

Derelict Crab Traps in the Gulf of Mexico

Since their introduction to the Gulf Coast in the 1950s, wire crab traps have dramatically increased the fishing efficiency of the Gulf of Mexico blue crab industry. The traps sit on the sea floor, where crabs spend the majority of their time. Funnel-shaped entrances on the sides of the trap are just wide enough for a crab to crawl into, but not wide enough to let the crab escape once inside. A rope connects the trap to a float on the water's surface, marking the trap's position. Commercial crabbers often deploy traps in lines in shallow areas and use a hook to pull the traps up by the float. Recreational crabbers may toss traps off the dock in their backyard or let one sit in the water while they enjoy a day at the beach.

Crab traps are lost to sea for a number of reasons. Boats run over rope, detaching the float from traps; high tides and storm events wash traps away; ropes may be intentionally cut by vandals or negligent owners; traps come loose from docks; or owners simply forget about them. These traps that have been abandoned or lost are termed *derelict*. In Mississippi, the legal definition of a derelict trap is one that is missing either a float or a tag. They are often heavily fouled, which means they are covered in marine wildlife like barnacles and algae. They are also often beat-up, bent, and/or broken. The number of derelict traps in the Gulf of Mexico is currently unknown, and estimates of trap loss are variable among the Gulf States. The most recent estimate for traps lost by Mississippi blue crab fishers is 20–30 percent (Guillory et al., 2001).

Derelict traps pose a number of economic, navigational, and environmental hazards. They catch marine wildlife unchecked, a phenomenon known as *ghost fishing*. Crabs, fish, and turtles that get caught in the trap die, providing bait for the next round of creatures. Studies in the eastern U.S. estimate as many as 20 blue crabs are killed per derelict trap per year (Arthur et al., 2014). Little data is available on the impact of ghost fishing by derelict traps in the Gulf of Mexico, although



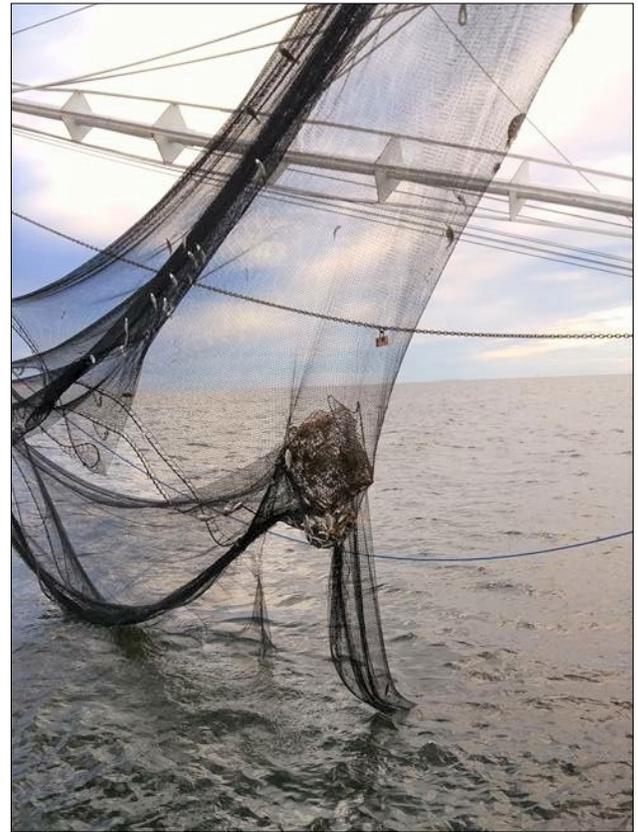
A standard wire crab trap used to fish for blue crab. The orange wire pocket holds bait (menhaden or catfish are common choices) and sits on the sea floor. The green wire entrances lure in unsuspecting crabs. To empty the trap, the user unhooks the top from the side and shakes the contents out. Photo credit: Sarah Cunningham, Coastal Research & Extension Center.

a study of derelict traps in Louisiana indicated that 67 percent of these traps were actively ghost fishing (Anderson & Alford, 2014). Many of the species found in the derelict traps were species of commercial (e.g., blue crab), recreational (e.g., sheepshead), or conservation (e.g., diamondback terrapin) concern.

As a navigational hazard, derelict traps can hinder waterfowl hunters, recreational anglers, pleasure boat operators, and others on the water (Guillory et al., 2001). Derelict traps often get caught in shrimp trawl gear, resulting in torn nets, reduced catch, and less time spent shrimping. Nets may even have to be replaced completely while at sea, meaning shrimpers have to maintain multiple sets of nets. With a starting price of \$5,000 each, keeping spare nets on board is an expensive precaution. Ultimately, encountering derelict traps means less profit for shrimpers, higher seafood prices, and tension between members of the crabbing and shrimping communities.



The original red and yellow color of this derelict trap can barely be seen under the excessive fouling. Photo credit: Sarah Cunningham, Coastal Research & Extension Center.



A derelict trap stuck in a shrimper's net. Photo credit: Ryan Bradley, Mississippi Commercial Fisheries United.

Getting derelict traps out of the environment isn't easy. Traps are bulky and awkward to transport, prompting some to simply leave them in the water. Due to concerns about trap theft, regulations in most areas prohibit the possession of anyone else's traps, even if the trap is derelict. This regulation places the burden of removal on regulatory agencies. In some states, due to how frequently derelict traps are encountered in their fishing gear, shrimpers are exempt from trap possession regulations. In Mississippi, for example, shrimpers who remove traps that are missing a tag or float won't be fined. However, some shrimpers may be inclined to throw derelict traps back into the water if there is no room for it on the boat or if the trap is particularly foul-smelling.



Although it has a tag (orange), this trap would be considered derelict in Mississippi because it is missing a float. While in commission, the rebar around the bottom of the trap would help hold it on the sea floor. Photo credit: Sarah Cunningham, Coastal Research & Extension Center.

People are working to combat the problem of derelict traps in a number of ways. A popular method with state agencies is to host volunteer derelict trap-removal programs. The agencies close the crab fishery for a short period, often 1–2 weeks, during which time crabbers must remove their traps from the water. Traps that are not removed are considered derelict and can be removed by volunteers. The Mississippi Department of Marine Resources hosts a Derelict Crab Trap Removal Program every 1–3 years, and collected traps are donated to a local scrap yard. As useful and effective as these programs are—the Mississippi Derelict Crab Trap Removal Program has removed more than 21,000 derelict traps since 1999—they can only go so far. Areas targeted by removal programs are often inshore, which does not help with derelict traps that have washed farther out. These “offshore” traps are the ones that shrimpers frequently encounter.

Fishing for Energy, a partnership between the NOAA Marine Debris Program, the National Fish and Wildlife Foundation, Covanta, and Schnitzer Steel Industries, provides a no-cost way for commercial fishers to dispose of old fishing gear. Collection bins are placed at busy ports (55 to date), and traps are transported to Schnitzer Steel facilities, where the metal is pulled for recycling.

Non-metal trap components, such as hooks and rope, are converted into energy at a Covanta Energy-from-Waste facility, along with other nonmetal fishing gear (National Fish and Wildlife Foundation, 2019).

The Mississippi State University Extension Service, Mississippi-Alabama Sea Grant Consortium, Mississippi Commercial Fisheries United (MSCFU), Mississippi Coalition for Vietnamese-American Fisher Folks & Families (MSCVAFF), and NOAA Marine Debris Program have devised a year-round derelict trap clean-up program targeting shrimpers in the Mississippi Sound. Shrimpers can dispose of derelict traps that they encounter at designated disposal locations along the Mississippi Gulf Coast in exchange for a monetary reward. This program also provides researchers with information on the locations of derelict traps throughout the Mississippi Sound, as well as the economic impact that derelict traps (and other marine debris) have on the shrimping industry. Hopefully, this program will encourage better stewardship of the Gulf of Mexico and inform similar programs elsewhere.

For more information on the Derelict Trap Reward Program, visit <http://coastal.msstate.edu/crab-traps> or email Eric Sparks at eric.sparks@msstate.edu.



The derelict trap disposal site in the Ocean Springs Small Craft Harbor full of traps. Photo credit: Sarah Cunningham, Coastal Research & Extension Center.



Members of the project team empty a disposal site and sort through the traps according to who turned them in. Photo credit: Sarah Cunningham, Coastal Research & Extension Center.

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