SATURATION TAGGING OF LOGGERHEADS NESTING AT PRAIA DO FORTE, BRAZIL: PRELIMINARY RESULTS

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Background

In sea turtles, the number of clutches laid on a nesting beach in a particular season is commonly used as a relative index of population density (Rivalan et al. 2006).

Long-term mark-recapture studies on nesting beaches should be undertaken whenever possible to ensure that valuable abundance and demographic data are being generated to inform conservation management strategies (NRC 2010).

Praia do Forte beach in Bahia stretches along 14 km and encompasses one of the major loggerhead rookeries in Brazil (Marcovaldi and Chaloupka 2007).

Loggerheads nesting season in Praia do Forte lasts from September to April; however 90% of nesting activity occurs between October and February. The most significant loggerhead nesting (60 % of the total) occurs along a 5 km segment where females exhibit intra-seasonal high-site fidelity (less than 2 km variation).

The aim of this work is to conduct a long-term mark recapture study in Praia do Forte to obtain population specific parameters.

Methods

After a preliminary study conducted in 2008 we determined that 75% of the female encounters occurred between 8pm and 2am.

Thus during the 2009/10 and 2010/11 nesting season the tagging saturation effort was conducted during five months (from October 1 to February 28) along the 5 km stretch from 8pm to 2am.

We calculated: (1) the observed clutch frequency (OCF), and (2) the estimated clutch frequency (ECF) corrected by taking into account missed nests based on inter-nesting intervals.

To increase the chances that the first and last nests laid by a female were counted, females included in the estimates of clutch frequency were those that initiated nesting between October 1 and January 1 and completed their nesting by the end of February when beach monitoring ceased.

Figure 1. Curve carapace lenght (CCL) measurement of a loggerhead turtle

Figure 2. Loggerhead laying eggs

Figure 3. View of the monitored beach with marked nests

Results and Discussion

Mean inter-nesting interval of loggerheads was 14.7+- 1.5 days (n=91), both seasons combined.

Table 1. Mean observed and estimated clutch frequency (i.e. OCF, ECF) for loggerheads seen more than once nesting at Praia do Forte during the two nesting seasons.

Season	OCF (mean +- SD)	ECF (mean +- SD)	Number of females
2009/ 2010	3.2 +- 1.1	3.9 +- 1.3	40
2010/ 2011	3.2 +- 1.1	4.0 +- 1.5	54

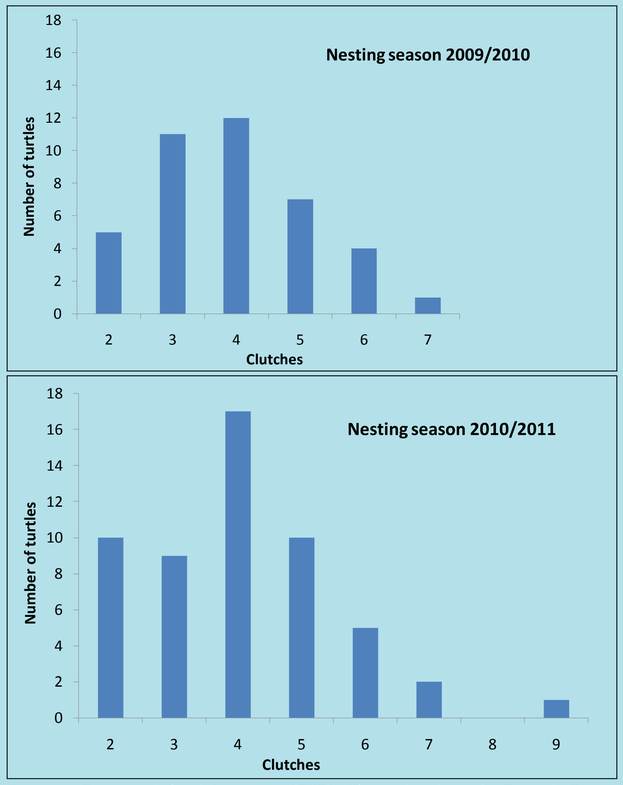

Figure 4. Estimated clutch frequency (ECF) of loggerheads at the Praia do Forte rookery during the 2009/10 and 2010/11 nesting seasons.

Table 2. Reproductive characteristics of loggerheads nesting in Praia do Forte. Curve carapace lenght (CCL).

Season	CCL (mean +- SD; cm)	CCL (range; cm)	Eggs/clutch (mean +- SD)	Number of females
2009/ 2010	98.8 +- 4.4	90.0 - 107.0	113.5 +- 32.3	66
2010/ 2011	100.3 +- 5.7	82.8 - 116.7	121.1 +- 31.3	96

Considering that the saturation study has 3 yr, remigration intervals were not fully documented. However loggerheads tagged from previous years indicate that 2-yr remigrations are most common, followed by 3-yr remigrants, which is in agreement with females satellite-tracked during complete migrations (Marcovaldi et al. 2010).

The saturation study will continue for at least 3 yr more to estimate the average remigration interval and obtain robust demographic data.

Figure 5. Loggerhead returning to the sea

Literature Cited

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