lace Safety and Health

WORKPLACE SOLUTIONS

From the National Institute for Occupational Safety and Health

Dangers of Entanglement during Lobstering

Summary

Lobster fishing is a hazardous occupation that has resulted in drownings from entanglement in trap line and being pulled overboard. A survey of 103 lobstermen developed recommended work practices and controls to (1) reduce entanglement, (2) escape entanglement, and (3) provide opportunities to reboard the vessel.

Description of Exposure

Commercial fishing has long been recognized as a hazardous occupation. The gear used in fishing, fatigue, and environmental conditions all contribute to the high number of fatalities in the industry. From 1993 to 1997, the occupational fatality rate for lobstermen in Maine was 14 per 100,000 licensed lobstermen, more than 2.5 times the national average (4.8 per 100,000 workers) for all industries. In 1988, Congress enacted the Commercial Fishing Industry Vessel Safety Act. This Act requires fishing vessels to carry safety equipment and certain crew members to have training in first aid and conducting emergency drills on fishing vessels. However, these regulations did not address deck safety.

Lobsters are caught in traps that are placed on the sea bottom and connected to a surface buoy by the trap line. One trap line can hold more than one trap. Lobstermen periodically haul traps back into the vessel, remove the lobsters, and clean and rebait the traps.

Between 1993 and 1999, seven lobstermen drowned after falling overboard [U.S. Coast Guard]. USCG investigative reports indicate that lobstermen often become entangled in loose line on deck, are pulled overboard by the traps, and drown when they cannot free themselves from the line or are unable to reboard the vessel. For example, one man who was fishing alone was pulled into the water when the trap line wrapped around his wrist. He cut the line but could not reboard his fishing vessel. He was rescued 45 minutes later by another lobsterman who saw his vessel circling aimlessly. Another man became entangled but was able to hail a passing vessel while lying prone on the deck of his vessel.

Harvard/NIOSH Survey

The Education and Research Center at the Harvard School

DEPARTMENT OF HEALTH AND HUMAN SERVICES
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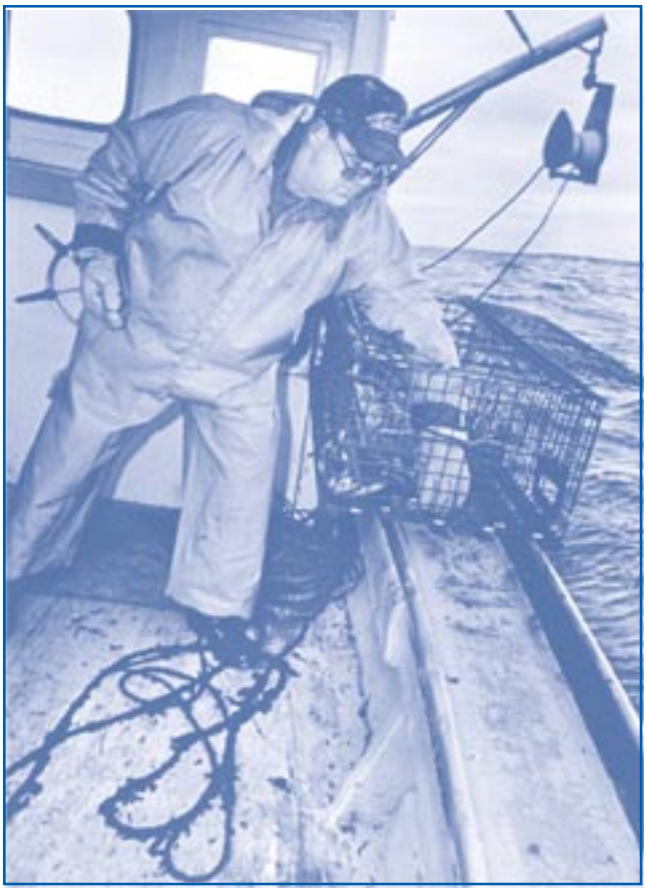

Figure 1. Lobsterman hauling a single lobster trap. *Photograph by Earl Dotter.*

of Public Health and the National Institute for Occupational Safety and Health (NIOSH) recently surveyed lobstermen to

— gather data on the number of entanglements lobstermen had experienced,

— identify work practices during which entanglement is most likely to occur, and

— identify work practices and engineering controls to accomplish the following:

(1) reduce the risk of entanglement in line

(2) help lobstermen escape from an entanglement

(3) help lobstermen reboard the vessel if pulled overboard

To obtain information for the survey, an interview guide was developed, and 103 lobstermen were interviewed during 1999–2000. Nearly 73% of those interviewed responded "yes" to the question, "Have you ever been caught in trap line where you lost clothing, were pulled to the stern, or pulled overboard?" Forty-four percent had been entangled within the last 5 years, some more than once. Most lobstermen stated that entanglements occurred mainly when setting or moving gear. This is also the time when the most line is on the deck (Figure 1).

Controls

The survey found several key work practices and engineering controls to prevent entanglement injuries and fatalities:

1. Reduce the risk of entanglement in line by controlling the deck environment. Keep the deck free of loose lines:

    a. F**airleads:** Install an upright, removable pole through the washboard to the deck,

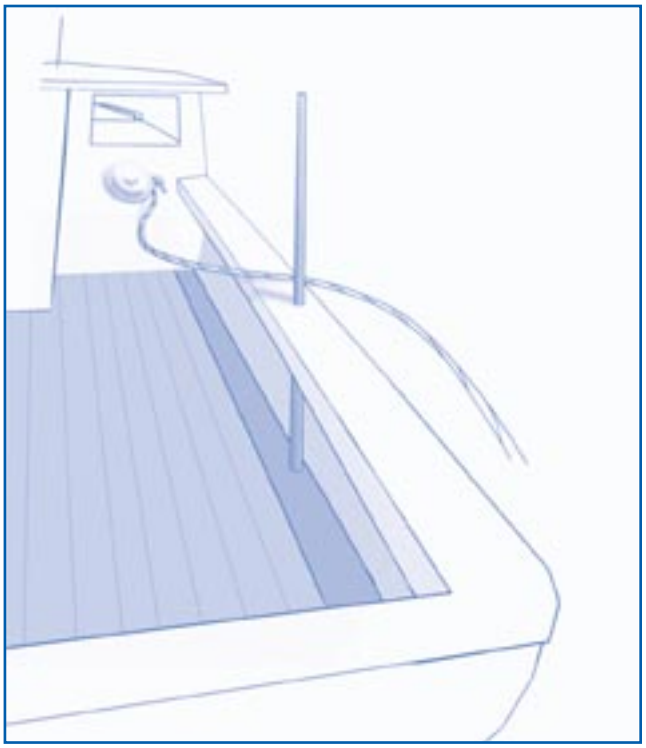

Figure 2. A fairlead mounted into the deck that "leads" line out of the boat and minimizes the area where line could be a hazard. *Illustration by Media Stream.*

Figure 3. Line bin made of plywood with a piano hinge that allows it to drop open and accept trap rope from the pot hauler. *Illustration by Media Stream.*

and pass the line in front of the pole to lead the line out of the vessel (Figure 2).

b. **Line bins:** Mount a hinged panel under the pot hauler to catch line while working the lobster traps (Figure 3).

c. **Line lockers:** Build a locker under the deck below the pot hauler to capture the line so that it is not on the deck.

2. Help lobstermen escape an entanglement by stopping the engine and untangling or cutting the line:

   a. **Sternman:** Have a sternman on board to shut off the engine in case of entanglement and help untangle the line.

   b. **Gagline:** Connect a cable to an engine shutoff switch and run it under the washboard and across the stern so a lobsterman can cut the engine if he is pulled away from the controls (Figure 4).

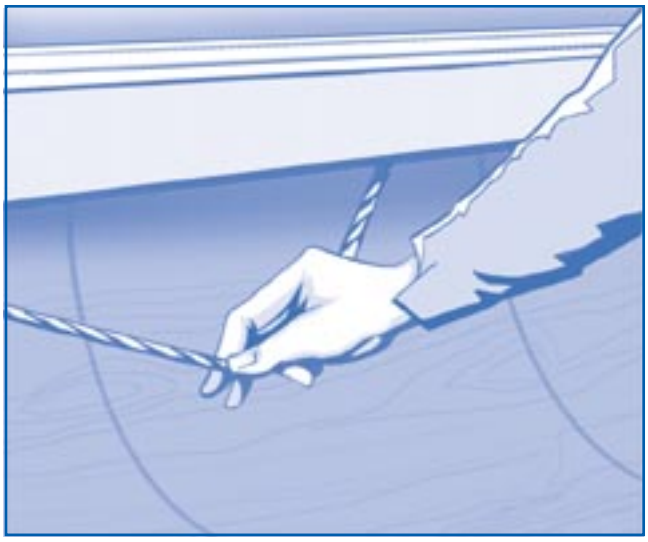

Figure 4. Gagline or kill switch for remote engine shut-off. *Illustration by Media Stream.*

   c. **Personal knife:** Keep a knife in a sheath taped upside down on suspenders to cut the line.

   d. **Transom-mounted knife:** Keep knives at the stern, port, and starboard washboards to cut the line.

3. Help the lobstermen reboard the vessel if pulled overboard:

   a. **Personal flotation device (PFD):** Wear a life jacket or inflatable vest. The best PFD is the one that is worn!

   b. **Sternman:** Have a sternman on board to aid in rescue.

   c. **Ladders:** Have ladder or scuppers for footholds to reboard vessels.

Acknowledgments

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Backus A, Smith T, Brochu P, Lincoln J, Conway G, Bensyl D, Ciampa J [2001]. Understanding and preventing lobsterman entanglement: a preliminary survey. Proceedings of the Marine Safety Council, April–June:50–53.

U.S. Coast Guard. Fatality Files, Marine Safety Office, Portland, Maine.

NIOSH has published many research documents about hazards in the commercial fishing industry. These can be found at www.cdc.gov/niosh/injury/traumafish.html.

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