INCREASE IN NESTING NUMBERS OF OLIVE RIDLEYS IN BRAZIL ALLOWS THE EVALUATION OF SPATIO-TEMPORAL NESTING PATTERNS

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Introdution

- ✓ Sea turtle conservation begun with a wide survey of the entire coast and islands from 1980 to 1982, carried out by TAMAR Project.
- ✓ Interviews revealed that virtually all nests was usually poached and some egg consumers had never seen a sea turtle hatchling, indeed, nesting aggregations, such as arribadas, was never been mentioned.
- ✓ As a result of the first two years of surveys, field stations were established in the areas considered as conservation priorities, in order to protect a sample of the five sea turtle species that were found in Brazil.

(Marcovaldi & Marcovaldi, 1999).

Methods

- ✓ Study site is the main nesting area for *Lepidochelys olivacea* in Brazil, located along the state of Sergipe and North portion of Bahia, comprising 339 km of beaches; 214 km in Bahia and 125 km in Sergipe (Figure 1).

(Silva et al., 2007; Silva et al., 2010)

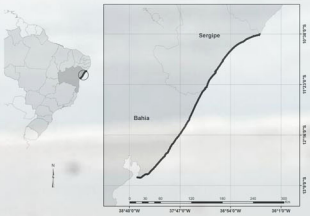

Figure 1 – Beaches with higher nesting density of olive ridleys recorded among study areas of TAMAR, Brazil.

- ✓ Collection of data according to the standard methodology adopted by Tamar.
- ✓ Trend and spatial spread analysis followed Silva et al. (2007) with the data obtained between September 15 and March 15 of the seasons 1991/1992 and 2013/2014 (comparable spatio-temporal monitoring effort during 23 nesting seasons).
- ✓ Temporal spread analysis were performed with the data obtained in beaches with monitoring throughout all months of the year (between August/2008 and July/2014) (comparable spatio-temporal monitoring effort during 6 years). For this analysis the study site was reduced to 319 km of beaches (214 km in Bahia and 105 km in Sergipe).

Results

- ✓ An increase from 252 nests in 1991/1992 to 8,764 nests in 2013/2014 (Figure 2).

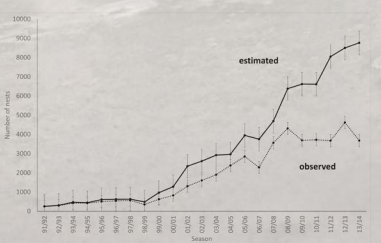

Figure 2 - *Lepidochelys olivacea* trending with a comparable spatio-temporal monitoring effort during 23 nesting seasons (from September/91 to March/14) (1991/1992 to 2013/2014). Dark line (estimated nests), dashed line (observed nests).

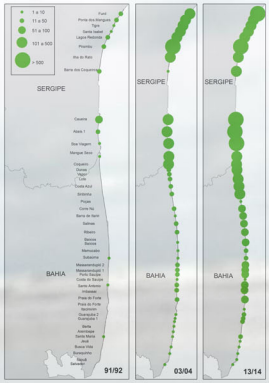

Figure 3 – Distribution of nests along the study area for the nesting seasons of 1991/1992, 2003/2004 and 2013/2014.

Since TAMAR established field stations with standardized collection of data along Bahia and Sergipe states, number of olive ridley nesting records have raised and spread along the area (Fig. 3)

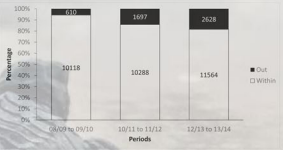

Figure 4 – Proportion of nests that occurs whithin the main nesting season (from September to March) and out (from April to August).

A gradual rise in nesting numbers out of the period that was previously considered as nesting season from 5.6% to 18.5% in six years may be an indicator of a temporal spread (Figs. 4).

Discussion

- ✓ The increasing trend in nesting numbers detected in 2007 is still occurring. Considering the current number of nesting records, the beaches of northeastern Brazil can be considered as one of the most important nesting areas of the olive ridley turtle for the West Atlantic Regional Management Unit.
- ✓ The distribution of nests along the areas have changed, and areas where nesting events was rare in the past become regular. Olive ridley nesting records have also increased in others regions in Brazil, such as, the Espirito Santo coast, where was recorded 1-4 nests in 1991/1992 and currently 40-90 nests each year (Projeto TAMAR unpublished data).
- ✓ The beach coverage for the entire year allowed the detection that nesting activity have spreaded out along the whole year, a different pattern from the past, when the nesting season had a marked start and end. A possible drive could be associated to the number of individuals and climate change, with suitable sand temperatures for incubation available throughout the year.

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