

Introduction

The Atlantic Bluefin tuna (ABFT) is the largest of all tuna, and apart from its extreme economic importance, which drives its exploitation throughout its distribution (Atlantic and Mediterranean Sea), it is prized by anglers in recreational fisheries for its fighting ability. [1,2]

In Gibraltar, there is a seasonal recreational tuna fishery operating from June to October, which targets ABFT whilst on their annual migration into and out of the Mediterranean Sea. [3] Recreational fishing is considered an important use of fisheries resources both from a social and economic perspective. [4,5] Nevertheless, recreational fishing results in a prevailing use of certain fish stocks. [6] As a mitigation to commercial pressures, catch-and-release angling is becoming increasingly common as a conservation strategy in many recreational fisheries. [4,5]

Methods

- The Department of Environment, Sustainability, Climate Change and Heritage provided the recreational tuna fishery catch data (Weight, kg; Fork length, cm; fishing method used) for the years 2017-2019. [7]
- Statistical analysis: Kruskal-Wallis H test and post-hoc pairwise comparisons were used to determine whether there were significant differences in catch size depending on the fishing method employed (see: 'fishing methods'). [7]
- In addition, a survey was distributed to licensed tuna anglers in Gibraltar to investigate local perceptions and support towards catch-and-release and tagging programmes used for monitoring and to inform conservation strategies. All data was anonymised and confidential. [7]

Catch data results

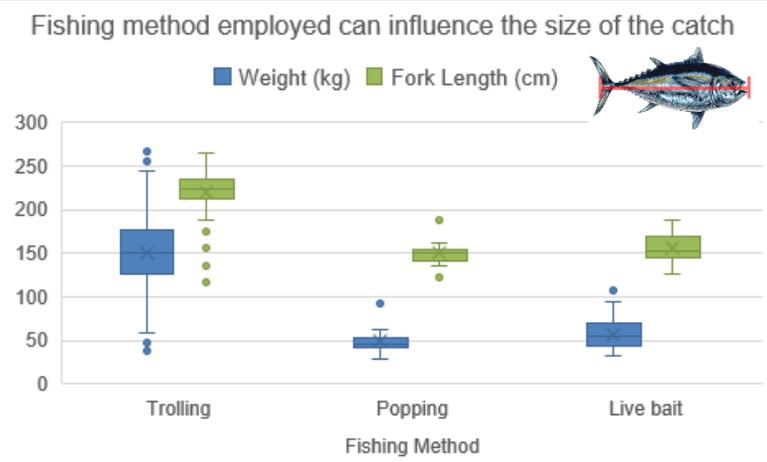


Fig. 1: Boxplots illustrating the fork length (cm) and weight (kg) of the tuna catches with different fishing methods employed. [7]

Recreational fishing of Atlantic Bluefin Tuna (*Thunnus thynnus*) in the Straits of Gibraltar: investigating support for catch-and-release via stakeholder engagement



Fig. 2: Atlantic Bluefin Tuna actively feeding in the Straits of Gibraltar (Photo by: Danny Gabay)

Differences in fishing methods

- **Trolling** – a fishing method in which one or more fishing lines, baited with lures, are drawn through the water behind a moving boat, at a constant speed. [7]
- **Popping** – involves using a fixed spool reel, and a rod baited with a popper lure, which is designed to imitate a fleeing bait fish. The lure is drawn through the water whilst retrieving the fishing line with both hand and rod actions. [7]
- **Live Bait** – live hooked bait fish (e.g. mackerel or sardine) whilst fishing on the drift. The live bait fish is lowered to the preferred depth and maintained there by using a float. [7]

Francine R. Pons¹, Darren A. Fa¹, Stephen Warr², Clive Crisp² and Awantha Dissanayake¹

¹School of Marine Science, University of Gibraltar.

²Department of Environment, Sustainability, Climate Change and Heritage, Gibraltar



Survey results

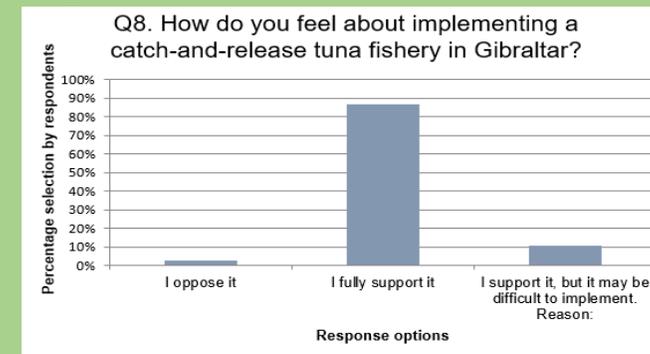


Fig. 3: Participant perceptions towards implementing a catch-and-release tuna fishery in Gibraltar (n = 93). [7]

Discussion

- Fishing method employed (Trolling, Popping, Live bait) was found to have an affect on the size of the tuna caught, potentially due to differences in feeding strategies. The data showed that Popping and Live Bait targeted the smallest tuna (median = 46 kg) whilst trolling targeted the larger individuals (median = 151 kg). [1] It is important to note that ABFT of different sizes migrate at different times, with larger specimens beginning the migration first, followed by the smaller individuals, arguably due to both bioenergetics and experience. [8]
- Survey results show that the majority of tuna anglers who participated in the survey agreed with the implementation of a catch-and-release fishery and the use of tags for conservation purposes in Gibraltar (fig. 3), thereby providing support to wider conservation programmes (e.g. ICCAT). [7]
- ABFT are overfished so if management practices based on fishing method are implemented and recreational fishing of the species could be reduced to catch-and-release, it would alleviate pressure on the stocks. [3,4,7]

References

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