

Can simple tackle modifications and use of fish descenders decrease harmful fishery interactions with bottlenose dolphins?

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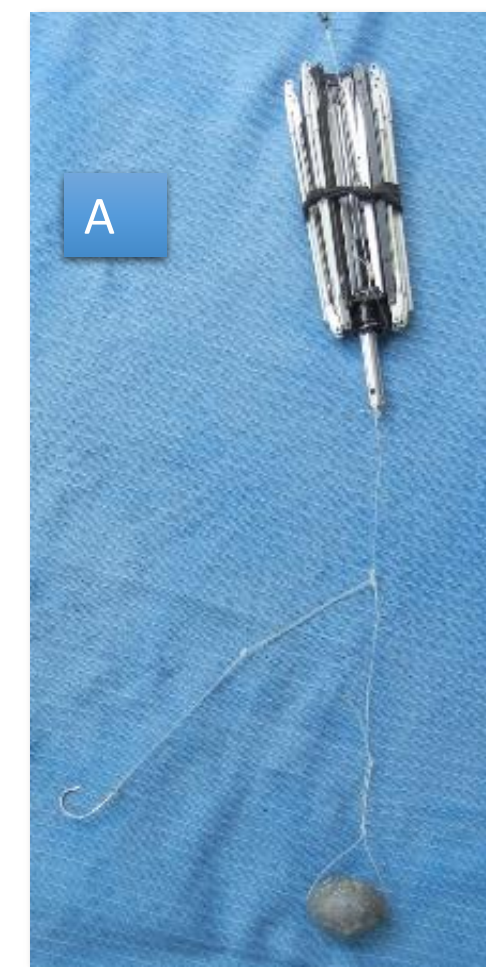
Bottlenose dolphins interact frequently with recreational fishing at offshore reefs in the northern Gulf of Mexico resulting in potential harm to the animals and to fish stocks. Anglers complain that dolphins frequently depredate fish off hooks being reeled up from depth and scavenge on discarded fish that suffer from barotrauma and disorientation. Modified terminal tackle intended for bottom fishing rigs has been suggested as a method to reduce depredation, and fish descender tools are being promoted as a means to successfully return embolized reef fish to depth. We are conducting a study to measure the effectiveness of using these techniques to reduce dolphin interactions with recreational fishing and will evaluate: 1) tackle modifications (wires, shrouds, etc.) to deter depredation; 2) effectiveness of commercially available descender devices to mitigate dolphin scavenging of released fish; 3) applicability of using such devices in inshore fishing to alleviate dolphin interactions; and 4) acceptability of using these tools by sport anglers. The results of this study will benefit outreach efforts to encourage use of mitigation techniques that reduce dolphin interactions and enhance conservation of both dolphins and reef fish stocks.

Mitigation Devices

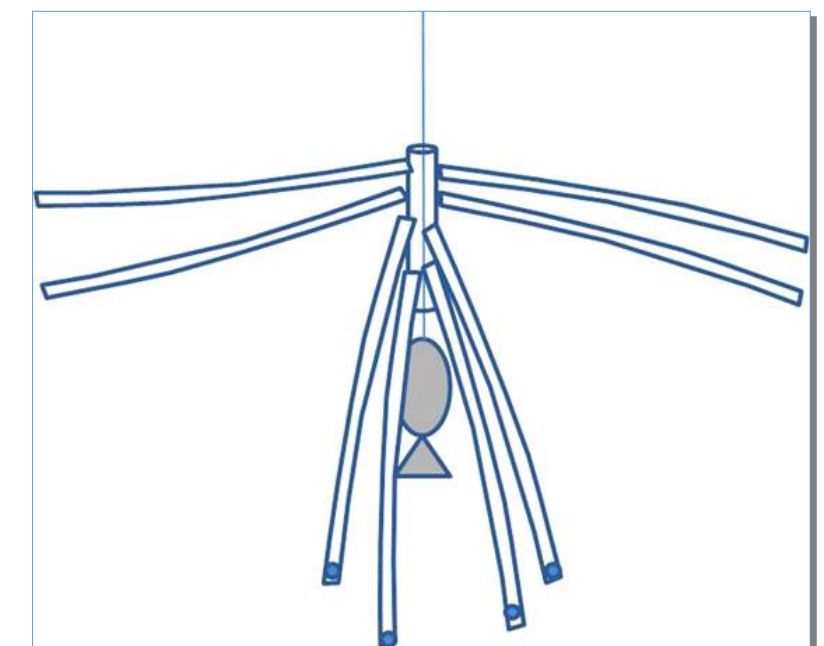
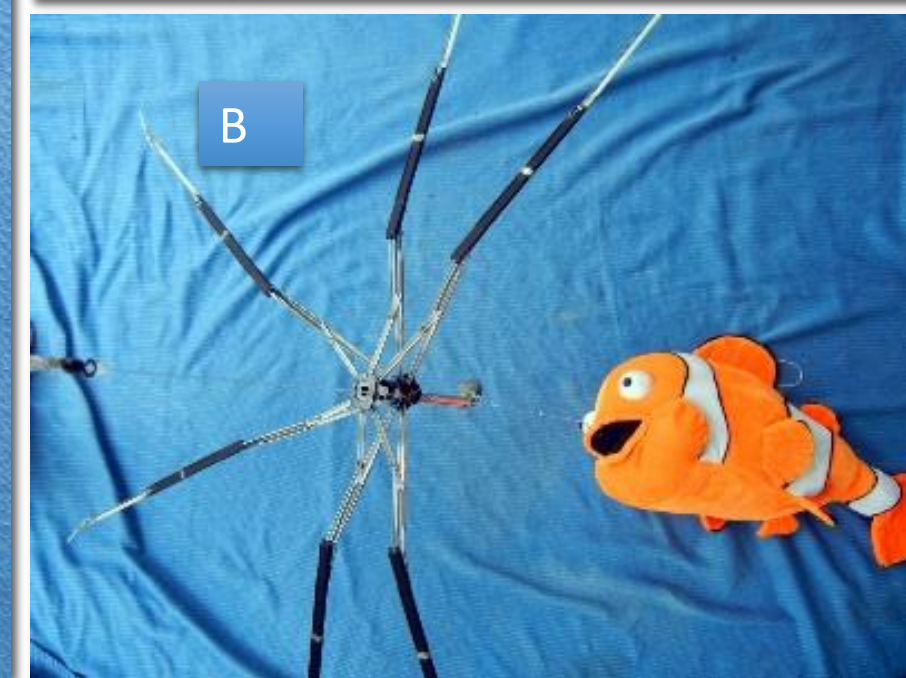
Underwater video will be used to assess effectiveness of several modified tackle concepts that may discourage dolphin depredation. Some examples are shown here. Testing to occur in 2015 onboard “deep-sea” sport fishing vessels in GoM involving angler participation. Later, testing will be done in inshore areas (e.g., Sarasota Bay).



Tickle wires unfold from terminal tackle to surround a hooked fish. Shippee 2014.



SPIDER based on umbrella concept for recreational use. A = compact closed position; B = open position after fish bite. Shippee 2014



DEPREdation mitigation device. Upper streamers move around while lower ones cover the fish. Rabeariso et al. 2015



Fish Descender Testing

Camera and depth gauge connected to SeaQualizer fish descender for video records of fish release. Wide view allows determining if fish avoided capture by dolphins; fish behavior can be assessed during descent and after release. Submerged cameras under boat record surface fish release for the control sample data, ideally when dolphins are present at fishing site.



Red snapper with barotrauma after being reeled up from depth. Dolphins easily scavenge such fish when discarded at surface.

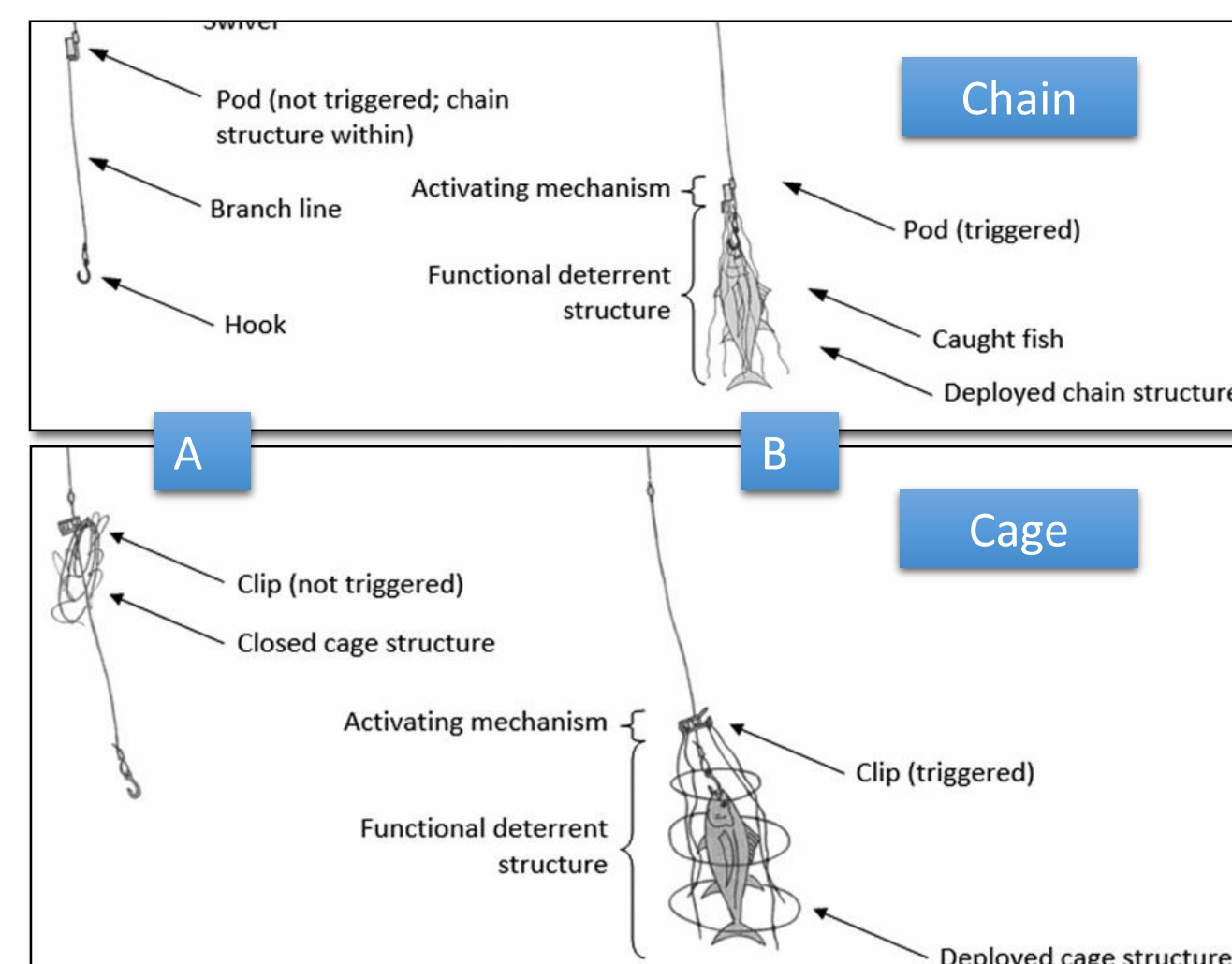
Fish typically regain vigor at 35'



Snapper swims away after release at 50'



Example video stills of fish on descent, and after release from device.



Chain and Cage devices designed to deter depredating odontocetes and mitigate bycatch. A = not triggered; B = triggered). Hammer et al. 2015

References:

- Shippee. Movements, fishery interactions, and unusual mortalities of bottlenose dolphins. Dissertation, UCF, May 2014.
- Rabeariso et al. Assessing interactions between dolphins and SPF to design a DMD. J. Mar. Sci. Jan 2015
- Hammer et al. Mitigating odontocete bycatch and depredation at the hook in tropical pelagic longline fisheries. J. Mar. Sci. Mar 2015

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