Protecting Fishermen from Hazards on Deck: Winch Entanglements — Research to Practice

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1. Objective
The objective of this study is to use epidemiological research to guide the design and implementation of effective solutions to protect deckhands from entanglement hazards.

2. Background
In 2012, a 15-year-old deckhand on a shrimp trawler in the Gulf of Mexico lost his life after getting entangled in a winch. NIOSH reviewed data from the Commercial Fishing Incident Database as well as US Coast Guard investigative reports to understand the risk factors associated with winch entanglements in this fishing fleet. During 2000-2011, 35 injuries (8 fatal) involving winches were reported in the shrimp fleet. Injuries involving the main winch drums had a higher risk for fatal outcomes compared to injuries involving the winch cathead (RR=7.5; 1.1-53.7). Fatal outcomes were also associated with being alone on the vessel (RR=5.8; 2.1-15.9).

3. Methods
NIOSH conducted a site visit to better understand the current design and use of deck winches on shrimp trawlers. Each trawler has main winch drums and smaller try-net winch drums. Each type of winch drum also has a rotating cathead. Several hazardous areas and activities were identified. Based on the characteristics of the injuries, site visit observations and input from vessel owners, NIOSH determined that the use of effective winch drum guarding would reduce the risk for entanglement. The initial focus is on the main winch drums since they are highly associated with fatalities. Surveys identified the most common types of main winches.

4. Results
Three prototype designs for standardized stationary guarding have been installed on vessels and are being tested at sea. The data collected during sea trials will be used to improve the prototypes. The plans for each guarding system, including materials and estimated build costs, will be widely disseminated and provided to industry and workers free of charge. The next phase of this project will focus on incentives for installation.

5. Conclusions
This approach has proven effective in providing tools to prevent other types of winch injuries. By using injury epidemiology to identify hazards along with practical industry input, effective safety interventions to control hazards can be designed and implemented.

References: