

ACOUSTIC CHANGES OF A PREGNANT *TURSIOPS TRUNCATUS* AND OF ITS COMMUNITY

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INTRODUCTION

The aims of this study were: 1) to present the acoustic changes of a bottlenose dolphin (*Tursiops truncatus*) female in the last six months of gestation (Apr-Sep 2003); 2) to compare, month by month, the sonar signals emitted by the pregnant dolphin with those of the community members; 3) to analyze the acoustic behaviour of each individual during the gestation and the pre-pregnancy (Jun 2002) and post-delivery periods (Oct 2003-Feb 2004).

MATERIALS AND METHODS

The study was conducted in the Rimini Delfinario (Italy) on a bottlenose dolphin community including an adult female (ALFA) - that gave birth to the calf (ROCCO) on 27th September 2003 -, an adult male (SPEEDY) and their other two juvenile calves (SOLE and LUNA) (see diagram).

The sonar signals emitted by dolphins were systematically collected once a month, through a wide band hydrophone, positioned 2 m. below the water surface, and an analogical broadband recorder. The comments of an observer were simultaneously recorded onto the audio channel of the equipment. The animals were accustomed to the presence of both the hydrophone and the experimenters.

Each set of signals emitted by each dolphin in a single session, was subsequently counted and, extracting six different parameters, by MATLAB software their structure analysed.



Delfinario Rimini

Built in: 1964	Surface: 314 m ²	Capacity: 1500 m ³
Shape: round	Diameter: 20 m	Max depth: 5.5 m



ALFA ~1979 ♀
(Gulf of Mexico)



SPEEDY ~1970 ♂
(Adriatic Sea)



SOLE 1993 ♂
(born in captivity)



LUNA 1993 ♂
(born in captivity)



ROCCO 2003 ♂
(born in captivity)

RESULTS

Fig. 1 - CLICK EMISSION

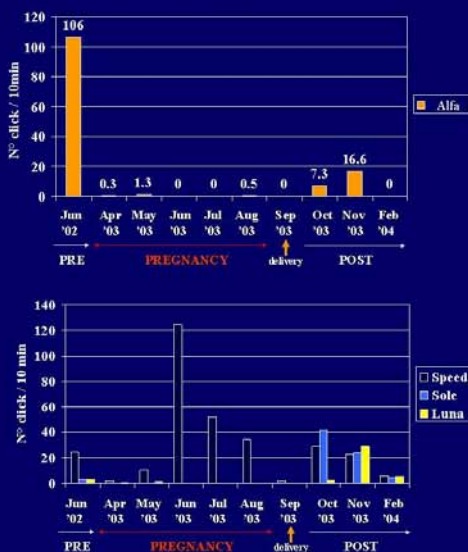


Fig. 2 - CLICK FREQUENCY BARYCENTRE

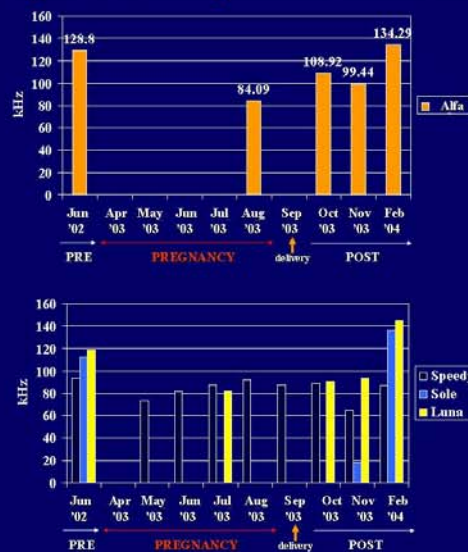
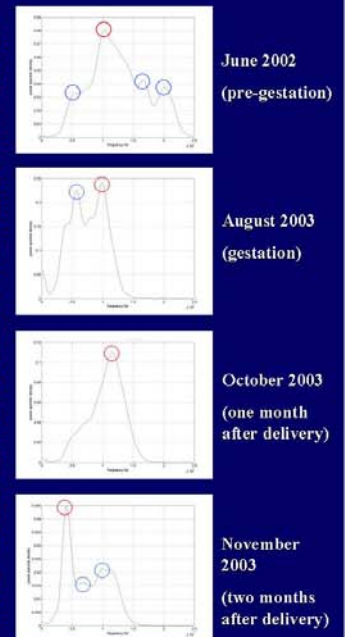


Fig. 3 - CLICK STRUCTURE OF THE PREGNANT FEMALE



CONCLUSIONS

During the pregnancy period, results showed a significant decrease of the acoustical activity of both the female (Alfa) and its two juveniles calves (Sole and Luna), in comparison with both the pre and post-gestation phases. Vice versa, during Alfa's gestation the adult male (Speedy) significantly intensified its sonar activity (Fig. 1). Moreover, in the last months before delivery as well as immediately after the birth, all subjects, but the adult male, used considerably lower frequencies (Fig. 2). Finally, in the post-delivery period the structure of clicks emitted by the mother appeared definitively more elementary (mono-modal) as influenced by the signal shape of the newborn.