Assessing the Impacts of Experimental Derelict Fish Traps in the U.S. Virgin Islands

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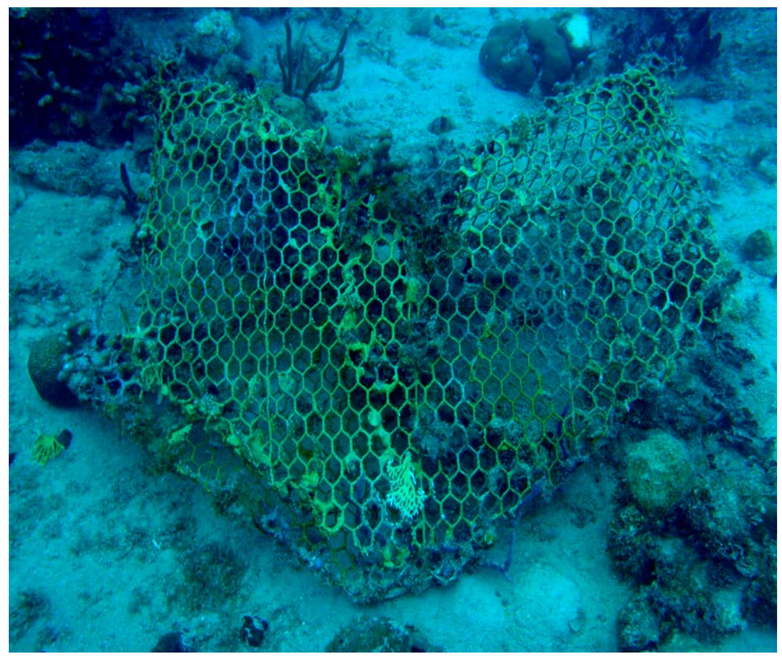
Project Background

Fish traps are commonly used throughout the Caribbean to catch reef fish species and lobster and are the primary gear of choice for fishermen in the U.S. Virgin Islands. Once they are lost or abandoned they are referred to as derelict fish traps (DFTs) and a widespread concern exists that they contribute to ghostfishing. Ghostfishing occurs when derelict fishing gear continues to catch fish and induce mortality. Despite the public concerns that DFTs are an environmental threat, few studies have quantified the level of ghostfishing in the Caribbean.

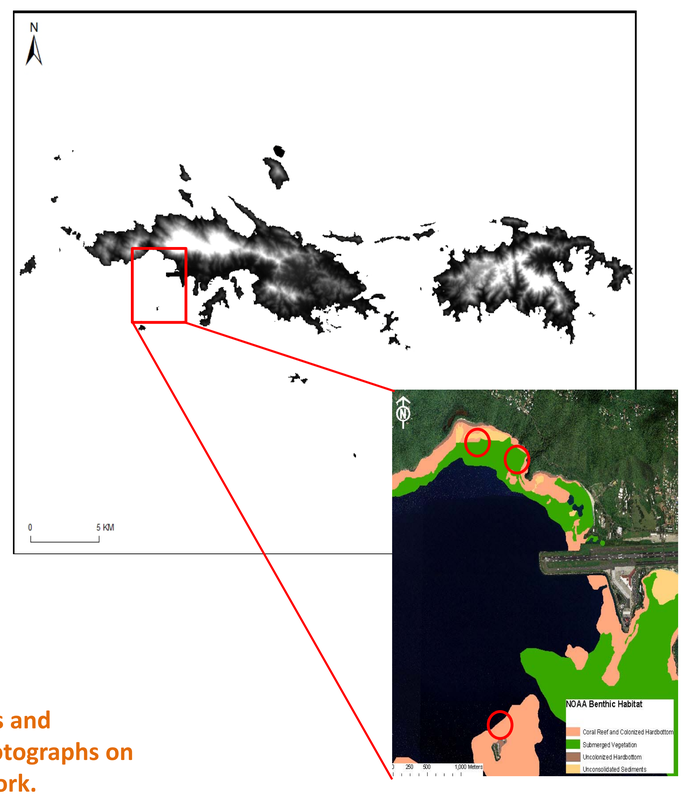
To address concerns from the fishing community and other marine stakeholders, this study provides the first experimental examination of ghostfishing impacts to fish and the potential economic impacts to fisheries in the U.S. Virgin Islands.



Derelict fish trap found in Brewers Bay, St. Thomas, U.S. Virgin Islands

Methods

- 12 unbaited traps were deployed at an inshore and offshore location
- 6 traps were actively fishing and 6 were left with the escape doors open
- Traps were monitored 3x per week during January-July 2010
- Visual observations included catch composition, size, behavior, physical condition and mortality
- Trap movement and biodegradable rot cord (untreated jute) deterioration were also monitored



The map on the top left indicates the study sites and habitats in which traps were deployed. The photographs on the right are examples of trap catch and field work.

Major Findings

- A total of 454 fish were caught with 95% of fish species escaping
- 20 fish (5%) experienced mortality
- Fish spent an average of 8.2 consecutive days in the traps
- Economic loss for the 6 month study period was ~ $160
- Average of 82.9 days for the biodegradable cord to rot and 106.5 days for the escape door to open
- Some trap movement did occur during the passage of Hurricane Earl (August 29, 2010), and 3 traps could not be recovered. No habitat damage due to trap movement was observed.

Figure 1

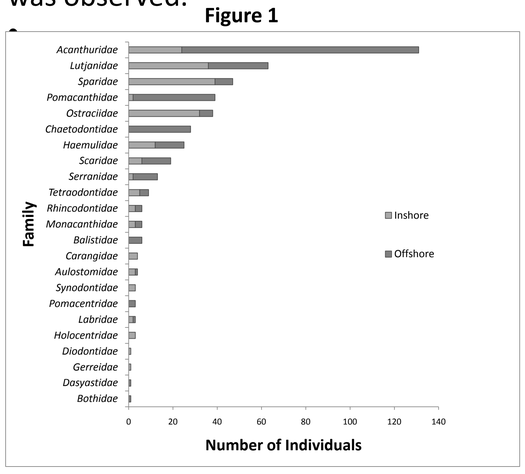
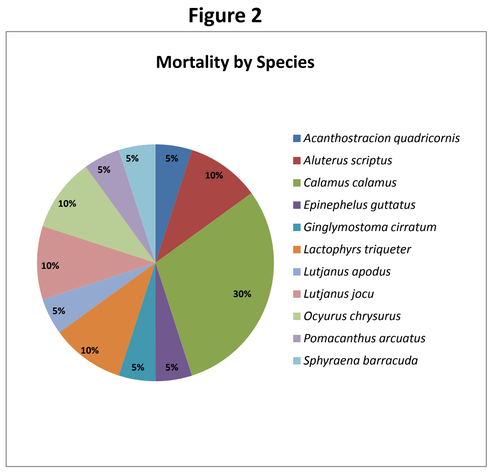


Figure 2



Figures 1 and 2 show the breakdown of the families caught inshore and offshore and the species that experienced mortality.

Conclusions

- The ability of derelict traps to permanently trap fish was relatively low with the majority of fish (95%) eventually able to leave the trap
- Nevertheless, 5% mortality indicates that mortality from ghostfishing does occur and sub-lethal physical damage to fish was observed for many fish that left the traps
- Ghostfishing is species-specific with several species being more vulnerable
- Traps with doors open rarely contained fish, although one individual (barracuda) died in an open trap
- The biodegradable rot cord does allow fish to escape after a period of time and is likely to break sooner after normal trap use
- Trap movement can occur, but it is likely to be minimal unless there is a hurricane or strong weather event.
- Despite the low level of ghostfishing, consideration should still be given to minimizing DFTs and design of more effective escape panels

Acknowledgements

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