

TACTILE INTERACTIONS IN TWO FEMALES BOTTLENOSE DOLPHINS (*Tursiops truncatus*) DURING PRE AND POSTPARTUM PERIODS.



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BACKGROUND TO THE STUDY



- Year of building: 1964
- Diameter: 20 m
- Capacity: 1300 m²
- Surface: 310 m²
- 4 underwater windows 80% RUV (11m)
- Depth max: 5 m
- Temperature: 13.0-29.0 °C
- pH: 7.6-7.7

Two females bottlenose dolphin (*Tursiops truncatus*), Alfa and Beta, were observed at the Rimini's Dolphinarium during the last three months of pregnancy and six months after birth. This study investigates Alfa's and Beta's tactile interactions throughout these specific phases of reproduction. In particular, focal sessions were conducted to monitor the mothers' behaviour versus the other members of the group, as well as versus their respective calves (Rocco and Blue).

METHODOLOGY

A total number of 192h of observation during prepartum period and 290h during postpartum phase were collected.

PERIOD

ALFA: July 2003 - March 2004
 BETA: April 1997 - December 1997

SAMPLING

- Focal Animal sessions lasting 30 minutes;
- Continuous recordings.

INTERACTIONS MEASURED

Rubbing; Contact; Bonding; Push; Bite; Nibbling; Tail hit; Rostrum hit; Body slam; Beak-genital propulsion; Clasp; Hold down; Bumping; Nursing; Unsuccessful nursing.

ANALYSIS

- Observer 3.0 software;
- Two-ways ANOVA and chi-square test.

SUBJECTS OF THE STUDY	SEX	DATE OF BIRTH	PLACE OF ORIGIN	REPRODUCTIVE STATE	CHARACTERISTICS
ALFA	F	1979 (presumed)	Gulf of Mexico (Campeche)	Adult	Multiparous Dominant
BETA	F	1981 (presumed)	Gulf of Mexico (Campeche)	Adult	Primiparous Subordinate

RESULTS

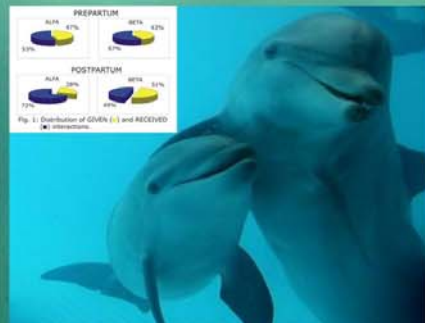


Fig. 1: Distribution of GIVEN (G) and RECEIVED (R) interactions.

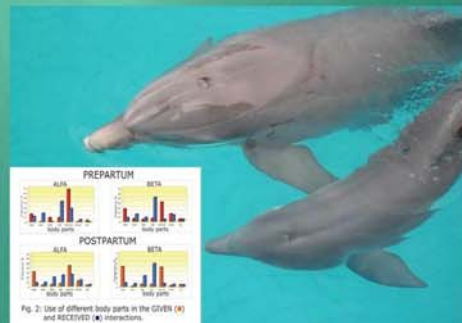


Fig. 2: Use of different body parts in the GIVEN (G) and RECEIVED (R) interactions.

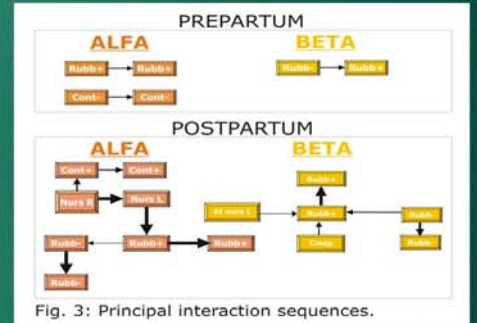


Fig. 3: Principal interaction sequences.

Analysis procedures revealed significant differences - as well as some analogies - between the mothers.

- similar proportion of given and received interactions during *prepartum* period and important differences in *postpartum* phase (Alfa received a higher number of contact behaviours than Beta) (Fig. 1).
- *prepartum* period is characterized by an important use of pectoral fins and head in given interactions and sides in received ones for both females; the some body regions are utilized during post delivery in given interactions, while in received ones are also involved bellies and pectoral fins for Alfa only (Fig. 2).
- very simple interaction sequences during *prepartum* period for both females and complex behavioural series with respective calf during post delivery (Fig. 3).

These observations seem to indicate the existence of particular attentions to the dominant individual Alfa by the other group members, maintained through touches.

These findings suggest that females seem to save energy and maintain low body temperature during pregnancy, reducing the complexity of the social relationships in the group. More structured sequences with calves seem to reflect parental investment and mothers' experience. In fact, the multiparous female Alfa utilize complex contact sequences, including nursing, as crucial aspect of offspring's survival, while the primiparous Beta principally invests in rubbing activities and punitive behaviour (clasp).

Where and how anatomically dolphins touch each other, as well as frequency and the level of intensity with which they contact each other over the time, suggest a differential use of this communication channel, depending on the significance and context of exchanged signals.

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