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BEST PRATICES

FOR TRAWL FISHERS

ACTION C2

15 JULY 2024

Collective actions for improving the conservation status of the EU sea turtle populations: bordering areas (LIFE18NAT/IT/000103). Project is carried out with the assistance of LIFE financial instrument of the European Union / **info@medturtles.eu**

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BACKGROUND

One of the greatest threats to marine megafauna (e.g., cetaceans, elasmobranchs, sea turtles, seabirds) worldwide is incidental captures in fishing gears (Lewison et al. 2014). Several mitigation measures have been explored over the years, such as implementing gear modifications, creating no-take zones, and regulating fishing practices (Squires et al. 2021). Additionally, efforts to raise awareness among fishers and involve them in conservation initiatives has also shown promise in reducing bycatch (Hall et al. 2017; Jenkins et al. 2023).

The Mediterranean Sea is one of the areas with very high interaction of sea turtles with fisheries (Wallace et al. 2011). Latest estimates report that approximately 44,000 turtles are incidentally captured annually by various fishing gears (Casale et al. 2018). Loggerhead sea turtles (*Caretta caretta*) are the most abundant species in the Mediterranean region (Casale et al. 2018). Their conservation status is currently considered as conservation-dependent, meaning sustained and ongoing conservation efforts are crucial to preserve the species' population and preventing its decline (Casale and Tucker 2015).

A significant portion of turtle bycatch occurs in bottom trawl fisheries, where mortality is caused by drowning and decompression sickness following gas embolism (García-Párraga et al. 2014; Parga et al. 2020). These conditions frequently co-occur in varying degrees within a turtle, leading to immediate or delayed mortality (Wilson et al. 2014). The effects of these conditions and frequency of delayed mortality are still not fully understood, as are the possible countermeasures to reduce or prevent them. For instance, current best practices, which state that turtles in a comatose state should be left onboard to recover (FAO 2009), were conceived to counter drowning, but could be counterproductive for decompression sickness.

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Bottom trawls are intensely used in the shallow waters of the Adriatic Sea (Lucchetti et al. 2017), which is one of the most important neritic foraging areas for Mediterranean loggerhead turtles (*Caretta caretta*) (Casale et al. 2018). The Adriatic Sea predominantly hosts turtles from Greek rookeries, and to a lesser extent from Cyprus, Libya and Turkey (Splendiani et al. 2017; Tolve et al. 2018; Bertuccio et al. 2019), which are the most important for the Mediterranean population. Therefore, finding and implementing effective conservation measures to reduce bycatch impact is critical for the survival and health of this population.

In contrast to the northern Adriatic, the Gulf of Manfredonia (GoM), in the southern Adriatic, is less studied although evidence indicates high bycatch rates and mortality in this area as well (Casale et al. 2015; Baldi et al. 2022). A recent study reported on a significant problem of gas embolism in turtle caught by bottom trawlers in this area (Franchini et al. 2021).

The current best practice, promoted to fishers, of keeping the turtle on the boat for a while until it recovers aims to reduce mortality caused by drowning, However, it might increase mortality due to gas embolism, if it could be reduced by returning soon to depths where high pressure can mitigate it.

This possibility was extremely concerning and needed to be investigated in order to understand if the best practices currently promoted need to be adjusted. To this aim, a dedicated module of the Action C2 investigated this aspect (see the Report on the status of mortality due to gas embolism) to assess if the current best practices are detrimental regarding the decompression sickness.

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BEST PRACTICES
IN THE LIGHT OF PROJECT RESULTS

This document was intended to provide adjustments to the current Best Practices on the basis of the results about the effects of the current Best Practices on post-release mortality due to decompression sickness.

However, no such effects were observed and therefore no adjustments to the current best practices are considered necessary on the basis of the results of this project. Turtle incidentally captured by trawlers can be kept onboard for some time before being released (FAO 2009) or can be even landed and brought to a rescue center, as per the current practice in some of the project areas where the capacity of recue centers is adequate.

As a consequence, in contrast to what originally planned, the present document does not provide any specific different best practice.

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