



Sexual Behavior in the Beluga Whale (*Delphinapterus leucas*)

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Introduction

Because of their remote arctic habitat, little is known about the social behavior of beluga whales. Preliminary surveys have indicated that for much of the year, adult males segregate into pods that stay separate from groups containing females and young. The sexes evidently intermix for a seasonal peak of sexual activity that takes place in March.

The goals of the present investigation were (a) to ascertain if seasonal breeding is preserved in captivity, and (b) to document the social interactions that occur in and around the breeding season.

Methods

The subjects of this investigation were three wild-caught, adult male belugas (*Delphinapterus leucas*) of Chuckchi Sea origin held in captivity at Marineland of Canada. They were housed in a 1 M liter pool along with six adult and four juvenile females.

Using a focal-animal, ethogram-based paradigm, the behavior of each male was recorded via underwater viewing windows, on a second-by-second basis, for three nine-minute epochs, two times per week, over a two month period. The present investigation focused on the following behaviors:

Parallel Swim: Whales swimming in the same direction and speed within three meters of one another (Figure 1).

Look At: A noticeable turn of the head, and apparent visual focus, at another whale.

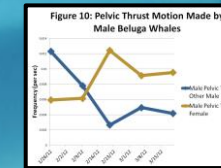
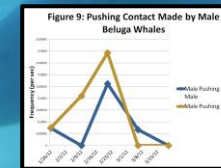
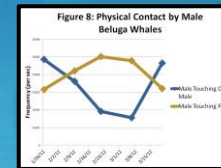
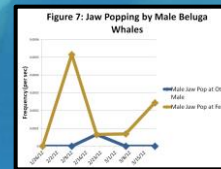
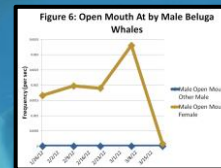
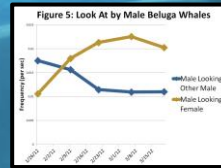
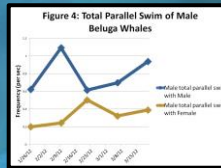
Open Mouth At: One whale opening its mouth in the direction of another whale (Figure 2).

Jaw Popping: One whale forcibly snapping its mouth closed, producing a concomitant popping noise.

Touching: Any physical contact between whales that does not alter the position of the recipient.

Pushing: Contact that displaces another whale or alters its position.

Pelvic Thrusting: A rapid flexion of a whale's midsection such that its genital region is moved rapidly in the direction of another whale (Figure 3).



Results

The results can be summarized as follows:

Escorting

- Males were more frequently recorded parallel swimming with other males than with females, and this difference did not vary significantly over time (Figure 4).

Approach Behaviors

- The frequency with which males turned their heads in the direction of females increased markedly over the study period, with a concomitant decrease in the frequency with which males looked at other males (Figure 5).
- Males showed a greater number of open mouths and jaw pops at females than at males, with some evidence of these behaviors peaking in the middle of the study period (Figures 6 & 7).

Contact Behaviors

- Males showed a peak in the frequency with which they touched females, and a concomitant nadir in the frequency with which they touched other males, in the middle of the study period (Figure 8). Females were never recorded touching males.
- Males pushed females more often than they pushed other males, and pushing on both sexes peaked in the middle of the study period (Figure 9).
- Males performed pelvic thrusts more often upon females than upon other males, and this difference peaked in the middle of the study period (Figure 10).

Discussion

The findings presented above support the view that belugas are seasonal breeders, with a peak of sexual contact occurring in late February - early March. That the males showed a peak in the frequency with which they appeared to attend to females, made physical contact with them, and performed pelvic thrusts at them during this time is entirely compatible with this notion.

That open mouth behaviors and jaw popping directed at females – two behaviors that are thought to be antagonistic in nature – also occurred most frequently at approximately the same time could have reflected attempts by males to coral females. Alternatively, they may have been reflective of frustration on the part of the males when females swim away. Additional observations will be necessary to distinguish between these alternatives.

That the males in this study were most often observed in parallel swims with other males, and that there appeared to be no change in this tendency over time, is suggestive of a role for male alliances in the breeding behavior of this species – a behavioral trait that has been observed in bottlenose dolphins. However, the three males in this study group neither showed consistent pairings over time, nor any evidence of cooperatively holding females. Therefore, the tendency for male belugas to preferentially remain most often in each other's company, even during breeding season, remains enigmatic.



Figure 1. Parallel Swim



Figure 2. Open mouth



Fig 3. Pelvic Thrust

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