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Understanding the movements of green turtles from the Bijagós Archipelago, Guinea-Bissau

Along with other iconic fauna, such as manatees, hippopotamus, parrots, and several species of migratory sea birds and waders, the green sea turtle thrives in the enchanting Bijagós Archipelago. At the southernmost end of the Bijagós, the tiny island of Poilão (10°52'N, 15°43'W), with a beach extending for only 2 km, hosts one of the most abundant green turtle rookeries in the world, third largest in the Atlantic, and the most important in Africa, with an average of 27,000 nest per year (2013 – 2017).



Poilão Island, Bijagós, home of the largest African green turtle nesting population. Credits: MVarela

Poilão is located inside the National Marine Park of João Vieira and Poilão, created in 2000 by the Decree-Law No. 6 A/2000 by the State of Guinea-Bissau and under the management of the [Institute of Biodiversity and Protected Areas](#) (IBAP), but it has been protected for many years before that, as it is considered a sacred island among the Bijagós people and, traditionally, access was limited to rare social ceremonies. This has potentially contributed to the conservation of the green turtle nesting population there, as in some less protected islands harvesting of turtles for consumption has led to the reduction of nesting activities.

Within the project funded by the MAVA Foundation; ‘Consolidation of Sea Turtle Conservation in Guinea-Bissau’, the ISPA – Instituto Universitário, the University of Exeter, and the Faculty of Sciences of the University of Lisbon have partnered up with the IBAP to study the movements of green turtles within the breeding area, during their inter-nesting intervals (i.e. between clutches, as turtles nest three to six times during each nesting season), and along their post-nesting migration, to understand their connectivity with distant foraging grounds.

During the nesting season of 2018, 20 satellite tracking devices were successfully deployed on female green turtles found nesting in Poilão between August and November. Turtles were

also tagged with unique flipper tags and Passive Integrated Transponders (PIT) tags. Thanks to the satellite technology we are watching closely the daily movements of these green turtles and have already some very interesting findings.

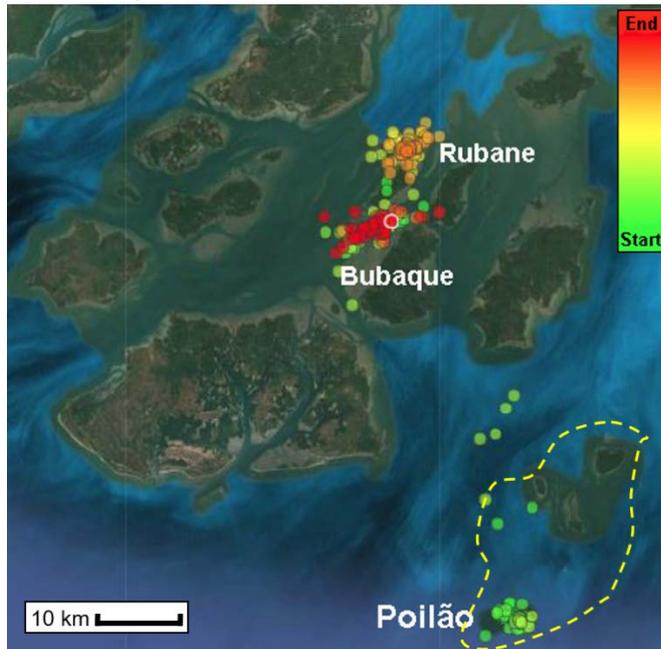


Green turtle with satellite tag heading back to sea after nesting at Poilão Island. Credits: M.Varela

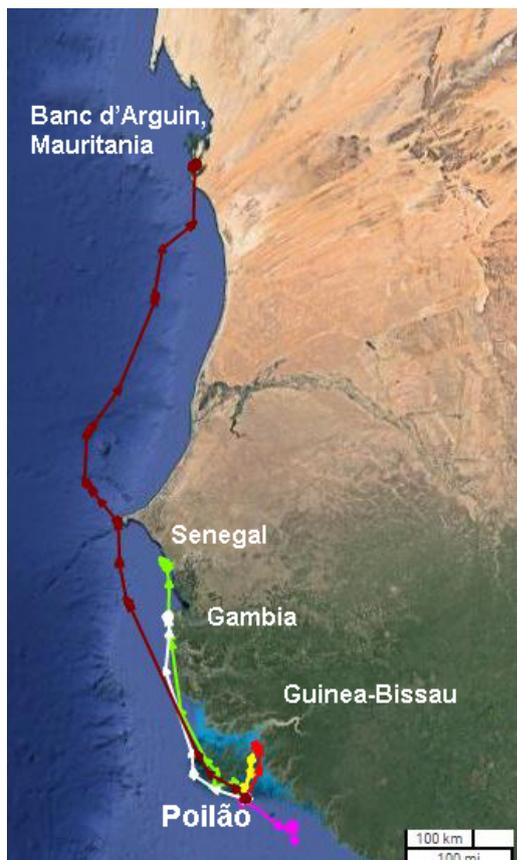
We have learned, also thanks to tag-returns from previous years, that some nesting females dwell between Poilão and the islands of Meio and Cavalos, as well as within the National Marine Park of João Vieira and Poilão. Others venture outside the limits of the marine protected area (MPA) in between clutches, which was unexpected, as marine turtles usually rest near the nesting beach while preparing for the next clutch. Lastly, once they laid all clutches for the season, the green turtles initiate their migration to distant feeding grounds and, for the first time, we have evidence of variable foraging strategies for the nesting population of Poilão, with some turtles foraging in the coastal waters of Gambia, Senegal and Mauritania, others near Bolama Island, and yet others south of Poilão. And, perhaps the most unexpected, some green turtles seem to be resident in the Archipelago, not migrating at all. Previous research on satellite tracking in 2001 had shown the importance of the Banc d'Arguin, Mauritania, as a foraging ground for this population, and suggested variable migratory routes, however both the sample size and the tracking durations were limited, thus results were inconclusive.

The movements recorded during the inter-nesting intervals will be essential to renegotiate and re-design the limits of the MPA. Knowledge of the post-nesting migratory routes and connectivity between breeding and foraging areas will also be key to understand the threats to this population outside the MPA, to identify conflict areas with fisheries, and to establish collaborations with other sea turtle conservation projects within the region. Along with other research being conducted on the connectivity between nesting beaches and juvenile developmental areas, as well as on the factors that influence the reproductive success and its management (e.g. erosion, flooding, and predation), these findings will contribute to a better

understanding of the conservation status and main threats of the green turtle in the Bijagós Archipelago.



Tracking of one nesting green turtle from Poilão that is a resident at the Bijagós Archipelago. Dashed yellow line depicts the National Marine Park of João Vieira and Poilão



Satellite tracking of six green turtles tagged at Poilão evidencing different foraging strategies: three turtles went north, settling in distinct foraging sites at Gambia, Senegal and Mauritania, two went towards mainland Guinea-Bissau, near Bolama Island, while another turtle went south.