Project Update: December 2018

In this project, we aimed to conduct in-water monitoring of sea turtles with community involvement in Paraiba, Brazil. We used tools of citizen science to identify high use areas for seas turtles. We also conducted training of local community members on conservation and research techniques between June and December 2018.

We supervised the data collection in the field during the fisheries, organized workshops on three target fishing communities: Ponta de Matos beach (Cabedelo) Penha beach (João Pessoa) e Jacumã beach (Conde) and monitored the coral reef health, in which the sea turtles were often sighted.

Sea turtle sightings

We have recorded a total of 218 sightings (Figure 1), in which 50% were unidentified at species-level by the fishermen (Figure 2). Among the identified species, most of our records were *Chelonia mydas*, which can be explained by both the behavior of coastal habitat use and the easier morphological identification (shape and color of the carapace and head). *Eretmochelys imbricata* (N=11) and *Caretta* (N=7) were less recorded, although this identification was difficult to even for biologists, during sightings far 5 meters away from the boat. As the fishermen were responsible for all species identification, we applied a correspondence test based on photographs to verify the recognition accuracy, in which the rate of correct answers was 74%.

More than 50% of our records are from Cabedelo as a result of the highest effort from these fishermen. Considering the catch-per-unit-effort (number of records by days at sea), we had a median value of 5 turtles per fishing day for all communities.

All communities have a similar profile of fishery, using small motor boats or rafts, and spending daily hours at sea. Moreover, gillnets are the most common fishing gear used. Between the monitored areas, Conde region has the greatest potential of interaction between fishery and sea turtles: 336 km^2. On the other hand, João Pessoa had a smaller area of potential interaction, about 69 km^2.

Number of sightings
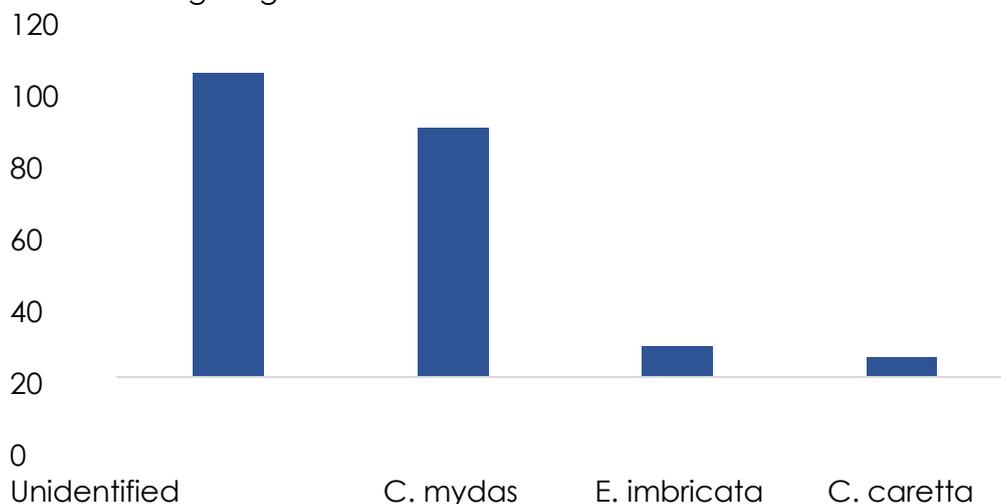
Figure 1. Sighting records of sea turtle species along Paraiba state coastline.
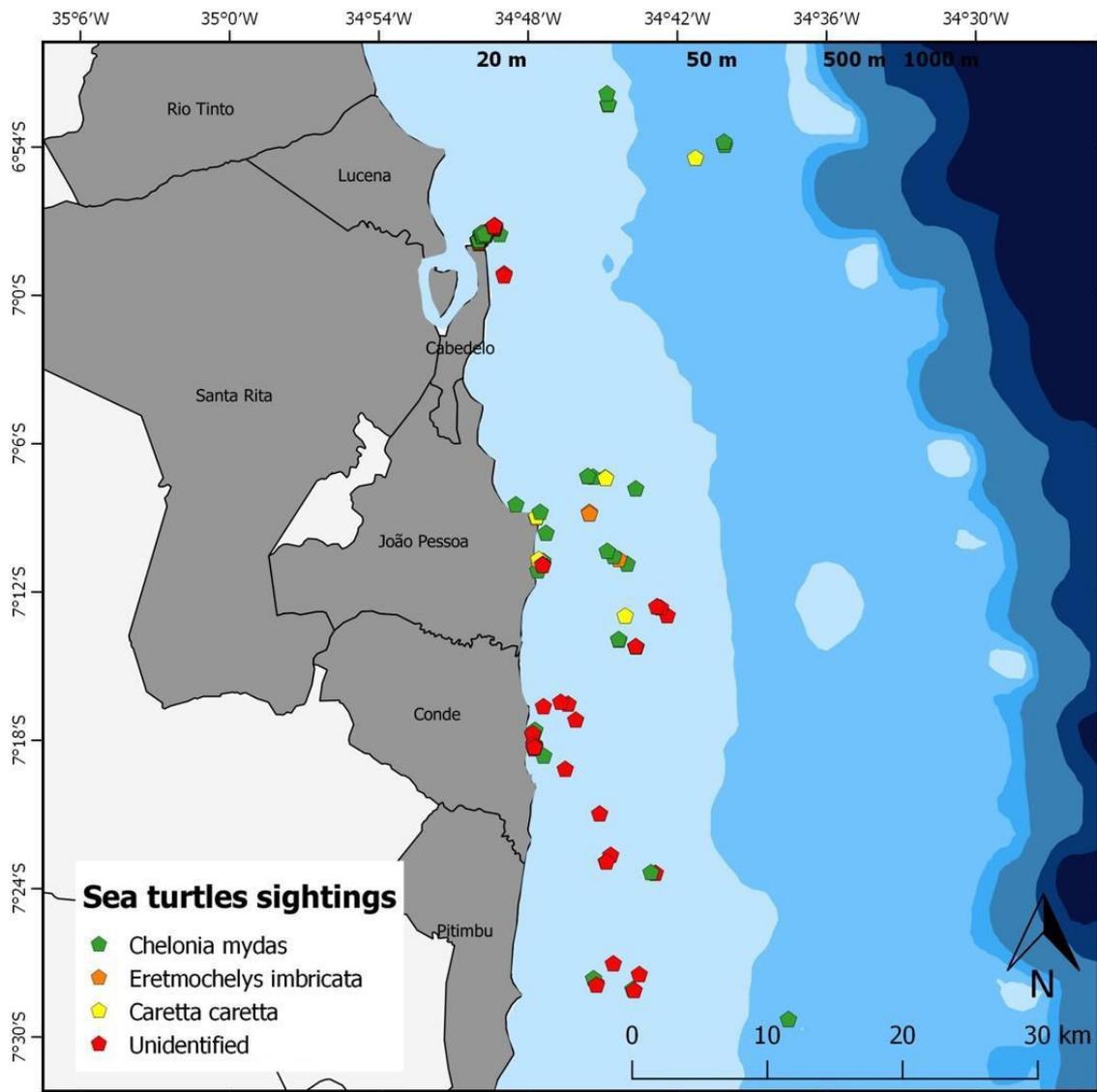

Figure 2. Distribution of sea turtles sightings along Paraiba state coastline.

Coral reef characterization

We defined 15 sites were turtles were often recorded (5 points per fishing community), in order to conduct a bentic monitoring (Figure 3). We identified that these foraging grounds are mostly composed by calcareous red and green algae (Figure 4). According to Máximo (2015) this low diversity is a result of overexploitation and impacts of tourism activities for over 20 years, in which replaced predominant population from *Gracilaria* sp to *Jania subulata* and *Sargassum* sp.

Figure 3. Video census with 4 GoPros attached to a ballasted box, allowing coverage of 360 degrees at each site.

Figure 4. Seagrass meadows on which turtles feed in Paraiba coast.

Strengthening partnership with the community
As all our data were voluntarily collected by fishermen during their activities, we organized 5 workshops in order to share the knowledge and bring more community members closer to our work: (1) Species identification, (2) Biology and conservation of sea turtles, (3) Community-based tourism and boating certification, (4) Coral reef survey method, and (5) Outcomes of the project.

Figure 5. In September 2018, the development of workshop #4 in João Pessoa.

The relationship of trust and confidence between the fishermen and our technical team also allowed reporting of accidental capture of sea turtles in fisheries.

Figure 6. Release of juvenile green turtle trapped in a fishing net at Cabedelo.

Communication

In November 2018, preliminary results were presented at 2nd Symposium on Research and Conservation of Sea Turtles. The event was part of the 7th Meeting of Northeast Brazil Sea Turtle Conservation Network (RETAMANE).
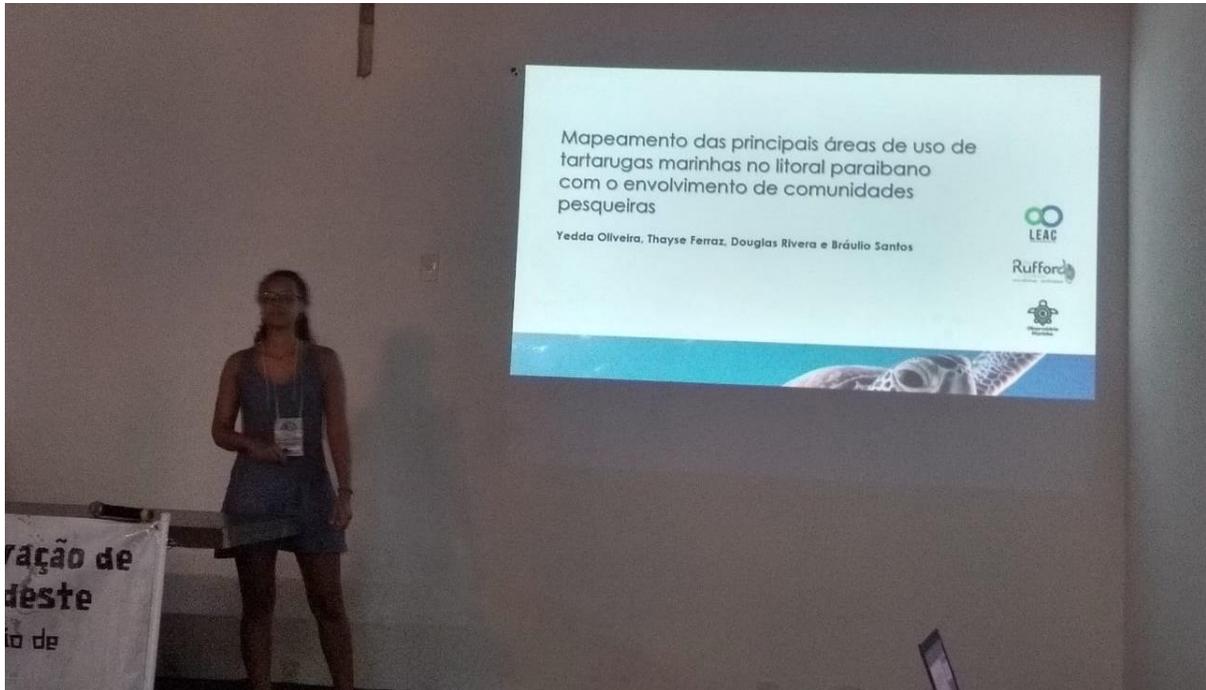
Figure 7. Presentation at RETAMANE meeting.

In December 2018, we led a presentation of the outcomes of this project to the public at Paraiba Aquarium and at the target fishing communities.

Figure 8. Final presentation to the public in João Pessoa.

Reference mentioned: Máximo, Leandro do Nascimento. *Estrutura e dinâmica de populações de comunidades de macrolagas em ambientes recifais*. Diss. Universidade Federal da Paraiba, 2015. Available in: <https://repositorio.ufpb.br/jspui/handle/tede/8614>. Acessed 26 Jan 2019.