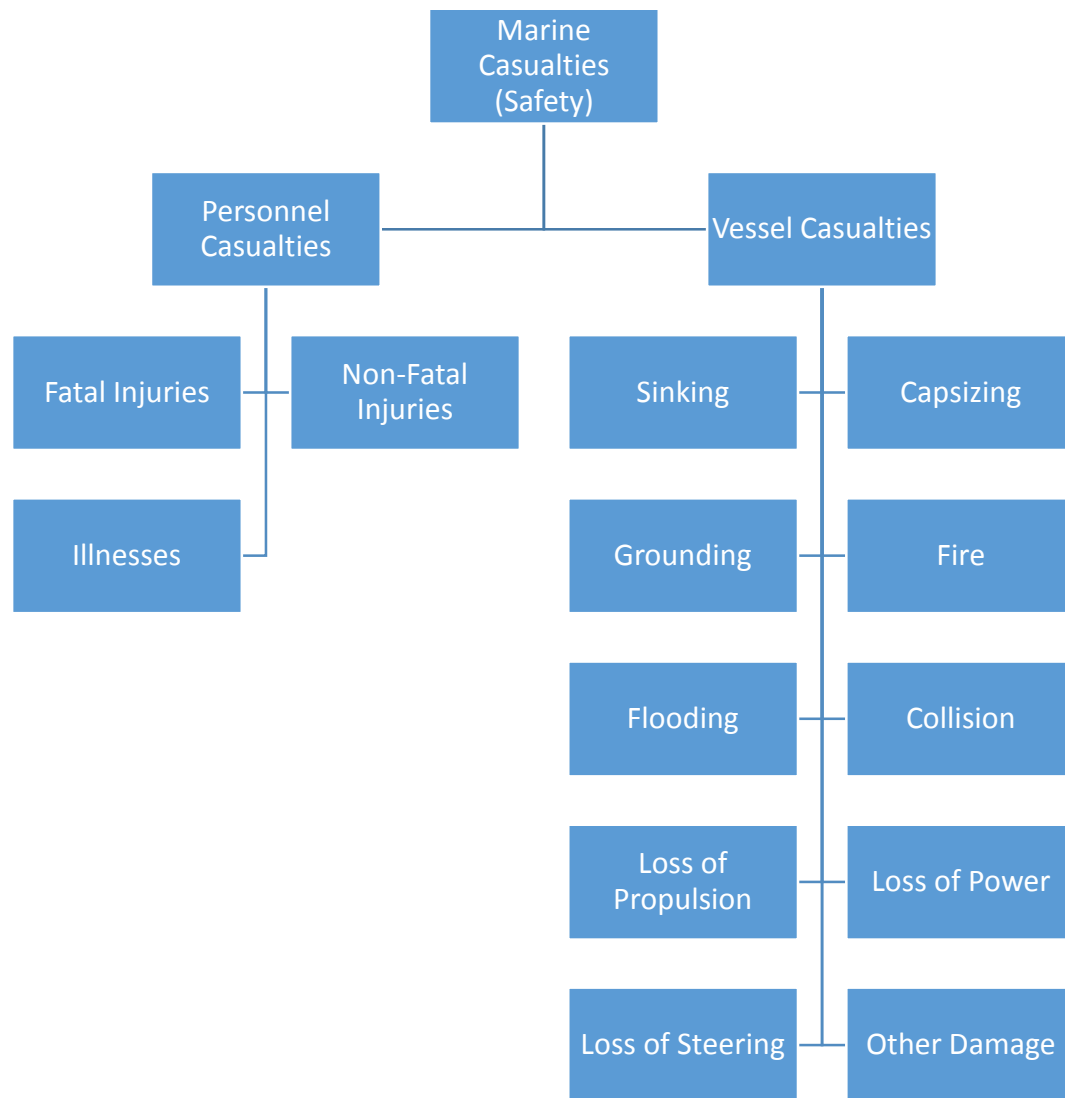


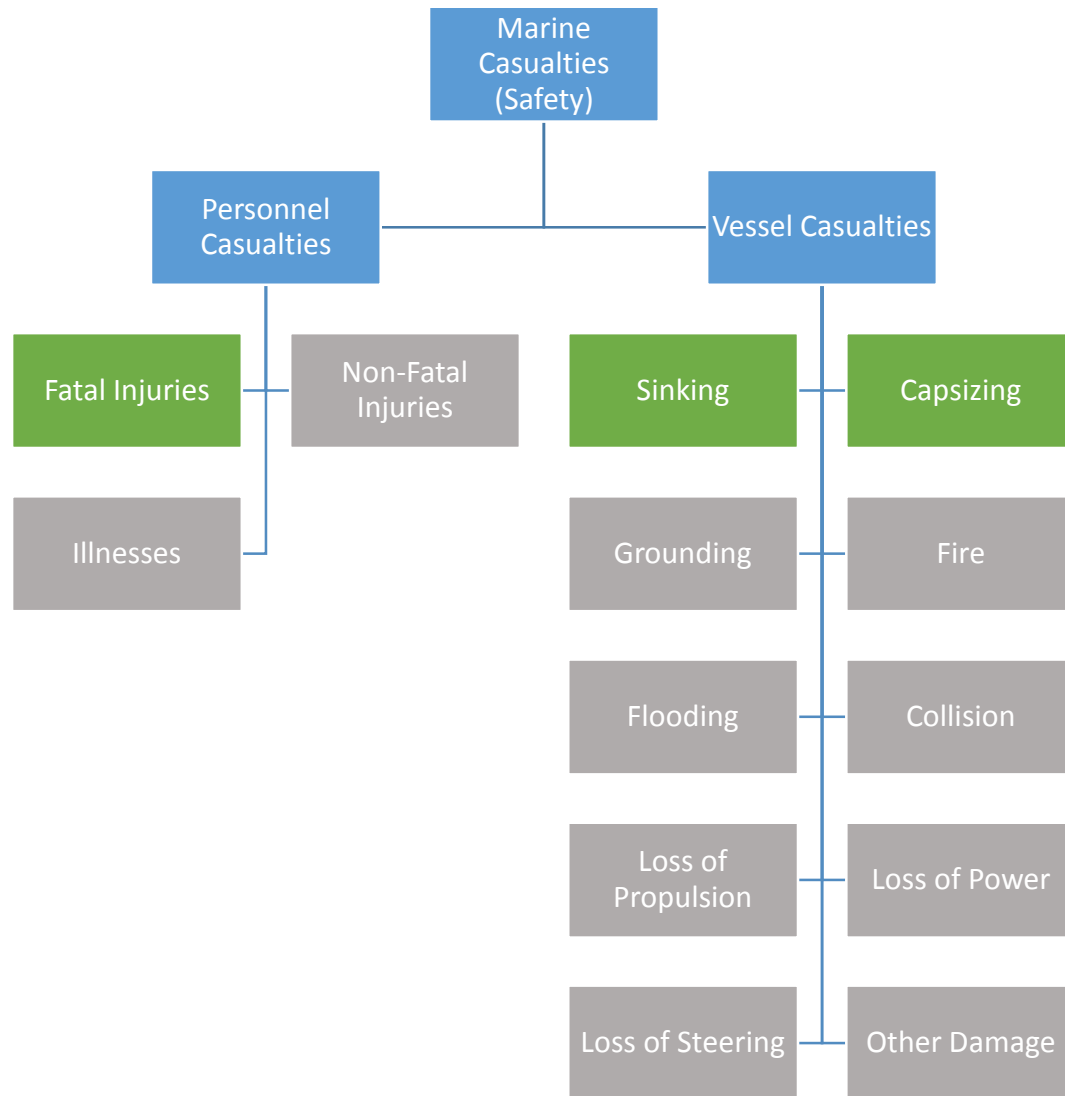


# What we are missing:

- Detailed, fleet-specific data on
  - Non-fatal injuries
  - Vessel casualties (that do not result in disasters)
- Hazard assessments for regions and fleets
  - Evidence for effective ASCPs







NIOSH has data on all vessel casualties that resulted in the crew abandoning ship







# Objective

- Assess the hazards on fishing vessels  $\geq 50'$  operating in D13 using data on reported marine casualties
  - Fatal injuries
  - Non-fatal injuries
  - Vessel casualties
- Provide scientific evidence to guide the development of a D13 ASCP





# Methods

- **Data Collection**

- Multi-institution collaboration (NIOSH, USCG, OSU)
- Each D13 case was manually reviewed (2692, IO narratives)
- Data entered into a study database

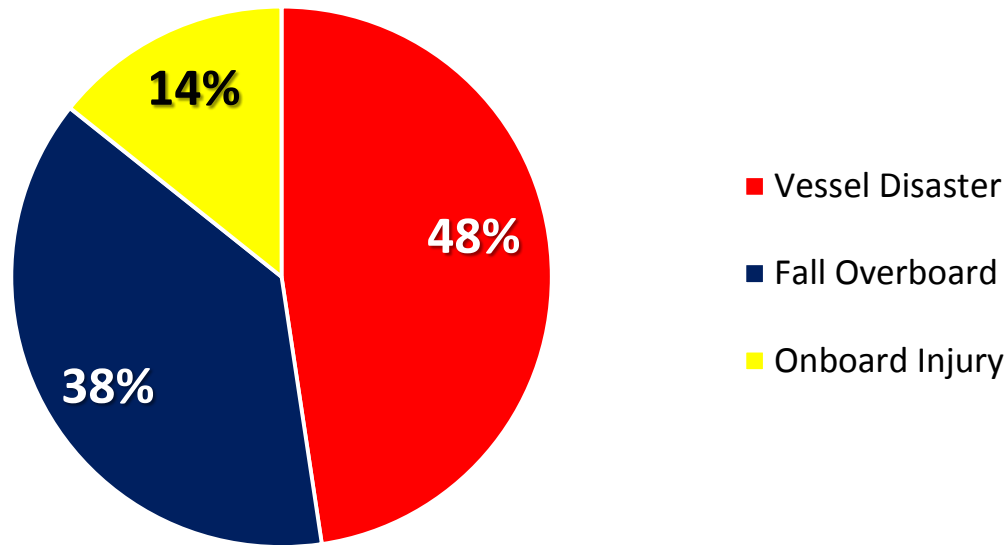
NIOSH (AK Office)	USCG (D13 Summer Hire)	Oregon State University
Fatalities	Vessel Casualties	Non-Fatal Injuries
Vessel Disasters		





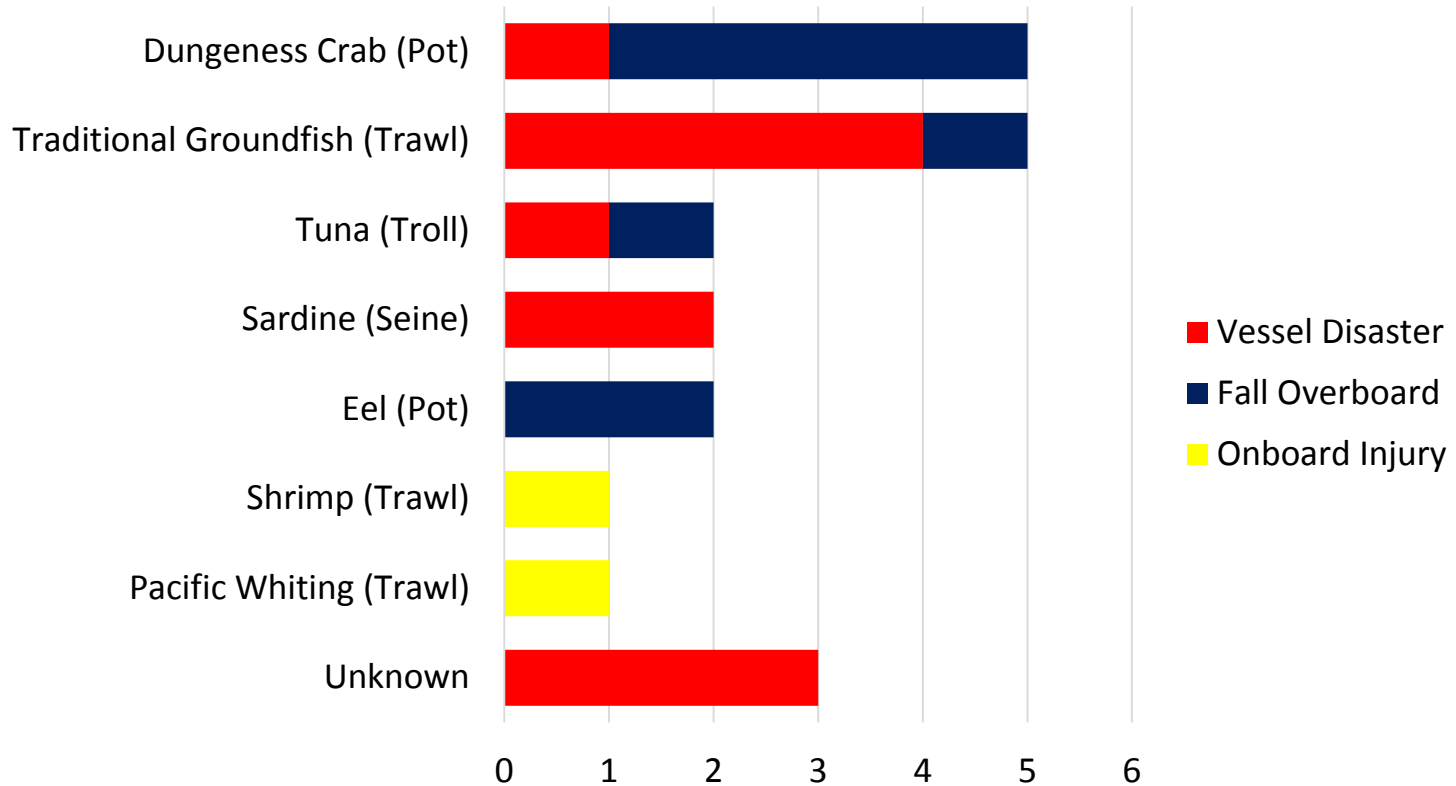
# Fatalities in D13

- 80 fatalities on all F/Vs in D13 During 2000-2014
- 21 fatalities on F/Vs  $\geq 50'$  (**26%**)





# Fatalities on D13 F/Vs $\geq 50'$ (2000-2014, n=21)





## Fatalities on D13 F/Vs $\geq 50'$ (2000-2014, n=21)

### Causes of fatal falls overboard (n=8)

- Gear entanglement (3)
- Knocked by gear (1)
- Trip/slip (1)
- Washed over (1)
- Unknown (2)

No PFD use





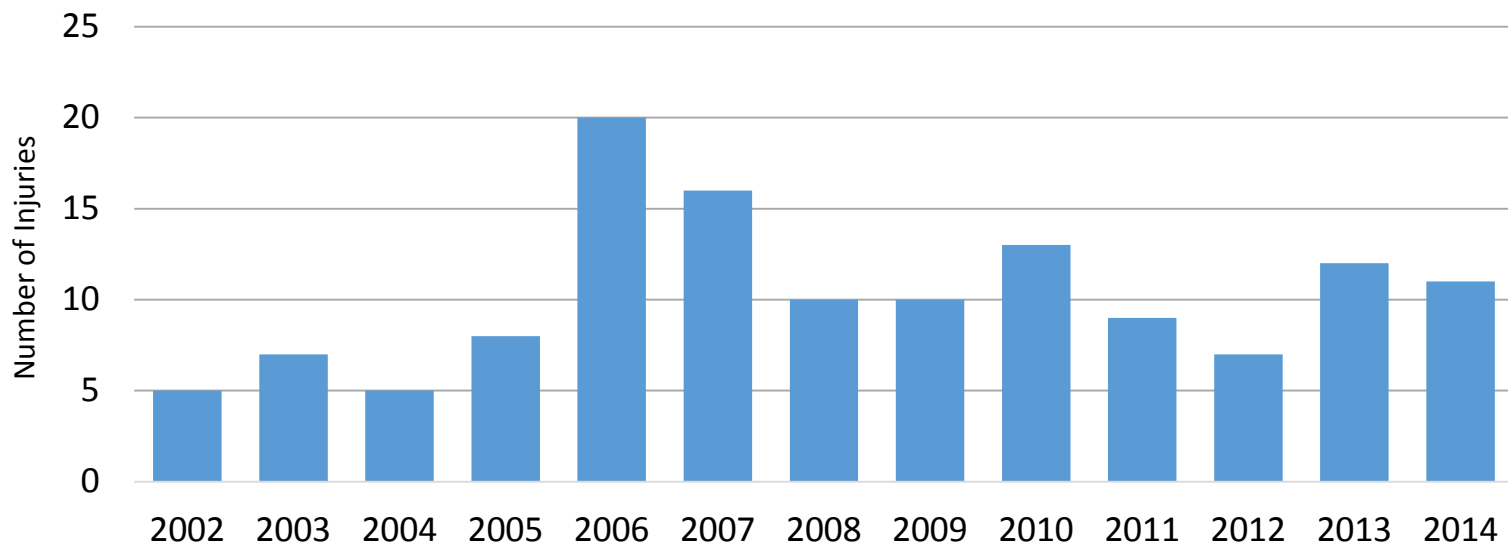


# Non-Fatal Injuries in D13

- 167 non-fatal injuries reported on all F/Vs in D13 During 2002-2014
- 133 non-fatal injuries on F/Vs  $\geq 50'$  (**80%**)

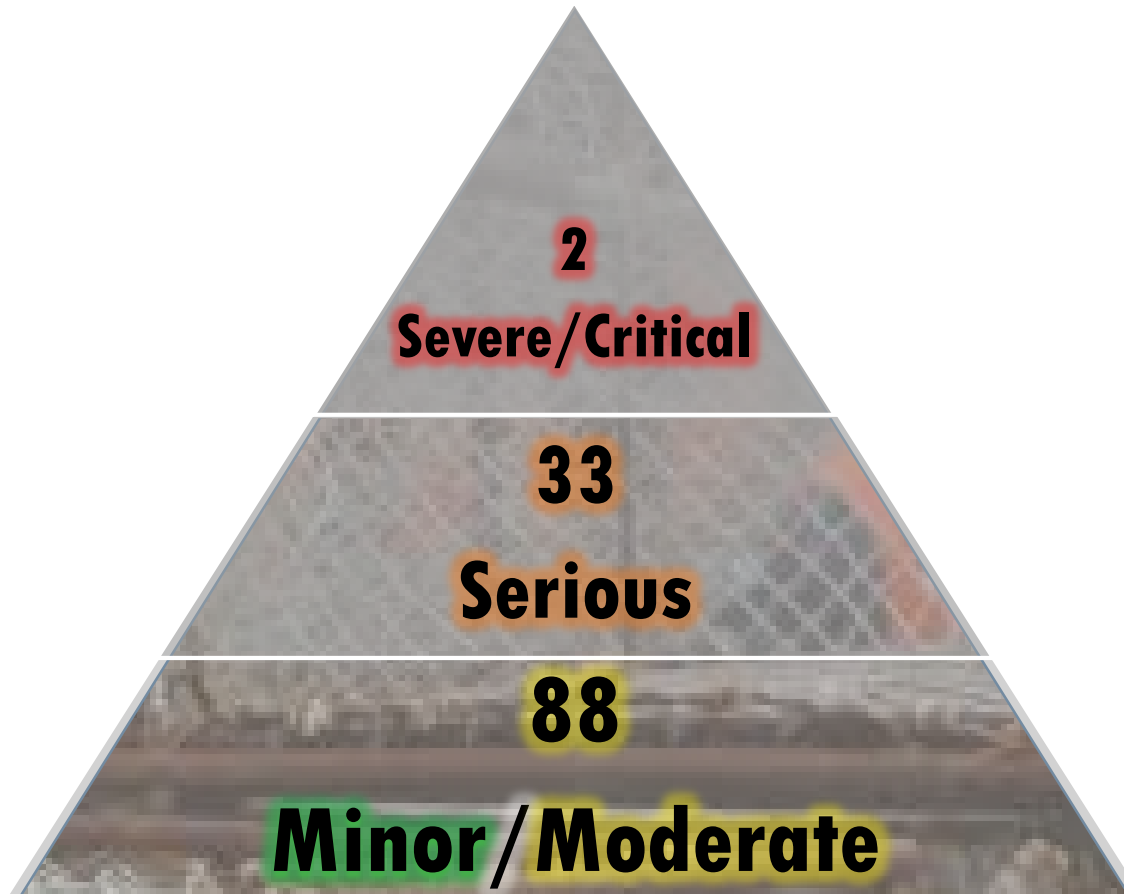
\*note the discrepancy in reporting, i.e. **26%** of fatalities on F/Vs  $\geq 50'$ , yet report **80%** of non-fatal injuries

D13 Reported Non-Fatal Injuries on F/V  $\geq 50'$  (n=133)





# Severity of Non-Fatal Injuries on D13 F/Vs $\geq 50'$ (2002-2014, n=123\*)

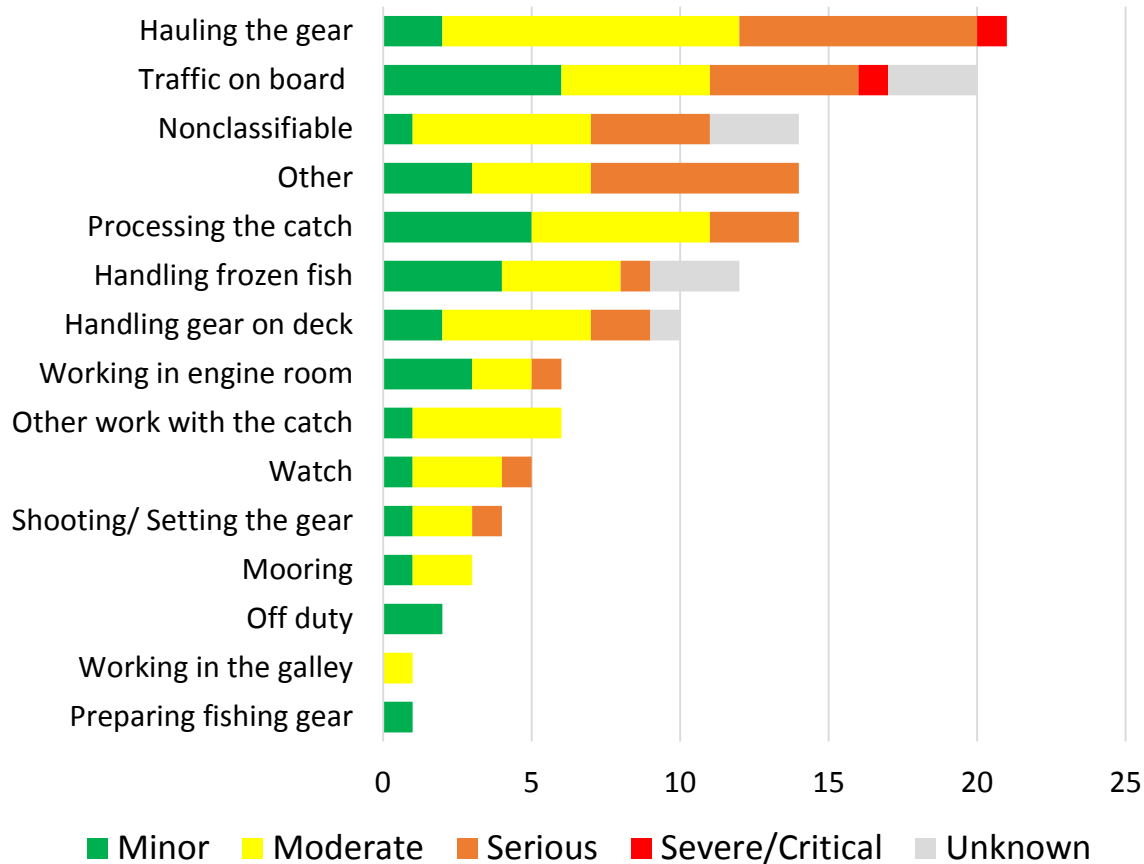


\*Missing injury severity for 10 cases





# Severity of Non-Fatal Injuries on D13 F/Vs $\geq 50'$ (2002-2014, n=123\*)



\*Missing injury severity for 10 cases





# Non-Fatal Injuries on D13 F/Vs $\geq 50'$ (2002-2014, n=125\*)

-  Amputation
-  Burn
-  Contusion
-  Fracture
-  Hypothermia
-  Laceration/ Puncture
-  Sprain/ Strain/ Tear
-  Other

\*Missing injury severity for 8 cases



## Multiple/Systems



## Head



## Arm/Hand



## Torso

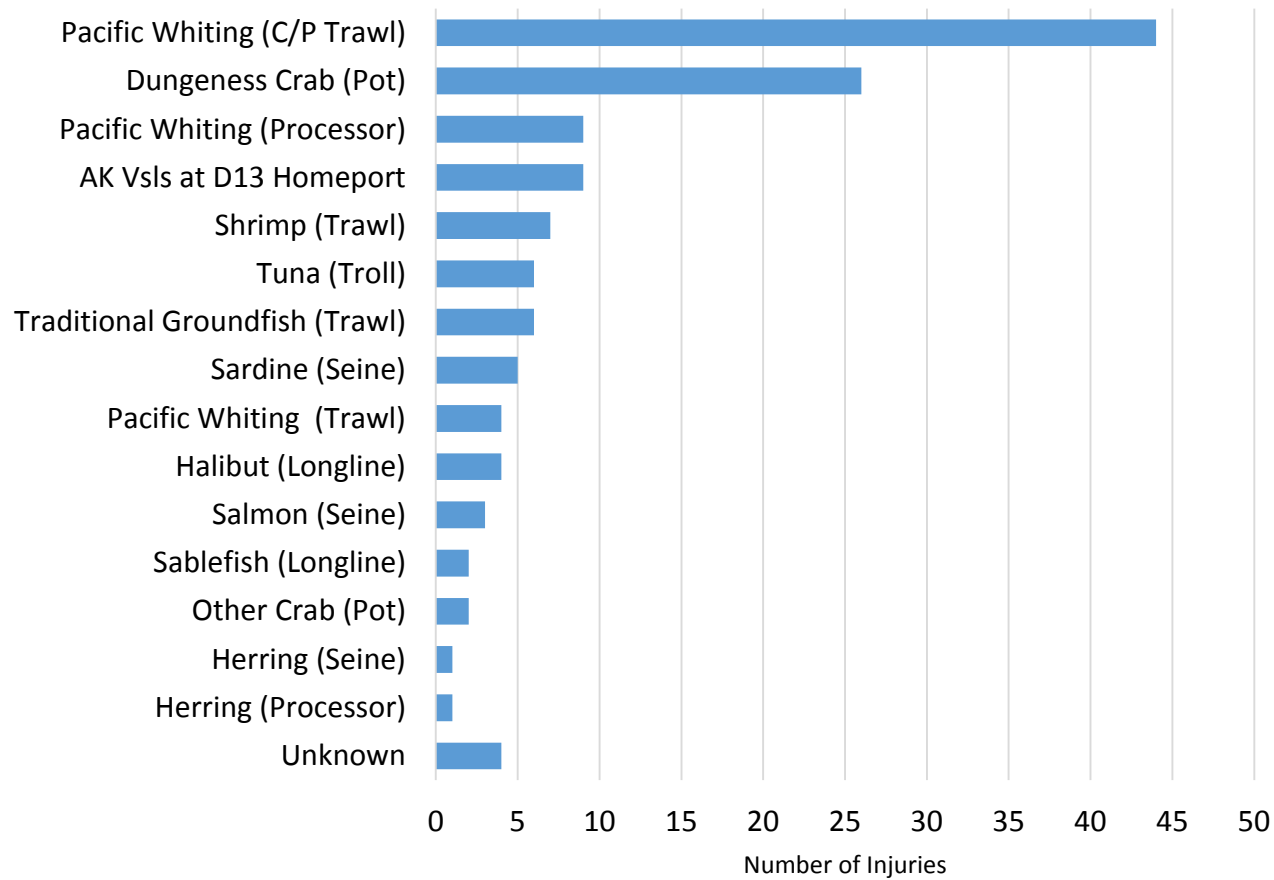


## Leg/Foot





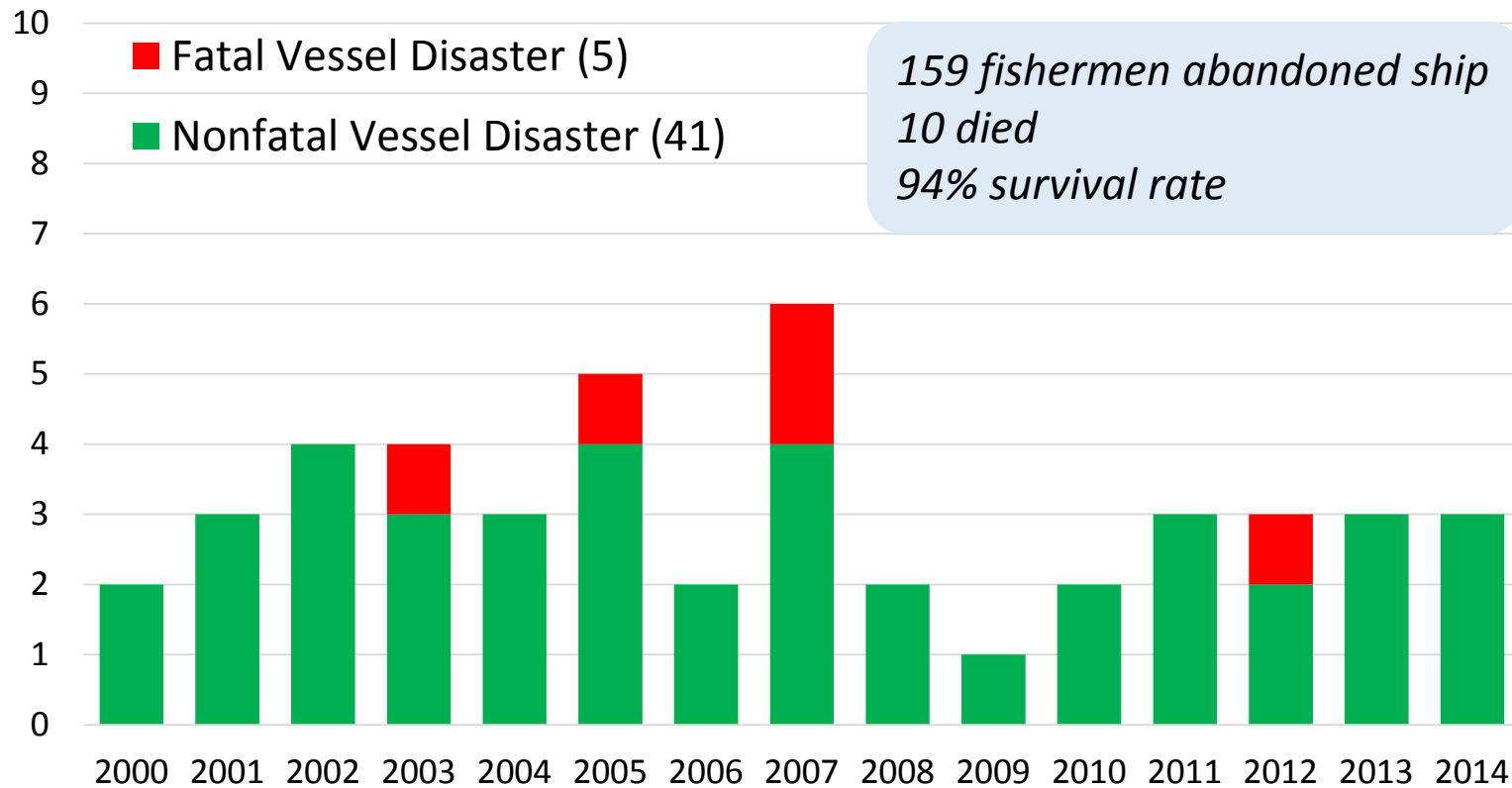
## Non-Fatal Injuries on D13 F/Vs $\geq 50'$ (2002-2014, n=133)





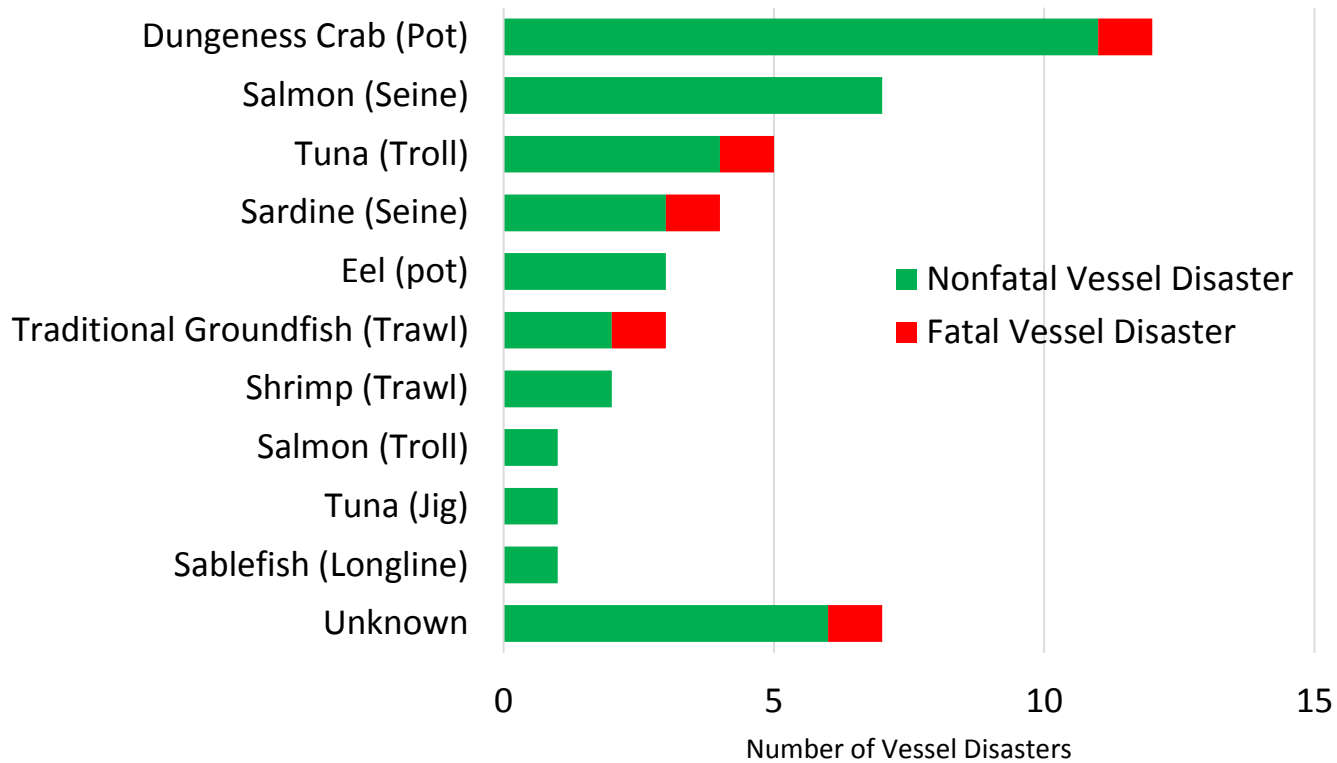


# Vessel Disasters on D13 F/Vs $\geq 50'$ (2000-2014, n=46)



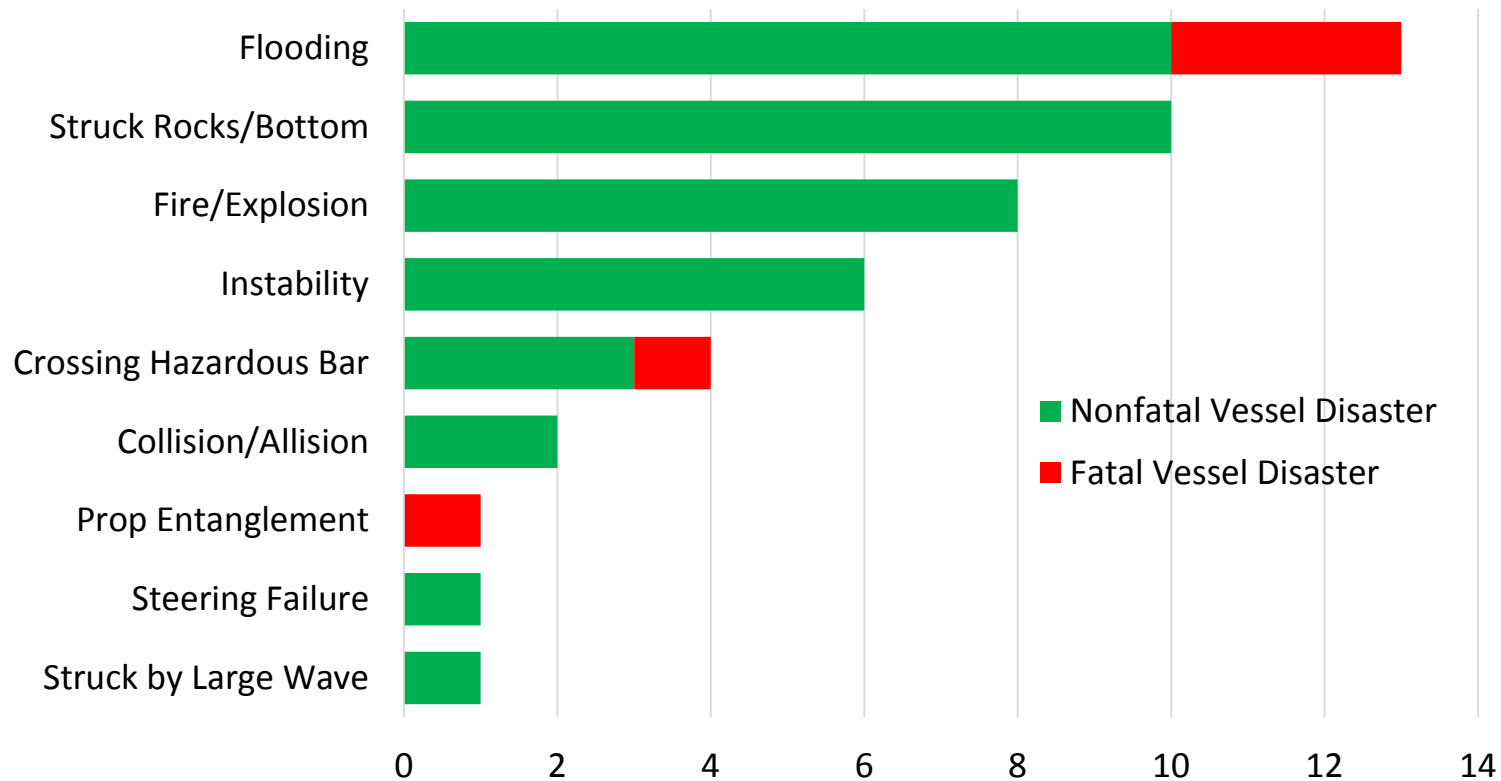


# Vessel Disasters on D13 F/Vs $\geq 50'$ (2000-2014, n=46)



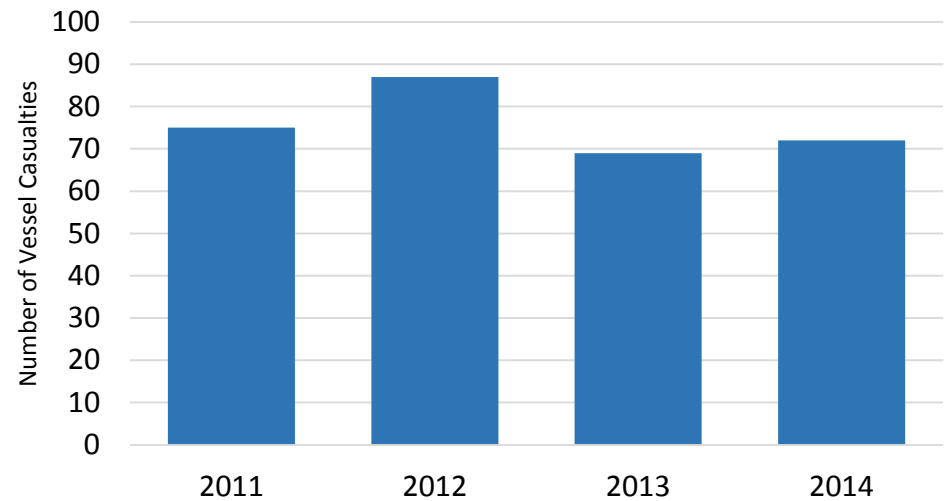
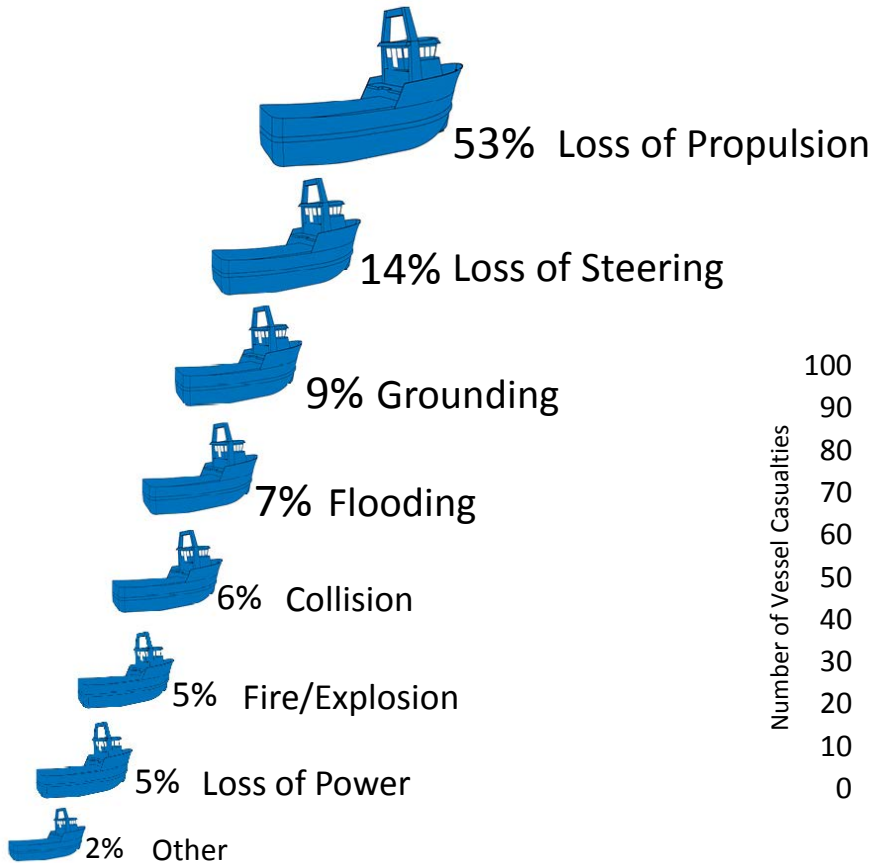


# Initiating Events of Vessel Disasters on D13 F/Vs $\geq 50'$ (2000-2014, n=46)





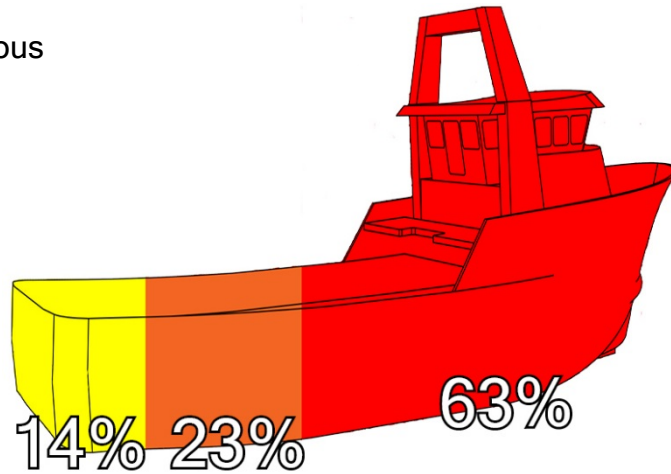
# Vessel Casualties on D13 F/Vs $\geq 50'$ (2011-2014, n=303)





# Vessel Casualties on D13 F/Vs $\geq 50'$ (2011-2014, n=300\*)

- Minor
- Moderate
- Serious



NIOSH Vessel Casualty Severity Definition		
Minor	Moderate	Serious
Resolve at sea <i>without</i> assistance	Return to port <i>without</i> assistance	Completely disabled; Towed to port
	Resolve at sea <i>with</i> assistance	

In 163 of these serious vessel casualties (86%), the Coast Guard towed the distressed vessel to safety. That's one rescue of a disabled F/V every 9 days in D13!

\*Missing casualty severity for 3 cases





# D13 ASCP Suggestions

- No need for fleet-specific ASCPs in D13
  - A single program will address common problems
- Focus on preventing **flooding** as an initiating event of vessel casualties and disasters
  - Down-flooding (open hatches, doors, sea-valves)
  - Below-waterline flooding (through-hull penetration failures, hull corrosion)
- Provisions to prevent **grounding** as an initiating event of vessel casualties and disasters
  - Falling asleep at the helm
  - Navigational errors





# D13 ASCP Suggestions

- Provisions to improve **fire** prevention and response
- No evidence to support extensive stability requirements in D13 ASCP
- Collisions also not a major issue in D13
- Include discussions on **loss of propulsion** with industry to generate ideas for solutions
- Improve **reporting** of non-fatal injuries
- Prevent fatal falls overboard by mandating **PFD use** on deck



# THANK YOU



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.