

INTERSPECIFIC INTERACTIONS IN LIGHT OF SPECIFIC NEURAL STRUCTURES.

Marc Gosjean.

In spite of neural differences between humans and animals (especially dolphins), interactions with animals might be significant for some human being. This is a basic assumption of Dolphin Assisted Interaction programs. I believe that, in some way, animals “feel” a person next to them. People have varying expectations or apprehensions before meeting a dolphin. Consequently, we must be prepared to observe that some people do not react to the animals and that animals do not react to some people.

MASKED UNDERWATER AUDIOGRAM OF A PACIFIC WHITE-SIDED DOLPHIN.

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Little is known about abilities of odontocetes to hear in a noisy environment. Using a descending staircase method and go/no-go response, underwater hearing of a female, Pacific white-sided dolphin (*Lagenorhynchus obliquidens*) masked by 2 levels of white noise (30 dB apart) was measured. The same dolphin had an unmasked audiogram conducted earlier (Tremel *et al.*, 1998). Frequencies were tested in octaves between 500 Hz and 64 kHz, with 15 to 30 trials per frequency. Masked thresholds at maximum noise were similar to those on a bottlenose dolphin (Moore and Au, 1982), a beluga (Johnson *et al.*, 1989), and a false killer whale (Thomas *et al.*, 1990). At 8 kHz, masked thresholds were more sensitive than the unmasked threshold, perhaps because masking and pool noise were at similar levels. The highest critical ratio (43) was at 500 Hz and the lowest critical ratio (14) at 8 kHz. Critical ratios at 8 kHz or higher were comparable to other species. However, critical ratios at 500 Hz (43) and at 1 kHz (40), were higher than in the beluga (20 and 18, respectively). The authors are grateful for support by the marine mammal staff at the Shedd Aquarium and financial support by the Office of Naval Research.

ECHOLOCATION SOUNDS OF A YOUNG *PONTOPORIA BLAINVEILLI*: A

PARAMETRIC MODELING APPROACH. C. Kamminga, Delft University of Technology, The Netherlands and L. A. Van Fersen, Mundo Marino, San Clemente del Tuyu, Argentina.

Time and frequency representations of hitherto non-existent wideband acoustic recordings of a young female Franciscana (*Pontoporia blainveilli*) under human care are presented. The recording of this species, which taxonomically is placed in the super family of odontocetes Platanostoidea, presents different sonar clicks from those of the Phocoenidea and the Delphinidae. A cluster representation of the two highest-ranking features of the sonar click, i.e. dominant frequency and either duration or bandwidth illustrates the similarity in acoustic behaviour. This similarity is not only based on the presence of a polycyclic porpoise-like sonar wave shape, but also on the remarkable successful mathematical modeling of the main part of the click using the Gabor model. The applicability of this parametric procedure is addressed by the low time-frequency uncertainty product of the main part of the click. In-depth analysis of the Franciscana sonar click revealed a model representation by only one elementary Gabor signal with a residue as low as 0.3%. Clicks occurring in long-duration trains were extremely narrowband (15–20 kHz) and centered around a dominant frequency of 130 kHz. Click duration ranged from 80–100 sec., including 8 to 10 oscillations. Interclick interval was highly variable, up to 2.5 msec. For taxonomic comparison, the echolocation clicks of the two rivers dolphins, i.e. *Sotalia fluviatilis* and *Inia geoffrensis* were added in the feature mapping. Whistles were not detected for this species.

ERYSIPELAS IN CETACEANS, MORE PARTICULARLY THE HANDLING AND

VACCINATION IN YOUNG *TURSIOPS TRUNCATUS* CALVES. Géraldine Lacave, Marine Mammals Veterinary Services, Brugge, Belgium and Eric Cox, Veterinary Faculty, Merelbeke, Belgium.

A dolphin calf died in 1991 at the Brugge Dolphinarium from *Erysipelas septicemia* at the age of six months. The calf never showed signs of infection until a few hours before her death, having

had a normal respiratory frequency and suckling rate until then. At that time, it was thought that one did not need to vaccinate calves before the age of approximately one year, because the main source of infection for *Erysipelas* was believed to be fish. Following that case, a general study on *Erysipelas* vaccination in dolphins was started in 1992 at the University of Gent in Belgium. For this study, it was empirically decided that the calves would be vaccinated for the first time before the age of six months, preferably between 3 and 4 months. We show preliminary results on eight calves vaccinated that way and the results from a general survey on the occurrence of *Erysipelas* in the last ten years.

THE HUSBANDRY OF PREGNANT BOTTLENOSE DOLPHINS. A BEHAVIOURAL APPROACH. V. Pastore, Università degli Studi De Milano, Milano, Italy, A. Bortolotto, Zonomia, Riccione, Italy, and B. Mercera, Parc Asterix, Plailly, France.

The aim of this presentation was to suggest the use of behavioural observations during pregnancy to help determining the date of delivery, to follow the calf's development, and to monitor incidental modifications of the social relationship within the group after the birth of a calf. The importance of the cooperation among trainers, biologists, and veterinarians was stressed. Three female bottlenose dolphins (*Tursiops truncatus*) were monitored at Parc Asterix, Plailly (France) in 1996 and 1999, respectively. During pregnancy, six hours of observations were carried out to monitor flexion behavior from 0000 to 0600 hr every day until three days after delivery. Furthermore, the mother/calf spatial relationships and the calf's suckling attempts were followed 6 hrs/day for the calf's first two months of life. Generally, the flexion behavior increased one or two days before delivery. At the same time, the food intake decreased and the female showed a few behaviours typically related to late pregnancy (i.e., side breaching and downstroke). This study clearly showed that it is easy to predict the delivery date by means of unintrusive behavioural observations. Additionally, the overlap of the information coming from behavioural observations carried out both by trainers and biologists can result in a better understanding of the social relationship within the group and of their modifications due to the calf's presence.

THE REPRODUCTION PROGRAMME FOR BOTTLENOSE DOLPHINS AT MUNDOMAR. Kees de Groot, Mundomar, Benidorm, Spain.

A video presentation featured the births of two bottlenose dolphins (*Tursiops truncatus*) on October 12 and 13, 1999 at Mundomar. A review of birth preparations, planning, and handling of the public and media were given. Other aspects related to the birth of a dolphin and the combining of dolphin births with the day to day routine in a dolphin show pool were addressed. The planning, however, suddenly changed into panic when the first baby presented its head instead of the tail at birth, and the second pregnant females had her calf one month before expected.

ULTRASOUND IN MARINE MAMMALS AND DEVELOPMENT OF GROWTH CURVES FOR FETAL *TURSIOPS*. Géraldine Lacave, Marine Mammals Veterinary Services, Brugge, Belgium.

The use of ultrasound has spread over the last fifteen years for the medical check-up of marine mammals. It is a wonderful non-invasive diagnostic tool primarily used for monitoring fetal development, but also is helpful for viewing internal organs like liver, kidneys, etc. Ultrasound devices have the advantage of being a light and portable machine that can be used with the voluntary participation of a dolphin. Nowadays, most facilities hosting marine mammals have well-developed husbandry and medical care programs, including desensitization of dolphins to the ultrasound probe. In the facilities at which I consult, ultrasound is part of the monthly check-up and is performed more frequently on females during the summer months or during gestation. Following 16 gestations in those facilities allowed us to develop growth curves based on thoracic and skull diameters from known age fetuses.