

BLOW PROGESTERONE PROFILE DURING ESTROUS CYCLE, PREGNANCY AND LACTATION IN FEMALE BOTTLENOSE DOLPHINS



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INTRODUCTION

A significant correlation between progesterone concentrations simultaneously measured in blood and in biological material released with the blow, was confirmed in previous studies by Pearson's Correlation Test ($r=0,5533$; d.f.=15; $p=0,0324$). The aim of present work was to take advantages of the complete non invasivity and results' reliability of the new technique based on blow sampling, for systematically monitoring in bottlenose dolphin (*Tursiops truncatus*) progesterone profiles during the three different phases of estrous cycle (A), pregnancy (B) and lactation (C).

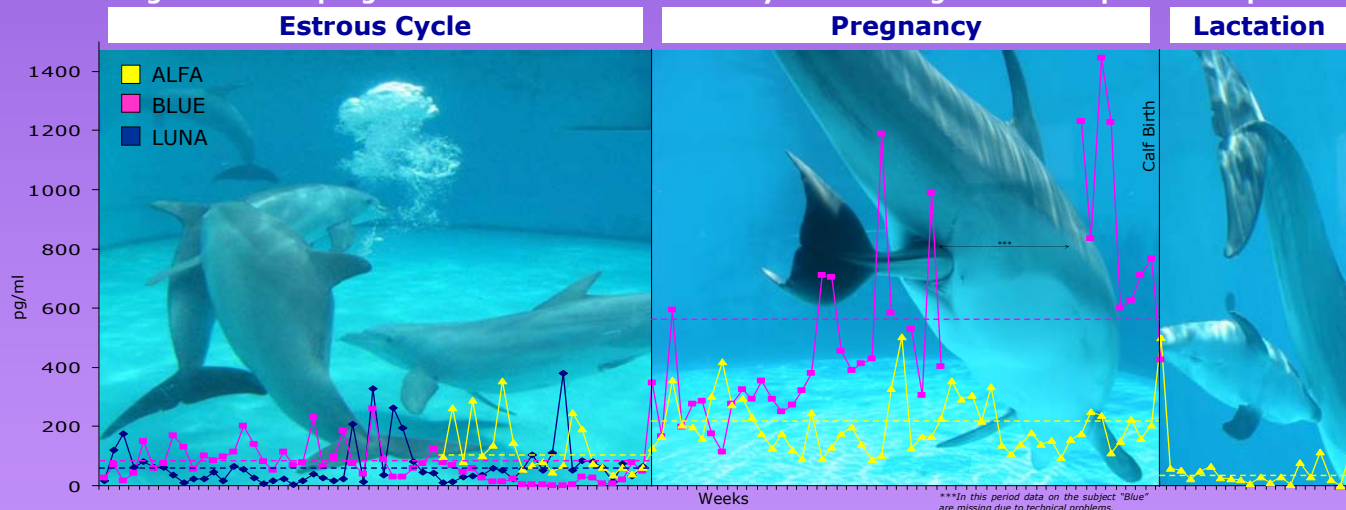
MATERIAL AND METHODS



For the purposes of the study three females were sampled every week. The subject "ALFA" (approx. 27 years old) was monitored from March 2006 for a period of 23 months during all the phases A, B and C; the captive born dolphins "BLUE" and "LUNA" (8 and 10 years old, respectively) were monitored from May 2005 for a period of 24 months (phases A and B) the former, and from March 2006 for a period of 14 months (phase A) the latter. While Blue was housed at Oltremare (Riccione, Italy), both other females were living in Rimini Delfinario (Italy). Dolphins were trained to blow into polypropylene bottles. Progesterone concentrations were determined by a validated radioimmunoassay.

RESULTS AND CONCLUSION

Figure 1. Blow progesterone concentration weekly trend during different reproductive phases



BLOW PROGESTERONE CONCENTRATIONS: MEAN OF THE PERIOD ± SD

	Estrous Cycle	Pregnancy	Lactation
ALFA	104,72 ± 11,19	206,22 ± 13,71	39,14 ± 33,28
BLUE	75,60 ± 9,12	571,63 ± 44,46	
LUNA	55,94 ± 71,19		

As for oestrous cycle, the results confirmed the bottlenose dolphin nature of seasonal polyestral species, with ovulation occurring at least 2-3 times per year in a period lasting between early spring and late autumn.

A dramatic increase of blow progesterone concentrations emerged as soon as pregnancy started. In fact, both Alfa and Blue showed mean values of hormone significantly different ($p<0.01$) shifting from a non pregnant to a pregnant status.

At the same manner, the birth of the calf, with the consequent starting of the lactating phase, induced an immediate decrease in progesterone concentration, at their lowest point in blow measurements.

The development of diagnostic procedures and stress avoiding approaches such as the blow sampling not only supports captive animals' management with respect to their wellness, but also provides an opportunity for using the enhanced knowledge in programmes of conservation aimed at improving species' reproductive potential in the wild.