

Administration of Nunavut Polar Bear Up to 1:1 Harvest System: The Credit Calculation System

1. Rationale

During the public hearing process regarding the implementation of Nunavut's Polar Bear Co-Management Plan by the Nunavut Wildlife Management Board, many comments by Inuit organizations were brought forward that favoured a new harvest approach. For years, communities have expressed a desire to adopt a harvest regimen that does not penalize communities as sharply as the flexible quota system when females are overharvested, and that allows harvesting at an equal sex ratio. In response, the **up to one male for every one female harvest option (or 1:1)** was discussed and recommended by the Department of Environment. On August 26, 2019, the Minister of Environment accepted a decision from the NWMB to change the harvest sex ratio of polar bears in Nunavut to allow **up to one female bear to be harvested for every male bear (1:1)**.

Each polar bear subpopulation within Nunavut has a set Total Allowable Harvest (TAH), which is divided among the communities that harvest from the subpopulation, by the appropriate Regional Wildlife Organization(s), as a base allocation. Each harvest season, communities are assigned a harvest quota based on the TAH allocation and any overharvests from previous seasons. Overharvests in one season result in a reduced community quota the following season unless the community has accumulated sufficient credits to compensate for the overharvest. When a community harvests below their harvest quota they can accumulate sex-specific credits to be used in future harvest seasons or shared with other communities.

The updated harvest sex ratio, allowing up to one female bear harvested for every male bear harvested (1:1 sex ratio) does not constrain communities to adhere to the exact 1:1 sex ratio. Rather, it refers to the maximum proportion of female polar bears in the harvest that is allowed under this system. Specifically, a harvest sex ratio of up to 50% females, per community per harvest season, is allowed without entering into an overharvest situation. Males can be harvested up to the limit of the annual recommended quota. Recommended quota allocations can never exceed a 50% female proportion, even when a reduction in quotas occur.

2. Overharvest Situation

2.1. An overharvest situation occurs when:

2.1.1. The female proportion in the annual harvest is greater than 50% of the recommended quota,

- 2.1.2. The male proportion in the annual harvest is in excess of the total recommended quota, or
- 2.1.3 A combination of the male and female harvest exceeds the total recommended quota.

3. Implementation

- 3.1. The implementation of the up to 1:1 harvest system begins with the 2019/2020 harvest season (July 1, 2019). The existing total community annual base allocation (TAH) will be divided by two, in order to determine the up to 1:1 sex ratio for each community, representing the 1:1 base allocation for each community for 2019/2020. This process increases the allowable female proportion of the harvest but does not constrain communities to harvest exactly a 1:1 male to female ratio. The annual base allocation will only change when there is a new subpopulation estimate and/or a new determination of the TAH.
- 3.2. If the base allocation is an odd number, then the TAH will always have one more male than females in order to implement a protective measure for females.
 - 3.2.1. For communities with a TAH of 1, the sex of the allocated tag will alternate annually.
- 3.3. Annual recommended quotas are calculated using the previous harvest year's data.
- 3.4. Recommended quotas will be calculated based on the sections below.

4. Mortality Accounting

- 4.1. All human-caused mortality to polar bears will count towards the annual recommended quota of the nearest community, except Section 4.3.
- 4.2. A naturally abandoned cub or any bear found dead will be recorded as a natural death and not counted against the TAH.
- 4.3. Any bear that is found near death caused by starvation or injury, provided that the injury is not a result of human activity such as hunting or trapping, can be killed as a humane action where the Conservation Officer (CO) will certify that the bear was near death. After certification by the CO, the humane kill (euthanization) will not be counted against the TAH.
- 4.4. If a Nunavut Inuit kills a bear, the tag will come from that person's home community if that community has a TAH in the population from which

the bear was harvested. Otherwise, the closest community to the harvest location must provide the tag.

- 4.5. Harvesting of a family group or members of a family group is illegal in Nunavut; however, there are circumstances where a family group or members of a family group may be destroyed in Defence of Life and Property Kill (DLPK) circumstances.

- 4.5.1. When a female with cubs-of-the-year (COYs), yearlings, or juveniles (2-year old offspring) are **killed**, then

- 4.5.1.1. For TAH determination purposes, the COYS and yearlings are counted as males and only $\frac{1}{2}$ tag each.

- 4.5.1.2. The juveniles (2-year old offspring) are counted as whole tags of whatever sex they are.

- 4.5.2. If the mother is killed but the COYS, yearlings and juveniles **run away** after the female is killed, then

- 4.5.2.1. The COYS and yearlings are counted as $\frac{1}{2}$ tag and all male.

- 4.5.2.2. The juveniles (2-year olds) that run away are considered as surviving animals. If juveniles are pursued and killed they are counted as full tags (see section 4.5.1.2)

- 4.6. In a case where a community overharvests by 1 COY or yearling, credits will be used to cover the harvest. In the event there are not enough credits to cover the overharvest of 0.5 male, the TAH will not be reduced by 0.5 tag at that time, and a record is kept with the Polar Bear Harvest Lab of these fractional reductions. The deduction will occur when there is another COY or yearling harvested to equal a full male bear reduction or if the following year's harvest results in credit accumulation, the 0.5 credit deduction will be taken from the accumulated credits.

5. Credits

- 5.1. Available credits may be used to address all types of kills, including accidental, illegal, and DLPKs.
- 5.2. If a community is in an overharvest situation, all available community credits will be applied automatically by the Polar Bear Harvest

Laboratory in order to maximize the community's harvest opportunities the following year.

- 5.3. Credits are specific to a given subpopulation and cannot be used for other subpopulations.
- 5.4. Subpopulation credits accumulate until a new TAH is determined. This may include a subpopulation inventory that has been conducted and a final abundance estimate result is produced. In some circumstances, a completed and finalized harvest risk analysis may also be conducted, or the Nunavut Wildlife Management Board recommends a change in TAH for other management purposes. Under these circumstances, all credits are set back to zero.
- 5.5. Credits are automatically dispersed the following harvest season as tags when communities have accumulated more than 10 credits for either males or females to ensure hunting opportunities are maximized, ensure credits have a maximum chance of being utilized before any new TAH is set, and ensure credits do not accumulate to levels that would potentially represent a conservation concern if used at once.
 - 5.5.1. If automatic disbursement exceeds 25% of the subpopulation TAH, then credits will be disbursed up to 25% of the community TAH.
- 5.6. Credits are accumulated as described in the following sections after the new TAH is implemented, and during any harvest season:
 - 5.6.1 Credits can accumulate for males and females.
 - 5.6.2 Credits accumulate for unused portions of the recommended quota or TAH.
 - 5.6.3 In the case where a community has a recommended quota of zero, and a total harvest of zero, the community's full quota will be restored the following year. No positive credits accumulate when a community's TAH, or recommended quota, is met or exceeded by the harvest of bears, irrespective of the sex composition of the community's total harvest.
 - 5.6.4 No positive credits accumulate when the female proportion of the harvest exceeds 50% of the recommended quota.
 - 5.6.5 Female positive credits can accumulate up to 50% of the total proportion of the TAH or the recommended quota, whichever is less.

- 5.7 Negative credits are possible and represent the number of bears that have been removed from the subpopulation in excess of a community's recommended quota or TAH, whichever is more in excess.

Credit exchange and request processes:

- 5.8 Credits can be exchanged between communities within the same subpopulation.
- 5.8.1 Communities that harvest from the same subpopulation can exchange credits, where needed, in order to restore their full recommended quota rather than facing a reduction when no community credits are available to cover an overharvest. The existing process for credit exchange between communities will be maintained (Figure 1).
- 5.8.2 Requests by communities to use credits to increase their annual recommended quota shall be made according to the process outlined in Figure 2. Credit requests are made to, and approved by, the responsible RWO. The GN will verify and confirm the number of available credits and indicate if the level of credits requested represents a conservation concern.
- 5.8.2.1 Requests for credits that are greater than 25% of the subpopulation TAH in a given harvest year will automatically be sent to the NWMB for review and decision, given the increased potential for a conservation concern.

6. Recommended Quota Adjustments

- 6.1. Reductions caused by an overharvest occur where no credits are available to cover the overharvest.
- 6.2. In order to protect communities from years of reduced or no harvest opportunities, resulting from persistent overharvest, the 1:1 system adapts to allow restoration of the full TAH. The recommended quota will be set to zero in situations in which no credits are available and a quota reduction cannot restore the TAH.
- 6.3. Depending on the number of negative credits, there may be continued reductions in the recommended quota in order to restore credits to zero and reinstate the full TAH.

Reductions in the recommended quota and credit administration occur as follows:

6.4. Adjustments in Cases of Female Overharvest:

6.4.1. When a community harvests greater than 50% females of the recommended quota, a reduction of next year's recommended quota will occur if there are not sufficient female credits to cover the overharvest. The following year's quota will be reduced by the number of females that were overharvested and not covered by credits. The reduction will affect the female proportion of next year's quota. If there is no female allocation available to reduce and no credits available, the reduction will be applied to the overall quota.

6.5. Adjustments in Cases of Male Overharvest:

6.5.1. When the harvest exceeds the total recommended quota or the TAH, and the female proportion of the harvest is less than 50%, then an overharvest of males occurred. Where application of credits does not cover this overharvest, a reduction equalling the number of overharvested males will be applied to the next year's recommended quota.

6.6. Adjustments in Cases of Combination Male and Female Overharvest:

6.6.1. When females are harvested in excess of 50% of the recommended quota and the sum of the total harvest (males and females together) exceeds the recommended quota, a reduction in next year's recommended quota will occur for each sex based on the number of bears overharvested.

7. Floating Tags

"Floating tags" are additional tags allocated by RWOs. These floating tags can be administered up to a 1:1 sex ratio, at the discretion of the RWO. Once allocated by the RWO, they are added to the total annual base allocation for the recipient community for that year.

7.1. Unused floating tags are accumulated as credits in the sex they were allocated.

7.2. The floating tags, when allocated by the RWO, should not create a situation where the female proportion exceeds 50%.

Polar Bear Credit Exchange Process

Polar Bear Laboratory, Department of Environment, Version 1.0 2020

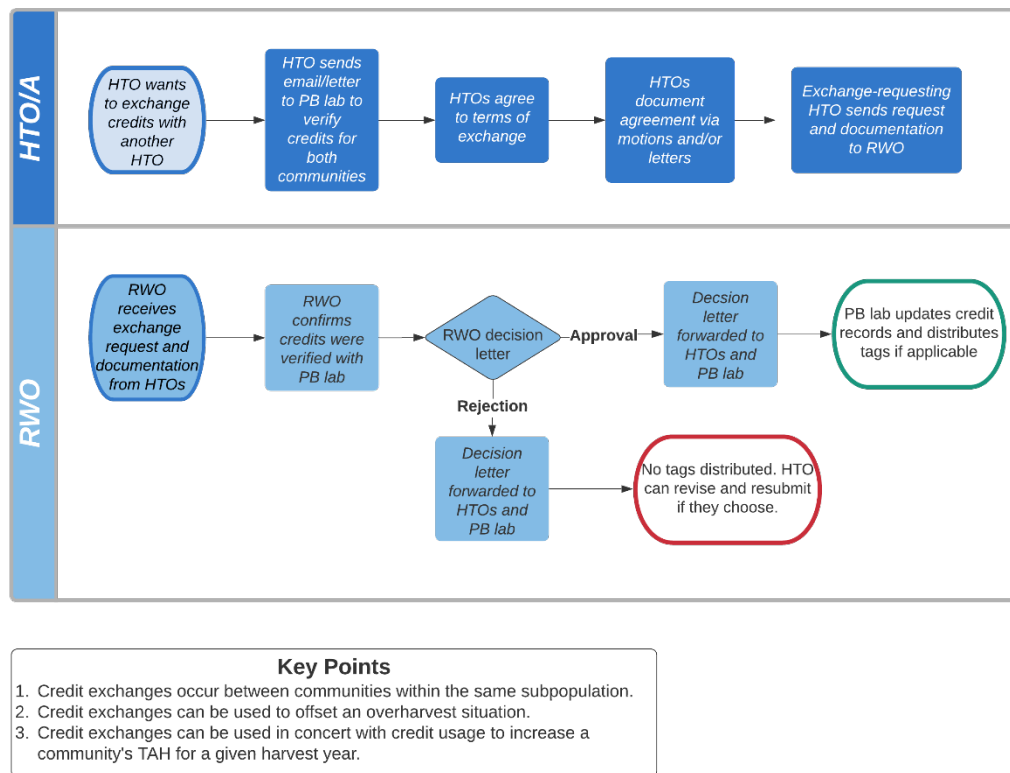
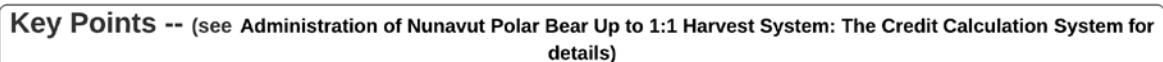


Figure 1. Flow chart detailing the credit exchange process.

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- *A conservation concern exists when the use of requested credits represents a substantial increase in the number of bears being harvested in a given year, or a substantial increase in number of females being harvested in a given year. There is no set number that would represent a conservation concern because this depends on the subpopulation status, the current TAH and the abundance estimate upon which the TAH is based, and the historic level of actual harvest for the subpopulation, among other things.

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