

PRELIMINARY DATA ON OLIVE RIDLEY (*Lepidochelys olivacea*) STRANDINGS IN NORTHEASTERN BRAZIL.

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Olive ridleys (*Lepidochelys olivacea*) have limited distribution in the western Atlantic and nesting occurs mainly in Suriname, French Guiana, and Brazil. The coasts of the states of Alagoas, Sergipe and northern Bahia, Brazil, are considered the main nesting grounds for olive ridleys along the Brazilian coast. However, the region is also considered an important fishing area, where a sizeable coastal trawling and gillnet fleet operates, leading to high rates of sea turtle bycatch. This occurs mainly because the area has an extensive mud bank, which is the shrimp habitat during its benthic phase that shrinks during summer. Such situation, associated with lack of enforcement, induce fishers to operate closer to the coast, in areas that overlap with important sea turtle habitats.



Figure 1. Trawl vessel fishing along the coast of Sergipe.

This study aims to present an analysis of olive ridley strandings (n=2,220) over a 12-year period (2001-2012) along the coasts of Alagoas, Sergipe and northern Bahia, in order to investigate sea turtle bycatch. However, monitoring efforts have increased from 2004 to now, and this might have underestimated somehow the real bycatch levels. An ongoing detailed analysis is being performed to better calculate this difference.

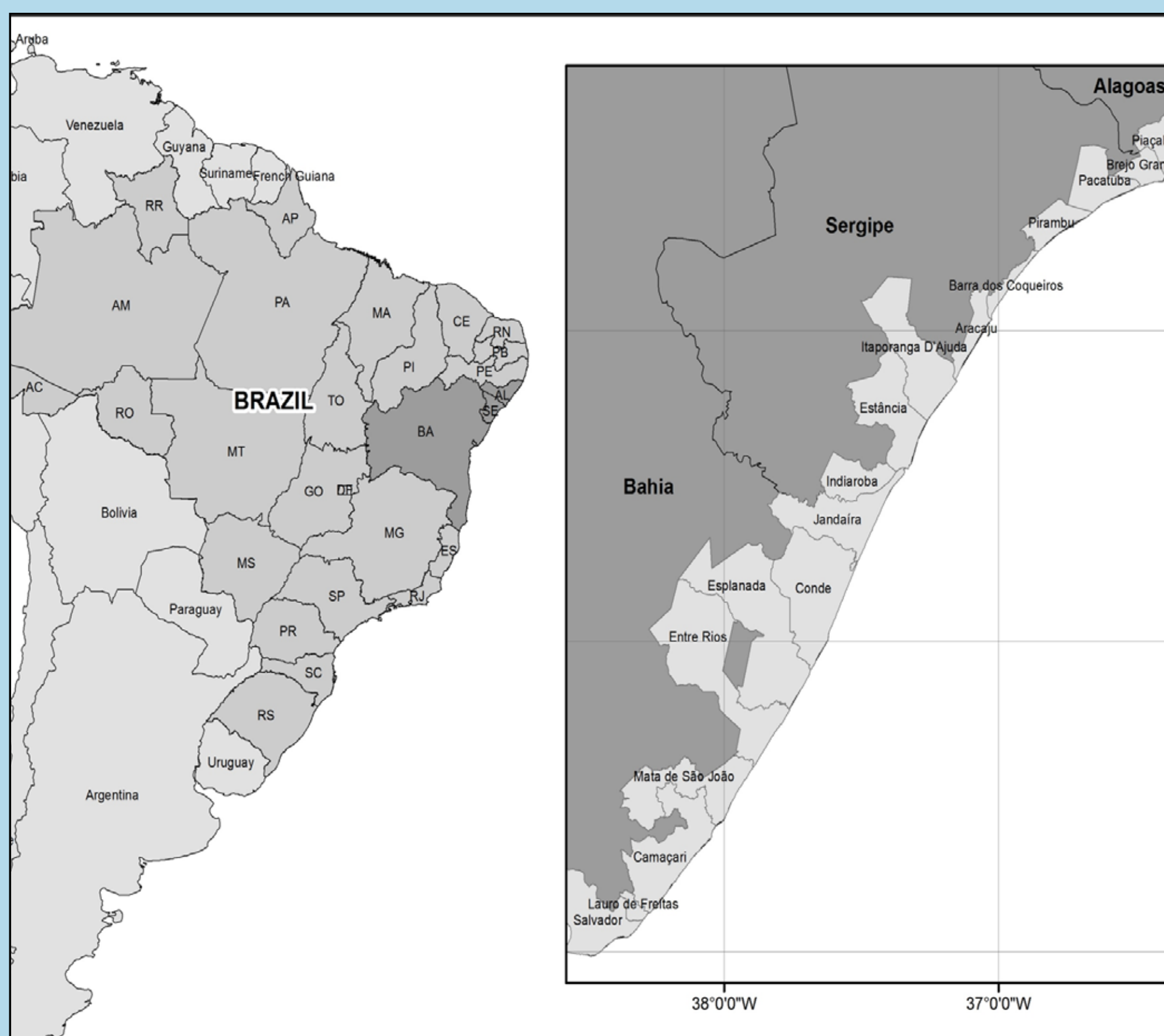


Figure 2. Map showing the study area, along the northeastern part of Brazil, where most of the strandings have been documented (dark grey).

Almost 91% (n=2,013) of the turtles were adults (i.e. curved carapace length greater than 60 cm, which is the minimum size at reproduction) with size composition reflecting the demographic structure of the nesting population in coastal waters of northeastern Brazil. The majority of turtles were dead (n=2,140; 96.4%), while only 80 individuals (3.6%) were alive. Additionally, strandings were far more frequent in spring and summer months (72.8% from September to March), period that corresponds to sea turtle breeding season in Brazil. For this reason, in 2004 a Normative Rule was established extending the shrimp seasonal closure from 50 to 90 days, divided into two periods, the first in the austral fall (01 April to 15 May) and the second in the summer (01 December to 15 January).

According to literature, fisheries interaction is by far the main cause of strandings in Brazil. In this research, 40% of the stranded turtles (n=889) showed evidence of fisheries interaction. In order to facilitate the analyses, these evidences were ranked into three categories (as described in Table 1 below).

Table 1. Degrees of evidence of fishery interaction. TOTAL EVIDENCE: entangled animals, turtles that ingested longline gear, marks of nets around flippers or neck; VERY STRONG EVIDENCE: amputation and decapitation by knives or other cutting instruments, which probably occurred after the animal was accidentally captured; STRONG EVIDENCE: reproductively active animals – good body condition and presence of eggs or developing follicles, with no other apparent cause of death; NO EVIDENCE: lack of any observable evidence of fishery interaction (but that doesn't mean they do not exist).

| DEGREE OF EVIDENCE OF FISHERY INTERACTION | n | % |
|---|-------------|-----------|
| Fishery interaction | | |
| - Total evidence | 163 | 7.3 |
| - Very strong evidence | 565 | 25.5 |
| - Strong evidence | 161 | 7.2 |
| | 889 | 40 |
| No evidence | 1331 | 60 |

Almost all of these 889 turtles were in good body condition, based upon subcutaneous and visceral adipose tissue and musculature. This condition suggests that the turtles had been feeding recently and had a sudden death, probably as a result of getting caught in fishing gear. Additionally, 324 out of 491 female olive ridleys were classified as reproductively active, based on the presence of eggs in their oviducts. As we know, nesting turtles are generally in good health, since they are capable of reproducing, thus, this indicate that these animals had died as a result of drowning.

However, stranded sea turtles rarely exhibit external signs of capture in fisheries and the lack of external injuries may therefore underestimate the actual bycatch levels. For this reason, we decided to use parameters other than the cause of death itself, which is sometimes hard to be determined, to identify fisheries interactions. Despite continuous threats to their survival, the Brazilian olive ridley stock continues to recover following protection since the early 1980s. Effective measures to reduce sea turtle bycatch along the Brazilian coast are currently under way. Due to the preliminary results of this study, a proposal is now underway to extend the seasonal closure for the hole peak of the reproductive season.



Figure 3. Olive ridley found dead entangled in a gillnet.



Figure 4. Freshly dead, stranded olive ridley with a large amount of eggs in its oviduct. Notice that the animal was in good body condition, based on subcutaneous and visceral adipose tissue and musculature.

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