

The Nunavut Polar Bear Harvest Administration and Credit Calculation System (HACCS) (Up to 1:1 Harvest System)

1. Rationale and background

During the public hearing process regarding the implementation of Nunavut's Polar Bear Co-Management Plan, by the Nunavut Wildlife Management Board (NWMB), 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 female for every one male harvest option (or 1:1)** was discussed and recommended by the Department of Environment (DOE). 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) (RWOs). This is termed the community **base allocation**. The relevant RWO can redistribute the base allocation annually among communities at its discretion. Each harvest season, communities are assigned an **annual recommended quota** which reflects the community's base allocation, any overharvests from previous seasons, and any credit usage. The base allocation and annual recommended quota can be the same number if there are no overharvests or credit usage by a community. Overharvests in one season result in a reduced community annual recommended quota the following season unless the community has accumulated sufficient credits to compensate for the overharvest. When a community harvests below their annual recommended quota they can accumulate sex-specific credits to be used in future harvest seasons or shared with other communities. Communities can request to increase their annual recommended quota through use of accumulated credits.

The updated harvest sex ratio, allowing up to one female bear harvested for every male bear harvested (1:1) does not constrain communities to adhere to the exact 1:1 sex ratio. Rather, it refers to the maximum number of female polar bears in the harvest that are allowed under this system. **The number of females in a community's base allocation can never exceed 50%**. However, the **annual recommended quota may exceed 50% females** depending on whether credits are used to increase the number of females in the annual recommended quota and/or if there was male overharvest in the past season(s) that resulted in a reduction of male bears in the annual recommended quota. Communities are not limited to 50% male bear harvest and communities can harvest their female bear allocation as males. Thus, **males can be harvested up to the limit of the**

annual recommended quota (100%) without going into an overharvest situation. Details are provided below.

The HACCS is a living document and can be reviewed at anytime, in whole or in part, at the request of the RWOs, the GN, or the NWMB. The organization requesting review shall notify all other parties and allow minimum 90 days for a response.

2. Overharvest situation

2.1. An overharvest situation occurs when:

2.1.1. The number of females harvested annually is greater than the number of females in the annual recommended quota, or

2.1.2. The number of males harvested annually is greater than the total annual recommended quota, or

2.1.3 A combination of the males and females harvested annually is greater than the total annual 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 annual base allocation of each community's TAH will be divided by two, to determine the sex ratio for each community. This represents the 1:1 base allocation for each community for 2019/2020. This process increases the number of females allowed in 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 allocation decision from the relevant RWO, or a new subpopulation estimate, and/or a new decision on the TAH by the NWMB (see section 5.4).

3.2. If a community's base allocation is an odd number, the RWOs give the DOE authority to alternate the base allocation such that the sex of the odd tag will alternate annually [Example: If a community's base allocation is 11 (6 males and 5 females) then the base allocation will alternate annually between 11(6 males and 5 females) and 11(5 males and 6 females)]. The DOE's authority to alternate the base allocation in these cases is superseded by the RWOs right to adjust these base allocations.

3.3. Annual recommended quotas are calculated using the previous harvest year's data.

3.4. Annual 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 Sections 4.3 and 4.4.
- 4.2. A naturally abandoned cub or any bear found dead will be recorded as a natural death and not counted against the annual recommended quota.
- 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 annual recommended quota.
- 4.4. A bear may be killed as an emergency kill in accordance with section 97 of the *Wildlife Act* (the Act) to prevent a person's starvation. The kill will be evaluated to determine whether it was justified and necessary to prevent starvation. It must be clearly shown that the harvest occurred as a last resort, mismanagement cannot be construed as providing a lawful excuse to kill a bear without the proper authority (section 97(3) of the Act). If it is determined that the kill was justified and necessary to prevent starvation it will not be counted against the annual recommended quota, otherwise if it does not meet these criteria it will count against the annual recommended quota.
- 4.5. If an Inuk from Nunavut kills a bear, the tag will come from that person's home community if that community has an allocation from the TAH in the subpopulation from which the bear was harvested. Otherwise, the closest community to the harvest location must provide the tag.
- 4.6. For harvests within 30 km of a subpopulation boundary, the relevant HTO(s) may submit a request to the relevant RWO(s) to review and decide from which subpopulation to attribute the harvest (e.g., the subpopulation area from which the bear was harvested, or the subpopulation area bordering it). This decision will be made within the harvest year (July 1st – June 30th) of the given harvest and the RWOs will advise the Polar Bear Lab of the decision.
- 4.7. 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 (DLP) circumstances.
 - 4.7.1. When a female with cubs-of-the-year (COYs), yearlings, or juveniles (2-year-old offspring) are **killed**, then:

- 4.7.1.1. For annual recommended quota determination purposes, the COYs and yearlings are counted as males and only $\frac{1}{2}$ tag each.
- 4.7.1.2. The juveniles (2-year-old offspring) are counted as whole tags of whatever sex they are.
- 4.7.2. If the mother is killed but the COYs, yearlings or juveniles (2-year-old offspring) **run away**, then:
 - 4.7.2.1. The COYs and yearlings are counted as $\frac{1}{2}$ tag and all male (see section 4.7.1.1).
 - 4.7.2.2. The juveniles (2-year-old offspring) that run away are considered as surviving animals. If juveniles are pursued and killed, they are counted as full tags (see section 4.7.1.2)
- 4.7.3. An HTO may apply to the Minister for a Wildlife Management Permit to allow COYs or yearlings to be harvested for food and cultural purposes. The permit must be issued in advance with a copy to the Wildlife Officer, and the HTO must monitor the hunt to ensure that the female (mother) is not harmed.
- 4.8. In a case where a community overharvests by one (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 $\frac{1}{2}$ male, the annual recommended quota will not be reduced by $\frac{1}{2}$ 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 $\frac{1}{2}$ credit deduction will be taken from the accumulated credits.
- 4.9. The parts that evidence the age, species, and sex of a polar bear are teeth for the age; the jaw or skull for the species; and the baculum (penis bone) of the male polar bear for the sex. When the baculum has been lost or forgotten, a hunter-signed Statutory Declaration or DNA extracted from other submitted samples shall constitute evidence of the sex. Where evidence is not provided, the kill will be counted as a female bear for annual recommended quota purposes.

5. Credits

- 5.1. Available credits may be used to address all types of kills, including accidental, illegal, and DLPs.

- 5.2. If a community is in an excess harvest situation, all available, applicable (e.g. male or female) credits accumulated by the community will be applied automatically by the Polar Bear Harvest Laboratory to cover the overharvest in order to ensure no reductions to the annual recommended quota occur for the following harvest season, if possible.
- 5.3. Credits are specific to a given subpopulation and cannot be used for other subpopulations.
- 5.4. Subpopulation credits accumulate until a TAH decision is made. This may follow a subpopulation inventory that results in a new final abundance estimate. In some circumstances, the NWMB may recommend a change in TAH for other management purposes. When a new TAH decision is made, all unused credits are set to zero because the credits have been carried forward through inclusion in the latest population estimate provided by science and/or Inuit Qaujimagatuqangit (IQ).

That is to say, bears that were unharvested (credits) have been accounted for in the updated population estimate through their contribution to population growth, or through population decline in the case of increased mortality or decreased reproduction. Thus, keeping bears as credits result in “double-counting”; they cannot be counted in credits AND the population abundance estimate. Carrying credits forward in perpetuity creates vulnerability in the sustainability of populations. Credits typically accrue over many years during which vital rates (e.g., reproductive rate, recruitment, survival) may change with the changing environment and/or population dynamics; no population of animals is static. Thus, credits accrued during a period of population growth and applied during a period of population decline would affect the population more negatively than intended, with an unknown magnitude. Resetting credits at the time of a new population estimate and TAH decision allows for managers to better adapt management targets to current population status.

- 5.5. Credits are accumulated as described in the following sections after the TAH decision is implemented, and during any harvest season:
 - 5.5.1. Credits can accumulate for males and females.
 - 5.5.2. Credits will accumulate for the number of unused males and females in the annual recommended quota.
 - 5.5.3. No female positive credits accumulate when the number of females harvested exceeds the number of females in the annual recommended quota, or the total annual harvest equals or exceeds the annual recommended quota. [Example: if a

community's annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest includes 6 female bears, the community will not accumulate any female credits. Or, if the actual harvest meets or exceeds 10 total bears, the community will not accumulate any female credits].

- 5.5.4. In a single harvest season, female positive credits accumulate for unharvested female bears of the annual recommended quota given that the total harvest does not exceed the annual recommended quota. [Example: if a community's annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest is 8 bears (5 males and 3 females), the community will accumulate 2 positive female credits for the number of unused females in the annual recommended quota].
 - 5.5.5. In a single harvest season, male positive credits accumulate for unharvested male bears of the annual recommended quota. [Example: if a community's annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest is 8 bears (3 males and 5 females), the community will accumulate 2 male credits for the number of unused males in the annual recommended quota. Alternatively, if the harvest is 8 bears (8 males and 0 females), the community will not accumulate male credits, but will accumulate 2 female credits which represent the number of females that were unused in the annual recommended quota].
 - 5.5.6. In the case where a community has an annual recommended quota of zero, and a total harvest of zero, the community's full base allocation will be restored the following year, unless they still have negative credits that have not been replaced with positive credits (see section 5.6).
- 5.6 Negative credits are possible and represent the number of bears that have been removed from the subpopulation in excess of a community's annual recommended quota.
- 5.6.1 Negative credits are sex-specific and can accumulate for male and female bears.
 - 5.6.2 Negative credits occur if there are insufficient credits to cover the excess harvest, and adjustments to the following year's annual recommended quota cannot cover the excess harvest. [Example: if a community's annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest is 17 bears (12 males and 5 females), and there are insufficient male credits to cover the overharvest of males, the annual recommended quota

the following year will be 5 bears (0 males and 5 females). Because there are no male credits to cover the 7 overharvested males, the 5 male tags for the following harvest season will count to cover part of the overharvest and the community will have negative 2 (-2) male credits that will still need to be replaced in subsequent harvest seasons. Alternatively, if a community's annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest is 17 bears (5 males and 12 females), and there are insufficient female credits to cover the overharvest of females, the annual recommended quota the following year will be 5 bears (5 males and 0 females). The community will have negative 2 (-2) female credits that will need to be replaced in subsequent harvest seasons].

Credit exchange and request processes:

- 5.7 Credits can be exchanged between communities within the same subpopulation.
 - 5.7.1 Communities that harvest from the same subpopulation can exchange credits, where needed, to restore their full annual 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).
 - 5.7.2 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 raise any conservation concerns with the relevant co-management partners and management authorities, if warranted.
 - 5.7.2.1 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 of a potential conservation concern.

6. Annual recommended quota adjustments

- 6.1. Reductions are sex-specific when there are insufficient credits to cover an overharvest.

- 6.2. 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 base allocation. The annual recommended quota will be set to zero in situations in which no credits are available, and a reduction in the annual recommended quota cannot restore the allocation [Example: if a community's base allocation and annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest is 20 bears (10 males and 10 females); if there are no credits to cover the overharvested bears, the annual recommended quota for the next harvest season will be 0 bears. The new annual recommended quota of 0 covers the overharvested bears and the community will have its full base allocation following the 0-harvest year].
- 6.3. Negative credits are possible and represent the number of bears that have been removed from the subpopulation in excess of a community's annual recommended quota. Depending on the number of negative credits, there may be continued reductions in the annual recommended quota, over multiple harvest seasons, to restore negative credits to zero and reinstate the full base allocation (see Section 5.6).

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

6.4. Adjustments in Cases of Female Overharvest:

- 6.4.1. When females are harvested in excess of the number of females in the annual recommended quota, a reduction of next year's annual recommended quota will occur if there are not sufficient female credits to cover the overharvest. The following year's annual recommended quota will be reduced by the number of females that were overharvested and not covered by credits. The reduction will affect the number of females in the next year's annual recommended quota [Example: if a community's annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest is 12 bears (5 males and 7 females), and there are no female credits to cover the 2 overharvested female bears, the annual recommended quota for the following harvest season will be 8 (5 males and 3 females)].

6.5. Adjustments in Cases of Male Overharvest:

- 6.5.1. When the harvest exceeds the total annual recommended quota **and** the number of females in the harvest is less than, or equal to, the number of females in the annual recommended quota, 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 annual recommended quota [Example: if a community's annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest is 12 bears (7 males and 5 females), and there are no males credits to cover the 2 overharvested male bears, the annual recommended quota the following harvest season will be 8 (3 males and 5 females)].

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

6.6.1. When females are harvested in excess of the number of females in the annual recommended quota **and** the sum of the total harvest (males and females together) exceeds the annual recommended quota, a reduction in the next year's annual recommended quota will occur for each sex, based on the number of bears overharvested [Example: if a community's annual recommended quota is 10 bears (5 males and 5 females) and the actual harvest is 13 (7 males and 6 females), and there are no credits to cover the overharvested bears, the annual recommended quota the following harvest season will be 7 bears (3 males and 4 females)].

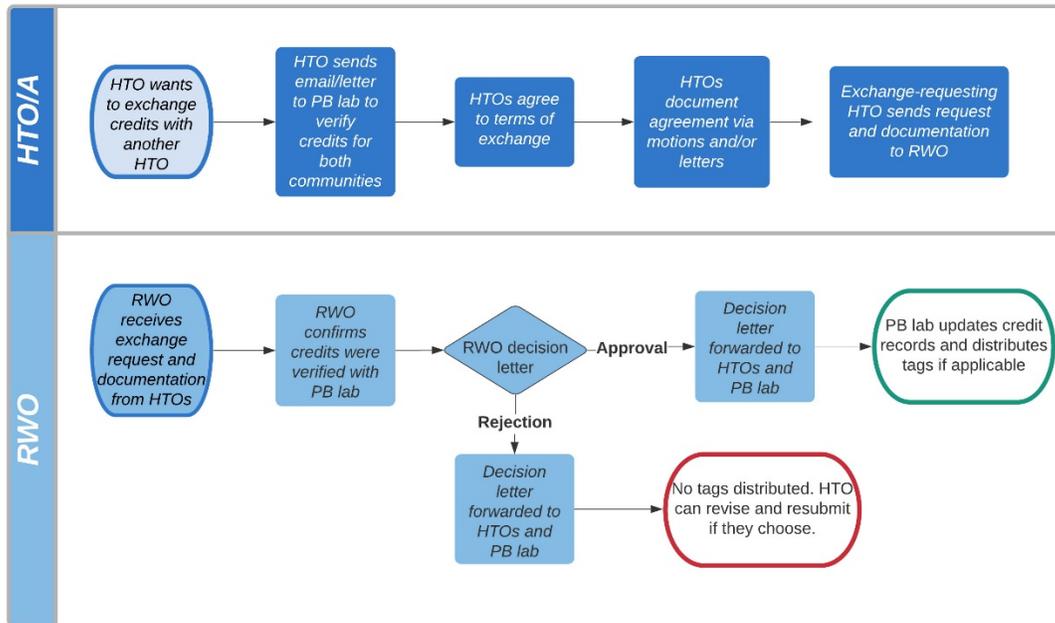
7. Floating tags

"Floating tags" are additional tags allocated by RWOs. These floating tags are administered at the discretion of the RWOs, including the sex ratio. Once allocated by the RWOs, they are added to the total annual recommended quota 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 RWO will advise the Polar Bear Laboratory annually of how they will allocate the floating tags for the next harvest season so that the tags can be attributed to the relevant communities.

Polar Bear Credit Exchange Process

Polar Bear Laboratory, Department of Environment, Version 1.0 2020



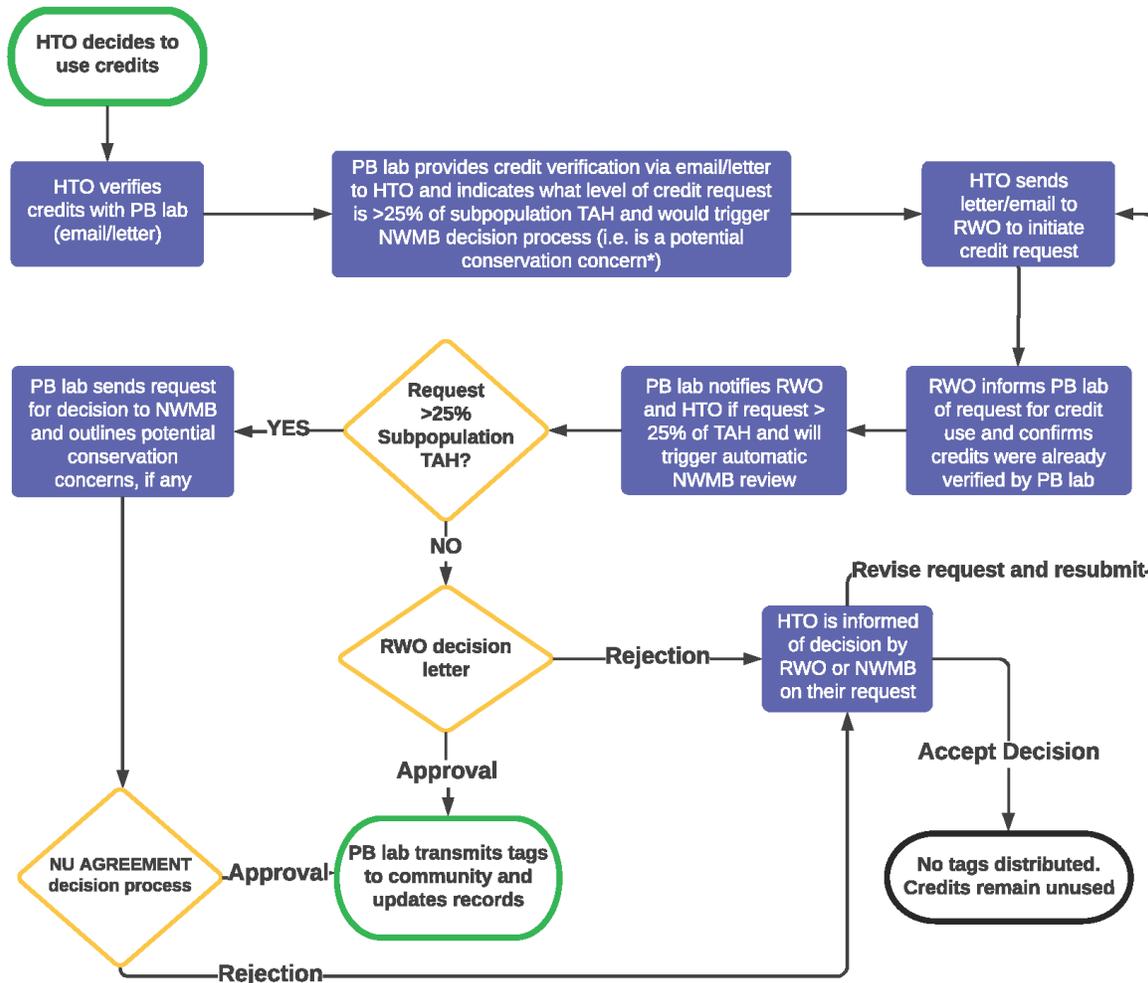
Key Points

1. Credit exchanges occur between communities within the same subpopulation.
2. Credit exchanges can be used to offset an overharvest situation.
3. Credit exchanges can be used in concert with credit usage to increase a community's annual recommended quota for a given harvest year.

Figure 1. Flow chart representing the RWO-managed decision process for credit exchange (chart designed by co-management partner GN).

Polar Bear Credit Use Process

Polar Bear Laboratory, Department of Environment, Version 2.0 2021



Key Points -- (see Administration of Nunavut Polar Bear Up to 1:1 Harvest System: The Credit Calculation System for details)

1. Credits are available upon request at any time to a community.
2. Community HTOs initiate credit requests, RWOs decide on requests.
3. Sex and harvest year of credits are specified by HTO in their request.
4. Requests greater than 25% of subpopulation TAH, by 1 or more communities, automatically trigger NWMB review evaluating if request is a potential conservation concern.

*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.

Figure 2. Flow chart representing the RWO-managed decision process for credit usage (chart designed by co-management partner GN).