

Skull Shape and Morphometry of Subfossil of Alaskan Polar Bear: Evidence for a new subspecies?

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A polar bear skull subfossil was found the summer of 2014 during excavation of an archaeological site near Walakpa, south of Utqiagvik. The skull's shape and morphometry were compared to previous fossil, subfossil and modern specimens.

Manning (1971) proposed that Alaska South polar bear (Table A) could be "a relict " of *Ursus maritimus tyrannus* (Kurten 1964] or alternatively that pre-modern polar bears were larger in general. *U. m. tyrannus*, recently reclassified as *Ursus arctos*, has some polar bear features but was markedly larger than the extant polar bear.

Table B. Comparison of Walakpa specimen to measurements of previously collected fossil and subfossils.
CBL: condylobasal length (cm).

ID	CBL	Geography	Time period
B.M. o. 24361*	447*	Kew Bridge, London England	Pleistocene age
US NM 83594	436	Saint Paul Island, AK	Historic (~1875)
No-ID	424	Saint Lawrence Island, AK	Historic (~1800)
The old one	410	Walakpa, AK	Subfossil (~670-800 calAD +/- 25 BMP)

Table A. Comparison of skull length data between geographical groups of polar bears. (Manning 1971)

Geography	CBL (cm)
Alaska	
North (2)	392.0 +/-3.11
South (1)	407.2 +/-4.27
Greenland	
West (3)	384.0 +/-1.60
East (5)	369.3 +/-2.56
Spitzbergen	
(4)	376.2 +/- 2.73



Walakpa specimen (top) next to present-day polar bear skull (bottom).



Present-day polar bear skull above the Walakpa specimen, showing the location of the ventral CBL measurement (black line).

The Walakpa specimen is among the largest subfossil adult polar skulls ever measured (Table B). Inuit traditional knowledge clearly references so called "king" bears (St. Lawrence Island and Barrow, AK) and "weasel" polar bears (NWT, CA) that attain minimum length of 12 feet, and are in general rare. DNA work-up is planned to clarify the subspecies question for this specimen.