

# Changing Commercial Fishing Personal Flotation Use Behavior

What can we learn from efforts to address the most important safety technology adoption challenge of our time?

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June 13, 2018

IFISH5: International Fishing Industry Safety & Health Conference





# *Alaskan Commercial Fishermen: Perceptions and Evaluations of PFDs*

*A Decade of Research, Outputs, and Impact*

Jennifer M. Lincoln

NIOSH Center for Maritime Safety and Health Studies

# Target Population: Alaskan Fishermen, Crabbers, Longliners, Trawlers, Gillnetters

- Falls overboard is the second leading cause of death for Alaska fishermen
- During 1990–2009
  - 87 crewmembers
  - none were wearing a PFD.





“Why doesn’t someone buy a bunch of PFDs and see what fishermen like to wear?”  
- Jimmy Ruhle, Trawler Captain, North Carolina



# Study Objectives:

## Study Objective #1:

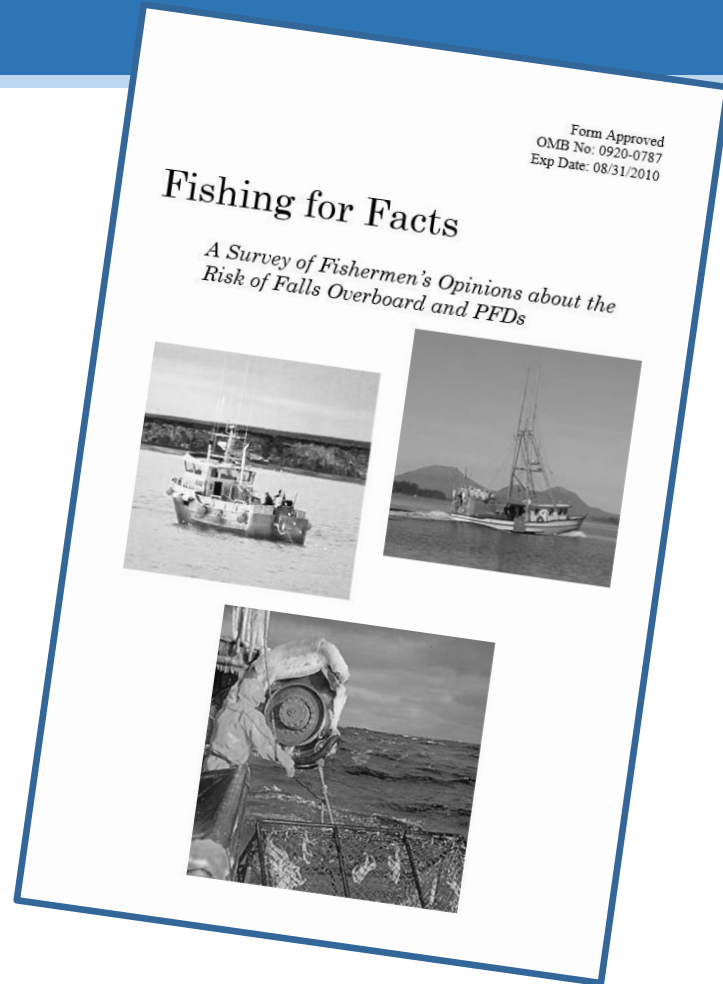
Measure perceptions of risks for falling overboard and beliefs about PFDs

## Study Objective #2:

Evaluate new styles and types of PFDs



# Phase I: Survey



400 surveyed-- cross-sectional to measure:

- Perceptions of risk
- Attitudes/beliefs about PFDs
- Experiences with falls overboard

# Phase II: PFD Evaluations



# Phase II: PFD Evaluations

- 208 Wore the PFD for one month
- Completed evaluation form after day 1 & after day 30
- 9 item scale:

<b>Weight</b>	<b>Tightness</b>	<b>Bulkiness</b>
<b>Chafing skin</b>	<b>Donning</b>	<b>Cleaning</b>
<b>Interfering with work</b>	<b>Constricting motion</b>	<b>Snagging gear</b>



# Unexpected Findings

Overwhelming desire to participate!

- Response Rate
  - 89% at Day 1
  - 68% at Day 30



# Phase I: Survey Results

**How much do you worry about falling overboard?**

24% “very much”  
5% “not at all”

**What do you think are the chances that you will fall overboard during your fishing career?**

35% (mean)



# Phase I: Survey Results

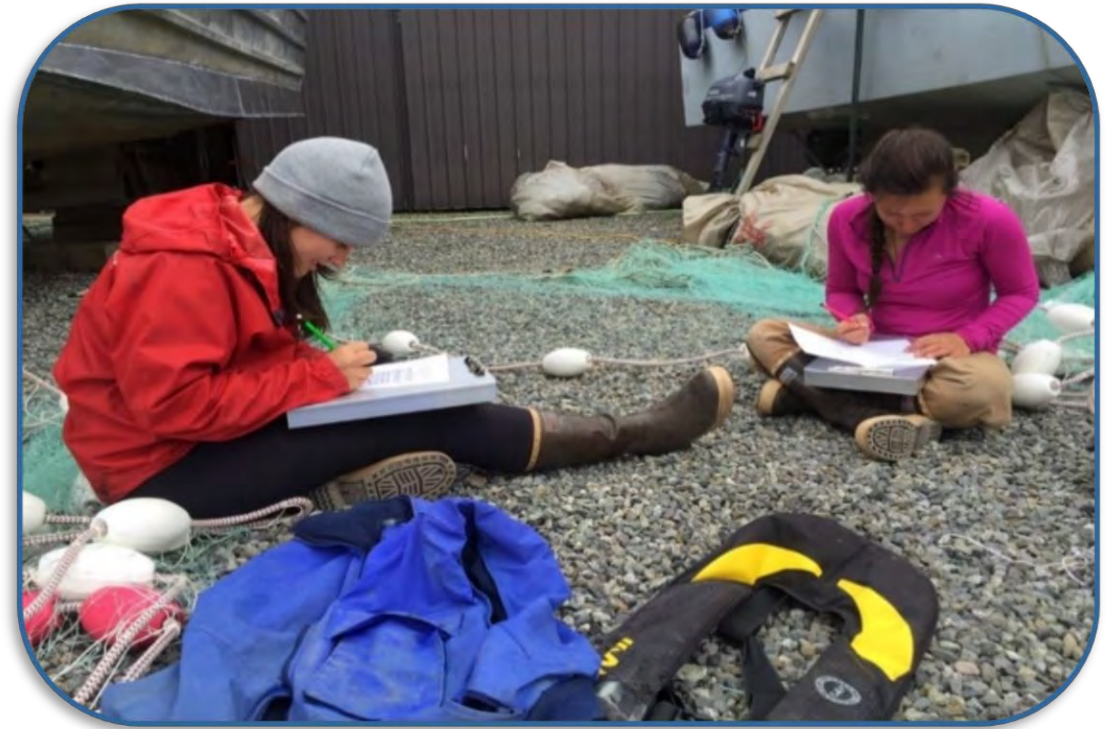
**How effective are PFDs (if worn) for surviving a fall overboard?**

**85% “fairly or very effective”**









**Wearing PFDs...**

**2% “shows weakness”**

**83% “smart thing to do”**



# Phase II: PFD Evaluation Results

	Crabbers (n=38)	Gillnetters (n=36)	Longliners (n=24)	Trawlers (n=47)
<b>PFD with highest satisfaction score</b>				
<b>Acceptable PFDs based on evaluation scores</b>				

# Barriers to Adoption

- Did not know about innovative PFDs
- Innovative PFDs weren't available in local retail outlets
- Wearing a PFD is not a regulatory requirement



# Motivators to Adoption

- Policies changed aboard participating fishing vessels
  - *F/V Wizard*, *Deadliest Catch*-- 100% PFD policy
  - *F/V Bristol Mariner*, *F/V Aleutian Mariner*, and 6 other “*Mariner*” vessels purchased PFDs for all crew
  - Alaska Scallopers Association-- 100% PFD policy, member vessels
  - Trident Seafoods-- 100% PFD policy-- contracted crab vessels



# Efforts to Address Barriers: Increase Knowledge

## PFDs That Work: Fact sheet series

### PFDs That Work LONGLINERS

Researchers from the NIOSH Alaska Pacific Office conducted an evaluation with commercial fishermen from 4 gear groups to rate the comfort and acceptability of six modern personal flotation devices (PFDs). About 200 fishermen were asked to evaluate a PFD for one month while working on deck so that wearable PFDs could be identified. This document shows which PFDs were preferred by longliners.

**PFD Use Among Longliners:**

- Wearing a PFD while working close to the gear on a loaded deck was a top concern.
- The subject of a PFD snagging on the longline was an additional concern.

**Reasons Given for Not Wearing a PFD:**

- Wearing a PFD while working close to the gear on a loaded deck was a top concern.
- The subject of a PFD snagging on the longline was an additional concern.

**PFD Use Among Crabbers:**

- Over half of the crabbers said they knew someone who had died from a fall overboard.
- Over half of crabbers believed PFDs are effective at saving lives.
- Most crabbers did not think that PFDs are uncomfortable or interfere with work, although half of them thought PFDs could be an entanglement hazard.

**PFD Evaluations:**

After the 30-day on-deck evaluation of PFDs, longliners said that the Mustang Inflatable Suspenders (MIS) was the only acceptable PFD from the NIOSH study for work on their vessels. Comments on the device include:

- Not bulky, didn't interfere with their work.
- Easy to put on, and didn't snag on trailing gear.
- Not used as comfortable to wear because it rubs their chest.

**Mustang Inflatable Suspenders (MIS)**

*"[I was] fairly surprised how easy it [the Mustang Inflatable Suspenders] was to wear. Didn't get into the way too much."*

### PFDs That Work CRABBERS

Researchers from the NIOSH Alaska Pacific Office conducted an evaluation with commercial fishermen from 4 gear groups to rate the comfort and acceptability of six modern personal flotation devices (PFDs). About 200 fishermen were asked to evaluate a PFD for one month while working on deck so that wearable PFDs could be identified. This document shows which PFDs were preferred by crabbers.

**PFD Use Among Crabbers:**

- Over half of the crabbers said they knew someone who had died from a fall overboard.
- Over half of crabbers believed PFDs are effective at saving lives.
- Most crabbers did not think that PFDs are uncomfortable or interfere with work, although half of them thought PFDs could be an entanglement hazard.

**Crabbers' Barriers to Safety:**

- Over half of the crabbers said they knew someone who had died from a fall overboard.
- Over half of crabbers believed PFDs are effective at saving lives.
- Most crabbers did not think that PFDs are uncomfortable or interfere with work, although half of them thought PFDs could be an entanglement hazard.

**PFD Evaluations:**

After the 30-day on-deck evaluation of PFDs, crabbers preferred Mustang and Stearns Inflatable Suspenders. Comments on the devices include:

- Did not restrict motion.
- Fit good.
- Did not interfere with their work.
- Were rated as comfortable to wear because they were not tight or bulky.

**Mustang Inflatable Suspenders (MIS)**

**Stearns Inflatable Suspenders (SIS)**

*"I feel that the [Mustang suspenders PFD] is something that would be received well by the deckhands of the fleet."*

### PFDs That Work TRAWLERS

Researchers from the NIOSH Alaska Pacific Office conducted an evaluation with commercial fishermen from 4 gear groups to rate the comfort and acceptability of six modern personal flotation devices (PFDs). About 200 fishermen were asked to evaluate a PFD for one month while working on deck so that wearable PFDs could be identified. This document shows which PFDs were preferred by trawlers.

**PFD Use Among Trawlers:**

- Over half of trawlers said that PFDs may be an entanglement hazard.
- 51% of trawlers said that PFDs may be an entanglement hazard.
- 20% of trawlers said that PFDs may be an entanglement hazard.
- 29% of trawlers said that PFDs may be an entanglement hazard.

**Reasons Given for Not Wearing a PFD:**

- 51% of trawlers said that PFDs may be an entanglement hazard.
- 20% of trawlers said that PFDs may be an entanglement hazard.
- 29% of trawlers said that PFDs may be an entanglement hazard.

**PFD Evaluations:**

After the 30-day on-deck evaluation of PFDs, trawlers preferred Mustang and Stearns Inflatable Suspenders, the Stearns Foam Vest, and the Regatta Rainger with knees in the back.

**Stearns Inflatable Suspenders (SIS)**

**Stearns Foam Vest (SFV)**

**Regatta Rainger with knees in the back (RR)**

*"This one [the Stearns foam vest] was pretty good... I got the chance to get used to it."*

### PFDs That Work GILLNETTERS

Researchers from the NIOSH Alaska Pacific Office conducted an evaluation with commercial fishermen from 4 gear groups to rate the comfort and acceptability of six modern personal flotation devices (PFDs). About 200 fishermen were asked to evaluate a PFD for one month while working on deck so that wearable PFDs could be identified. This document shows which PFDs were preferred by gillnetters.

**PFD Use Among Gillnetters:**

- 55% of gillnetters said that PFDs may be an entanglement hazard.
- 25% of gillnetters said that PFDs may be an entanglement hazard.
- 20% of gillnetters said that PFDs may be an entanglement hazard.

**Reasons Given for Not Wearing a PFD:**

- Minority view of gillnetters were concerned about PFDs snagging on gear.
- Concern about transferring with work and carrying an entanglement hazard.

**PFD Evaluations:**

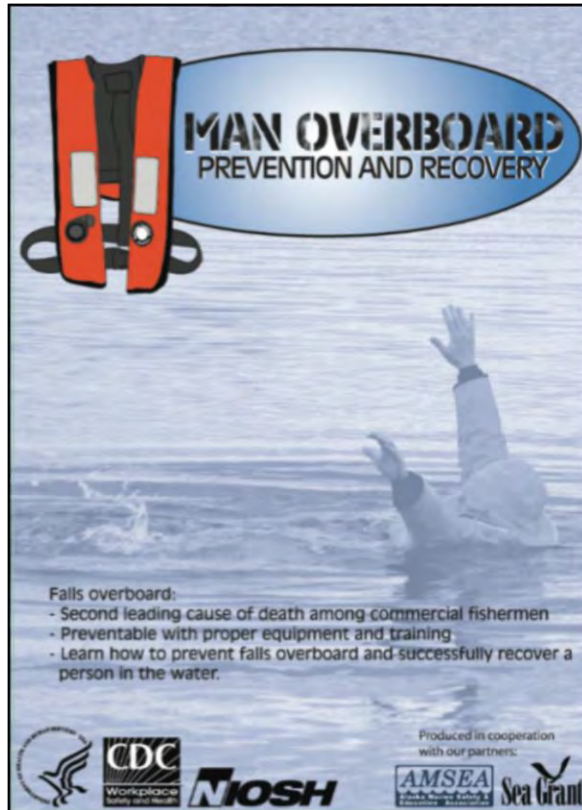
After the 30-day on-deck evaluation of PFDs, gillnetters said that the Regatta Rainger vest with knees in the back would work on their vessels. Comments on the device include:

- Light weight, did not interfere with their work.
- Did not snag on fishing gear.
- Easy to keep clean and easy to put on.
- The Stearns Inflatable Suspenders were too uncomfortable for work on deck.
- Gillnetters they too did not snag. They said work was easy to clean.

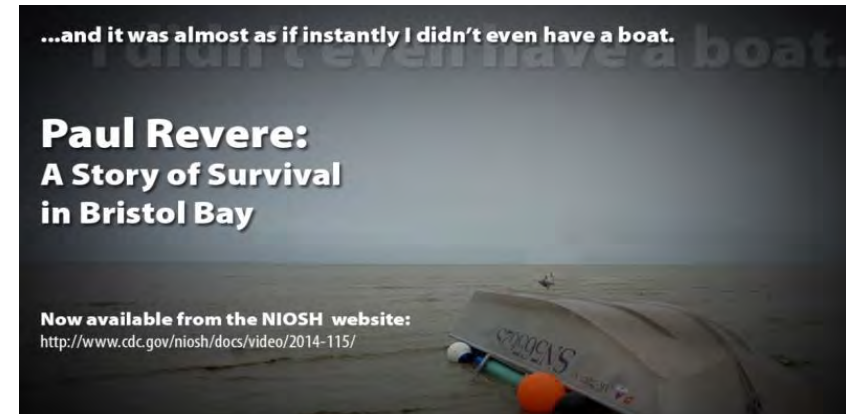
**Regatta Rainger with knees in the back (RR)**

*"I think this [the Regatta] could be [the perfect PFD]. It doesn't get snagged on things. It provides padding and to be on the back deck I have to put my bilge on and so I also have to put my PFD on, it's great."*

# Efforts to Address Barriers: Dispel Misconceptions



YouTube -  
<https://www.youtube.com/watch?v=YT17QGvd4jc>

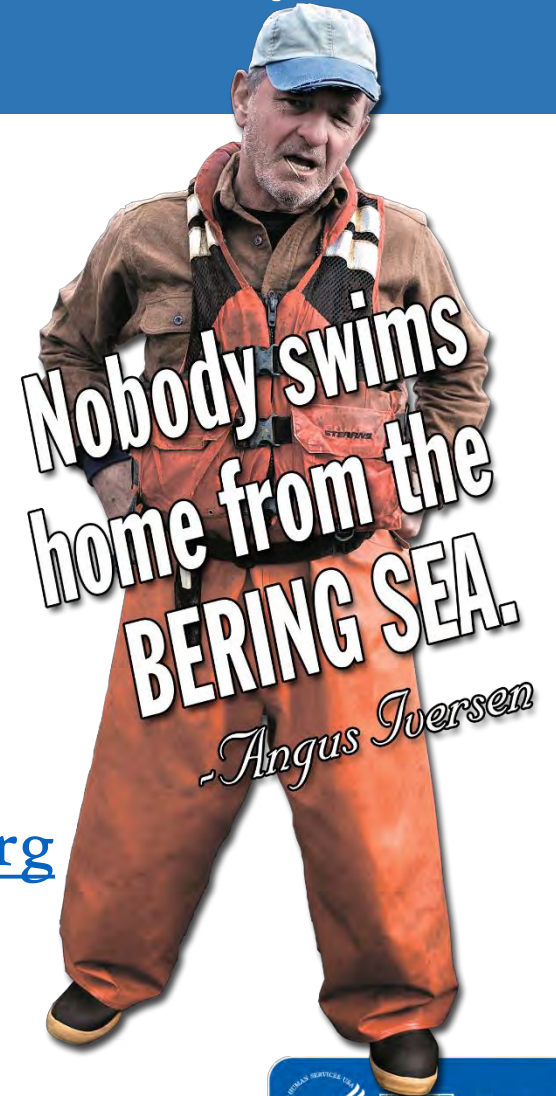
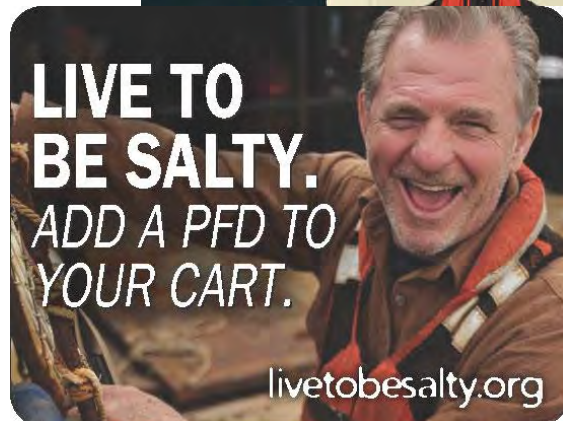
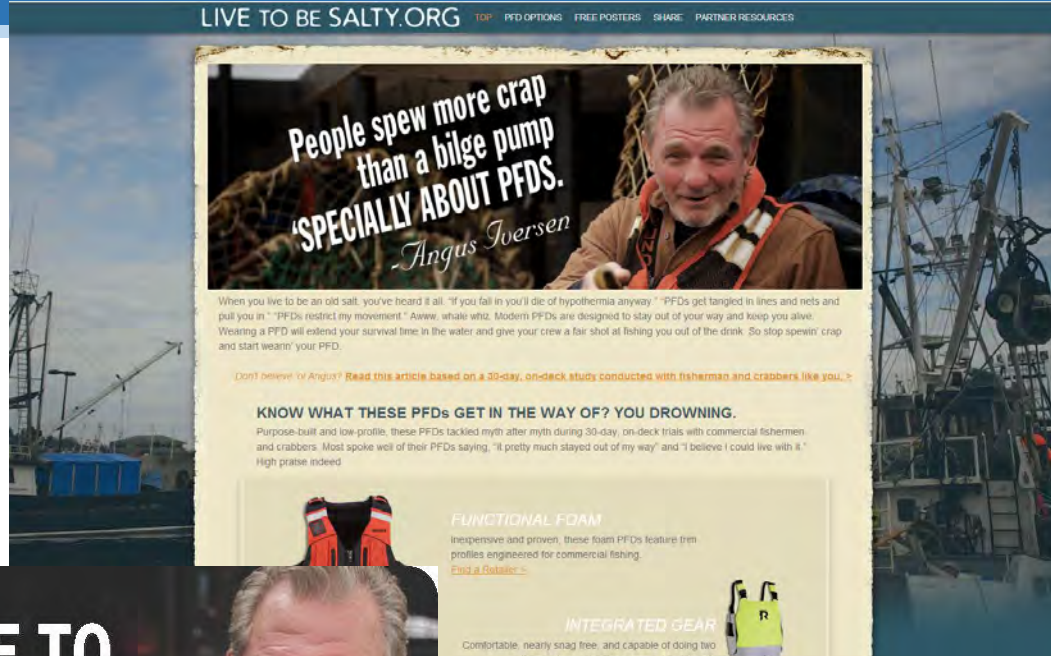


NIOSH Website: <https://www.cdc.gov/niosh/docs/video/2014-115>  
YouTube - <https://www.youtube.com/watch?v=XuFo6llqTNM>



# Efforts to Address Barriers: Dispel Misconceptions

LIVE TO BE SALTY



[www.livetobesalty.org](http://www.livetobesalty.org)  
[@livetobesalty](https://twitter.com/livetobesalty)

# Efforts to Address Barriers: Increase Innovation

## “Rogue” Tactical Deck Vest

- We shared fishermen comments with PFD manufacturers
- Field-tested for continuous wear and further adjusted based on feedback
- 12 lbs./50N of flotation
- Released November 2014



# Any Progress?

PFD Use	2008 Survey	2014 Survey
Never Wear	16%	16%
Sometimes Wear	51%	24%
Frequently Wear	12%	8%
<b>Always Wear</b>	<b>22%</b>	<b>52%</b>

$\chi^2 = 22.5; p < 0.001$

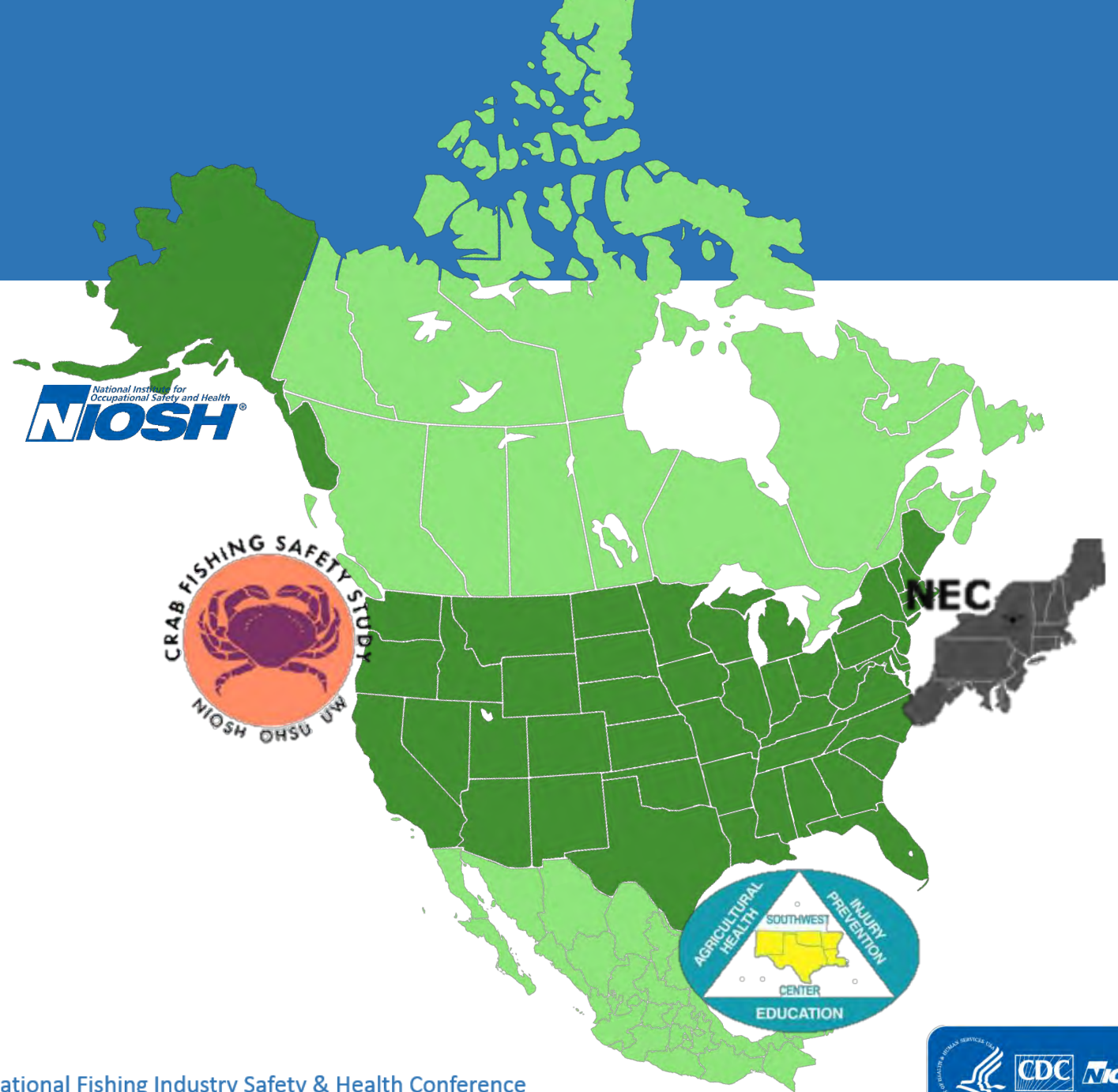
# Three key observations which are vitally important to increasing PFD use.

- Encourage owners/skippers to create PFD policies on their vessels
- Personal preference-- critical factor despite results from gear types
- PFDs and communications must be tailored to individual gear types



# Partner Studies

- Replicated PFD study on West Coast Dungeness Crab fishermen
- Partner studies in the Gulf of Mexico and on the East Coast





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**[www.cdc.gov/niosh/topics/fishing](http://www.cdc.gov/niosh/topics/fishing)**

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# Changing Commercial Fishing Personal Flotation Use Behavior

What can we learn from efforts to address the most important safety technology adoption challenge of our time?

# The Scottish PFD Project

**Derek Cardno**

Scottish Fishermen's Federation  
Marine Safety and Training Officer







GRATEFUL FR 249

GRATEFUL FR 249  
FRASERBURGH

# OUR GOAL FOR THE SCOTTISH PROJECT

- Give every fisherman in Scotland with the correct mandatory certificates a free PFD
- Offer guidance and instructions to every PFD handover to stimulate a fishing safety discussions
- Give the Scottish industry the chance to change without the need for regulations

# RESEARCH AND METHODS

- Before the project started in 2012



# RESEARCH AND METHODS

- During the project
- Since the project finished



# USE YOUR COMPACT 150 PFD

## IT CAN GIVE YOU A SECOND CHANCE

### 1. MAKE SURE YOUR COMPACT 150 IS IN GOOD SHAPE!

- Both inflation indicators must be green.
- Check the service card date.
- Ensure zips and flaps are closed.
- Check it is not damaged.



### 2. MAKE SURE IT FITS

- Place your PFD on top of your working gear.
- Fasten the main belt around the chest and secure tightly.
- Crutch straps are provided and are recommended to be used although they are not necessary with the Compact 150.



### 3. AUTOMATIC INFLATION

- If you end up in the water your PFD will inflate automatically however, the manual pull cord is your first means of activation.
- If more inflation is needed use the tube to top up the flotation bladders.



### 4. YOUR PFD IF WORN CAN GIVE YOU A SECOND CHANCE IN THE WATER

- Your PFD is useless unless it is worn.
- Always clean the outside with fresh water and let it dry after a trip." Refer to the Mullion Owner's Manual for full details.
- Take it for an annual service.

Please ensure to send your PFD to an approved service centre ANNUALLY.

Approved service centres can be found on the list supplied with your PFD or on our website: [www.mullion-pfd.com](http://www.mullion-pfd.com)

In partnership with:



# DID WE REACH THE FLEET

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HARVESTER PD 98

PD 98

SWL 1200KG - 8m

BSI

PD 98

LE

PD 98







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KINGS CROSS

FR380

KINGS CROSS

FR380



# Dougie Brown lived to tell the tale

- “I am certain that without that buoyancy I wouldn’t have had the presence of mind to look around and grab the buoy rope as my attention would otherwise have been engaged in frantically trying to remain afloat and losing vital body heat and energy in the process,” said Dougie.



Conference



# MOTIVATORS TO ADOPTION OF WEARING A PFD

- Pending legal requirement
- Documented loss of life due to MOB's
- Commitment to crew mates
- Family responsibilities
- Severity of not being able to survive for long in the sea



# ADOPTION BARRIERS

- Not having the legal certificates
- The product
- Inaccurate messages
- Older crew mates
- Complacency

# TACKLING ADOPTION ISSUES

- Not having the legal certificates
- The product
- Inaccurate messages
- Older crew mates
- Complacency

# Key observations which are vitally important regarding PFD use

1. Accept the mentality of fishermen and work with them
2. Give fishermen the ability to risk assess themselves out of ending up in the water
3. Show/explain to fishermen the need to wear a flotation garment
4. Promote the facts on training courses that flotation products only buy you a little time but vital time
5. Professionalism and consumer expectations
6. Be honest with fishermen



# WAS THE PROJECT A SUCCESS?



Do not throw  
garbage  
overboard



# Changing Commercial Fishing Personal Flotation Use Behavior

What can we learn from efforts to address the most important safety technology adoption challenge of our time?



“Do as they say, not as they do.”

Battling the Contradictions of PFD Use -  
The Case of Newfoundland & Labrador

**Mark Dolomont, Executive Director**  
Newfoundland & Labrador Professional  
Fish Harvesters Certification Board



# The NL Target Population

- Approximately 9,300 fish harvesters (3,700 enterprise owners and 5,600 crewmembers).
- Approximately 3,000 enterprises <40' and 700 >40'.
- Mainly owner-operated, multi-species enterprises.
- Most enterprises (even those >40') operate a small open vessel at some point during the season.
- Approximately 20% female
- 60% over the age of 50
- Less than 20% under the age of 40

# A Province Haunted by Tragedy at Sea



- While we have seen major improvements in safety over the past two decades, the fatality statistics remain staggering!
- 60 fatalities\* in the NL fishing industry from 2002-present.
- The statistics prior to 2002 were even worse.
- Widely accepted that PFD's could have made a difference in many of these cases.



# The Contradictions of PFD Usage

## Attitudes vs Practices



- 1995 study of attitudes and practices among NL fish harvesters (Murray & Dolomount) found:
  - 67% agreed that PFD's should be worn at all times.
  - Only 19% of the same respondents "Always" wore a PFD. And only 31% wore one "Always" or "Often".
- A 2014 survey of NL fish harvesters found that 80% of respondents agree that PFD's should be worn at all times.
- Yet, it is estimated that the PFD usage rate is approximately 50%\*.

# The Contradictions of PFD Usage

## Common Reasons for Non-Usage



- It won't happen to me.
- A PFD will only prolong the inevitable.
- I can't work in it.
- False activations (with inflatables) are common.
- Wearing a PFD can be more dangerous than not wearing one.
- I'm a strong swimmer (or operate near shore), I don't need one.

# The Contradictions of PFD Usage

## Other Contributors to Non-Usage



- The cost - mainly in the case of newer inflatables.
- The lack of legislative requirements/enforcement.
- Age - Old habits (often) die hard!
- Until recently, the lack of integrated technology to allow for reliable distress signaling from small open vessels.
- Not enough (widespread and constant) promotion/information.

# Motivating PFD Usage

## Contributors to Increased Usage



- Advances in PFD technology – more “workable” options.
- The introduction of mandatory MED training.
- New information about cold water immersion/shock.
- The presence and influence of family members (wives and children).
- A growing industry-wide safety culture, including acceptance of PFD’s.
- Promotion and constant reminding!

# Motivating PFD Usage Intervention Initiatives in NL



- NL Initiatives to promote PFD use among fish harvesters have been led by industry organizations:



- FFAW – Beginning in the late 1980's



- PFHCB – Beginning in 1997



- NL-FHSA – Beginning in 2013



# Motivating PFD Usage Intervention Initiatives in NL




## FISH FOOD & ALLIED WORKERS (FFAW)

- In the late 1980's the FFAW first got involved with the Canadian Standards Board, bringing fish harvester input to lifejacket standards & other approved products.
- Members, and “safety pioneers”, G. Chafe and C. Roberts received the TC National Marine Safety Award for their work in promoting fisheries safety, including PFD use.
- The Lifeline Safety Course, brought safety training to the community level for the first time at scale in the early 1990's.



# Motivating PFD Usage Intervention Initiatives in NL



## CONSIDER A PERSONAL FLOATATION DEVICE (PFD)

Every time you urtic from the wharf there's a chance you will unexpectedly end up in the water. Most of us don't like to think about it, but it happens far too often - and more often than not, the result is tragic. This year alone, in three separate incidents, three commercial fish harvesters in this province lost their lives from cold water immersion and drowning.

So be prepared to stay afloat, to survive the effects of cold water shock, reduce the need to swim, and give rescuers time to respond. An approved Personal Floatation Device (PFD) can be the difference between life and death, because if you end up in the water, it can hold your head above water, and help you maintain your body temperature. It can buy you valuable time!

Workable PFD's are available  
For years, fish harvesters complained, in many cases legitimately, that manufacturers were not providing a "workable PFD". However, after years of research and technological advancement, there's a PFD for just about every working condition, from floater jackets to inflatable oilskins.

Most notable perhaps are the Canadian Coast Guard approved "suspender-style" inflatable PFD's, which provide excellent floatation in a small, lightweight, and unrestrictive package. These inflatable PFD's are now widely available at marine supply stores, and are reasonably priced. Mustang Survival ([www.mustangs survival.com](http://www.mustangs survival.com)), for example, has several models available in both manual and automatic inflation.

Whether you're in an open boat on a hot July morning or on the deck of a longliner on a cold November night, these non-cumbersome inflatable PFD's are proven to be reliable and worthy.



Are you still unconvinced? Consider some of these myths and facts:

I don't need one - I'm fishing close to shore.	More fish harvesters drown in near-shore accidents than offshore or elsewhere. When it comes to drowning, distance from shore is not a reliable indicator of risk.
PFD's are too hot to work in.	Inflatable "suspender-style" PFD's are designed with an open back which makes them cool during hot summer conditions, yet adjustable and light enough to be worn over the top of oilskins or a jacket.
I'm a strong swimmer - I don't need one.	Even strong swimmers are impeded by cold water temperatures. In fact, swimming ability is not a strong predictor of survival in immersion situations.
I have a PFD's/lifejackets/ immersion suits on the boat - they're within reach if anything happens.	Accidents happen in a split second, and most drowning victims find themselves in the water without time to prepare. Keeping a PFD or lifejacket "handy" is like trying to buckle your seat belt just before a car crash.
It's not going to happen, so why worry about it?	Accidents and deaths do happen... to fish harvesters more often than to any other industrial worker in the world! If you fish for a living there's a good chance you will end up in the water at some point during your career.
If I go overboard, a PFD will only prolong the inevitable.	Death in an immersion situation is not inevitable. By keeping your head above water and helping you conserve valuable energy and body heat, PFD's are proven to increase your likelihood of surviving.

### THE PERFECT GIFT

What do you buy for that special fish harvester friend or relative? Why not an unrestrictive, lightweight PFD that they can work in? It may turn out to be the gift of life!

For more information on inflatable PFD's contact your local marine supply store or call the Board office at 722-8170.

## PROFESSIONAL FISH HARVESTERS CERTIFICATION BOARD

- In 1997 NL introduced Canada's first professional certification/professionalization system for fish harvesters.
- TC MED training delivered to more than 13,000 harvesters over a 15 year period, promoting PFD's, a better understanding of SAR, and dispelling many myths of PFD use and cold water immersion.
- PFHCB began formal promotion of PFD's, and disseminating relevant information.
- Noticeable improvement in safety culture!



# Motivating PFD Usage Intervention Initiatives in NL

## NL FISH HARVESTING SAFETY ASSOCIATION

- Established in 2013, the NL-FHSA identified PFD promotion as one of the Association's priorities, and has taken action!
- NL-FHSA's PFD initiatives represent NL's first true sustained PFD intervention for the fishing industry.
- The NL-FHSA's PFD campaign utilizes a number of media:
  - Promotional Print Ads
  - Promotional Radio Ads
  - News Stories/Advertorials
  - Social Media
  - Promotional Paraphernalia



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# Motivating PFD Usage Intervention Initiatives in NL



Safety brings you home.

**PFDs don't get in the way.**

They keep you from drowning.  
Safe a life – Wear a PFD.

A message from the NL Fish Harvesting Safety Association –  
Committed to harvesters coming home safely to their families



**NL-FHSA**  
FISH HARVESTING  
SAFETY ASSOCIATION

709-722-8177

[www.nlfhsa.com](http://www.nlfhsa.com)



**NL-FHSA**  
FISH HARVESTING  
SAFETY ASSOCIATION



# Three Key Observations

## Vitally Important to Increasing PFD Use.

1. PFD's **WILL SAVE LIVES**, especially when combined/integrated with effective distress signaling.
2. While legislation/regulation in Canada is moving toward mandatory PFD requirements, the true key to increased use is buy-in and self promotion by fish harvesters themselves!
3. Improvements in an industry-wide safety culture (safety training, safety drills, safety procedures, etc.), have a positive impact on acceptance and use of PFD's.

# Thank You!

**Mark Dolomount**

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**709-722-8170**

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# Oregon Crab Fishing Safety Assessment

**Gerry Croteau, University of Washington, DEOHS**

**Erika Zoller, Oregon Health & Science University, CROET**

**Jennifer Lincoln and Ted Teske, NIOSH, Western States Division**

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# Target Population: Commercial Dungeness Crab Fishermen in Oregon

From 2000-2006, West Coast Dungeness crab fishery had a higher fatality rate\* than Bering Sea Aleutian Island crab fishery



\*fatality rate per 100,000 workers

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# Target Population: Commercial Dungeness Crab Fishermen in Oregon

Vessel disasters caused more fatalities than MOB incidents between 2000 and 2009



# *Target Population:* Commercial Dungeness Crab Fishermen in Oregon

**60%**

Of fatal disasters occurred  
while crossing the bar or  
being struck by a large wave



# Target Population: Commercial Dungeness Crab Fishermen in Oregon



None of the MOB victims were wearing a PFD when they drowned.

None of the vessel disaster victims were able to make it to a life raft.



# *Intervention Objectives:*

The purpose of the study was to survey the fishermen's experiences and views related to five areas of concern:

1. PFD use,
2. bar crossings,
3. vessel stability reports,
4. US Coast Guard dockside examinations, and
5. safety training and readiness.



# Research Methods:

## Two Phase Project: Survey and Evaluation

- Modeled after NIOSH PFD study in Alaska
- Assessed beliefs, perceptions, and attitudes related to PFDs (as well as bar crossings and vessel stability)
  - 34 question paper survey for crew, 46 question survey for skippers
- Evaluated five different PFD models in actual working conditions
  - Mail-in evaluation after Day 1 and Day 30





Regatta  
Oilskins  
11.2lbs/50N



Kokatat  
Bahia  
38lb/170N



Stearns  
I424  
15.5lbs/70N



Mustang  
MD3188  
38lbs/170N



Mustang  
MD 3025  
38lbs/170N

# Get Your Boots Wet!



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# Barriers to Life Jacket Adoption

Condition	Captain (n=24)	Crew (n=59)
Interfere with movement	50.0%	64.2%
Uncomfortable	50.0%	23.2%
Increase entanglement risk	29.1%	32.1%
Use survival suit instead	29.1%	17.8%
Feel foolish	4.1%	1.7%
Peer pressure	4.1%	0%
Cost	\$100 - \$150 (52.3%)	\$50 - \$100 (42.8%)



# Potential Motivators to Life Jacket Adoption

Condition	Captain (n=24)	Crew (n=59)
Storm or high seas	58.3%	62.0%
Emergency	58.3%	51.7%
Bar crossing	29.1%	20.6%

# PFDs in Actual Use

## Evaluation Results

- No perfect PFD for Dungeness fishing
- Inflatable suspenders highest rated
  - Snagging was biggest issue
- Foam kayak vest lowest rated
  - Cut of the vest increased bulk






# Stakeholder Engagement

**CRAB FISHERMEN!**

At the ports of  
**NEWPORT and GARIBALDI**

We invite you to participate in the

**Oregon  
Commercial Crab Fishermen  
Safety Survey  
and  
PFD Evaluation**



WE WANT TO KNOW WHAT YOU THINK!



- Researchers will be on the docks a few days at the end of November to record your experiences and views on safety issues. The survey takes 15-20 minutes.
- 50 participants will be invited to field test one of five model personal flotation devices – then keep the PFD with our compliments.
- This Oregon study was adapted from earlier crab fishing safety research in Alaska.

**ROUGH BAR** RESEARCH TEAMS FROM  
Oregon Health & Science University  
University of Washington  
National Institute for Occupational Safety and Health

PROJECT FUNDED BY Pacific Northwest Agricultural Safety and Health Center

For more information, call Terry Hammond 503-494-2383 (OHSU) or Gerry Croteau 206-616-1907 (UW)

Pre-survey



**Seasons Greetings!**

Thanks for completing our Crab Fishing Safety Survey and volunteering to evaluate the PFD we provided you. We appreciate your efforts. We want to remind you to use your PFD and complete the survey forms we provided after one day and 30 days of use.

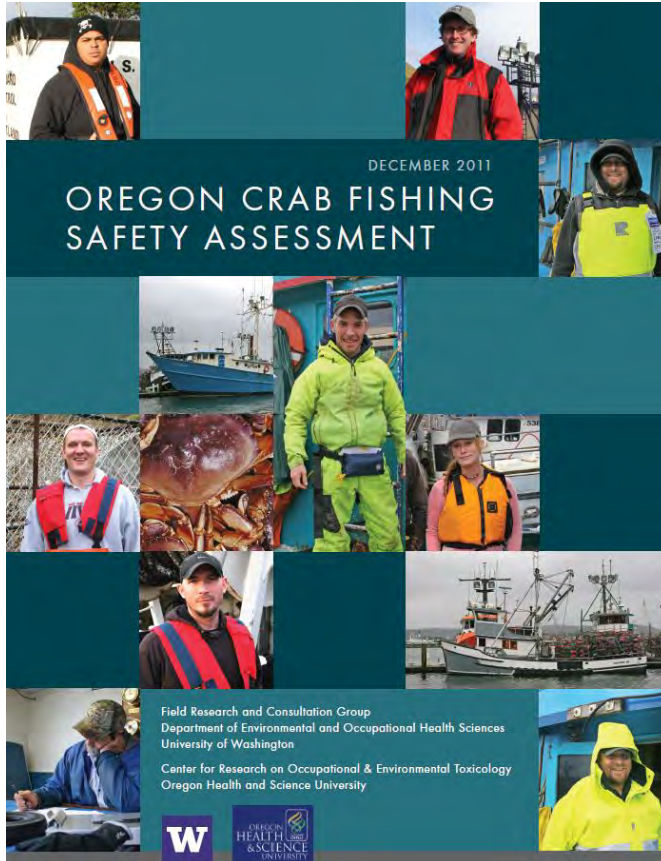
We wish you a safe and prosperous crab fishing season and look forward to tasting your bounty!

If you need a survey form or other information please contact us:

Gerry Croteau, UW/FRCG  
4225 Roosevelt Way NE, Suite 100  
Seattle, WA, 98105-6099  
(206) 616-1907

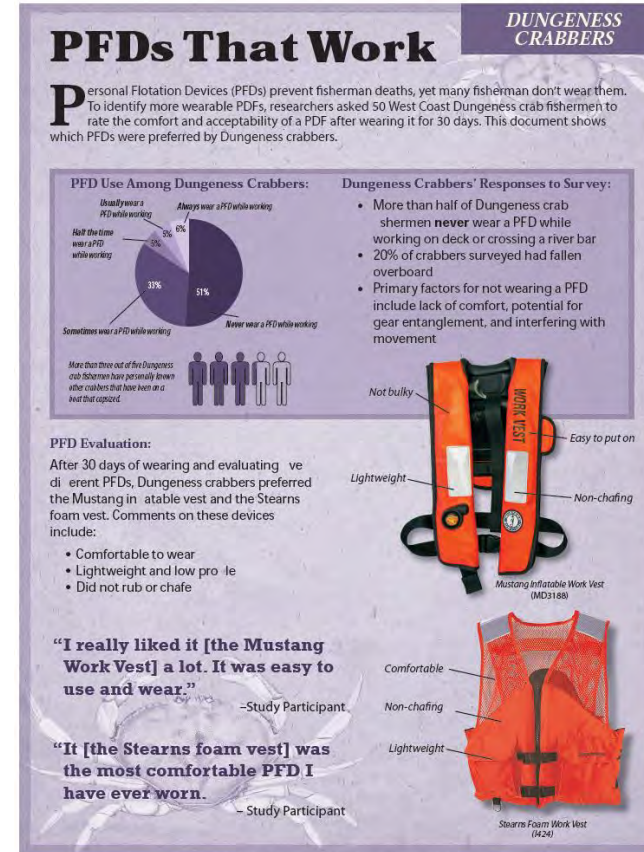
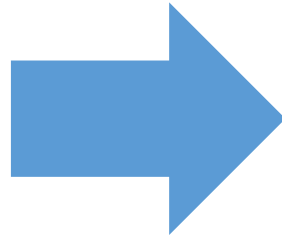
Post-survey

# Stakeholder Engagement



Final Report

June 10, 2018



Fact Sheet

IFISH5: International Fishing Industry Safety & Health Conference



*Stakeholder Engagement*

# PFD Rebate Program



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# Stakeholder Engagement

## Operation Safe Crab

- Annual pre-season dockside safety inspection program by USCG.

## Bar Crossing Policy

- Lowered threshold for closing bar crossing in bad weather
- Make motor life boats available to assist transiting vessels



## *Three Main Takeaways*

# Keep Assessing New Fisheries



*Three Main Takeaways*

# Celebrate PFD Successes



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# *Three Main Takeaways*

# You're Floating, Now What?



# *Dungeness Crab MOB Resources*

## **UW/OHSU Study:**

[http://deohs.washington.edu/pnash/pnash/OR\\_fisherman\\_pfd](http://deohs.washington.edu/pnash/pnash/OR_fisherman_pfd)

## **NIOSH Dungeness Crab Fact Sheet:**

<https://www.cdc.gov/niosh/docs/2015-180/pdfs/2015-180.pdf>

## **Fishing Safety Success Story: My Life Vest Saved Me**

<https://www.youtube.com/watch?v=HuZPoUjj0vU>







# Ted Teske NIOSH Western States Division



**509-354-8070**

**tteske@cdc.gov**

 **@NIOSHFishing | @tedteske**

**[www.cdc.gov/niosh/topics/fishing](http://www.cdc.gov/niosh/topics/fishing)**

“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. Mention of any company or product does not constitute endorsement by the National Institute for Occupational Safety and Health.”

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# Changing Commercial Fishing Personal Flotation Use Behavior

What can we learn from efforts to address the most important safety technology adoption challenge of our time?



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# Royal National Lifeboat Institution


## PFD Sustained Behavior Change



**Lifeboats**

# RNLI OBJECTIVES



 WE WANT TO HALVE UK AND IRELAND COASTAL FATALITIES BY 2024

**Lifeboats** Last update: 08/06/16 | Review date: 08/06/17

## COMMERCIAL FISHING

Profile snapshot

**Risk rating analysis**

Commercial fishing is a very high risk activity when benchmarked against HSE criteria. With an average of 6.3 fatalities per year, it has the 5<sup>th</sup> highest rate of death amongst individual activity groups, but the 1<sup>st</sup> highest fatality rate.

**Very High Risk**

Deaths: 5<sup>th</sup>  
Fatality rate: 1 in 1,495 (1<sup>st</sup>)  
HSE Risk Level: Very high  
Fatality data 2006-9 (Greenstreet Bertram, 2013)

**Key audiences and desired behaviour change**

**All commercial fishermen**

I've never worn a PFD, nobody else does either → I always wear a PFD, I could fall overboard anytime

**Under 15m commercial fishing fleet**

I don't regularly consider my vessel's stability → I regularly monitor my vessel's stability

**Current products and programmes**

**Personal flotation device (PFD) roll out**

To provide all 12,500+ registered commercial fishermen in the UK and Ireland with a fit for purpose PFD and to change attitudes and behaviours in the industry by informing and educating them about the reasons for wearing one.

**Stability film**

To produce five short films with animated sequences illustrating the five main causes of vessel instability and how best to avoid it. The aim is to encourage fishermen to carry out regular vessel checks, receive guidance on any major changes on the vessel and undertake further training.

**Additional engagement: Magazine presence and industry shows**

Commercially sensitive - for internal use only

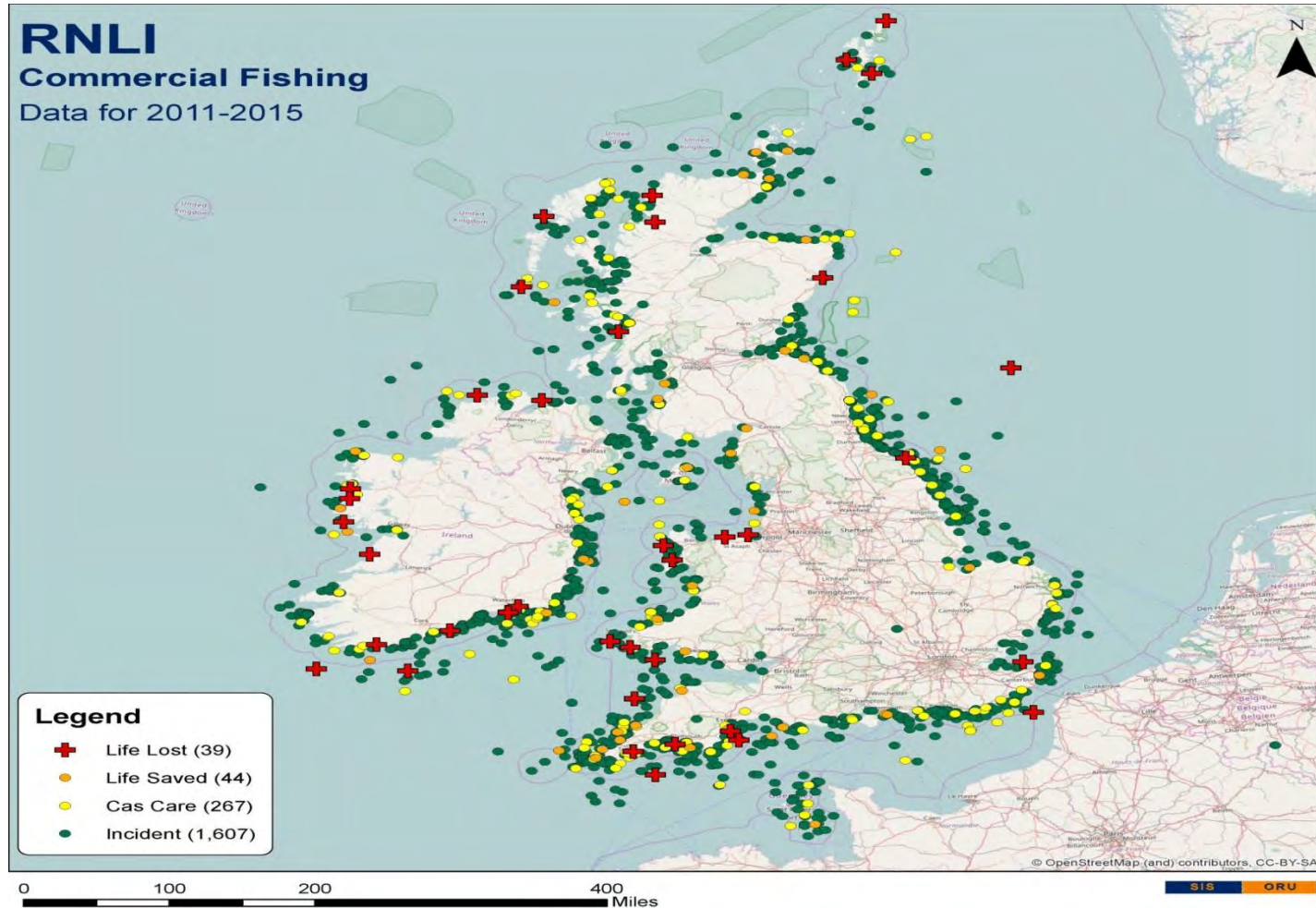
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**Very High risk**

Deaths: 5<sup>th</sup>  
Fatality rate: 1 in 1,495 (1<sup>st</sup>)  
HSE Risk Level: Very high  
Fatality data 2006-9 (Greenstreet Bertram, 2013)

# Stats from Lifeboat Launches



# Face to Face Research on pier with fishermen



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# Barriers to wearing PFD's

## Comfort/Style



## Peer Pressure



## Cost



Spinlock Deckvest 5D Pro Sensor

£189.00 from [sailingclothingbargains.com](http://sailingclothingbargains.com)

Spinlock Deckvest 5D Pro Sensor High specifica

## Lack of risk awareness.



# Motivators to Adoption

## Comfort/Style



## Cost



Spinlock  
£189.00 fr  
Spinlock De



**European Union**  
European Structural  
and Investment Funds

## Peer Pressure



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## Lack of risk awareness

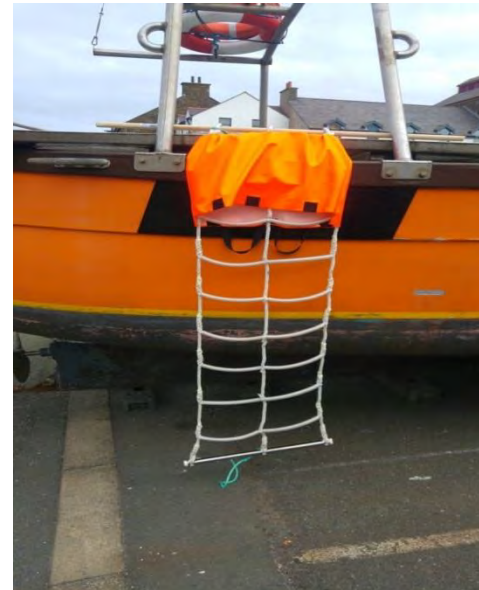


## Training





# Product Demonstration and development



# Partner engagement



**Fishermen**



**Safety  
Equipment  
Manufacturers**



Irish Coast Guard

**FLAGS**

**Media**

Consistency is key



**Harbour  
Masters**



**Lifeboats**

# Prove it!

## We needed to prove:

- Cold water shock
- Body cooling
- Swimming Ability
- 10 minutes time limit

So we invited 16 fishermen to the RNLI to experience this!

**You fall into cold water.  
How do you survive?**





# PFD Sustained Behavior Change



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# Changing Commercial Fishing Personal Flotation Use Behavior

What can we learn from efforts to address the most important safety technology adoption challenge of our time?



[www.swagcenter.org](http://www.swagcenter.org)

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# Marketing Safety and Health Among Vietnamese Commercial Fishermen

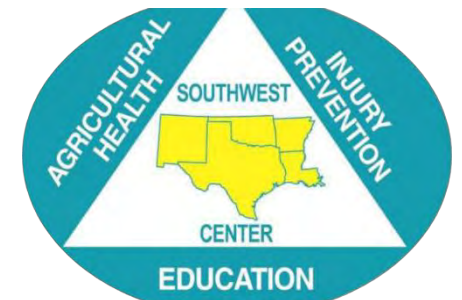
**Ann Carruth, RN, DNS**

Dean, College of Nursing and Health Sciences  
Southeastern Louisiana University

**Jeff Levin MD, MSPH**

Director, Southwest Center for Agricultural Health,  
Injury Prevention and Education

Sr. VP, Academic Affairs/Provost, UT Health Science Center at Tyler



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# Partnerships and Collaborators

- **Karen Gilmore, MPH**, Southwest Center for Ag Health, Injury Prevention and Education
- **Julie Sorensen, PhD**, Northeast Center for Agricultural Health
- **Thu Bui**, Assistant Marine Agent, LSU Sea Grant
- **Bill Evert**, USCG Commercial Fishing Vessel Safety examiner
- **Scott Labak**, USCG Commercial Fishing Vessel Safety examiner
- **Robert Perkins**, USCG Commercial Fishing Vessel Safety examiner
- **Jennifer Lincoln, PhD**, Associate Director for Science, Western States Division, NIOSH
- **Cyndi Nguyen**, VIET
- **Paul Barnard**, USCG Commercial Fishing Vessel Safety examiner
- **Harry March**, USCG Commercial Fishing Vessel Safety examiner
- **Phillip Hand**, USCG Commercial Fishing Vessel Safety examiner
- **Lisanne Brown**, LPHI Evaluation
- **Tiffany Scuderi**, Director Media and Communications, LPHI





# Fatal Falls Overboard

United States, 2000-2016, N = 204

- 27% of all work-related deaths in the commercial fishing industry
- Most frequent on East Coast (62; 30.4%)
- Followed by Gulf of Mexico (GoM) (60; 29.4%)
- Gulf of Mexico shrimp fishery had highest number (34, 16.7%)

Case SL, Lincoln JM, Lucas DL. Fatal Falls Overboard in Commercial Fishing — United States, 2000–2016. MMWR Morb Mortal Wkly Rep 2018;67:465–469. DOI: <http://dx.doi.org/10.15585/mmwr.mm6716a2>.

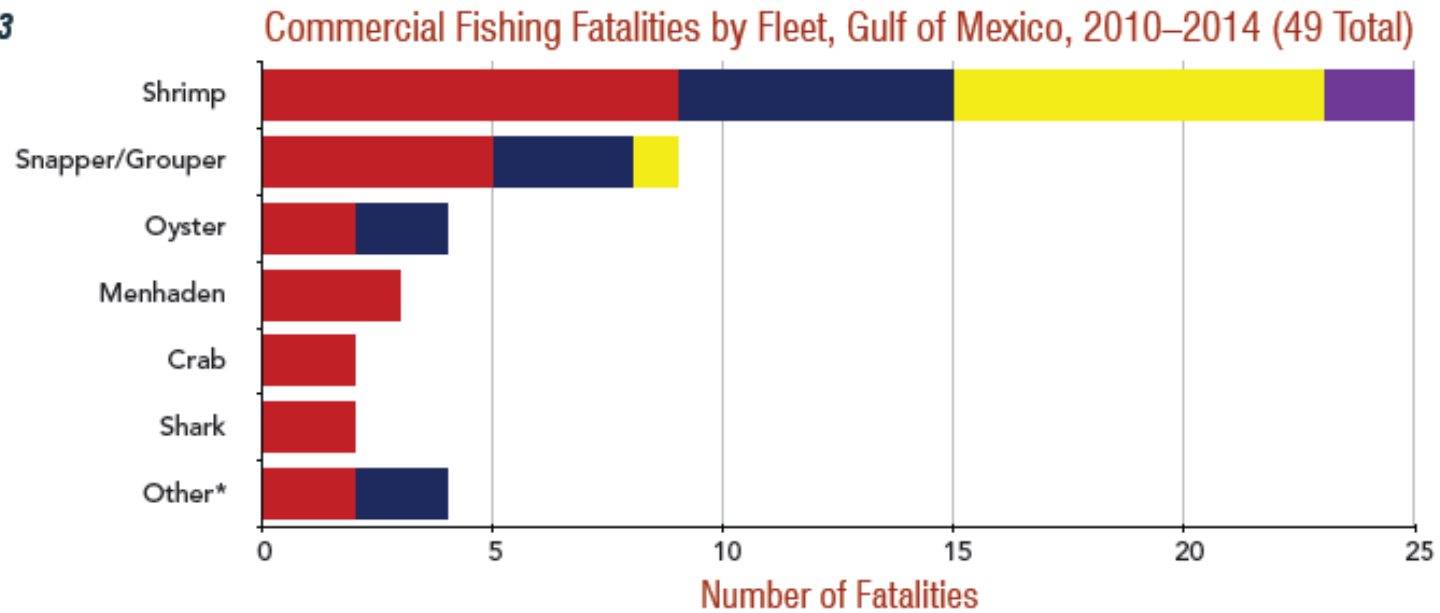


# Risks Vary by Fishery

- GoM shrimp fishermen
  - Falls overboard
- Northeast groundfish
  - 50% instability due to hauling net and flooding
- Northeast scallop fleet
  - Instability, gear caught on the bottom and collisions
- Alaska salmon
  - 25% of fatalities occurred on set net skiffs
- Westcoast Dungeness crab
  - 100% heavy weather and many while crossing bar



Figure 3



\*Other fleets are those that experienced a single fatality during 2010–2014: crawfish, other shellfish, mullet, and other pelagic.

Source: <https://www.cdc.gov/niosh/docs/2017-174/pdf/2017-174.pdf>

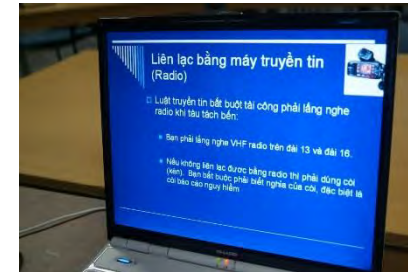


# GoM Obstacles and Barriers to:

- occupational safety and health research
- adoption/acquisition of safety messages/skills

## • Internal

- Culture/language
- Fatalism
- Trust versus respect for authority and opinion leaders
- Pride/embarrassment pre-empting English communication



## • External

- Peaks/troughs of work versus boredom
- Economic – equipment, fuel
- Regulatory – fishing season, U.S. Coast Guard, vessel operations, inspection and training requirements
- Timing logistics/availability
- Weather events and disasters



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# PFD Intervention Objective and Target Population

To develop a social marketing campaign to increase PFD usage among Vietnamese shrimpers



# Research Methods

Design and test a multimodal social marketing intervention campaign to increase vessel safety and risk mitigation behaviors among Vietnamese shrimp fishermen.

- Establish audience research to enhance understanding of the target audience's characteristics, attitudes, beliefs, values, behaviors, determinants, benefits and barriers, and preferred communication channels for influencing adoption of vessel safety and risk mitigation behaviors.
- Use audience research to plan market strategy, and pilot test, revise and launch a social marketing campaign.
- Evaluate social marketing intervention impact on vessel safety.



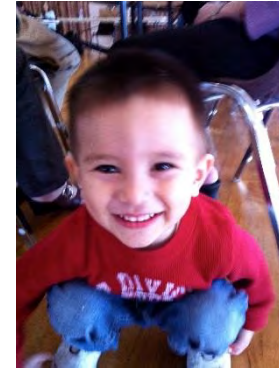
# Barriers to PFD Adoption

- Cost
- Bulky
- Too big
- Get in the way of work
- Hot
- Entanglement
- Inevitable predetermination and Inability to control environment
  - Fatalistic view of life – If Man Overboard happens, it is inevitable and predetermined and out of one's control



# Motivators to PFD Adoption

- Family
  - Working provides economic means for families.
- Captain/Coast Guard
  - Would wear if captain tells me to wear and if everyone else tells me to wear.
  - “If the coast guard doesn’t approve it then we can’t use it. When they approve it then it’s ok.”
- Perceived High Risk
  - Important to wear during bad weather, working alone, transferring between boats.
  - “When we have the radio saying there will be stormy weather,
  - we all have to wear a life jacket on the boat. And also when pulling
  - the nets we definitely have to wear it.”





# Social Marketing Campaign: Testing and Evaluating the Message

- Intervention Approach: Partnership with VIET, USCG, LPHI
- Development of the message and visual aspects of the campaign: relevant and impactful
  - Three captain focus groups were conducted:
    - four captains, held in one of the captain's homes in Abbeville
    - two captains, held in a captain's home in New Orleans
    - four captains, held in a captain's home in New Orleans
  - Three deckhand interviews were also conducted:
    - five deckhands, held in one of the deckhand's homes in Abbeville
    - three deckhands, held at a Vietnamese-owned business (Theresa's Seafood in Chalmette)
    - two deckhands, held in a deckhand's home in New Orleans
- Key topics of discussion included: (1) immediate reactions to the creative campaign, (2) perceptions of the intended message of the campaign, and (3) considerations for implementing the campaign. The moderators summarized key points into English at the end of each discussion topic. Each session lasted approximately 45 minutes.



# Captains Evaluation of the Message

- The **captains** reported that the poster suggests that the **captain's responsibility is to take care of the crew by enforcing the use of PFDs**. They noted that “safety is a must” and that it “motivates everyone” to wear the PFD for “their own safety.”
- Captain perceptions of poster shortcomings:
  - image **does not illustrate the front of the PFD**, so a viewer of the poster does not know what essential features a PFD should include, such as a whistle, a reflector on the back, or a flash light to alert the Coast Guard.
  - **colors in the image are unsuitable**; the color of the water, for example, “should be blue” so that the man in the water is easier to spot, and the color on the back of the PFD should be reflective, since the eye is drawn to the ring float on the boat rather than to the man wearing the PFD in the water.
  - bottom of the poster is difficult to see.
  - white-bottom ad is more visually appealing because the dark text is stark against the background.



# Deckhands Evaluation of the Message

- The **deckhands** said that the poster evokes positive feelings of family, and reminds them of their commitment to the livelihoods of their families; one respondent said that if he could not work, his “family will suffer because they depend on me for their eating and shelter.”
- They perceived that the poster had a message not only speaking to the physical safety of the crew member, but also to the **family’s feelings of safety** as the boat departs from the dock. They said that they appreciated the colors, choice of words, and images of family. The deckhands also reported that the posters **made them feel motivated** to wear the PFD for safety.
- Some deckhands seemed confused about the device the men in both posters were wearing; one respondent said that he remembered “the guy wearing something orange,” and another asked, “What is the orange thing on his body?”
  - Like the captains, many deckhands suggested altering the illustration of the water to a more realistic color (blue), add reflective tape and to make the text at the bottom of the posters easier to read.
  - They also preferred the poster with the white bottom.



**Gia đình của bạn  
nường tựa vào bạn  
để sống.**



**Your family  
depends on you  
to live.**



**Rơi xuống biển ở vùng Vịnh mà  
không mặc áo phao sẽ chết người.**

Khi làm việc, Bạn cần phải mặc áo phao để được an toàn.



**Going overboard in the Gulf  
without a life jacket is deadly.**

You need to wear a life jacket to be safe while working.



**Bạn cần toàn bộ nhân viên trên  
tàu được an toàn để mang lại tất  
cả lợi nhuận**



**Hầu hết các trường hợp tử vong ở  
vùng Vịnh xảy ra vì không mặc áo  
phao khi rơi xuống biển.**

Khuyến khích các nhân viên trên tàu luôn mặc áo  
phao để giữ họ được an toàn.



**You need your whole crew  
to be safe to bring in profits.**



**Most deaths in the Gulf occur  
from not wearing a life jacket  
when going overboard.**

Keep your crew intact, encourage your deckhands  
to wear their life jackets at all times.



# Branded message grass roots distribution



# Stakeholder Engagement and Overcoming Barriers

- With survey development/assessment, use their “language” – shrimping rather than commercial shrimp fishing.
- Listen to community partnerships.
- Build Trust - Be Visible (e.g., attend annual blessing of the fleet).
- Establish credibility in direct and indirect topic areas (e.g., health screenings), demonstrate experience.
- Participate as a community member and build personal relationships (e.g., USCG attend Vietnamese weddings).
- Enhance knowledge and skills; provide resources.



# Conclusions - 1

- Culture plays a significant role in attitudes/beliefs among Vietnamese shrimp fishermen of the Gulf, and may influence behaviors that are risk factors for fatal and non-fatal injuries. In particular, commercial fishing industry leaders are able to influence behaviors and practices among fishermen.





# Conclusions - 2

- Culturally appropriate training and awareness measures combined with recognizing normative influences can favorably alter attitudes, beliefs, and behavioral intent related to workplace safety in this population of Vietnamese shrimp fishermen along the Gulf Coast. This includes not only opinion leaders among commercial fishermen, but also authority figures such as the USCG.



# Conclusions - 3

- Community participatory methods such as selection of priorities for workplace intervention can be an effective strategy for translating research findings into practice.



# Three key observations which are vitally important to increasing PFD use:

- Need adoption of socio-ecological model, including governmental regulation.
- Wide variety of PFDs for purchase need to be more readily available.
- USCG approval process should be expedited.



# Changing Commercial Fishing Personal Flotation Use Behavior

What can we learn from efforts to address the most important safety technology adoption challenge of our time?



# Nova Scotia's Approach to Fishing Safety

Amanda Dedrick, Executive Director  
Fisheries Safety Association of Nova Scotia



# Man Overboard Drills - Background

- ❖ Concept started in 2012
- ❖ Offered opportunity to educate on OHS requirements, TC safety equipment and PFD's
- ❖ Focus was to increase awareness around PFD'S and safety drills on board
- ❖ Goal was to visit each commercial fishing wharf in Nova Scotia (est 156 wharfs)
- ❖ There has been a total of 136 drills completed

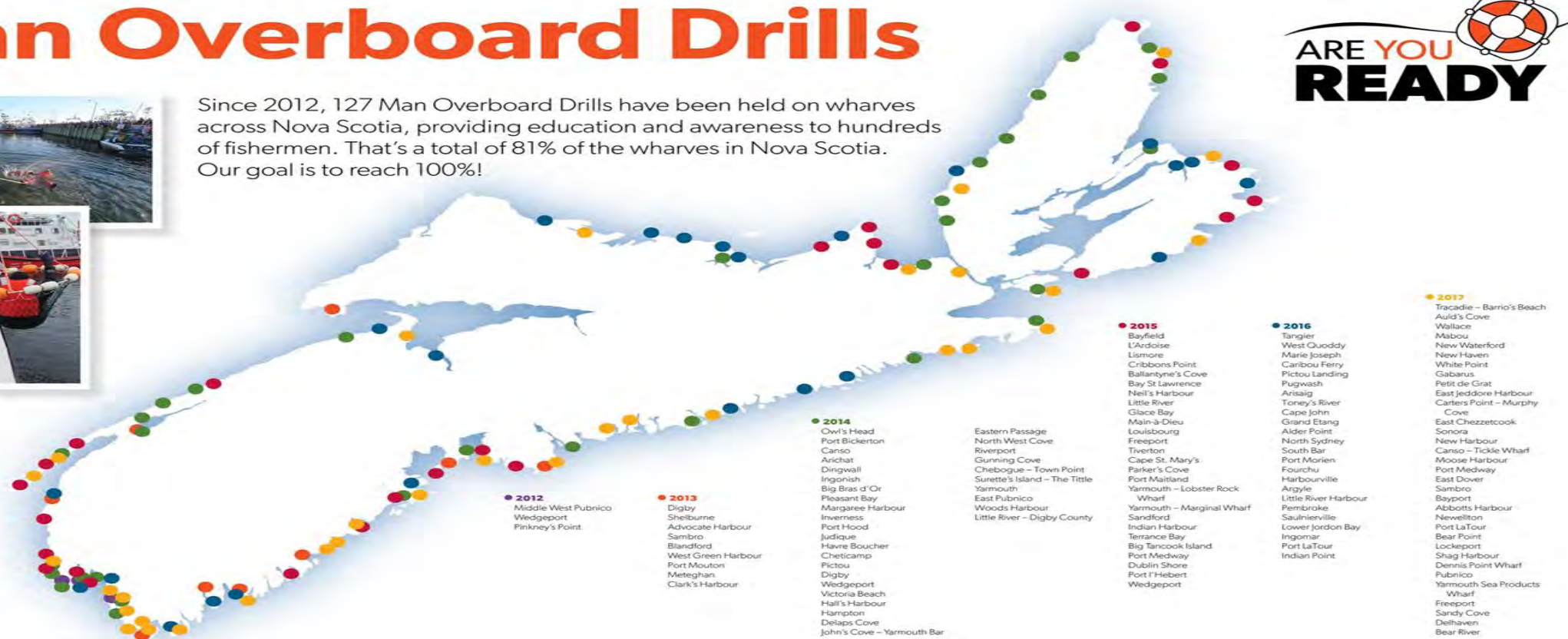


# Man Overboard Drills - MAP

## Man Overboard Drills



Since 2012, 127 Man Overboard Drills have been held on wharves across Nova Scotia, providing education and awareness to hundreds of fishermen. That's a total of 81% of the wharves in Nova Scotia. Our goal is to reach 100%!



# Challenges with PFD's

- ❖ Design of PFD
- ❖ Chaffing
- ❖ Catching pull cord
- ❖ Durability
- ❖ Bulky
- ❖ Sizing
- ❖ Understanding the regulations and approvals





# Research efforts

- ❖ Focus groups to discuss design with manufacturers
- ❖ Testing on devices not currently approved
- ❖ Talking to fishermen about why or why not they are wearing their PFD's
- ❖ Discussions with manufacturers about getting approvals to fit our regulations
- ❖ Always looking to see what is new and on the market



# Personal Floatation Devices (PFD's)

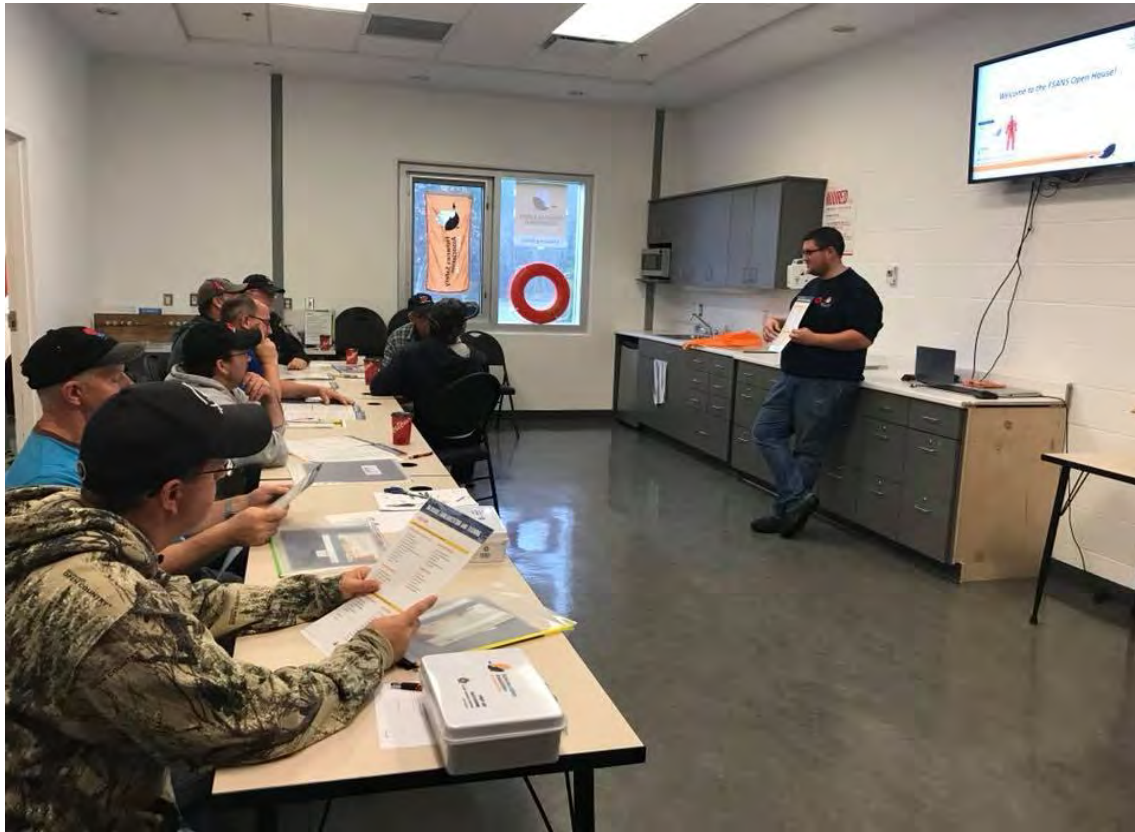


# What is Working

- ❖ Wharveside presence
- ❖ ONE wharf, ONE boat, ONE workplace, ONE person at a time
- ❖ Bringing manufacturers and fishermen together
- ❖ PFD bags to encourage discussions
- ❖ Develop easy to use tools ie checklists, logbooks
- ❖ Engaging the younger generations
- ❖ Working together, Fishing Safety Now
- ❖ Social Media



# What is Working



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# Wear It For Me Campaign

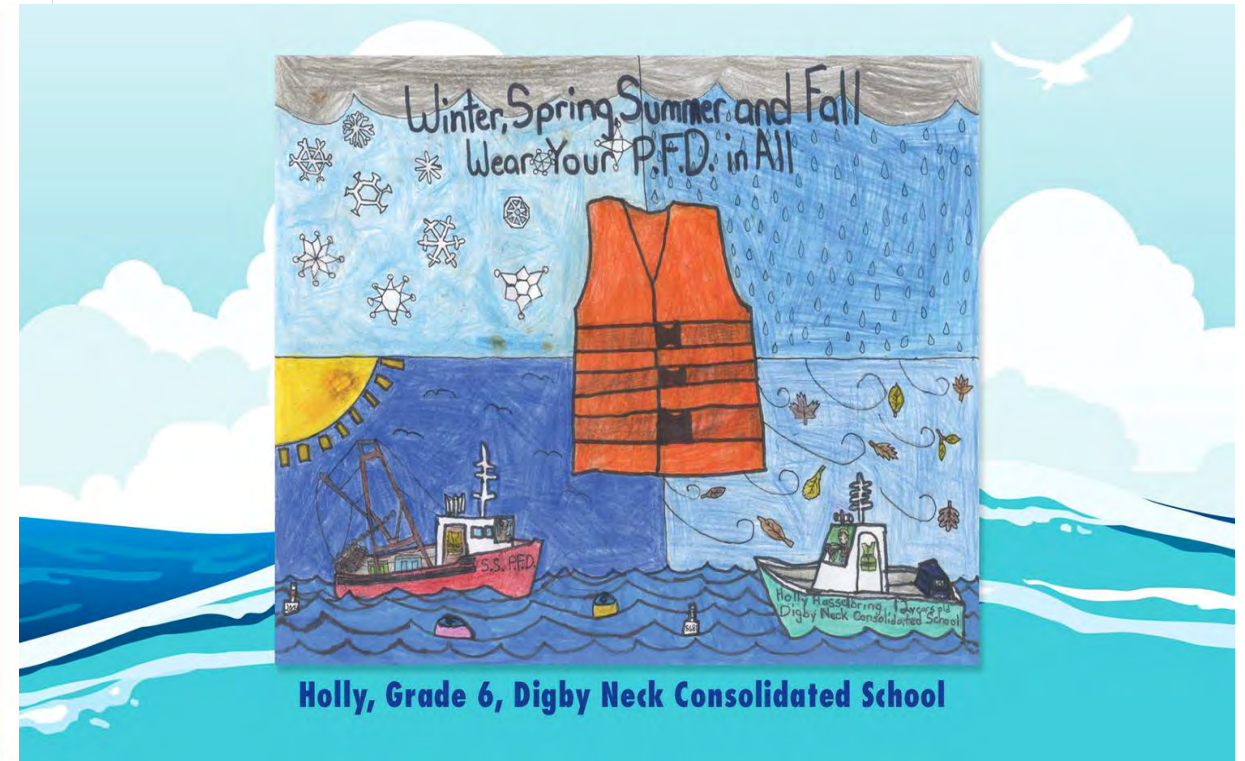
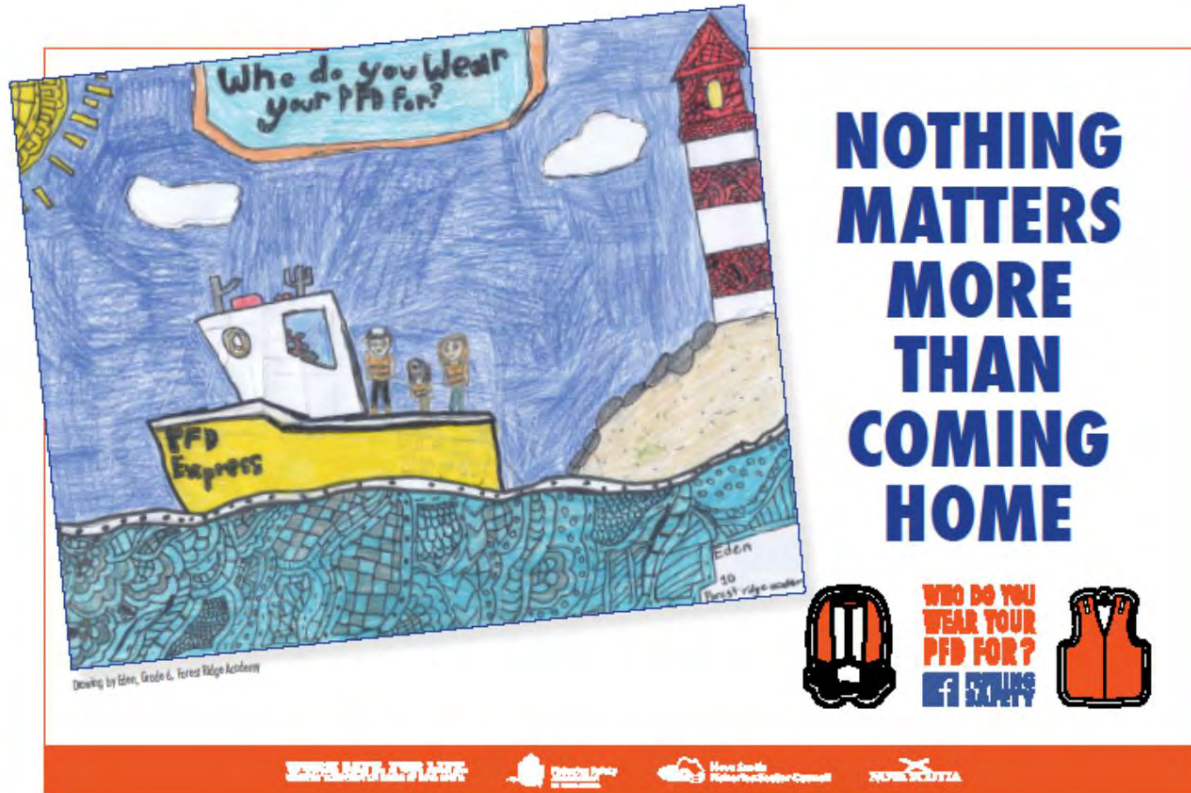
“Make Safety a Habit” –  
Involve Family, Community



## Making the Pledge



# Poster Contest



# Fishing Safety Now

- ❖ Fishing Safety Now is an Industry led initiative
- ❖ It is a safety plan by and for Nova Scotia's fishing industry
- ❖ The plan has recommendations designed to grow workplace safety in the industry.
- ❖ The plan was released to the public on June 4, 2015.
- ❖ FSANS and NSFSC were asked to co-lead the delivery of the plan.
- ❖ In 2015 FSANS/NSFSC designed an implementation strategy.
- ❖ Year one began in 2016



**Fishing Safety Now**  
A plan by and for Nova Scotia's fishing industry

**Safe  
AT  
Sea**  
ALLIANCE

# Are You R-E-A-D-Y

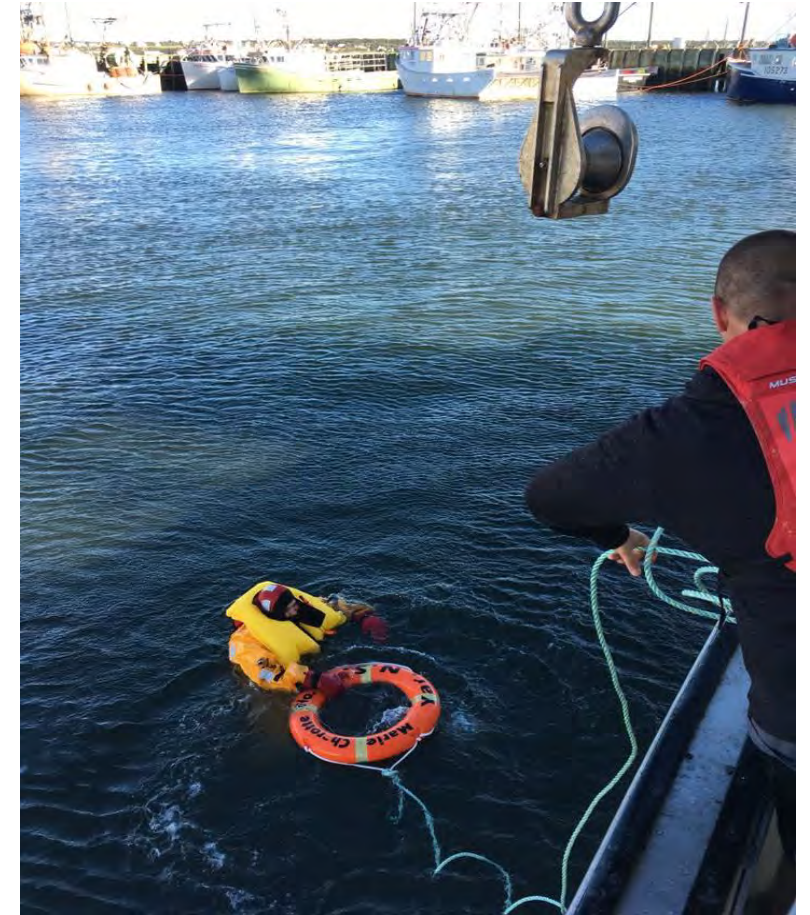


- ❖ Fishing Safety Now allowed us to formalize and brand the Are you READY program
- ❖ Real – Emergency – Action – Drills – Yearly
- ❖ Opportunity to showcase PFD's – solids vs inflatables
- ❖ Educate on features and maintenance of PFD'S
- ❖ Discuss regulations
- ❖ Goal to encourage fishermen to conduct drills





# Are You R-E-A-D-Y



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# Are You R-E-A-D-Y



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# Changing Commercial Fishing Personal Flotation Use Behavior

What can we learn from efforts to address the most important safety technology adoption challenge of our time?





# Life Jackets for Lobstermen

## **The Northeast Center for Occupational Health and Safety**

*Principal Investigator:* Julie Sorensen

*Biostatistician:* Paul Jenkins

*Research Coordinators:* Rebecca Weil & Liane Hirabayashi

*Research Assistant:* Jessica Echard

*Collaborators:* Commercial Lobstermen, Fishing Partnership Support Services, McMillan Offshore Survival Training, MA and ME Lobstermen Associations

With support from CDC/NIOSH  
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## The Use of Personal Flotation Devices in the Northeast Lobster Fishing Industry: An Examination of the Decision-Making Process

R. Weil, ms,<sup>1\*</sup> K. Pinto, edo,<sup>2</sup> J. Lincoln, PhD,<sup>3</sup> M. Hall-Arber, PhD,<sup>4</sup> and J. Sorensen, PhD<sup>1</sup>

**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 carefree 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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<sup>4</sup>MIT Sea Grant, Massachusetts Institute of Technology, Cambridge, Massachusetts  
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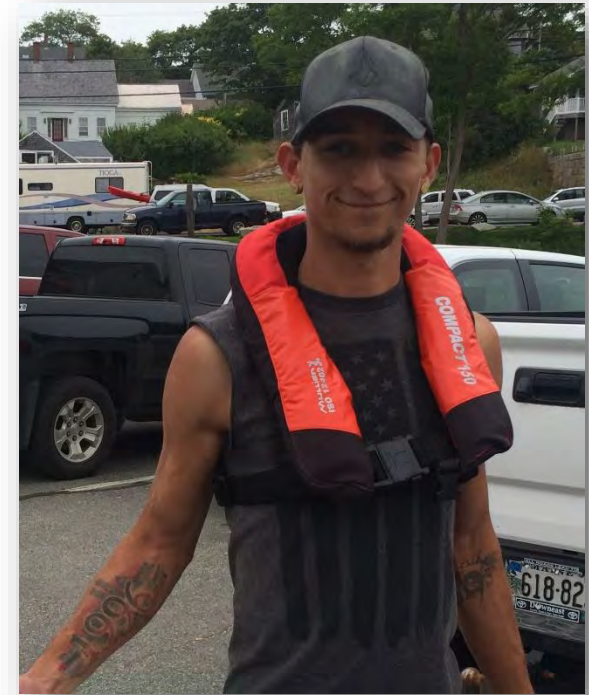
# Target Population: Commercial Lobster Fishermen from ME and MA

*Objective #1:* Identify comfortable life jacket designs

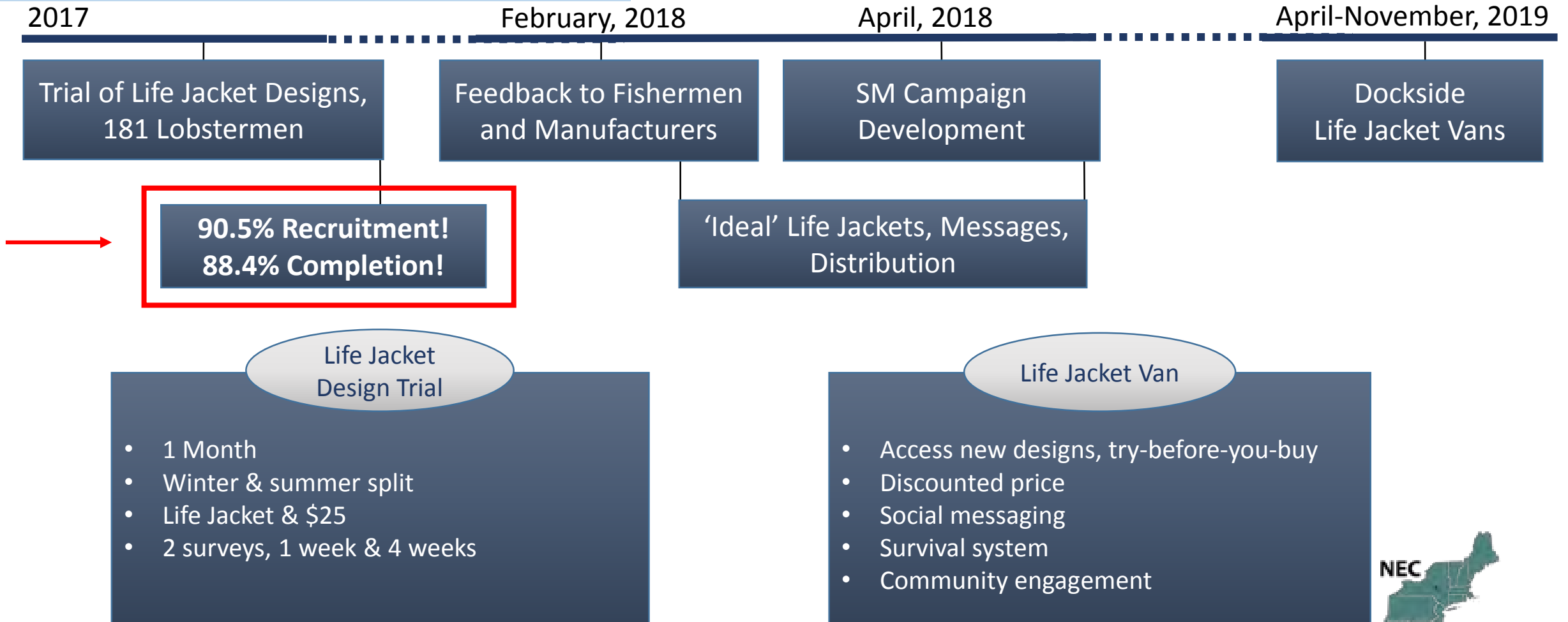
*Objective #2:* Accelerometers as objective measure of lifejacket use

*Objective #3:* Social marketing campaign to remove barriers to life jacket use

*Objective #4:* Evaluate fishermen's Stage of Change-are they using life jackets?



# Research Methods: Removing Barriers to Life Jacket Use









Mustang Survival  
MD 5283 Elite 38  
38lbs



Mullion  
Compact Wipe Clean  
150N



Spinlock  
Deckvest DURO  
170N



Stormline 662  
Flotation Bib  
11lb



Kent Safety Products  
First Responder Vest  
15.5lb



Quatic Inflatable  
Rashguard  
12-15lb



Mustang Survival  
MD 3075  
Inflatable Belt Pack  
38lb



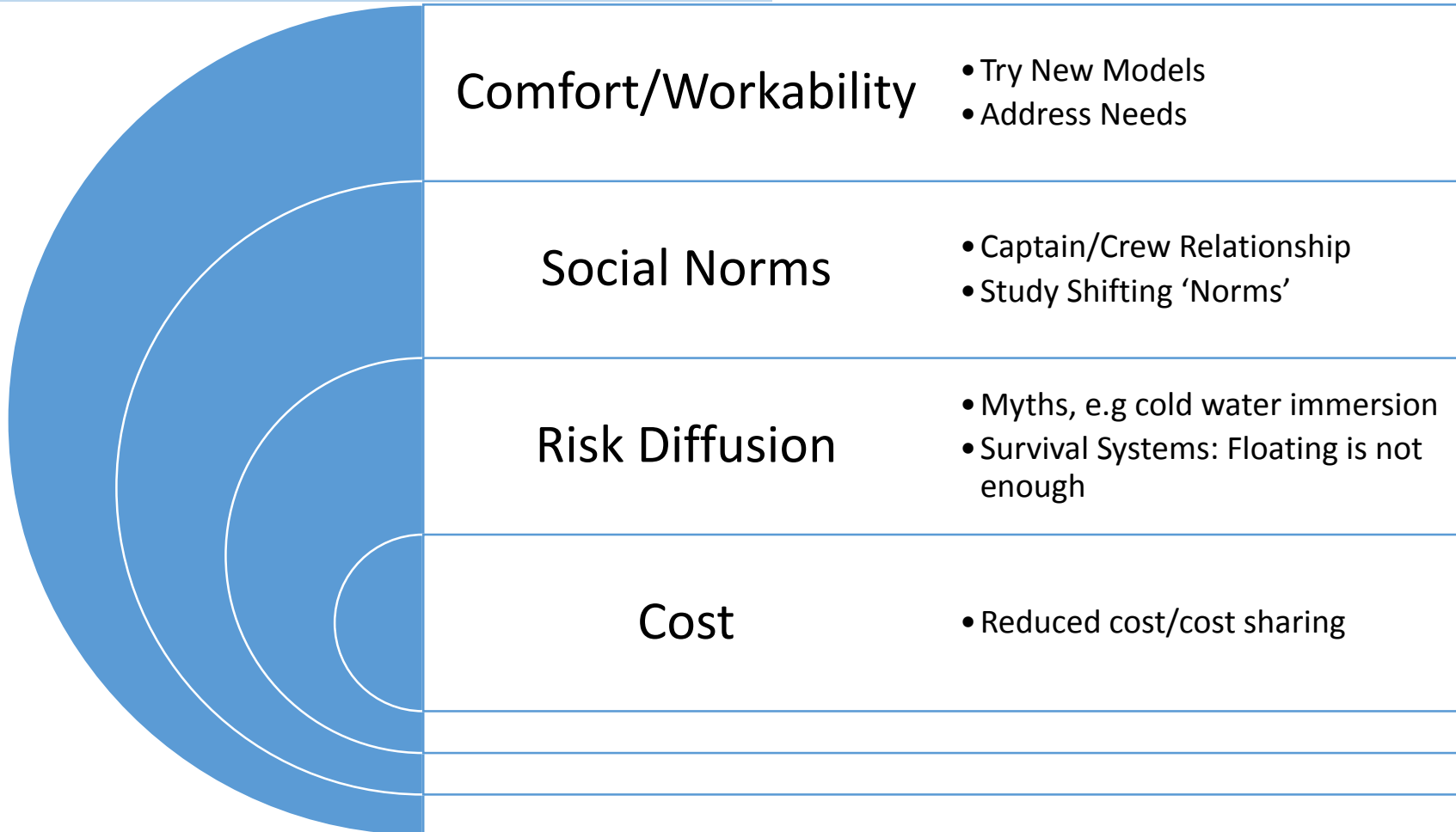
Hyde Sportswear  
Wingman  
22.5lb



Kent Safety Products  
Rogue II Vest  
12lb



# Barriers to Life Jacket Adoption

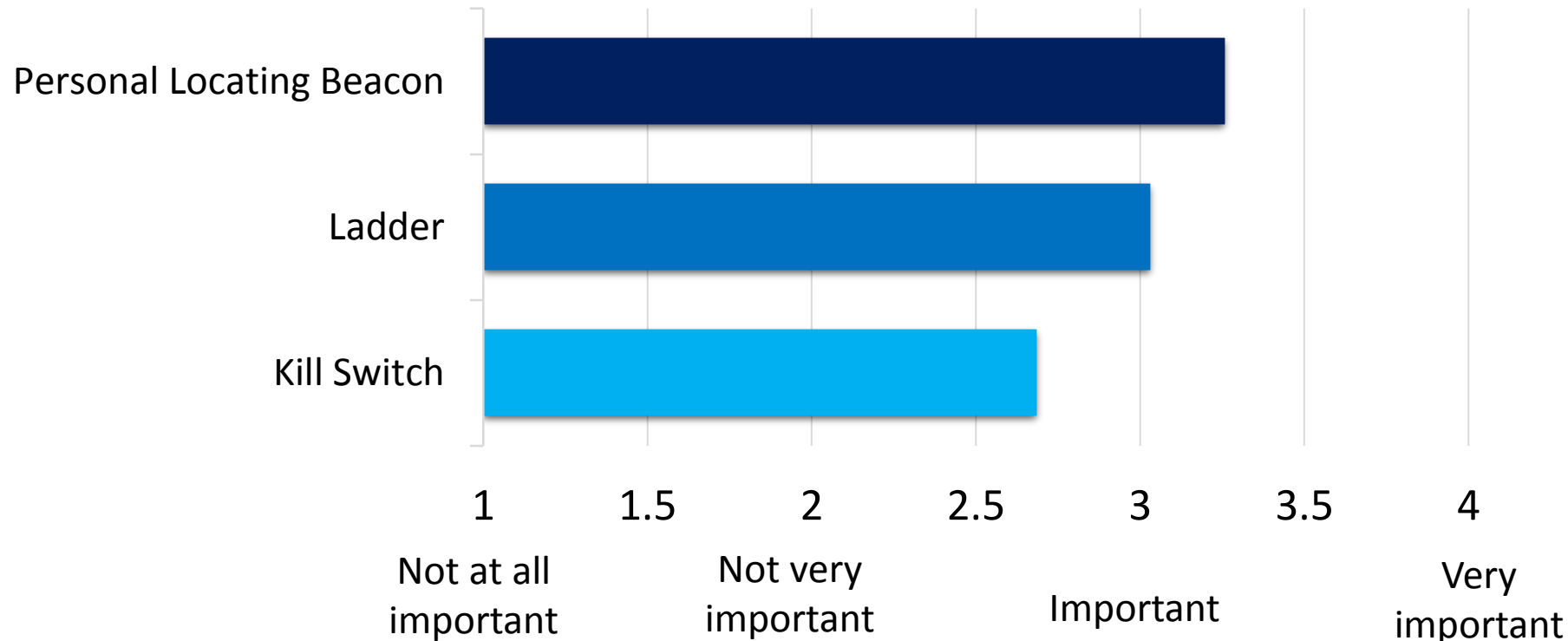




# Potential Motivators to Life Jacket Adoption

## Importance of:

(1=Not at all important, 2=Not very important, 3=Important, 4=Very important)

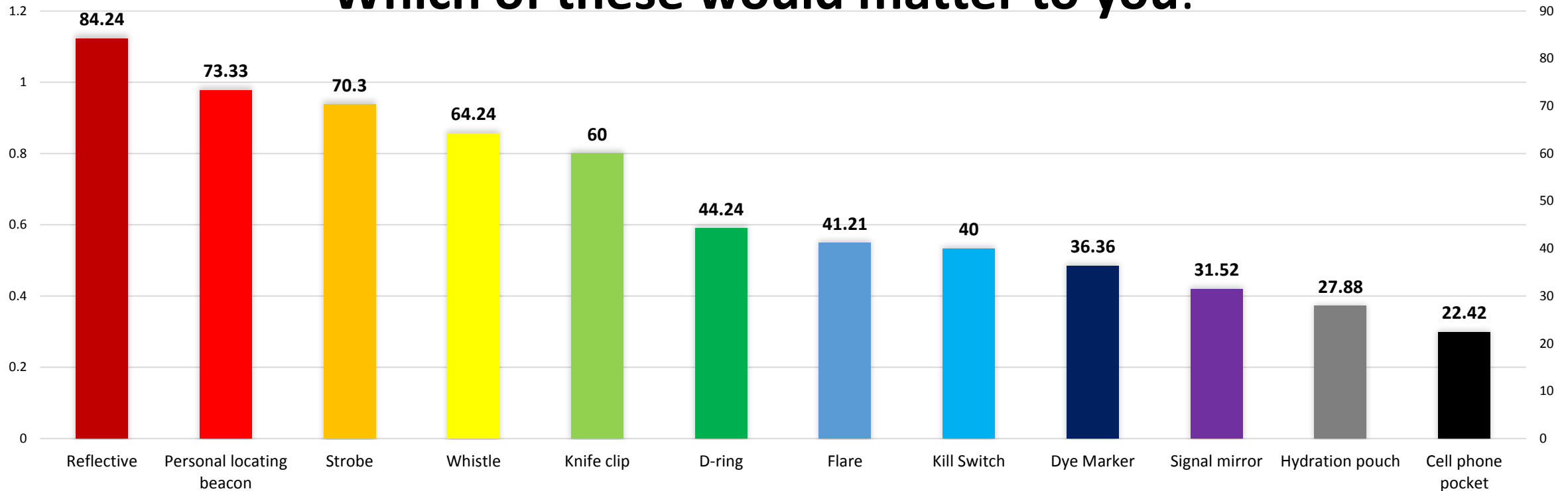


**55% said devices would encourage life jacket use!**



# Potential Motivators to Life Jacket Adoption

## Which of these would matter to you:



\*Note: Only cell phone pocket and hydration pouch showed significantly different scores between summer and winter



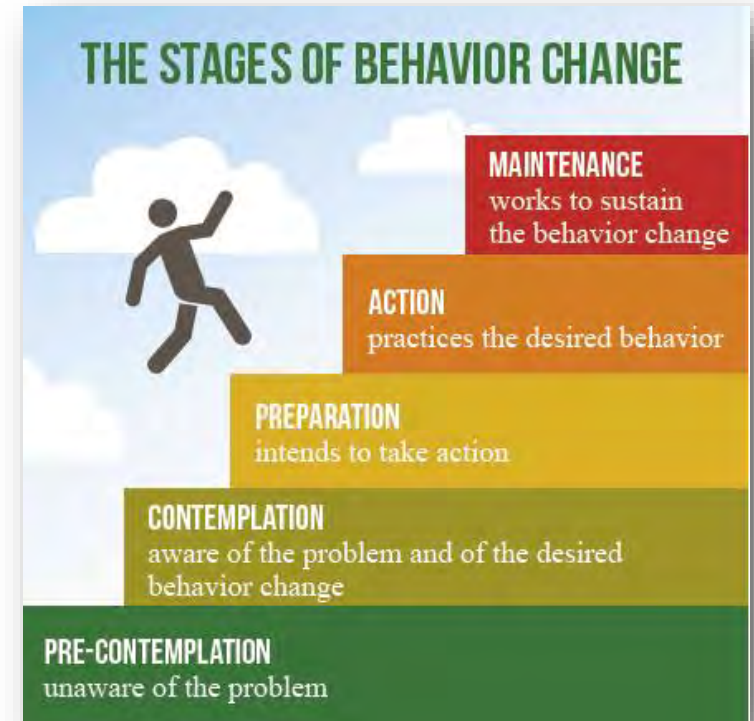
# Potential Motivators to Life Jacket Adoption

- Listening! → Acknowledging issues and solutions
- New designs → Surprise & relief
- Hearing from peers → Belief it can work
- Study shifts norms → Study offers safe uptake
- Personal choice → Offering variety
- Responsive → Fishermen & community engagement



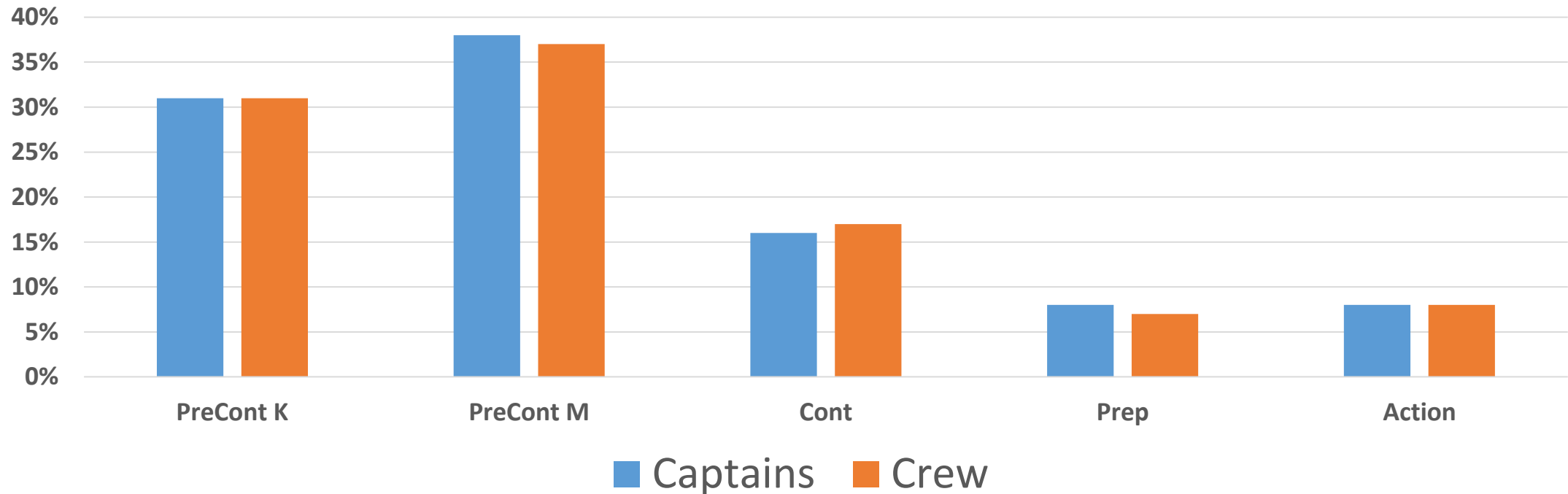
# Intervention Approach: Evaluating Change

- ✓ Randomized surveys before and after life jacket social marketing campaign
- ✓ Ports in MA and ME-alternating treatment and control
- ✓ Stage of Change measured at baseline and follow-up in both groups



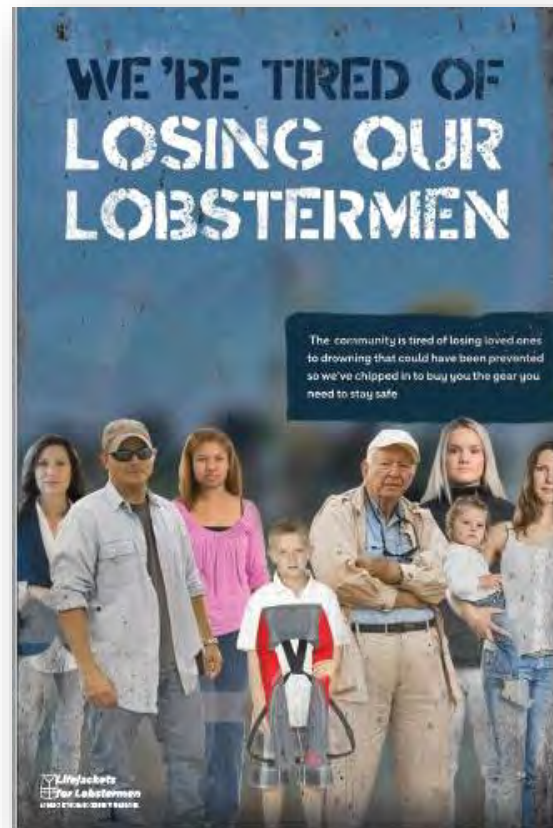
# Baseline Randomized Survey: ME and MA Lobster Fishermen

## SOC PFD Scores for Captains and Crew





# Intervention Approach: Promotion



# Intervention Approach: Price



**LIFE  
JACKET  
RENTAL:  
\$1/DAY**

We've got you covered.  
Clean, comfortable life jackets  
right on the docks.



# *Intervention Approach: Place*



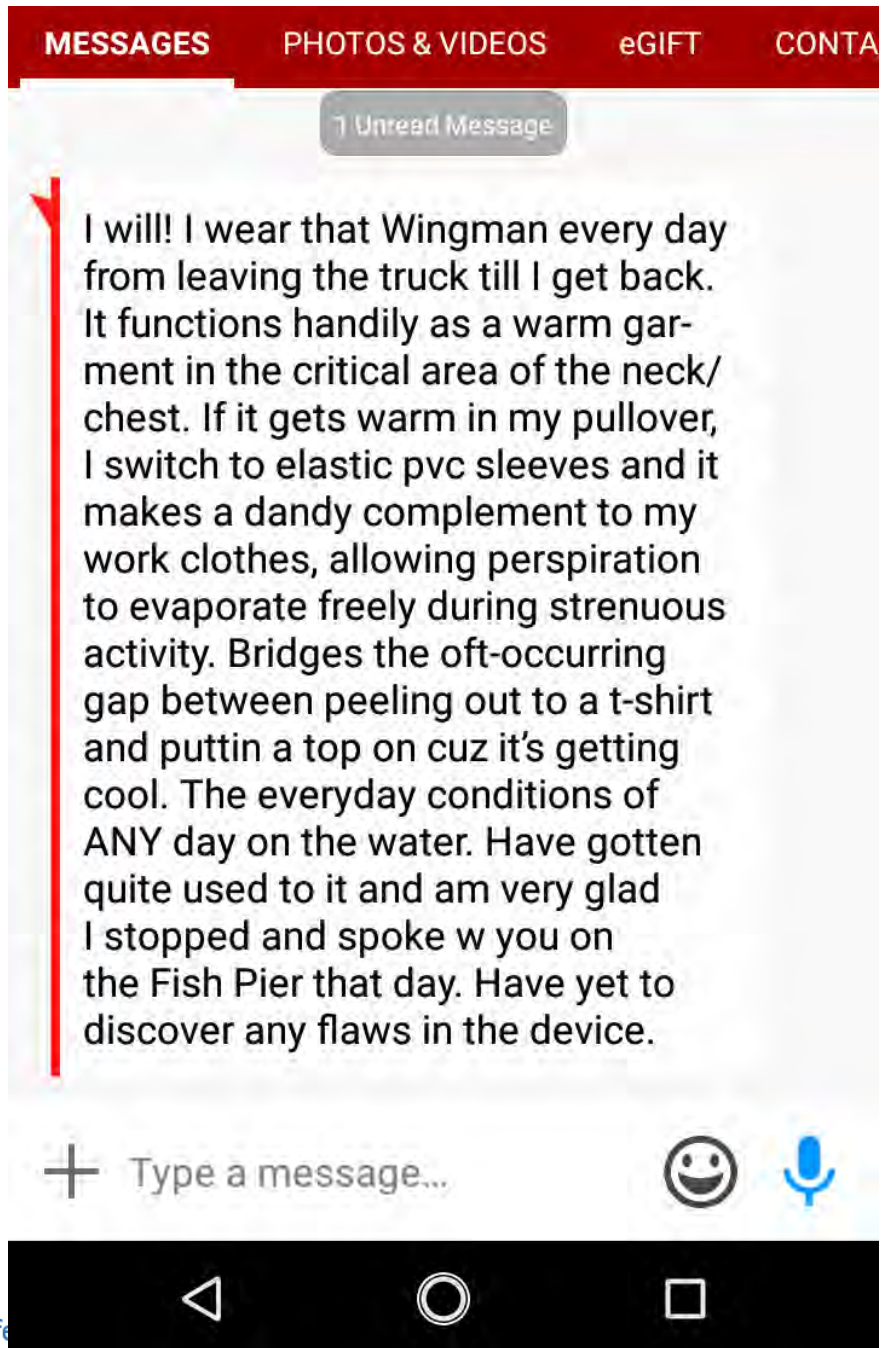
June 10, 2018

IFISH5: International Fishing Industry Safety & Health Conference





Product...



MESSAGES PHOTOS & VIDEOS eGIFT CONTACT

1 Unread Message

I will! I wear that Wingman every day from leaving the truck till I get back. It functions handily as a warm garment in the critical area of the neck/chest. If it gets warm in my pullover, I switch to elastic pvc sleeves and it makes a dandy complement to my work clothes, allowing perspiration to evaporate freely during strenuous activity. Bridges the oft-occurring gap between peeling out to a t-shirt and puttin a top on cuz it's getting cool. The everyday conditions of ANY day on the water. Have gotten quite used to it and am very glad I stopped and spoke w you on the Fish Pier that day. Have yet to discover any flaws in the device.

+ Type a message...



Industry Safe

# Stakeholder Engagement



**MCMILLAN OFFSHORE  
SURVIVAL TRAINING**



Maine  
Lobstermen's  
Association



FISHERIES  
COMMISSION



ATLANTIC OFFSHORE  
LOBSTERMEN'S ASSOCIATION



**Fishing  
Families &  
Communities**



**Special thanks to:** Jennifer Lincoln, Ted Teske, Devin Lucas & Samantha Case of NIOSH, & NEC Advisory Boards

# Three key observations which are vitally important to increasing PFD use.

**#1: Fishermen are creating the solutions** - the fishermen have good ideas and are making safety choices daily

**#2: Fishermen like to hear directly from their peers** - about what works and what doesn't

**#3: It's important to remove the barriers and to make life jacket use rewarding and easy!!**



# Thanks for joining us! Questions?

