Baffin Island Caribou Spring Composition Survey Report 2019

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Executive Summary

Barren-ground caribou (*Rangifer tarandus groenlandicus*) occur across Baffin Island and are distributed roughly into north, south and central groupings across Baffin, and ancillary Islands. Local hunters, trappers, and community members began to suspect a decline in the Baffin Island caribou population in the mid to late 1990s. In February and March of 2014 the Government of Nunavut, Department of Environment (DOE), conducted aerial surveys on Baffin Island, Melville Peninsula and surrounding islands, to estimate the number of caribou on Baffin Island. The 2014 survey effort estimated 4,652 (95%CI=3,462-6,250; SE=702.79; CV=0.15) adult and yearling caribou across Baffin Island and ancillary islands. This finding confirmed a major decline of caribou on Baffin Island from the estimates of caribou in the 1990s based on Inuit Qaujimajatuqangit.

The 2014 survey results and community-based observations lead to the establishment of an eight-month moratorium beginning on January 1, 2015. Following a round of intensive consultations with all Baffin Island communities, and a letter submitted for decision to the Nunavut Wildlife Management Board (NWMB) recommending the establishment of a TAH of caribou be established on Baffin Island, a decision was reached to establish a Total Allowable Harvest (TAH) of 250 male caribou.

Since the 2014 survey, the DOE has conducted fall and/or spring aerial composition surveys from 2015 to 2019 as a means to monitor productivity and relative densities of caribou across Baffin Island. The objectives of these monitoring indices were to:

1) Estimate the overall composition of the subpopulations including the north Baffin grouping, south Baffin grouping, and central Baffin grouping; i.e. what proportion of the population are young bulls, old bulls, cows, yearlings, and calves.

2) Estimate the trajectory of abundance of the three main groupings of the Baffin Island caribou population based on demographic composition. Using spring composition results, determine through a comparison between fall composition results, and where possible, similar tundra-wintering barren-ground subpopulations, if an index of calf productivity (measured as calves per 100 cows) suggests an increasing or decreasing population trend.

3) Monitor the proportion of bulls in the population to ensure that the bull only harvest is not reducing bulls to a proportion that could interfere with breeding (rutting) success.

4) Build a database with which to estimate the current population trend through demographic modeling, utilizing all demographic composition data to project a trend from the 2014 population estimate.

5) Provide information for discussions regarding management actions (including TAH) and monitoring plans and intensity.

In the spring of 2019, we classified 1,584 caribou (bulls, cows, yearlings, and calves) on southern Baffin Island. Calf:cow ratios for South Baffin were varied from the lowest ratio of 42 calves:100 cows on Hall Peninsula to the highest ratio of 69 calves:100 cows on Loks Land, suggesting good productivity in the spring of 2019. All regions combined or otherwise, produced ratios within or above the suggested 30 calves per 100 cow baseline for taiga-wintering populations. However, there is risk associated with using baseline values from taiga-wintering populations to identify population trend in tundra-wintering caribou. The regional variation in calf:cow ratios between relatively close areas highlights the importance of surveying multiple regions to determine trends in productivity.

To effectively monitor and manage the successful recovery of caribou on Baffin Island, there are many additional pieces of information required. These include: 1) The total harvest between the 2014 population estimate and the 2019 spring composition survey (legal and illegal), 2) Multiple year estimates of recruitment (over winter calf survival), 3) Productivity and sex ratio trends for the different sampling areas, and 4) Overall health of caribou within the different survey regions.

Delineation of caribou groups on Baffin Island would allow management and monitoring to occur at smaller scales, specific to group/subpopulations. A Global Positioning System (GPS) telemetry program would greatly increase the effectiveness of composition surveys and could provide the information required to delineate subpopulations/groupings of caribou on Baffin.