

Rope-less Fishing in Practice

Today – Ropeless Workshop Feb 1 2018 – Woods Hole Oceanographic Institution



Michael Moore
mmoore@whoi.edu



Background

To haul without endlines is a fundamental change in how most traps are fished. It would be a major imposition on a centuries old industry that is profitable and the tap root of many coastal communities.

However, if there is a way forward that avoids extinction of large whale species, then we should consider that option carefully to sustain both the fishery and the whales.



Questions



- Where are traps fished without endlines in the US today?
 - Golden crab
 - American lobster
- Drawbacks?
- Benefits?
- Enhancements to make more broadly practical?

Boston Harbor – grapple for ~25 trap trawls

- Legal inside harbor to avoid ship and tug/barge damage to gear
- Less than 50' – deeper would make cross over retrieval hard
- Buoyed endline would be quicker but grappling take maybe 5-6 minutes to retrieve end of trawl
- Others need to know where trawl is to avoid layovers

MAINE DEPARTMENT OF MARINE RESOURCES...

Suspended Friendship lobsterman runs afoul of law again

By

Holly S. Edwards

Posted: Thursday, April 30, 2015 - 4:15pm

Grapple for trawls of traps - 'fishing sunken trawls (strings of lobster traps without a buoy to mark their location) .. Marine Patrol Officers on three Marine Patrol vessels were able to locate and retrieve over 150 traps on sunken trawls that were not marked with a buoy.....suspended all of xx's licenses, including his lobster license, as well as his right to obtain any licenses issued by the department, for two years....' <http://www.penbaypilot.com/article/suspended-friendship-lobsterman-runs-afoul-law-again/52122>





“You need the chain in front of the grapple to be short enough to get the grapple high enough to the rail to reach before the chain ends up in the hauler. Also keep the chain between the 2 sections down to three links the end 2 will be welded to your round stock so it won't foul itself”

<http://newenglandboating.com/wp-content/uploads/2012/03/GhostTraps2.jpg>

“The best hook I've ever seen was made from a heavy piece of ships anchor chain and the actual hooks were made from half inch chain cut in half and welded to the top 4 links of the heavier chain. This grapple could snake through the nastiest bottom and never missed.”

<https://downeastboatforum.com/threads/wtb-lobster-trap-grapple.11458/>

Grapples are well embedded in the culture

Golden Crab – East of Florida Gulf Stream

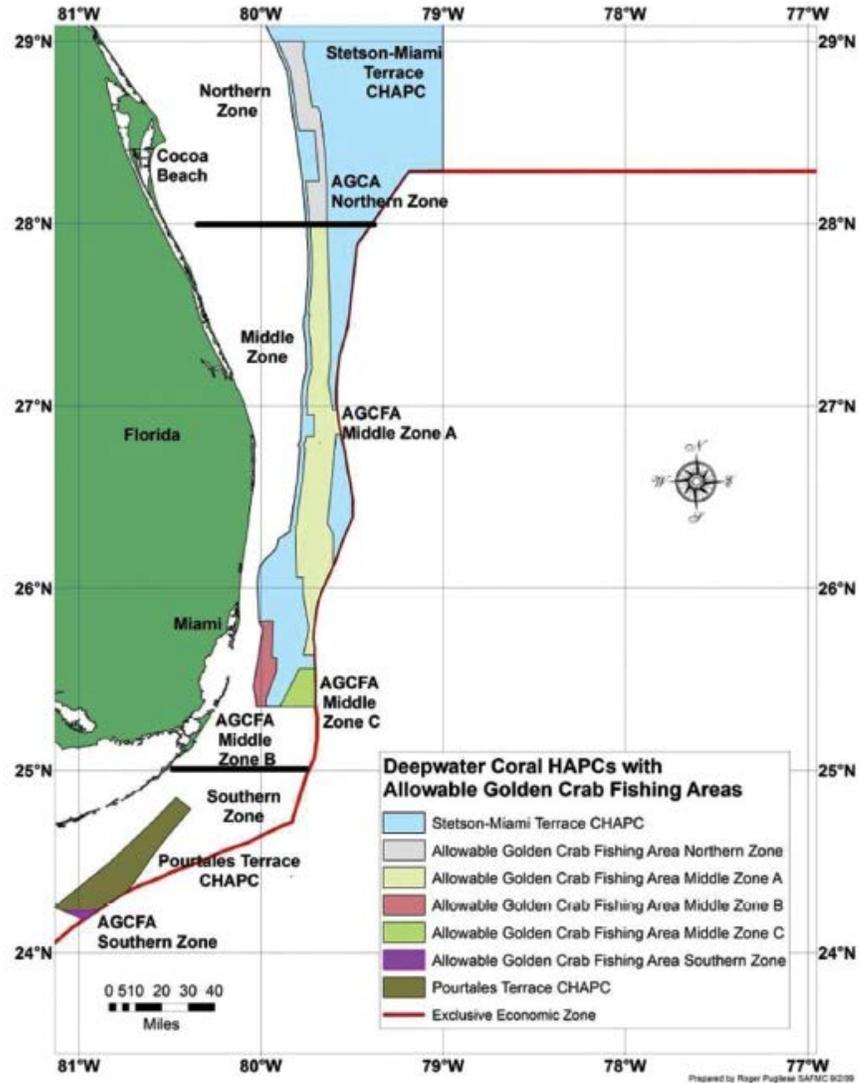


Figure 2: Bill Whipple crabbing in the Gulf of Mexico, 1983.

Source: Brad Whipple.

<https://www.thecommonsjournal.org/article/view/385/334/>

GOLDEN CRAB

- Gulf Stream would drag traps with endlines so retrieved with grapple
- 35 - 50 traps on a trawl in 1000 to 2000’.
- Harvest rights to harvest crabs zoned based on the crabbers’ home ports.
- Zones sized to allow clear lines of communication between active crabbers to avoid layovers.
- Crabbers stated that “there are no gear conflicts and no user conflicts because permit holders fish by zone” (Almeida et al. 2012).



‘Renegotiating property rights in the Florida golden crab fishery’ Scott Crosson (NOAA), Tracy Yandle (Emory University), Brent Stoffle (NOAA) International Journal of the Commons Vol. 7, no 2 August 2013, pp. 521–548

small, functional fishery with no endlines

Evaluation of Fixed Gear Fishing with No Vertical Lines

July 2012 - Pemaquid Fishermen's Coop NOAA Grant # : NA09NMF4520285

https://www.greateratlantic.fisheries.noaa.gov/protected/grantsresearchprojects/fgp/reports/pemcograpfinalreport_july_.pdf

1. Average depth range – 15 to 40 fathom
2. Bottom type range mud to rocky boulder
3. Haul time average

Grapple method – 14.2 min

Standard gear using traditional pot hauler – 1 min

5. Number of times a lobster trawl was set over by another lobster trawl:

Experimental trawl – 32 set overs

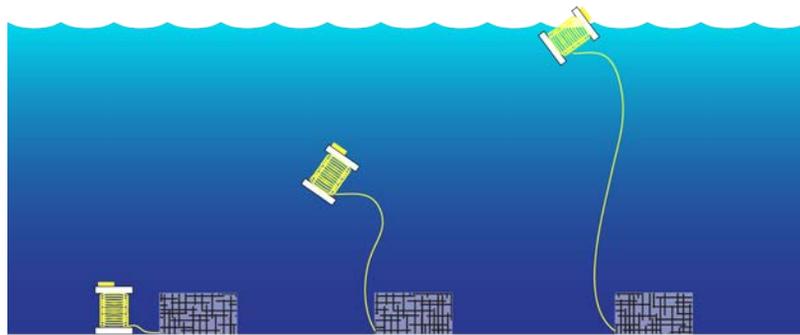
Standard trawl – 1 set over



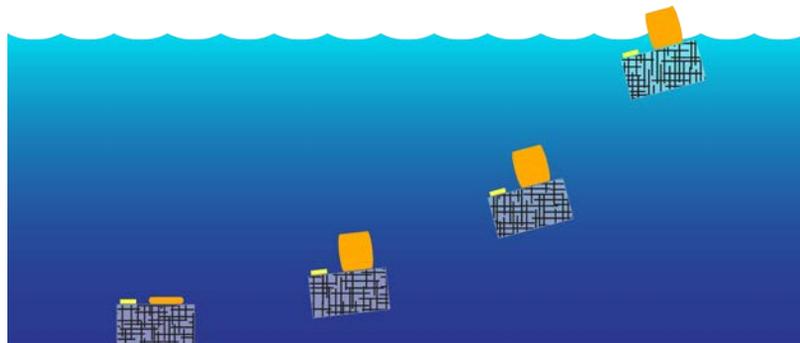
Slower and more set overs

New technologies

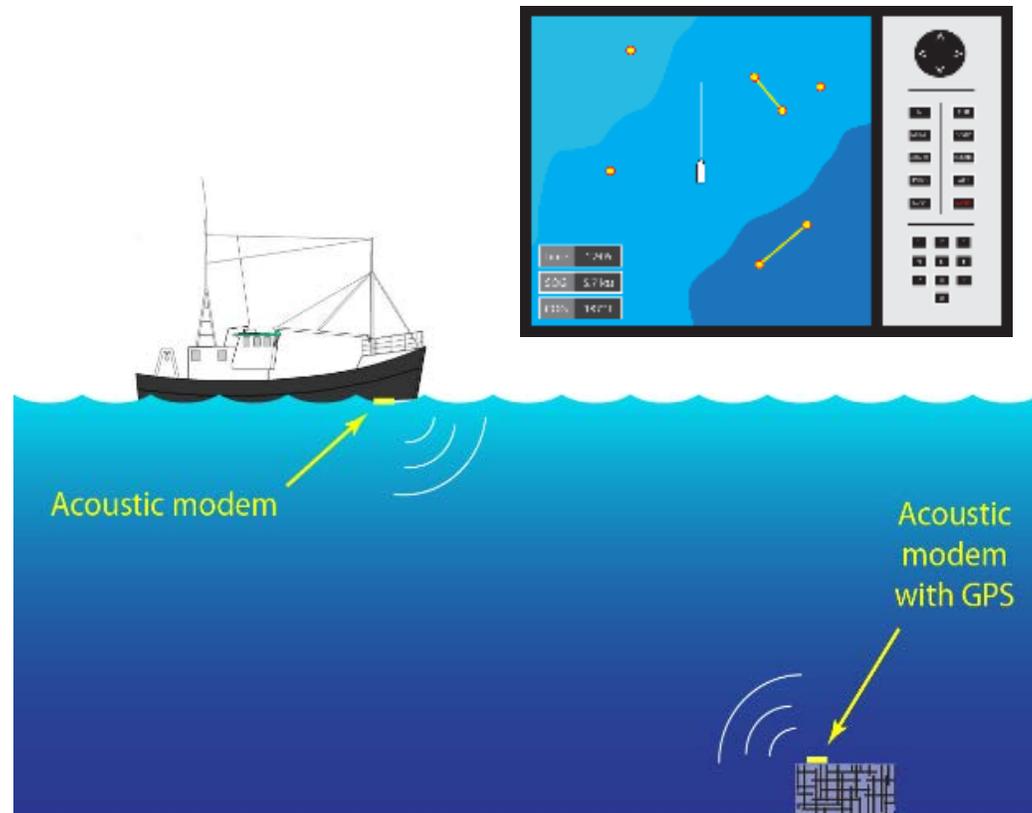
Spooled rope, bagged rope, lift bags, trap modems



Spool Trap



Trap



Trap

Interview with NOAA gear specialist

https://www.greateratlantic.fisheries.noaa.gov/protected/grantsresearchprojects/fgp/reports/pemcograpfinalreport_july

1. Weather, positioning to GPS rather than buoy and dealing with set overs added further time cost
1. Grapple at hauler *increased safety risk*
2. Legal issue of surface marker
3. Hard to grapple in strong currents, seas and winds
4. Gear conflict with those using surface floats

IF acoustic marker and release were routine, legal, functional and affordable, all of these issues could be resolved.



Questions and Answers

- Where are traps fished without endlines in the US today?
 - Golden crab
 - American lobster
- Drawbacks?
 - Time to haul
 - No buoys: layovers/ draggers/ law
 - Safety of hauling grapple
- Benefits?
 - Fish in adverse areas such as whale closures, fast current & high vessel traffic
- Enhancements to make more broadly practical?
 - Acoustic tags and buoyant releases would enable other trap fishermen to avoid layovers and draggers to avoid the gear



Conclusions about grappling for trawls of traps

- Gulf of Maine Lobster
 - Legally (Boston <50' depth) & illegally (Gulf of Maine deeper)
 - Tools and techniques would evolve and optimize if no endlines legally required and closure were the alternative
- Golden Crab (east of FL)
 - 1000-2000' water
 - Gulf Stream current averaging 3.5 knots
 - Zoning avoids gear conflicts
 - Lost trawl positions are communicated to trap owner
- Major reduction in rope costs for fishermen and entanglement risks for whales and turtles. Currently slower but it works where surface floats not an option (current or vessel trauma).
- Acoustic trap markers could substantially reduce gear conflict, enable retrieval of lost gear and enable enforcement if there were no surface floats
- Acoustic release of buoyant retrieval systems could be an alternate recovery method to a grapple