



GROUP SIZE INFLUENCE AT THE COORDINATED FEEDING TACTICS OF *SOTALIA GUIANENSIS* AT ILHA GRANDE BAY, RJ, BRAZIL.

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INTRODUCTION

The study of animal behavior is of great importance to conservation, since it characterizes the relationship between species and the environment, having a significant role on the understanding of ecological processes (Clemons & Buchholz, 1997). *Sotalia guianensis*, also known as the estuarine dolphin, is a small delphinid who inhabits productive areas, such as estuaries and bays (Wedekin *et al.*, 004). It is found in coastal waters from Southern Brazil (27° 35'S, 48° 35'W) (Simões - Lopes 1988), to Northern Honduras Caribe (15° 58'N, 79° 54'W) (Carr & Bonde, 2000). Studies about the stomach contents of the species had shown that this is a generalist one, feeding largely upon fishes and squids (DI Benedetto *et al.*, 001). Considered as *data deficient* by the IUCN (2004) this species is poorly known along its distribution, specially the Ilha Grande Bay population.

OBJECTIVES

The main objective of this work was to determine the influence of group size at the coordinated feeding tactics of *Sotalia guianensis* population at ilha Grande Bay, RJ, Brazil.

MATERIAL AND METHODS

Ilha Grande Bay, (23°10' S 44°41' W to 23°02' S 44° 26' W) is located at southeastern Brazil and together with Sepetiba Bay, is a great estuarine system. With its oceanographic, rainfall and hydrologic conditions, this Bay is an area of great environmental interest, comprising one of Brazilian systems with greatest primary productivity (Nogara, 2000). Despite being poor studied, this bay comprises the largest aggregation of *Sotalia guianensis* individuals ever

seen (Lodi & Hetzel, 1998). From May to August 2007, 13 boat trips were conducted to collect behavioral data using the focal group and the all animals occurrence methods. All events were recorded by using a digital video camera. Only the coordinated feeding tactics were recorded. A group was considered as such when individuals seen 10m apart from each other in a chain rule manner (Smolker, 1992). Therefore, for each coordinated feeding tactic observed it was calculated descriptive statistics such as the mean number of individuals and the standard deviation. Plus, it was used the Kruskal - Wallis test for multiple independent samples to test significant differences between them.

RESULTS AND DISCUSSION

It was observed four coordinated feeding tactics. Opposite feeding (two groups of animals approaching from opposite directions, in order to surround prey between them) had a mean of 8.7 individuals engaged (n= 220; mean= 8.72; standard deviation= 3,36). Perpendicular feeding (two groups of animals approaching in perpendicular directions, in order to enhance prey capture success) had a mean of 8.8 individuals engaged (n= 189; mean= 8.81; standard deviation= 3.23). Kettle (animals gather below the fish school and begin feeding, where animals rise to the surface separating from each other in varied directions) was performed with a mean of 5.6 individuals (n= 44; mean= 5.62; standard deviation= 1.85). Chorus line (animals gather side - by - side pushing the fish school, in order to capture them) was performed with a mean of 7.1 individuals (n= 33; mean= 7.12; standard deviation= 2.64). The Kruskal - Wallis test showed significant differences between the samples (H= 41.82; p < 0,000001). Predators of schooling fish have developed their own methods for overcoming the es-

cape methods used by prey (Major, 1978). Tactics such as opposite and perpendicular fishing, who overcome prey defenses by using the confusion effects against themselves, was observed in more times and allowed a higher number of individuals. This might suggest that these coordinated feeding tactics allows a greater fish school to be captured, enhancing the individual energy capture intake. Tactics such as chorus line and kettle were performed with fewer individuals, suggesting the capture of smaller fish schools. Therefore, it seems to have a balance between the number of individuals and the group size, since the variety of tactics used by feeding marine mammals likely represent differences in prey species, distribution, habitat, and abundance (Connor, 2001).

CONCLUSION

It was observed the influence of group size at the coordinated feeding tactics. Opposite and perpendicular feeding allowed more animals engaged, suggesting a capture of higher fish schools. Kettle and Chorus Line allowed a smaller number of individuals engaged, suggesting a smaller fish school to be captured. This balance suggests that all the coordinated feeding tactics are performed with an optimal group size, in order to maximize the energy capture intake.

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