

BEVERLY AND QAMANIRJUAQ CARIBOU MANAGEMENT BOARD

7 August 2007

Carl McLean
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Indian and Northern Affairs Canada
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Dear Carl:

Comments on “Assessment of Caribou Protection Measures”

Following is a response from the Beverly and Qamanirjuaq Caribou Management Board (BQCMB) to your request for comments on the assessment of Caribou Protection Measures (CPM) that was prepared for INAC by Anne Gunn and her co-authors. A summary of the main points made by board members and staff is provided below. More detailed comments, including observations on the assessment process, input on the report and its recommendations, and specific comments on the text of the report, are attached.

CPM-Related Comments

1. The report focuses on assessing whether CPM are effective in achieving what they were designed to do almost 30 years ago. However, an assessment is needed regarding whether this conservation tool is sufficient to provide adequate protection for caribou in the current era of increasing human activities across the caribou ranges.
2. INAC must acknowledge that CPM will not provide all the protection required to ensure long-term protection of calving and post-calving caribou. The federal government and its partners must work to ensure that other conservation tools are in place to protect calving and post-calving habitat.
3. A complete assessment of the effectiveness of CPM in protecting caribou should be conducted in the context of all land use activities that have occurred on Beverly and Qamanirjuaq calving and post-calving areas, not only activities permitted through land use permits.
4. Knowledge gained over the past 3 decades should be used to revisit the basis for CPM conditions (including time periods and distances) to determine whether changes are required to provide adequate protection for caribou.
5. The issue of compliance and enforcement of CPM needs more attention.

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General Comments

1. Effective conservation mechanisms need to be put in place to regulate and mitigate exploration and potential development. Questions should be investigated by INAC (with partners) concerning options for timing land use operations outside the most sensitive periods for caribou, types of land use activities that may be compatible with calving and post-calving areas, thresholds for allowable amounts of certain types of activities, what other types of conservation tools could complement improved CPM, and best practices.
2. Key areas, such as calving and post-calving areas, should be provided with long-term legislated protection that prohibits any type of activity that would cause serious or irreversible negative effects to caribou or habitat.
3. A systematic approach for identifying issues and imposing permit conditions to protect caribou must be established as part of existing regulatory processes (by INAC, NIRB, KIA) before additional calving seasons pass.
4. Regulatory agencies must have access to the most up-to-date information available on seasonal range use patterns for caribou herds.
5. The report should include an explanation of why they did not use the Beverly satellite telemetry data that are available in their assessment and why there was no assessment of the effectiveness of CPM for protecting Beverly caribou.
6. "Critique of methods" should also include discussion of the implications and limitations of recommending use of a single method that relies on satellite telemetry as a proxy for monitoring.
7. The report should consider other methods for monitoring caribou and discuss the possibility of combining satellite telemetry with other methods. An alternate method of monitoring for Beverly caribou and other herds that do not have sufficient telemetry data should be suggested.
8. The report should outline the importance of water crossings more fully, and the recommendations should indicate that the list of "designated water crossings" needs to be updated and expanded based on all available information sources. How protection of water crossings outside of CCMA's would be accomplished using satellite telemetry is unclear and needs further explanation.

Report Recommendations

Additional explanation is required concerning recommendations 1-3 before the BQCMB can determine whether to support them fully. More details are required concerning:

- what is meant by rule-based mobile CPM and how the rules will be developed, particularly for caribou herds with limited satellite telemetry data

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- how the CPAs and CCMA's will be updated and what information this will be based on, particularly for caribou herds with limited satellite telemetry data
- adequacy of satellite telemetry data as the sole source of data on caribou location information, particularly for identifying when releases will be recommended

The BQCMB supports recommendations 4-6 in principle, and has made some suggestions for additional explanation and for expanding what should be included in these recommendations.

The BQCMB believes that the report provides a good analysis of the effectiveness of CPM for protecting Qamanirjuaq caribou from activities associated with land use permits, and is a good first step toward determining if improved CPM can contribute significantly toward long-term protection for caribou. The BQCMB would be interested in assisting with additional action taken by INAC or other agencies toward completing this work.

In closing, we would like to reiterate that the BQCMB remains firm in the belief that long-lasting protection of calving and post-calving habitat is necessary to ensure long-term protection of calving and post-calving caribou. We would also like to restate our recommendation that improved CPM should be adapted to protect caribou during other key life cycle periods, such as spring and fall migration.

Thank-you for the opportunity to review this report. We hope these comments are helpful and look forward to continued participation in ongoing efforts to improve protection for caribou and caribou habitat.

Sincerely,

[original signed by]

Leslie Wakelyn
BQCMB Biologist

Attachment

c.c. Jerome Denechezhe, BQCMB Chair
Janice Traynor, Environmental Policy Analyst, Indian and Northern Affairs Canada

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Attachment

A. Comments on the Assessment Process

These comments set the context for many others below:

- 1) **Purpose of this contract** - In your May 16th letter to the BQCMB, you state that the intent of this contract was “to assess to what extent the measures have been effective, their strengths and their weaknesses.”, and that the contractors were “to make recommendations to INAC to ensure the CPM are effective in protecting caribou.”

The report focuses on assessing whether the CPM are effective in achieving what they were initially designed to do, which we assume is the task the contractors were assigned. However, the issue that INAC needs to address is much broader than that. What should be assessed is whether this conservation tool is sufficient to provide adequate protection for caribou. The BQCMB believes that CPM may be part of the answer, but it is not all that is needed to ensure long-term protection of calving and post-calving caribou.

- 2) **Key issue to be addressed** - The overarching issue is how to deal with long-term exploration and development on caribou range, especially on particularly important habitats such as calving and post-calving areas. Effective conservation mechanisms need to be put in place to regulate and mitigate this exploration and potential development, to ensure caribou and their habitats are protected and populations are sustainable over the long-term.

Questions that should be investigated by INAC (with partners) include:

- i. Can industry operate in a manner that avoids the most sensitive periods, from spring migration through calving and post-calving (i.e., from May-July), on key areas?
 - ii. What kinds and amounts of land use activities can occur on calving and post-calving areas without causing negative effects on caribou or habitat? Identifying thresholds for allowable amounts of certain types of activities would be fundamental.
 - iii. What other types of conservation tools can be used to complement improved CPM to protect habitat in calving and post-calving areas? Identifying and implementing best practices would be one option.
- 3) **Broader assessment required** -To be meaningful, a complete assessment of the effectiveness of CPM in protecting caribou should be conducted in the context of all land use activities that have occurred on Beverly and Qamanirjuaq calving and post-calving areas, not just those activities that have required land use permits. A broader assessment is needed that identifies:
 - i. what is needed to protect caribou from disturbance
 - ii. if these needs are addressed by CPM, and
 - iii. how these needs can be better addressed through improvements to CPM.

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- 4) ***Need to re-assess CPM conditions*** - The original CPM were developed almost 30 years ago, based largely on a single consultant's report and an interim injunction, and then revised based on the first two year's implementation. Relatively minor changes have been made since then. As outlined in the report, much information on caribou ecology and effects of disturbance on caribou has been accumulated since that time. Although the BQCMB agrees that we do not fully understand the effects of human activity on barren-ground caribou, knowledge gained over the past 3 decades should be used to revisit the basis for the conditions (including distances) and determine whether changes would be warranted.
- 5) ***Habitat protection not addressed*** - This report was contracted partly in response to recommendations made about CPM in the BQCMB's 2004 position paper. However, the BQCMB's recommendations regarding calving and post-calving areas were that these areas "should be provided with long-term legislated protection that prohibits any type of activity that would cause serious or irreversible negative effects to caribou or habitat." This recommendation was supported by the January 2007 Caribou Summit, in which participants recommended permanent protection of calving grounds as the top priority action that should be taken to protect caribou. If these recommendations were followed, CPM would not be required to protect caribou in calving and post-calving areas, because caribou would already be protected when they use these areas.

However, for the short-term at least, it appears that Beverly and Qamanirjuaq calving and post-calving areas will not receive required protection through creation of long-term legislated protected areas that prohibit certain land use activities. The Government of Nunavut has not yet established a protected areas strategy, and has not indicated any interest in discussing long-term protection of caribou calving grounds or post-calving areas to the BQCMB. Although the Nunavut Planning Commission will soon initiate work towards a new land use plan for Nunavut, it may be awhile before conservation areas for the Kivalliq region are discussed, and some time before they could be established.

Therefore it is paramount that INAC acknowledge that CPM will not provide all the protection required to ensure long-term protection of calving and post-calving caribou, and that the federal government and its partners work to ensure that other conservation tools are in place to protect habitat in calving and post-calving areas.

This view was supported by Weihs and Usher (2001), who stated that mobile CPM should be used as *one of the tools* for managing human activities on caribou calving grounds (not the only tool), and that habitat and development issues should be addressed through land use planning.

- 6) ***Need for improved regulatory processes based on best information*** - It is clear to the BQCMB that a more systematic approach for identifying issues and imposing permit conditions to protect caribou must be established as part of existing regulatory processes (by INAC, NIRB, KIA) before additional calving seasons pass. In addition, regulatory agencies must have access to the most up-to-date information available on seasonal range use patterns for relevant caribou herds. Assuming that regulatory agencies are going to continue

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to permit activities on calving and post-calving areas (despite frequently stated opposition from the BQCMB and others), we need to ensure that all relevant information is available to them for making decisions and developing appropriate permit conditions.

These observations are based on recent experience participating in regulatory processes for proposed activities on caribou range in the Northwest Territories and Nunavut, where a mineral exploration boom is currently underway, and review of the proposed MB-NU road. If the MB-NU road is developed, a huge increase in access for land use activities including mineral exploration and development will occur in the region, including the Qamanirjuaq calving and post-calving areas.

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B. General Comments on the Report

The report is well-written, appears to be a thorough representation of the history of CPM, and provides a good analysis of the effectiveness of CPM for protecting Qamanirjuaq caribou from activities associated with land use permits. Following are suggestions for how the report could be improved.

- 1) More complete discussion should be provided concerning limited availability of data under “Critique of methods” (p. 33) beyond discussion of concerns about availability and possible biases in land use permit data.

For instance, the report should include an explanation of why they did not use the Beverly satellite telemetry data that are available in their assessment, even if it would not be as complete as the assessment with the more extensive Qamanirjuaq dataset.

Mineral exploration on the Beverly calving and post-calving areas has increased markedly over the past 7 years, and will likely continue to increase, over the short-term at least, to a greater extent than mineral exploration on the Qamanirjuaq calving and post-calving areas. Therefore the lack of analysis concerning the effectiveness of CPM to protect calving and post-calving Beverly caribou is a significant gap in the assessment of CPM.

The implications for the assessment of not including land use permits issued on Inuit Owned Lands should also be discussed.

- 2) “Critique of methods”, should also include discussion of the implications of recommending use of a single method that relies on satellite telemetry as a proxy for monitoring.

In the Discussion (p. 30), the authors mention that testing will be needed to establish “. . . credibility for using a few collared caribou to describe the movements of 10s of 1000s of caribou.” Otherwise discussion of the use of satellite telemetry fails to relate the limitations of these data, such as:

- i. How can their recommended methods be used to implement CPM for Beverly caribou and other herds with limited telemetry data? An alternate method will be needed for such situations.
- ii. Satellite telemetry data indicate where some caribou are located, but they do not tell us with certainty where caribou are *not* found. Despite this, it is proposed that these data would be used to determine when releases from prohibiting activities **within CCMA**s between May 15 and July 15th are possible. This would be done by using the data on collared caribou locations to indicate that calving caribou would not likely be in the area of the Land Use Permit. The methods to be used and their limitations should be fully discussed.
- iii. It is proposed that satellite telemetry data be used to determine when land use operations should be suspended **outside of CCMA**s. However, these data will only indicate when *certain* caribou are in the area (collared caribou and those moving with them), not when *any* caribou are in the project area. Therefore operations may not be suspended (based on these data) when substantial numbers of caribou could be affected by the land use operation. The implications of this approach should be fully discussed.

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- 3) The report should consider other methods for monitoring caribou and discuss the possibilities for combining satellite telemetry with other methods.

During recent regulatory reviews for proposed land use permits in the NWT and Nunavut, various monitoring plans to be conducted or paid for by exploration companies have been suggested, including aerial surveys and hiring of local caribou observers/monitors. Several companies have agreed to caribou monitoring plans as part of their permit conditions that include documenting caribou occurrence in their project area and shutting down operations if caribou approach their project sites during specific time periods. If this becomes the norm (one of the 'best practices') for companies operating in caribou calving and post-calving areas, then the information the companies collect on caribou presence in their operating areas may be more useful than the satellite telemetry data. At any rate it seems that these other options should be considered as complementary to satellite telemetry data.

- 4) The issue of compliance and enforcement of CPM needs more discussion.

Without information about compliance, the assessment was likely based on the assumption that all CPM conditions were met by all land use permit holders – is that realistic? If enforcement has been inadequate, then how has this affected the effectiveness of CPM as a conservation tool? If resource availability has been limiting enforcement of CPM, what level of resourcing is required to provide adequate enforcement?

- 5) How protection of water crossings outside of CCMA's would be accomplished using satellite telemetry is unclear and needs further explanation.

The report should outline the importance of water crossings more fully, and the recommendations should indicate that the list of "designated water crossings" needs to be updated and expanded based on all available information sources.

- 6) The summary and recommendations should more clearly articulate that CPM do not address habitat protection and therefore are not all that is needed to protect caribou from the cumulative effects of mineral exploration and development. In other words, CPM may provide one tool useful for protecting caribou, but they do not provide a complete solution to long-term protection of calving and post-calving caribou.

C. Comments on Report Recommendations

Recommendation 1. "...rules-based Mobile Caribou Protection Measures. . ."

- It is not clear what exactly is meant by Mobile CPM. If this refers specifically to the mobile CPM as described in the West Kitikmeot Land Use Plan, then they should be appended to the report. If it refers to some other type of mobile measures, then they should be described fully.

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- A more detailed explanation of what is meant by “rules-based” measures is also needed, with some concrete examples of what these rules might be, and how they would be designed and implemented.

Recommendation 2. “The current Beverly Qamanirjuaq Caribou Protection Areas should be updated. . .renamed Caribou Calving Management Areas. . .”

- How should the areas be updated, and what information will be used to update the boundaries? How will boundaries be updated where insufficient satellite telemetry data are available? Will boundaries be based only on telemetry data when it is available?
- It is confusing that the term Mobile Protection Measures are to be applied to Caribou Calving Management Areas that are not mobile. Would the CCMA be redefined each year, based on a few previous year’s calving and post-calving distributions? A clearer explanation is needed concerning how mobile measures will be implemented using defined geographic areas.

Recommendation 3. “Releases would be possible based on a set of rules devised to use satellite telemetry or aerial survey data. . .” (Should indicate this is inside CCMA.)

- More explanation is needed concerning how this rules-based system would work and how the rules would be developed and applied, both inside and outside the CCMA, including at water crossings. It should also be clear who would have the authority to make the key decisions about data adequacy, rules to be applied, releases granted and suspension of activities.
- The recommendation (p. 34) refers to use of aerial survey data, but no background is provided for this in the preceding discussion (p.30), which describes using only satellite telemetry data for the rules-based conditions. Would aerial survey data be obtained through an annual monitoring program for herds without sufficient satellite telemetry data? Who would conduct and pay for the survey program? This should be discussed more fully in the report.

Recommendation 4. “A sense of urgency is needed. . .”

- The BQCMB is in total agreement with this sentiment.
- However, we feel that the recommendation should be more explicit in outlining what is needed. It should be made very clear that there is an urgent need to take action to address the larger issue of how to deal with long-term exploration and development on caribou range, with improved CPM being one of the earliest elements where action will be taken.

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- Recommendations for next steps should indicate that it will not be acceptable to wait for several years before starting to take any action until various studies are conducted or extensive consultation occurs. Although consultation with communities and industry will be of utmost importance in developing new approaches, action to improve existing processes and conservation tools, such as CPM, should be initiated as soon as possible.

Recommendation 5. “An integrated system including Prospector (sic) Permits, mineral claims, mineral leases. . .”

- The BQCMB agrees that CPM should be applied to other means of granting mineral tenure, especially prospecting permits, mineral claims and mineral leases. As related by Gunn et al. in their report, Judge Mahoney’s 1978 ruling that initiated the CPM was more stringent than the CPM established by DIAND, as it indicated that conditions should be applied to prospecting permits and leases as well as to land use permits, and that helicopters and low-flying aircraft should be prohibited over the calving and post-calving areas.
- There are two main problems under the current system, where CPM don’t apply until exploration activities pass a threshold that requires a land use permit:
 - caribou are not protected through CPM during initial exploration, which can occur for several years before a land use permit is required, and
 - land use operators are sometimes unaware of key issues concerning caribou until after they have worked in areas for many years, and are not provided with any guidance for reducing the effects of their activities on caribou and caribou habitat.

Both these inadequacies should be discussed in the report.

Recommendation 6. “. . .information . . .needs to be disseminated and readily accessible.”

- The BQCMB agrees with this recommendation, but believes it should be expanded beyond information on caribou and management options to include:
 - historical and recent information on caribou seasonal range use patterns (including maps wherever possible)
 - plain language descriptions of the results of research on:
 - the effects on caribou of disturbance
 - the effects of industrial exploration and development on other caribou herds and their important habitats, and
 - the cumulative effects of human activities on caribou and their important habitats
- This information must be provided to regulatory agencies, in particular, for use in developing permit conditions and generally making informed decisions about proposed

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developments on caribou ranges. Better access to information would be a key aspect of improving existing regulatory processes.

- Another important point for the areas of increasing mineral exploration is that there needs to be a better understanding of herd delineation and movement patterns of caribou in the Baker Lake region. There are caribou on the Beverly calving ground at other times of the year and there are caribou near the community of Baker Lake at various times of the year. This confuses the communities, regulatory agencies and companies as to what herds they are dealing with at different times of the year.

D. Specific Comments on Report by Section

INTRODUCTION

Sec. 1.2

p. 4 & 5

- It would be useful to append maps showing changes to CPA boundaries from 1979 to 1990.

Sec. 1.3

p. 6

- It would be useful to append original CPM and modifications made over the years, or to provide a summary of changes made by year.
- “In 1983, the period inside the Caribou Protection Area when land use operations would not require a release was changed from 31 July to 15 July.”
 - Mychasiw (1984) recommended shortening the time period over which releases were required by changing the end of the period from July 31 to July 15, but he also recommended that general CPM still be applied until 31 July. Was this second recommendation followed for any period of time? (The date is currently July 15th.)
- There were several other changes to CPM that should be discussed in the report, including the lengthening of the period when operations should be suspended if caribou were present outside the CPA (by changing the end of the period from June 30 to July 15) and the addition of restrictions to activities near water crossings in 1980.
- Notes 1 and 2 to the CPM in Appendix A have been inadvertently inserted in the main text – should be footnoted at the bottom of the page.

METHODS

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Sec. 2.2

p. 11 – “Firstly, we evaluated the degree of overlap of the annual distribution of the Extent of Calving with the Caribou Protection Area.”

- What dates were used to define this period? How were the data screened (e.g., class of locations used)?

p. 12 – “The annual calving grounds were determined using 90% fixed kernel estimates of occurrence from the distribution of satellite-collared caribou”

- What time period of locations was used to create the annual calving grounds?

RESULTS

Sec. 3.1

p. 14

Land use permits:

- Would be easier to view the information on the number of each type of permit in a table format.
- Should be a summary of permits issued from 1980-1990 (from monitoring reports), and information for 1978 and 1979 (from Darby's reports).
- The report states that no land use permits were issued in the Beverly CPA between 1991 and 2006. According to Mychasiw (1984), 7 permits issued in the Beverly CPA were subject to deferrals in 1981 and 1982 alone; obviously land use permits were issued in the Beverly CPA between 1978 and 1990.

Telemetry data:

- Why was the data from the Beverly collared cow (2001-05) not included? Or the previous collared cow from previous QAM collaring sessions?
- Qam caribou - Need to include GPS data from 2006.
- Bev caribou – What dates were used to define the median date of the peak of calving?

Table 1

- Peak of calving - Should this not be a range given that locations are one a 4/5 day interval?
- Location interval - 5/1 (after 10 Jun) - What does this mean?

Sec. 3.2

p. 17 – Almost “a third of those permits were in the Caribou Protection Areas.”

– How many? Should indicate numbers of permits as well as percentages (43% of 150, 16% of 118).

Fig. 4 – is an extra use of “Land Use Permits” in text

p. 18 – some text needs to be clarified:

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“Within the Caribou Protection Area, two Land Use Permits (14%) had no collared caribou come within 50 km during the calving period (Table 3)”

- This means that caribou came within 50 km for the remaining permits (86%)?
- It would be easier to follow and compare if all references in text and table stated the number of permits for which caribou came within 50 km, both inside and outside CPA.

Table 2

- editing issue with footnote in column 4.

Sec. 3.3

- Should be indicated in text as well as figures that analysis is based on 4-13 collared animals each year. A table summarizing the number of collars used for all analyses could be appended to the report for ease of reference.

p. 19

- “The annual calving ground for the Qamanirjuaq herd, as determined from satellite collars, varied in size among years (Table 4), and was concentrated in the northern portion of the Caribou Protection Area (Figs. 5, 6).”
 - Should qualify that this happened for most years, but not all (see 2000, 2002 and 2005).
- “In general, the annual calving grounds were largest and least compact in years when it was not located in the northern portion of the Caribou Protection Area (Table 4, Fig. 6).”
 - This seems to be an over generalization. See year 2000.
- “The annual calving grounds were centred within the Caribou Protection Area 1993-2004 and only 2005 was outside the Caribou Protection Area ‘
 - This statement is a bit misleading, as large proportions of the 2000 and 2002 calving grounds were also outside of the CPA even though the centroid was within the CPA (on the western edge).
- “In most years, most calving occurred in the northern sections of the Caribou Protection Area (Fig. 5), with an apparent slow shift in location of annual calving grounds west or southwest over time.”
 - Except for 2001, 2003 and 2004; the overlap frequency for the area SW of the CPA appears to be medium, not low - seems to be too much generalization

Fig. 7

- should be enlarged so legend is legible; should be labeled Caribou Protection Area

p. 23 – “. . .14-day change in the date of entry into the Caribou Protection Area, and one-month change in dates if 2006 data are removed (Fig. 8).”

- But Fig. 8 says “. . .for data with 2005 removed” – which is correct?
- If it's 2006, why is 2006 data included here and not for the rest of the analysis?

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p. 24 – Fig 9

- Why does this graph not have the linear regression line with 2005 data removed?

DISCUSSION

p. 28 –

- “The caribou occupy a larger area during 3 weeks than during the peak of calving.”
 - Need to add "post-calving"
- “The proportion of the annual calving grounds within the Caribou Protection Area averaged 80% (excluding 2005).”
 - Based on the #s given in Table 4 it is 72%.
 - And why was 2005 excluded? The proportion was 68% including 2005.
- “In 3 years (2000, 2002, 2003) a lower proportion of the annual calving ground (49–56%) was within the Caribou Protection Area (Fig. 5)”
 - But calving was in the north portion of the CPA
- “The evidence clearly does not support the suggestion of a level of mobility that would render the Caribou Protection Areas ineffective.”
 - However, for 7 of 12 years from 1993-2005 more than 30% of each annual calving area was *outside* the CPA, and in 3 years (2000, 2002, 2003) the proportion was close to half.
 - This is significant and indicates a need for more frequent review of CPA boundaries.
 - It should be acknowledged that the Beverly CPA is much smaller geographically and in relation to the size of the traditional calving ground than is the case for the Qamanirjuaq CPA. So it is likely that this issue would be of greater significance for Beverly caribou.
- “More frequent reviews of the Caribou Protection Areas (perhaps every 5 years) using satellite telemetry and supported by aerial censuses could improve the efficiency of the Caribou Protection Areas in two ways.”
 - This should be discussed more completely here.
 - Suggests that systematic reconnaissance surveys are needed

p. 30

- “. . . set of consistent rules to objectively determine boundaries for calving grounds. . .”
 - This concept needs to be explained more fully in the report.
 - Why would this be better than using Extent of Calving based on all known data, including satellite telemetry, calving ground surveys, and local knowledge?
- “The rules have to be developed through consultation but could, for example, include

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boundaries determined from the distribution of the annual calving grounds for the 5 previous years based on 95% probabilities.”

- This approach would not cover the years when calving is not normal (e.g., 1979, 2005).
 - If the rules are applied to telemetry data including and excluding the 2005 calving ground, the area will be different.
 - If rules are developed based on data from 2000-2004, for instance, caribou calving as they did in 2005 would not receive adequate protection from CPM alone.
- “to describe the movements of 10s of 1000s of caribou. For the Bathurst herd, the representation of the satellite-collared cows is high on annual calving grounds”
- I would suggest that 50 collared cows are required to define the calving distribution. In addition, there is a need to also determine breeding status of outlying animals in order to determine whether their locations should be used to define extent of calving.
- “Releases would only be possible based on a set of rules devised to use satellite telemetry data to ensure with a reasonable safety margin that the calving caribou would not be likely to be in the vicinity of the Land Use Permit.”
- Authors should provide recommendations on the # of collars needed to base release/shut down decisions solely on this type of data

p. 32

- “As of September 2006, DIAND had issued 37 prospecting permits. . .”
 - These are not the total numbers of permits, claims and leases issued by DIAND on the calving grounds up to September 2006. These are the number of each type of mineral tenure that DIAND had issued and were active in September 2006. Many more prospecting permits and mineral claims have been issued by DIAND on the calving grounds over the years, particularly since 2000.