Summary Report- November 2020

Kuskokwim River Moose Composition Survey on the Yukon-Kuskokwim Delta, Alaska, 2020.

P. Aaron Webber U.S. Fish and Wildlife Service, Yukon Delta National Wildlife Refuge, P.O. Box 346, Bethel, AK 99559, USA.

ABSTRACT: The Yukon Delta National Wildlife Refuge conducted compositional moose surveys within the Kuskokwim tributaries on November 4, 13, 16, 17, and 27 covering all major drainages in year 2020. In total, we observed 568 moose: 177 bulls, 280 cows, and 111 calves (9 sets of twins): Calculated ratios were 63 bulls: 100 cows and 40 calves: 100 cows. Compositional data coupled with population data helps managers determine harvest quotas.

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Key Words: moose, Alces, composition survey, Yukon Delta

Introduction

Moose are thought to have colonized the Yukon-Kuskokwim drainages in the 1940s. Local subsistence hunters started using moose as an important subsistence food increasingly from that time forward. In recent years, salmon subsistence fishing has been regulated often with limited openers for Chinook salmon. Hunting for caribou from the Mulchatna caribou herd is closed for conservation purposes. With these limitations, moose hunting has become much more important for subsistence needs.

The Yukon Delta National Wildlife Refuge conducts both compositional and population moose surveys when conditions permit within the Yukon Delta National Wildlife Refuge and Unit 18. Weather and snow conditions, staff and pilot availability, and funding determine the success of moose surveys each year. There are currently 5 survey units within the refuge and as many as 3 survey units have been completed in one season. However, this is uncommon and surveying 1 or 2 units per year is typical with some years having no surveys completed. Survey units are on a rotational basis and should be completed every 3 years if possible. The data generated from moose surveys are used for regulatory changes for hunting and assessing the health of a population. The last time moose composition surveys were conducted within the Kuskokwim Tributaries (Zone 2) Survey Unit was in 2015.

STUDY AREA

The Kuskokwim Tributaries Survey Unit includes the Eek, Kwethluk, Kisaralik, Fog, and Tuluksak Rivers which are found within the Yukon Delta National Wildlife Refuge between the Kilbuck Mountains and the Kuskokwim River in hunt Unit 18 (Fig. 1). This area is often referred to as Zone 2 in hunt Unit 18, an area that is comprised of mostly refuge lands but includes limited State of Alaska-managed lands. Habitat variability was wide and

ranged from alder/cottonwood/willow stands to spruce/birch forests within the riparian areas. Open tundra was found between drainages and generally little time was spent surveying these areas.

METHODS

The goal of the composition survey was to observe a minimum of 400 moose and to cover all major drainages within the survey area. This subsample of the population was thought to be an adequate representation of the overall composition while covering variability between drainages. We conducted the surveys on November 4, 13, 16, 17, and 27 covering all major drainages. Snow cover was 90%, which allowed adequate detection of moose. Snow coverage below 70% coverage often results in difficulties in observing moose.

Most of the survey consisted of flying in a supercub with a pilot and observer in the backseat looking in opposite directions while flying at approximately 60-70 mph and at 300-500 feet above the ground along the riparian area of each drainage. However, on two survey days the pilot conducted the surveys alone. Efforts were generally concentrated over the best moose habitat in each drainage (riparian areas, willows etc.) and little time was spent in less favorable areas or areas that were difficult to detect moose (open tundra, heavily timbered forests). Surveying started at the boundary of Zone 1 and 2 for each drainage and we flew up the drainage into the headwaters where riparian moose habitat dwindled. Once one drainage was completed, we moved to the next drainage starting in the headwaters and flew downstream until we had covered all the major drainages in Zone 2. To the best of our ability, we categorized moose observed into the following: cows, calves, twins, and bulls. A global positioning system loaded with the survey boundaries was used to ensure complete coverage of all the drainages. For each individual or small group of moose, we marked a waypoint to help distinguish moose already counted to prevent double counting.

RESULTS

In total, we observed 568 moose: 177 bulls, 280 cows, and 111 calves (9 pairs were twins). Calculated ratios were 63 bulls: 100 cows and 40 calves: 100 cows (Table 1).

DISCUSSION

Favorable weather and snow conditions allowed us to conduct composition surveys in November 2020. During many years, there is insufficient snow cover to allow for composition surveys during November through mid-December. By mid-December, many bulls (especially larger ones) shed their antlers (ADF&G 2021) making bull categorization unreliable. Only during one survey day within the Tuluksak River drainage did we encounter conditions where snow cover was insufficient to reliably observe moose, however, we were still able to achieve our goal of 400 or more moose observed so did not return to the Tuluksak River drainage for subsequent survey effort.

The bull to cow and calf to cow ratios indicate a healthy moose population. In 2015, a composition survey was done in Zone 2 and resulted in ratios of 83 bulls to 100 cows and 62 calves to 100 cows, although the sample size for these survey results was only 245 total moose (partially due to a smaller population). Reported harvest in the Kuskokwim Tributaries has increased from 31 moose per year in 2015 to more than 90 in 2020. Some additional bull harvest would likely not negatively affect the population.

MANAGEMENT IMPLICATIONS:

This composition data helps us better understand the moose population dynamics and gives us more information to make informed decisions on season lengths and harvest quotas.

ACKNOWLEDGEMENTS

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LITERATURE CITED

Alaska Department of Fish and Game. 2021. Moose: Wildlife Notebook Series. https://www.adg.alaska.gov/static/education/wns/moose.pdf

Table 1. Total moose observed by category and bull:cow and calf:cow ratios for Kuskokwim Tributaries Zone 2, Unit 18, November 2020.

	CATEGORY			RATIO		
DATE	BULL	COW	CALF	BULL:COW	CALF:COW	TOTAL MOOSE
11/2015				83:100	62:100	245
11/2020	177	280	111	63:100	40:100	568

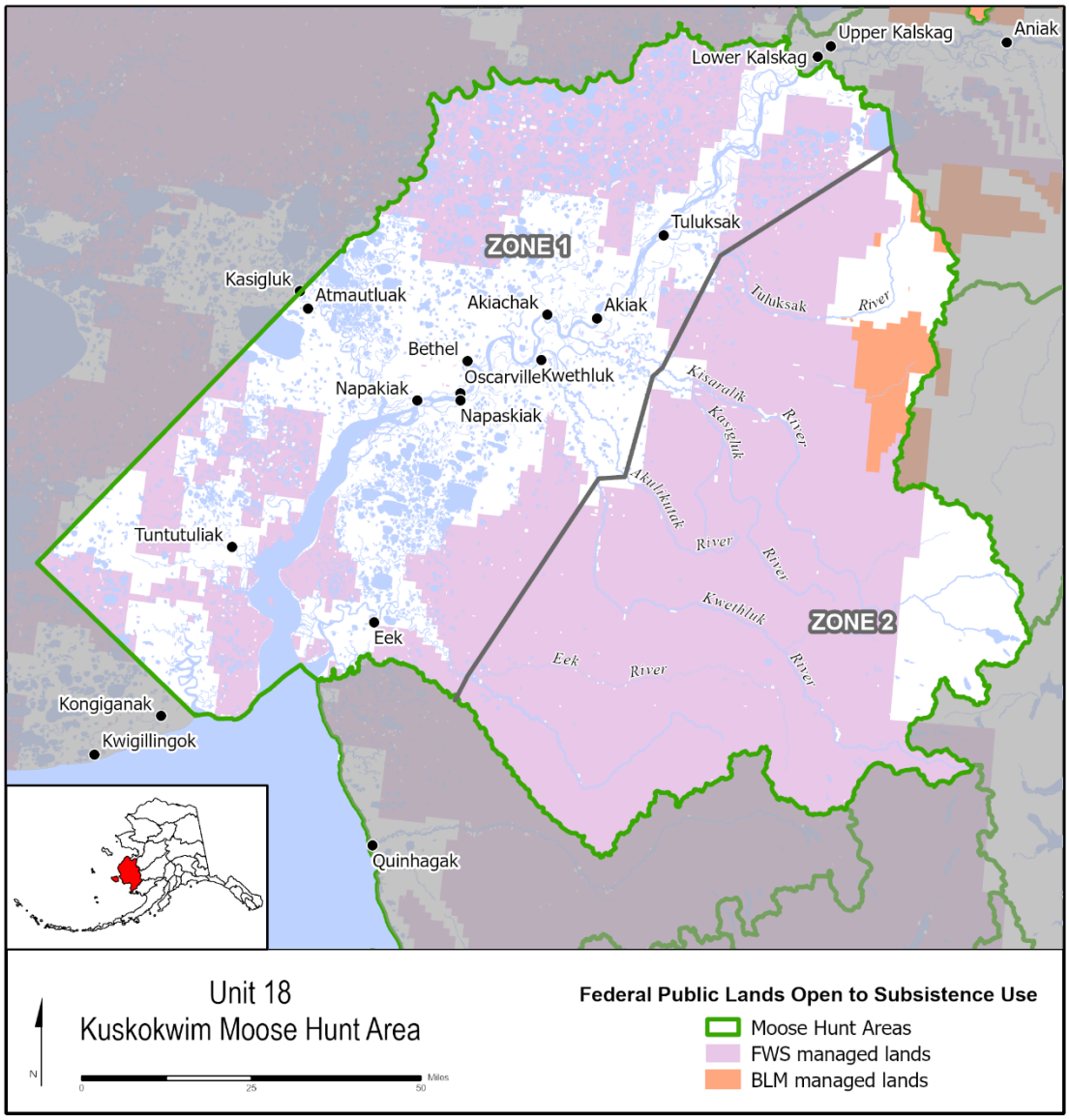

Figure 1. Map of the Kuskokwim Tributaries Survey Unit 18 (Zone 2).