

## **West Kitikmeot Muskox Workshop**

### **Introduction:**

On October 14-15, 2014 a west Kitikmeot Muskox workshop was held in Cambridge Bay. This meeting was organized by the Government of Nunavut where co-managements partners were present: Nunavut Tunngavik Inc (NTI) and the Hunter and Trapper Organization (HTO) from Kugluktuk, Cambridge Bay, Bay Chimo, Bathurst Inlet and Gjoa Haven as well as the Kitikmeot Regional Wildlife Board (KRWB). The participants are listed in Appendix I.

The workshop was divided in to two different sections: 1) What do we know? 2) What can we do to conserve the muskox? The goal of the first session was to inform the participants on current on-going research investigation and review and discuss the current harvest practices and new management units so all the participants share the same background information. The second session aims to propose a management planning process for developing a West Kitikmeot Management Plan and review and discuss how Traditional Knowledge can be equally incorporated into the plan. Thus, this workshop engages the co-management partners in the development of the West Kitikmeot Muskox management plan. This report was written from the discussion that took place during the workshop. Verbal quotes from the participants are italicize whereas information took from notes are not.

### **Session 1: What do we know?**

#### **Scientific Background**

Scientific information was presented to the participants to reflect the past monitoring efforts of three of the new Muskox Management Units and the muskox health monitoring program. The Regional Wildlife Biologist, Lisa-Marie Leclerc, gave a talk on the new population estimates and Dr. Susan Kutz shared her expertise on the importance of muskox health, lungworms, and presented the recent findings from ongoing work.

#### Muskox Management Units:

Muskox, being a species of subsistence, requires a Total Allowable Harvest (TAH) set on the population level. The decisions to modify the Northwest Territories harvest management zone resulted in the need to survey muskox base on population delimitation as in compliance with the Nunavut Land Claim Agreement established with the creation of Nunavut.

The muskox harvest management zones were modified in management unit in July 2013. Previous zones MX-07, MX-11 and MX-10 were merged into one singular management zone MX-07. A similar change occurred on the mainland, which the previous three zones MX-13, MX-14 and MX-19 merged into MX-11. Finally, King William Island, previously referred to as MX-22, is now part of the new management unit called MX-10 that also extends into the Kivalliq region.

Due to the low genetic diversity amongst Muskox and with the virtual absence of geographical boundaries, the resulting management units represent a vast area that creates challenges to survey and management. Local HTOs are concerned that over harvesting in close proximity of communities could be a byproduct of these changes. To address these concerns, determining both the estimated number of muskox within these management unit and HTO sub-management harvest units was needed. Therefore, the HTO of Gjoa Haven created a sub-management unit that was approved by Nunavut Wildlife Management Board (NWMB) and the HTO of Kugluktuk has the support of the community to do the same.

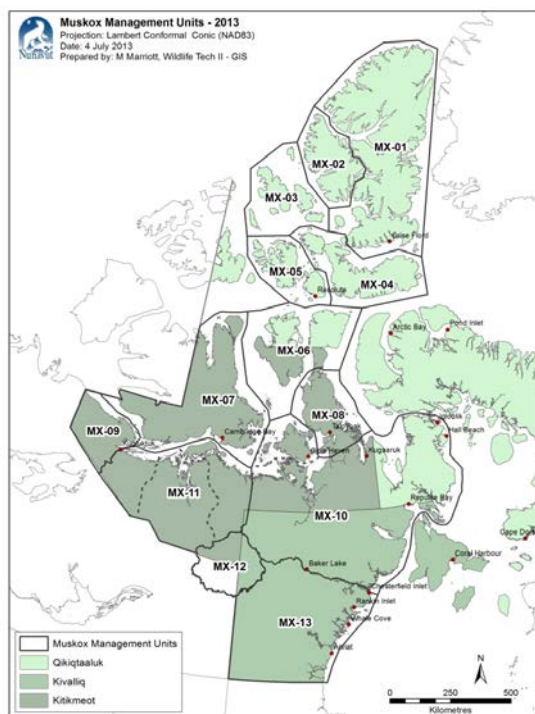


Figure1: Muskox Management Unit established in 2013. The dark green color represents the management unit in the Kitikmeot Region. Management Unit MX-07, MX-09, MX-11 and MX-12 are considered part of the West Kitikmeot.

Population surveys, MX-07, MX-10 and MX-11 (see attached PowerPoint presentation):

Aerial surveys of Muskox were carried out in the summer and fall of 2013 and 2014. Local Inuit knowledge suggested that Muskox numbers were declining on Victoria Island; ultimately resulting in the closure of commercial harvest in 2013 on that island. In contrast, populations of Muskox were believed, by local harvesters, to be on the rise in the regions surrounding

Kugluktuk and on King William Island. The proposed survey locations and stratum were established in consultation with the HTOs of Cambridge Bay, Gjoa Haven and Kugluktuk.

Aerial surveys were flown on Victoria Island (MX-07) over the course of two years in August 2013 and 2014. A total of 17,453 km<sup>2</sup> were surveyed between the two seasons representing 13% of the total study area of 134,933 km<sup>2</sup> and resulting in 1,296 observed adult Muskoxen on transects. These survey observations provide an estimated population number of 10,026 ±596 animals within the MX-07 management unit.

Surveys of King William Island and its satellite islands (MX-10, subdivision King William Island) were conducted on September 4 and 5<sup>th</sup>, 2013. Some observations were only made on adjacent Matty Island. A total of 2,496km<sup>2</sup> were flown, representing 20% coverage of the HTO managed harvesting zone of 13,935km<sup>2</sup>. During the survey, 280 adult muskoxen were recorded on transect resulting in an estimated population size of 1,564 ±182 for MX-10.

Surveys surrounding the Kugluktuk region (MX-11, Coppermine River Valley) were undertaken between September 9<sup>th</sup> and 17<sup>th</sup>, 2013. The survey found 1,331 adult Muskox on transects within the 7,017km<sup>2</sup> covered (of a total 35,564km<sup>2</sup>) of this HTO managed harvesting zone surrounding Kugluktuk. The survey resulted in an estimated number of 6,746 ±904 animals within the HTO managed region of MX-11. Anecdotal reports of some single and small groups of Muskox on small islands north of Kugluktuk were confirmed.

#### Muskox health (see attached PowerPoint presentation)

In 2008, fecal samples were collected on the south coast of Victoria Island showing for the first time, the presence of the lungworm at this location. From 2009 to 2012, a health surveillance program was ongoing during the commercial harvest taking place in Cambridge Bay.

Since the presence of lungworm was detected on the south coast of Victoria Island, urgent need to determine how this parasite could spread on the Island was needed. Thus, in spring 2013 and 2014, two separate field projects aimed to carry out fecal collection towards Hadley Bay. Two types of lungworms have been identified, one only affects Muskox and the other affects both muskox and caribou. Although, lungworms were present in Hadley Bay area, a northeast gradient of abundance were observed, south being most infected that the northeast portion of the Victoria Island. Slugs and temperature are acting as limiting factors in the spread of the parasite. Warmer conditions may support the spread of the parasite.

In 2010 and 2011, Muskoxen were found dead on the landscape during summer and *Yersinia* was suspected at the time. *Yersinia* is a bacteria found in domestic animals and rodents, related to black plague, that causes skin, blood and heart infection. However, *Yersinia* was not identified through the analysis of tissue samples but *Erysipelothrix rhusiopathiae* was detected similar to recent outbreak on Banks Island.

During the summer of 2014, sampling program, the first case of a Muskox being infected by Orf in the Canadian Arctic was observed. Emergence of new stress related diseases indicates that Muskox might face physiological challenges in coping with changes in their environment.

Muskox vulnerability to disease will decrease the availability of healthy muskoxen which are primarily targeted as a sustainable source of country food. Thus, to maintain food safety and security, the existence of health monitoring program paired with hunter education is paramount.

## **Session 2: What can we do to conserve muskox?**

### **Community Perspectives on Muskox:**

#### Community use:

Round table discussion (from notes):

#### Cambridge Bay HTO:

- A few decades ago, Muskox number on Victoria Island was estimated to be 40,000 animals. There were a lot of muskoxen and it was decided that this number was putting an unsustainable amount of pressure on the habitat. Thus, management actions were taken to reduce the population, but there were a lack of monitoring.
- In the 1970s, the Muskoxen came back and numbers were really high. Thus, they started to increase the harvesting rate in order to limit overpopulation. The commercial harvest was then a way to increase the total harvest. However, even with the use of a portable processing plant, the Muskox seemed to have been stressed, forming a zone of avoidance around these areas. It is only, by stopping the harvest for consecutive years that the Muskoxen slowly replenished the area.
- In recent years, the communities voluntarily stopped their commercial harvest to make sure that the Muskox would be more easily accessible from the community. To continue the Muskox commercial harvest and provide sustainable economic development, there was a need to develop better hunting strategies to help Kitikmeot Foods Inc. Presently the animals are scarce around the community and this proves that it is not the way the commercial harvest should take place. The animals seem to move away until they feel safe. There could be a no shooting zone around town or a hunting zone dedicated for the elders.
- Now, recent estimates indicate that the population has now declined to around 10,000 muskoxen. We did achieve our goals, but we need to see a slight increase in this population number to conserve what is sustainable for us, 400. However, we are currently taken less than 400. A harvest rate of 4% should be sustainable for a stable population (400 TAH for a population of 10,000).
- The harvest regulation package has set the Total Allowable Harvest at 1,500 for MX-07. This number has been agreed to be unsustainable and will need to be adjusted with future consultations with the HTO of Cambridge Bay and KRWB.

#### Kugluktuk HTO:

- According to Inuit knowledge disease seems to emerge when the herd reaches a large size.

- Presently, local knowledge and scientific data has confirmed a large number of animals per herd, up to 90. The HTO would like to increase their harvest rate to keep the herd size to a smaller number which they believe is associated with a healthy population.
- The current allowable harvest is set to 90 tags for the entire MX-11. Even though only 1/3 of this management unit has been surveyed, close to 7,000 animals have been counted which could support a slight increase in the number of tag for this management unit.
- HTOs have recognized the need to take the precautionary approach, as the migration and movement of the muskox herd across this management unit is literally unknown.
- To the West of Kugluktuk, MX-12, the muskox used to be found in abundance. However, the population seems to have declined drastically. Since then, the community of Kugluktuk decided to focus their harvest east of the Coppermine River. They have taken voluntary measures to exclude harvest in this management unit until the population recovers. Even with this effort having been in place for some years, local knowledge does not support any increase in numbers at this time.

#### Gjoa Haven HTO:

- No muskox was seen on King William Island few decades ago. Recently, Muskox has recolonized their previous habitat and are becoming abundant.
- The HTO would like to see the number of muskox on the island stabilize around 1,500 Muskoxen.
- The current harvest number for this management unit, MX-10 is fixed at 190 where 30 tags are allocated for King William Island. Considering the number of Muskox set alone in the HTO sub-management units, there is possibility to increase the number of tags available currently for the island.
- Although, the HTO would like to have a harvest rate of 10%, more discussion would need to take place, as 10% is not consistent with maintaining the herd at a stable number.

#### Bathurst Inlet/Bay Chimo HTO:

- Bathurst Inlet areas have 4-5 tags a year that are available to the community.
- Bay Chimo are currently using only 1-2 tags.
- In Bathurst Inlet the number of Muskoxen seems to have decreased.
- HTOs and KRWB would like to maintain the current harvesting rate and tag distribution in Bathurst Inlet until MX-11 is finished being surveyed.
- This outpost camp is also concerned about the health of the Muskox, and would like to monitor to see if lungworms are present in the area as well as other diseases.

#### Predator:

Concerns were raised about the increase of wolf and Grizzly Bear populations in the West Kitikmeot Region, Victoria Island where Grizzly and wolf seem to have extended their range. While traveling on the land, a hunter followed a Grizzly bear over a 16 to 24 kilometer distance. The hunter discovered that this Grizzly Bear had killed seven Muskoxen spread over 1 to 2 kilometer apart.

There is an importance to have a predator monitoring program in place in the region. Thus, even if the HTOs request a wolf bounty, it was made clear that the GN-DOE does not support such

initiative. However, GN-DOE mentioned that there is no limitation on the number of wolf taken and request to NWMB to open the wolf season year round could be made.

Community-based monitoring approach:

HTOs strongly emphasize the need of Inuit to be involved in each aspect of the monitoring (research) and management of Muskox. The monitoring has to involve the community, so they can be informed of the population trend and become stewards to maintain them on the landscape and to protect the animals.

*“We need to collect the harvest information, but also the health information associated with the harvest efforts”.*

Round table discussion:

Cambridge Bay HTO: There is an ongoing Muskox community-based monitoring which provides extra incomes to the community and reinforce their responsibility to care about the wildlife.

Kugluktuk HTO: For the past 2 years there have been samples kits that are distributed to hunters to collect different samples and screen for diseases. The data is then recorded.

Gjoa Haven HTO- It is only just recently that we are now having Muskox on King William Island. There is currently no study on Muskox health on the King William Island, but we are supportive of them. It is important to monitor the spread of lungworm and if is the animals are safe to eat. Extending the present monitoring to this community will help in having a bigger picture of the situation in the region.

GN-DOE and academia are working closely with the hunters to look at simplifying the sample kits, to best fit with challenges in collecting the samples with the weather and difficulty in transporting them back to the hamlet during the snow free months. In addition, HTOs would like to see more training and providing assistance to complete the samples kits on the land.

**Management and framework**

Management plan group direction:

The West Kitikmeot Muskox Management Plan needs to have a general plan that includes not only the harvest management recommendations, but also local rules made by HTO by-laws or through voluntary actions. It was highly recommended that the management plan be an adaptive one, where the tag number could be adjusted quickly to fit hunter observations and new population surveys. The management plan should incorporate equally scientific knowledge and traditional knowledge, but also Inuit customs such as: take only what you need, sharing your catch and using all parts of the animal, etc.. Regardless if the wildlife is threatened or abundant, muskox availability is an everyday concern, as it is food for Inuit.

Harvest management:

The new management units were approved by the HTOs. These new units are a great improvement and reflect better current population boundary. For example, including islands and sea-ice reflect how the distribution of the Muskox that can be found on these satellite islands or on the sea ice during winter and are now linked to specific management unit. Harvest management goals and priorities were discussed in a group to highlight the West Kitikmeot harvest priority, with the following being agreed upon:

Harvest type priorities:

- 1-Have Muskox accessible to the communities and establish an elder only access zone to allow them to continue hunting.
- 2-Subsistence harvest- provides Muskox health information to the hunter (safe to eat and handle).
- 3-Sport- No harassment of the animals and have mandatory sample kits completed.
- 4-Commercial.
- 5-Wildlife viewing.

No matter the type of harvest, the Inuit involvement in all aspects of management is important. As the Muskox population trends from Traditional Knowledge perspective were distinct for each community, their harvesting rate was different. For Victoria Island, the previous management action was to decrease the population of Muskox on the Island to a lower number. HTO want now to adjust the harvest ratio to promote a small increase in the population. For Gjoa Haven, the HTO wishes to maintain or slightly reduce the Muskox harvest numbers and are proposing a harvest of 10%. Finally, the HTO of Kugluktuk is concerned by the large herd size which could contribute to increase diseases animal. For this reason, they wish to increase their TAH and reduce the Muskox numbers.

#### Top priority of the management plan:

The first priority of the management plan is to sustainably manage the herd according to their number and trend for each specific management unit. However, other priorities were highlighted from the HTO during the Muskox workshop. These were not only limited to harvest management, but to a broader scope including health, training, habitat, and food safety. Thus, these management priorities were based upon a package deal, based on the realities experienced by users and concerns of the HTOs.

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1-Muskox health:

Recommendations:

- Monitoring the population and at the individual level
- Monitoring health; contaminant levels and the presence/absence of disease.

Actions:

- Participating with sample kit collection programs and fecal samplings.

2-Hunter education:

Recommendations:

- Training programs for hunters to learn how to travel safely on land, properly butcher and prepare meat.

Actions:

- Hunters and youth camps, community harvest
- Made pamphlet about disease and the need to be equipped properly, wearing at least gloves, etc

3-Habitat protection, land used planning and human disturbance:

Recommendation:

- Decrease the impact of anthropogenic effects on the animal and their habitat

Actions:

- Add a section in the Land Use Plan about Muskox, as these are currently absent.
- Increase the awareness of mining industry on the presence of Muskox in the landscape and minimize the effect of the mines on Muskox habitat.

4-Food safety:

Recommendations:

- There is an interest in monitoring Muskox meat for consumption.

Actions:

- Establish an onsite inspector, to be able to detect rapidly if Muskox meat poses a problem for human consumption.

5-Harvest management:

Recommendations:

- The harvest management needs to be made in accordance with the section 5 of the NLCA
- The TAH and management recommendation needs to be oriented and directed via a color code system based on the number of Muskox estimated in the management units.
- The harvest need to be sustainable and have a balance between practicing harvest rights and conservation.

Actions:

- Completion of the harvest kill sheet
- Monitoring and gathering harvest and health information

Education and outreach:

The management needs to have a strong educational and communication component to allow reaching the community user and empower to adopt responsible hunting practices and follow their customs. Having a strong communication with the community will allow having an open dialogue on community knowledge that could feed up the management plan. Thus, the management plan needs to be flexible and adaptive to allow for new information. In the Inuit culture Inuit teaching system rely on hands on experience, storytelling and visual support. Knowledge is passed from the knowledge holder, the elders, to the youth, but within the structures of the modern society, how and when to educate young hunters is the questions.

There is an importance in teaching the new hunter generation about traditional routes and be able to safely travel on the land using the traditional knowledge such as how to dress, navigate with the stars

*Community Harvest to:*

- Teach young hunters*
- Monitor muskox to guide hunting strategies*
- Contribute to muskox health sampling program*
- Promote Inuit custom by sharing meat during social events.*



and snowdrifts based on predominant winds. To teach youth hunters to navigate, it was proposed to do mini-surveys with youth to monitor how far are the Muskox (20 to 30 miles radius) are from communities and how many there are to guide harvest strategy (Kitikmeot foods commercial harvest). Community harvest is also a good opportunity to teach younger generations; it allows local hunters to keep their hunting skills sharp and provides them with a little income. Community harvest could be paired with sample collection program where hunters are also taught about diseases and how to collect samples. It was identified that promoting occurrence of social events brings people together and gives an opportunity to close the generational gaps. Annual Muskox workshops and organized community hunts allow such teaching opportunity to take place.

Such programs could be implemented with a co-manager approach, where the possible source of funding will include:

- Collaborators through Academia
- Government of Nunavut funding via different program (EDNT, DOE and the Research Budget)
- NWMB
- NGMP (health program)
- NCP (contaminant program)
- Hamlet (community harvest)
- KIA (community harvest)

### **Integrating IQ, TEK, and Local Knowledge with science for management action.**

#### Traditional ways of hunting- Inuit laws

Due to muskox past scarcity and associated hunting bans, a few generations of hunters did not master the skill required to harvest these animals until later in their lifetime. They had to learn how to harvest them by traditional knowledge, asking elders how they used to do it. Nowadays, the Muskoxen are harvested principally for subsistence and personal use although an intermittent commercial harvest is taking place in Cambridge Bay.

The hot summer months contribute to decreased muskox movements to prevent overheating and the lush vegetation has assured fat reserves for the winter months. At this time of the year, Muskox are found to have tender meat and are very fat. Thus, the prime season to harvest Muskox is during the fall time, November and December.

*"In the Inuit culture, it is taboo to leave the house with expecting having a successful hunt and wishing for exactly what you want or how many you want. If you do so, you will get nothing. Bless hunters leave the house with an open mind." - Jimmy Haniliak*

Harvesters usually take the young males, 2 to 4 years of age. Young males provide as much meat as the female as they are comparable in size, but less meat is wasted as it is more tender than the adult males. In addition, hunting young animals increases the chance to have healthy

animals where the meat has a better chance to be free of contaminants and disease. In contrast, sport harvest targets the old big bulls for trophies and the meat is less desirable.

It was also mentioned that the hunters learn to pre-screen, recognizing health animals by appearance. Once the hunter gets to his kill, if any physical appearance of diseases is perceived or the animal in poor condition, the hunters have learned not to touch the animal and will leave it there. This reflects the importance of having a healthy Muskox population.

It is important to respect the animal and not to harass them during a hunt. When on ATV or snow machine, there is a rule that stipulates that wildlife cannot be approached closer than 1.5 km. Thus, the last kilometer must be done on foot. No hunting should be taking place after April 15 when calves are born.

*“When Muskoxen are chased during hunting, the meat tastes poorly. Once they start moving it takes a long time for the Muskox to stop running. In addition, if the chase occurs during calving, the new calves are often left behind or run over.”*

#### Traditional use of muskox

Elders had the opportunity to talk about what section of meat off the animal was taken traditionally and how each part of the Muskox was used. Not only the meat is used, almost nothing is left behind. The organs in the chest cavity, liver, heart, digestive tubes, were taken. Even the stomach was turned inside out and used as a bag to package the blood and make blood soup later on.

At the community level, successful hunters share their catches not only with family or close relatives, but also with other community members in need. Since sharing is part of Inuit values, the workshop participants spoke of extending this cultural sharing to other communities in need via a sharing meat distribution program. The purpose of such program is to help other communities that experience a shortage in country foods, such as the communities of Baffin Island. Paying for country food is against the Inuit value system.

Beside the meat, the horns were used traditionally to make arrows or spear tips or simply carving into a beautiful ornament. Today, carvings made from the horn can be sold to provide small economic revenue. Making yarn of the Qiviut is a practice that is mostly done in Holman with little interest to the west Kitikmeot communities, as they traditionally used the pelt as bedding. Sharing this information amongst the group helped other members to remember their traditional knowledge. Thus, it will be important that the management plan capture this knowledge to keep their traditional way alive.

## Appendix I:

### List of Participants

#### Day 1

Colin Adjun	HTO, Kugluktuk
George Angohiatak	HTO, Cambridge Bay
Jimmy Haniliak	HTO, Cambridge Bay
Peter Kapolak	HTO, Bay Chimo
Ema Qaggutaq	KRWB
Willie Aglukkaq	HTO, Gjoa Haven
David Siksik	HTO, Gjoa Haven
James Qitsualik	HTO, Gjoa Haven, and KRWB
Sam Kapolak	HTO, Bathurst
Bert Dean,	NTI

#### Day2:

Colin Adjun	HTO, Kugluktuk
George Angohiatak	HTO, Cambridge Bay
Jimmy Haniliak	HTO, Cambridge Bay
Peter Kapolak	HTO, Bay Chimo
Ema Qaggutaq	KRWB
Willie Aglukkaq	HTO, Gjoa Haven
David Siksik	HTO, Gjoa Haven
James Qitsualik	HTO, Gjoa Haven, and KRWB
Sam Kapolak	HTO, Bathurst
Bert Dean,	NTI