

Classification of beluga whale, *Delphinapterus leucas*, vocalizations from the Churchill River, Manitoba, Canada

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Beluga whales, *Delphinapterus leucas*, have a circumpolar distribution in Arctic and sub-Arctic waters. They are an important part of the eastern Canadian Arctic ecosystem and are hunted by Inuit in many communities. In Hudson Bay during the summer, at least three stocks of belugas aggregate in river mouths or estuaries including (1) eastern Hudson Bay, (2) James Bay, and (3) western Hudson Bay where the Churchill River study site is located. Beluga whales are extremely vocal, particularly on their summer range. Beluga vocalizations have been studied in Bristol Bay, Alaska, USA, in the White Sea, Russia, in Svalbard, Norway, in the St. Lawrence River, Quebec, Canada, and in the Canadian high Arctic but never in Hudson Bay. The purpose of this project was to classify beluga whale calls from recordings collected in the summers of 2006-2007 from the Churchill River.

A total of 350 calls were subjectively classified based on call contour and sound from recordings collected from July 11 to August 13, 2006. From these, 227 whistles (64.9% of the total) were classified into 22 contour types, 92 pulsed calls (26.3%) are classified into 13 categories, and 31 combined calls (8.9%) consisting of both whistle and pulsed components are classified into 4 categories. The most common call was an ascending then flat whistle category that made up 41 of the total calls (11.7%). Some categories consisted of only a few calls and variation in call parameters within each category occurred.

Beluga call types were also compared during three different behaviours: feeding, socializing, and traveling. A total of 196 calls were extracted from recordings collected from July 10 to 19, 2007; sixty-six calls were emitted while the belugas were feeding, 70 while socializing, and 60 while traveling. Belugas were vocal during all behaviour types and preliminary results show no significant difference in call characteristics (minimum and maximum frequency, frequency bandwidth, and duration) between the three behaviours. Results are compared with previous research into beluga whale vocalizations.