

**MUSKOX  
ANNUAL SURVEY AND INVENTORY**

**STATE:** Alaska

**GRANT AND SEGMENT NUMBER:** AKW-4 Wildlife Restoration FY2015

**PROJECT NUMBER:** 16.0

**PERIOD:** 1 July 2014 – 30 June 2015

**PROJECT LOCATION:** Statewide

**PROJECT TITLE:** The Status of Muskox and Factors Influencing Their Populations

**REPORT DESCRIPTION:** This performance report describes muskox survey and inventory activities. Regionwide activities are listed before specific activities by game management unit.

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**The Status of Alaska Muskox and Factors Influencing Their Populations in  
Region III**

**Region wide Activities:**

1. Prepared 1 biennial musk ox management report.
2. Monitored and analyze mortality data of 1 muskoxen population.
3. Provide muskox management information to state and federal regulatory processes: 2 Fish and Game Advisory Committees, 1 Board of Game, 1 federal Regional Advisory Councils and 1 federal Subsistence Board.
4. Deployed radio collars on 3 muskoxen to maintain an adequate sample size to conduct surveys.
5. Conducted 4 surveys to assess population trends, distribution, productivity, and sex and age composition.

**Covers GMUs:** 12, 19, 20, 21, 24, 25, 26B and 26C

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**The Status of Alaska Muskox and Factors Influencing Their Populations in**

## **Region V**

### **Region wide Activities:**

Prepare biennial regional musk ox management reports.

A musk ox management report was prepared during this reporting period.

Provide information to state and federal regulatory processes on muskox management.

Area management staff reviewed State and Federal regulatory proposals, attended regulatory process meetings, and presented muskox information to the State Board of Game, State Fish and Game Advisory Committees, Federal Subsistence Board, and Federal Subsistence Regional Advisory Councils. In March 2015, department staff provided information to the State Board of Game on an Agenda Change Request proposal to allow the take of musk oxen from ice floes in Unit 18; an amended proposal was adopted by the board.

### **Activities by Unit:**

#### **Unit 18:**

Conduct annual aerial censuses of the Nunivak and Nelson Island populations to estimate population size and determine age-sex composition.

The department surveyed Nunivak Island on 22–26 June 2015 and observed 740 muskox. On 18-19 June 2015 the department conducted a survey of Nelson Island and 944 muskox were observed. These surveys were flown using a fixed-winged aircraft; animals were documented with digital cameras shooting out of the side windows. Animals were classified as mature bulls, mature cows, 2-yr olds, long yearlings, calves, or unknown.

Capture muskox to attach radio collars. (All animal capture activities will follow the protocols established in the ADF&G Division of Wildlife Conservation “Animal Welfare Policy” and its wildlife capture and restraint manual.)

No animals were captured during this reporting period.

Monitor the population size, distribution, and dispersal of musk ox onto the mainland through location of radio-collared animals, harvest reporting, contacts with the public, and field observations.

We talked with residents, local pilots, local Advisory Committees (AC), federal Regional Advisory Councils (RAC), Board of Game (BOG) members, USFWS personnel, and media about sightings of muskox on the mainland for this reporting period. A log of these sightings including group size and locations is being maintained in the Bethel office.

Monitor hunting and other mortality factors through harvest reporting, contacts with the public, and field observations.

Thirty four (34) muskox were harvested on Nunivak Island during the RY14 hunting season; 29 bulls and 5 cows. Two hundred and twenty five (225) muskox were harvested on Nelson Island during the RY14 hunting season; 142 were cows, and 83 were bulls.

Work with local Advisory Committees, village representatives, and other agencies to promote the establishment of a hunttable muskox population on the mainland.

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The department discussed possible changes to hunt seasons, allocations, and bag limits for Nunivak Island, Nelson Island, and mainland muskox population. Most AC members want to see the mainland population grows before considering the establishment of a hunting season. No proposal was officially prepared because there was not a call for proposals during this report time.

Work with local residents to rescue stranded muskoxen as needed and reduce kills of nuisance animals.

No animals were reported stranded during this reporting period. The department did put out a PSA advising people on how to handle nuisance animals near Bethel and conducted several interviews with media. No nuisance animals had to be dispatched, or moved by staff during this reporting time.

Continue to develop and utilize the ongoing cooperative muskox management plans ( such as the *Nelson Island Musk ox Herd Cooperative Management Plan*) in cooperation with the public and other agencies.

Two meetings discussing changes to the Nunivak Island Reindeer and Muskox Management Plan were held with the village of Mekoryuk, ADF&G and USFWS as part of an on-going process to update the plan. The Nelson Island Muskox Herd Cooperative Management Plan was talked about at AC meetings, but there was no attempt to change or update the document in this reporting period.

**Units 22 and 23SW (the portion of Unit 23 west of and including the Buckland River drainage):**

Census muskox during March and April to estimate population size on a projected schedule: 2015, 2017, etc.

Staff completed a muskox population survey during March 2015. The muskox population survey estimated  $2,287 \pm 10\%$  (95% CI: 1,895 to 2,832) animals for the entire range which included the Seward Peninsula, Unit 22A north of the Unalakleet River, and the Nulato Hills to the Yukon River and results suggest the population stabilized (1% annual increase) between 2012 and 2015. The population estimate within the entire range that includes hunting (the Seward Peninsula and Unit 23 west of and including the Buckland River drainage) is  $1,853 \pm 10\%$  (95% CI: 1,541 to 2,285) and also suggests this portion of the survey area stabilized (2% annual decrease) during the same time period. The next census is scheduled for March-April 2017.

Conduct on-ground age/sex composition surveys during March and April to determine population structure and yearling recruitment.

Staff completed composition surveys during April and May 2015. Surveys were completed throughout the range of the Seward Peninsula muskox population, this included portions of Unit 22A, Unit 21D, Unit 23, Unit 24 and all of Subunits 22B, 22C, 22D, and 22E. A total of 76 groups totaling 1062 muskox were sampled (46% of the 2015 abundance estimate). The 2012 and 2015 range wide composition survey estimated 29 MB:100C ( $pMB=15\%$  (14%-16% 95% CI)) and 39 MB:100C ( $pMB=20\%$  (18%-22% 95% CI)) respectively indicating a probable increase in mature bulls (bulls $\geq$ 4yrs).

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Recruitment rates remain low throughout the range of the Seward Peninsula muskox population. The 2015 survey estimate was 8% *pShrtYrl* (7%-9% 95% CI) range wide. Recruitment was lowest in subunit 22C and the highest in subunit 23SW with 4% *pShrtYrl* (2%-6% 95% CI) and 14% *pShrtYrl* (9%-19% 95% CI) respectively.

Capture muskox to attach radio collars. (All animal capture activities will follow the protocols established in the ADF&G Division of Wildlife Conservation “Animal Welfare Policy” and its wildlife capture and restraint manual.)

In the fall of 2014, 10 female muskox  $\geq 3$  years of age were captured and outfitted with VHF radio collars (1 in 22B, 8 in Unit 22C, and 1 in Unit 22B). All captures were ground based along the Nome road system.

Monitor distribution, and movements of musk ox through location of radio-collared animals, aerial surveys, harvest reporting, contacts with the public, and field observations.

Seasonal movements of collared muskoxen were monitored using monthly fixed-wing aircraft telemetry flights. During winter, collar locations were widely dispersed due to the presence of low snow depth found during the winter of 2015. After snow-melt and during calving, muskoxen were observed at down-slope locations in proximity to lush, and more fertile, river bottoms where browse included grasses and willows exposed from melting snow and ice. Telemetry flights found that radiocollared muskoxen increased their movements throughout the summer as collared muskoxen moved seasonally between Units 22DSW, 22C, 22B, 22D Remainder, and 22E. These movements support census results that suggest muskoxen groups make annual movements between subunits and managers should consider a broader based geographical approach to hunt management if human harvest patterns allow.

6 female muskox died during the 2014 calendar year yielding an estimated 24% annual mortality rate 95% C.L. (9.4% to 45.1% n=25). Mortality estimates of adults are likely conservative from the perspective of the population because the collared cohort, adult females, is likely to have higher survival rate than any other age-sex grouping.

This small sample of collared muskoxen represents approximately 1% of the Seward Peninsula population as of 2015, and is not randomly distributed throughout the population, so localized events such as icing, or different predator regimes may preclude the use of this mortality rate as representative of the entire population. Lastly, the selection of animals for capture is not truly random, as obviously injured or diseased animals were intentionally not selected.

Examine dead muskoxen to look for causes of death, disease, mineral deficiencies, and contaminants.

Staff visited mortality sites of both radiocollared and non-collared muskox and collected samples to look for causes of death. Muskox carcasses are quickly scavenged on the Seward Peninsula so samples are not always possible to collect.

Participate in the Seward Peninsula Musk ox Cooperators Group meetings and facilitate exchange of information and ideas between agencies and user groups.

The Seward Peninsula Muskox Cooperators Group has not met since January 2008. Information related to on-going hunt management has been made available to the

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Cooperators Group (through the Chair) and another meeting will likely occur in the future.

Monitor hunting and other mortality factors through harvest reporting, contacts with the public, and field observations.

Hunting was by Tier II subsistence permits in Units 22B, 22C, 22D, and 23SW, and by Tier I subsistence permit in Unit 22E.

The 2014-2015 harvest quota for Seward Peninsula muskox hunts was 39 muskox and hunters harvested 31 muskox, 79% of the quota.

Work with local reindeer herders to identify and minimize conflicts between reindeer and muskoxen in an effort to conserve muskoxen and allow for population growth and expansion.

Activities related to reindeer herding occurred in Units 22 and 23SW. Nome staff provided information for the annual Reindeer Herders Association meeting.

Encourage cooperation and sharing of information among agencies and users of the resource in developing and executing management and research programs.

Nome staff worked closely with BLM and NPS staff to coordinate management activities. Staff attended Seward Peninsula Regional Advisory Council meetings and reported on muskox population status and hunt administration.

Provide orientation for registration and drawing permit muskox hunters in Units 22 and 23.

Department staff used in-person and telephone interviews and web-based orientation information on the ADF&G website to provide hunters and the public with muskox identification, sex and age classification and hunting information. Staff distributed a previously completed hard copy muskox identification booklet for use by hunters and wildlife viewers during the reporting period; it is available to public from ADF&G offices.

Investigate causes of declining recruitment in portions of the Seward Peninsula using calving surveys.

A pilot study investigating the effectiveness of ground-based calving surveys was implemented on a small scale during the spring of 2014. Conducting such surveys was hampered by a lack of cohesion among observed groups. Preliminary results provide limited evidence that the observed declines in recruitment are a result of reduced calf survival not limited calf production. This reduction in calf survival is likely the result of brown bear predation during the peak calving period.

This study was not conducted in 2015 because of staff time dedicated to the completion of muskox population and composition surveys.

Continue to develop and utilize the ongoing cooperative muskox management plans (such as the *Seward Peninsula Musk ox Cooperative Management Plan*) in cooperation with the public and other agencies.

The cooperative muskox management plan is in the process of being updated and is being reviewed by cooperating agencies.

**Units 23NW, and 26A:**

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Survey muskox and evaluate population sex/age composition in Unit 23NW and southwestern Unit 26A (Cape Thompson population) at least once every 3 years on a projected schedule: 2015, 2018, etc.

The Cape Thompson population traditional count area was surveyed by ADF&G and National Park Service (NPS) using modified distance sampling techniques. The preliminary estimate for the traditional count area is 181 – 399 muskoxen.

No population counts or composition counts were attempted in Unit 26A.

Assist with census projects and conduct muskox composition surveys in eastern Unit 26A (ANWR population).

The ANWR muskox population is low and assistance with counting and composition work was not needed from Unit 26A staff.

Record muskox observations during surveys of other types of wildlife in Units 23 and 26A to document range expansion of the population.

Moose surveys in Unit 23 revealed muskox continue to expand their range eastward in the unit. Muskox observations were recorded during caribou surveys in southwestern Unit 26A.

Monitor hunting and other mortality factors through harvest reporting, contacts with the public, and field observations.

Hunting in Unit 23 NW was only by Tier II subsistence permit TX107 with a bag limit of 1 bull muskox. Six permits were issued and 3 muskox were reported taken.

All muskox hunts in Units 26A and 26B were closed in 2006 due to declining numbers and remained closed during RY14.

Examine dead muskoxen to look for causes of death, disease, mineral deficiencies, and contaminants.

No work completed, dead muskox were not encountered.

Use public education to improve understanding of the conservation value of hunting regulations and obtain better harvest data through increased harvest reporting.

We talked to students, hunters and other individuals regarding hunting, wildlife management, and conservation of muskoxen in Units 23 and 26A.

Encourage cooperation and information exchange among agencies and musk ox user groups to develop and implement management objectives.

ADF&G and NPS conducted cooperative composition surveys in Unit 23 in April 2015 finding 37 bulls (4 year and older):100 cows (3 year and older).

We worked with the North Slope Borough Fish and Game Management Committee to make recommendations for management decisions in Unit 26A.

Evaluate whether musk ox population growth will adversely affect resident reindeer and caribou populations.

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Reindeer are no longer present in Unit 26A, although reports from villages indicate people believe muskox displace caribou. Seasonal movements of caribou indicate frequent overlap with locations where muskox occur.

**Submitted by:** Peter Bente, Region V Management Coordinator