

AGONISM DEVELOPMENT IN BOTTLENOSE DOLPHIN CALVES IN A CONTROLLED ENVIRONMENT: QUANTITY AND NATURE OF INTERACTIONS



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INTRODUCTION

The development of agonism, a survivalist animal behaviour that includes aggression, defence and avoidance, seems to be crucial after the birth, when the calf activities are subject to the most important changes. This study intended to investigate this maturing process in bottlenose dolphin (*Tursiops truncatus*) offsprings, pointing out the gradual appearance of active aggressive acts and quantifying their amount and typology at different ages.

METHODS

Three subjects at the Rimini Delfinario (Italy), were focally observed, in three different periods (1995, 1997 and 2003), through systematic observations during the first 52 weeks of life, for a total of 546 hours.

A specific behavioural catalogue and Observer (Noldus) were applied to measure the frequency and duration of seven conflictual behaviours *a priori* chosen for this study:

- 1) JAW CLAP, 2) DIRECT OPEN MOUTH, 3) CHASE, 4) BITE,
- 5) ROSTRUM HIT, 6) TAIL HIT and 7) BODY SLAM.

ENVIRONMENT:	SUBJECT 1:	SUBJECT 2:	SUBJECT 3:
Surface: 300 m ²	LUNA	BLUE	ROCCO
Depth: 5.5 m ²	FEMALE	FEMALE	MALE
Built in: 1964	12 May 1995	26 Jun 1997	27 Sep 2003



RESULTS AND CONCLUSIONS

FIGURE 1 – AGGRESSIVE EVENTS PER HOUR

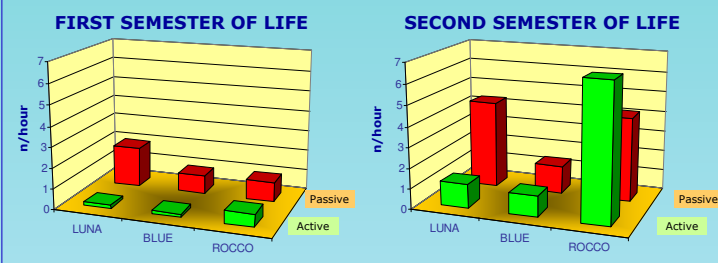


FIGURE 1: Despite generalized all over the year low levels of aggressiveness (1.00 ± 0.96 acts/h), all calves revealed a significant increase of agonistic rate with growth, with values rising at least 7 times in the second semester of life.

A clear sex difference emerged, with the male showing levels constantly higher than females.

Moreover, while the females received, rather than gave, aggressions throughout the whole first year, the male, from the seventh month on, succeeded in inverting this condition.

FIGURE 2: While threatening behaviours such as "JAW CLAP" were never registered in the first year, a non-physical assault such as "CHASE" seemed to be not only the most exhibited but even the first to be performed, at around 2 months of life. On the other hand, "TAIL HIT" was the preferred display between corporal attacks (frequency 36%).

FIGURE 2 – AGGRESSIVE BEHAVIOURS DISPLAYED BY THE CALVES

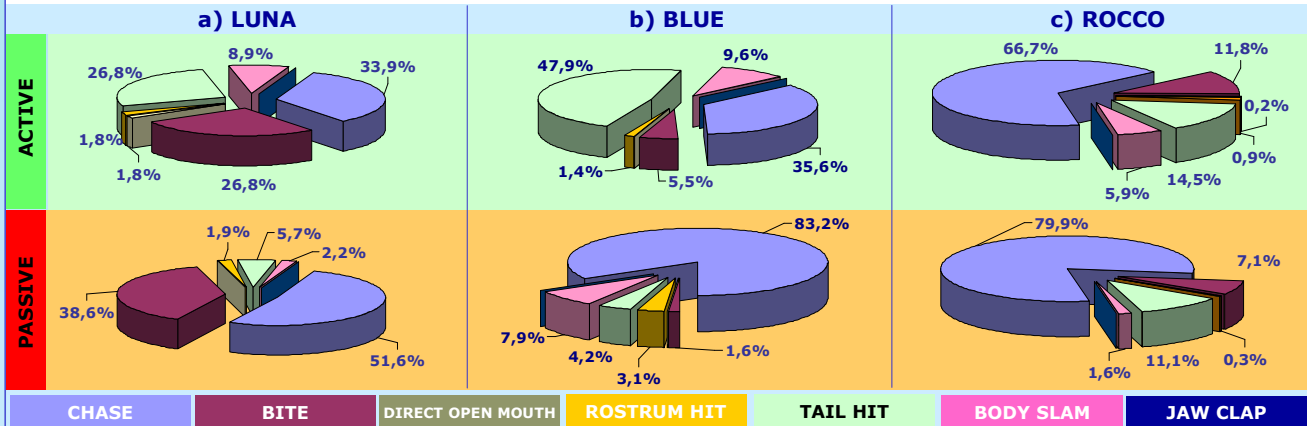


TABLE 1: As for the dynamics of the conflict, the results showed all the calves attacking and winning more often as they grow up and this probably lead to the observed decrease in reconciling interactions performed by them.

TABLE 1 – MAIN CHARACTERISTICS OF THE AGONISTIC SESSIONS

	Mean duration (sec)		Aggressions/session		Aggressor %		Winner %		Reconciler %	
	1 st sem	2 nd sem	1 st sem	2 nd sem	1 st sem	2 nd sem	1 st sem	2 nd sem	1 st sem	2 nd sem
LUNA	83,28	86,91	2,11	2,64	4,25	23,21	4,25	17,86	20,34	21,62
BLUE	39,20	55,73	1,29	1,68	15,25	32,43	13,56	32,43	34,04	25,00
ROCCO	51,68	62,91	1,53	3,17	38,71	67,24	32,26	55,17	39,78	22,41