

Oregon Crab Fishing Safety Evaluation: Dockside Safety Survey

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INTRODUCTION



Commercial fishing remains one of the deadliest occupations in the United States, despite a reduction in fatalities from 57 deaths in 2009, to 29 deaths in 2010.^{1,2} A preliminary report of occupational fatalities in 2010 finds that fishermen, and related fishing industry workers, have the highest fatality rate among all full-time equivalent (FTE) workers.^{1,2} This fatality rate of 116 deaths per 100,000 FTEs is 33 times higher than the general fatality rate for all workers, and nearly 1.3 times greater than logging workers- the second most fatal occupation in 2010.² Data collected during 2000-2009, indicates the fatality rate (310 deaths per 100,000 FTEs) in the Northwest crab fleet is higher than the Bering Sea Aleutian Island crab fleet (260 deaths per 100,000 FTEs).

The Oregon Dungeness crab fishery is uniquely hazardous due to dangerous coastal conditions and workforce and industry characteristics.^{3,4} Over 7 years, 2003-2009, the Oregon Fatality Assessment and Control Evaluation (OR-FACE) program recorded 14 worker fatalities in 8 incidents involving crab boats along the Oregon Coast: 3 of the 8 incidents involved a worker falling overboard at sea and the remaining 5 involved capsized boats while crossing a bar (the area where the deep water of the ocean joins shallow river water, which causes wave action to increase) or in the surf near shore. Several risk factors stand out in the Oregon incidents. First, according to OR-FACE research, none of the victims wore a personal flotation device (PFD) or a survival suit when they entered the water. Second, all the capsized crab fishing boats were small vessels (below 79 feet), and four of the five involved vessels under 50 feet long.

PURPOSE

While several studies have been published about the epidemiology of work-related injuries for commercial crab fishermen, much less has been documented from their point-of-view regarding the experience of working, and their knowledge and attitudes about work, safety and health. Given the exceptionally high fatality rate and unique risk factors among Oregon commercial crab fishermen, the purpose of the study was to survey their experiences and views relative to critical safety issues and provide information for policymakers, safety professionals, and industry partners involved in commercial crab fishing safety.



METHODS



Survey Design

- Survey originally used in Alaska, but revised to reflect safety issues specific to the Oregon crab fishery.
- Developed with feedback from fishing safety experts.
- 34 total questions for the crew and an extended survey of 46 questions for the captains. Topics included:
 - Demographics and background
 - PFD use
 - Bar crossing
 - Safety inspections and training
 - Vessel stability



Recruitment

- A press release and posters describing the study were distributed to area news outlets and placed on bulletin boards around the docks and nearby businesses 1 week prior to administering the survey.
- Administered over 2 days on the fishing docks in Newport, Oregon, in November 2010.
- No incentive to participate was provided.
- A total of 83 fishermen completed survey (87 were invited, 4 declined).
-24 captains and 59 crew were surveyed.

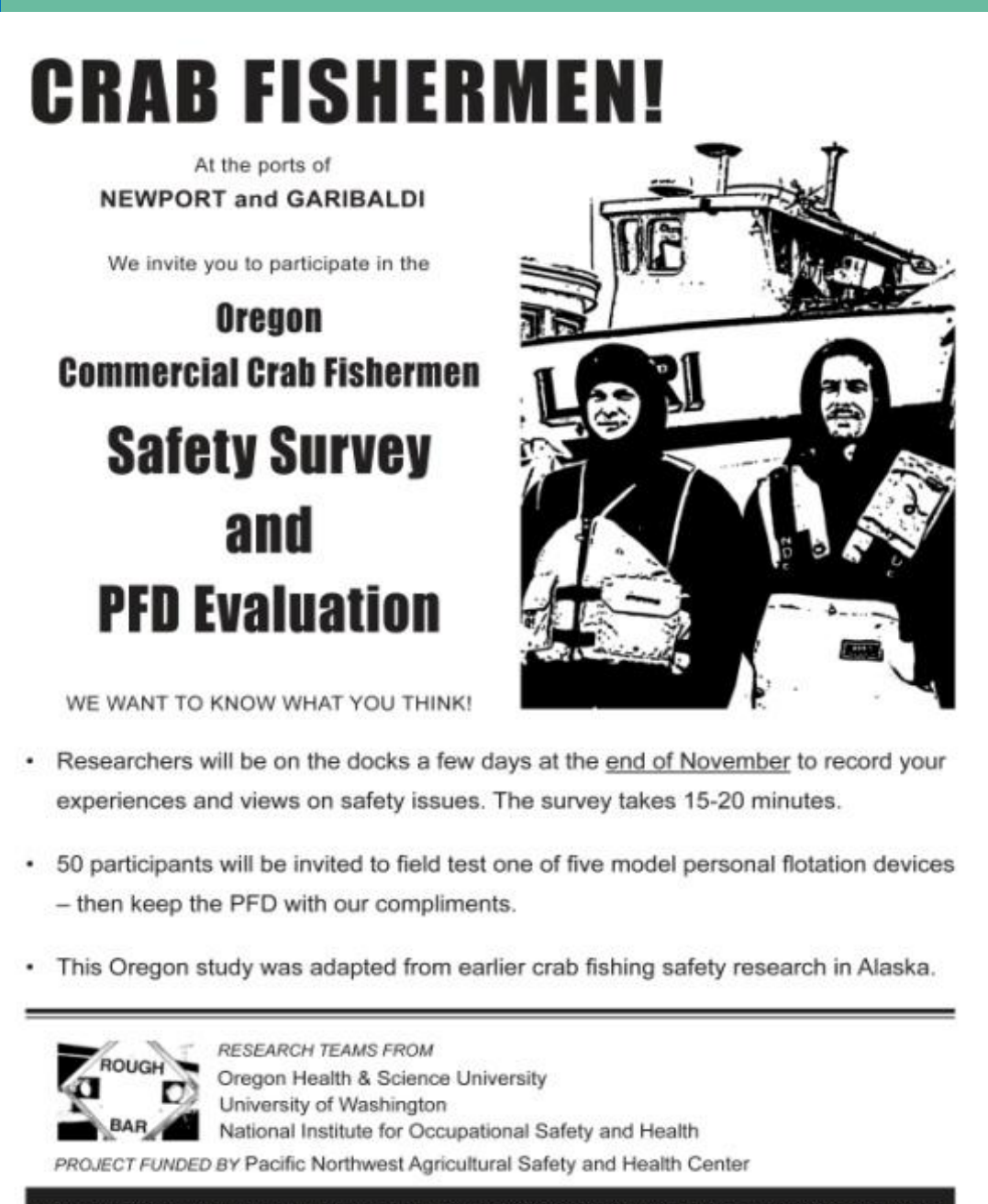


Figure 1. Promotional flyer

RESULTS

Table 1. Demographic and Background Information

Demographic characteristics	Mean (SD)		
	Captain	Crew	All
Age	48.3 (13.9)	33.1 (10.9)	37.4 (13.6)
Years worked in commercial crab fishing	24.2 (12.2)	7.2 (6.5)	12.1 (11.4)
Months/year spent crab fishing	4.8 (2.3)	5.1 (2.4)	5 (2.3)
Crew size	3.5 (.7)	3.6 (.9)	3.6 (.8)
Vessel length (in feet)	53.9 (14)	56 (15.9)	55.4 (15.3)

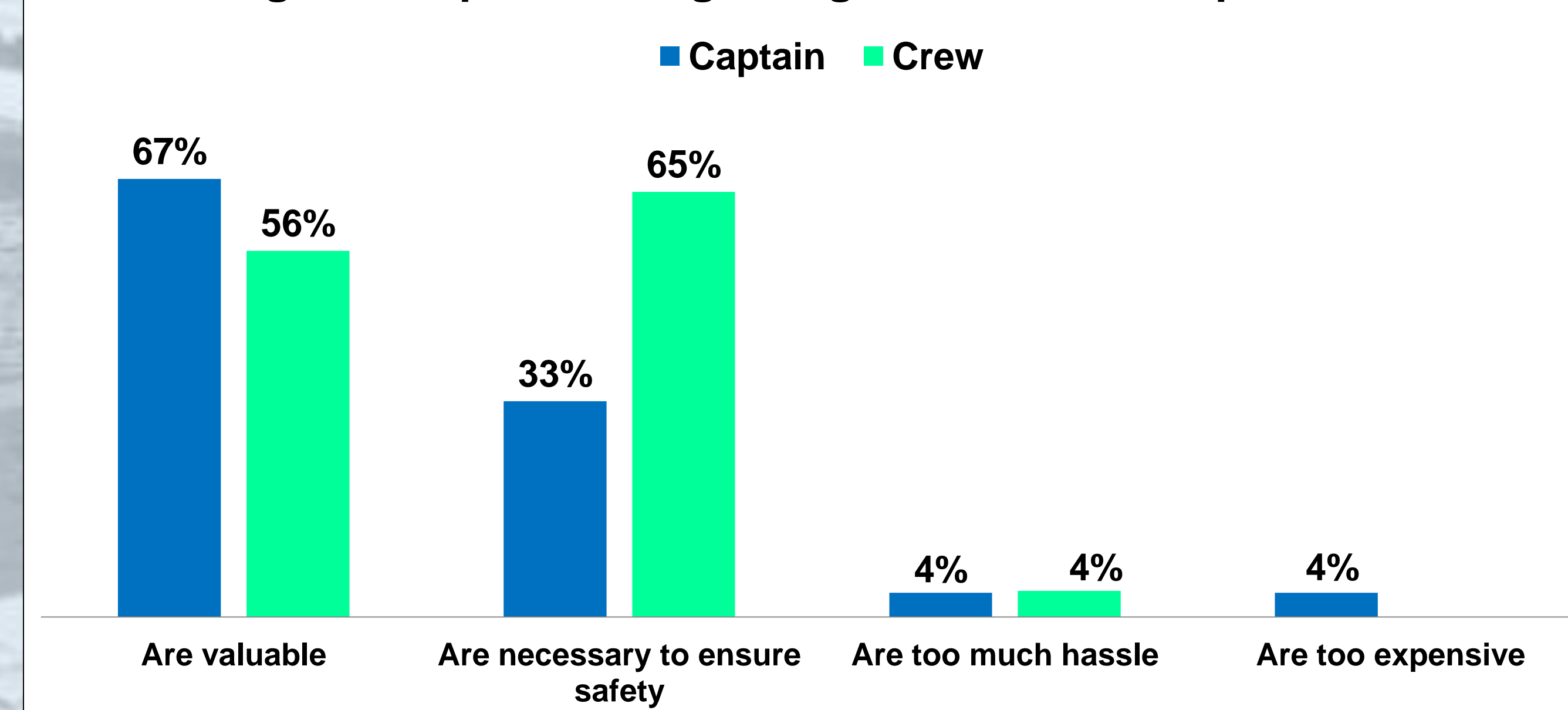
Table 2. PFD Use Under Specific Conditions

Frequency	Crossing Bar			Other times in transit			Working on deck		
	Captain	Crew	All	Captain	Crew	All	Captain	Crew	All
Always	9%	9%	9%	0	4%	2%	0	9%	6%
Usually	4%	7%	6%	0	4%	2%	5%	5%	5%
Half the time	0	4%	3%	0	7%	5%	0	7%	5%
Sometimes	48%	28%	34%	29%	32%	31%	43%	29%	33%
Never	39%	53%	49%	71%	54%	59%	52%	50%	51%

Table 3. Experience Crossing the Bar

Frequency	Not very concerned, crossing is routine			Concerned, crossing is treacherous			Very concerned, crossing is treacherous		
	Captain	Crew	All	Captain	Crew	All	Captain	Crew	All
Always	11%	25%	21%	25%	18%	20%	11%	23%	20%
Usually	28%	30%	30%	5%	4%	4%	0	6%	5%
Half the time	28%	13%	17%	15%	20%	18%	6%	6%	6%
Sometimes	33%	19%	23%	55%	49%	51%	78%	43%	52%
Never	0	13%	10%	0	10%	7%	6%	21%	17%

Figure 2. Opinions Regarding Coast Guard Inspections



* % does not sum to 100 because respondents could choose as many categories that applied. A dockside safety examination is required at least once every 2 years for vessels operating beyond 3 nautical miles. During an exam, the USCG does a safety equipment check, such as the accessibility of safety gear in an emergency, and they examine the stability of the vessel.

RESULTS

Figure 3. Training Helps Improve Safety?

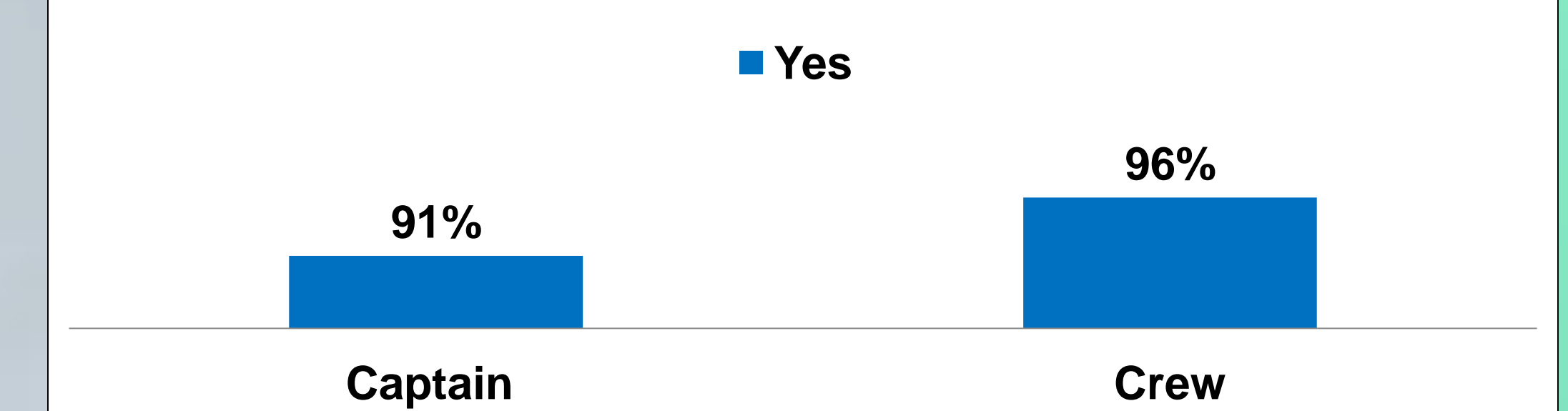


Table 4. Stability Reports*

Use of a Vessel Stability Report	Captain	Stability Report Impressions	Captain
Vessel does not have a stability report	57%	Valuable	68%
Stability report not technically practical	30%	Should be subsidized for small crab boats	27%
Intend to obtain stability report	9%	Necessary to ensure safety	23%
Stability report is too expensive	9%	Need to have clear models to apply to work conditions	18%
Vessel has stability report and it's used	30%	Need to be easier to understand	9%
Have report but don't use it	9%	Too expensive	5%

* A vessel stability report is an engineering report that assesses such factors as weight limits, center of gravity, weather tightness, and seaworthiness. Currently, vessel stability reports are only required for boats over 79 feet long.

DISCUSSION

- The survey results support known Oregon crab fishing fatality data:
 - The consistent use of a PFD is remarkably low among both captains and crewmembers.
 - More than half (64%) of those surveyed work on boats between 50-59 feet.
- Crab fishermen are aware of hazards specific to their industry and positively view risk prevention strategies and engineering controls, such as US Coast Guard inspections, onboard safety trainings, and vessel stability reports.
- Focus efforts on prevention:
 - Promote the use of PFDs, especially when crossing river bars, fishing close to shore, or during rough weather.
 - Support the implementation of onboard safety drills, in addition to other training.
 - Encourage vessel owners to undergo ship stability testing, provide owners with ability to interpret stability testing results, and provide captains with overall better understanding of ship stability and its impact on safety.

CONCLUSION

The etiologic factors for commercial crab fishing fatalities in Oregon still remain complex; however, the results of this study will help evaluate current safety initiatives and training programs, provide feedback for statewide policymakers, and provide pilot data to design a future safety intervention for the Oregon crab fishery.



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