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2015 Population Estimate and 2015-2017 Demographics Population Indicators of the Dolphin and Union Caribou Herd (*Rangifer tarandus groenlandicus x pearyi)*

Department of Environment

Lisa-Marie Leclerc

June 2018

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Concerns expressed in 2014:

- The Community of Cambridge Bay expressed concerns about the recent lack of Dolphin and Union caribou around their community in the Fall (change in movement or population decline?).
- Preliminary results of a Traditional Knowledge Study showed a decline of ~85% of the Dolphin and Union caribou around the community of Cambridge Bay.
- With the decline in neighbouring barren-ground caribou herds, there was a need to update the Dolphin and Union population estimate from the last survey in 2007.
- There was a need to fill knowledge gaps while developing a collaborative (territorial and federal) management plan as this was a federal requirement under SARA.

These concerns triggered a extensive research and monitoring program on this herd.

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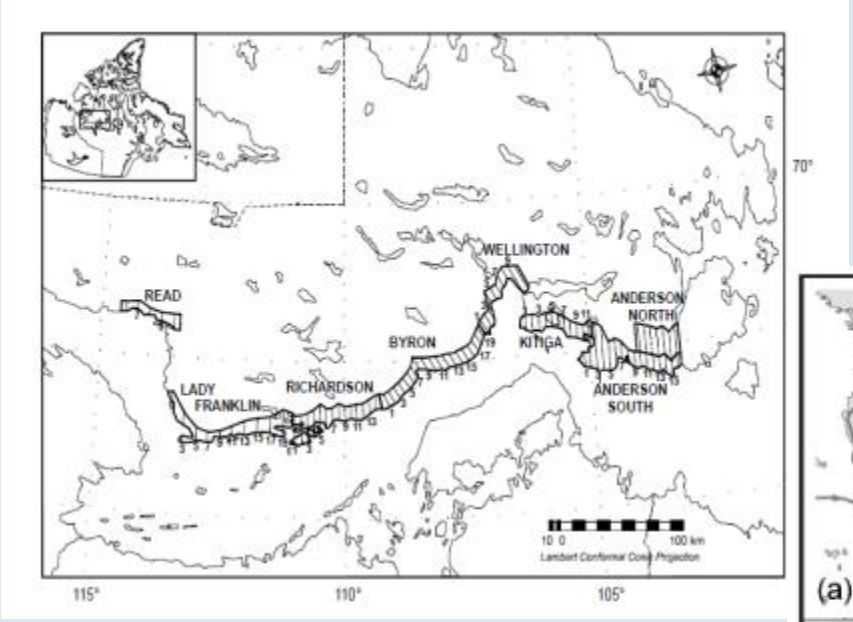
Dolphin and Union Caribou Herd population estimate
October, 2015

Distribution



(Nishi and Gunn, 2004)

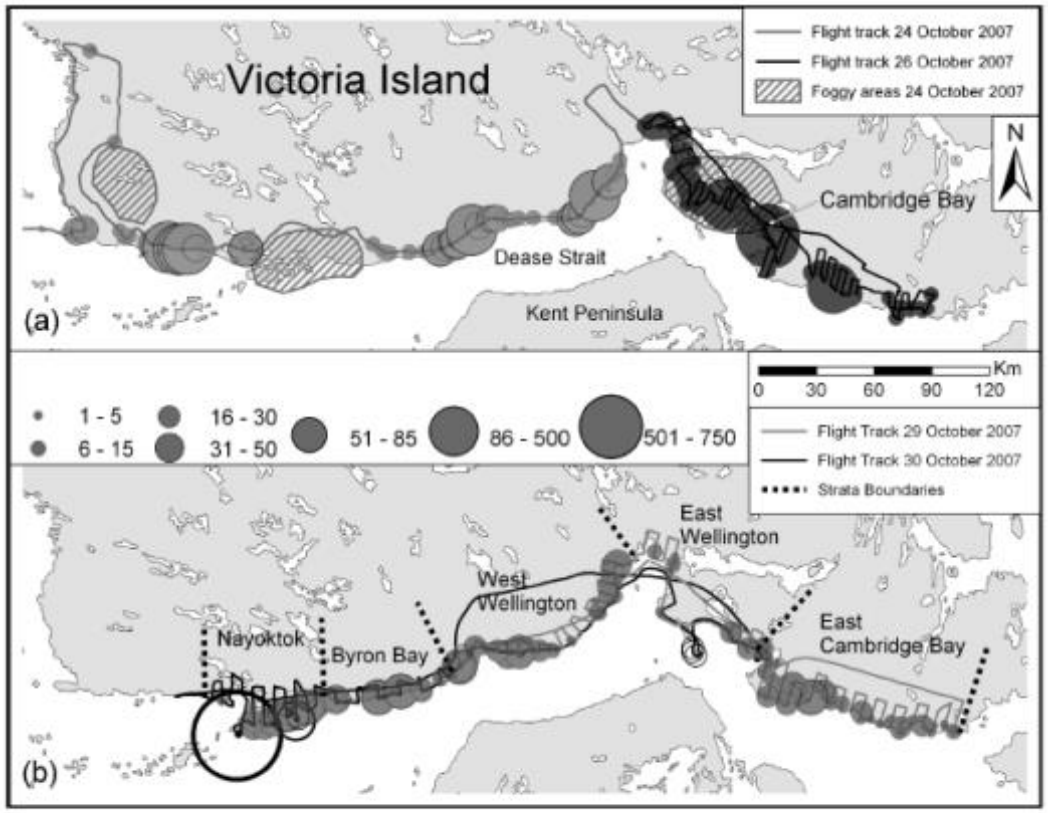
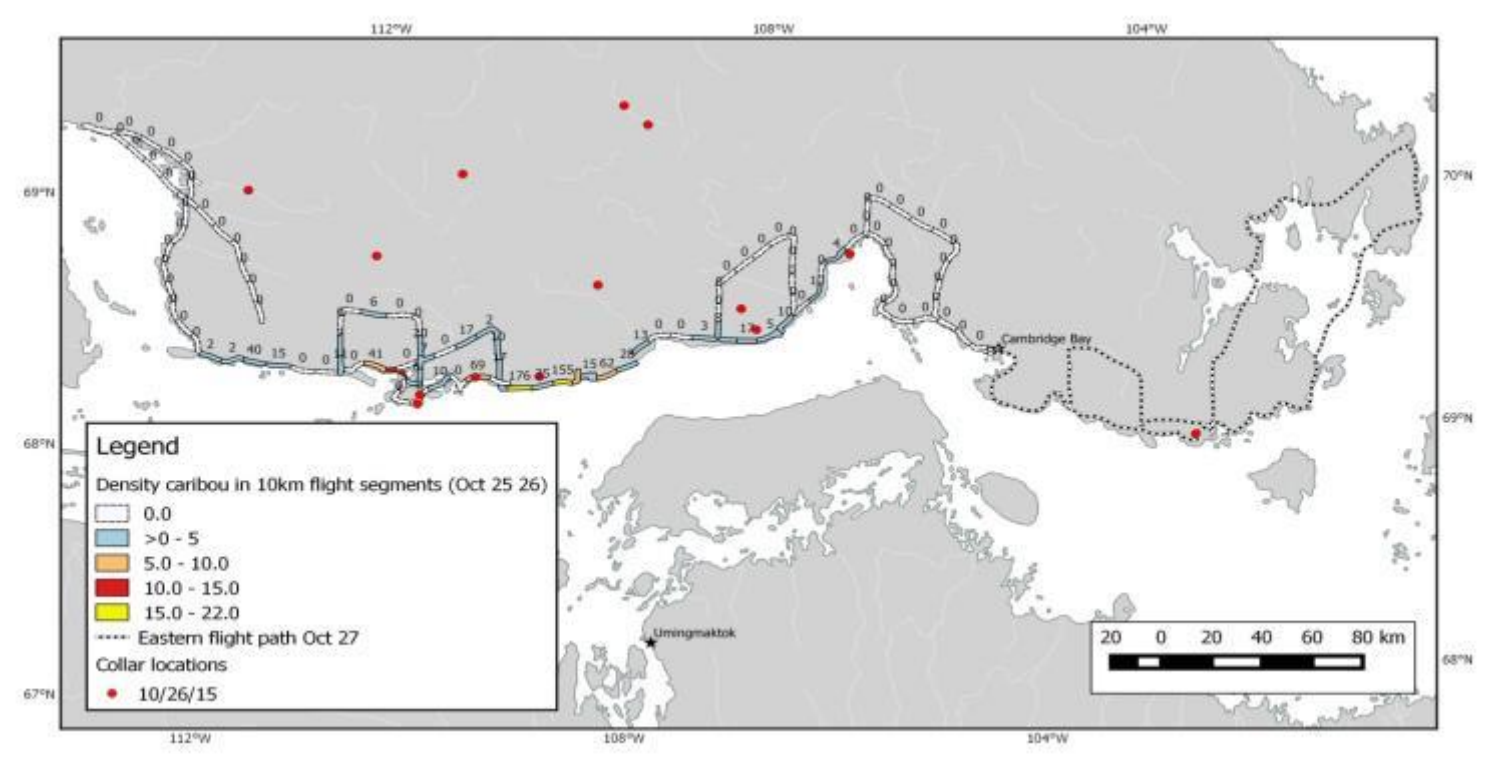


FIG. 3. Dolphin and Union Caribou herd 2007 survey area and caribou observations on the southern coast of Victoria Island, Nunavut. (a) Caribou observed during the aerial reconnaissance survey on 24 and 26 October. (b) Distribution and abundance of caribou observed on transect during the systematic aerial survey on 29 and 30 October. Names of strata and their boundaries (dotted lines) are also shown.

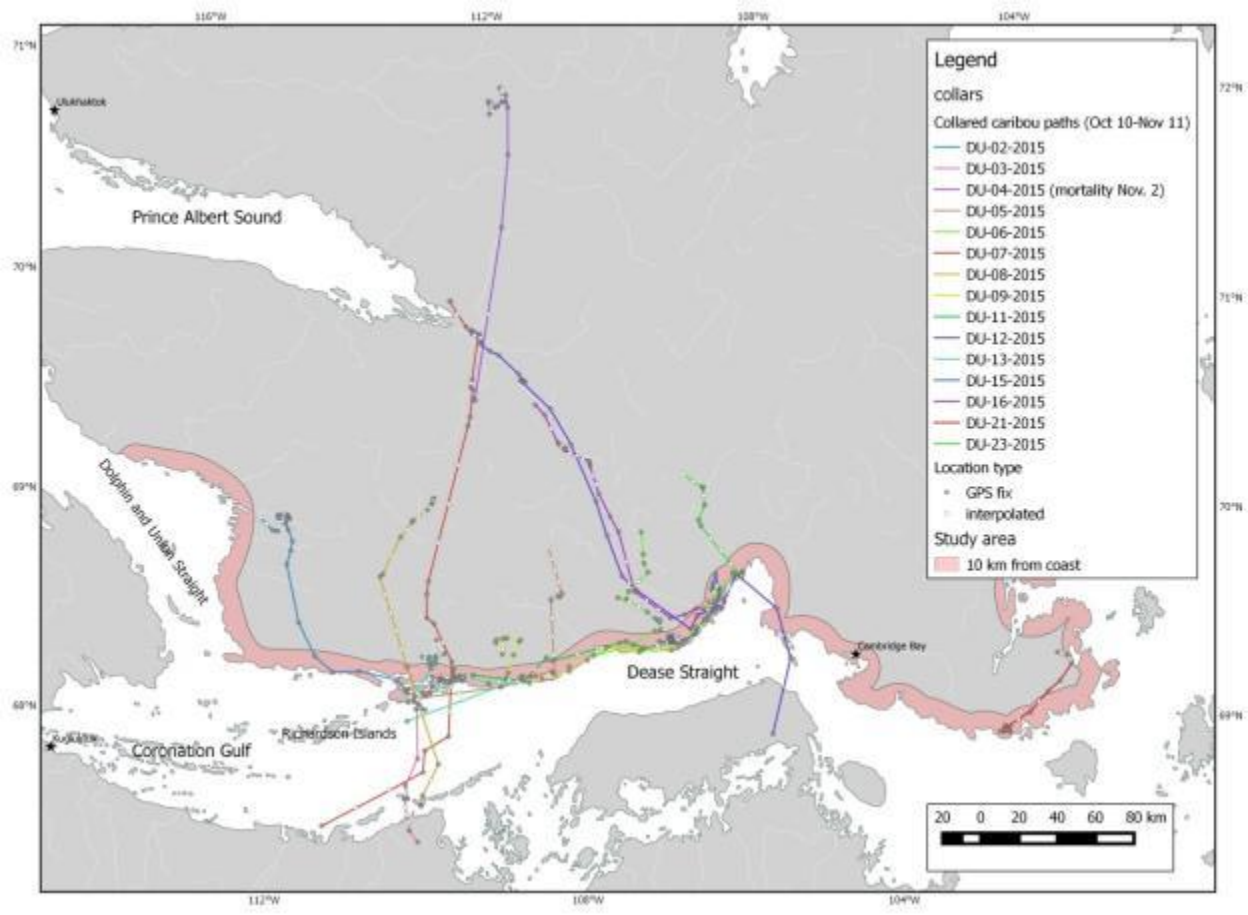
(Dumond and Lee, 2013)

Caribou Surveys – Dolphin and Union

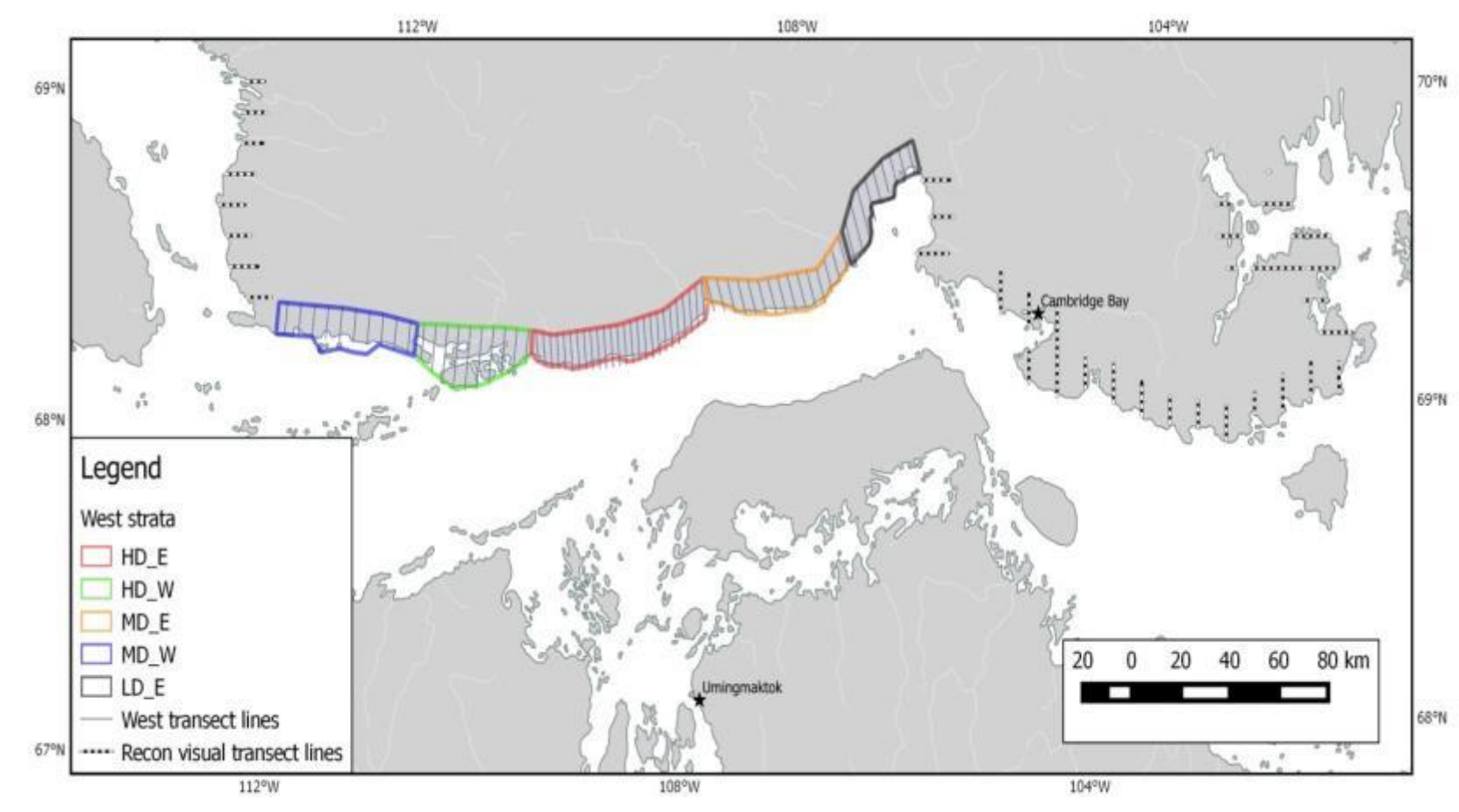
- Map of final systematic reconnaissance flights on October 25 and 26 and 27.



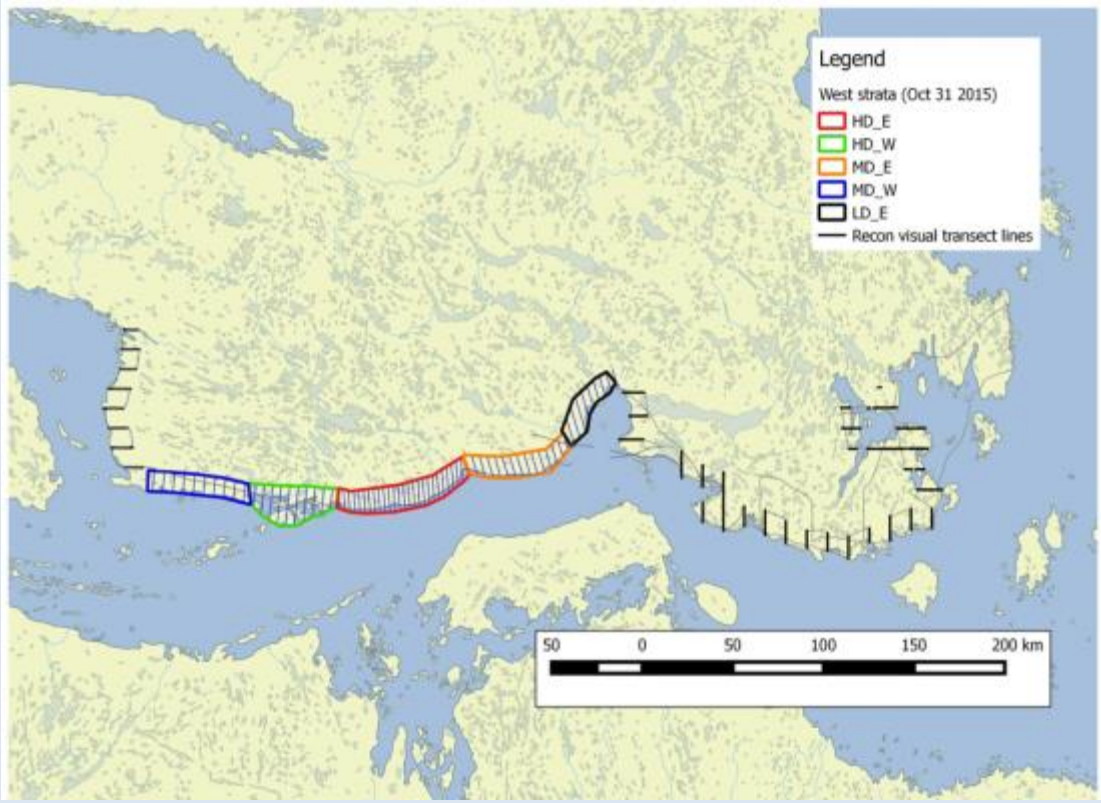
Caribou Surveys – Dolphin and Union

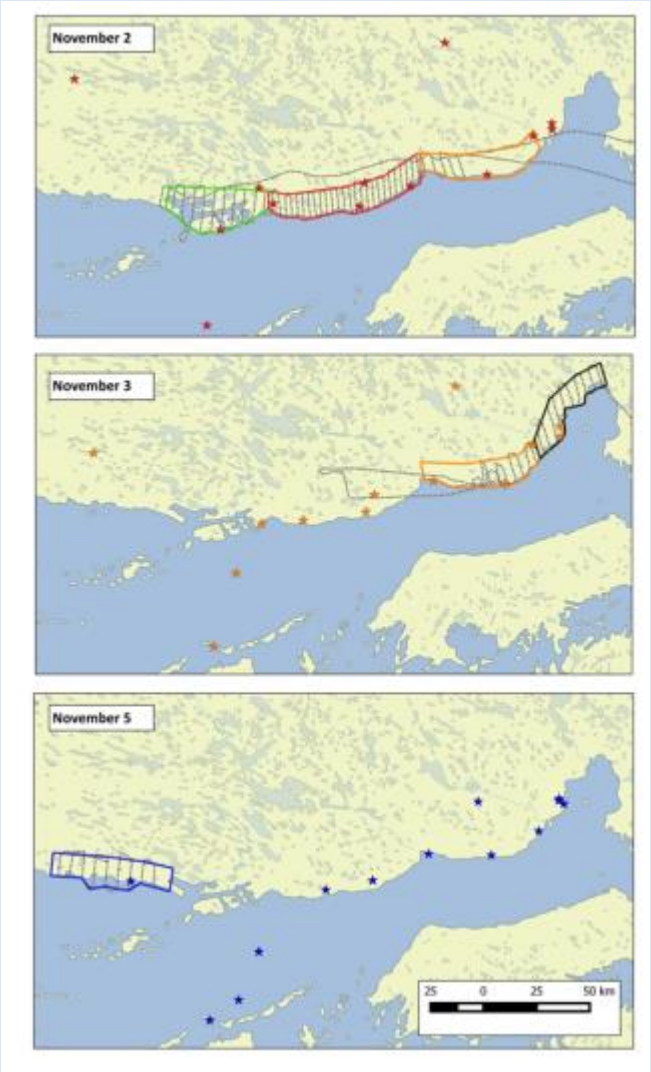


Caribou Surveys – Dolphin and Union

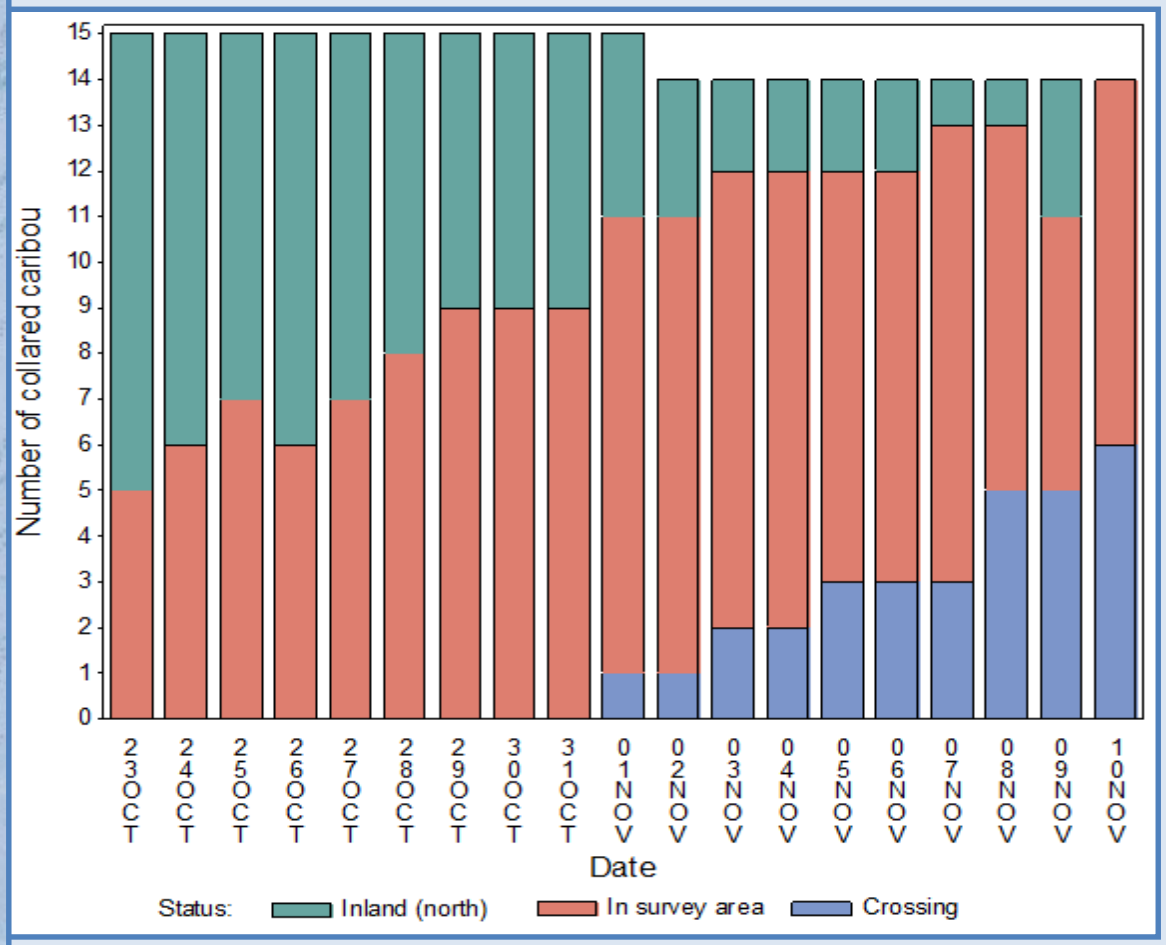


Caribou Surveys – Dolphin and Union



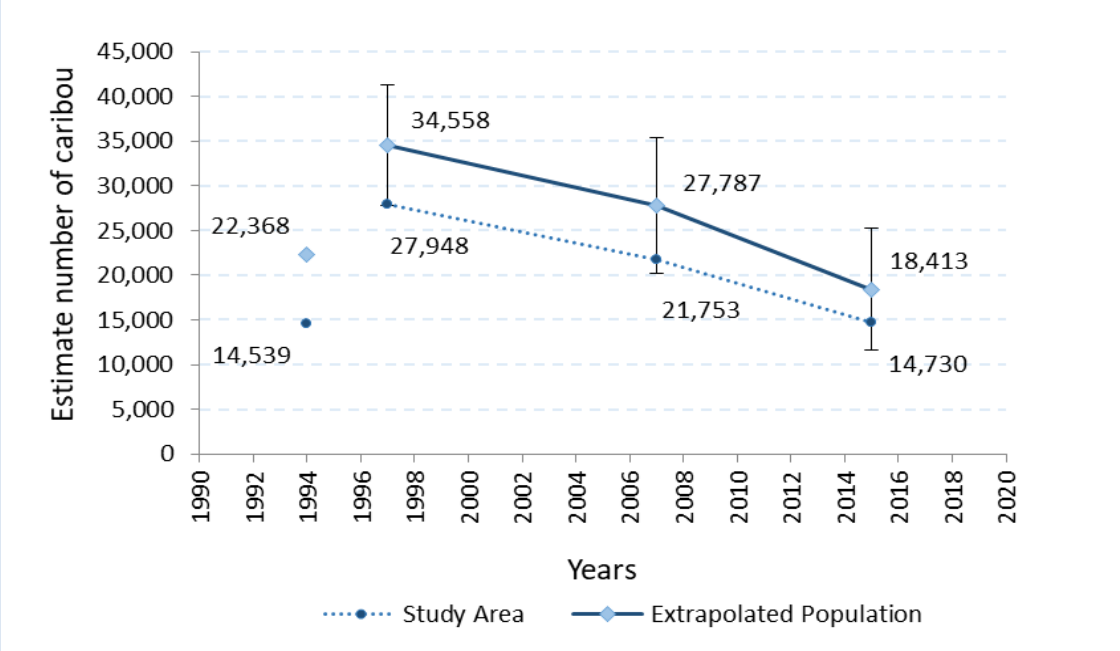


Caribou Surveys – Dolphin and Union



Dolphin and Union Population Status

- The resulting estimate of caribou of 14,730 (CI= 11,475-17,986) was precise with a coefficient of variation of 10.2%.
- in fall 2015, with the extrapolated population of Dolphin and Union caribou estimated at 18,413 ± 6,795 (95% Cl, 11,664-25,182).



This estimate shows signs of decline relative to the 1997 survey estimates.

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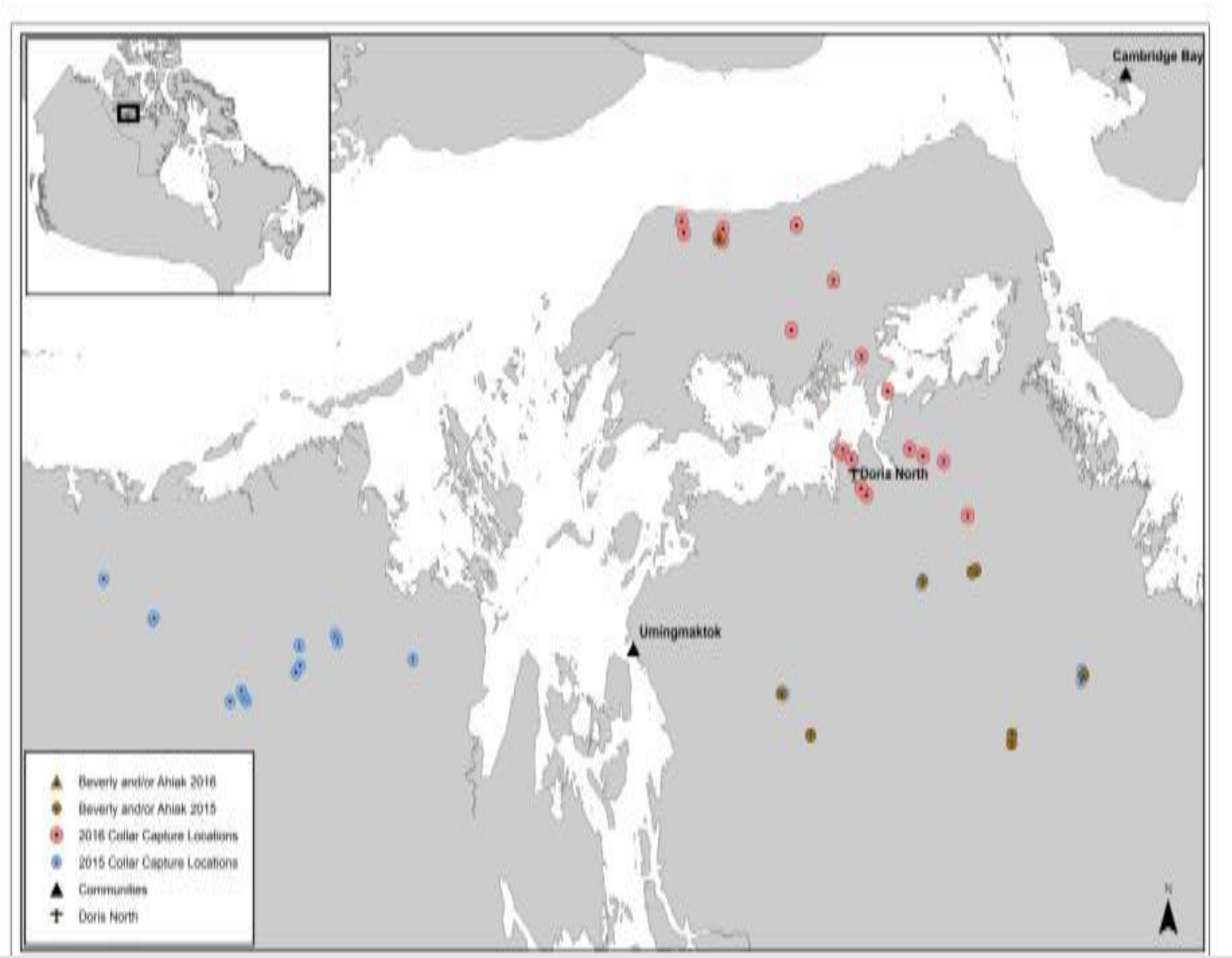
Dolphin and Union Caribou Herd Demographic Indicators 2015-2017

Dolphin and Union Collaring



Dolphin and Union Collars

2015 (April)

- 17 DU

2016 (April)

- 18 DU collars deployed
- Total of 28 DU (10 from 2015 and 18 from 2016)

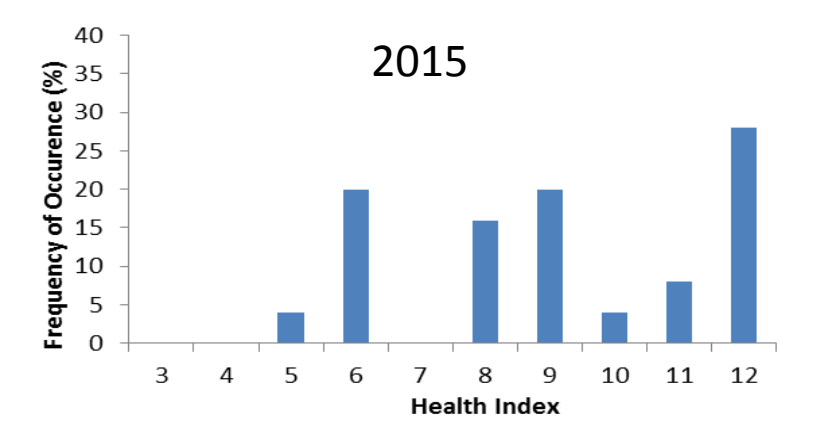
2018 (January)

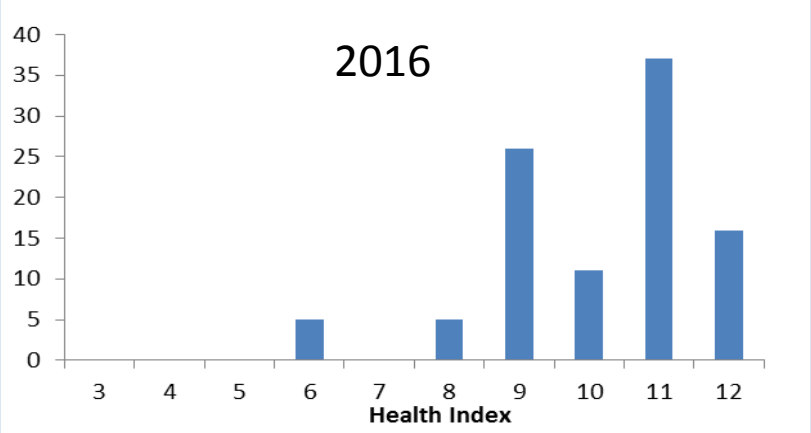
- 4 DU from 2016, DU from 2015 released.

Dolphin and Union Health

The total score ranged on a scale from 6 to 12, where 12 is the healthiest caribou. For both years, no caribou scored below 4; with a mean of 9 for both years (Figure 3, A and B).

The majority of DUC scored 12 where it was hard to feel the edges of the bones of the shoulders, the ribs were nearly flush with fat tissues between them, and the hips were well padded.





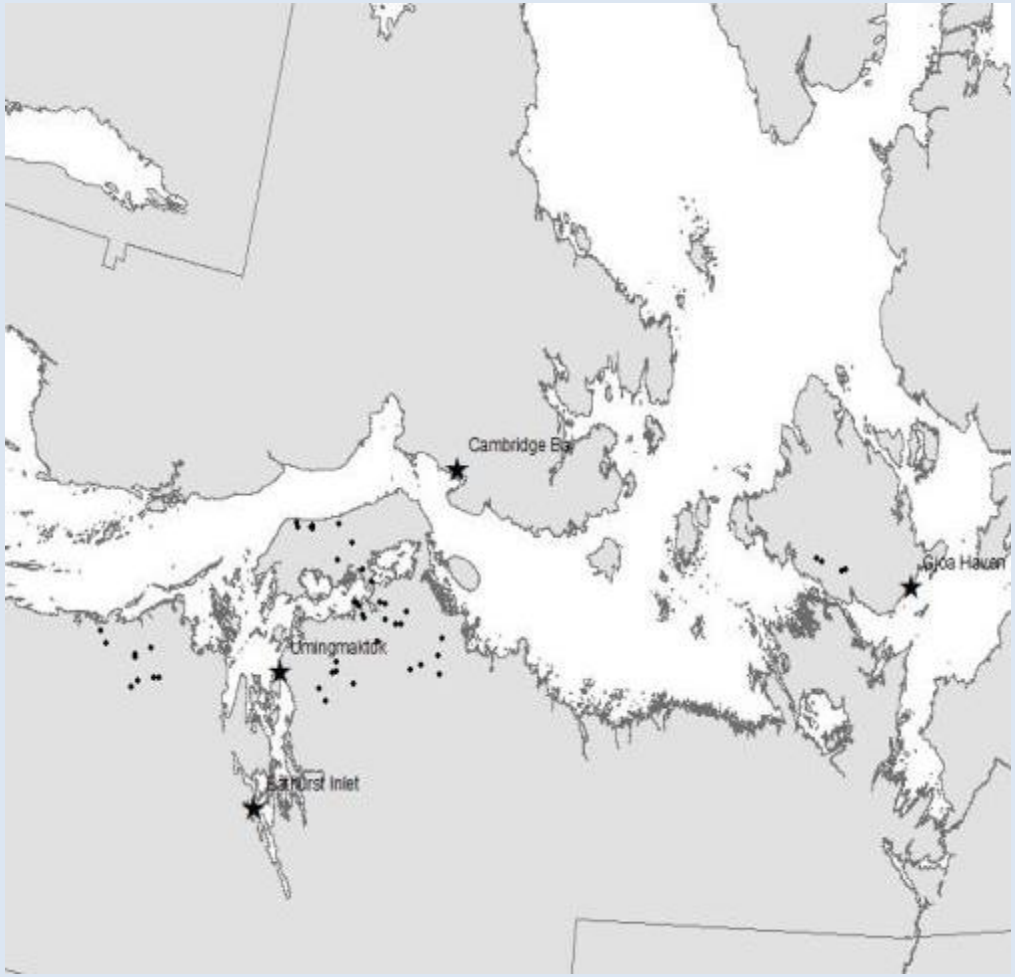
Dolphin and Union Genetics

Samples:

48 caribou pellet swab samples from 2015-2016 collared caribou

75% success rate (36/48) samples with 92% for the 2015 samples (23/25), 2016 contained 5 ground samples (3/5).

None of these individuals had previous detections in the Nunavut genetics data base



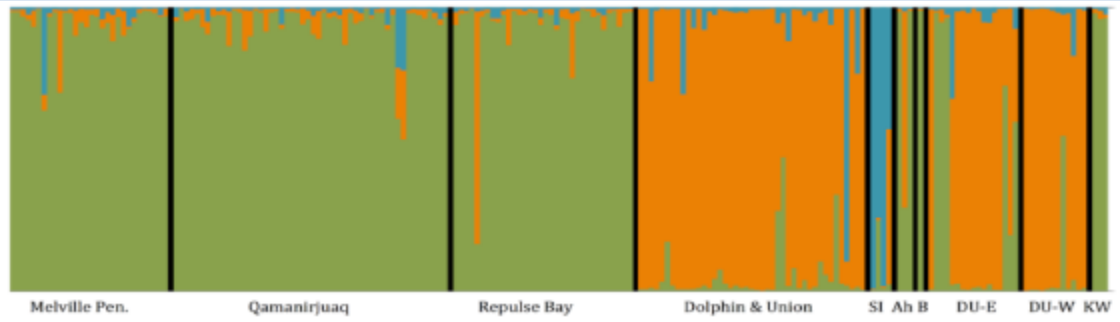
DU genetics- 2015-2016

Population	Individual ID	Peary	DU	BG
Ahiak	DU-01	0.00	0.01	0.99
Ahiak	DU-08	0.01	0.69	0.29
Ahiak	DU-20	0.01	0.01	0.99
Bathurst	DU-62	0.01	0.01	0.99
DUE	DU-09	0.01	0.99	0.01
DUE	DU-10	0.01	0.01	0.98
DUE	DU-17	0.01	0.04	0.95
DUE	Du-18	0.02	0.01	0.96
DUE	DU-21	0.32	0.65	0.02
DUE	DU-23	0.02	0.96	0.03
DUE	DU-25	0.01	0.98	0.01
DUE	DU-51	0.02	0.98	0.01
DUE	DU-53	0.00	0.98	0.01
DUE	DU-54	0.01	0.97	0.02
DUE	DU-57	0.05	0.94	0.01
DUE	DU-59	0.05	0.92	0.03
DUE	DU-61	0.02	0.98	0.01
DUE	DU-65	0.01	0.99	0.01
DUE	Du-22	0.01	0.27	0.72
DUE	DU-58	0.00	0.80	0.19
DUE	DU-64	0.08	0.33	0.60
DUW	DU-02	0.01	0.99	0.00
DUW	DU-03	0.01	0.99	0.01
DUW	DU-05	0.01	0.99	0.01
DUW	DU-11	0.01	0.99	0.00
DUW	DU-12	0.01	0.98	0.01
DUW	DU-13	0.01	0.98	0.02
DUW	DU-14	0.02	0.97	0.01
DUW	DU-15	0.03	0.43	0.55
DUW	DU-16	0.02	0.97	0.01
DUW	DU-04	0.17	0.79	0.04
DUW	DU-06	0.01	0.99	0.01
DUW	DU-07	0.01	0.98	0.01
King William	GHCAR02	0.01	0.02	0.98
King William	GHCAR03	0.01	0.03	0.96
King William	GHCAR05	0.02	0.01	0.96

Barren-ground, Peary Caribou, and Dolphin and Union Caribou are genetically clearly distinguishable

Two Dolphin and Union caribou show a mix in ancestry (DU-64 and DU-15)

In April, there are both Barren-ground and Dolphin and Union caribou on the East side of Bathurst Inlet where their field identification can be more difficult

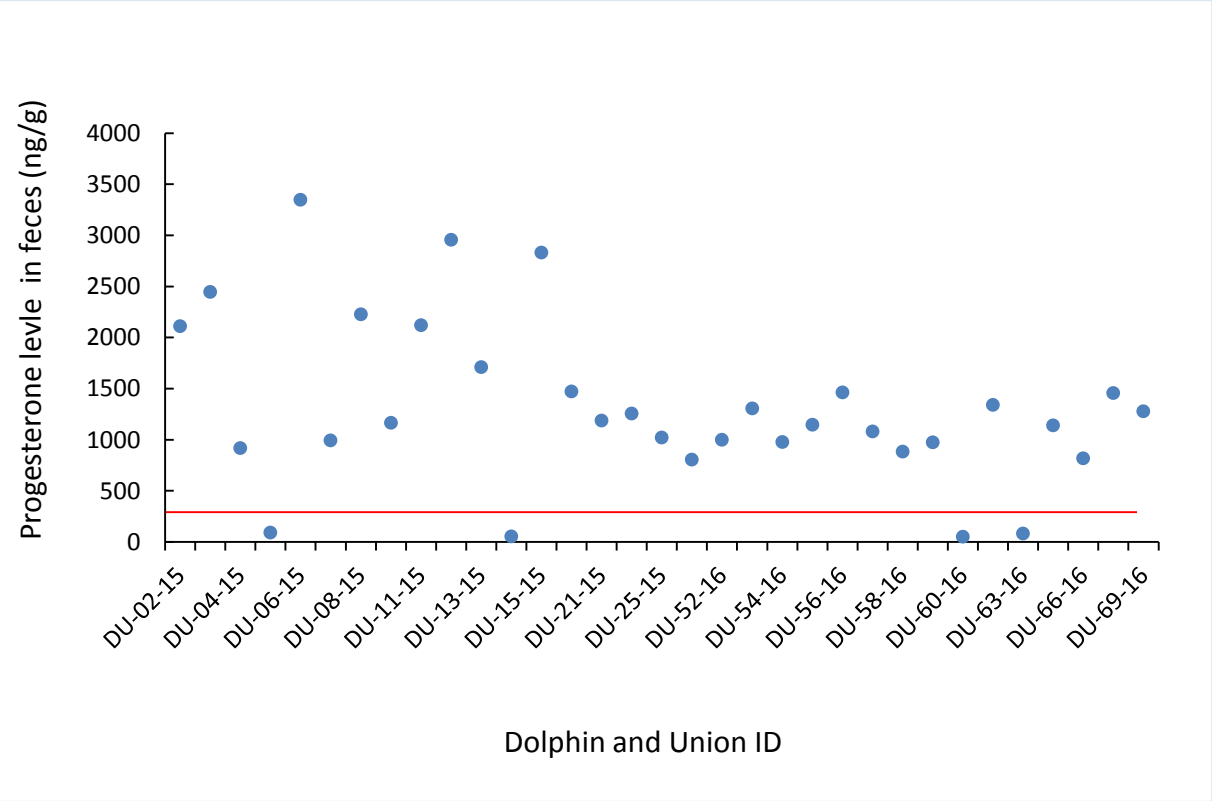


Dolphin and Union Pregnancy - 2015-2016

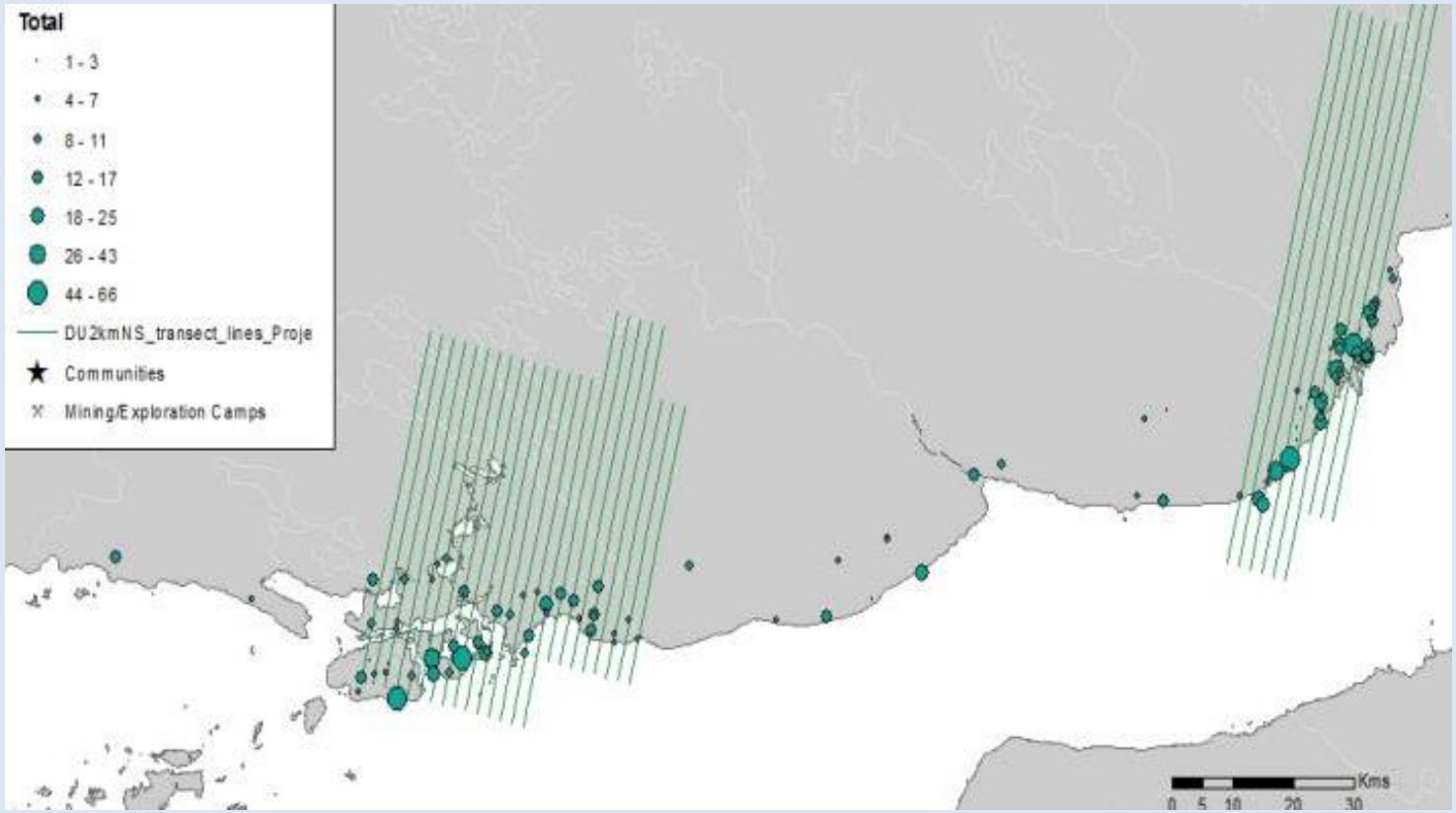
Fecal progesterone metabolite values for 43 samples:

Non-pregnant: 20-200 ng/g feces
Pregnant: >600 ng/g feces

The pregnancy rates were 88% in 2015 and in 2016.



Dolphin and Union composition survey – Fall 2016



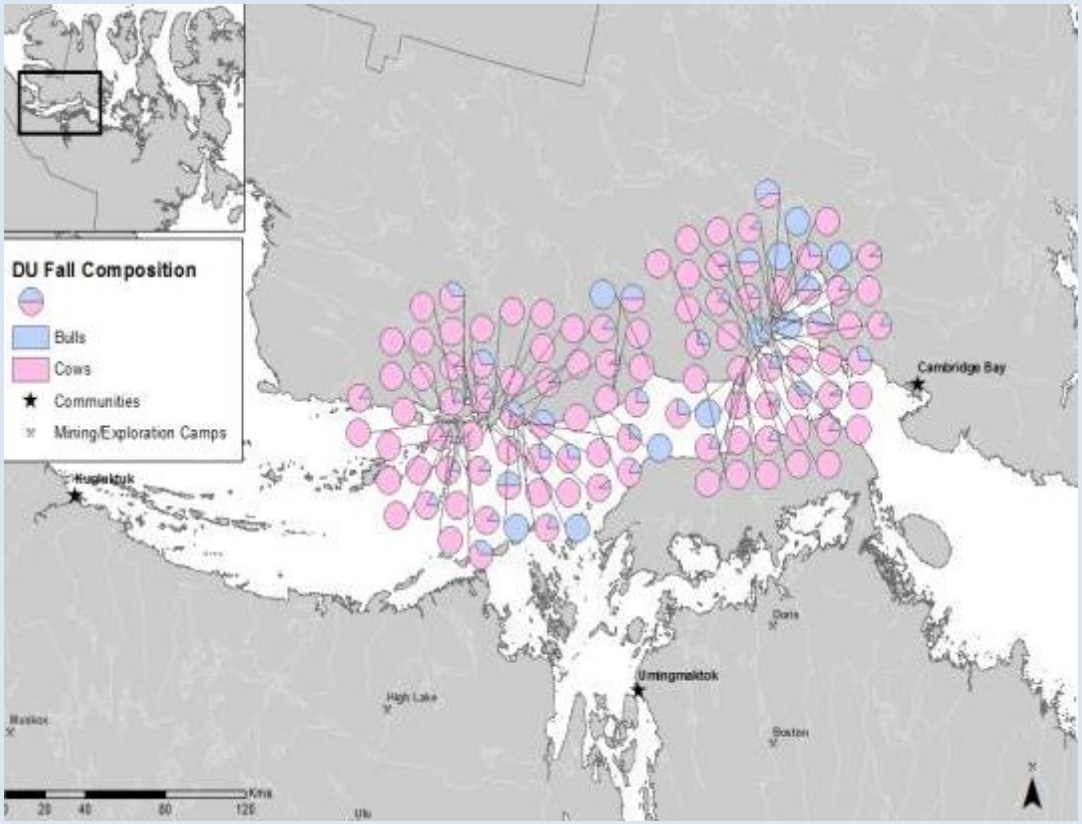
Dolphin and Union composition survey – Fall 2016

Fall 2016:

During this survey, 136 groups were taken into consideration and 1,225 caribou were classified; there were 873 cows, 218, calves, 129 yearlings and 134 bulls.

Both Ross Point and Cape Peel had a low bull:cow ratio (0.15), which suggests a uniform distribution of sex along the shoreline.

The calf:cow ratio was of 0.25



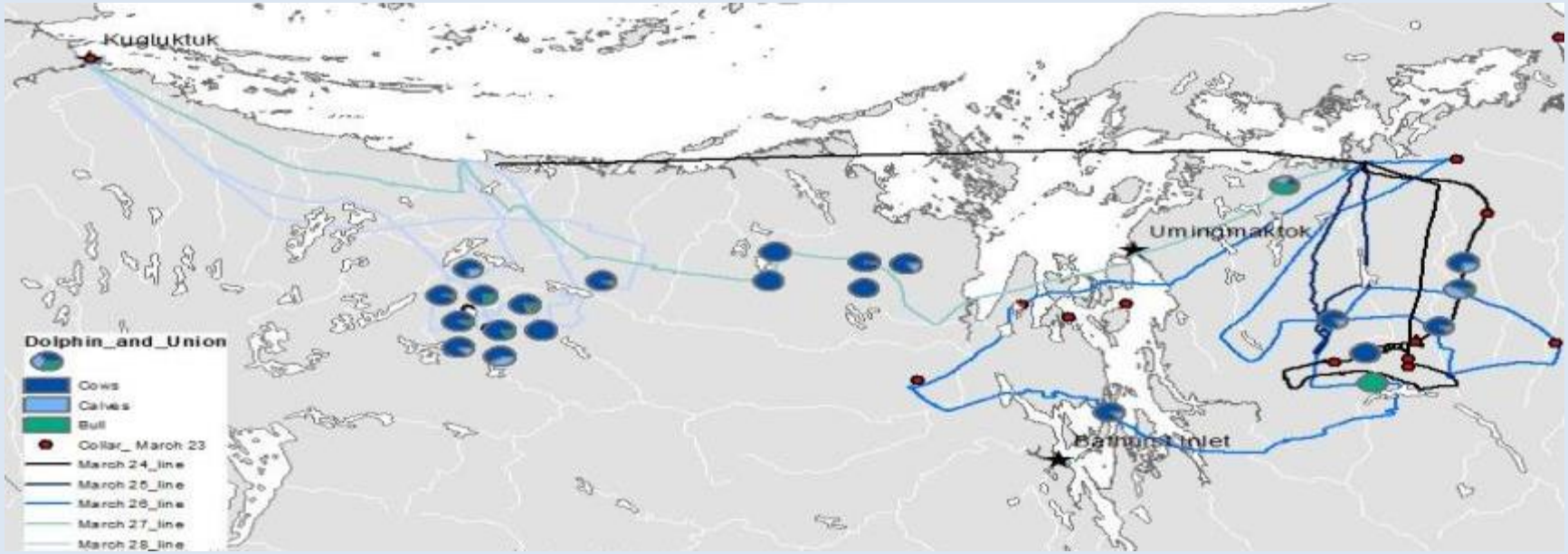
Dolphin and Union composition survey – Spring 2017

Spring 2017:

The spring composition survey was performed from March 24 to 28, 2017 on the Canadian mainland from Tree River to Hope Bay. To help in finding groups of caribou, collar location (red dot) were visited.

From the 17 collar locations in the study area, 15 were visited and only 2 collars were seen. Thus, 24 groups and 229 caribou were classified.

The calf:cow ratio was establish at 0.11.



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Consultation on the Results

- KRWB AGM, 2015: Progress report on fall population surveys
- January 11-13, 2016: Second Joint Meeting in Cambridge Bay, NU, progress report on fall population surveys.
- April 19, 2016: Draft Consultation with the Cambridge Bay HTO and Community of Cambridge Bay, progress report on fall population surveys.
- April 28, 2016: Draft Consultation with the Kugluktuk HTO and Community of Kugluktuk, progress report on fall population surveys.
- KRWB AGM, 2016: Final result on fall 2015 population survey and progress report on the fall 2016 composition survey
- May 25, 2017: Consultation with the Cambridge Bay HTO. Final result on fall 2015 population survey and final results on the fall 2016 composition survey and progress report on the spring composition surveys
- KRWB AGM, 2017: Final results on the demographics indicators: pregnancy rate, fall and spring composition surveys, and sex ratio.
- January 24, 2018: Consultation with the Kugluktuk HTO, final results on the research program on the Dolphin and Union Caribou herd (2015-2017 population estimate and demographics indicators) and future 2018 monitoring programs.
- February 1, 2018: Consultation with the Cambridge Bay HTO, final results on the research program on the Dolphin and Union Caribou herd (2015-2017 population estimate and demographics indicators) and future 2018 monitoring program.
- February 22, 2018: Consultation with the Cambridge Bay Community, final results on the research program on the Dolphin and Union Caribou herd (2015-2017 population estimate and demographics indicators) and future 2018 monitoring program.
- July 18, 2018: Consultation with the Kugluktuk HTO, Dolphin and Union caribou herd management recommendations base on the report finding.
- September 28, 2018: Consultation with the co-management partners on the report, bring additional clarification, and discuss the management recommendations.

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Application of the research results:

- Provided additional insight and confirming the decreases in caribou around the community of Cambridge Bay.
- Some knowledge gaps were filled and the results were used to develop the Dolphin and Union management plan.
- Help in planning and conducting the next population survey.

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The Government of Nunavut recommendations

The DOE does not recommend a TAH at this time but due to the declining status of the herd, it is recommended that the DOE follow the approved Dolphin and Union Caribou Management Plan.