SATELLITE TRACKING OF HAWKSBILL TURTLES BETWEEN NESTING SEASONS: A CASE STUDY OF HIGH FIDELITY

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Introduction

The Rio Grande do Norte state, Brazil, hosts the highest nesting density of hawksbill turtles in the South Atlantic (Santos et al., 2013) where Projeto TAMAR record near 1000 nests each nesting season along 42 km of beaches. Sattelite tracking of nesting females started in 2014 in order to identify their forage grounds.

Material and methods

Out of 24 nesting hawksbill turtles that were satellite tracked in the seasons 2014/2015 (12 PTTs) and 2015/2016 (12 PTTs), nine weresubsequentlyrecaptured: 2 in 2016/2017 and 7 in 2017/2018, with remigration intervals between 1.8 and 3 years. All PTTs recovered lost the antenna and were quite worn, some exposing the batteries. (Fig. 1)

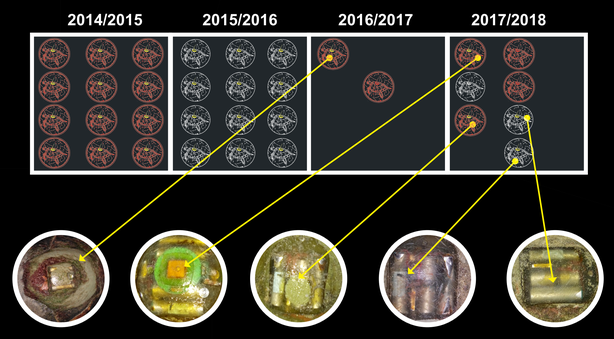

Figure 1 - Deployment of PTTs per season as well as its recover in subsequent seasons.

- Eight of the nine turtles recaptured had new PTTs installed.
- Instalation protocol, analysis of Argos locations and Minimum Convex Polygon–MCP followed Marcovaldi et al. 2012

Results

The MCP internesting area between nesting seasons showed a complete overlap for five females (62%) and partially for two (25%), where they spend up to 67 days (Fig 2).

Seven females returned to the previous recorded forage site (Fig. 2). Postnesting migrations ranged from 9 to 1285 km, lasting from 0 to 37 days. The daily displacement rate varied from 29 to 53 km (average 41 km), with speeds of 0.1 to 3.1 km/h (average 1.5 km/h ; Fig. 3 and 4). One female was considered resident (Fig. 3; Capella), as the forage ground was 9 km from the internesting area that was reached in less of 24 hours. Despite the foraging ground being the same for all individuals, the track of migration in km varied between seasons, with differences from 2 to 54 km (average 25.1 km) but the daily travel rates did not show variations between migrations (Fig. 3 and 4).

Figure 2 – Internesting area represented in green for the first season and orange for the second season.

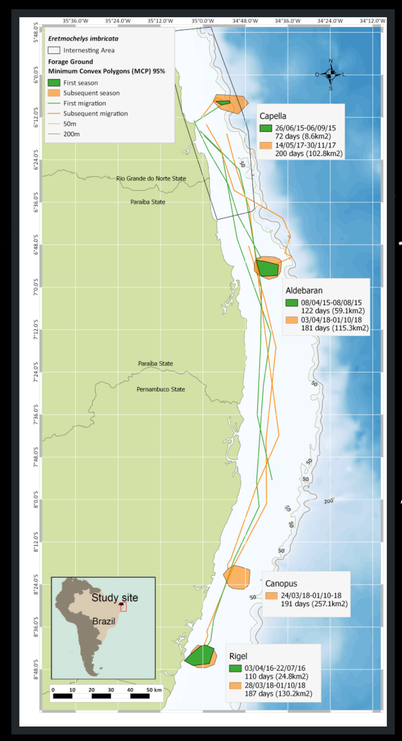

Figure 3 – Forage ground MCPs and post-nesting migration represented in green for the first season and orange for the second season.

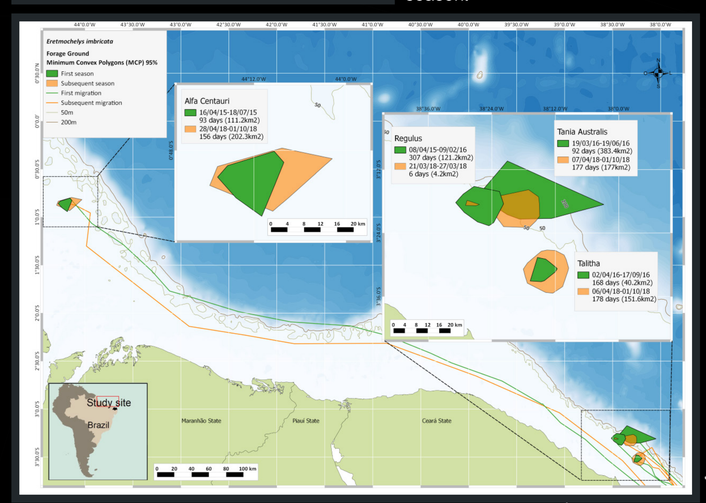

Figure 4 – Forage ground MCPs and post-nesting migration represented in green for the first season and orange for the second season.

Discussion

This report shows high fidelity of hawksbill turtles to the internesting and foraging areas, as well as in the migration paths in two consecutive nesting seasons. Identifying reproductive behavior, foraging areas and understanding migratory routes and connectivity between foraging and breeding grounds is essential for the design of effective conservation plans for marine turtles.

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References

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