

# POLAR BEAR AS A MULTIPLE USE RESOURCE IN NUNAVUT: LOCAL GOVERNANCE AND COMMON PROPERTY CONFLICTS

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In 1973, Canada signed the international Agreement on the Conservation of Polar Bears. While promising to protect the bear and its ecosystem, Canada also recognized its responsibilities to its Inuit citizens and their cultural and socioeconomic needs (Lentfer 1974). The management of polar bears in Canada allows Inuit communities to hunt bears for subsistence and to outfit and guide polar bear sport hunts for non-Inuit. Throughout the twentieth century, polar bear hides, as a by-product of subsistence hunting, were sold in the fur trade and currently each fetches roughly \$1,000. Outfitting and guiding a sport hunt provides up to 20 times more income to the community than the sale of a bear hide. Thus, Canada's decision to allow sport hunting creates an important financial opportunity for Inuit.

Despite the monetary benefits, it was only in the 1980s that polar bear sport hunts in Canada increased beyond 10 per year (out of some 400 animals harvested annually). At that time the European sealskin market ended, causing severe economic hardship to Inuit hunters, who, today, still continue to hunt seals for food. The sale of sealskins, as a by-product of Inuit food hunting, had supported the subsistence economy by providing money for the purchase of hunting supplies (see Wenzel 1991). The increase in polar bear sport hunts offered after the seal skin market crash suggest it was a deliberate effort by Inuit to offset monetary losses from the sealskin trade, rather than a desire to commoditize the polar bear harvest.

In an attempt to improve economic conditions, the Canadian government promoted tourism in the North throughout the 1980s (Myers and Forrest 2000, Wenzel 2005). Despite this incentive, by the 1990s the majority of bear tags were still not assigned to the sport hunt. Even today, sport hunts in the case study communities discussed below make up only approximately 50% of those community quotas. The lack of economic efficiency of the situation across Nunavut suggests that there is conflict between culture/subsistence hunting and the sport hunt industry.

## Sport hunt Structure

Each community Hunters and Trappers Organization (HTO) is allocated an annual number of tags for polar bear hunting within the local bear population area. Any adult in the community can be a member of the HTO, and, as a group, the HTO membership decides whether or not to hold a sport hunt and subsequently divides its tags between sport and Inuit hunters. A sport hunter pays the local outfitter roughly \$19,000 for a sport hunt package. The federal government regulates the sport hunt and requires that sport hunters be accompanied by Native guides and use non-mechanized transport to pursue bears.

The evolution of the polar bear sport hunt industry has resulted in a natural experiment in community decision making across the Canadian Arctic as each community struggles to balance the cultural benefits of Inuit

subsistence hunting with the economic benefits of the sport hunt. This situation provides an opportunity to explore the effects of such decisions on individual livelihoods and how individual interests affect institutional development. The opportunity costs and financial benefits will be examined through case studies of three communities in Nunavut: Clyde River, Resolute, and Qikiqtarjuaq (formerly Broughton Island), all located in the Qikiqtaaluk (Baffin) Region. After a brief description of each community, the more tangible costs and benefits of the sport hunt will be explored as explanation for institutional changes in the hunting seasons of 2001-2002 and 2002-2003.

## Case Study Communities

Resolute, on Cornwallis Island (74°41'N, 94°54'W) is in the Lancaster Sound bear population area. The adult Inuit population (and therefore potential HTO membership) is approximately 90 (all human populations taken from Statistics Canada 2001 census). With 35 bear tags per year, Resolute possesses one of the highest polar bear quotas in Nunavut. Twenty of these tags have been used for sport hunting each year since the 2000-2001 season. Resolute has five dog team owners (thus able to serve as sport hunt guides) and one private outfitter. In 2003-2004, polar bear sport hunting brought in \$380,000 to this community. Like the other communities, subsistence hunting tags are distributed to the HTO membership by lottery.

Clyde River or Kangiqtuqaapik is located on the East Coast of Baffin Island (70°27'N, 68°38'W.); in the Baffin Bay polar bear population area. Pond Inlet and Qikiqtarjuaq, as well as Western Greenland also hunt this bear population. In 2001, Clyde River's adult population was 390, and from 2001 to 2003 bear quotas at Clyde were 21 animals annually. Three private outfitters ran a total of 10 hunts in 2001, and the HTO took over outfitting in 2003 and ran 8 hunts. Sport hunting in 2003-2004 provided Clyde with \$190,000.

Qikiqtarjuaq (formerly Broughton Island) is located on Baffin Island (67°33'N, 64°03'W) southeast of Clyde River and has an adult population of 340. The sport hunt in this community is organized and outfitted by the HTO. There are four dog team owners who act as guides. The quotas in 2001-2002 and 2003-2004 were 21 tags each year, of which 10 were used for the sport hunt. In 2003-2004,

Qikiqtarjuaq decided to initiate a fall sport hunt (when bears are on the land rather than the ice) and two hunts were carried out. The community plans to continue to offer fall hunts. In 2003-2004, Qikiqtarjuaq took in \$200,000 from sport hunting.

## Accessibility Conflicts

The considerable money available to Inuit through the polar bear sport hunt has necessitated community-level institutional development through the HTO to decide on the level of sport hunting and to distribute the profit in an equitable manner. The institutional rules developed by the case study communities are not economically efficient, but rather reflect a delicate balance between the right to hunt and the chance to make money from the sport hunt for both individuals and the HTO membership as a whole. Each HTO has a different arrangement with regards to access to Inuit bear hunting and access to monetary benefits from sport hunting. The situation results in diverse outcomes for individuals, both in monetary terms and in accessibility to bear tags for personal use. The next section examines the costs to Inuit hunters in terms of loss of access to hunting opportunities. Following that is an examination in the changes in the sport hunt institutions in the three case study communities from the 2001-2002 season to 2002-2003 as an example of how communities are trying to maximize monetary benefits from the sport hunt.

## Costs

One of the main costs of conducting a sport hunt is a loss of access to bears for community hunters. The severity of that loss depends on the number of tags delegated to the sport hunt and the population of potential Inuit hunters.

Resolute, with 35 bear tags, has 90 potential hunters who, if there were no sport hunt, would have a 39% chance of receiving a bear tag in any year. This level of access is expressed as the estimated frequency in years of receiving a tag for personal use, here 1 in 3 years (see Table 1). The current level of sport hunting in the community reduces the number of Inuit hunting tags to 15, and subsequently a hunter's chance of getting a tag to one every 6 years.

Clyde has 390 potential bear hunters and 21 tags, giving each hunter one tag every 19 years. With a sport hunt of 10 tags, the hunt-

ers' chances of receiving a tag are reduced to one in 36 years.

Qikiqtarjuaq has 340 potential hunters and 21 bear tags. If no sport hunt existed, each hunter would receive one every 16 years. With the current sport hunt level of ten tags, eleven subsistence tags are assigned by lottery each year, allowing each eligible Inuk a tag only once every 31 years. The very low chance of a hunter receiving a tag in a given year has become a concern in Qikiqtarjuaq. In order to allow more people to go bear hunting the HTO board has instituted a 24-hour tag holding period. If an Inuk hunter does not get a bear in this time, the tag is returned to the general lottery.

*Table 1. Frequency of individual Inuit hunters receiving bear tags for subsistence hunting under 2001-2002 quotas and sport hunt levels.*

	If no Sport Hunt		With Sport Hunt	
Community	Inuit tags /hunter population	Estimated Frequency in years	Inuit tags /hunter population	Estimated Frequency in years
Resolute	35/90	1/3	15/90	1/6
Clyde River	21/390	1/19	11/390	1/36
Qikiqtarjuaq	21/340	1/16	11/340	1/31

## Benefits

The loss of access to bears affects all HTO members and has necessitated the development of mechanisms to direct some sport hunt income to members who are not earning wages by working on the sport hunt. Furthermore, if the sport hunt is to retain community support, each HTO member must receive more through these mechanisms than he or she would receive through the fur trade.

The basic monetary value of a polar bear, through selling the pelt in the fur trade, is estimated at \$1000.00. If all hides are sold in the fur trade and the money divided by the number of HTO members, a base line measurement emerges of how much each person receives per year. Of course no hunter receives this income as a yearly payment, but rather as a lump sum whenever he or she harvests a bear and sells the hide. Given the different cycles of payments in various distribution mechanisms employed by the case study communities, it is easiest to convert all monetary comparisons to the annual level.

The Federal rule that stipulates non-mechanized transport of sport hunters

essentially limits guiding to dog team owners. Further, the cultural tendency in some communities to hire close relatives as assistant guides results in very limited sport hunt employment possibilities for most people. It is possible then to calculate how much money on average is distributed to an Inuk who is neither a dog team owner, nor close relative of such, and thus has basically no chance of employment in the sport hunt industry. The mechanisms whereby HTO members receive monetary benefits from the sport hunt are explored below and the amounts from two hunt years are compared to the baseline fur trade value of bear hides.

## Resolute

Resolute's sport hunt is privately outfitted, and neither the HTO nor the community at large

receives money from the hunt. There is, however, a mechanism to distribute cash benefits to individual HTO members: the 20 tags assigned to the sport hunt are allocated to HTO members through a lottery system. The outfitter then purchases these tags from their holders for a price of \$2500 each. This cash provides monetary benefit to individuals for their loss of access to the polar bears, and is more money than a hunter receives from selling a bear hide in the fur trade (35 hides x \$1000/90 hunters) (see Table 2). With 90 potential Inuit hunters in the community, each hunter receives the payment on average every 4.5 years, or a yearly payment of \$555.56. If all remaining, non-sport hunt bears are harvested by Inuit and the hides sold through the fur trade, an additional \$15,000.00 enters the HTO membership, for a yearly payment to each Inuk hunter of \$166.67. In total, a hunter not employed by the sport hunt receives an annual payment of \$722, under the current sport hunt levels and rules. The Resolute HTO did not change their rules for sport hunt participation or monetary distribution between 2001-2002 and 2002-2003, so payment remained the same.

## Clyde River

At Clyde River the 390 HTO members vote annually on the number of tags to be used for sport hunting. These tags are then removed from the pool and sold to private outfitters. The HTO uses the sport hunt tag fees for equipment purchases to facilitate hunting in the community. In 2001-2002 the HTO received \$21,000 for 10 tags, resulting in an in-kind payment worth \$53.85 per member. Combined with potential fur trade cash from the remaining 11 Inuit-hunted bears (\$11,000/390), each individual would receive a total payment of \$82.06. This is a much lower payment than in Resolute, and Clyde River also pays a much higher opportunity cost in terms of accessibility of bear tags. In response to the low return (though the Resolute payment is not known to Clyde hunters), the HTO redesigned its sport hunt institution in 2003 to increase monetary benefits to members and reduced the sport hunt by 2 tags. This increased both access to bears and benefits from the sport hunt for most HTO members, but hampered private business interests.

That year the HTO took over all outfitting, resulting in profits of \$80,000. Employment opportunities, however, were not redistributed. The in-kind payment to the HTO members was thus increased to \$205.13 per person. Combined with the fur trade value of the remaining 11 Inuit hunted bears (\$28.21/member), this would give annual benefits of \$233.34, a substantial increase from the previous system.

## Qikiqtarjuaq

In Qikiqtarjuaq 10 of the 21 bear tags were devoted to the sport hunt each year. The HTO is the only outfitter and the assignment of assistants to the sport hunt is open to all hunters, giving a hypothetically even chance of employment. The average HTO member then, would be assigned as a helper once in 34 years and earn \$4000, or a yearly payment of \$117.65. The average member also receives the benefit of utilizing equipment purchased by the HTO with profits from the sport hunt, which amounted to approximately \$80,000 in 2001-2002, or \$235.29 per person per year. If the remaining 11 bears were all harvested and the pelts sold (\$11,000.00), an additional return of \$32.35 would accrue to each community hunter. Thus, the total payment to each hunter in 2001-2002 was \$385.29.

Over the years there have been a number of unsuccessful sport hunts from Qikiqtarjuaq, leading to requests for second hunts at reduced prices. Community discussions have also touched on what some perceive as the unfair advantage of dog teamsters, who always receive employment. These concerns have led the community to initiate a fall sport hunt. According to sport hunt rules, a hunter may kill a bear only from a dog sled or by foot, so a guide may transport a hunter by boat to an appropriate hunting area, where he can then pursue the bear on foot. Every adult in the community owns or has access to a boat, opening the possibility of fall guiding employment to all. Two fall hunts were conducted in 2003, with 'boat guides' being selected by lottery, and paid the same wage as winter dog team guides. The initiation of the fall hunt, with the new opportunity to work as a guide increases the average hunter's income from the sport hunt by \$44.12 (\$7500 wages/340 people x two fall hunts).

*Table 1* Income to individuals from polar bear harvests, without a sport hunt, and in two seasons with sport hunting.

	Average return per person, fur trade only	Average return per person 2001-2002	Annual return per person 2002-2003
Resolute	\$389	\$722	\$722
Clyde River	\$53.85	\$82.06	\$233.34
Qikiqtarjuaq	\$61.76	\$385.29	\$429.41

## Discussion and Conclusions

Each community must balance the trade off between access to bears and access to cash from the sport hunt. The distribution of tags does not at first appear to be economically optimal, but rather reflects this relationship. However, closer inspection of the distribution mechanisms for sport hunt profits shows that the two communities which pay a very high opportunity cost for the sport hunt, have also recently made changes to their profit distribution systems to increase payments to HTO members. This move suggests a strong pressure towards optimization for the HTO voter. Thus, Inuit are attempting to optimize both opportunity to hunt and monetary returns from sport hunting.

This paper focused on the monetary benefits of conducting a sport hunt and the loss of access to bears for Inuit hunters. The decisions made by each community do not show the monetary

value of a subsistence hunt to Inuit. Such a calculation is impossible because the value of food and culture is intangible. This paper merely demonstrates how Inuit have tried to incorporate the sport hunt into their lives. There are, of course, also other costs and benefits to the sport hunt that have not been examined here. An important cost that has been considered in Clyde River is the ethical dilemma of allowing sport hunting. Harvesting an animal as a trophy goes against traditional Inuit teachings and is an important consideration in allowing a sport hunt for non-Inuit visitors (see Wenzel 2005). A benefit not examined in this paper is the contribution of the sport hunt to the subsistence economy beyond the meat distributed throughout the community. Sport hunt guides tend to be the most active hunters in the community and therefore contribute a high percentage of country food to the community-wide subsistence economy. Guides often spend a portion of their earnings on hunting equipment, which allows them to maintain their own harvesting activities. Thus, the benefits of offering sport hunts include financial support for the subsistence economy (see Wenzel 2005).

As a common property resource, polar bears have many uses and meanings attached to

them, and all Inuit users have a voice in governance. With the advent of sport hunting, community HTOs have struggled to develop appropriated mechanisms for the distribution of costs and benefits to their members. These institutional rules are not static, but rather reflect the shifting concerns of HTO members as they seek to maximize several incomparable factors within their cultural context.

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