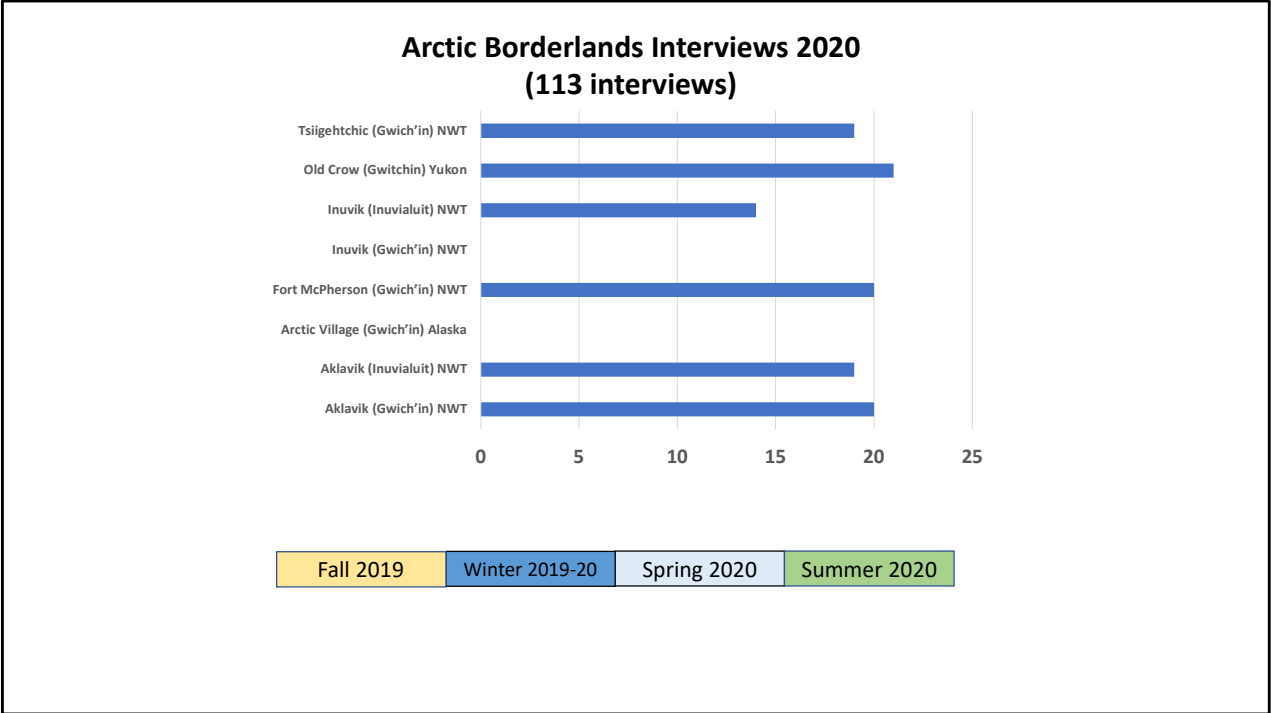


Arctic Borderlands
2019-2020 caribou
data report

Photo credit: Arlyn Charlie

Prepared for PCH Annual Harvest Meetings: February 2021

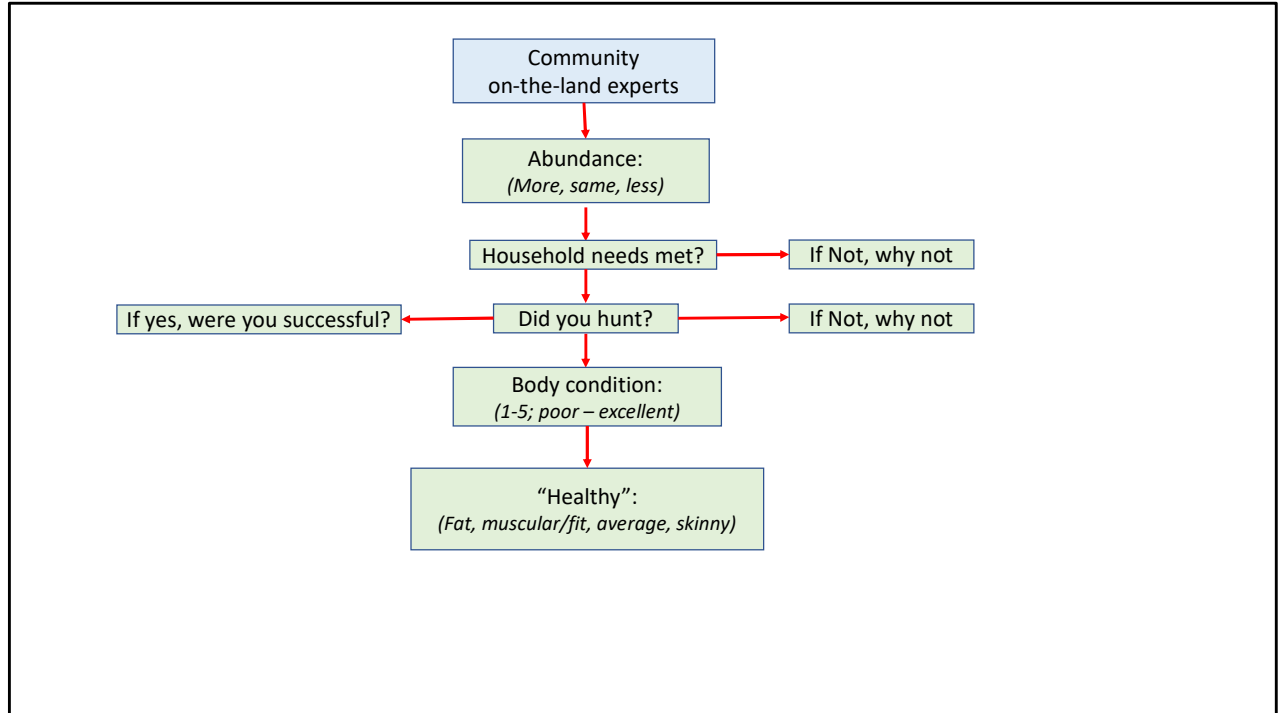


Fall – Oct-Dec

Winter – Jan-Mar

Spring – Apr-Jun

Summer – July-Sept



In this presentation we present the results of this year’s, combined with previous years’, community interviews pertaining to the PCH
The order of the questions follow from:

Abundance: which should not be interpreted as herd abundance but better reflects the distribution of the herd near the community. Answers were restricted to less, same or more than previous years.

Met needs: participants were asked whether they met their household needs with respect to caribou and if they did not meet their needs, why?

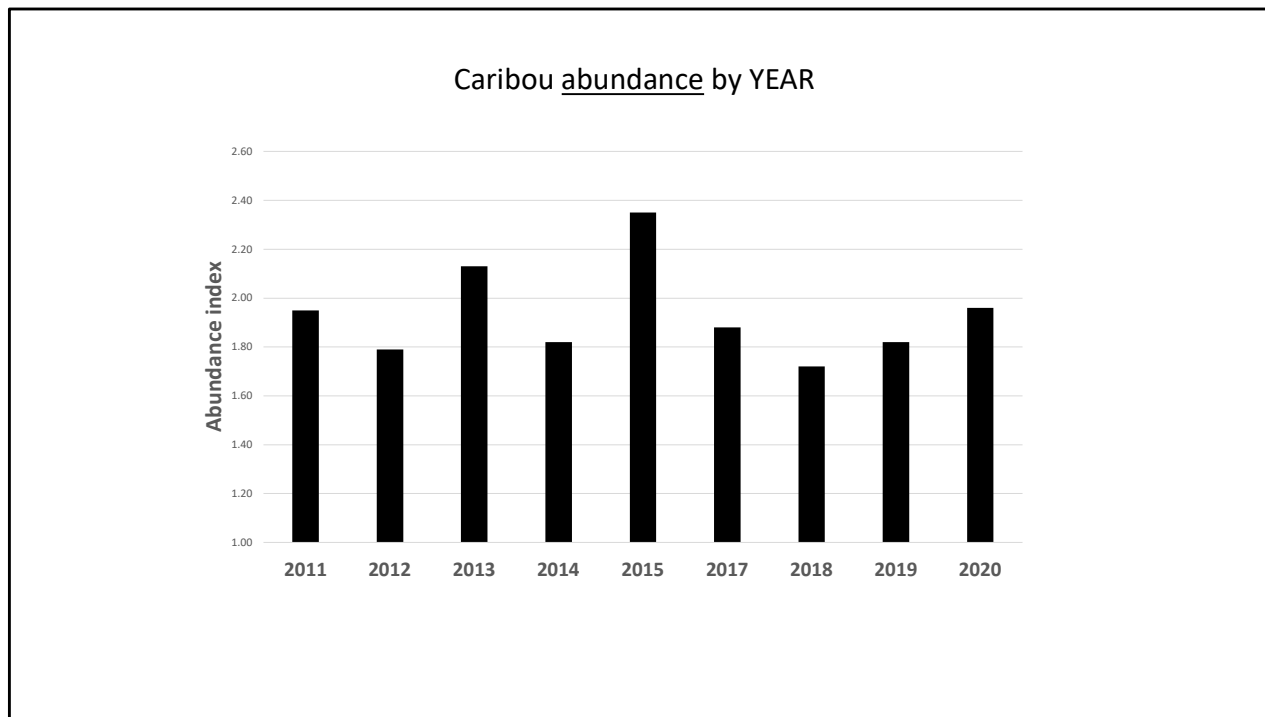
Did you Hunt: Next they were asks if they hunted caribou, were they successful and if they were not successful why not.

Overall body condition: respondents required to check 1 – 5 scale 1-poor, 2-fair, 3-mixed (average), 4- good, 5-excellent. Based on the combined results we calculated an index for each of the 4 season;

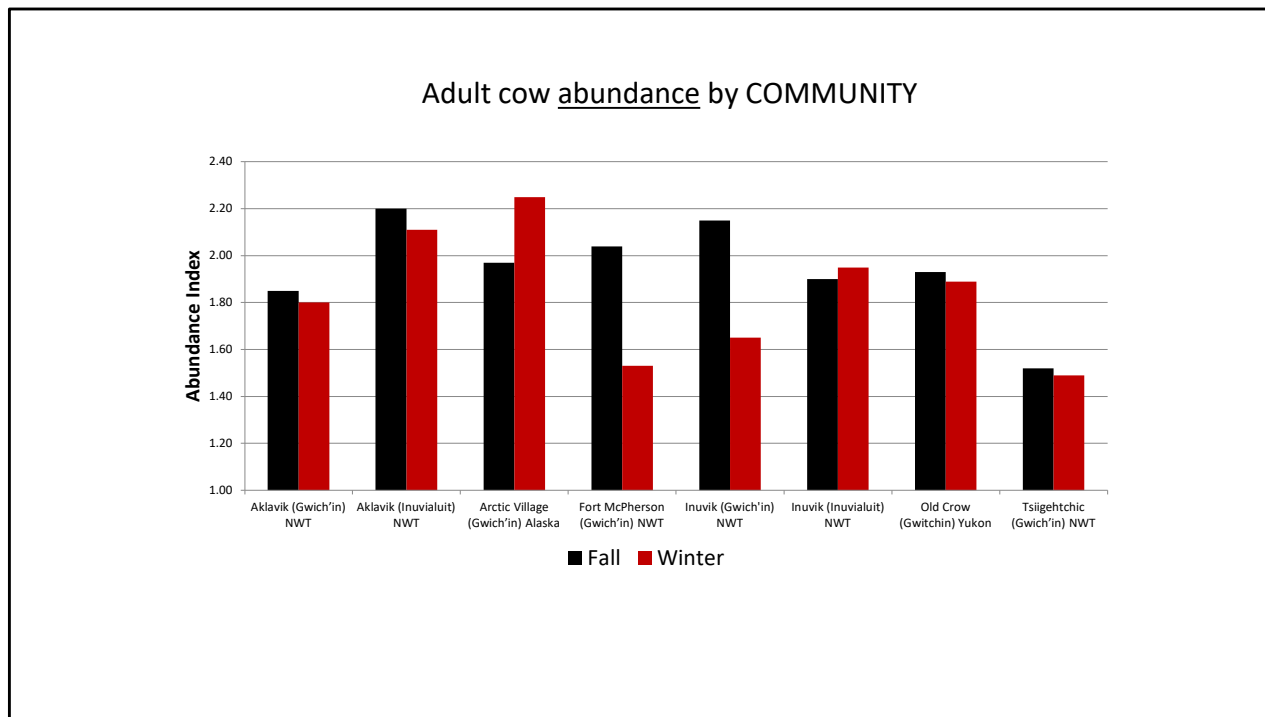
Caribou healthy: required to answer in 4 classes 1-skinny; 2-average, 3- fat, 4- muscular/fit. For each of the 4 seasons



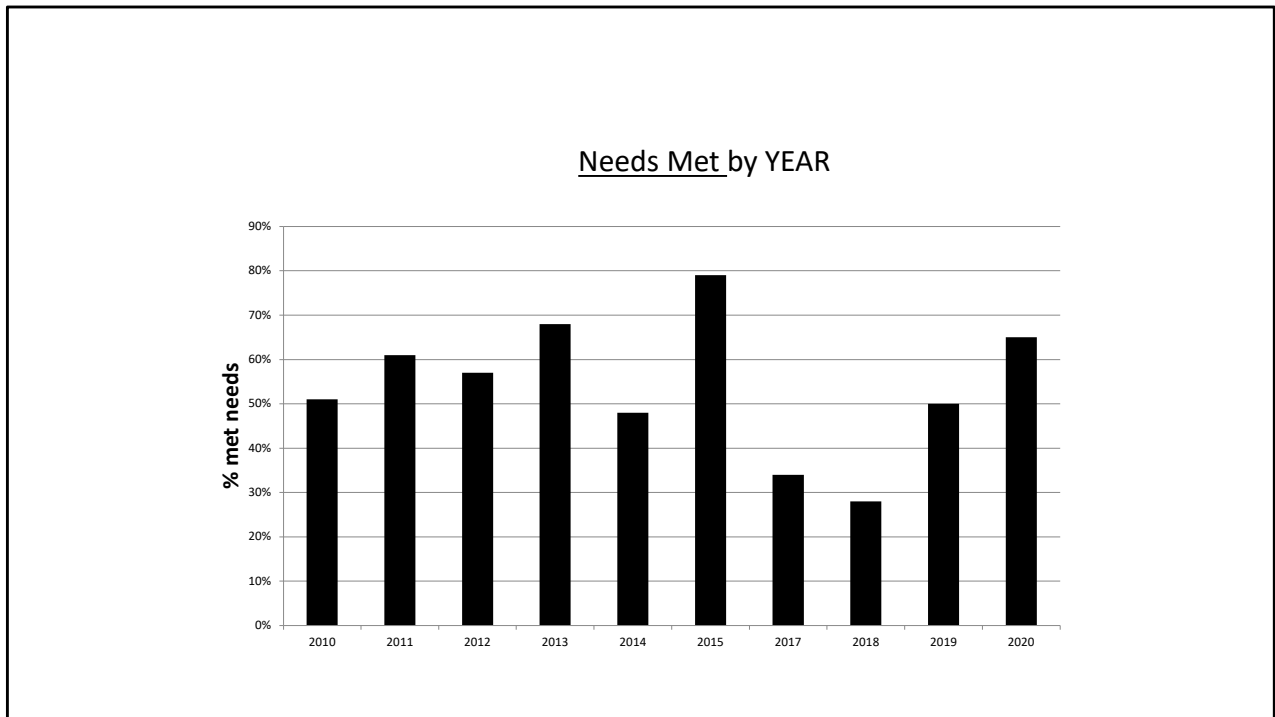
Part 1:
Harvest



- In this slide we present the overall abundance index from 2011-2020 for all communities
- Important to reiterate that the abundance index is best explained by the distribution of the herd in relation to the community at the time of year that the community normally hunts the PCH
- 2015 had the highest abundance rating while 2018 had the lowest.
- There does not appear to be a pattern in abundance from 2011 and 2020, a period when the herd was increasing from 169,000 in 2010 to 218,000 in 2017
- We could speculate that the herd being at high population levels throughout this period did not affect the pattern of abundance to the communities.
- It would be interesting to see a similar decade when the herd was at low numbers. At what herd level does herd size affect availability to communities?
- 2020 was an average year for abundance of caribou accessible to communities.

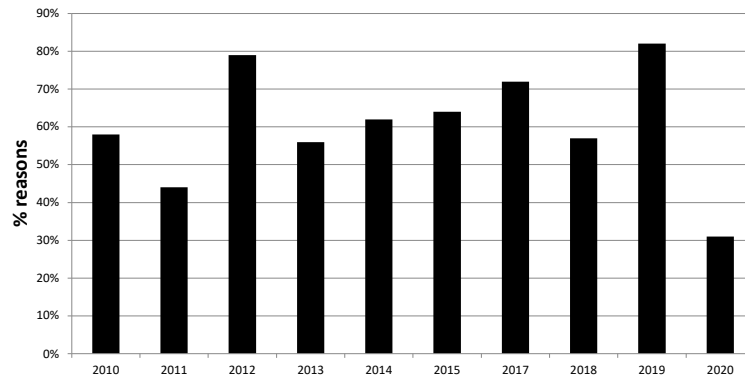


- The abundance questions was asked for 5 age and sex classes of caribou for each of the 4 seasons.
- In this slide I present the adult cow abundance index by community for both the fall and winter period – when most of the harvest on the herd occurs.
- The graph shows the general pattern of when communities usually access caribou – for example winter for Arctic Village and fall for Ft Macpherson.
- One caution given the participants were asked about abundance in terms of “less, same or more”, the index would be relative to the community. For example, at current population levels, hunters in Arctic village versus Ft MacPherson may both say that there were the “same” amount of cow caribou in the winter. In fact there may be way more caribou near Arctic Village if they have typically more caribou around in the winter compared to Ft. MacPherson.
- Abundance based on interviews therefore are to be interpreted as the degree of accessibility to caribou for each community rather than an indication of herd size. If current herd size were dramatically lower and PCH range shrinks, then accessibility may indeed be an indicator of herd abundance.

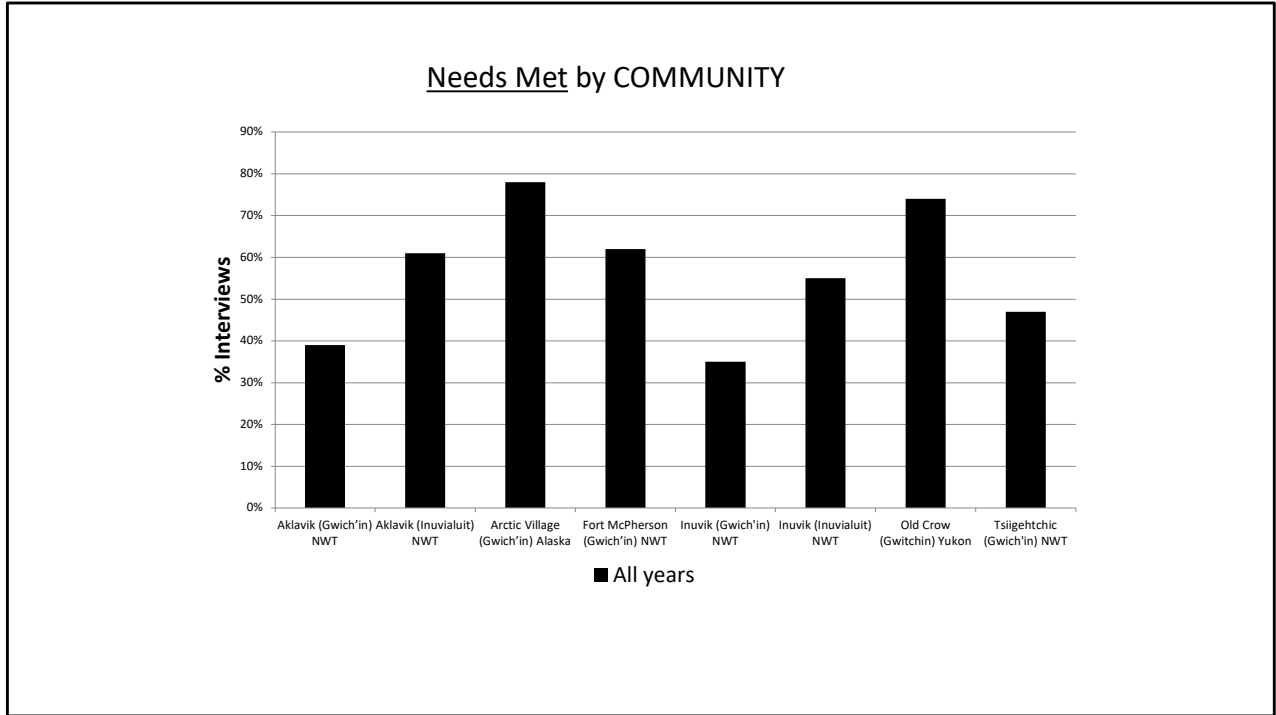


- Each participant was asked if they met their household needs for caribou.
- The annual pattern does not show a trend although 2015 was the highest year and 2017 and 2018 were the lowest.
- If you remember 2015 was also the highest in terms of caribou abundance and 2018 was the lowest in terms of caribou abundance. Presumably 2018 was also when the herd was at an all time high, reinforcing the finding that high population highs does not necessarily translate into more caribou for communities.
- 2020 was a relatively good year for meeting needs.
- However it is possible that participation may be related to COVID pandemic re. ability to spend time on the land? Inuvik monitor explained Inuvialuit are receiving lots of support in the form of gas, snow machines, fishing gear etc. this year.

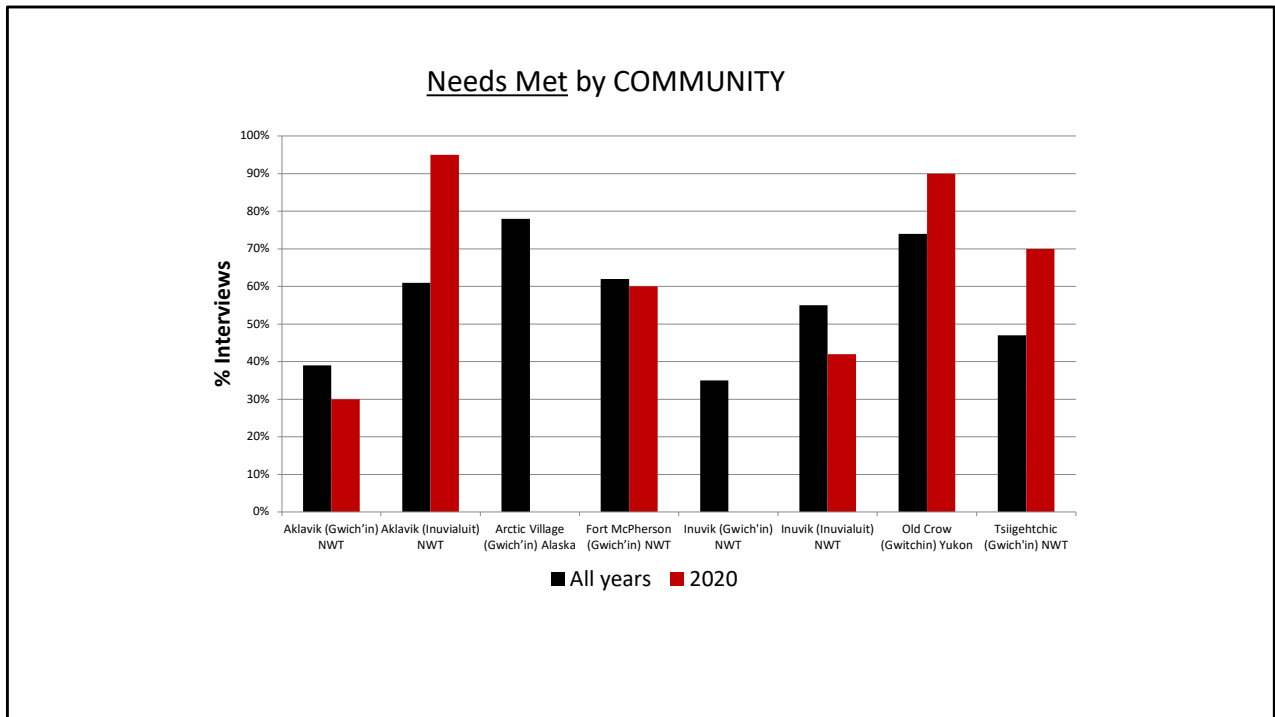
If needs NOT met, why – caribou too far or too few by YEAR



- If participants answered “No” to having needs met, they were asked “Why”. They could provide more than 1 reason – for example they could answer caribou are too few and there was no sharing in the community
- In this presentation the % of total reasons that we used related only to if caribou were too few or too far away. In other words because enough caribou were not accessible.
- Access to caribou in 2020 was not identified as a main reason for not meeting needs – again does COVID pandemic play a role?

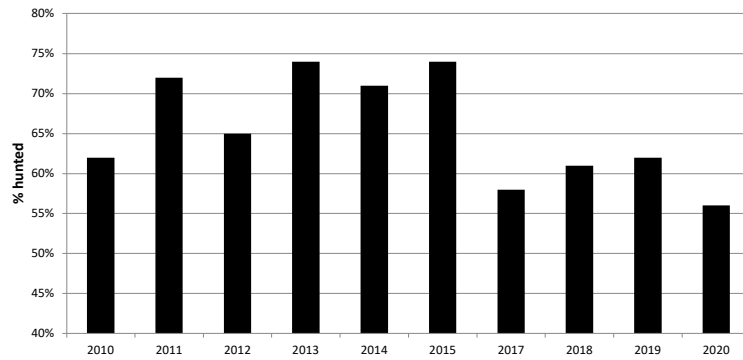


- In this graph we look at meeting needs by community.
- Across the years the results indicate that Arctic Village and Old Crow have the highest average for meeting needs while Inuvik Gwich'in has the lowest.



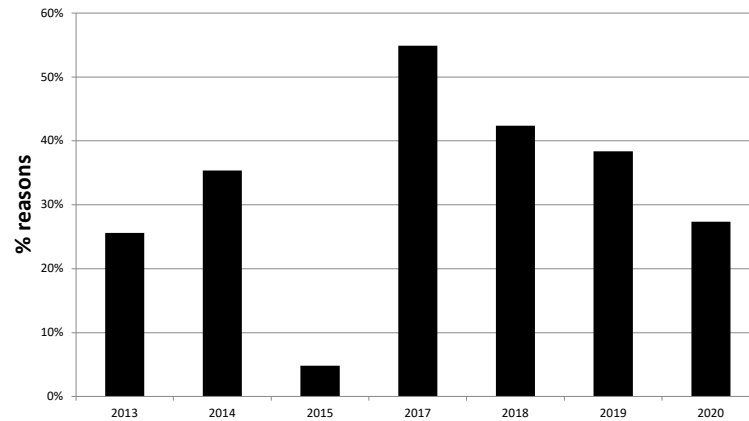
- This is the same slide with the red bars added to show results from this last year.
- There were no interviews in Arctic Village or from Inuvik Gwich'in and so we don't know how they fared this year.
- In general most communities were higher than average in terms of meeting their needs.
[Role of COVID support???](#)

% hunted by YEAR

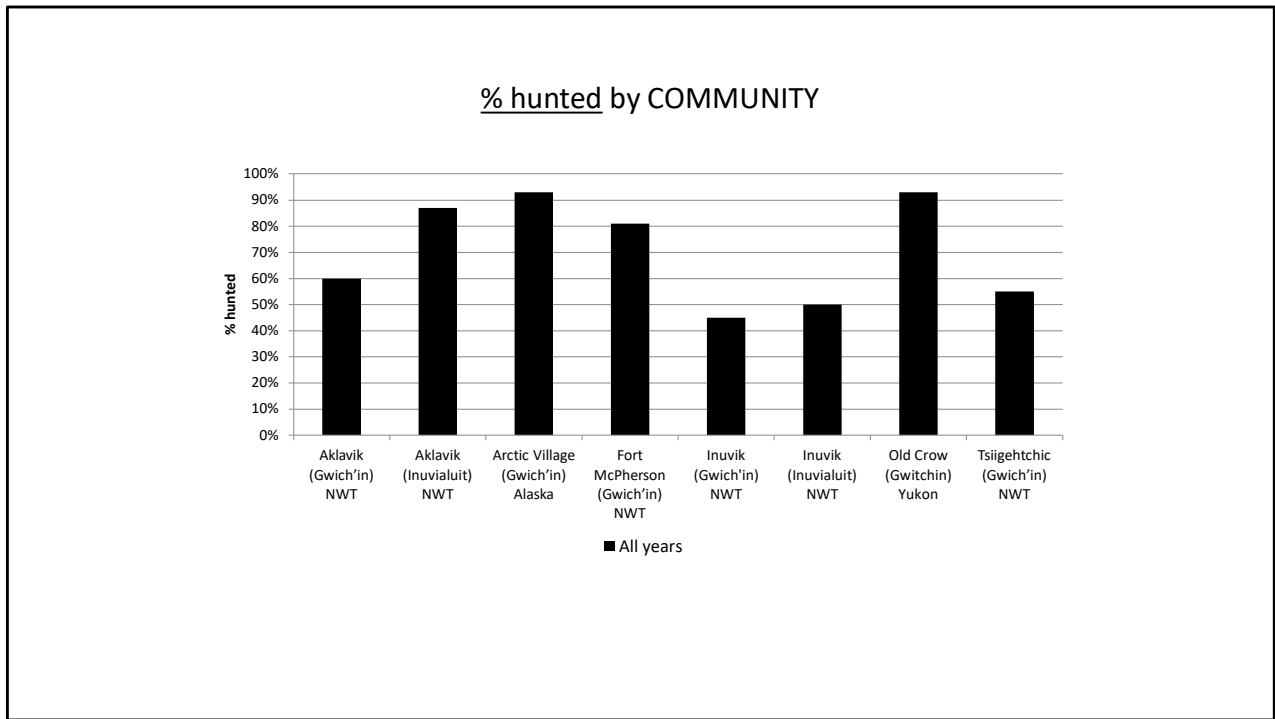


- In this slide we see the overall percent of participants that hunted across all years.
- It is interesting to note the there appeared to be fewer hunters participating in the survey in the last 4 years. 2020 adds the lowest participation of hunters among survey participants – just over 30%

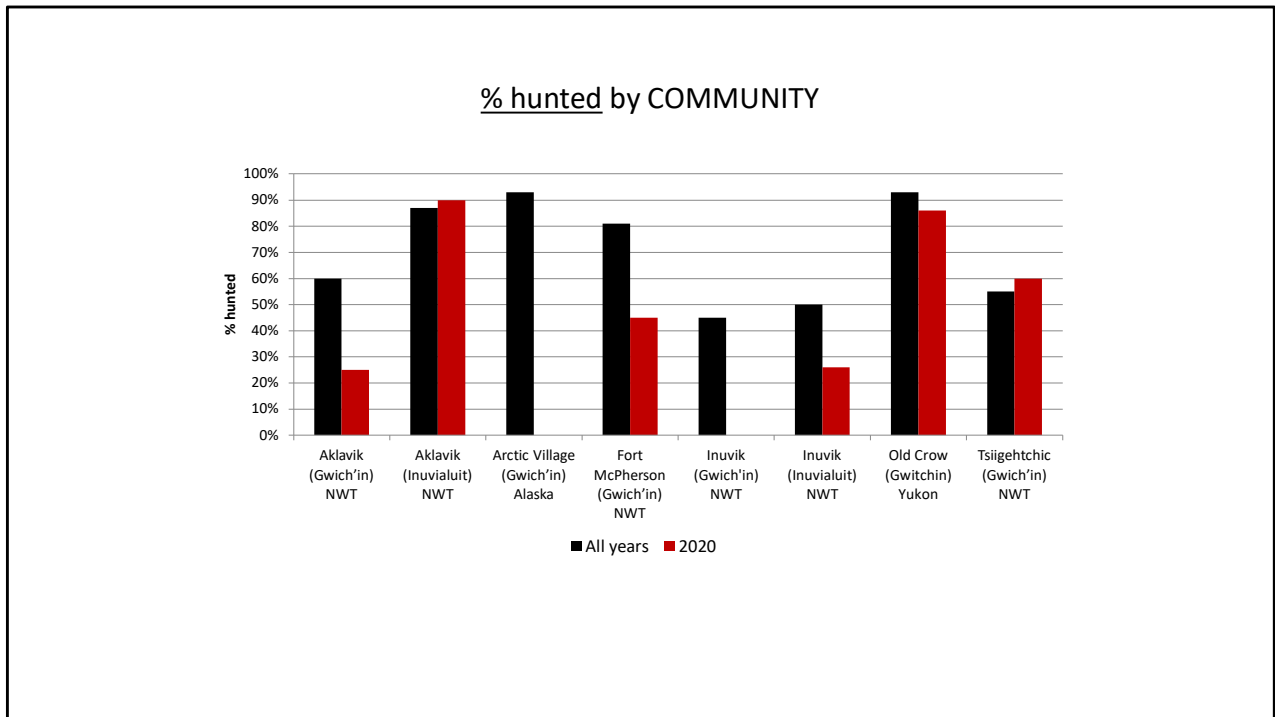
Didn't hunt because caribou too few or too far by YEAR



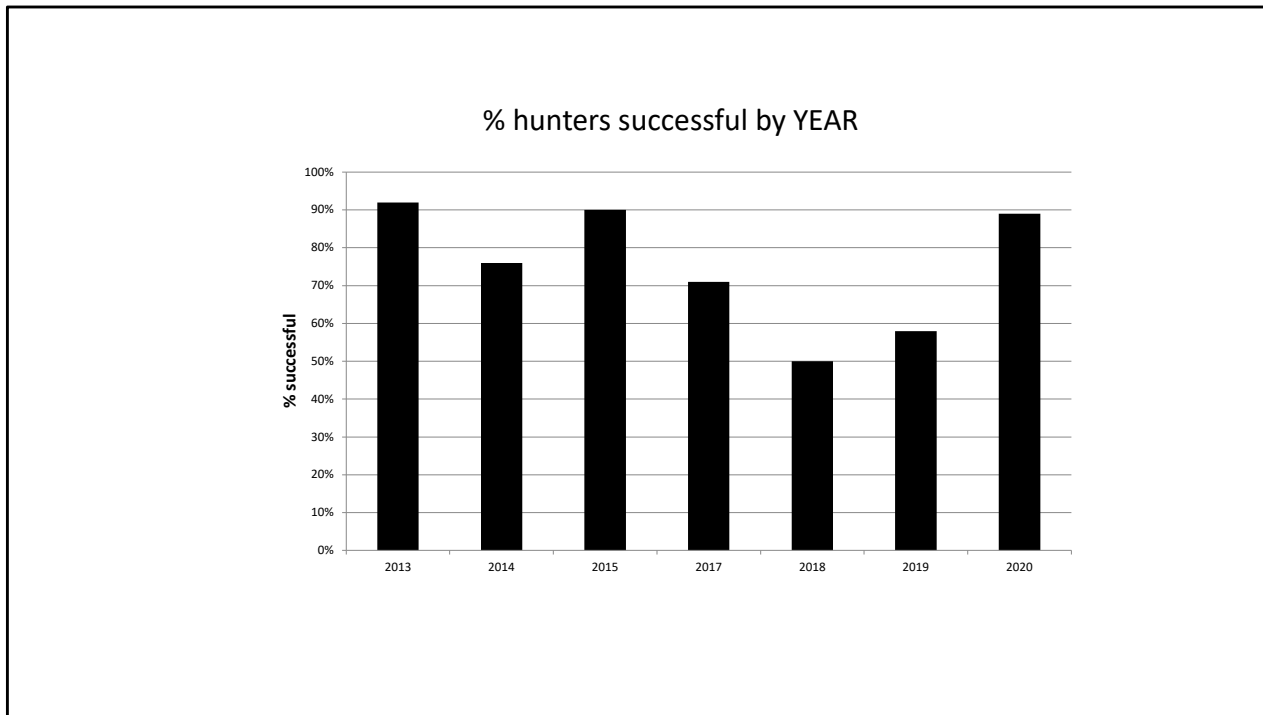
- In this slide we see that a possible reason for lower hunters participation in the last 4 years : caribou were either too far or too few around the community.



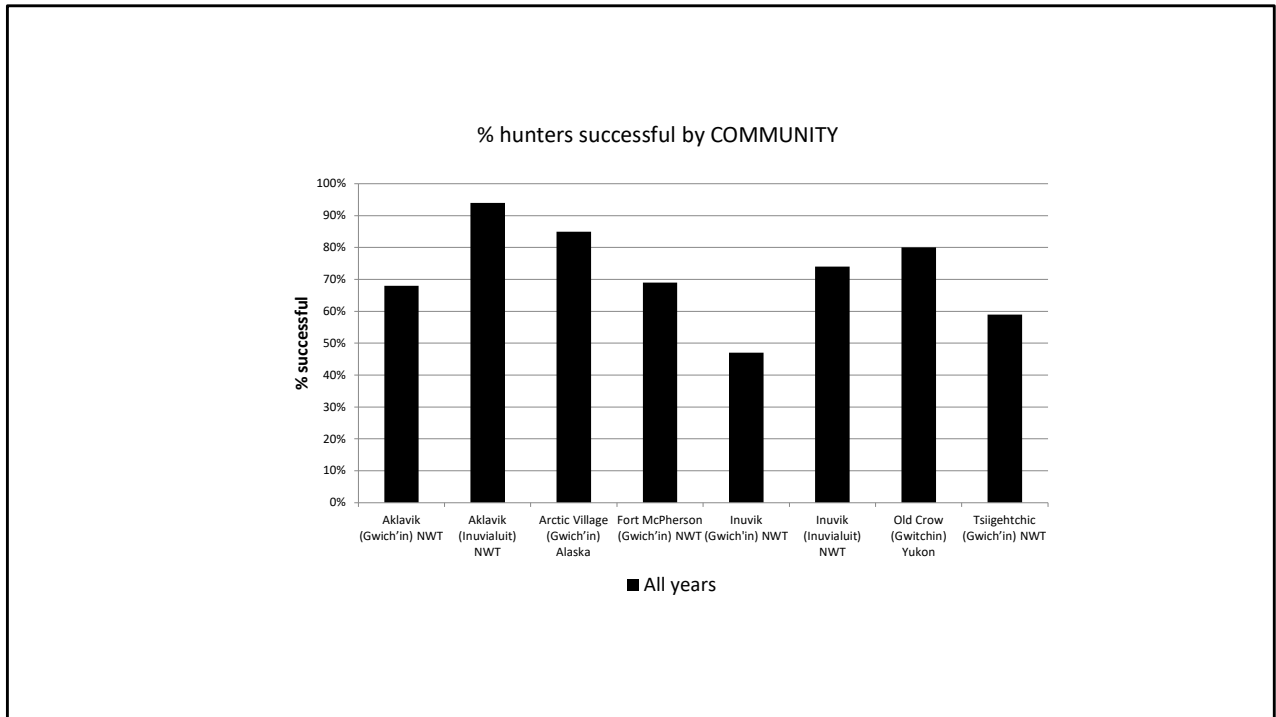
- This graph shows % of participants that hunted for all years by community. Thus it largely reflects a cross section of harvest within the range of the herd. However, this doesn't include non-subsistence hunting.
- Again Old Crow in Yukon and Arctic Village in Alaska were the highest, closely followed by Aklavik Inuvialuit and Ft MacPherson.
- NOTE Aklavik also hunts the Bluenose Herd.



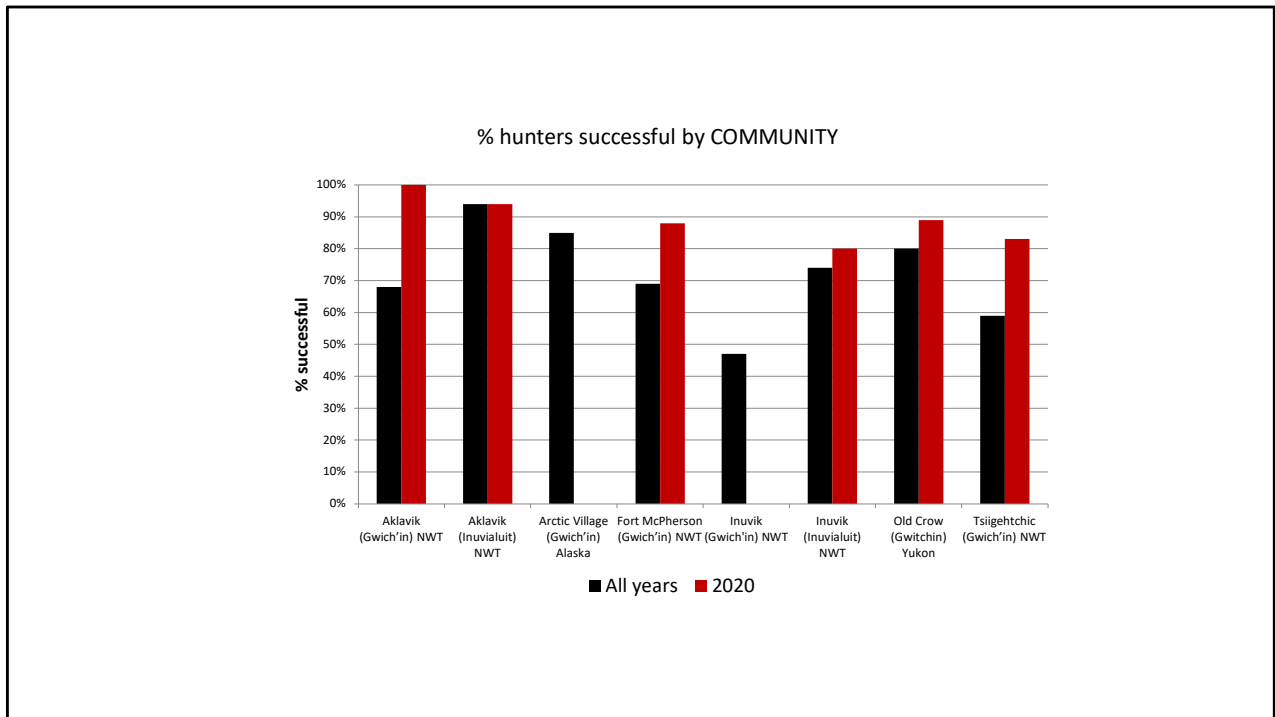
- The same graph but added just the 2020 results in red.
- Very similar pattern except Ft MacPherson & Aklavik Gwich'in had half the % of interview participants that hunted.
- Again Inuvik Gwich'in and Arctic Village did not participate in 2020
- Aklavik HTC selects their best hunters for the survey (results reflected in slide 16)



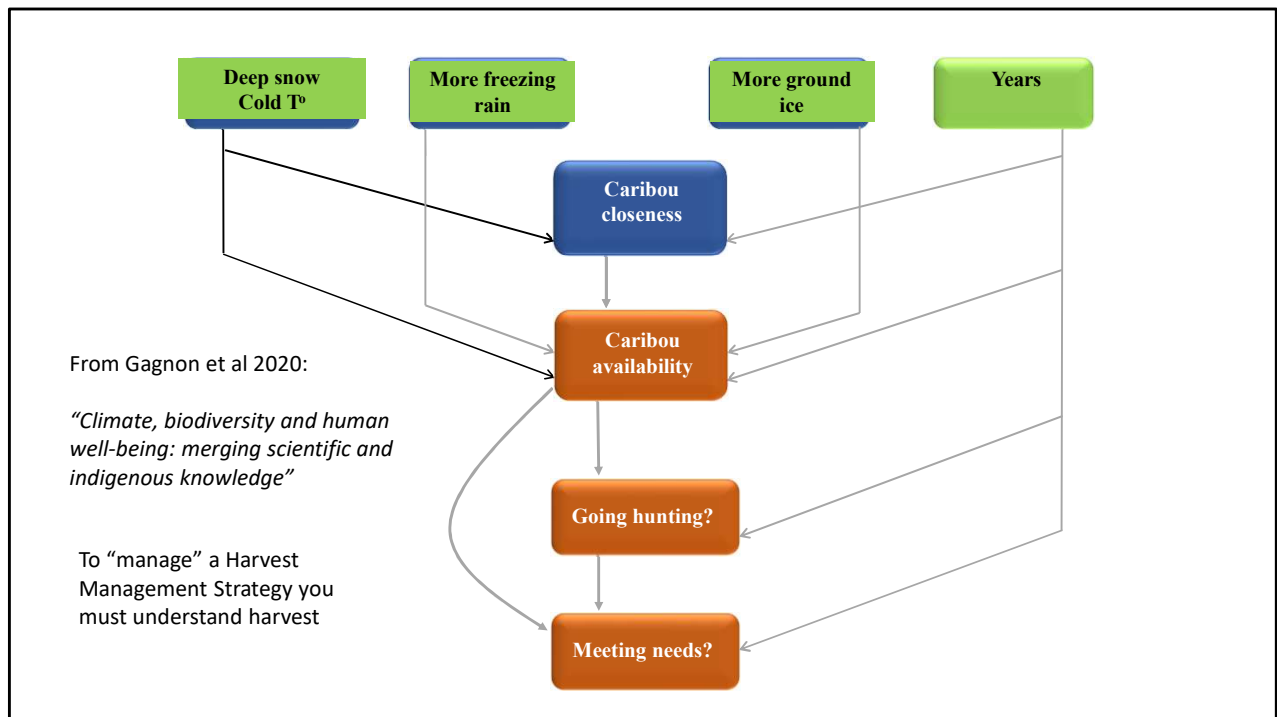
- This graph again indicates that 2018 was the year of lowest success since 2013.
- 2020 was a year of relatively high hunter success.



- Since 2014 hunter success varied among communities with Aklavik Inuvialuit the most successful with Inuvik Gwich-in the least success
- NOTE Aklavik also indicated they has access to the Bluenose Herd.
- Among communities that harvest solely PCH, Arctic Village has been the most successful
- Important to note though that the trend during this period of the PCH wintering in Alaska is largely driving this trend.



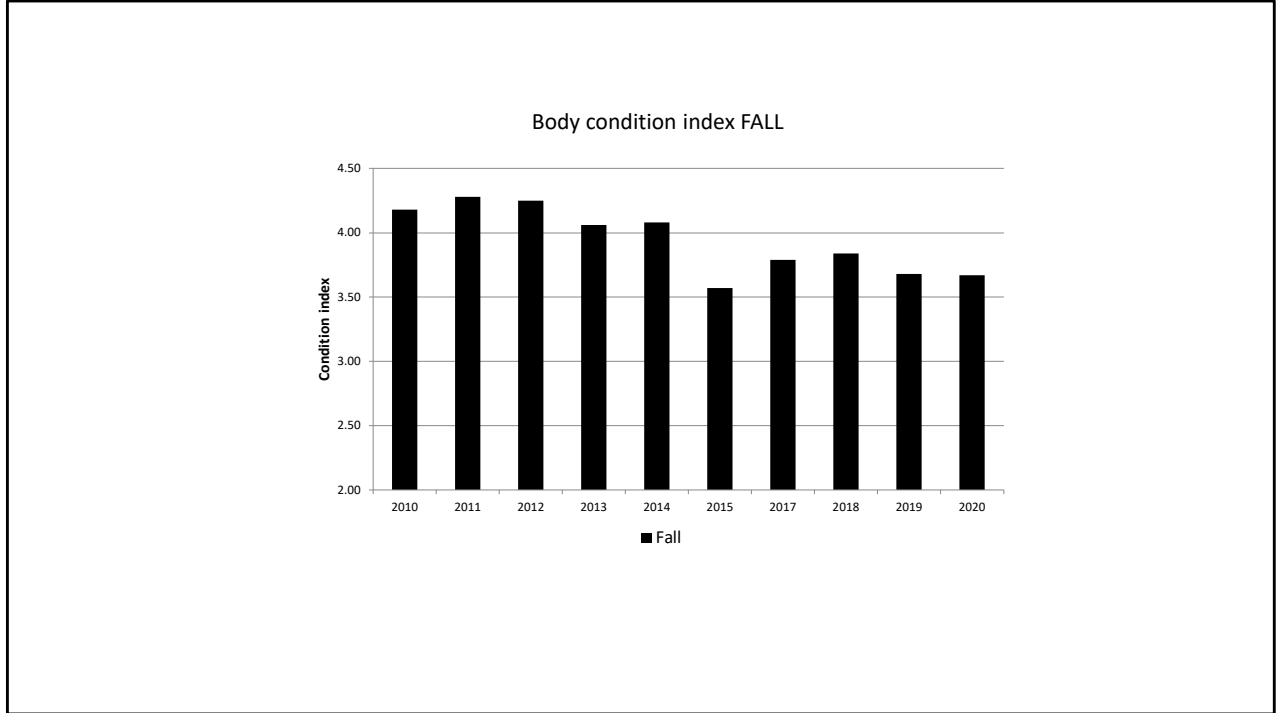
- The same graph with the red bars representing 2020 success data.
- As a previous slide indicated overall 2020 was a year of high hunter success, even though fewer people hunted.
- Broken down by community thus shows all communities had the same or higher than average success



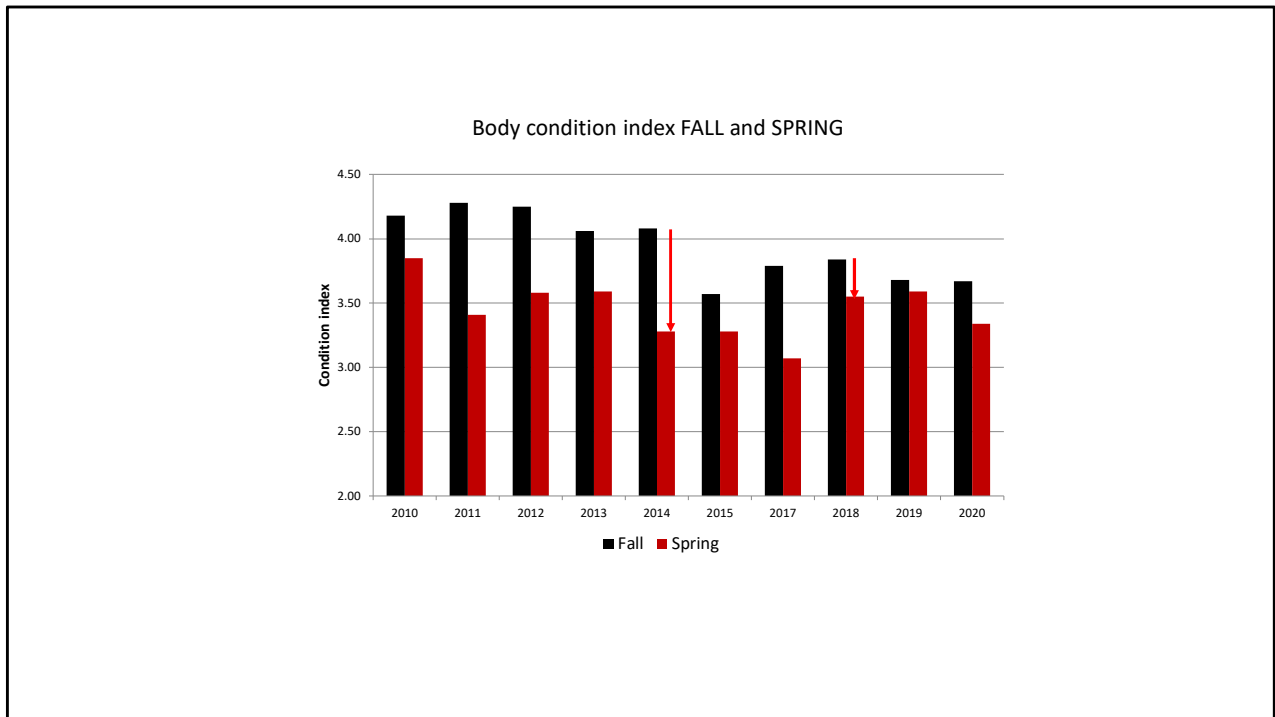
- This graphic is based on the results of an analysis of Borderlands indicators and how they are interrelated with climate
- The analysis was done as part of a thesis by Catherine Gagnon.
- Catherine’s analysis used Borderlands data to 2010. Do the same relationships still hold for 2010-2020 data?
- The take home message is that if the goal is to better manage harvest in the PCH, you have to understand harvest and the factors that limit the ability of community to meet their caribou “needs”.



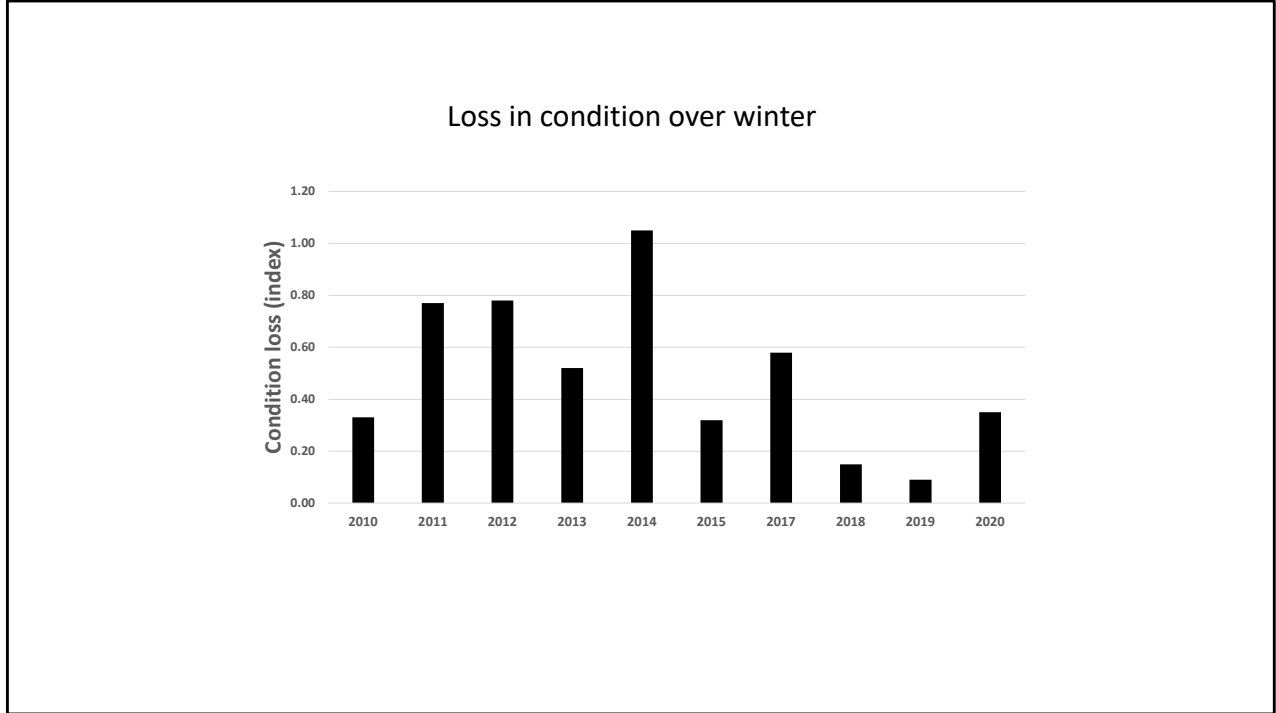
Part 2:
Body
condition



- Our body condition index was derived from the 5 class (poor-excellent) responses.
- In the Fall for the 10 years shown in this graph the first 5 years (2010-2014) were all higher than the last five years (2015-2020).
- The chance of cows getting pregnant in the fall and the chance of calves surviving the winter both relate to fall body condition.
- Based solely on fall condition we would expect that the PCH would have been less productive in the last five years.

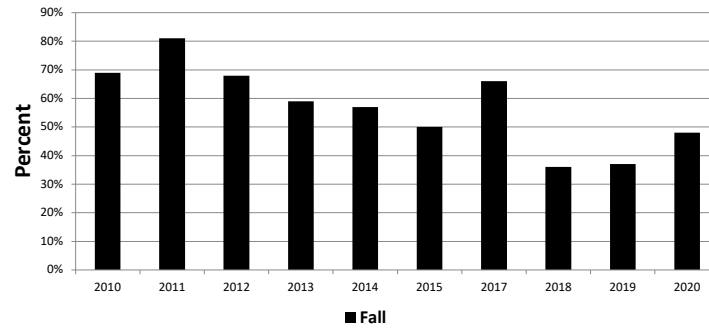


- On this graph I have plotted the condition index in the spring following the fall.
- The index shows that the PCH has a lower body condition in the spring than the fall.
- However the red arrows indicate that the “loss” in condition between fall and winter is not the same among years.
- Some years like 2014 indicated a much higher loss than 2018 for example.
- It would be interesting to compare this “loss” among all the years.



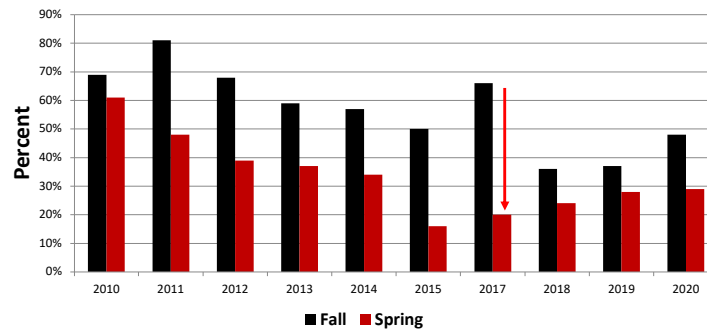
- That is what this graph represents – the loss in body condition index between fall and spring.
- We suggest that the amount of loss would somehow be related to one or all of these reasons
 - Herd distribution
 - Winter climate conditions – effecting both food availability and energy expenditure
 - Advantage to reaching a spring set-point in body condition – i.e. caribou in better fall body condition tend to lose more body weight through winter.
 - The last 3 years had the lowest level of “winter effect”

% who felt caribou were “muscular/fit” and “fat” in FALL



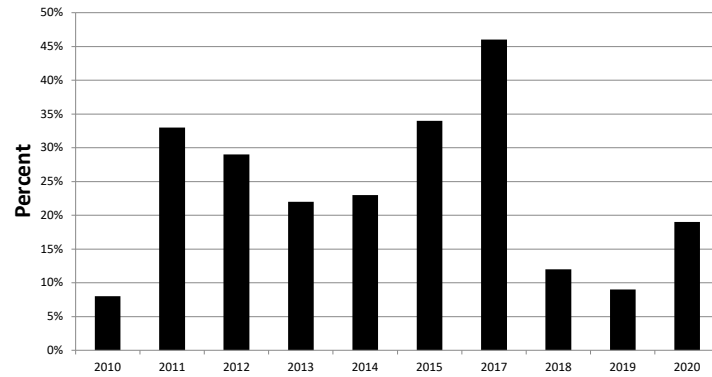
- Participants were also asked to comment on the general health of the caribou
- 4 classes 1-skinny; 2-average, 3- fat 4- muscular/fit, for each of the 4 seasons
- In this graph we present the % of answers that relate to most healthy caribou “fall” and muscular/fit. Thus the higher the index the healthier the individual in the herd.
- There appears to be a declining pattern through time in the FALL.
- This result is similar to the body condition graph where the last 5 years were lower than the first 5 years of the last decade.

% who felt caribou were “muscular/fit” and “fat” in FALL and SPRING

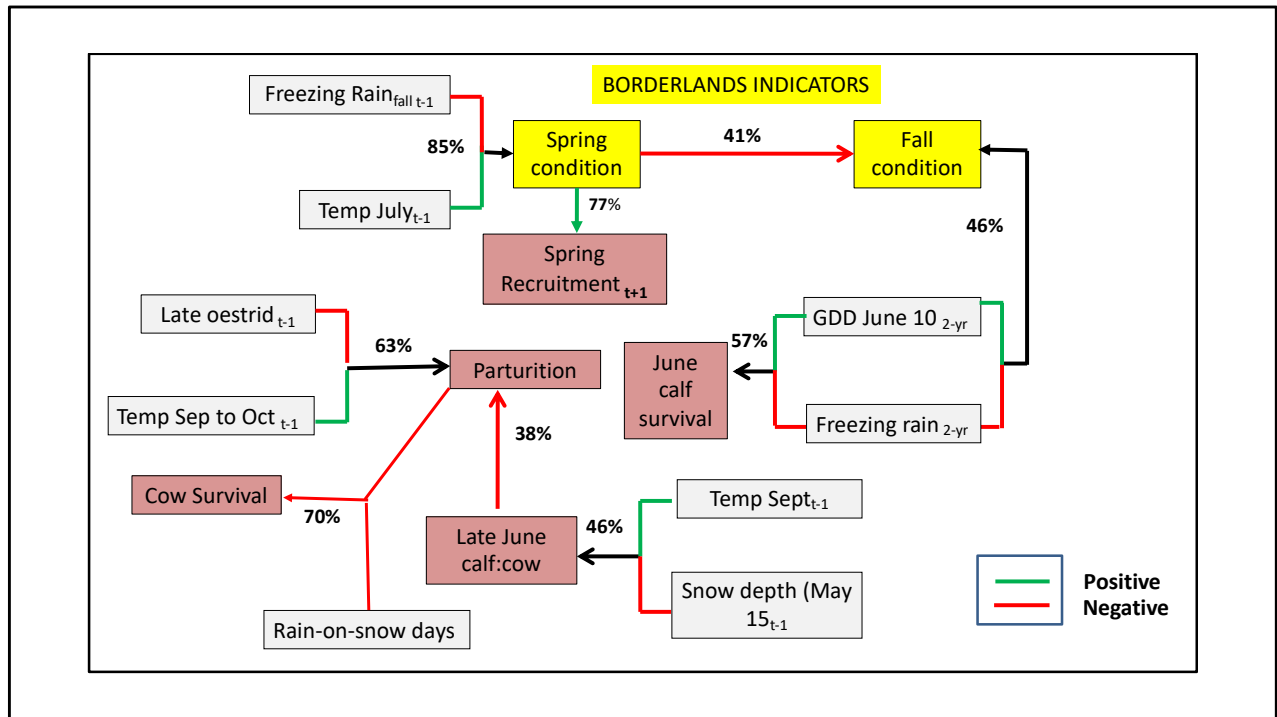


- This graph is similar to our graph for body condition comparing the health index between fall (BLACK) and spring (RED).
- There was a steady decline from 2010 to 2015 and a subsequent recovery from 2016-2020
- Also similar to body condition the drop in health index from fall to spring varies among years

% loss of “muscular/fit” and “fat” categories OVER WINTER

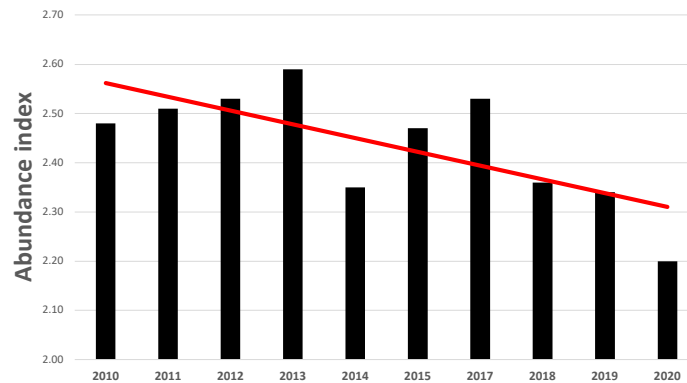


- This slide is the drop in health index from fall to winter.
- Except for 2010, participants reported the lowest loss in “health indicators” in the last 3 years, suggesting more favourable winter conditions in those 3 years.



- This complex graph links climate (white boxes and BORDERLANDS indicators (in yellow)) to the PCH vital rates (pink boxes) such as a birth rate and calf survival
- Ignoring all the boxes and arrows – BORDERLANDS indicators are part of a comprehensive monitoring program to better understand PCH herd dynamics.

Winter wolf abundance index



Why are communities reporting less wolves as the herd increases??

- Although not directly caribou, each participant was asked about the overall abundance of a number of other animals
- This graph represent the abundance of wolves in the winter from 2010 to 2020. There was a general decline in the last 5 years across all communities
- Why are communities reporting less wolves as the herd increases



Special thanks to the community monitors and local experts who contributed to this report, and to their supporting RRC or HTC:

- Gwichya Gwich'in RRC
- Tetlit Gwich'in RRC
- Tuktoyaktuk HTC
- Aklavik HTC
- Ehdiitat RRC
- Inuvik HTC
- North Yukon RRC

Photo credit: Clara Day