



SUBMISSION TO THE

NUNAVUT WILDLIFE MANAGEMENT BOARD

FOR

Information:

Decision: **X**

Issue: Muskox Distribution and Abundance within Central Kitikmeot Group Muskox Management Unit MX-11

Background

- The Central Kitikmeot Group Muskox Management Unit, MX-11, was created in 2015. This unit is defined to the west by the Coppermine River, to the east by the Perry River, the south by the Northwest Territory border, and to the north by the Northwest Passage.
- In 2013, the western extents of the management unit were surveyed and produced an estimate of 6,746 muskoxen. Based on historic data, we suggest that muskox abundance within the remaining extents of MX-11 was likely in the range of 750 muskoxen. This combined information suggests that the population estimate of MX-11 in 2013 was approximately 7,500 muskoxen.
- Since 2015, there has been a Total Allowable Harvest (TAH) of 225 muskoxen. This represents a harvest rate of approximately 3% of the total estimated 2013 population. The TAH has been allocated as follows; 120 for Kugluktuk, 25 for Cambridge Bay, 40 for Omingmaktok, and 40 for Burnside. Since its establishment, the actual harvest within MX-11 has never reached the TAH of 225.
- Western Kitikmeot communities harvesting in MX-11 are seeking an increase in muskox harvest as an alternative subsistence harvest to caribou to improve food insecurity and to reduce harvest pressure on caribou herds to foster their recovery.

Current Status

- The inclusion of *Inuit Qaujimagajatuqangit (IQ)* into the Distance Sampling random systematic survey design, was focused on recommendation of low, medium, and high-density areas to be surveyed, as well as precautions to be used to mitigate disturbance of pregnant muskox by survey aircraft.
- The MX-11 muskox survey was flown using two Twin Otter fixed-wing aircraft between March 15 and March 27, 2022. All identified survey strata were completed, with the exception of a very few small islands along the Coronation Gulf and within Bathurst Inlet, and the southeastern most strata, Strata 9 (see Figure 1).

- There were a few small islands not surveyed due to persistent poor weather over these areas, and in the case of Strata 9, due to COVID-19 related delays to the survey program.
- Though muskox have been known to occupy some of the missed islands and given Strata 9 is well outside typical harvesting areas, the numbers missed are believed by biologists to be very low and unlikely to significantly impact the final abundance estimate.

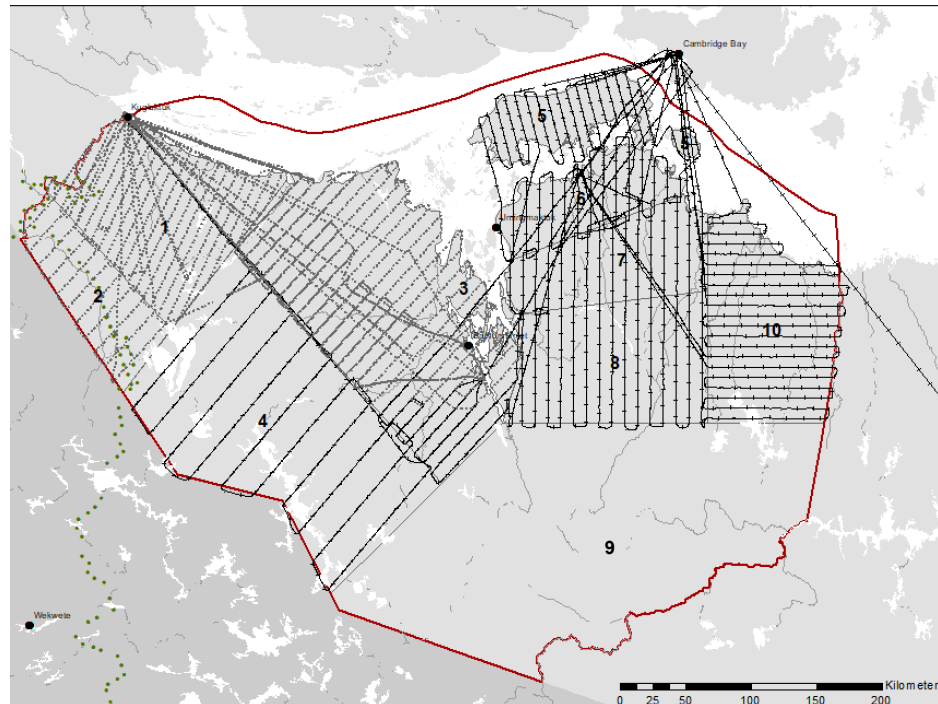


Figure 1: Completed daily flight tracks showing survey strata coverage (dotted and crosshatched lines) by both fixed wing aircraft between March 15 and March 27, 2022.

- Group sizes observed ranged from 1 to 150 muskox (the group of 150 was a single observation with maximum group sizes of 60 muskoxen for all other large group observations), with an average of 17 muskoxen per group across the MX-11 survey area. In total, 130 groups of muskoxen were used in the analysis during the survey.
- Along with the independent double observer and distance sampling methodology used during this survey, we used mark-recapture distance sampling (MRDS) analytical methods to estimate the probability of detecting muskox. Utilizing these analytical methods we estimated muskox abundance within MX-11 surveyed strata to be 10,246 muskoxen (SE= 2,309.6, CV= 20.4%). The estimate of each stratum is summarized in Table 1:

Table 1: Estimates of strata from Model 1 (Table 1). Density is in muskox per 100km²

Strata	individuals	N	SE	CIL	CIU	CV	Strata area	Density
1	1041	3,578	885.4	2,143	5,972	24.7%	15,045	23.78
2	31	178	87.4	58	539	49.2%	7,080	2.51
3	479	2,598	594.3	1,628	4,147	22.9%	28,258	9.20
4	242	2,449	1500.7	591	10,145	61.3%	29,945	8.18
5	134	538	204.7	241	1,201	38.1%	5,555	9.68
6	23	99	41.1	40	243	41.5%	6,531	1.52
7	34	146	120.6	28	762	82.8%	9,275	1.57
8	19	81	46.6	24	273	57.3%	14,137	0.58
9	--	--	----	--	----	----	----	----
10	164	579	237.0	247	1,357	40.9%	14,013	4.13
Total	2167	10,246	2085.6	6,721	15,620	20.4%	129,838	7.89

Consultations:

- The Ekaluktutiak Hunters and Trappers Organization (HTO), Kugluktuk Angoniatit Association (KAA), and Kitikmeot Regional Wildlife Board (KRWB) met with the Department of Environment (ENV) on December 19, 2022 and Omingmaktok HTO on December 21, 2022. Co-management partners were consulted on the survey and on survey results. During consultations ENV recommended an increase in TAH from 225 to 300 based on a 2.9% rate of harvest. During discussions with the HTOs and KRWB, it was suggested the TAH be increased to an approximate 3.3% harvest rate or a TAH of 350 based on concerns that a high muskox density can increase the likelihood of disease outbreaks.

Recommendation:

- ENV recommends a TAH increase of 75 muskoxen up to 300 from the current 225, representing a 2.9% rate of harvest of the overall 2022 abundance estimate.
- Based on information and IQ presented during the consultations, ENV recognizes and supports further discussion regarding the increase of the MX11 TAH above the GN recommendation. We look forward to an HTO recommendation based on further closed discussions amongst the HTOs.
- ENV further recommends that the KRWB allocate any proposed increases across the management unit to distribute hunting pressure across the entire management unit. Due to the sedentary nature of muskox, distributing hunting pressure across the management unit should help to maintain local muskox family groups within local hunting areas.