

ICON ON ICE:

International Trade and
Management of Polar Bears

Tanya Shadbolt, Geoff York,
& Ernest W. T. Cooper



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the wildlife trade monitoring network

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Tanya Shadbolt, Geoff York, and Ernest W. T. Cooper

TRAFFIC NORTH AMERICA & WWF-CANADA
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ACRONYMS

ANC	Alaska Nanuuq Commission
ADF&G	Alaska Department of Fish and Game
CFR	<i>Code of Federal Regulations</i>
CoP	Conference of the Parties
CWS	Canadian Wildlife Service
CWDC	Canadian Wildlife Directors Committee
CITES	<i>Convention on International Trade in Endangered Species of Wild Fauna and Flora</i>
CITES MA	CITES Management Authority
CITES SA	CITES Scientific Authority
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
EC	European Community
EU	European Union
EEC	European Economic Community
ENR	Department of Environment and Natural Resources
ESA	<i>Endangered Species Act of 1973 (USA)</i>
EU-TWIX	European Union Trade in Wildlife Information eXchange
GINR	Greenland Institute of Natural Resources
GNWT	Government of the Northwest Territories
HTC	Hunters and Trappers Committee
HTO	Hunters and Trappers Organization
HFTCC	Hunting Fishing and Trapping Coordinating Committee
IFAW	International Fund for Animal Welfare
ISR	Inuvialuit Settlement Region
IUCN	International Union for Conservation of Nature
LEMIS	Law Enforcement Management Information System
MMC	Marine Mammal Commission
MOU	Memorandum of Understanding
MMPA	<i>Marine Mammal Protection Act (USA)</i>
NDF	Non-Detriment Finding
NSB	North Slope Borough
NSB DWM	NSB Department of Wildlife Management
NTI	Nunavut Tunngavik Incorporated
NOAA	National Oceanic and Atmospheric Administration
NWMB	Nunavut Wildlife Management Board
OMNR	Ontario Ministry of Natural Resources
OSP	Optimal and Sustainable Population
PBAC	Polar Bear Administrative Committee

PBSG	Polar Bear Specialist Group
PBTC	Polar Bear Technical Committee
RSFSR	Russian Soviet Federated Socialist Republic
SRG	Scientific Review Group
SSC	Species Survival Commission
SWG	Scientific Working Group
SARA	<i>Species at Risk Act</i> (Canada)
TEK	Traditional Ecological Knowledge
TWPCB	Tornat Wildlife and Plants Co-Management Board
US	United States
USGS	United States Geological Survey
USSR	Union of Soviet Socialist Republics
USFWS	United States Fish and Wildlife Service
UNEP-WCMC	United Nations Environment Programme - World Conservation Monitoring Centre
WMAC	Wildlife Management Advisory Councils
WTR	Wildlife Trade Regulations (EU)
WCMC	World Conservation Monitoring Centre
WAPTR	<i>Wild Animal and Plant Trade Regulations</i> (Canada)
WAPPRIITA	<i>Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act</i> (Canada)



EXECUTIVE SUMMARY

Polar bears are a charismatic Arctic species and the anticipated effects of climate change on their habitat have gained increasing international attention, making the species a high-profile conservation priority. Changes to the Arctic ecosystem will not only affect polar bears and their habitat, but also the livelihoods of Arctic communities.

Hunting polar bears helps maintain cultural identity and for many Arctic communities it provides a strong link to the environment. As well as contributing to a traditional subsistence economy (e.g. food and clothing) in the Arctic, the polar bear hunt also provides an important source of income through sport hunting activities and the sale of polar bear parts and derivatives. This report examines international trade in polar bear parts and derivatives, and provides recommendations to improve the conservation and management of the global polar bear population into the future.

Polar bears are unevenly distributed throughout the Arctic and are not managed as a single population, but rather as 19 management units. In 2008, the International Union for the Conservation of Nature (IUCN) assessed the species as vulnerable with an overall decreasing global population trend citing a suspected global population reduction of greater than 30% within three generations (45 years) as a result of decline in habitat quality, extent of occurrence and area of occupancy (Schliebe *et al.*, 2008). Since there are variations in the type and extent of sea ice throughout the Arctic, the effects of global climate change will vary regionally. Consequently, the responses of polar

bears will differ between regions and will likely be influenced by ice conditions, availability of prey and hunting pressure. As sea ice melts, polar bears cut off from suitable habitat are more likely to congregate on land. This makes them more vulnerable to novel disturbance, easier to reach by hunters and more likely to come into conflict situations with humans.

Historically, polar bears were hunted using traditional methods occurring at sustainable levels; however, there were concerns over the large numbers of polar bears sport hunted and harvested commercially from the 1700s to the mid-1900s. As a result of the signing of the 1973 *Agreement on the Conservation of Polar bears* and subsequent conservation efforts and actions taken by the range States (Canada, Greenland [Denmark], Norway, Russia and the United States), polar bears are still found in much of their historic range. Polar bears have not been commercially harvested since 1973 and only Canada permits the sport hunting of polar bears. Russia and Norway have not hunted polar bears since 1956 and 1957 respectively. Canada, the United States and Greenland are the only range States that currently allow hunting of polar bears for subsistence purposes. From 2006/2007 to 2010/2011 on average, 735 bears (min 651 to max 813) were killed in a given year from a global population of 20,000 to 25,000 bears. This is approximately three to four percent of the global population.

Range States have significantly improved the management and conservation of polar bears through international and bilateral agreements, increased research and monitoring activities and the establishment of harvest limits and/or quotas. Canada has made significant contributions to polar bear conservation with sound management measures, extensive research and monitoring efforts. Although concerns have been raised on harvest levels in some jurisdictions, authorities are working to address them by adjusting or implementing harvest limits where needed and by monitoring the harvest across the country. In Russia,



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there are ongoing concerns with illegal hunting of polar bears and trade of skins. Until it can be shown that illegal harvest and trade is not a concern, the Russian government will not issue permits for hunting. Greenland has made important contributions to polar bear conservation and maintains an active research program. The introduction of harvest quotas has reduced hunting to more sustainable levels. The United States maintains a large polar bear management and research team and contributes significantly toward understanding polar bear ecology. Voluntary allocations and harvest guidelines established through bilateral agreements are respected in Alaska even though they are not legally binding. Norway continues to be a strong voice for polar bear conservation and precautionary management.

For many Arctic communities, hunting activities are not only aimed at satisfying cultural, social, and nu-

tritional needs, but also the financial needs of families and households. Money earned from the sale of animal products is used to purchase equipment for harvesting activities and to pay for household living expenses. The polar bear hunt is highly regarded and hunters are often seen as role models for the community. The value of a subsistence hunt cannot be determined solely by the monetary value of the animal parts as it would not take into account other aspects of the hunt (food, cultural value and spiritual value). However, in 2009 the estimated annual value of sport hunting in Canada was CAD1.3 million per year (USD1.1 million), while the sale of skins was valued at approximately CAD600,000 (USD489,000). The cost of a single polar bear sport hunt (paid to southern wholesalers [outfitters]) ranges in price from CAD20,000-60,000 (USD 17,598-52,794) depending on the duration of the trip. The value of skins also ranges in value, depending on the size and quality and whether it is a raw or tanned skin or a finished skin rug. The advertised price for a skin rug ranged from CAD4,750 (7 foot rug in 2006) to CAD30,000

(10 foot rug in 2010) and in recent years the value has increased (e.g. CAD6,200 for an 8 foot skin rug in 2006 to a value of CAD12,000 in 2010). International trade in polar bear parts and derivatives is regulated by the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES). The polar bear was listed in Appendix II in 1975, which requires issuance of CITES export permits for trade crossing international borders. However, before a CITES export permit can be issued, polar bear range States must prove that international trade is not detrimental to the conservation of the species in the wild. This is known as a non-detriment finding (NDF). In 2008, Greenland issued a negative NDF (indicating that trade might not be sustainable) for all polar bears in Greenland and in 2009 Canada issued a negative NDF for all polar bears from the Baffin Bay management unit. Until a positive NDF (indicating that trade is sustainable) can be made, international trade from these particular areas is generally prohibited. Other legislations, such as the European Union Wildlife Trade Regulations (EU WTR), the United States *Ma-*



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rine Mammal Protection Act (US MMPA) and the US Endangered Species Act (US ESA) have restricted imports of polar bears and their parts from some areas. Since 2008, imports of polar bears from the Canadian management units of Baffin Bay and Kane Basin into the EU has been temporarily restricted and imports of any polar bears into the United States have been prohibited unless permitted under specific circumstances with issuance of permits.

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CITES trade data are the only comprehensive international trade data available for polar bears. The data provide an overview of international trade in polar bears and their parts and derivatives, but the data cannot provide an estimate of actual number of polar bears represented in international trade. Much of the data are based on information from permits issued, not from permits used. International trade is represented by a variety of commodities, such as specimens, claws, carvings, skulls, and skins. For many of these commodities it is impossible to determine the number of polar bears represented by this trade. For example, one polar bear could be the source of any number of scientific specimens (blood samples, hairs, teeth for aging), up to 20 claws, a skull and a skin. Only two commodities, full skins and skulls, can reliably be used to make inferences on the impact of international trade. Based on the 2005 to 2009 export data on full skins, fewer than 400 polar bears were represented in international trade in a given year. If international trade were the primary incentive for harvest, the majority of polar bears harvested could be expected to be represented in international trade. However, that does not appear to be the case, considering that 700 to 800 polar bears are legally hunted each year. Increases of full skins exported in previous years appear to be in correlation with changes in regulatory actions (US MMPA and the ESA).

There has been a shift in market dynamics in recent years including increased value of skins and rising demand for skins in some importing countries such as Russia and China. There has also been a change in the purposes for export, with a reduction of exports for hunting trophies and an increase of exports for commercial trade and personal purposes. Market dynamics may be shifting due to: an increase in the demand for skins cause by increased protection status; Arctic communities compensating for loss of revenue from other activities; improved marketing of Canadian skins; and increased market demand in China and Russia which cannot be met by increased

numbers of skins, therefore driving prices up. Although the value of skins has increased in recent years, and demand for skins has increased in some years (notably from China), the total number of skins exported from 2005 to 2009 did not increase significantly.

Trends in international trade are influenced by specific commodities and their purposes. The numbers of specimens, hair and teeth traded for scientific purposes has greatly influenced the total volume of items in international trade, with notable increases in some years. The increasing research efforts on polar bears and projected effects of climate change and collaboration across states likely increased trade for scientific purposes. The majority of scientific samples are taken from live sedated polar bears. Scientific samples clearly provide valuable information on the status and health of polar bears, information which is important for adaptive management of the species.

All polar bear range States agree that the biggest threat to polar bears is climate change and its impact on their habitat. Polar bears are generally well-managed and illegal hunting of polar bears does not appear to be a concern for most polar bear range States. According to the available data, legal international trade in polar bear parts and derivatives does not currently appear to be a significant threat to the species. The total number of items traded internationally increased during the years 2001 to 2009, which could mistakenly be interpreted to indicate that the numbers of polar bears being hunted for trade was also increasing. However, the numbers of full skins and skulls (the most valuable parts of a polar bear for commercial purposes) remained relatively constant throughout the same period of time. The increase in the number of items in international trade in recent years, specifically from 2006 to 2009, is greatly attributable to a legal (and desired) activity: scientific trade of specimens (most often blood and tissue samples), hair and teeth being sent across borders for the purpose of research.



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Prohibiting international trade will not eliminate the harvest because the harvest is primarily for subsistence purposes. However, because polar bear skins have increased in value recently, combined with the likelihood that polar bears might become scarcer due to climate change, the demand for and price of skins will face upward pressure over the long-term. More consistent reporting of trade data and improved analysis and monitoring of trade in the species will be necessary to ensure international trade does not become a significant threat in the future.

Polar bears will be subjected to multiple stressors (threats) that vary from region to region—affecting each management unit in different ways and over differing time scales. The impact on polar bears will be dependent on the health of the management unit and the resilience of the region. Since each management unit responds to different realities on the ground, adaptive frameworks are required that rapidly assess new information to ensure that harvest and trade will not detrimentally impact the conservation of the species. If management units decline to low numbers, efforts can be adjusted accordingly and directed at recovering local populations to ensure harvest levels, where allowed and sustainable, are tied to specific and logical management targets.



Managers, biologists, Arctic communities and conservation organizations may have differing opinions or different methods for achieving and measuring success or failure. However, they do share a common goal: to conserve polar bears. Conservation success should not be measured by the level or number of legislative protections a species has, but rather by a lack of need to have such mechanisms. It could be argued that once a species merits a new protective designation (such as being listed in CITES Appendix I), then current conservation efforts have actually failed. It is critical, therefore, that all interested parties work together and pool their resources to have a greater impact on conservation. Cooperation, collaboration and commitment are needed by all to ensure success and secure the future for polar bears. Successful management will result in a population that is healthy, stable, and resilient to threats and a resource to local communities.

Key recommendations

- Polar bear range States should take appropriate action to ensure that population and harvest monitoring is adequate to adaptively manage harvest in accordance with sound conservation practices based on the best available scientific data. This will help ensure that threats on the species (including impacts of climate changes) are taken into account to ensure that harvest remain within sustainable limits.
- TRAFFIC encourages interested stakeholders and/or range States to develop a study on the supply chain and consumer demand dynamics for polar bear parts and derivatives with analysis on key consumer markets such as China or the Commonwealth of Independent States. Such a study could help determine market drivers, evidence of illegal trade and indications of poaching activities in range States.
- Exporting and consuming countries should collaborate on efforts to develop consistent methods for elucidating and addressing illegal trade in polar bear products. This would assist Parties to comply with CITES and support efforts to conserve polar bears. Such methods could include sharing law enforcement intelligence information arising from illegal trade and poaching cases where this involves transnational crime. Existing mechanisms such as the Interpol Ecomessage and European Union Trade in Wildlife Information eXchange (EU-TWIX) could be used.
- Any range State that permits the trade of polar bear skins, trophies or skulls should develop a mandatory and modern tracking system (such as use of pit tags or microchips inserted in polar bear skins or mounted trophies) to track and identify their movements. Alternatively, range States could consider developing a documentation scheme to help identify and track the source of skins in international trade (e.g. a certification program).

- An updated and circumpolar socioeconomic study on the importance of trade in Arctic species (including polar bears) would provide useful information to facilitate dialogue and insight into the potential effects of restricting hunting and trade. This study could involve a review of:
 - ▶ the impact of the US ESA listing of polar bears on markets and livelihoods, and how Arctic communities are offsetting the loss of revenue;
 - ▶ the impact of the proposal to list polar bears in CITES Appendix I at CITES CoP15 (Qatar, 2010), on the demand and value of polar bear products;
 - ▶ the impact of the European Union Scientific Review Group (EU SRG) negative opinions under the EU WTR, which prohibit the import of polar bear products into the EU from particular polar bear management units.
- A range State workshop on international trade in Arctic species could help to facilitate information sharing and discussion on issues related to trade, and recommend solutions.
- Awareness campaigns should be developed in Russia and other Commonwealth of Independent States countries to inform rural communities and urban markets on the possible conservation implications of illegal hunting and trade of polar bears.
- The inconsistencies in CITES trade reporting are not specific to polar bears: they apply to all taxa listed by CITES. Therefore, any changes and improvements to the reporting of the data would require the agreement, participation and commitment of the signatory Parties. However, the polar bear range States could take a proactive stance as a signal to the CITES Parties by improving their monitoring and reporting of CITES trade data for this high-profile species. This could be facilitated by: development and agreement on definitions for the purpose of transaction codes; reporting trade data for the actual items traded rather than on permits issued; and by following the guidelines for the preparations and submission of CITES annual reports. This would provide more consistent reporting of data and improve the analysis and monitoring of trade in the species.
- Polar bear range States should consider submitting additional information when inputting trade data in their CITES annual reports (e.g. parts derived from live or dead animal, the year of harvest). They could add a separate code as supplementary information, to provide information on the harvest. This could be a hunting tag code or number, or a new code created to protect confidentiality. The code would allow tracking of products coming from individual polar bears. For instance, the claws, skin, and skull of one polar bear would all be associated with the same hunting tag, so all of these items would have the same code. The code could also indicate the year of harvest. All of this would provide a more accurate estimate of the number of bears in trade.
- Range States should review existing domestic and international policies, laws and agreements to ensure compliance, and to ensure that adequate penalties or means to prosecute violations exist.
- Management authorities and Arctic communities in each range State should consider implementing programs that promote local management of bear-human conflicts, including local polar bear patrols and reduction of food attractants. The development of community outreach and/or awareness programs focused on improved reporting of polar bear sightings and human-bear conflicts could help underscore the benefits of reporting incidents (e.g. reporting of problem bears can provide managers with justification to provide resources such as bear-proof bins).



INTRODUCTION

Polar bears are an iconic symbol of the Arctic. As such, they have garnered increasing international attention in recent years, most notably due to concerns over climate change and its impacts on the species and their habitat. Both due to their charisma and the anticipated effects warming will have on their Arctic habitat, polar bears have become a high-profile conservation priority.

Public, governmental and industrial interest in the Arctic is at an all-time high. Decisions made now will shape the future of both the Arctic and polar bears. Changes to the Arctic ecosystem will not only affect polar bears and their habitat, but also the livelihoods of Arctic communities, and have globally significant climate impacts.

1.1 Purpose of the report

This report deals exclusively with the international trade of polar bear parts and derivatives and will provide insight into current international trade and the potential impacts the trade might have on the conser-

vation of the species. The report does not provide data on the domestic trade (trade within the national borders of a country), nor does it discuss the trade in live polar bears (e.g. zoo). Since polar bears are listed in CITES Appendix II, the analysis of international trade data is possible; however, it is not possible to isolate and analyze the trade from specific regions within a country (i.e. which polar bear management unit a part or derivative is sourced from cannot be determined). The report only utilizes available scientific information on harvest and trade. It does not attempt to incorporate the substantial and varied traditional knowledge held by indigenous peoples from around the Arctic regarding the biology, status, or trends of this species.

The report provides a brief background on the importance of wildlife and wildlife trade in the Arctic with an emphasis on polar bears. Since climate change is the primary threat to the species, it is important to discuss what climate change means for polar bears and their habitat. For convenience, the report includes a brief synopsis of the status of the global polar bear population. Such information is important because it informs management decisions within polar bear range States (Canada, United States, Greenland [Denmark], Norway and Russia) and at international forums such as the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES).

Polar bears range across five nations, hence the management and conservation of the species is ultimately the responsibility of those individual range States and is subject to their respective legislation, regulations and policies. The report presents an overview of the current management regimes as this varies substantially across the range States. Management and trade are closely linked, so a comprehensive understanding of trade dynamics for the species requires familiarity with polar bear management in the different range states. The appendices provide a summary of relevant agreements, legislation and regulations (both domestic and international) as supplementary information.

1.2 Background

The polar bear (*Ursus maritimus*) is the world's largest species of bear and is an apex predator of the Arctic marine ecosystem (Amstrup, 2003; COSEWIC, 2008). Polar bears spend much of their time at or near the edge of the sea ice over shallow, productive waters where food sources are most abundant (Amstrup, 2003; Stirling and Derocher, 2012). The sea ice also provides the platform from which they are able to travel, mate, and capture seals (Durner *et al.*, 2009; Stirling and Derocher, 1993; Thiemann *et al.*, 2008b). The primary prey for polar bears is ringed seals (*Phoca hispida*), and to a lesser extent, bearded seals

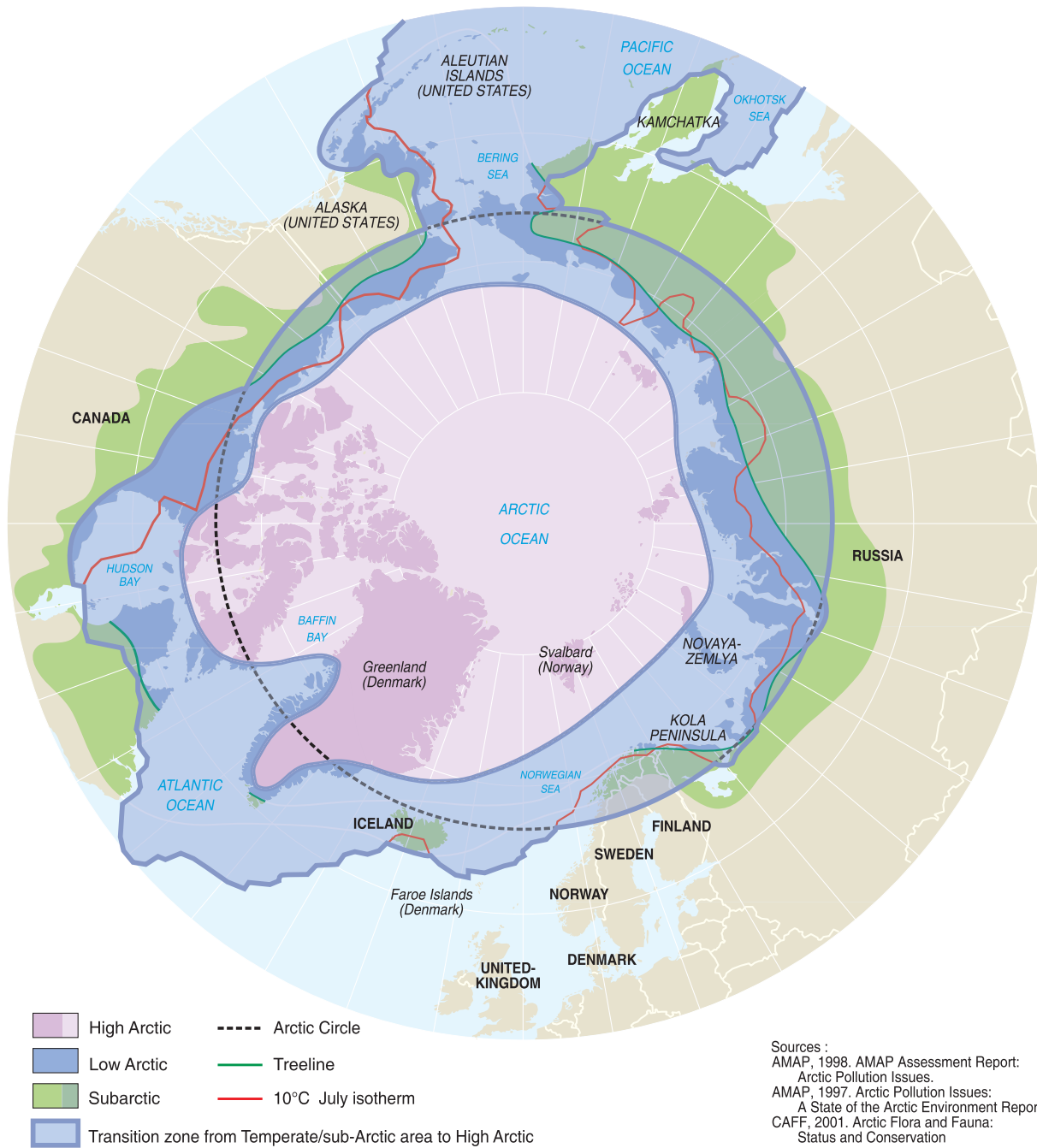
(*Erignathus barbatus*) (Amstrup, 2003; Stirling and Derocher, 2012). However, they are also known to consume other seals, walrus (*Odobenus rosmarus*), beluga whales (*Delphinapterus leucas*) narwhal (*Monodon monoceros*); and occasionally eat berries, fish and bird eggs during summer months (Amstrup, 2003; Stirling and Derocher, 2012).

Polar bears are well adapted to the unique Arctic environment—they have thick, water repellent fur to keep them warm, broad paws that aid in traversing deep snow and swimming, and the soles of their paws have fur and tough skin to insulate against heat loss (Amstrup, 2003; Born, 2008). Physiologically, they are able to survive long periods without food and exhibit behavioural adaptations that allow them to survive in variable conditions (Amstrup, 2003; Born, 2008). Pregnant female polar bears enter dens for the winter for periods of four to eight months during which they do not eat, drink, urinate or defecate. All other polar bears continue to hunt throughout the winter (Amstrup, 2003). The spring and early summer are a particularly important time for polar bears as they have access to young, naïve seals that spend much of their time above the water, under snow lairs or out in the open (Amstrup, 2003; Stirling and Derocher, 1993; 2012; Stirling *et al.*, 1999). Historically, as the Arctic sea ice retreats in the summer, most polar bears follow the ice north in order to stay close to seals and other prey. A smaller subset of polar bears spend their summers on land living off body fat stored from successful hunting in the winter and spring, waiting for the ice to return in the fall (Durner *et al.*, 2009; Fischbach *et al.*, 2007).

1.2.1 Importance of wildlife and wildlife trade in the Arctic

The Arctic is the northernmost region of the Earth and generally bounded in the south by the treelines of Eurasia and North America (Figure 1.1). It is a highly complex and integrated system which encompasses an

Figure 1.1



Source: © Philippe Rekacewicz, UNEP/GRID-Arendal, 2005.



ice-covered ocean that spans approximately 14 million km². Surrounding landmasses comprise a variety of landscapes such as mountains and glaciers, flat plains and plateaus, polar deserts, rugged uplands, wetlands, rivers and ponds (Huntington *et al.*, 2005b). Since the last Ice Age, many parts of the Arctic have been inhabited by humans who have evolved, adapted and altered their distribution in relation to changes in climate, resource availability, landscape, and hunting and fishing technologies (Huntington *et al.*, 2005a). Immigration to the Arctic increased substantially, most notably during the 20th century, when people relocated there in search of opportunities such as exploiting natural resources (e.g. oil, gold and fish)(Huntington *et al.*, 2005b). Today close to four million people live in the Arctic—indigenous peoples and recent arrivals, hunters and herders living on the land, and city dwellers (Huntington *et al.*, 2005b). Indigenous people throughout the Arctic have distinct cultures, traditions and languages and can be subdivided according to different language families¹ (Figure 1.2), but all have a close connection to their surrounding environment (Huntington *et al.*, 2005b; Nuttall *et al.*, 2005).

Wildlife is of great spiritual significance and has provided a foundation for the development of many Arctic cultures, in which wildlife is often portrayed in mythologies, festivals, oral histories and sacred places (Klein *et al.*, 2005; Nuttall *et al.*, 2005). Many Arctic communities still rely on hunting, fishing, herding and gathering renewable resources as an important part of their livelihood and as a main source of subsistence (Huntington *et al.*, 2005b; Nuttall *et al.*, 2005). These activities provide a strong link to the environment and continue to be of great importance for maintaining social relationships and cultural identity (Nuttall *et al.*, 2005). Many traditions have been maintained largely due to the cultural importance of wildlife and the eco-

¹ The subdivisions of Arctic language families include: Inughuit and Kalaallit of Greenland; Inuit, Inuvialuit, Athapaskans, and Dene of Northern Canada; Iñupiat, Athapaskans, Yup'ik, Alutiiq, and Aleuts of Alaska; Yukaghir, Chukchi, Even, Evenk, and Nenets of the Russian far north and Siberia; and the Saami of Fennoscandia and Russia's Kola Peninsula (Nuttall *et al.*, 2005).

Figure 1.2

Demography of indigenous peoples of the Arctic based on linguistic groups



Sources: Arctic Human Development Report, 2004 and Norwegian Polar Institute (W.K. Dallmann)

Source: © Hugo Ahlenius, UNEP/GRID-Arendal, 2010.

Note: This figure does not include the Cree of Eeyou Istchee in Québec (Canada) or the six Coastal Cree Nations of Ontario (Canada).

conomic incentive of cheaper and relatively accessible local foods (e.g. fish, meat from terrestrial and marine mammals, edible plants, berries, etc.) compared to more expensive imported foods (Nuttall *et al.*, 2005).

Trade² in animal parts has existed for many years, but during the past few centuries, the income acquired from selling animal parts such as meat, skins, ivory and handicrafts has become important for many Arctic communities (Klein *et al.*, 2005). This income is used for basic living costs (e.g. to heat homes, buy goods, travel, etc.), but it is also used to buy equip-

ment for subsistence activities (Klein *et al.*, 2005). In regions such as the Arctic, where there are few alternate sources of income and the cost of living is very high³, the sale of animal parts contributes to modern cash economies (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, Aug 16, 2012). The products from a polar bear hunt are either used by the community (e.g. meat for food, fur for clothing) or traded and sold domestically and/or internationally (e.g. skulls, claws, rugs, handicrafts) (Environment Canada, 2010a). Although the sale of polar bear parts is an added benefit of the subsistence hunt, in most cases trade in these items does not appear to be the primary incentive for the hunt, but a by-product of the hunt (Environment Canada, 2010a). The financial return from the sale of items provides an incentive to conserve the species and their habitat (Environment Canada, 2010a). Economic benefits play an important role in ensuring the conservation of wildlife and maintaining healthy populations (CAMPFIRE, 2009; Environment Canada, 2010a; USAID, 2009).

The hunting of polar bears has provided an important staple in the traditional subsistence economy (USFWS, 1994; Wenzel, 2004). The hunt itself is a source of prestige, accomplishment and pride (USFWS, 1994; Wenzel, 2004). It is a traditional activity that contributes to cultural well-being in addition to providing food for Aboriginal people and communities (USFWS, 1994; Wenzel, 2004). Historically, polar bears were hunted using traditional methods at what have been referred to as sustainable levels, and hunting was not considered to be commercial in nature (Norris *et al.*, 2002). However, by the 1700s and through to the mid-1900s, large numbers of polar bears were hunted for sport and harvested commercially⁴ (Norris *et al.*,



HUNTER WEARING POLAR BEAR PANTS © STAFFAN WIDSTRAND / WWF

² For the purposes of the report the term “trade” does not distinguish the type of trade (e.g. domestic, international, personal, commercial). The type of trade being discussed will be specified in the text when relevant. Some cited literature only refers to “trade” in general terms.

³ Due to factors including a limited consumer market resulting from a low population density and the very high costs of transporting food, fuel and other necessities of life into the Arctic and to remote communities.

2002). Concerns over the threats of overhunting led to the signing of the 1973 *Agreement on the Conservation of Polar Bears* by all of the polar bear range States (Canada, Greenland [Denmark], Norway, Russia and the United States). As a result of increased conservation efforts taken by range States, polar bears are still found in much of their historical range today. However, the range States are now faced with a much more significant and pervasive threat: global climate change and the subsequent and dramatic loss of sea ice habitat, concerns that were not thought to be an issue when the agreement was signed but are now at the forefront.

1.2.2 Climate change in the Arctic ecosystem

Global climate change is considered by many to be the leading environmental concern the world faces today. Within this century, our world is expected to change dramatically, and how its natural systems will respond, or to what extent these changes will affect biodiversity and the way in which people currently live, is uncertain.

Life in the Arctic is both vulnerable and resilient, surviving in some of the most extreme conditions on the planet (ACIA, 2004). The short growing season contributes to the Arctic's vulnerability and the highly variable climate also affects Arctic life (ACIA, 2004; McBean *et al.*, 2005). The Arctic climate is driven to a large extent by seasonal variations in the amount of solar radiation, with long summer days and very little sunlight during the winter months. Regional characteristics of the Arctic climate are influenced by the physical properties of ice and snow, including low



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thermal conductivity, high reflectivity and high latent heat required to convert ice to water. Therefore, the Arctic climate comprises a variety of regional climates with different physical and ecological climate characteristics (McBean *et al.*, 2005). As a result, future climate change will differentially impact Arctic regions both spatially and temporally. These characteristics and features make the Arctic a complex system that has significant inputs to the global climate system (McBean *et al.*, 2005).

Three main Arctic mechanisms can impact climate change for the entire planet: changes in surface reflectivity as vegetation cover changes and as snow and ice melt; changes in ocean circulation as fresh water is added to the ocean by melting Arctic ice; and changes in the amount of greenhouse gases emitted into the atmosphere as Arctic warming progresses (ACIA, 2004). Changes in the global climate system are indisputable and are evident from observations of the increases in the global average air and ocean temperatures, rising global average sea levels (IPCC, 2007), widespread

⁴ Commercial harvest of wildlife is defined as “the act of killing wild animals or plants primarily for economic benefits. Subsistence hunting and sport hunting are not considered to be commercial harvest” (Eggers and Carroll, 2011). Subsistence is defined as “The patterned acquisition and use of local resources in such a way as to enhance the social relationships existing among a community of people. Subsistence, so defined, allows the community to reproduce itself and its enabling cultural traditions over time” (Freeman *et al.*, 1992).



melting of snow and ice (ACIA, 2004; IPCC, 2007), reductions in the thickness and extent of sea ice and thawing permafrost, etc. (ACIA, 2004). Approximately 75 studies that provide more than 29,000 observational data series all indicate that significant changes in many physical and biological systems are occurring (IPCC, 2007).

The population ecology of some Arctic marine mammals is affected by factors that influence the annual duration and distribution of sea ice and snow (Loeng *et al.*, 2005). Changes in the quality of sea ice, timing of seasonal sea ice formation, disappearance of seasonal sea ice and the extent of cover for both multi-year and seasonal sea ice could affect ice-dependent species in the Arctic (Loeng *et al.*, 2005). The melting of sea ice will result in a loss of habitat for many Arctic species. This loss of habitat and related changes in phenology across the Arctic could affect survival rates, reproductive rates, and changes in prey abundance and distribution, and these could result in decreased fitness (e.g. poor body condition or exhaustion) and increased risk of disease (Burek *et al.*, 2008; Derocher *et al.*, 2004). Aside from potential fundamental changes to the Arctic ecosystem, loss of sea ice will also open up areas in the Arctic that were previously inaccessible to humans and specifically to industrial activities such as shipping and extraction of natural resources (ACIA, 2005). This

will likely increase shipping activity, increase interest in oil and gas exploration and open up large new areas to commercial fisheries (ACIA, 2005).

Climate change and polar bears

All five polar bear range States have agreed that climate change is the most significant threat to the long-term survival of polar bears (Directorate for Nature Management, 2009c). Climate change is predicted to negatively affect polar bears directly through loss of habitat and indirectly through changes in prey abundance and availability (Born, 2008). Numerous studies on climate change and the potential impacts it might have on polar bears and their habitat have been conducted. Some of the physical and biological responses may include: changes in polar bear movement and distribution resulting from fragmentation and reduction of polar bear habitat; changes in access to prey (timing); and changes in population dynamics (reproduction and recruitment). Sea ice is a critical feature of polar bear habitat (Stirling and Derocher, 1993). The composition and distribution of sea ice is extremely important as it provides platforms for polar bears to hunt, feed, mate, move, rest and den (Durner *et al.*, 2009; Stirling and Derocher, 1993; 2012; Thiemann *et al.*, 2008b). Changes in sea ice will not only affect polar bear habi-



tat; it will also affect other ice-associated species such as ringed seals, which are one of the most important sources of prey for polar bears (Born, 2008; Ferguson *et al.*, 2005). Therefore, changes in the extent, distribution, and timing of sea ice are predicted to have significant impacts on polar bear survival (Stirling and Derocher, 1993; 2012; Stirling and Parkinson, 2006).

The type, distribution and extent of sea ice vary throughout the Arctic. Therefore, the effects of climate change will vary depending on latitude and regional geography (Derocher *et al.*, 2004). Consequently, the responses of polar bears to climate change may differ between management units⁵ (Born, 2008; Derocher *et al.*, 2004), and will be heavily influenced by ice conditions, human pressure (harvest and disturbance) and the availability of prey (Born, 2008).

Changes in polar bear movement and distribution

Polar bears are unevenly distributed across the Arctic. Their movements and distribution appear to be influenced by regional characteristics and seasonal variations of sea ice (Durner *et al.*, 2004a; Garner *et al.*, 1990). The type, amount, and composition of sea

ice and the availability and accessibility of prey all appear to influence habitat selection and polar bear distribution (Durner *et al.*, 2004a, 2004b, 2009; Mauritzen *et al.*, 2003; Stirling *et al.*, 1993). In some regions, polar bears must make choices in response to changes in seasonal sea ice (Durner *et al.*, 2009). They could remain near traditional, shallow ocean hunting ranges by summering on land and generally fasting (as some management units already do), or they could follow the retreating sea ice to higher latitudes where ice exists but over deep and less productive waters (Durner *et al.*, 2009; Fischbach *et al.*, 2007). One coping strategy for females is to come ashore during sea ice breakup and attempt to fast for longer periods of time. However, this requires females to obtain adequate fat storage prior to fasting (Molnar *et al.*, 2011; Stirling and Derocher, 1993). Although polar bears in some management units already do this, it is unclear whether all management units are able to adapt to an extended summer fast (Durner *et al.*, 2009). Extensive movements between winter ranges and summer habitats may impose additional energy demands on polar bears which could be a concern, particularly for pregnant females and those with dependent cubs (Durner *et al.*, 2009).

⁵ This report will use the term “management units” instead of the term “subpopulations”.



Studies in western Hudson Bay have shown that the spring sea ice break-up now occurs 2.5 to 3 weeks earlier than it did 30 years ago (Derocher *et al.*, 2004; Regehr *et al.*, 2007; Stirling and Parkinson, 2006). Sea ice is also forming later in the year creating thin, unstable ice breaking up earlier in the spring (Molnar *et al.*, 2011; Derocher *et al.*, 2004; Regehr *et al.*, 2007). A correlation between early sea ice break-up and an increased likelihood of problem bears⁶ has been documented (Stirling and Parkinson, 2006). Conservation officers reportedly handle more problem bears during years with earlier ice break-ups than in years when the ice break-up is later (Born, 2008; Derocher *et al.*, 2004). In many jurisdictions, polar bears killed for conservation purposes⁷ or defensive purposes count toward annual subsistence quotas. So every polar bear

that is killed for these purposes results in one fewer bear that may be killed for subsistence. Any item of value from a polar bear killed for these purposes cannot be made available for commercial purposes, as stipulated in the *Agreement on the Conservation of Polar Bears* (Anon., 1973a). Increased polar bear deaths associated with increased lethal conflicts will not only impact Arctic communities through the loss of hunting opportunities, but it will also result in the loss of income from the sale of hunting by-products.

The increased presence of polar bears near shore during the open-water season, and increased sightings of polar bears around hunting camps and settlements, have been reported by many Arctic communities in recent years (Stirling and Parkinson, 2006). Many of

⁶ Human-wildlife conflict is defined as “any interaction between humans and wildlife that results in negative impacts on the social, economic or cultural life, on the conservation of wildlife populations, or on the environment.” Animals that have become specialized in habitually targeting the property of people are often classified as a problem animal (WWF SARPO, 2005).

⁷ The term “conservation purposes” is not defined in a global context and may differ between jurisdictions and agreements. However, it generally refers to the potential lethal removal of animals as a management response to social and ecological carrying capacity.

these communities have interpreted this as evidence that the population is growing. For some management units, such observations have been used as justification for increasing polar bear quotas (Born, 2008; Regehr *et al.*, 2007; Stirling and Parkinson, 2006). According to Stirling and Parkinson (2006), the increased presence of polar bears may be a result of hungry bears being forced ashore from early ice break-ups. Although people report seeing more polar bears; sightings are not necessarily linked to trends in the overall population. An earlier ice break-up shortens the amount of time polar bears are able to hunt and, if unable obtain enough food, they may come ashore in poor nutritional condition (Regehr *et al.*, 2007; Stirling *et al.*, 1999). Polar bears in poor condition are more likely to encroach on human settlements in search of food (Regehr *et al.*, 2007; Stirling and Parkinson, 2006).

Changes in access to prey and polar bear reproduction and recruitment

In the spring (late March to early April), polar bears are typically at their lowest weight (Stirling and Oritland, 1995; Stirling *et al.*, 1999). This is their most important hunting period as there are many fat, recently weaned seal pups available (Derocher *et al.*, 2004; Stirling and Derocher, 1993; Stirling *et al.*, 1999). Polar bears consume 75% to 85% of their total caloric intake during this feeding period and use it to sustain themselves for survival, reproduction and nursing cubs for the rest of the year (Born, 2008; Stirling *et al.*, 1999). Approximately 93% of the energy expended for metabolic maintenance and female polar bears' reproduction during a fast is derived from fat stores (Atkinson and Ramsay, 1995). Approximately 0.85 to 0.9 kg of the body mass in adult polar bears is lost per day during a fast, averaging 43% of a bear's total body mass over a summer season (137 kg lost over a period of 192 days) (Atkinson and Ramsay, 1995; Derocher *et al.*, 2004).

Biologists from the Canadian Wildlife Service (CWS) and the US Geological Survey (USGS) have provided quantitative evidence for the effects of climate change on polar bear population dynamics (Regehr *et al.*, 2007). Researchers have identified a statistically significant relationship between the timing of the spring break-up and condition of polar bears when they come ashore in western Hudson Bay and southern Hudson Bay (Derocher *et al.*, 2004; Stirling and Parkinson, 2006; Stirling *et al.*, 1999). In these areas, polar bears were found to be in poorer condition when there was an early spring break-up, and in better condition when the spring break-up occurred later (Derocher *et al.*, 2004; Stirling and Parkinson, 2006; Stirling *et al.*, 1999). An earlier ice break-up shortens on-ice time for feeding during a critical period in the late spring when seal pups are abundant, and increases fasting periods (Derocher *et al.*, 2004; Regehr *et al.*, 2007; Stirling and Parkinson, 2006). As a result, polar bears may not have enough time to build up adequate fat reserves for fasting during the ice-free months, which is especially important for pregnant females (Derocher *et al.*, 2004; Regehr *et al.*, 2007). In the 1980s, researchers determined that female polar bears in western Hudson Bay weighing less than 189 kg were unable to successfully reproduce (the mean weight of a pregnant female was established at approximately 283 kg) (Derocher *et al.*, 2004; Stirling and Derocher, 1993; Stirling and Parkinson, 2006). Between 1980 and 2004, the average weight of adult



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female polar bears in western Hudson Bay declined from 295 kg to 230 kg (Stirling and Parkinson, 2006). Reproductive success is largely dependent on the body condition of the mother. Poor body condition prior to denning could contribute to failure of embryo implantation, foetal abortion or death of cubs after birth (Atkinson and Ramsay, 1995). In years with poor hunting conditions, polar bears have been observed to forego reproduction (Atkinson and Ramsay, 1995; Derocher *et al.*, 2004; Durner *et al.*, 2009).

The body condition of females will not only influence their ability to carry a pregnancy to term, but will also influence the survival of their cubs (Atkinson and Ramsay, 1995; Rode *et al.*, 2010). A relationship between the body condition of females and survival of cubs has been identified (Stirling and Parkinson, 2006;

Stirling *et al.*, 1999). Litter weight at den emergence is strongly related to the amount of maternal fat stores before denning (Atkinson and Ramsay, 1995). Females with larger fat reserves produce cubs that are larger and heavier, greatly improving cub survival rates (Atkinson and Ramsay, 1995; Stirling and Parkinson, 2006; Stirling *et al.*, 1999). For mothers, lactation requires additional energy demands (Durner *et al.*, 2009) and mothers may not be able to nurse and wean their young adequately during ice-free periods without adequate fat reserves (Durner *et al.*, 2009; Stirling and Derocher, 1993). In the early 1980s, the Western Hudson Bay management unit had a higher birth rate than other areas, but between the late 1980s and early 1990s a long-term decline in birth rate was observed (Stirling *et al.*, 1999). In Hudson Bay and the southern Beaufort Sea, the survival rates of cubs and younger polar bears have also decreased, which has been attributed to a reduction in sea ice (Regehr *et al.*, 2009; Rode *et al.*, 2010

A single year with a shorter ice season is probably manageable for most polar bears. However, there are likely physiologic thresholds for both reproduction and fasting that extended ice free periods will ultimately cross, with significant negative outcomes for polar bears (Molnar *et al.*, 2011; Stirling and Parkinson, 2006). Some people suggest that polar bears will adapt to loss of hunting opportunities on ice by foraging on berries, plants, land-based animals, fish, birds' eggs and scavenging from carcasses (Dyck and Kebreab, 2009; Rockwell and Gormezano, 2009). Although polar bears have been documented to consume these foods, there is no scientific evidence to suggest that bears can obtain sufficient energy requirements by replacing their diet with these food items (Hobson *et al.*, 2009; Stirling *et al.*, 2008). Polar bears have adapted to building up large amounts of stored fat and blubber in a short amount of time. Their bodies are designed to be very efficient, absorbing and utilizing 97% of fat ingested

⁸ Occurrences that affect changes in a population, such as birth rates and death rates.

(Amstrup, 2003; Best, 1985), and that fat contains very large amounts of energy (approximately 35 kilojoules per gramme). As blubber is digested, it produces metabolic water which is used by the bear. Muscle, in contrast, has a high concentration of protein which, when consumed, requires water to break down and digest (Amstrup, 2003; Stirling and Øritsland, 1995). This provides polar bears with water, rather than expending additional energetic costs of melting snow and ice (Amstrup, 2003).

1.2.3 Polar bear population and conservation status

An estimated two-thirds of the global polar bear population is found within or adjacent to Canada, with the remainder found in Svalbard (Norway), Greenland (Denmark), the United States and Russia. Polar bears are unevenly distributed throughout the Arctic and are managed not as a single population, but as 19 subpopulations (based on biological criteria and harvest management) (Aars *et al.*, 2006b). Several of these sub-

populations exchange genetic material more frequently than others, share ecological traits and lack significant geographical barriers; therefore, they are not true populations in a strict biological sense (Paetkau *et al.*, 1999; Theiman *et al.*, 2008a; Vongraven and Peacock, 2011). However, many exhibit different vital rates⁸ (Obbard *et al.*, 2010) and as such are managed separately for harvest activities. Alternative delineations have been suggested for some of the current management units; however, this has not yet seen wide adoption by managers (Paetkau *et al.*, 1999; Thiemann *et al.* 2008a; Vongraven and Peacock, 2011). A more appropriate term to use for the current 19 subpopulations is “management units” (Vongraven and Peacock, 2011).

Many publications and reports are inconsistent with the use of the terms “population” and “subpopulation” with regard to polar bears and their geographical boundaries. In past reports, the PBSG used the term “population” with regard to local management units. However, in 2005 the PBSG decided to instead use the term “population” for all polar bears in the



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Arctic, and to use the term “subpopulation” for local management units (Aars *et al.*, 2006b). This report will use the term “management units” instead of the term “subpopulations”.

The global conservation status for polar bears was last assessed in 2008 by IUCN. The species was designated as vulnerable under the Red List of Threatened Species, and the global population estimate was 20,000 to 25,000 polar bears with a decreasing population trend (Schliebe *et al.*, 2008). In 2005, the IUCN PBSG estimated that within the next 35 to 50 years, polar bear numbers could decrease by over 30% as a result of the projected decline in sea ice (Aars *et al.*, 2006b; Born, 2008). Reports produced by the USGS in 2007 suggest over two-thirds of global polar bear population could disappear by mid-century due to restriction of habitat (Amstrup *et al.*, 2007). The actual response of polar bears to the loss of sea ice across regions is not fully understood, likely complex, and may not be lin-

ear or direct, though it is highly likely to be negative for the species. The 2008 assessment by IUCN, cited a suspected global population reduction of greater than 30% within three generations (45 years) as a result of decline in habitat quality, extent of occurrence and area of occupancy (Schliebe *et al.*, 2008). National conservation status of polar bears does exist and varies amongst the range States (see Appendix A). Although there are some historic data from several management units, the global population size has never been known with certainty (historical or current). The global population has recovered from excessive sport hunting since the late 1960s and early 1970s due to increased conservation efforts taken by the polar bear range States. The current population estimates, trends and status vary among the 19 management units (see Appendix A and Figure 1.3).

Figure 1.3

Distribution and current trend of polar bear subpopulations throughout the circumpolar Arctic



Source: © CAFF map No. 55. *Arctic Biodiversity Trends 2010-Selected indicators of change*. Map creator Hugo Ahlenius.

Note: There have been changes to the Foxe Basin unit since this map was published. Canada has since updated this unit to a stable population (PBTC, 2012; Nunavut Department of Environment, 2012a).



METHODS

The information in this report was compiled via literature review, review of Internet resources and analysis of available international trade data. The authors also conducted interviews with relevant experts and authorities familiar with the trade and management of polar bears.

Currency in this report is written as the currency that was provided in the cited works and references. However, the USD currency is provided in parentheses using the conversion rate of the year the cited work was published. All currency conversions used the historical exchange rates provided from www.oanda.com. Values were not adjusted for inflation.

Harvest management, agreements and regulations

Information on harvest management regimes, harvest statistics, wildlife trade regulations and restrictions were

all compiled from published reports, personal correspondence and information provided by government agencies.

CITES Polar bear trade data

International trade in polar bear parts and derivatives was assessed through analysis of CITES export data from the United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC). Data from the CITES Trade Database were analyzed for this report, using the option for comparative tabulation reports. In the early years of CITES, reports of international trade in specimens did not provide as much detail as in more recent years. For



instance, prior to 1987 the purpose of export was not consistently defined and items were most often recorded as traded for an “unknown” purpose. From 1987 onward, the purpose of export was recorded more consistently with defined specific purposes (though improved standardization is still needed). Therefore, this analysis only used data from 1987 to 2009. When this analysis was completed, data for 2010 and 2011 were not available for all polar bear range States.

The authors excluded data on the international trade in live animals (i.e. for zoos) from this analysis because the purpose of the report was to look at international trade in polar bear parts and derivatives, not trade in live animals. The authors considered entries for data recorded as “sets” to be items (i.e. one set = one item). Data recorded with units as units of weight and/or volume were excluded⁹ as they were not comparable with the entries for the majority of the data, which consisted of quantity of items. It is important to note that one item traded is not necessarily equivalent

to one animal traded. Therefore, determining how many animals are represented by these data is not always possible. For example, one polar bear skin could be assumed to represent one animal, while a quantity of meat cannot. Export data were utilized for the analysis as these data can provide some indication of the impact of trade on the conservation of polar bears (e.g. initial removal and export of animal from its habitat). The analysis included all sources, except for items recorded as confiscated or seized specimens (source code “I”). Specimens recorded as seized or confiscated are relatively incomplete and do not represent all CITES seizures internationally. Most seizures are reported to customs in insufficient detail and the database either does not provide an explanation of why an item was seized (J. Caldwell, CITES Trade Database Manager, *in litt.* to E. Cooper, September 21, 2006) or does not report this information at all (UNEP-WCMC, 2010). Furthermore, some items that are not illegal in nature (e.g. movement of previously seized or confiscated specimens between governments) may

⁹ Parts and derivatives recorded from 1987 to 2009 by units of weight and volume were approximately 204 kg and 3,200 millilitres.

be recorded as seized specimens. Thus the available data on illegal trade could reflect simple regulatory errors, gross attempts to smuggle, or anything in between (J. Caldwell, CITES Trade Database Manager, *in litt.* to E. Cooper, September 21, 2006). As a result, the authors did not analyze seizure data as those data do not indicate levels of illegal trade. Import data and re-export¹⁰ data were not analyzed. For re-export data, it is difficult to determine how many times items were re-exported to and from various countries. These data are also less relevant to conservation concerns because the specimen has already been removed from its environment. Data that included information for country of origin indicated the items had been re-exported; therefore, they were excluded. Import data were not analyzed mainly because not all Parties report imports adequately or consistently. Importing and exporting countries do not always record the same information about the same item (e.g. purpose of trade, product descriptions.). For example, Russia has not recorded any polar bear imports from Canada; and; China has recorded the import of numerous skins when in actuality they were pieces of skin 5cm x 5cm in dimension. Furthermore, the year of import and export may not match for the same item if the export permit is issued late in the calendar year.

The authors analyzed international trade data from a 23-year period (1987 to 2009) and tabulated the data to provide a summary of the quantity and type of commodity each year, as a means to detect trends in trade. Trends in the international trade in “skins” (which authors have assumed to be “full skins”) and skulls, which can be attributed to an individual animal, were analyzed separately in more detail for a five-year period (2005 to 2009) and tabulated to provide a summary of:

- the quantity of full skins exported by each range State according to purpose of export and year;

- the quantity of full skins, with their destination according to purpose of export and year;
- the quantity of skulls exported by each range State according to purpose of export and year; and
- the quantity of skulls with their destination according to purpose of export and year.

The authors briefly analyzed international trade data from a five-year period (2005 to 2009) and tabulated the data to provide a summary of the quantity and type of commodity according to purpose of export. This was done for the total international trade and also for each individual range State.

Information on the value of sport hunting and the value of polar bear parts and derivatives were compiled from published reports, data on fur statistics, personal correspondence, information provided by government agencies and the Internet sites. The authors viewed Internet stores to determine the range in advertised prices of polar bear products from 2006 to 2010 with the aid of The Wayback Machine (Internet Archive, 2012) a service that enables users to view and search archived versions of Web pages over time.

¹⁰ CITES defines re-export as the export of “any specimen that has previously been imported” (Anon., 1973b).



HARVEST MANAGEMENT

Box 3.1 Precautionary approach

If not enough information is available to determine whether an action or policy will harm the species and its functioning in the ecosystem, managers will often use the precautionary approach. Although there are various definitions, one of the most widely cited definitions is Principle 15 of the Rio Declaration (1999 Earth Summit in Rio de Janeiro) which states: “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”

In 1973, all five polar bear range States agreed that polar bears were a significant resource requiring protection through coordinated national measures, and each country signed the international *Agreement on the Conservation of Polar Bears* (see Appendix B). This agreement set historic provisions on the harvest and management of polar bears to be followed by each of the range States through their own national legislation. It was also the first multilateral agreement to embrace the concept of ecosystem-based management (Larsen and Stirling 2009). Due in large part to the signing of the agreement and subsequent actions of the range States, polar bears are still found in much of their historic range and still occur in reasonably large numbers.

The harvesting of polar bears is a regulated and/or monitored activity for most management units, particularly those in North America and Greenland (Obbard *et al.*, 2010). Polar bear management units that are shared between range States are managed through bilateral agreements or MOUs in addition to domestic legislation (see Appendices B and C for more detailed information). According to the available data, on average 735 polar bears were killed globally per year from 2006/2007 to 2010/2011 (see Table 3.1 and 3.2). This is three to four percent of the estimated global population of 20,000 to 25,000 polar bears.

Box 3.2 Adaptive Management

It is not always possible to know all aspects of biological systems or the social and economic factors that can affect the sustainable use of resources. Therefore, monitoring the effects of use and allowing for adjustments as needed (by using all sources of information available) is preferable when deciding how to manage a resource. The Convention on Biological Diversity provides a definition for Adaptive Management in the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity. Specifically, Principle 4 states:

“Adaptive management should be practiced, based on:

- Science and traditional and local knowledge
- Iterative, timely and transparent feedback derived from monitoring the use, environmental, socio-economic impacts, and the status of the resource being used; and
- Adjusting management based on timely feedback from the monitoring procedures.”

Table 3.1

Polar bear kills by range State, 2006/2007 to 2010/2011

COUNTRY	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	AVERAGE
Canada	579	510	552	500	628	554
Greenland*	145	132	145	124	132	136
USA	72	35	35	27	56	45
Russia	N/A	N/A	N/A	N/A	N/A	N/A
Norway	1	1	3	-	-	1
Total	797	678	735	651	816	735

Source: Figures are taken from Born *et al.* (2010), DeBruyn *et al.* (2010), Lunn *et al.* (2010) and MMC (2008), PBTC (2012) and Grønlands Statistik (2012). Estimates for Chukchi Sea for 2008/2009 to 2010/2011 provided by USFWS *in litt.* to T. Shadbolt, September 10, 2012.

* Some estimates for Greenland management units are presented in calendar year, not management year.

Note: Norway figures were estimates of polar bears killed in self-defence. Russia data were not available (N/A) on a yearly basis.

Table 3.2

Polar bear kills by management unit and country, harvest season 2006/2007 to 2010/2011

MANAGEMENT UNIT	RANGE STATE	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011
East Greenland	Greenland	55	59	64	50	54
	Greenland/Canada	58	68	76	69	96
Davis Strait	Greenland	2	2	1	2	3
	Canada	56	66	75	67	93
Baffin Bay	Greenland/Canada	178	165	176	155	163
	Greenland	79	66	73	69	70
	Canada	99	99	103	86	93
Kane Basin	Greenland/Canada	9	5	7	4	5
	Greenland	9	5	7	3	5
	Canada	-	-	-	1	-
Norwegian Bay	Canada	4	4	-	1	3
Lancaster Sound	Canada	94	74	94	73	84
Gulf of Boothia	Canada	72	56	72	57	45
Foxe Basin	Canada	102	107	109	109	104
Southern Hudson Bay	Canada	38	34	37	62	104
Western Hudson Bay	Canada	58	32	14	18	15
M'Clintock Channel	Canada	3	3	2	3	3
Viscount Melville Sound	Canada	6	3	5	3	7
Northern Beaufort Sea	Canada	31	18	34	13	45
Southern Beaufort Sea	Canada/US	38	28	31	24	51
	Canada	16	14	7	7	29
	USA	22	14	24	17	22
Chukchi Sea	US/Russia	50	21	11	10	34
	USA	50	21	11	10	34
	Russia**	-	-	-	-	-
Laptev Sea	Russia**	-	-	-	-	-
Kara Sea	Russia/Norway	1	1	3	N/A	N/A
	Russia**	-	-	-	-	-
	Norway	1	1	3	N/A	N/A
Arctic Basin	All Range States	N/A	N/A	N/A	N/A	N/A
Total		797	678	735	651	813

Source: Figures are taken from Born *et al.* (2010), DeBruyn *et al.* (2010), Lunn *et al.* (2010), MMC (2008), PBTC (2012) and Grønlands Statistik (2012). Estimates for Chukchi Sea for 2008/2009 to 2010/2011 provided by USFWS *in litt.* to T. Shadbolt, September 10, 2012.

Note: Estimates are provided in management year. Estimates for the Chukchi Sea were not available for 2008/2009 to 2010/2011. Estimates for shared Greenland management units are presented in calendar year, with the exception of 2010/2011 which was management year. For example, Greenland data for 2003 were presented in the 2003/2004 column. Russia and Norway figures were estimates of polar bears killed in self-defence.

** Russia estimates were not provided on a yearly basis, only a range. For instance, from 2005 to 2007 five polar bears were killed. This estimate is not provided in the table above as it is not possible to determine which year it represented or which management unit it was from.

3.1 Canada

Box 3.3 Legislation, regulations and policies

Polar bears are managed in accordance with various pieces of legislation, regulations, and policies in addition to land claims agreements. A summary of the following is provided in greater detail in Appendices B and C:

- ▶ *1973 Agreement on the Conservation of Polar Bears*
- ▶ MOU between Canada, Nunavut and Greenland for the Conservation and Management of Polar Bear Populations
- ▶ MOU between Canada and the United States for the Conservation and Management of Shared Polar Bear Populations
- ▶ *Polar Bear Management Agreement for the Northern Beaufort Sea and Viscount-Melville Sound Polar Bear Populations*
- ▶ *Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea*
- ▶ *Inuvialuit Final Agreement*
- ▶ *Labrador Inuit Land Claims Agreement*
- ▶ *Nunavut Land Claims Agreement*
- ▶ *Nunavik Inuit Land Claims Agreement*
- ▶ *James Bay and Northern Québec Agreement*
- ▶ *Species at Risk Act*
- ▶ *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act and Wild Animal and Plant Trade Regulations*
- ▶ *Nunavut Wildlife Act*
- ▶ *Northwest Territories Wildlife Act and Species at Risk Act*
- ▶ *Yukon Wildlife Act and Wildlife Regulations, Manitoba Wildlife Act, Polar Bear Protection Act and Endangered Species Act*
- ▶ *Newfoundland and Labrador Wild Life Act, Wildlife Regulations, and Endangered Species Act*
- ▶ *Ontario Endangered Species Act and Fish and Wildlife Conservation Act*
- ▶ *Québec Loi sur les espèces menacées ou vulnérable,*

In Canada, responsibility for management of wildlife lies primarily with the provinces and territories. However, co-management boards and regional governments created under land claims agreements also play an essential role in wildlife management decisions (see Appendix C). Although the provinces and territories have primary responsibility for wildlife management within their borders, the federal government is responsible for matters related to international agreements and international trade in wildlife. Coordination between the provincial, territorial and federal governments is carried out through the Canadian Wildlife Directors Committee (CWDC) (Environment Canada, 2009b).

The management and conservation of polar bears in Canada falls under the jurisdiction of four provinces, three territories, co-management boards and resource

user groups (Environment Canada, 2008, 2009b). Coordination among these bodies is facilitated by the Polar Bear Administrative Committee (PBAC) and supported by the Polar Bear Technical Committee (PBTC) (Environment Canada, 2009b; Lunn *et al.*, 2006). These two committees consist of representatives from the Government of Canada, Manitoba, Ontario, Québec, Newfoundland and Labrador, Yukon, Northwest Territories, Nunavut, Wildlife Management Advisory Councils (WMAC Northwest Territories [NWT]), WMAC North Slope (Yukon), Inuvialuit Game Council (IGC) Nunavut Wildlife Management Board (NWMB), Nunavut Tunngavik Incorporated (NTI), Makivik Corporation, Torngat Wildlife and Plants Co-Management Board (TWPCB), Nunatsiavut Government and the Nunavik Marine Region Wildlife Board (NMRWB) (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, April 5, 2010; Environ-

Box 3.4 The CWDC

The Canadian Wildlife Directors Committee (CWDC) is composed of wildlife directors responsible for wildlife conservation in 14 Canadian jurisdictions. The CWDC develops and coordinates strategies, activities, policies and programs related to wildlife issues of national concern or that contribute to the conservation of biodiversity. Advice on these matters is presented to relevant Ministers and Deputies' Councils through the CWDC as needed. The CWDC provides a mechanism for developing national policy frameworks, and promotes co-operative management and sharing of information among the various wildlife agencies. The CWDC facilitates a coordinated approach to national programs affecting wildlife, and facilitates the development of national strategies affecting wildlife (Lunn *et al.*, 2010).

Box 3.5 Polar Bear Administrative and Technical Committees

PBAC

The PBAC consists of senior wildlife managers, wildlife management boards established under land claims agreements, Inuit organizations and a senior manager from Parks Canada (Brazil and Goudie, 2006; CITES SA, Environment Canada, *in litt.* to T. Shadbolt, Aug 16, 2012). The PBAC is responsible for the following (Lunn *et al.*, 2010):

- ▶ responding to requests for information from jurisdictions, agencies, boards and the CWDC;
- ▶ evaluating recommendations made by the PBTC;
- ▶ providing recommendations to the CWDC as needed;
- ▶ referring all research activities on the conservation of polar bears and their habitat to the PBTC;
- ▶ referring all national policy issues to the CWDC.

PBTC

The PBTC consists of technical experts who have recognized scientific and/or traditional knowledge of polar bear biology and their habitat (Brazil and Goudie, 2006; Lunn *et al.*, 2010). The PBTC provides technical advice and recommendations to the PBAC on harvest and population trends, design and conduct of polar bear research in Canada, and the need for management actions (Lunn *et al.*, 2010). The PBTC achieves this through the following functions (Lunn *et al.*, 2010):

- ▶ sharing of information on polar bear subpopulations relevant to Canada;
- ▶ evaluating research results and exchanging technical information and traditional knowledge;
- ▶ identifying and coordinating research activities on the conservation of polar bears and their habitat;
- ▶ providing technical information and traditional knowledge as per the request of the PBAC;
- ▶ providing recommendations on the evaluation of impacts of management actions at the request of the PBAC or other member agencies;
- ▶ preparing an annual status report on all Canadian subpopulations based on scientific information and traditional knowledge from the various member agencies;
- ▶ referring policy issues to the PBAC.

ment Canada, 2009b; Lunn *et al.*, 2006). The committees meet yearly to discuss management recommendations (including the annual review of quotas) and polar bear research results (Brazil and Goudie, 2006). Due to cost, most research activities and studies on polar bears in Canada are carried out by the provincial, territorial and federal governments. Cooperative research is conducted for projects of interest to multiple jurisdictions or of international interest with scientists from other range States and universities (Richardson *et al.*, 2006). University researchers who conduct studies on polar bears are expected to coordinate with government scientists affiliated with the PBTC and bilateral agreements (Richardson *et al.*, 2006). Environment Canada also engages in research activities and supports the research activities of others (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, April 5, 2010).

Thirteen of the 19 global polar bear management units are found in Canada (Environment Canada, 2010a). Nine are found solely in Canada (Norwegian Bay, Lancaster Sound, Gulf of Boothia, Foxe Basin, Southern Hudson Bay, Western Hudson Bay, M'Clintock Channel, Viscount Melville Sound and Northern Beaufort Sea); three are shared with Greenland (Davis Strait, Baffin Bay and Kane Basin); and one is shared with the United States (Southern Beaufort Sea) (Aars *et al.*, 2006b; Environment Canada, 2010a). An additional management unit (Polar Basin) is shared by all range States and this management unit accounts for polar bears that may reside in the central Arctic (Aars *et al.*, 2006b). Polar bears from the Kane Basin and Baffin Bay units are managed under the Canada-Nunavut-Greenland MOU (see Appendix B). Polar bears from the Southern Beaufort Sea unit are managed under the *Inuvialuit-Inupiat Agreement* and the Canada-United States MOU (see Appendix B). Polar bears from the North Beaufort Sea and Viscount-Melville Sound units are managed under the *Inuvialuit-Inuit Agreement* (see Appendix B). Polar bears in Canada can only be hunted by Aboriginal people or by sport

hunters guided by Aboriginal people using traditional methods (i.e. travelling by dog sled) and as part of the existing harvest allocation system (Environment Canada, 2009b; 2010a). All known human-caused mortalities of polar bears are counted against regional polar bear quotas, which are allocated exclusively to Aboriginal people (Environment Canada, 2010a). Therefore, increased killings of conflict bears will reduce the number of bears available for subsistence harvest. Allowable harvest includes kills in defence of life and property, subsistence harvest, known illegal kills and sport hunting (Environment Canada, 2010a).

3.1.1 Hunting regulations

Polar bears are managed in Canada through various provincial and territorial laws within the respective jurisdictions where bears reside (Environment Canada, 2009c). In most cases, wildlife management boards are also involved (Environment Canada, 2009c). The framework for ensuring the sustainability of polar bear management units in Canada is provided through research, management programs and legislation in each of the provincial and territorial jurisdictions, along with national coordination from the PBAC and PBTC (Environment Canada, 2008).

Management of polar bears in Canada is directed toward maintaining healthy populations (Freeman and Wenzel, 2006). In an effort to make informed management decisions, local communities and government agencies are committed to continuing research and conducting population inventories for the species (Freeman and Wenzel, 2006). To help maintain healthy populations and recover depleted populations, most jurisdictions have set regulations to protect females, cubs and denning polar bears, and most set hunting quotas to a sex ratio of one female to two males to reduce the number of females killed (Freeman and Wenzel, 2006). Harvest monitoring programs, whereby hunters provide a number of measurements and physical samples to research teams, provide crucial infor-

mation for research (contaminants, genetics, age, etc.), some of which could not be obtained from research-handled bears (i.e. internal tissue samples). (CWS *in litt.* to T. Shadbolt, August 17, 2012).

Aboriginal peoples benefit from the traditional activities, products of the harvest (e.g. meat, skins), income generated from selling products of the hunt (e.g. skins) and income from sport hunting activities. This economic link can play an important role in the conservation of the species in Canada, as it has for other species in other places around the world (Environment Canada, 2010a; Roe, 2008). Any human-caused mortality of a polar bear is required to be reported to conservation officers in the appropriate jurisdiction. Compliance is reportedly high because of shared interest in a long-term sustainable harvest (Environ-

ment Canada, 2010a). Harvest regulations, agreements and management plans for polar bears vary according to jurisdiction. Table 3.3 provides a summary of regulations in each jurisdiction.

Quotas

In most Canadian jurisdictions, polar bear hunting is controlled through quota systems which are established through consultation between the federal government, provincial and territorial governments, local communities, and wildlife management boards created through land claims agreements. Community quotas are generally set from Total Allowable Harvest (TAH) calculations at the management unit level, using a combination of the best available science and local knowledge. Prior to 2011, quota systems were not in place

Table 3.3

Canadian regulations for polar bear management, by jurisdiction

PROVINCE/TERRITORY	FEMALES AND CUBS PROTECTED	DENNING BEARS PROTECTED	PERMISSION TO HUNT	PROOF OF ORIGIN FOR UNTANNED SKIN	SALE OF SKIN BY HUNTER
Yukon	Yes	Yes, also bears making dens	Inuvialuit who are issued tags, or persons in possession of a tag	Seal on skin	Permit from conservation officer
Northwest Territories	Yes	Yes, also bears making dens	Person in possession of a tag	Tag attached to skin and export permit	Tag must be attached to skin
Nunavut	Yes	Yes, also bears making dens	Person in possession of a tag	Tag attached to skin and export permit	Tag must be attached to skin
Manitoba	Yes	Yes	A person in possession of a ministerial permit	Documented proof	Conditions of ministerial permit
Ontario	No	No	Permissible kill by Treaty ⁹ First Nations residing along the coast	Seal on skin	Sealed by ministerial staff
Québec	Not by law, but by an agreement	Yes	First Nations and Inuit	Seal on skin	Must be sealed
Newfoundland & Labrador	Yes	Yes	Licences given by Labrador Inuit Association	Documented proof	Must be legal

Source: Adapted from tables provided in Lunn *et al.* (2006, 2010).



for Ontario and Québec because these jurisdictions had guaranteed harvest levels which were set through historical agreements with Aboriginal peoples (Treaty 9 in Ontario and *James Bay and Northern Québec Agreement* in Québec) (Environment Canada, 2010a). However, in 2011, a temporary voluntary quota was introduced for polar bears harvested from the Southern Hudson Bay management unit in response to a single-year harvest anomaly (CBC News, 2011b; NTI, 2011).

Recommendations from provincial, territorial and federal scientists, Traditional Ecological Knowledge (TEK), researchers from other range States and academics are taken into account when setting TAH for management units (Environment Canada, 2008; Foote and Wenzel, 2009). Polar bear harvest tags are allocated by community-based Hunters and Trappers Organizations (HTOs) or Hunters and Trappers Committees (HTCs) (Foote and Wenzel, 2009). In some communities, the number of tags allocated does not meet the demand of hunters wishing to obtain one

(Freeman and Wenzel, 2006). In some cases, the local HTOs and HTCs use lottery systems to determine tag allocations (Freeman and Wenzel, 2006). Since the mid-1980s, the allocated harvest has not been fully used (Environment Canada, 2010a). Reasons for this could include poor hunting conditions, unsuccessful sport hunts and increased associated hunting costs (Department of ENR, GNWT, *in litt.* to T. Shadbolt, June 3, 2010). On average, from 2003/2004 to 2007/2008, approximately 5% of quotas were used for self-defence kills, 18% were used for sport hunting, 55% were used for subsistence and 22% were unused (Lunn *et al.*, 2010; Environment Canada, 2009a).

Approximately 90% of the polar bears in Canada are found in Nunavut and the Northwest Territories. The majority of polar bears are harvested in these two jurisdictions by Aboriginal people in possession of government-issued hunting tags, which must be attached to the skin of the bear. Once a kill occurs, information and proof of sex of the animal is collected, which

helps to monitor quotas. The tag information is also used to ensure the legal trade in skins (Environment Canada, 2010a). Table 3.4 provides a breakdown of quotas for each jurisdiction. Further explanation of

quota structures for each province and territory is explained in the relevant provincial and territorial management section below.

Table 3.4

Polar bear quotas for Canadian jurisdictions

PROVINCE/TERRITORY	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005
Inuvialuit Settlement Region (Yukon and Northwest Territories)	99	103	99	103	103	103
Nunavut	419	395	408	392	398	507
Manitoba*	8	8	8	8	8	8
Ontario*	30	30	30	30	30	30
Québec *	62	62	62	62	62	62
Newfoundland & Labrador	6	6	6	6	6	6
Total	624	604	613	601	607	716

PROVINCE/TERRITORY	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Inuvialuit Settlement Region (Yukon and Northwest Territories)	99	105	105	105	105	105
Nunavut	474	512	486	458	434	442
Manitoba*	8	8	8	8	8	8
Ontario*	30	30	30	30	30	30
Québec *	62	62	62	62	62	62
Newfoundland & Labrador	6	6	6	6	6	6
Total	679	723	697	669	645	653

Source: Harvest quotas from 1998/1999 to 1999/2000 are provided from Lunn *et al.* (2002); 2000/2001 to 2002/2003 are from Lunn *et al.* (2006); 2003/2004 to 2007/2008 are from Lunn *et al.* (2010) and 2008/2009 to 2010/2011 are from Nunavut Department of Environment (2012b). Harvest quotas for the Inuvialuit Settlement Region for 2006/2007 to 2010/2011 are from the Northwest Territories Department of ENR, (2011).

* Manitoba does not have quotas as polar bears are not hunted there. However, for management purposes, eight animals are assumed for self-defence/accidental human-caused mortalities. Ontario permits a kill of up to 30 polar bears which is controlled by restricting the annual sale of skins. Québec has a guaranteed harvest level of 62 polar bears (subject to the principles of conservation). This does not represent a maximum number of polar bears that can be taken. (see section 3.1.1 Hunting regulations).

Management concerns and resolutions

Over the years Canada has adjusted the TAH for polar bear management units based on TEK and scientific information. Concerns of potential over harvest have increased international attention on the Baffin Bay, Western Hudson Bay and Southern Hudson Bay management units as follows.

- In 2004, the Government of Nunavut increased the TAH for communities harvesting polar bears from the Baffin Bay management unit. It based the decision to increase the TAH from 64 to 105 polar bears on information from hunters that suggested a perceived increase in polar bears in the region. At the same time, Greenland's harvest of polar bears from the Baffin Bay management unit was estimated at 18 to 25 bears from 1993 to 1997. However, managers later discovered that the actual harvest for Greenland was closer to 70 bears per year due to delays in harvest reporting. In 2008, Nunavut held a public hearing to consider a change in quotas for three communities. A population inventory, data from a TEK study and current harvest data were presented. Scientific information suggested the number of polar bears was decreasing due to overharvesting, but the TEK suggested an increase in the number of polar bears. As a result of these findings and because the Greenland-Canada MOU was still outstanding, the NWMB and the Government of Nunavut opted to maintain the existing quotas. The Greenland-Canada MOU was signed in the fall of 2009 and a public hearing was held in Nunavut to discuss a reduction of the harvest in polar bears from the joint management unit. Based on findings suggesting an unsustainable harvest, Canada issued a negative Non-Detriment Finding (NDF) on the export of polar bear products from the Baffin Bay management unit in late 2009. In 2010, the NWMB and Government of Nunavut reduced the Nunavut harvest by a total of 10 polar bears per year over the next four years (Obbard *et al.*, 2010).
- Due to increased sightings of polar bears and an increase in the number of conflict removals, in 2005 Nunavut increased the quota for the Western Hudson Bay management unit from 47 to 56 polar bears. However, in 2007 the NWMB and Government of Nunavut reduced the quota to 36 polar bears, and reduced it again in 2008 to eight bears (Obbard *et al.*, 2010). They based the decision on data suggesting a decline in the population size of the Western Hudson Bay management unit (Obbard *et al.*, 2010). In 2011, due to both the perception of an increasing population by local hunters and increased conflict removals, Nunavut increased the quota from eight polar bears to 21 (Nunavut Department of Environment, 2011). Some scientists and managers considered this number to be above sustainable limits (PBSG, 2011). New studies (both aerial and mark re-capture) will help to clarify the status for this management unit. Preliminary results of the aerial surveys have indicated approximately 1,000 polar bears; however, the mark re-capture results are not yet available but anticipated for the fall or winter of 2012.
- In April 2011, Environment Canada, the Government of Nunavut, NTI and others became concerned that the reported single-year harvest from the Southern Hudson Bay management unit was unsustainable. The number of polar bears legally hunted from Nunavik (northern Québec) was significantly higher than in previous years (74 polar bears compared to the four to 36 Southern Hudson Bay polar bears taken by Nunavik from 2006 to 2010) (Obbard *et al.*, 2010; PBTC, 2012). Nunavut had an established quota of 25 polar bears from the Southern Hudson Bay management unit. However, Nunavik did not have management unit specific quotas and instead had a guaranteed harvest level of 62 polar bears from three man-

agement units as per the *James Bay and Northern Québec Agreement* (provided that the principles of conservation were met) (CBC News, 2011c; Anon., 1975). Concerns over this increased harvest led to a meeting in June 2011, followed by a user-to-user meeting in September 2011 in Inukjuak (northern Québec) to further discuss the matter and to resolve concerns (CBC News, 2011b). The outcome was a one-year voluntary agreement between the jurisdictions, wildlife management boards, the federal government and the affected communities in Ontario, Nunavut (Sanikiluaq) and Nunavik (northern Québec) (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, Aug 16, 2012; CBC News, 2011b; NTI, 2011). A voluntary quota of 60 polar bears for the 2011/2012 harvest season was accepted and divided among the communities as follows: 25 quotas to Nunavut (their established quota), 26 quotas to Nunavik (northern Québec), four quotas to Cree to Eeyou Istchee (Québec) and five quotas to the six coastal Cree Nations of Ontario (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, Aug 16, 2012). Harvest levels during the 2011/2012 hunting season fell significantly below the voluntary quota limit (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, Aug 16, 2012). Processes are underway within Québec to legislate future quotas for this shared management unit.

Sport hunting

Sport hunting of polar bears in Canada is currently permitted Nunavut and the Northwest Territories (Environment Canada, 2010a; Freeman and Wenzel, 2006). This sport hunt is permitted through the transfer of Aboriginal rights under existing subsistence quotas where the sex ratio of the harvest is closely monitored (Department of ENR, GNWT, *in litt.* to T. Shadbolt, June 3, 2010; Environment Canada, 2010a; Freeman

and Wenzel, 2006). Sport hunting tags are either allocated by an Aboriginal person forfeiting their own subsistence tag or by the local HTOs or HTC's (Freeman and Wenzel, 2006). In either case, a successful hunt is counted as part of the subsistence quota (Department of ENR, GNWT, *in litt.* to T. Shadbolt, June 3, 2010). However, sport hunts must be guided by Aboriginal people using traditional hunting methods (i.e. via dog teams) (Environment Canada, 2010a). Historically, once a tag was allocated to a sport hunt, the tag could not be reallocated to a subsistence harvest if the sport hunt was unsuccessful. Since not all sport hunts were successful and the tag could not be reused, the result was fewer polar bears killed (Lunn *et al.*, 1998). This is still the case for the Northwest Territories; however, the policy has since changed in Nunavut where tags can now be reallocated (Aars *et al.*, 2006b).

The demand for polar bear sport hunts often exceeds the available tags allocated, as many communities are hesitant to reallocate tags to sport hunting and are reluctant to compromise their subsistence values by restricting individual hunters' rights to hunt a bear¹¹ (Freeman and Wenzel, 2006). The decision to reallocate subsistence tags to sport hunting is not an easy one because the economic benefits of the sport



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¹¹ Dowsley (2005) uses the example of Clyde River, Nunavut which has approximately 390 potential polar bear hunters. If the community was given 21 tags, a hunter would receive one tag for a subsistence hunt every 19 years. If 10 of these tags were allocated for sport hunting, a hunter's opportunity for subsistence hunting would be reduced to one tag every 35 years.

hunt are significant, but the loss of the subsistence hunt may be costly from a cultural perspective (Freeman and Wenzel, 2006; Dowsley, 2005). Furthermore, some communities struggle with the ethical aspect of sport hunting and some feel trophy hunting goes against Inuit teachings (Dowsley, 2005). The HTO or HTC allocates tags in consultation with hunters and after considering the right to subsistence hunting and the opportunity (and need) to earn income through sport hunting (Dowsley, 2005). Once the allocation of sport hunting tags is determined, the process by which they are given to sport hunters varies regionally (Freeman and Wenzel, 2006).

At least nine Nunavut communities and four Northwest Territories communities offer polar bear sport hunts (Department of ENR, GNWT, *in litt.* to T. Shadbolt, June 3, 2010; Freeman and Wenzel, 2006). The number of hunting tags allocated to sport hunting varies from year to year, but historically they have totalled approximately 20% of the overall Canadian harvest (Environment Canada, 2010a). During the 2003/2004 to 2007/2008 hunting seasons, an average of 18% of the overall quotas were allocated to sport hunting. (Environment Canada, 2009a) (Table 3.5). Sport hunt numbers have declined in Nunavut since 2003, as shown in Table 3.5.

Management in the Yukon and Northwest Territories

Signed in 1985, the *Inuvialuit Final Agreement* gave Inuvialuit exclusive rights to harvest polar bears in the western Arctic region and the Yukon North Slope, which is referred to as the Inuvialuit Settlement Region (ISR). As such, two WMAC were established, one for the North Slope (NS) and another for the Northwest Territories. Since the harvest of polar bears mainly occurs in the Northwest Territories, the WMAC (NWT) has historically been the main body for polar bear management and provides recommendations on management, including TAH, to the Northwest Territories Minister of Environment and Natural Resources (Lunn *et al.*, 2006). However, the WMAC North Slope (Yukon) and Yukon government are now more actively involved in polar bear management (Department of ENR, GNWT, *in litt.* to T. Shadbolt, June 3, 2010).

Hunting quotas for both the Northwest Territories and Yukon are administered by the Northwest Territories through the IGC (Lunn *et al.*, 2010). The IGC represents the collective Inuvialuit interest in matters related to wildlife in the ISR (Anon., 1984). Once the quotas for the ISR are determined, the IGC distributes

Table 3.5

Polar bear sport hunting kills, Canada

JURISDICTION	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011
Nunavut	95	76	86	120	80	50	29	26
Northwest Territories	36	32	26	33	18	N/A	N/A	N/A
Total bears sport hunted	131	108	112	153	98			
Percentage of quotas used for sport hunt	22%	15%	16%	21%	14%			

Source: Environment Canada, (2009a) and Nunavut Department of Environment (2012b).

the quotas to the respective communities (Joint Secretariat Inuvialuit Settlement Region, 2010; Lunn *et al.*, 2006). The HTC's create bylaws for their members and allocate the quotas to individuals (Anon., 1984). Polar bears from the Southern Beaufort Sea, North Beaufort Sea and Viscount-Melville Sound management units are managed under consideration of bilateral agreements and MOUs (see Appendix B).

The current quotas are based on the sex ratio of harvested polar bears and the estimated sustainable yield for those management units (Lunn *et al.*, 1998). The number of males and females killed over the previous five years is tracked to see whether the full sustainable yield was taken (2:1 ratio). The harvest history is used to review and in some cases determine the quota for the next and subsequent years. This method compensates for any over-harvest in the previous years and does not allow over-harvest to accumulate (Lunn *et al.*, 1998). Once a kill occurs, the hunter is required to provide information on the hunt to the Government of Northwest Territories (GNWT) Department of Environment and Natural Resources (ENR) (Department of ENR, GNWT, *in litt.* to T. Shadbolt, June 3, 2010). The hunter must also show proof of the sex, a premolar or lower jaw and any research tags or tattoos from the bear. Based on the information compiled, the Department of Environment and Natural Resources produces an update summary on the number of polar bears taken by each community and the total number of polar bears taken from each population during the past five years. This information is presented to the local HTC's, the IGC, WMAC (NWT) and WMAC North Slope (Yukon). The Department of Environment and Natural Resources also provides WMAC (NWT), WMAC North Slope (Yukon) and the IGC with an annual report that summarises the harvest data for wildlife under quotas in the ISR. The information is reviewed annually to ensure that the harvest is within the sustainable quotas. WMAC (NWT) and WMAC North Slope (Yukon) seek advice from the IGC before making any recommendations

on management changes to the Minister of the Environment and Natural Resources and the Department of Environment respectively (Department of ENR, GNWT, *in litt.* to T. Shadbolt, June 3, 2010; Lunn *et al.*, 2002).

Management in Nunavut

Signed in 1993, the *Nunavut Land Claims Agreement* gave Nunavut Inuit the right to harvest polar bears in the Nunavut Settlement Area (Anon., 1993). The NWMB was created in 1994 as an Institution of Public Government under the *Nunavut Land Claims Agreement* (Lunn *et al.*, 2006; NWMB, 2008b). Although the Government of Canada and Government of Nunavut retain ultimate responsibility for wildlife management in Nunavut, the NWMB is the main body for management of wildlife and regulates access to wildlife in Nunavut (NWMB, 2008b). There is a co-jurisdictional arrangement with the NWMB and relevant federal government ministers for making decisions on wildlife management (Lunn *et al.*, 2006). This also includes the authority to establish, modify and remove restrictions on the harvest of polar bears. NWMB decisions are subject to approval by the Nunavut Minister of Environment (previously the Nunavut Minister of Sustainable Development). Only the Nunavut Minister of Environment and the NWMB can impose restrictions on polar bear hunting, but they can only do so within the limits set by the *Nunavut Land Claims Agreement* (i.e. they can limit or restrict harvesting to provide for public safety, public health or for a valid conservation purpose) (Anon., 1993; Lunn *et al.*, 2002, 2006).

The best available scientific information is used to estimate a potential TAH, and Inuit TEK is used to evaluate and adjust the total as needed (Lunn *et al.*, 2006). The NWMB establishes the TAH in consultation with and with recommendations from the territorial Department of Environment, Regional Wildlife Organizations and HTOs (Banks and Lee, 2009) and must



be accepted by the Nunavut Minister of Environment (Banks and Lee, 2009). The Regional Wildlife Organizations and the community of HTOs oversee the harvest at the regional and local levels.

In 2004, the HTOs and the Regional Wildlife Organizations signed new MOUs with approval by the NWMB (Lunn *et al.*, 2006). These MOUs provided more flexibility for the HTOs to use Inuit TEK to guide management decisions, as well as to develop local hunting rules and set their hunting seasons. The MOUs also gave more responsibility to the Regional Wildlife Organizations for distributing the TAH to the communities (Lunn *et al.*, 2006). The Nunavut Department of Environment issues polar bear tags to the Regional Wildlife Organizations (Kivalliq Wildlife Board, Kitikmeot Regional Wildlife Board and the Qikiqtaaluk Wildlife Board) which then issue the tags to the HTOs (Banks and Lee, 2009). The HTOs allocate the tags to hunters and decide how many

tags to allocate to subsistence and sport hunts (Banks and Lee, 2009). Polar bears in Nunavut are harvested from all of the polar bear management units found in or shared with Canada, with the exception of the Southern Beaufort Sea unit. Management of all polar bears in Nunavut are subject to MOUs between the Government of Nunavut and the communities (Lunn *et al.*, 2002). Polar bears from the Kane Basin, Baffin Bay, North Beaufort Sea and Viscount-Melville Sound management units are managed under consideration of bilateral agreements and MOUs (see Appendix B).

The current system in Nunavut uses a flexible quota option, which is based on the sex ratio of harvested polar bears and the estimated sustainable yield of polar bears (Lunn *et al.*, 1998, 2002). In some areas the 2:1 (two males to one female) harvest ratio has been established as a regulation, while other regions use this as a target. However, most regions want the maximum quota and tend to follow the 2:1 harvest ratio. To achieve this, a

portion of the tags are classified as “male only” and the remainder are classified as “either sex.” The number of males and females killed in the previous five years is tracked to determine whether the full sustainable yield was taken (at the 2:1 ratio) (Lunn *et al.*, 1998).

Management in Manitoba

Polar bears are protected in Manitoba. There is no quota in Manitoba because polar bears are not hunted there (Canadian Wildlife Service *in litt.* to T. Shadbolt, Sept 10, 2012). For management purposes, eight animals are assumed for self-defence/accidental human-caused mortalities (Obbard *et al.*, 2010). They are used for the Polar Bear Alert Program in the town of Churchill (run by Manitoba Conservation, a department of the provincial government). The purpose of the Polar Bear Alert Program is to protect property and people from polar bears and to ensure the bears are not killed or harmed unnecessarily (Lunn *et al.*, 2002).

Management in Ontario

Prior to 2011, no quotas were allocated for polar bear hunting in Ontario. There was a permissible kill of 30 polar bears by Treaty 9 First Nations trappers that reside along the James Bay and Hudson Bay coast as per an informal agreement established in 1976 (Lunn *et al.*, 2002; OMNR, 2008). These trappers must be in possession of a valid trapping licence and must hold an official seal from the Ontario Ministry of Natural Resources (OMNR) before a polar bear skin can be sold (Lunn *et al.*, 2002). The harvest is regulated by restricting the number of skins stamped with a seal (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, April 5, 2010). Mandatory harvest and season reports are required from Native trappers and are forwarded by Native organizations to the OMNR and compiled (Lunn *et al.*, 2002). As a result of the higher harvest rates in northern Québec in spring 2011, Ontario was allocated a quota of five polar bears out of the temporary voluntary quota of 60 polar bears for

the Southern Hudson Bay management unit (CBC News, 2011b; NTI, 2011; Environment Canada *in litt.* to G. York, September 29, 2011).

Management in Québec

In 1968, indigenous residents were given the exclusive rights to hunt polar bears (Dowsley, 2009). The 1975 *James Bay and Northern Québec Agreement* provided Aboriginal rights, established regimes which included harvest access and established a special Hunting, Fishing and Trapping Regime for the region (Anon., 1975; Dowsley, 2009; HFTCC, 2010a). The Hunting Fishing and Trapping Coordinating Committee (HFTCC) was established under the *James Bay and Northern Québec Agreement* to manage, review and in some instances supervise the Hunting, Fishing and Trapping Regime while providing recommendations to the provincial or federal government minister on a variety of matters including wildlife management (Anon., 1975; HFTCC, 2010a).

The signing of the *Nunavik Inuit Land Claims Agreement* in 2006 settled land claims in areas of Nunavik not previously addressed in the *James Bay and Northern Québec Agreement* (Anon., 2006a; INAC, 2008). These included Nunavut offshore islands adjacent to Québec (referred to as the Nunavik Marine Region) and the Labrador Inuit Settlement Area portion of the Nunavik Inuit/Labrador Inuit overlap area (Anon., 2006a; INAC, 2008). The agreement gave Nunavik Inuit the right to harvest any species of wildlife in the Nunavik Marine Region for social, economic, and cultural needs (INAC, 2008). The agreement established the NMRWB as an institution of public government that would manage and regulate wildlife (INAC, 2008). Although the government retains ultimate responsibility for wildlife management, the NMRWB is considered the primary instrument for wildlife management and the main regulator of access to wildlife in the Nunavik Marine Region (Anon., 2006a; NMRWB, 2010).

Historically, Québec did not have management unit specific quotas for the harvest of polar bears. Instead, a guaranteed blanket harvest level of at least 62 polar bears was agreed upon by the Cree and Inuit, providing the principles of conservation were respected (Dowsley, 2009). This level was based on harvest statistics from 1976 to 1980 (Dowsley, 2009; Lunn *et al.*, 2002). In the case of conservation concerns regarding wildlife, the Government of Québec has the right to limit the harvest of polar bears (Dowsley, 2009). As a result of the unusually high harvest rate in the spring of 2011, Nunavik (northern Québec) was allocated a quota of 26 and Québec a quota of four bears out of the temporary voluntary quota of 60 polar bears for the Southern Hudson Bay management unit (CBC News, 2011b; NTI, 2011; Environment Canada *in litt.* to G. York, September 29, 2011).

The monitoring and collecting of harvest data are the responsibility of the Ministère des Ressources Naturelles et de la Faune, which provides tags to hunters wishing to sell skins (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, Aug 16, 2012). Information on the harvest (location, date, age, sex, etc.) is requested from hunters when they apply for a tag (Lunn *et al.*, 2002). Although some skins are kept by hunters for personal use, the majority are sold. Therefore, the number of tags requested provides a good estimate of the harvest for Québec and Nunavik (Lunn *et al.*, 2002).

Management in Newfoundland and Labrador

In the 1970s, the community of Port Burwell, Northwest Territories (in what is now Nunavut) was abandoned and as a result, the quota of eight polar bears for the community was divided between Québec and Newfoundland and Labrador. Polar bears harvested in Newfoundland and Labrador are from the Davis Strait management unit (shared with Québec, Nunavut and Greenland) and are managed under the *Wild Life Act and Regulations* (Brazil and Goudie, 2006).

The Department of Lands and Natural Resources (Nunatsiavut Government) and the Wildlife Division of the Department of Environment and Conservation (Government of Newfoundland and Labrador) prepared a five-year management plan (2006 to 2011) for polar bears in Newfoundland and Labrador. The plan defined management actions, objectives and goals to ensure the long-term health of its polar bears in Newfoundland and Labrador (Brazil and Goudie, 2006).

The province of Newfoundland and Labrador manages polar bears with input from the Nunatsiavut Government, the Torngat Wildlife and Plant Co-Management Board and Parks Canada. The province establishes management areas, hunting seasons, quotas and issues licences according to the Wildlife Regulations and the annual Polar Bear Hunting Order (Lunn *et al.*, 2010). The Renewable Resources Division of the Department of Lands and Natural Resources (Nunatsiavut Government) manages harvesting and monitors the population health of harvested species (Nunatsiavut Government, 2009b, 2009c). The Nunatsiavut Government administers the hunt by issuing licences to its members (Brazil and Goudie, 2006). In the near future, the Torngat Wildlife and Plant Co-Management Board (established under the *Labrador Inuit Land Claims Agreement*) will be the main body for managing polar bears and implementing conservation of the species throughout the Labrador Inuit Settlement Area (Brazil and Goudie, 2006).

In the 1998/1999 hunting season, the polar bear quota for Newfoundland and Labrador was increased from four to six bears. Four communities receive one polar bear hunting licence each and the larger community of Nain receives two licences. Once a licence is administered, a hunter has 72 hours to complete the hunt. If the hunter is unsuccessful, the licence is returned to the issuing office. If a polar bear is killed, the hunter must report the sex of the bear along with the time and location of the kill, and send the skull to the Provincial Wildlife Division office in Happy Val-

ley-Goose Bay (Brazil and Goudie, 2006). In 2011, the quota in Labrador was increased to 12 bears following a recommendation from scientists that an increased harvest would not negatively impact the population considering the recent population estimates indicating an increase in the number of polar bears. In Labrador, the tags are distributed to communities by the Nunatsiavut Government (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, Aug 16, 2012).

3.1.2 Hunting seasons

The hunting season for polar bears varies in each jurisdiction as follows.

- Manitoba—does not have an open hunting season.
- Newfoundland and Labrador—the hunting season is reviewed annually, but extends from February to June in a region of Labrador north of Cape Harrison (Aars *et al.*, 2006b).
- Northwest Territories—the hunting season varies between management areas with the shortest being January 1 to May 31, and the longest being October 1 to May 31 (Aars *et al.*, 2006b).
- Nunavut—the harvest year is from July 1 to June 30. HTOs may open and close their hunting seasons as they choose to optimize polar bear hunting. This varies from community to community.
- Ontario—does not have an open hunting season. However, some Native trappers may receive permission to harvest polar bears during the closed season (Aars *et al.*, 2006b).
- Québec—there is no specified hunting season.
- Yukon—the hunting season is October 1 to May 31.

3.1.3 Harvest statistics

According to Environment Canada, the overall harvest level of polar bears is sustainable at a rate of 3.5% of the Canadian polar bear population (Envi-

ronment Canada, 2010a). The annual management year is July 1 to June 30 (Lunn *et al.*, 2010). Table 3.6 provides a summary of the Canadian harvest by the various provinces and territories for the 1998/1999 to 2007/2008 hunting seasons. Table 3.7 provides a comparison of total polar bear kills vs. quota numbers for Canadian jurisdictions for the 2003/2004 to 2007/2008 hunting seasons.

3.1.4 Illegal hunting

Determining the occurrence of illegal polar bear hunting in Canada is extremely difficult, given the remoteness and size of management areas. Environment Canada reports that there is no indication of a problem with illegal harvest of polar bears in Canada, and that illegal hunting events are extremely rare (Environment Canada, 2010a).

Table 3.6

Polar bear kills in Canada by jurisdiction, harvest season 1999/2000 to 2005/2006

PROVINCE/TERRITORY	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006
ISR (Yukon and Northwest Territories)	57	55	59	73	62	54	36
Nunavut	405	348	398	377	411	466	452
Manitoba	5	3	9	8	5	2	4
Ontario	3	7 (2)	9	8 (1)	8	2	4
Québec	53	37	31	25	30 (2)	16	14
Newfoundland & Labrador	7	5	6	6	8	5	4
Total	530	455 (2)	512	497 (1)	524 (2)	545	514

Source: Data for 1999/2000 are from Lunn *et al.* (2002). Data for 2000/2001 to 2002/2003 are from Lunn *et al.* (2006). Data for 2003/2004 to 2005/2006 are from Lunn *et al.* (2010).

NOTE: Numbers in parentheses are polar bears sent to zoos.

Table 3.7

Canadian polar bear quotas and kills, harvest seasons 2006/2007 to 2010/2011

PROVINCE/TERRITORY	2006/2007		2007/2008		2008/2009		2009/2010		2010/2011	
	QUOTA*	BEAR KILLS	QUOTA*	BEAR KILLS	QUOTA*	BEAR KILLS	QUOTA*	BEAR KILLS	QUOTA*	BEAR KILLS
ISR (Yukon and Northwest Territories)	105	45	105	32	105	41	105	20	105	75
Nunavut	511	498	486	446	458	463	434	418	442	440
Manitoba	8	3	8	1	8	6	8	0	8	0
Ontario**	30	3	30	5	30	3	30	1	30	0
Québec *	62	26	62	20	62	31	62	59	62	100
Newfoundland & Labrador	6	4	6	6	6	8	6	2	6	13
Total	722	579	697	510	669	552	645	500	653	628

Source: Harvest rates are provided from PBTC (2012) and Nunavut Department of Environment (2012b). Harvest quotas from 2006/2007 to 2007/2008 are from Lunn *et al.* (2010) and 2008/2009 to 2010/2011 are from Nunavut Department of Environment (2012b). Harvest quotas for the Inuvialuit Settlement Region for 2006/2007 to 2010/2011 are from the Northwest Territories Department of ENR, (2011).

* Manitoba does not have quotas as polar bears are not hunted there. However, for management purposes, eight animals are assumed for self-defence/accidental human-caused mortalities. Ontario permits a kill of up to 30 polar bears which is controlled by restricting the annual sale of skins. Québec has a guaranteed harvest level of 62 polar bears (subject to the principles of conservation). This does not represent a maximum number of polar bears that can be taken.

3.2 Greenland

Box 3.6 Legislation and regulations

Polar bears are managed in accordance with various pieces of legislation and regulations. A summary of the following is further provided in Appendix B and C:

- ▶ *MOU between Canada, Nunavut and Greenland for the conservation and management of polar bear populations*
- ▶ *Greenland Home Rule Act No. 577 of 29 November 1978*
- ▶ *Greenland Self-Government Act No. 473 of 12 June 2009*
- ▶ *Greenland Home Rule Executive Order No. 21 of 22 September 2005 on protection and harvest*
- ▶ *1973 Agreement on the Conservation of Polar Bears*
- ▶ *Home Rule Order No. 12 of 13 September 2004 on export and import of wild animals and plants, etc. covering the Convention of 3 March 1973 on International Trade in Endangered Species of Wild Fauna and Flora (Washington Convention/CITES)*

The Ministry of Fisheries, Hunting and Agriculture is responsible for the management of polar bears in Greenland. The majority of the research and studies on polar bears in Greenland is carried out by the Greenland Institute of Natural Resources (GINR)¹².

Four of the 19 polar bear management units are found in Greenland. Three are in western Greenland and are shared with Canada (Kane Basin, Baffin Bay, and Davis Strait management units) and one is in eastern Greenland (East Greenland management unit), and is not shared with any other country (Grønlands Naturinstitut, 2007). Polar bears from the Kane Basin and Baffin Bay management units are managed under consideration of the Canada-Nunavut-Greenland MOU (see Appendix B). Polar bears are harvested in Greenland primarily for subsistence purposes, and only residents who hunt as their full-time occupations are permitted to participate in the hunt (Ministry of Fisheries, Hunting and Agriculture, 2009).

3.2.1 Hunting regulations

In 2005, Greenland introduced new regulations on the harvest of polar bears (Lønstrup, 2006; Anon., 2005a).

This was partly in response to concerns raised by the GINR, which noted the combined harvest levels for the shared Kane Basin and Baffin Bay management units were higher than the recommended sustainable harvest rates (A. Jessen, Deputy Minister of Fisheries, Hunting and Agriculture, *in litt.* to Supervisor of US-FWS Marine Mammals Management Office, April 4, 2007). Recognizing the need for improved control of the polar bear hunt, the Greenland Home Rule Government issued a new executive order which introduced a quota system and additional protection measures (A. Jessen, Deputy Minister of Fisheries, Hunting and Agriculture, *in litt.* to Supervisor of USFWS Marine Mammals Management Office, April 4, 2007). Some of these protective measures have been adopted in the 2005 regulations (Lønstrup, 2006; Anon., 2005a). The most significant additions were as follows:

- protection of cubs year-round regardless of age (previous regulations protected cubs up to a specified age);
- protection of females accompanied by cubs (previous regulations protected females with cubs up to a specified age);

¹² The Danish name is Grønlands Naturinstitut and the Greenlandic name is Pinngortitaleriffik.

- introduction of a quota system with the possibility that some could be used for trophy hunting. (previous regulations did not limit the number of polar bears harvested);
- prohibition on the export of cubs from Greenland;
- prohibition on the use of helicopters, aircraft, motorized vehicles (including snowmobiles) and boats larger than 20 gross register tonnage/15 gross register tonnage during the hunt and for transportation to and from the hunting grounds (previous regulations prohibited vessels over 40 gross register tonnage);
- restrictions on the weapons used for the hunt. The minimum legal rifle calibre permitted is 30.06 (7.62 mm). Automatic or semi-automatic rifles are prohibited;
- required reporting of polar bear catches to Piniarneq (the Greenland catch recording system);
- provisions on the sale of polar bear parts. The purchase or sale of any polar bear parts cannot occur until the licensee has signed a copy of the licence, which has been stamped by the local authority. Resale of parts should have a copy of the stamped licence following the sale.

Several existing regulations were also adopted by the new 2005 Executive Order (Lønstrup, 2006; Anon., 2005a). The most significant regulations are as follows:

- protection of all polar bears from July 1 to August 31, except for the local authority of Ittoqqortoormiit and Ammassalik where bears are protected from August 1 to September 30;
- prohibition on disturbing or excavating polar bears while they are in a den;
- prohibition on the use of traps, poison, spring guns, foot traps and other technical means to restrain a polar bear;
- reporting of all polar bears captured, including stuck and lost bears;

- only residents of Greenland who hunt as their fulltime occupations are permitted to hunt polar bears, and they must be in possession of a valid commercial hunting licence and permit.

The quota system was implemented January 1, 2006. The quota was determined in consideration of biological advice, users' knowledge, international agreements, harvest statistics and in consultation with the Hunting Council (Grønlands Naturinstitut, 2007; Lønstrup, 2006; Ministry of Fisheries, Hunting and Agriculture, 2009). Quotas are ultimately determined by the Greenland Government but are based on recommendations from the Ministry of Fisheries, Hunting and Agriculture (Grønlands Naturinstitut, 2007). The recommendations are based on scientific advice and the consideration of the needs and views of hunters (Grønlands Naturinstitut, 2007).

Based on the recommendations and assessment of the PBSG, the GINR provides scientific advice on sustainable harvest of polar bears to the Greenland Government management authorities. For shared populations with Canada, advice of the Canadian PBTC is also considered (Grønlands Naturinstitut, 2007). Once quotas are determined, they are distributed to local authorities who then issue and distribute permits to the hunters (Lønstrup, 2006).

Each polar bear hunting permit is valid for one bear (Ministry of Fisheries, Hunting and Agriculture, 2009). The permit must be stamped by the settlement office or the local authority after each hunt, and any harvest of polar bears must be recorded in a catch reporting form and delivered to the settlement office or local authority (Lønstrup, 2006). The hunters do this by completing a standardized form which includes the name of the hunter, place, date, the licence number, location, sex, age, markings, etc. (Ministry of Fisheries, Hunting and Agriculture, 2009). This is to ensure that the catches are reported and the information can be used to set the quota for the next year (Lønstrup, 2006). Hunters must also report their an-

nual catches to the Ministry of Fisheries, Hunting and Agriculture, which provides the name of the hunter and the total number of polar bears killed (including struck and lost) in each month (Ministry of Fisheries, Hunting and Agriculture, 2009).

Before any polar bear parts can be sold, the permit must be stamped by the local authority or settlement office, once the standard form providing details of the catch has been received (Ministry of Fisheries, Hunting and Agriculture, 2009). When a sale takes place, the hunter must endorse (via signature) a copy of the stamped permit accompanying the item sold (Lønstrup, 2006). This requirement provides for increased control and coun-

teracts the sale of illegally hunted polar bears. The sale or purchase of any polar bear parts must be accompanied with a stamped hunting permit furnished with the permit holder's signature. Any export of polar bear parts from Greenland (except gallbladders, which is prohibited) must be accompanied by a CITES permit. Any parts of a bear killed in self-defence belong to the Greenland Government, and the Ministry of Fisheries and Hunting must be informed of such events (Lønstrup, 2006).

Quotas have been implemented in Greenland since 2006. Table 3.8 provides the quotas for polar bears harvested in Greenland.

Table 3.8

Annual quotas in Greenland by management area, 2006 to 2009

MANAGEMENT AREA	2006 QUOTA	2007 QUOTA	2008 QUOTA ADJUSTED	2009 QUOTA ADJUSTED	2010	2011
East and South Greenland	55	54	54 (+10)	54 (-5)	54	64
Ittoqqortoormiit	36	30	30 (+5)	30		
Ammassalik	14	20	20 (+5)	20 (-4)		
Sydgrønland (other areas in South Greenland)	5	4	4	4 (-1)		
Baffin Bay/Davis Strait	65	75	73	70 (-1)	70	70
Vestgrønland (other areas in West Greenland)	15	12	10	9		
Upernavik	50	45	45	43 (-1)		
Savissivik/Qaanaaq		18	18	18		
Kane Basin	30*	10	8	6	6	6
Qaanaaq	30*	10	8	6	6	6
Total	150	139	145 (135+10)	124 (130-6)	130	140

Source: Born *et al.* (2010), Government of Greenland (2009b), Grønlands Selvstyre (2012).

NOTE: For 2008, the quota was adjusted and increased by an additional 10 (numbers in parentheses). For 2009, the quota was adjusted due to the overharvest of the 2008 quota. The overall quota for 2009 was reduced by a total of six polar bears (numbers in parentheses).

*For 2006, the Qaanaaq local authority quota allocated was 30; however, a portion of these are used by hunters who harvest from the Baffin Bay stock.



Management concerns and resolutions

Partly due to concerns over unsustainable harvest, the Greenland government introduced quotas for polar bear hunting.

- In the first year of implementation, the quota was set at 50 polar bears for East Greenland and 100 bears for West Greenland (representing an average of the catches reported from 1993 to 2005) (Lønstrup, 2006). However, based on biological

advice from the GINR indicating that 2006 quotas were still above the recommended rate for some populations, the Ministry of Fisheries, Hunting and Agriculture adopted a three-year quota reduction plan (139 polar bears in 2007, 135 in 2008 and 130 in 2009) (A. Jessen, Deputy Minister of Fisheries, Hunting and Agriculture, *in litt.* to Supervisor of USFWS Marine Mammals Management Office, April 4, 2007). The gradual reduction of quotas over the three-year period was intended to provide local hunters with time to adjust to the new regulations and develop or identify alternative income-generating activities. Furthermore, the Ministry of Fisheries, Hunting and Agriculture found it necessary to reduce the quotas gradually to insure local adherence to the regulations (A. Jessen, Deputy Minister of Fisheries, Hunting and Agriculture, *in litt.* to Supervisor of USFWS Marine Mammals Management Office, April 4, 2007).

- Since the government could not be sure that the harvest, both Greenland/Canada harvests and all Greenland harvests, were sustainable; a negative NDF for CITES exports was issued in 2008 for all polar bears in Greenland (Grønlands Naturinstitut, 2007). The NDF has not been updated since there has been no new information to re-evaluate the status of polar bears in relation to CITES. However, the government will be better prepared to reassess polar bears in 2014/2015 once ongoing studies have been completed (Grønlands Naturinstitut, 2012).

3.2.2 Hunting seasons

Hunting polar bears is permitted from September 1 to June 30 for all of Greenland except for two communities (Ittoqqortoormiit and Ammassalik) where hunting is permitted from October 1 to July 31. Quotas are valid for one year, from January 1 to December 31 (Lønstrup, 2006).

3.2.3 Harvest statistics

Prior to the introduction of quotas, the annual number of polar bears hunted in Greenland ranged from 158 to 278, with an average of 200. Numbers of polar bears hunted in Greenland from 1998 to 2010 are shown in Table 3.9. Harvest numbers for later years were not available at the time of this report's publication.

3.2.4 Illegal hunting

There is very little documentation of illegal hunting in Greenland. Born *et al.* (2010) provided information on an illegal kill in 2007 and four illegal kills in 2008. In 2011, two men were charged with illegal hunting. Although in possession of a permit, the men used a snowmobile with a sled for towing and an illegal caliber of rifle (.22 Magnum) both which are prohibited under regulation (Sermitsiaq, 2011).

Table 3.9

Annual kills in Greenland by management unit, 1999 to 2010

REGION	MANAGEMENT UNIT	1999	2000	2001	2002	2003	2004
Northwest Greenland	Kane Basin	10	6	10	12	12	9
	Baffin Bay	97	68	97	118	206	156
	Subtotal	107	74	107	130	218	165
Central West Greenland	Davis Strait	2	0	1	2	1	3
	Subtotal	2	0	1	2	1	3
Southwest Greenland and East Greenland	East Greenland	81	84	72	56	59	54
	Subtotal	81	84	72	56	59	54
Total		190	158	180	188	278	222

REGION	MANAGEMENT UNIT	2005	2006	2007	2008	2009	2010
Northwest Greenland	Kane Basin	25	9	5	7	3	5
	Baffin Bay	135	79	66*	73	69	70
	Subtotal	160	88	81	80	72	75
Central West Greenland	Davis Strait	6	2*	2*	1	2	3
	Subtotal	6	2	2	1	2	3
Southwest Greenland And East Greenland	East Greenland	51	55	59	64	50	54
	Subtotal	51	55	59	64	50	54
Total		217	145	142	145	52	57

Source: Adapted from a table provided in Born *et al.* (2010). Updated figures with symbol * are provided by PBTC (2012). East Greenland figures are provided by Grønlands Statistik (2012).

Note: Numbers are presented in calendar year (i.e. Jan. 1-Dec. 31).

3.3 Norway (Svalbard)

Box 3.7 Legislation and regulations

Polar bears are managed in accordance with various pieces of legislation and regulations. A summary of the following is further provided in Appendix B and C:

- ▶ 1973 Agreement on the Conservation of Polar Bears
- ▶ Svalbard Act of 17 July 1925
- ▶ Act of 15 June 2001 No.79 Relating to the Protection of the Environment in Svalbard
- ▶ Regulation no. 1276 of 15 November 2002 for the implementation of the Convention of 3 March 1973 on CITES
- ▶ Act of 22 March 1957 No. 4 relating to the Protection and Hunting of Polar Bears

In 1925, the Svalbard Treaty granted Norway sovereignty over the Svalbard Archipelago (Lunn *et al.*, 2002). Since sovereignty is provided through the treaty, the island is considered a special jurisdictional matter (i.e. not all Norwegian law is applicable to Svalbard, and authorities with management responsibility in Norway do not automatically have the same authority in Svalbard) (Derocher *et al.*, 1998b). Therefore, the management of polar bears in Svalbard involves many organizations. Prior to 1972, the Department of Agriculture and the Governor of Svalbard were responsible for the management of polar bears. In 1972, the newly established Norwegian Ministry of the Environment took over polar bear management (IUCN, 1974). At the time of writing, the Norwegian Ministry of the Environment is responsible for the overall policy or political matters regarding polar bear management (T. Punsvik, Environmental Advisor for the Governor of Svalbard, *in litt.* to T. Shadbolt, March 9, 2009). The Directorate of Nature Management is responsible for overall management of the species, and serves as an executive agency or directorate under the Norwegian Ministry of the Environment (Directorate for Nature Management, 2009a, Norris *et al.*, 2002). The Governor of Svalbard is the supreme environmental authority in Svalbard and is responsible for matters regarding wildlife and its management (Governor of Svalbard, 2008d). Therefore, the day-to-day management of po-

lar bears in Svalbard rests with the Governor of Svalbard (Norris *et al.*, 2002). The Norwegian Polar Institute is a directorate under the Norwegian Ministry of the Environment that is responsible for the scientific research and monitoring of polar bears (Lunn *et al.*, 2002; Norwegian Polar Institute, 2009; T. Punsvik, Environmental Advisor for the Governor of Svalbard, *in litt.* to T. Shadbolt, March 9, 2009).

Only one of the 19 management units of polar bears (the Barents Sea management unit) is in Svalbard, and this is shared with Russia (Aars *et al.*, 2006a). Polar bears have been fully protected in Norwegian territories since 1973 and may only be killed for self-defence, protection of property and mercy kills (Lunn *et al.*, 2002).

3.3.1 Hunting regulations

Prior to 1973, the hunting of polar bears in Norwegian waters or by Norwegian citizens was regulated by various acts, including the *Svalbard Act of 1925*, the *Jan Mayen Act of 1930*, and the *Animal Protection Act of 1935* (US Department of the Interior and University of Alaska, 1966). In 1939, polar bears received complete protection on Kong Karls Land (US Department of the Interior and University of Alaska, 1966). Polar bears in all of Norway received additional protection in 1957 under the *Polar Bear Act of 1957 (Act of 22 March 1957 No. 4 relating to Hunting of Polar Bear; Government Administration Services, 2009)*.

Norway has revised regulations on polar bear hunting throughout the years with notable changes as follows (Norderhaug, 1972) as follows;

- 1957—capture of live polar bears was prohibited except by recognized zoos with special permits;
- 1963—sport hunting was limited to one polar bear per tourist hunter and minimum weapon requirements (calibre 6.5 mm guns) were introduced;
- 1965—killing of cubs or females with cubs by sport hunters was prohibited;
- 1968—proposed new regulations included a quota system, further restrictions on weapon requirements, prohibition of the use of motorized vehicles and aircraft while hunting polar bears, prohibition on killing cubs or females with cubs, etc. These regulations came into effect on September 1, 1970 under an order in council.

The annual quota for the 1970/1971 hunting season was set at 300 polar bears, and 200 bears for the 1971/1972 hunting season. At the end of 1971, sport hunting was banned, resulting in a reduction of the

1971/1972 annual quota to 170 (Norderhaug, 1972). The annual quota for the 1972/1973 hunting season was set at 85 (Statistisk Sentralbyrå, 1974). In August 1973, a five-year moratorium on the harvest (except for special purposes) was implemented (Lunn *et al.*, 2002; Statistisk Sentralbyrå, 1974). In November 1973, the international *Agreement on the Conservation of Polar Bears* came into force allowing provisions for harvest by indigenous people (Lunn *et al.*, 2002). Since there are no indigenous people in Norway or Svalbard, the harvest of polar bears is prohibited indefinitely (Lunn *et al.*, 2002). In Svalbard, polar bears may only be killed for self-defence, protection of property and mercy kills (Lunn *et al.*, 2002).

Polar bears and their habitat received additional protection measures in Svalbard in 1978 when the Norwegian government introduced *Regulations concerning the management of game and freshwater fishes in Svalbard and Jan Mayen* by royal decree. This decree, administered by the Norwegian Ministry of the Environment, provides protection to the natural environment and territorial waters of Svalbard (Derocher *et al.*, 1998b).



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In 2002, the *Svalbard Environmental Protection Act (Act of 15 June 2001 No. 79 Relating to the Protection of the Environment in Svalbard)* and its associated regulations came into force. The act provided additional protection for polar bears and their habitat. One of the regulations of this act (i.e. *Regulations relating to camping activities in Svalbard*) established camping guidelines in an attempt to reduce conflicts and confrontations between campers and polar bears (Aars *et al.*, 2006a).

3.3.2 Hunting seasons

Currently, the hunting of polar bears is not permitted in Norway.

3.3.3 Harvest statistics

From 1997 to 2000, nine polar bears were killed in self-defence or for mercy (Derocher *et al.*, 2002) and from 2001 to 2008, 20 bears were killed, all but four in self-defence (Aars *et al.*, 2006a; Vongraven *et al.*, 2010). Table 3.10 provides a summary of polar bears killed for these reasons.

3.3.4 Illegal hunting

There is little evidence to suggest an illegal hunting problem in Norway, as there are no documented cases of such events. Almost all of the skins or rugs for sale in Svalbard and Norway have been legally imported from Canada, with some imported from Greenland (Ø. Storkersen, Norway CITES MA, *in litt.* to T. Shadbolt, April 3, 2009).

Table 3.10

Annual polar bear kills by acts of self-defence/mercy in Norway, 1997 to 2008

YEAR	NUMBER OF KILLS	YEAR	NUMBER OF KILLS
1997	-	2003	3
1998	5	2004	5
1999	-	2005	1
2000	4	2006	1
2001	2	2007	1
2002	5	2008	2
TOTAL	16	TOTAL	13

Source: Aars *et al.* (2006a) and Vongraven *et al.* (2010).
Note: numbers are presented in calendar year (i.e. Jan. 1-Dec. 31).

3.4 Russia

Box 3.8 Legislation and decrees

Polar bears are managed in accordance with various pieces of legislation and regulations. A summary of the following is further provided in Appendix B and C:

- ▶ *1973 Agreement of the Conservation of Polar Bears*
- ▶ *Agreement between the United States and Russia on the conservation and management of the Alaskan-Chukotka Polar Bear Population*
- ▶ *Decree No. 738 On Protection of Arctic Animals*
- ▶ *On Environmental Protection (No. 7-FZ of 2002)*
- ▶ *On Wildlife (No. 52-FZ of 1995)*
- ▶ *Decree of the Government of Russian Federation No. 158 of February 19, 1996 On the Red Data Book of the Russian Federation*
- ▶ *Decree No. 13 of 6 January 1997 On Approval of the Rules for the Taking of Animals Belonging to the Species Included in the Red Book of the Russian Federation, except for Aquatic Biological Resources*
- ▶ *Decree No. 986 of December 4, 1975 On the Activities to Secure the Implementation of the Polar Bear Conservation Agreement*
- ▶ *Decree No. 657 of December 18, 1975 On the Measures to Enforce the Conservation of Polar Bears*

The Ministry of Natural Resources and Ecology of the Russian Federation is responsible for the management of polar bears, which is carried out by the Department of State Policy and Management of Hunting and Wildlife (Belikov *et al.*, 2002; Vaisman *et al.*, 2009; A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011). Regional authorities responsible for management of and control over use of natural resources (names of these authorities vary by province) also have a role in managing polar bears in the Russian Arctic (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011; Belikov *et al.*, 2002). These authorities conform to local regulations and federal legislation passed by authorities of the Russian Federation (Belikov *et al.*, 2002). Research and studies on polar bears in the Russian Arctic are carried out by the All-Russian Research Institute for Nature Protection under the Ministry of Natural Resources and Ecology of the Russian Federation (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011; Belikov and Boltunov, 1998).

Four of the 19 polar bear management units are found in Russia. Two are found solely in Russia (Laptev Sea

and Kara Sea management units), one is shared with the United States (Chukchi Sea management unit) and one is shared with Svalbard (Barents Sea management unit). Polar bears have been fully protected in Russia since 1956 and bears may only be killed to protect people, as conflict bears or for scientific purposes (Belikov *et al.*, 2006; Vaisman *et al.*, 2009). The only permitted removal of polar bears from the wild is the capture of cubs for education and public entertainment (circuses and zoos) (Belikov *et al.*, 2006).

3.4.1 Hunting regulations

Polar bear hunting in the Russian Arctic was first regulated in 1938 when the Chief Directorate of the Northern Seas Route (Glavsevmorput) issued a decree prohibiting hunting by vessels and at Arctic polar and meteorological stations (Uspensky, 1989). Complete protection for polar bears was provided on November 21, 1956 when the Russian Soviet Federated Socialist Republic (RSFSR) Council of Members issued Decree No. 738 *On Protection of Arctic Animals* (Belikov *et al.*, 2002; Vaisman *et al.*, 2009). This decree banned the



harvest (including for subsistence) of polar bears in Arctic waters, and on islands and shores bordering the Arctic Ocean within the RSFSR boundaries (Belikov *et al.*, 2002; Vaisman *et al.*, 2009). The only exceptions for harvest of polar bears were for conflict bears and for scientific purposes (Vaisman *et al.*, 2009).

Some polar bear habitat became protected in 1968, when the General Administration of Game Management and State Zapovedniks at RSFSR Council of Ministers passed a decision which gave Wrangel Island the protected status of a Republican Reserve (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011; Uspenskii and Kistchinski, 1970). In 1969, the General Administration of Game Management and State Zapovedniks at RSFSR Council of Ministers banned the killing of female polar bears while capturing live cubs for zoos (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011; Uspenskii and Kistchinski, 1970). Protection of polar bears was reinforced in 1973 when the polar bear range States signed the

Agreement on the Conservation of Polar Bears. Shortly after (in December 1975), the Union of Soviet Socialist Republics (USSR) Council of Ministers issued Decree No. 986 of 4 December 1975 *On the activities to secure the implementation of the Polar Bear Conservation Agreement*, reconfirming the ban on the hunting of polar bears. The only exceptions to the ban were for the reasons stated in the *Agreement on the Conservation of Polar Bears* (Vaisman *et al.*, 2009). The decree also prohibited any trade of polar bears including the import, export or transfers to USSR territory of polar bears, their parts, and derivatives or products from such animals that were in contravention of the agreement (Vaisman *et al.*, 2009).

The RSFSR Council of Ministers also issued Decree No. 657 of 18 December 1975 *On the measures to enforce the conservation of Polar Bears*. It mandated certain groups to develop and implement measures for the conservation of polar bears according to the obligations and commitments made by the USSR as part of

the international *Agreement on the Conservation of Polar Bears* (Vaisman *et al.*, 2009). These groups included the General Administration of Game Management and State Zapovedniks at RSFSR Council of Ministers, the RSFSR Ministry of Agriculture, agencies or ministries whose department or institution was located in the Arctic regions of the RSFSR, the Council of Ministers of Yakutskaya Autonomous Soviet Socialist Republic and the regional executive councils of Krasnoyarsk, Arkhangelsk, Magadan, Murmansk and Tyumen (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011; Vaisman *et al.*, 2009).

The signing of the *Alaska-Chukotka Agreement* in 2000 (Appendix B) provided provisions for the establishment of a small subsistence harvest from the Chukchi Sea management unit (US Federal Register, 2010). In June 2010, the United States-Russia Bilateral Commission (USFWS, 2010b) recommended a quota, but in April 2011 the Russian government decided against using their allocated quota of 29 polar bears (Government of the Russian Federation, 2011).

3.4.1 Hunting seasons

The Ministry of Natural Resources and Ecology has not allowed the Federal Service for Supervision of Natural Resources to issue any hunting permits for polar bears (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011; Government of the Russian Federation, 2011).

3.4.2 Harvest statistics

In Russia, some polar bears are killed as conflict bears with approval and issuance of a permit by the Ministry of Natural Resources and Ecology. From 2005 to 2007, the Ministry approved the killing of five conflict bears (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011; Belikov *et al.*, 2010a). From 2008 to 2010, permits were issued for the killing of five conflict bears (A. Vaisman, TRAFFIC-Russia *in litt.* to T. Shadbolt, Sept 12, 2011).

3.4.3 Illegal hunting

There is speculation that a fair number of polar bears are being illegally hunted in Russia by poachers (Vaisman *et al.*, 2006). According to Aars *et al.* (2006b), the most problematic area for potential poaching is in the northeast (Chukotka). Polar bear poaching may have peaked during the dissolution of the former Soviet Union and it may have been attributable to social and economic challenges during that time (Aars *et al.*, 2006b). Aars *et al.* (2006b), note that federal and regional authorities in Russia have taken measures to reduce illegal hunting, but it is unclear if those measures have had any impact. They also note that it is impossible to determine the actual number of illegally killed polar bears, and therefore difficult to determine whether poaching is a serious concern and what effect it may have on the population. However, if estimated poaching levels are accurate, it appears that this may be a significant challenge for the Chukchi Sea management unit (Aars *et al.*, 2006b).

Polar bears have been hunted for food, clothing, and cultural reasons by the indigenous peoples of Russia for as long as their stories relate. Following the collapse of the former Soviet Union, the polar bear harvest by indigenous peoples appeared to spike in response to widespread food shortages. In recent years, some have suggested that the hunt has become more commercial due to the increased demand for polar bear products (mainly skins) domestically (Vaisman *et al.*, 2006; 2009), but this has not been verified. Several potential poaching camps have been identified: three in Chukotka and one in the vicinity of Dikson (WWF-Russia, 2008; Vaisman *et al.*, 2006; 2009).

A senior research scientist from the laboratory of marine mammal studies, the Chukotka Fisheries Research Institute, provided an estimate on the number of illegally killed polar bears (Kochnev, 2004). Kochnev (2004) based the estimate on a large-scale interview with the inhabitants of different Chukotkan

settlements. His findings suggested that 180 to 284 polar bears were killed every year in Chukotka from 1999 to 2003 (Kochnev, 2004). Approximately 65% of these polar bears are killed by local hunters that live on the coasts of the Chukotka Sea and De Long Strait. Over this same period, which coincided with the dissolution of the Soviet Union, up to 50 polar bears could have been harvested by one settlement alone in a fruitful year (Kochnev, 2004). There are ongoing reports of low levels of traditional hunting by indigenous people in parts of Chukotka that likely reflect long-term historical use of the species. Russian officials have estimated that 100 polar bears are killed illegally every year for their meat and skins. In some areas, the meat from one large bear is enough to share with an entire village (Worldwatch Institute, 2007).

Anecdotal information suggests that opportunities for commercial trophy hunting of polar bears may have been advertised in the Chukotka and Kara Sea. These expeditions appear to take place under the guise of a “photography tour” where clients can then participate in an “indigenous game hunt.” To legally register a trophy in Russia, some type of documentation, such as a veterinarian certificate, is required, but the only way to get this certificate is with an aboriginal licence. Some Internet sites have been providing information on aboriginal licences for this purpose and trophies obtained in this manner could then be accepted by taxidermists for processing and could be openly presented at exhibitions (A. Vaisman, TRAFFIC Europe-Russia and N. Ovsiannikov, Russian Academy of Science *in litt.* to Ministry of Environment Protection, 2004; Vaisman *et al.*, 2009). During one of WWF-Russia’s investigations on the Russian-language Internet (in 2004), a few Web sites advertised polar bear hunting expeditions. Two of the advertisements that offered this discussed it openly (WWF-Russia, 2008; Vaisman *et al.*, 2009).

Despite the concern regarding illegal harvest in Russia, in the past decade only two criminal cases reached the state of court hearings and sentencing.

- a criminal court hearing took place on August 2, 2006 against an inhabitant of the Dikson settlement in Krasnoyarsky Krai who illegally hunted five polar bears in May 2004. The man was found guilty and was fined RUB50,000 (USD1,840) and sentenced to two years of unconditional imprisonment (with a respective two years’ probation period) (WWF-Russia, 2006);
- in 2007, two men were found guilty by the Court of Shmidtovsky district, Chukotka autonomous region, for illegally harvesting three polar bears. Both men were fined RUB67,900 (about USD2,600) and ordered to pay a state fee of RUB1,494 (about USD57) in addition to imprisonment. One of the men received a one-year conditional imprisonment with a two-year probation period, while the other received an 18-month conditional imprisonment with two and a half years’ probation) (WWF-Russia, 2007).

3.5 United States

Box 3.9 Legislation and regulations

Polar bears are managed in accordance with various pieces of legislation and regulations. A summary of the following is further provided in Appendix B and C:

- ▶ 1973 *Agreement of the Conservation of Polar Bears*
- ▶ MOU between Canada and the United States for the Conservation and Management of shared polar bear populations
- ▶ *Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea*
- ▶ *Marine Mammal Protection Act* (Public Law 92-522)
- ▶ *Agreement between the United States and Russia on the conservation and management of the Alaskan-Chukotka Polar Bear Population*
- ▶ *Endangered Species Act of 1973*
- ▶ *Fisherman's Protective Act of 1967 (22 U.S.C. 1978) (Pelly Amendment)*
- ▶ *Lacey Act of 1900*

The United States Fish and Wildlife Service (USFWS) is currently responsible for the management and conservation of polar bears in the United States. This authority was transferred from the State of Alaska to the USFWS when the *Marine Mammal Protection Act* (MMPA) was implemented in 1972 (NOAA, 2008). Prior to this, the State of Alaska had regulated the taking of polar bears and conducted research on the species (USFWS, 1994). Scientific research on polar bears is currently led by the U.S. Department of Interior United States Geological Survey (USGS) and USFWS in cooperation with various partners (USFWS, 2009a).

Two of the 19 polar bear management units occur in the United States. One is shared with Canada (Southern Beaufort Sea unit) and one is shared with Russia (Chukchi Sea unit) (Aars *et al.*, 2006b). Polar bears from the Southern Beaufort Sea unit are managed under the *Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea* and the Canada-United States MOU (see Appendix B). Polar bears from the Chukchi Sea unit are managed under the *Alaska-Chukotka Agreement* (see Appendix B). Polar bears are harvested in Alaska primarily for subsistence purposes and only coastal-dwelling Alaskan Natives are permitted to participate in the hunt (Anon., 1972).

3.5.1 Hunting regulations

In the United States, all marine mammals (including polar bears) are protected under the MMPA (Public Law 92-522), enacted by the United States federal government in 1972 (Anon., 1972). The Marine Mammal Commission (MMC) is an independent agency of the federal government created under Title II of the MMPA to provide independent oversight of policies and programs pertaining to marine mammals carried out by the federal regulatory agencies (MMC, 2010). The primary focus is on the protection and conservation of marine mammals (MMC, 2010).

The MMPA also has provisions under section 119 for cooperative management agreements with Alaskan Native organizations to provide co-management of subsistence use by Alaskan Natives. Under section 502, the Secretary of the Interior (acting through the Director of the USFWS) may share authority with the Alaska Nanuq Commission (ANC) for the management of the taking of polar bears for subsistence purposes by monitoring compliance and administering its co-management program for polar bears (Anon., 1972). The ANC was created in 1994 to represent Alaska Native hunters on issues related to the conservation and

subsistence use of polar bears. The commission consists of representatives from 15 northwest Alaskan coastal villages which had long histories of harvesting polar bears (Alaska Nanuuq Commission, 2012). The ANC is currently completing a report which provides further insight into the process of hunting polar bears. The report is anticipated to be finalized in December 2012.

The USFWS developed a conservation plan for polar bears in 1994 to ensure polar bear populations in Alaska are healthy and functioning components of the Beaufort and Bering-Chukchi Sea ecosystems, and to maintain populations within their optimum sustainable range (USFWS, 1994). In the North Slope Borough (NSB)¹³, participation in the management of wildlife resources by residents is aided by the NSB Department of Wildlife Management (NSB DWM) (NSB, 2010). The NSB DWM manages wildlife resources, facilitates sustainable harvests and monitors populations of wildlife through leadership, research and advocacy from local to international levels so residents can continue their subsistence harvests (NSB, 2010). The NSB created the NSB Fish & Game Management Committee, which works closely with the NSB DWM in developing and implementing management programs regarding subsistence-use animals (NSB, 2010).

Under the MMPA, there are currently no federal regulations on the sex, age, time of hunt, or quota, providing the harvest is not wasteful¹⁴ and the population is not depleted (Lentfer, 1974; USFWS, 1994). The Native harvest cannot be restricted under the MMPA if the populations are above their maximum net productivity level, are healthy, and the harvest is non-wasteful (USFWS, 1994). If the population is considered depleted (which occurs when the population falls below its Optimal and Sustainable Population (OSP), actions

can be taken to regulate the harvest (USFWS, 1994).

Although the MMPA does not provide regulations on the harvest, guidelines and agreements do exist in other bilateral agreements (see Appendix B) (USFWS, 2009b). While the agreements may set quotas, there is no federal or state regulation that requires enforcement of these quotas because compliance is voluntary and there are currently no enforcement provisions (USFWS Special Agent, pers. comm., December 8, 2008; USFWS, 1994). However, since the polar bear has been listed as threatened under the US *Endangered Species Act* (US ESA), it is considered depleted under the MMPA. This depleted status permits the USFWS to take actions to regulate the harvest if deemed necessary (USFWS, 1994; USFWS *in litt.* to T. Shadbolt, Sept 10, 2012). This has not yet occurred as the guidelines and quotas have been historically respected and are still followed even though they are not legally binding (USFWS *in litt.* to T. Shadbolt, Aug 20, 2012).

The MMPA implemented a moratorium on the taking and importation of marine mammals (including polar bears) unless exempted or authorized under the MMPA, which requires permits issued by the Secretary of the Interior. However, coastal-dwelling Alaskan Natives are exempt from the moratorium on taking (harvesting). Any Alaskan Native that lives on the coast of the north Pacific Ocean or the Arctic Ocean is permitted to take marine mammals for subsistence purposes or for creating and selling authentic Native clothing and handicrafts, provided it is not done in a wasteful manner (Anon., 1972).

Amendments to the MMPA in 1994 allowed for marine mammal products to be imported into the United States if they were (Anon., 1972): legally possessed and

¹³ The NSB is similar to a very large county (larger than several US States). Boroughs are administrative divisions of the state.

¹⁴ The ESA defines wasteful manner as "...any taking or method of taking which is likely to result in the killing or injuring of marine mammals (polar bears) beyond those needed for subsistence purposes or for the making of authentic native articles of handicrafts and clothing or which results in the waste of a substantial portion of the marine mammal and includes without limitation the employment of a method of taking which is not likely to assure the capture or killing of a marine mammal, or which is not immediately followed by a reasonable effort to retrieve the marine mammal" (50 CFR Ch. II Section 216.4).



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exported in conjunction with travel out of the United States providing the products were then imported back into the United States by the same individual; acquired out of the United States as a part of cultural exchange by an Alaskan Native residing in Alaska; or owned by a Native inhabitant of Russia, Canada or Greenland and imported for non-commercial purposes in conjunction with travel to the United States or as part of a cultural exchange (Anon., 1972). The 1994 amendments also allowed for the importation of sport-hunted polar bear trophies (but not internal organs) from approved management units in Canada with the issuance of approved permits and under specific conditions (Anon., 1972). In 1997, grandfathered trophies (i.e. taken prior to 1994) were allowed to be imported into the United States provided they were accompanied by a permit (Aars *et al.*, 2006b; US Federal Register, 1997). In 2004, the remaining grandfathered trophies (taken from 1994 to 1997) were allowed to be imported into the United States with a permit (Aars *et al.*, 2006b). On May 15, 2008 the polar bear was designated as depleted under the MMPA as a result of the listing of the species under the ESA (MMC, 2008).

The ESA lays out various protective measures for listed species, including the development of recovery plans which outline the steps needed for a species to recover and eventually be delisted (Anon., 1973c). It also allows for the designation of critical habitat or the specific geographical area necessary for the recovery of a species, not merely its survival (Anon., 1973c). The threatened listing does not significantly change how polar bears have been regulated for over 30 years under the MMPA and CITES, but it does designate the species as depleted under the MMPA. Once a marine mammal or its population is listed as threatened or endangered under the ESA, it is automatically considered a depleted species or stock under the MMPA (MMC, 2008; US Federal Register, 2008). A depleted species can only be imported to enhance the survival or recovery of the species or stock, or for scientific purposes (MMC, 2008). Any other importation, such as the import of sport hunting trophies, is prohibited (MMC, 2008). The listing did not change the allowances governing subsistence harvest or production and sale of polar bear handicrafts by coastal-dwelling Alaskan Natives, as those activities were already exempted under the ESA and the MMPA. Under the

4(d) rule of the ESA listing for polar bears, if an activity is authorized or exempted under the MMPA, it requires no additional authorization. Therefore, exempt activities under the MMPA associated with traditional handicrafts, clothing or cultural exchange of subsistence-taken polar bears will not require additional authorization under the ESA (US Federal Register, 2008).

The USFWS monitors Native harvest through a mandatory Marking, Tagging, and Reporting Program initiated in 1988 (USFWS, 1994; USFWS, 2009b). Once a hunter has killed a polar bear, the skin and skull must be presented to a USFWS representative for tagging within 30 days of the kill (USFWS, 1994; USFWS, 2001). The skin and skull are tagged with interlocking nylon and plastic tags (USFWS, 1994). Local taggers are hired in 15 communities under this program to tag skins and skulls, and to gather information from hunters about polar bears harvested near their communities. This includes the date and location of harvest, sex and age, condition, along with other biological data (USFWS, 2009b; MMC, 2008). The taggers are supplied with kits that include tools for removing a small pre-molar tooth to age the polar bear, and for gathering measurements and information about the bear harvested (USFWS, 2009b). The completeness of the reporting is low as information is often missing. Historically, gender information and tooth samples have been provided for less than 50% of the polar bears harvested (USFWS, 2009b). The USFWS is working on methods to improve compliance and the completeness of the reported information (USFWS, 2009b). Currently, internal estimates suggest that 80% of polar bears are tagged and that the USFWS eventually learn of 95% of polar bears harvested (USFWS *in litt.* to T. Shadbolt, Aug 20, 2012).

3.5.2 Hunting seasons

Under the MMPA, coastal-dwelling Alaskan Natives are permitted to take polar bears at any time of the year, providing they are not harvested in a wasteful

manner (Anon., 1972; USFWS, 1994). However, under the 1988 bilateral agreement with Canada, polar bear hunting of the Southern Beaufort Sea management unit is only permitted from September 1 to May 31 (see Appendix B).

Approximately 80% of the polar bears harvested in Alaska are taken by six communities: Barrow, Diomedea, Gambell, Point Hope, Savoogna, and Wainwright. Polar bears are often harvested in every month except for June (USFWS, 2009b). In western Alaska (from Point Lay to St. Lawrence Island), polar bears often move southward with the advancing pack ice and are not available in the area until later in the season: polar bears are generally not hunted until after December (USFWS, 2009b). There is a large harvest in January in this area, consisting mainly of polar bears from the Chukchi Sea management unit (USFWS, 2009b). Under MMPA regulations, marine mammals cannot be harvested in a wasteful manner (Anon., 1972).

Polar bears in Alaska are hunted on foot, boat, all-terrain vehicles or dog teams, but the predominant mode of transportation is snow machines (USFWS, 1994). Hunting opportunities are often based on the availability of polar bears near shore, and weather and ice conditions largely determine when and where polar bears are found in these areas (USFWS, 1994).

3.5.3 Harvest statistics

The harvest year for polar bears in Alaska is from July 1 to June 30 (MMC, 2008). Table 3.11 provides a breakdown of the Alaskan harvest by the two polar bear management units from 1998 to 2008.

3.5.4 Illegal Hunting

There is no documented information to suggest illegal hunting is a significant management concern for Alaska.

Table 3.11

Polar bear kills in Alaska by management unit, harvest season 1998/1999 to 2007/2008

HARVEST SEASON	CHUKCHI SEA/BERING SEA MANAGEMENT UNIT	SOUTHERN BEAUFORT SEA MANAGEMENT UNIT	TOTAL US HARVEST
1998/1999	85	23	108
1999/2000	36	30	66
2000/2001	53	43	96
2001/2002	76	33	109
2002/2003	27	39	66
2003/2004	21	44	65
2004/2005	34	31	65
2005/2006	57	32	89
2006/2007	50	22	71
2007/2008	21	14	34
2008/2009	11	24	35
2009/2010	10	17	27
2010/2011	34	22	56
TOTAL	515	374	889

Source: MMC (2008), DeBruyn *et al.* (2010), PBTC (2012). Estimates for Chukchi Sea for 2008/2009 to 2010/2011 provided by USFWS *in litt.* to T. Shadbolt, September 10, 2012.

* DeBruyn *et al.* (2010) records for the Southern Beaufort Sea management unit varies slightly from that of the MMC figures as follows: 20 polar bears for 2004/2005, 30 bears for 2005/2006 and 19 bears for 2006/2007.

Note: Data for the Chukchi Sea management unit were not available (N/A).



4.0

AGREEMENTS AND REGULATIONS

4.1 CITES

CITES is an international agreement between governments created to ensure that the international trade¹⁵ in wild animals and plants does not threaten the survival of those species (Anon., 1973b; Cooper and Chalifour, 2004). CITES entered into force on July 1, 1975, with 18 countries implementing the Conven-

tion in that same year. As of August 2012, 175 countries had implemented CITES (CITES, 2012a). CITES Resolution Conf. 11.17 (Rev. CoP14) requires that all signatory countries submit annual reports on the international trade of CITES-listed species to the CITES Secretariat (UNEP-WCMC, 2010). This information is then compiled into a database.

¹⁵ Article I(c) of CITES defines trade as "export, re-export, import and introduction from the sea." Article I(d) defines re-export as the "export of any specimen that has previously been imported" and Article I(e) defines introduction from the sea as "transportation into a State of specimens of any species which were taken in the marine environment not under the jurisdiction of any State" (Anon., 1973b). International trade is defined as "The exchange of goods and services across international borders" (First National Bank-International Trade Services, 2006) while domestic trade is defined as "Any commercial activity, including, but not limited to, sale and purchase, within the territory under the jurisdiction of a CITES Party" (CITES, 2008a).

4.1.1 Appendices of CITES

Species covered by the Convention are listed in one of three Appendices depending on the level of protection needed. Species can be added to or removed from Appendix I or II or moved between them only by a vote by the Conference of the Parties (CoP); however, species can be added to or removed from Appendix III at any time (Cooper and Chalifour, 2004).

Appendix I

Species listed in Appendix I are those that are threatened with extinction. Both an import permit from the importing country and an export permit or re-export certificate from the country of export are required for international trade in Appendix I specimens (Anon., 1973b). Permits may be issued only under specific conditions, including the following:

- trade in a species must not be detrimental to the conservation of that species (see section 4.1.2 NDFs);
- an Appendix I specimen may not be used for primarily commercial purposes;
- specimens must be legally acquired.

Appendix II

Species that are not currently threatened with extinction but could become so if their trade is not regulated are listed in CITES Appendix II. Species may also be listed in Appendix II because they cannot easily be distinguished from other species listed in Appendix I or II. Trade in Appendix II specimens requires a CITES export permit issued by the exporting country. Re-exports require CITES re-export certificates

(Anon., 1973b). Export permits and re-export certificates may be issued only under specific conditions, including the following:

- trade in a species must not be detrimental to the conservation of that species (see section 4.1.2 NDFs);
- specimens must be legally acquired.

Appendix III

Individual countries may list species in Appendix III when those countries wish to regulate the export of certain native species. If an Appendix III specimen originates from the listing country, a CITES export permit from that country is required for export. If the specimen originates from another country, then the shipment requires issuance of a certificate of origin. In the case of re-export, a certificate must be granted by the CITES MA¹⁶ of the State of re-export (Anon., 1973b). The issuance of export permits for Appendix III species does not require the exporting country to show that international trade in the species is not detrimental to the conservation of that species. However, the exporting country must determine that the specimens were legally acquired before issuing export permits.

4.1.2 NDFs

An important component of the Convention is the requirement for Parties to complete non-detriment findings (NDFs) to ensure that international trade in species on Appendices I and II is sustainable. Completion of scientifically supportable NDFs is critical to securing the conservation goals and objectives of CITES.

¹⁶ A CITES Management Authority (MA) is responsible for implementing the convention in its country, and for issuing permits and certificates on behalf of their country. A CITES Scientific Authority (SA) is responsible for providing technical and scientific advice to its MA including advice on whether the export of a specimen will be detrimental to the survival in the wild of the species involved (CITES, 2008a).

The term NDF is not used directly in the Convention text but it arises from the following legally binding provisions in that text:

- Article III states that an **export** permit for an Appendix I species shall be granted only when a Scientific Authority of the state of **export** has advised that this action will “*not be detrimental to the survival of that species*”;
- Article III also states that an **import** permit for an Appendix I species shall be granted only when a Scientific Authority of the state of **import** has advised that the import will “*be for purposes which are not detrimental to the survival of the species involved*”¹⁷;
- Article IV states that an **export** permit for an Appendix II species shall be granted only when a Scientific Authority of the state of export has advised that this action will “*not be detrimental to the survival of that species*”.

The Convention does elaborate further on what is entailed in completing an NDF. Consequently, CITES Parties have come to see this as an area where they have sovereignty and have been reluctant to accept binding provisions on the matter. Nevertheless, there is ample guidance available on how such NDFs should be made, the essentials of which are summarized on the CITES Web site (CITES, 2012b). In addition, Parties have adopted a measure known as the review of significant trade in Appendix II species Resolution Conf. 12.8 (Rev. CoP13) *Review of Significant Trade in specimens of Appendix-II species* which allows the CITES Scientific Committees to scrutinize trade patterns, identify species where there are concerns and

examine whether or not exporting countries are complying with the requirement to make NDFs. Those Committees can refer cases of non-compliance to the Standing Committee, which may decide to recommend that Parties cease trading in the relevant species with the country in question.

Despite all of these provisions, implementation of NDFs is not consistent between Parties or for different taxa. Since the review of significant trade can only look at a small sub-set of cases of most concern, it is not possible to ascertain the scientific credibility of NDFs made for many taxa.

4.1.3 Exemptions to CITES

Generally international trade in species listed by CITES requires the issuance of import permits, export permits, re-export certificates, certificate of origins, pre-Convention certificates, etc. There are several exemptions to the provisions of the Convention; however, the most commonly used are reservations, pre-convention¹⁸ specimens and personal and household effects.

- As per Article XXIII, a reservation can be taken on any specimen included in the Appendices or any part or derivative specified in relation to a species included in the Appendices. However, reservations can only be taken under the following conditions: once a State becomes a Party to CITES; within 90 days of an amendment to Appendices I or II; or any time in regard to species listed in Appendix III. A reservation is a statement made by the Party to the effect that they do not consider themselves a Party to the Conven-

¹⁷ The exporting country must determine that an export will not be detrimental; the importing country determines if the import will be for purposes (e.g. what will be done with the wildlife in the importing country) that are not detrimental.

¹⁸ Pre-Convention specimens is any specimens acquired prior to the provisions of CITES. If a certificate is issued by an MA for such specimens then no other certificate or permit is required by CITES to authorize the export, import or re-export of such items (CITES, 2008a).

tion in regard to trade in specimens of the species (i.e. they do not recognize the listing and reserve the right not to issue CITES documents in respect to trade in the species).

- As per Article VII:2 of the Convention, the provisions of CITES (Articles III, IV and V) do not apply to any specimen¹⁹ that was acquired prior to the listing of the species under CITES, providing the MA is satisfied the specimen was acquired prior to the CITES listing and the MA can issue a certificate to that effect. Resolution Conf. 13.6 *Implementation of Article VII, paragraph 2, concerning 'pre-Convention' specimens* provides further clarification and recommends that Parties use the date the species was first included in the Appendices and the date on which a specimen was acquired (i.e. removed from the wild, born in captivity or artificially propagated in a controlled environment) and, if such date is unknown, to use the date on which it was first possessed by a person.
- As per Article VII:2 of the Convention, specimens considered personal and household effects may be exempt under CITES provisions under certain conditions. Resolution Conf. 13.7 (Rev. CoP14) *Control of trade in personal and household effects* provides further clarification on what classifies as a personal and household effect: it must be personally owned or possessed for non-commercial purposes, be legally acquired, and at the time of import, export or re-export it must be worn, carried or included in personal baggage, or be part of a household move.

Although there are exemptions to some provisions of CITES, it is ultimately the Parties' decision on whether they will permit trade in specimens under these

exemptions. This will depend on their internal legislation and policies and how they implement the provisions of CITES in their countries, and this can vary greatly from one country to another.

4.1.4 Meeting of the Conference of the Parties

The Convention requires the Secretariat to call a CoP every three years. CoPs are attended by Party delegations and other interested stakeholders. At these meetings, the Parties may amend the Appendices (by a two-thirds majority if more than half of the Parties are present) and make recommendations to improve the implementation of the Convention (Anon., 1973b). These recommendations take the form of Decisions and Resolutions which are defined as follows (Cooper and Chalifour, 2004).

- decisions are generally short-term instructions to committees, working groups, the Secretariat or Parties;
- resolutions are long-term acts, terms of reference, recommendations or interpretations of the Convention that are put into practice to improve the implementation of the Convention.

4.1.5 CITES and climate change

At CITES CoP15, concerns about climate change were brought to the attention of the CITES Secretariat and the Parties (CoP15 Doc. 10.1). The Secretariat felt that other agreements were more suitable and equipped to address the causes of climate change or the overarching mitigation and adaptation measures required to

¹⁹ Article I, paragraph (b) of the Convention defines Specimen as "(i) any animal or plant, whether alive or dead; (ii) in the case of an animal: for species included in Appendices I and II, any readily recognizable part or derivative thereof; and for species included in Appendix III, any readily recognizable part or derivative thereof specified in Appendix III in relation to the species; and (iii) in the case of a plant: for species included in Appendix I, any readily recognizable part or derivative thereof; and for species included in Appendices II and III, any readily recognizable part or derivative thereof specified in Appendices II and III in relation to the species".

deal with it. However, the Secretariat did feel that the Parties should recognize these impacts and the implications they could have on the implementation of CITES, and work with sister organizations to address some of the wider impacts of climate change. With regard to CITES, the Secretariat proposed three draft decisions which were later adopted by the Parties, as follows.

- Decision 15.15 directed to the Animals and Plants committee: “Given the implications of climate change for science-based decision-making, the Animals and Plants Committees shall identify the scientific aspects of the provisions of the Convention and of Resolutions of the Conference of the Parties that are actually or likely to be affected by climate change, report their findings, and make recommendations for further action in relation to the Convention and to Resolutions of the Conference of the Parties as appropriate, at the 62nd meeting of the Standing Committee”;
- Decision 15.16 directed to the Secretariat: “The Secretariat shall request from the secretariats of other multilateral environmental agreements information on their activities that may be linked to climate change and CITES, and report to the Animals and Plants Committees and the Standing Committee”;
- Decision 15.17 directed to the Standing Committee: “The Standing Committee shall consider the reports of the Animals and Plants Committees and the Secretariat and report at the 16th meeting of the Conference of the Parties”.

A CITES Joint Intercessional Working Group on Climate Change was convened to produce draft findings

and recommendations in compliance with Decision 15.15. The working group report (AC26/PC20 Doc. 6) indicated that there were six CITES decision-making processes already in place which provided the scope to accommodate climate change considerations. The Animals and Plants Committee agreed with the findings and indicated that current provisions of the Convention and resolutions were sufficiently comprehensive and flexible to take into account the implications of climate change for science-based decision-making. A report was submitted at the 62nd meeting of the Standing Committee (SC 62. Doc18), where it was accepted and the Standing Committee agreed to report the findings at CoP16.

4.1.6 Polar bears and CITES

Regulation of the international trade in polar bears, their parts and derivatives was implemented in 1975 when the species was listed in Appendix II of CITES (CITES, 2008b). Canada initially opposed the listing and submitted a reservation²⁰ stating it would instead treat the species as if listed in Appendix III. In 1977, Canada withdrew its reservation and all Parties have recognized the listing of the species in Appendix II (CITES, 2008b). As discussed above, an Appendix II listing requires that a CITES export permit (or re-export certificate) be issued by an exporting country prior to the export (or re-export) of any polar bear part or derivative (unless exempt from the provisions of the Convention). Prior to the issuance of an export permit, the polar bear range State²¹ must determine that trade in the species is not detrimental to the conservation of polar bears, which is also known as an NDF. In some instances, countries have taken measures beyond the minimum requirements of the Con-

²⁰ As per the text of the Convention, any Party may (by notification in writing) make a reservation with respect to an amendment to Appendix I or II. Until the reservation is withdrawn, the Party is to be treated as if it was not a Party to the Convention with respect to trade in the species concerned (Anon., 1973b).

²¹ CITES defines a range State as a state “whose territory is within the natural range of distribution of a species” (CITES, 2008a).

vention, requiring additional permits or certificates in addition to the permits required by CITES (e.g. EU Wildlife Trade Regulations [EU WTR]).

Negative NDFs

On December 11, 2009, Environment Canada issued a negative NDF for polar bears from the Baffin Bay management unit (Environment Canada, 2009c). Until the harvest is reduced to sustainable levels and a positive NDF can be made, a temporary export ban is in effect for polar bear parts and derivatives originating from this management unit (effective March 11, 2010) (Environment Canada, 2009c; 2010b).

On February 21, 2008 the Greenland government introduced a temporary export ban on all polar bear parts originating from Greenland until a positive NDF can be made or additional information is provided (effective April 1, 2008) (Government of Greenland, 2009c; Greenland Home Rule Government, 2008b). This

ban applies to tourist items, which means that there is no legal export of polar bear products originating from Greenland (Greenland Home Rule Government, 2008b). However, export permits can be obtained for the movement of household effects between Greenland and other countries providing the applicant can show that all items were legally obtained and can document that he/she had lived in Greenland for more than 185 days before moving to another country (E. Topp-Jørgensen, Greenland CITES MA, *in litt.* to A. Knapp, TRAFFIC Europe and T. Shadbolt, December 29, 2008).

Proposal to list polar bears in Appendix I

In 2009, the United States submitted a proposal for consideration at the CoP15 with regard to transferring the polar bear into Appendix I in accordance with the listing criteria *Resolution Conf. 9.24 (Rev. CoP14)* (citing paragraph C) ii): “A marked decline in the popula-

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tion size in the wild, which has been inferred or projected on the basis of a decrease in area of habitat and a decrease in quality of habitat” (Anon; 2009b; CITES, 1994). The proposal indicated that the main threat to polar bears was the impact of climate change on their habitat and that this decrease in habitat exacerbates other potential threats to polar bears. The proposal suggested a precautionary approach be taken for the species to ensure that commercial trade does not compound the effects the species may face with respect to climate change (Anon; 2009b).

As noted, Appendix I listed species or derivatives may not be used for primarily commercial purposes. However, the proposal to up-list polar bear to CITES Appendix I in 2009 would not have directly affected harvest by indigenous peoples, but it would have created prohibitive barriers for international trade in the by-products of hunting such as skins or handicrafts. Since Canada was the only range State that permitted commercial international trade in the species at the time, an Appendix I listing would have primarily impacted the management, conservation and livelihoods in that country. The listing would not have reduced the subsistence harvest or domestic trade. Although international trade could have continued for hunting trophies and personal purposes, both import and export permits would have been required, and they could have been difficult to obtain.

For each CoP, IUCN and TRAFFIC undertake technical reviews of the proposals to amend the CITES Appendices. This analysis brings together a wide range of expertise, where IUCN provides input on the status and biology of the species and TRAFFIC provides advice on aspects of the trade. These technical reviews provide an objective assessment of each proposal against requirements of the Convention as laid out in the listing criteria and any other Decisions and Resolutions. The IUCN/TRAFFIC analysis on the polar bear proposal concluded that “Assuming this guideline figure can be applied to conjectured fu-

ture declines, it would appear on current knowledge that the Polar Bear does not meet any of the biological criteria for inclusion in Appendix I”. Specifically, the population was not thought to be small, the species area of distribution extended over several million square kilometers and was clearly not restricted and the population had not undergone a marked decline. Although there was a suggested decline of more than 30% in the next 45 years, the general guideline for a marked rate of decline under Annex 5 of Resolution Conf. 9.24 (Rev. CoP14) is 50% or more over 10 years or three generations, whichever is longer (IUCN and TRAFFIC, 2010).

TRAFFIC, WWF, and the CITES Secretariat held the opinion that the species did not meet the biological criteria for a CITES Appendix-I listing (TRAFFIC, 2010; WWF, 2010; CITES, 2010a). The Species Survival Network, International Fund for Animal Welfare (IFAW), Defenders of Wildlife and the Humane Society International were in support of the proposal and were of the opinion the species did meet the listing criteria (Species Survival Network, 2009; IFAW, 2009; Defenders of Wildlife, 2009; Humane Society International, 2010). At CoP 15, a majority of Parties voted on and rejected the proposal (62 votes against, 48 in favour, 11 abstentions) (CITES, 2010a). As such, the species remains in Appendix II of CITES.

Parson and Cornick (2011) criticized the IUCN/TRAFFIC analysis of the polar bear proposal. The paper suggested that the analysis did not take into account all of the available scientific information and the species met the biological criteria. Some of the main arguments were that the IUCN/TRAFFIC analysis did not take into account the USGS report which projected a decline of two-thirds of the polar bear population by mid-century, that the analysis did not give enough weight to the cumulative impacts, and that the species did meet the criteria for the “restricted in distribution” (Parson and Cornick, 2011).

WWF did not agree with the arguments put forward by Parson and Cornick (2011) and submitted a letter to *Marine Policy* which stated: “the situation 45 years into the future is not a basis on which an Appendix I listing is warranted if the species concerned does not meet the requisite decline criteria currently or does not even come close to meeting them”. WWF referred to a version of the resolution prior to CoP13 which did provide for an Appendix I listing in the event the species qualify in the next five years. However, the Parties removed this provision, the rationale being that the CoP meets every three years and the Parties did not need to make a decision on the basis of a situation that would occur 45 years in the future (i.e. there would be many CoPs for CITES to take appropriate action if needed) (O’Criodain and York, 2011). IUCN clarified that the IUCN/TRAFFIC analysis drew heavily on the IUCN PBSG’s most recent analysis of the status of the polar bear. The USGS report to which Parson and Cornick (2011) refer to was fully considered by the PBSG when making their Red List Assessment of vulnerable and therefore might be expected to decline by greater than 30% but less than 50% in the next three generations. The analysis concluded: “The numerical guidelines in Annex 5 to Resolution Conf. 9.24 (Rev. CoP14) do not explicitly address projected future declines, but suggest a general guideline for a marked recent rate of decline as 50% or more over 10 years or three generations, whichever is the longer.”

Clark *et al.* (2012) also responded to claims made by Parson and Cornick (2011) suggesting their critique overlooked several important dimensions of polar bear conservation. The paper argues three main points: the critique failed to explore what subsistence hunting means and prohibiting commercial trade would not reduce the number of polar bears killed; the scope of the IUCN/TRAFFIC analysis was misunderstood; and up-listing polar bears under CITES would allow national governments to claim they were improving polar bear conservation but through a decision that only addresses peripheral threats and di-

verts attention away from the primary threat, which is climate change (Clark *et al.*, 2012).

4.2 EU Wildlife Trade Regulations

The European Union (EU) is a unique political and economic partnership between 27 European countries. Denmark is a member of the EU, but Greenland is not, as it chose to leave the EU in 1985 (see Appendix A). Polar bears are found in Greenland, and do not range into any EU member states; however, this species is traded from Greenland to Denmark (and other EU member states). Although Greenland has its own wildlife trade legislation and is not bound by the EU WTR, any EU member state (including Denmark) choosing to trade this species with Greenland must treat Greenland as a non-member State for the purposes of the EU WTR and issue the appropriate export, import or re-export documents (C. O’Criodain, WWF International, *in litt.* to T. Shadbolt, December 12, 2008).

Prior to 1984, only a handful of EU member states were signatory to CITES and the absence of systematic border controls made implementation of CITES difficult. On January 1, 1984, two regulations came into force to implement CITES in all EU member states, including those not signatories to CITES. All taxa listed in CITES were made subject to these regulations, and additional restrictions were placed on trade in certain taxa listed in the Annexes of these regulations (European Commission and TRAFFIC Europe, 2008). These regulations were as follows:

- *Council Regulation European Economic Community (EEC) No. 3626/82 of 3 December 1982 on the implementation in the Community of the Convention on international trade in endangered species of wild fauna and flora, and;*
- *Commission Regulation (EEC) No. 3418/83 of 28 November 1983 laying down provisions for the uniform issue and use of documents required for the*

implementation in the Community of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Council Regulation (EEC) No. 3626/82 and Commission Regulation (EEC) No. 3418/83 were eventually replaced with the following:

- Council Regulation European Community (EC) No. 338/97 on the Protection of the Species of Wild Fauna and Flora by Regulating Trade Therein, and;
- Commission Regulation (EC) No. 939/97, laying down detailed rules for the implementation of Council Regulation (EC) No. 338/97 on the protection of species of wild fauna and flora by regulating trade therein.

Both regulations took effect on June 1, 1997. Council Regulation (EC) No. 338/97 provides the main framework regulation, while the associated Commission Regulation provides more detailed provisions for implementation. Together, these regulations form the legal basis for CITES implementation in the EU (European Commission and TRAFFIC Europe, 2008).

To account for amendments to the Appendices adopted at CoPs, the equivalent Annexes to the Council Regulation have frequently been amended since 1997, the current version (as of February 2012) being contained in Commission Regulation (EC) No. 318/2008. Other relevant provisions adopted at CoPs (e.g. Resolutions) have meant that Commission Regulation (EC) No. 939/97 has been replaced twice, most recently in 2006 with Commission Regulation (EC) No. 856/2006 laying down detailed rules concerning the implementation of Council Regulation (EC) No. 338/97. In 2008, the latter regulation was amended by Commission Regulation (EC) No. 100/2008 amending, as regards sample collections and certain formalities relating to

the trade in species of wild fauna and flora, Regulation (EC) No. 865/2006 laying down detailed rules for the implementation of Council Regulation (EC) No. 338/97.

The Council Regulation and Commission Regulation govern internal and international trade, and provide additional provisions for the import, export and re-export of specimens listed in Annexes A, B, C, and D of the regulations (see section 4.2.1). The Annexes correspond to the CITES Appendices, although they may provide stricter provisions than the CITES Appendices and may also include non-CITES-listed species. For consistency, any species listed on Annex IV of the EU's Habitat Directive²² (Council Directive 92/43/EEC) that are also listed on any of the CITES Appendices are automatically listed in Annex A of Council Regulation (EC) No. 338/97 (C. O'Criodain, WWF International, *in litt.* to T. Shadbolt, December 15, 2008). Although the regulations are applicable to all EU member countries, national legislation supplemented by administrative measures are required in order to set up the requisite MAs and SAs and to provide for criminal sanctions against a range of specific breaches of the regulations (European Commission and TRAFFIC Europe, 2008).

4.2.1 Regulation Annexes

Annex A

Annex A includes all CITES Appendix I species. In addition, species that are or may be in international or community demand which are considered threatened with extinction, or are thought to be so rare that trade would imperil their survival in the wild, may also be listed in Annex A. This may include those species in CITES Appendix II or III, or other species not listed by CITES, especially if they are protected by other EU

²² In 1992, the EU Habitats Directive [Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora] was introduced, which prohibited the commercial use of a species listed in its Annex IV (C. O'Criodain, WWF International, *in litt.* to T. Shadbolt, December 15, 2008).

legislation. A species that does not qualify for listing in Annex A on conservation grounds can still be listed if most of the species in the same genus are already listed in Annex A, and its listing is essential for the effective protection of the previously listed species²³.

Commercial trade of Annex A wild species to, from and within the EU is prohibited and trade in the species is regulated by provisions comparable to CITES Appendix I. Some provisions allow for trade in Annex A species, but they require issuance of import permits, export permits and re-export certificates (European Commission and TRAFFIC Europe, 2008).

Annex B

Annex B includes all CITES Appendix II species that are not already listed in Annex A. It can also include any CITES Appendix I species that are subject to an EU member states' reservation²⁴, should that arise (it has not arisen to date), and any CITES Appendix III and non-CITES species which are traded internationally at levels that, if unregulated, could affect the survival of the species or the survival of populations in certain countries. Species may be listed in Annex B if they do not qualify for Annex A or B for conservation reasons, but for which trade controls are necessary. Trade of Annex B species into and out of the EU is regulated by provisions comparable to CITES Appendix II (requiring export permits and re-export certificates), but these provisions go further in that import permits are required for import into the EU that can only be issued when it has been established that the import would not have a detrimental effect on the survival of the species or the extent of territory occupied by the relevant population (European Commission and TRAFFIC Europe, 2008).

Annex C

Annex C includes all CITES Appendix III species that are not already listed in Annex A or B, and can include any CITES Appendix II species that are subject to an EU member state's reservation (there were none as of February 2012). Trade of Annex C species into and out of the EU is regulated through the issuance of export permits, re-export certificates and, for the case of import, import notifications²⁵ (European Commission and TRAFFIC Europe, 2008). These requirements are stricter than CITES, which does not require any import documentation for trade in Appendix III species.

Annex D

Annex D includes CITES Appendix III species that are subject to EU member states' reservations. However, Annex D mainly includes non-CITES species that are not already listed in Annex A, B or C, and which are imported into the EU in numbers that are thought to warrant monitoring. Trade of Annex D species into the EU is regulated through a requirement for import notifications (European Commission and TRAFFIC Europe, 2008).

4.2.2 Exceptions for personal and household effects

Council Regulation (EC) No. 338/9 provides less strict permit requirements for trade in specimens of species on its Annexes that are considered personal and household effects²⁶ (European Commission and TRAFFIC Europe, 2008). However, this only applies to specimens made of dead animals or plants that are:

²³ For example, if a non-threatened species resembles another threatened species such that it is unlikely to be able to distinguish between them.

²⁴ The member states have to agree to the reservation.

²⁵ An import notification does not require any prior permission from the MA; it is simply a form that must be completed by the importer before the specimen clears customs.

²⁶ Exceptions are referred to as derogations in EU legislation.

- contained in the personal luggage of travellers, or carried on the person;
- in the personal property of a person transferring her or his normal place of residence to or from the EU (house removal containers can be transported separately from the importer);
- hunting trophies imported for non-commercial purposes.
- live animals and plants;
- specimens made of dead animals or plants that are to be given away as a gift, or used for commercial purposes.

Tourist souvenirs made of dead specimens listed in the Annexes fall within the scope of the definition for personal and household effects (European Commission and TRAFFIC Europe, 2008).

For EU residents, an import and export permit is required for trade in such specimens listed in Annex A. Trade in such specimens listed in Annex B requires an export permit issued by a third country, or an import permit if the third country does not issue such permits (European Commission and TRAFFIC Europe, 2008). For non-EU residents, an import permit is not required for trade in specimens listed in Annexes A and B as long as they are not used for commercial purposes or to be given away as gifts, and are contained in the personal luggage of the traveller. However, an export permit may be required if the national legislation of the country where the person resides requires such permits (European Commission and TRAFFIC Europe, 2008).

Items that are not considered personal and household effects are (European Commission and TRAFFIC Europe, 2008) are as follows:

- goods purchased over the Internet, by phone or by mail, even if for personal use;

4.2.3 SRG opinions on imports

The introduction of *Council Regulation (EC) No. 338/97* provided the EU with the legal authority to suspend imports of certain species from certain countries into the EU. The EU established a Scientific Review Group (SRG) to examine all scientific questions related to the application of the EU WTR. The SRG can form opinions regarding the imports of a particular species from a particular country of origin and whether they comply with the regulations. Opinions are often formed when the CITES SA of one or more member states concludes that the import would have a detrimental effect on the survival of the species or the extent of territory occupied by the relevant population, in which case the relevant CITES SA consults the European Commission, which consults the SRG²⁷. A case can also be examined directly by the SRG if the European Commission considers it warranted (European Commission and TRAFFIC Europe, 2008).

If the SRG feels that the import would not have a detrimental effect on the survival of the species or the extent of territory occupied by the relevant population, a “negative opinion” is formed. This requires all EU member states to reject all import permit applications for the species or country of concern until the negative opinion is removed. The European Commission consults with the range States affected and the negative opinion may be lifted if the SRG is satisfied with the

²⁷ If the SA concludes that there will be no detrimental effect – and assuming that the species is not already subject to a negative opinion or is not one of the small number of cases where the SRG has agreed that any applications should be subject to prior consideration by the SRG – then an import permit can be issued and trade will proceed. In other words, the default position is that an import permit is issued unless negative concerns are flagged.

range States' response. If it is not satisfied or if no reply is received, the European Commission can impose a formal import suspension. The so-called Suspensions Regulations, which list the import suspensions, are published in the EU Official Journal once or twice each year (European Commission and TRAFFIC Europe, 2008). If the SRG feels that trade will not have a harmful effect on the conservation of the species a "positive opinion" may be formed, and the trade is allowed. A "no opinion" may also be formed if the SRG concludes that trade levels were insignificant and likely to remain that way. In the case of a "no opinion", should trade subsequently arise, the decision regarding whether such trade is sustainable is made in the first instance by the SA of the member state in question in the normal way (European Commission and TRAFFIC Europe, 2008; European Commission, 2009).

4.2.4 EU regulations for polar bears

In 1984, trade in polar bears was regulated in the EU when the species was listed on Annex C2²⁸ under *Council Regulation (EEC) No. 3626/82*. When the regulation was replaced in 1997, the polar bear was listed on Annex B under *Council Regulation (EC) Reg. No. 338/97* (UNEP-WCMC, 2008), so trade in the species requires import permits, export permits and re-export certificates.

On December 2, 2008, the SRG formed a negative opinion on the import of polar bears from two Canadian management units: Baffin Bay and Kane Basin (UNEP-WCMC, 2008; European Commission, 2009). As a result, the EU member states must reject all import applications for polar bears from these two regions. However, as long as Canada issues export

permits, items classified as personal and household effects are not affected and can be imported into EU member states (C. O'Criodain, WWF International, *in litt.* to T. Shadbolt, January 30, 2009).

4.3 Polar Bear range State regulations and restrictions on trade

In addition to CITES documentation, as stipulated in the *Agreement on the conservation of polar bears*, any item of value from a polar bear killed for conservation purposes²⁹ or defensive purposes cannot be made available for commercial purposes (Anon., 1973a). However, enforcement of this stipulation is unclear for all range States. Although some jurisdictions may have some mechanisms that track these items of value and ensure they are not used for commercial purposes, a national or circum-Arctic system does not currently exist.

Canada does not have restrictions on the possession or sale of polar bear items within the country, provided the item was acquired legally. The possession and/or sale of bear gallbladders and paws is regulated by provincial and territorial legislation, although regulations are primarily directed toward restricting the trade in black bear, *Ursus americanus* and grizzly bear, *Ursus arctos* parts. A negative NDF for the Baffin Bay management unit is currently in effect (see above section 4.1.6).

Greenland does have regulations for trade of polar bears within its borders. Parts cannot be sold unless the municipality or village office has registered the harvest and stamped the licence (Anon., 2005a). The sale or purchase of parts cannot take place until the licence holder has endorsed a copy of this licence. The copy shall also state that the catch was registered with the

²⁸ Annex C2 of the previous EU WTR (Council Regulation (EEC) Reg. No. 3626/82) included both CITES Appendix II and III species. Annex C2 was equivalent to the current EU WTR (Council Regulation (EC) Reg. No. 338/97) Annexes B and C.

²⁹ The term "conservation purposes" is not defined in the agreement. This interpretation of this among various jurisdictions may differ slightly; however, it generally refers to the potential lethal removal of animals as a management response to social and ecological carrying capacity.



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municipal authority. If the municipal office is closed, selling may occur if registration of the harvest and sale takes place immediately after the office is open. Any resale or purchasing of parts should also be accompanied with a copy of a signed and stamped licence. The purchase of or receiving polar bear parts that were hunted illegally is prohibited. The export of polar bear gallbladders or derivatives is prohibited (Anon., 2005a). A negative NDF for all polar bears in Greenland is currently in effect (see above section 4.1.6).

The United States permits the trade of some polar bear parts. Items from the subsistence harvest can be sold to non-Alaskan Natives (non-indigenous people) provided they are first fashioned into authentic Native handicrafts. To be considered Native handicrafts, items must be significantly altered from their raw appearance and cannot be fashioned using pantographs, multiple carvers or other mass copying devices. Examples of traditional handicrafts include weaving, carving, sewing, stitching, lacing, beading, drawing, etc. (Anon., 1972). Raw (tanned or un-tanned) skins are not considered Native handicrafts and cannot be sold, traded or even given to non-Natives as a gift. However, items composed of a significantly altered skin that is either decorated, produced or fashioned in the exercise of traditional handicrafts could be considered Native handicrafts (USFWS, 2001). The meat and other edible parts of a polar bear may only be sold to an Alaska Native or sold within an Alaska Native vil-

lage (Anon., 1972). However, gallbladders or gall bile cannot be imported, exported, purchased, sold, exchanged, bartered or offered for these purposes. The United States cannot export polar bears, its parts or derivatives for commercial purposes, unless the item is approved as a pre-act specimen or is an authentic Native handicraft (Anon., 1972). Polar bears and their derivatives can only be imported with issuance of permits under specific circumstances (e.g. pre-act specimen, to enhance the survival or recovery of the species or stock, and for scientific purposes).

Norway and Russia have prohibited the hunting of polar bears since 1973 and 1956 respectively. Although polar bears are killed in self-defence, according to article III(2) of the *Agreement on the Conservation of Polar Bears*, during such an event, the skins and other items of value cannot be made available for commercial purposes. Therefore, the only legal non-scientific trade occurring in Norway or Russia would be from parts of polar bear imported into the country from other range States.



POLAR BEAR TRADE

Aside from cultural and spiritual importance, the primary human use of polar bears is for subsistence. The meat is consumed and the skins are used in the making of handicrafts and clothing (e.g. fur pants, mittens, boots or mukluks, fur ruffs for parkas) and traded as raw skins or mounted rugs (Anon., 2009b; Schliebe et al., 2006).

5.1 Domestic trade in polar bear parts and derivatives

Canada

In Canada, there is trade in skins, skulls, specimens (for scientific purposes), bones³⁰, pieces of fur for fishing lures and some claws and handicrafts (UNEP-WCMC CITES Trade Database). Over the past few years, demand for Canadian skins appears to have

grown, with high-quality skins going to Russia, China and other countries (CBC News, 2011a). In Canada, polar bear skins are kept as trophies, kept for personal use or sold on the open market (R. Cahill, Fur Institute of Canada, pers. comm., to T. Shadbolt, February 23, 2009). The amount kept as trophies or sold on open market varies depending on trophy-hunting opportunities and market prices for skins. Most skins traded are from Nunavut, the Northwest Territories, the Yukon Territory and Québec where the meat from

³⁰ In Canada, the term "bone" is applied to the baculum (penis bone) of a male bear (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, April 5, 2010).

the bear stays in the community but the raw skin is auctioned. However, some raw skins are sent to taxidermists and mounted as rugs. The majority of auctioned raw skins are exported out of Canada, while those purchased by Canadian buyers are typically already mounted as rugs. Within Canada, only two auction houses routinely deal with polar bear skins: Fur Harvesters Auction in North Bay, Ontario and North American Fur Auctions, Toronto, Ontario. Polar bear fur is too coarse and thick to be fashioned into commercial garments (R. Cahill, Fur Institute of Canada, pers. comm., to T. Shadbolt, February 23, 2009). Polar bear skins of poor quality are often sold as skin pieces, with the hairs used for handicrafts and fly fishing lures.

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Photo Caption: Fishing Lure

Many lures can be made from a small piece of fur. Since the hairs are hollow like an optical fibre, it creates a reflective/refractive effect producing different colors (e.g. a pink hue). A patch of polar bear fur as small as two inches squared can make many fishing lures.

Greenland

In Greenland, skins are used for traditional clothing or they are traded (prior to the export ban they were also exported). The value of other items from the hunt (e.g. claws, teeth, skull, bones, etc.) varies and depends on the items or the type of handicraft into which they are made. Trade in parts other than skins is not considered to be the primary incentive of the hunt. However, the total derived income from selling various handicrafts could influence the harvest of polar bears (Grønlands Naturinstitut, 2007).

Norway

There is no legal domestic trade of polar bears in Norway, and the authors found no evidence of illegal trade activities.

Russia

Polar bear skins are valued as wall hangings and covers in Russia and other Commonwealth of Independent States countries (Vaisman *et al.*, 2006; 2009). They are considered a prestige object and status symbol among certain population groups such as the “nouveaux riches” (Vaisman *et al.*, 2006; 2009). Since 2003, WWF-Russia has investigated the illegal sale of polar bear skins on the Russian-language Internet. Their findings confirm that a market for skins exists in Russia and that their value is increasing (WWF-Russia, 2008). According to the information gathered, the advertised prices of skins have risen over recent years (USD2,487 in 2003; USD4,487 in 2005; and USD5,250 in 2007). During April 2007 and March 2008, online bids for polar bear skins ranged from USD2,000 to USD12,245. WWF-Russia found over 30 advertisements for the sale of skins during that period of time, with skins offered in various regions of Russia and the Ukraine (WWF-Russia, 2008).

It is important to note that although skins have been advertised on the Internet, these items may not have been acquired from poached polar bears (e.g. skins could have been imported from Canada). Conversely, a decline in the volume of advertisements for skins does not necessarily indicate a decrease in poaching. As noted previously, Canadian polar bear skins are sought after in the Russian market, especially higher-grade skins. There is some concern that imported Canadian polar bear parts and derivatives could be used to launder a poached bear from Russia. Despite the concerns expressed about possible illegal hunting and trade in Russia, the authors could find only two recorded criminal cases of illegal hunting (see section 3.4.4).

United States

In the United States, trade consists of handicrafts (e.g. claw necklaces), and/or pre-act³¹ skins only, as trade in skins or rugs to non-Natives is not permitted under United States law. However, the fur can be used to make Native handicrafts such as clothing or handicrafts with fur trim (USFWS, 2001). Non-commercial export of Native handicrafts and trade for cultural exchange purposes also occurs.

5.2 Sources of international trade data

Trade data from CITES annual reports are entered into the CITES Trade Database, which holds over 10 million records of trade in CITES-listed species. Approximately 700,000 records of trade in these species are reported annually and entered into the CITES Trade Database, which can be queried online. The United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC) manages the CITES Trade Database on behalf of the CITES Secretariat (UNEP-WCMC, 2010).

The data are displayed as either a comparative tabulations report, or a gross/net trade report. Both reports provide the wildlife term (type of item), the quantity traded and the species name. The comparative tabulation provides a report with more detailed information (including country of import and export, country of origin, CITES Appendix listing, source of trade, purpose of trade and unit of trade), and as such it allows for a more specified analysis of data. For instance, it can be used to determine the accuracy of reporting through comparison of data on country of import, export and origin, which can be very useful for assessing compliance with national or international trade controls. In contrast, the gross/net trade report is less detailed because it only provides the quantity of items, the species chosen, the wildlife term and country of either import or export. The gross/net trade report can be used to determine the volume of trade in a particular species or by a particular country where information on purpose or source is not required. However, the gross/net trade reports often overestimate the volume of trade because if the quantities reported differ between import country and export country, the higher value is automatically selected (UNEP-WCMC, 2010).

Illegal trade data are very difficult to obtain. The United States Law Enforcement Management Information System (LEMIS) and European Union Trade in Wildlife Information eXchange (EU-TWIX) record information on seizures and/or illegal trade, but are focused on trade to and/or from the United States or within the EU. For example, LEMIS or EU-TWIX data would not show seizures or illegal trade between Canada and a non-EU/non-US country. Although the CITES Trade Database provides some information on seizures, only a limited number of cases of illegal trade are uncovered and not all are reported.

³¹ Pre-act specimens are any marine mammals taken prior to December 21, 1972—the date that the United States MMPA came into effect (Section 102(e) of the MMPA of 1972).



Accuracy of CITES trade data

Data recorded in the UNEP-WCMC CITES Trade Database are compiled from information provided in the Parties' annual reports; therefore, the accuracy of the data depends completely on the quality of the reporting by the CITES Parties. Unfortunately, the annual reports by some Parties do not always provide accurate and precise data, and reporting of data is not always consistent *between* Parties. When considering CITES trade data, the following caveats should be considered.

- **Export data are not always accurate.** Export data may not represent the actual number of items exported since some Parties report data from permits *issued*, not from permits *used*. Although CITES recommends that annual reports provide the actual number of items exported based on permits used, some Parties instead report the numbers of items that were listed on issued permits or certificates. Unfortunately, the number of items approved for export in a CITES export permit may not be the same as the number of items actually shipped (i.e. exporters may export fewer items than approved on permits). The United States was the only polar bear range State that reported based on the permits used for
- **Import data are not consistent.** Import data are not always reported in annual reports, which makes it difficult to compare CITES import and export data. Some items may have not been reported by the importing country, or they may have been imported in a different calendar year than export permit was issued (e.g. the export permit could be issued in November, but the goods not shipped until the following January).
- **Inconsistent terminology.** The importing country and exporting country may report the same items using different terminology (e.g. purpose of trade, units of measurement, etc.), which means that data may not correlate between countries (J.



Caldwell, CITES Trade Database Manager, *in litt.* to T. Shadbolt, March 9, 2009; UNEP-WCMC, 2010). For example, Canada records head mounts using the “trophies” code, while the United States uses this code for hunting trophies, which can be skins, rugs, mounts, etc. A permit for one sport-hunted bear can include a number of separate items from one hunted bear (e.g. a skin, skull and baculum) (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, April 5, 2010).

- **Inconsistent use of purpose codes, items descriptions, and units of measurement.** Transaction codes (e.g. purpose of export) are important for monitoring trade in CITES-listed species because they help determine the nature of the trade. They also allow CITES Parties to monitor the volume of non-commercial and commercial trade. Since the purposes of transaction codes are not adequately defined, they are open to interpretation and not used consistently by the various CITES Parties. For instance, a sport hunter might obtain a CITES permit for a skin but indicate that the item was personal in nature, which may have been confused with “personal” purposes, rather than “hunting trophy” purposes. It could also be that a sport hunter sends the skin to a taxider-

mist, and if the mounted skin was then mailed or shipped by that taxidermist, the CITES permits may have been issued for commercial trade instead of for hunting trophies.

- **CITES trade data are not comparable to harvest data.** Harvest statistics are compiled based on management seasons (which may overlap between two calendar years), while the CITES trade data are compiled based on a calendar year. Plus, the export/import of an animal product may occur years after the animal was actually hunted.
- **Unknown source of items (from live or dead animals).** While some items in trade clearly require the death of an animal (e.g. the skin or skull), some items (such as specimens, teeth, hair) could have been sourced from a live bear in the wild or a dead bear. For example, in many cases teeth in trade (for scientific purposes) have been removed from sedated wild bears that were subsequently released alive. This is important information when considering the impact of trade on conservation of a species.
- **Inconsistent reporting of seizure data.** Seizure data are not always reported, or are reported with insufficient detail and do not indicate why an item was seized.

5.3 Analysis of international trade data

The international trade in polar bear parts and derivatives involves a variety of commodities (e.g. specimens, claws, carvings, skulls, skins). This makes determining the impact of trade on the species very difficult because it is impossible to determine the number of harvested polar bears represented in the trade (e.g. 10 claws could have been taken from as few as one or as many as 10 bears). When examining the data, considering both the commodities in trade and the purpose of export for these commodities was important. For instance, 5,500 polar bear items in trade could be interpreted as significant based on the quantity. However, if 5,400 of those items consisted of specimens, such as blood and tissue taken from live polar bears, and only 100 of the items were skins, the conservation impact of this trade would be consid-

ered to be low. Conversely, if 5,400 of those items were skins and only 100 of the items were specimens, the impact would be much more significant. This is similar to comparing the purpose of export since many commodities are used for specific purposes (e.g. the majority of specimens, teeth and hair are for scientific purposes, while skins and skin pieces are primarily for commercial trade). For instance, all commercial trade items and all scientific trade items are not comparable against one another as the items comprise of different commodities. It is, however, possible to compare purpose codes using the same commodity types (e.g. teeth for scientific purposes vs. teeth for commercial purposes). It is important to note that trends in the numbers and/or types of commodities in trade do not necessarily reflect harvest levels; rather the trends appear to be more closely linked to import/export regulations and possibly consumer demand.



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5.3.1 Trends in commodities, 1987 to 2009

According to the UNEP-WCMC CITES Trade Database, approximately 32,033 polar bear parts and/or derivatives were reported in the export data from 1987 to 2009. The types of commodities reported are summarized in Table 5.1.

It is possible to see trends in the commodities traded over the years and how they influenced the overall trade (Figures 5.1, 5.6 and 5.7). The data show increases (peaks) in the quantity of items recorded in 1989, 1993, 1997 and 1999 and a general increasing trend from 2002 to 2006. The increases were influenced by specific commodities traded:

- 1989—increased numbers of specimens and bones;
- 1993—increased numbers of skin parts;
- 1997—increased numbers of hair, skin parts, specimens and full skins;
- 1999—increased numbers of claws, specimens, teeth, and full skins;
- 2002—increased numbers of claws, teeth, specimens and other items (carvings);
- 2003—increased numbers of claws, teeth, other items (carvings), skin parts and full skins;
- 2004—increased numbers of claws, skin parts and other items (carvings);
- 2005—increased numbers of other items (carvings) and full skins;
- 2006—increased numbers of and other items (carvings), specimens, claws and full skins.

The quantity of items recorded decreased from 2007 to 2009, to a level more comparable to the trade in 2002. The decreases (troughs) in the export data during 2007 were likely influenced by the missing Greenland export data. There was also a reduction in the quan-



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tity of skin parts from Canada. The decrease from 2008 to 2009 was likely influenced by the temporary Greenland export ban, which prohibited the export of tourist souvenirs (e.g. claws and carvings). There was also a decrease in the quantity of skin pieces and hair in 2008 and skin parts and specimens in 2009.

Given the inconsistent use of terms in the CITES Trade Database, the authors grouped similar and related commodities together for greater clarity in analysis. These groups are defined in the following:

- **full skins:** includes skins and bodies;
- **skin parts:** includes skin pieces, leather products, hand bags, hair products, garments, plates, and leather items
- **other items:** trophies, carvings, bones, bone pieces and skeletons, feet, gallbladders, genitalia, tusks, and unspecified items.

Table 5.1

Polar bear commodities reported in export data, 1987 to 2009

YEAR	POLAR BEAR COMMODITIES								TOTAL
	FULL SKINS	SPECIMENS	CLAWS	SKIN PARTS	TEETH	HAIR	SKULLS	OTHER ITEMS	
1987	426	-	24	19	9	-	16	8	502
1988	452	-	-	2	-	129	35	16	634
1989	482	571	15	19	24	-	31	222	1,364
1990	594	196	35	9	74	-	59	28 (2)	995 (2)
1991	351 (2)	36	32	12	105	-	59	35	630 (2)
1992	264 (1)	1	36	33	65	-	39	21	459 (2)
1993	351	195	28	740	35	-	65	25	1,439
1994	211 (3)	412	57	13	67	-	38	19	817 (3)
1995	289 (2)	200	108	15	84	-	44	11 (6)	751
1996	334	272	51	8	-	-	32	21	718
1997	499 (1)	702	51	355	163	438	140 (1)	20	2,368 (2)
1998	375 (1)	182	19	19	4	2	94	14	709 (1)
1999	463	279	261	37	160	-	139	28	1,367
2000	261 (1)	150	230	74	106	-	101	56 (1)	978 (2)
2001	229	70	163	9	240	-	114	100 (1)	925 (1)
2002	280	150	466	24	424	-	124	171	1,639
2003	318	162	384	442	507	-	120	189	2,122
2004	363 (3)	48	753	306	141	-	156	401	2,168 (3)
2005	381 (2)	144	558	306	55	-	143	408	1,995 (2)
2006	358 (1)	1,715	367	212	20	314	132	334	3,452 (1)
2007	317 (1)	1,103	4	-	72	606	385	119	2,606 (1)
2008	306	875	49	5	88	-	116	346	1,785
2009	323	180	22	10	19	925	97	34	1610
TOTAL Items	8,227 (18)	7,643	3,713	2,669	2,462	2,414	2,279 (1)	2,626 (10)	32,033 (29)

Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

Note: Numbers in parentheses represent the proportion of items recorded as pre-Convention items. There were 2,919 items recorded as unknown, or the source was not recorded. The majority of these items (n=1,553) were skins from 1987 to 1990 and specimens (n=731) from 1989 to 1990. The source information for most reports prior to 1991 was not recorded. Some of the items were also sourced from polar bears born or bred in captivity: 70 specimens in 1996 and 438 hairs in 1997.

Items that could represent an individual polar bear

It is reasonable to assume that a full skin or a skull can be sourced from the same bear or from two different bears. As such, a full skin and a skull should not be analyzed together as representing one bear, but it is possible to look at these commodities separately as they can provide an estimate of a minimum number of polar bears represented in trade. Since the bear must be dead for a skin or skull to be traded, this can also provide insight to the potential impact of trade on the conservation of the species. The purpose of export and the destination countries can also provide insight on the dynamics of the trade (e.g. purpose of trade, where is market is located). Full skins and skulls appear to be more influenced by the trade for personal, hunting trophies and commercial trade, rather than other purposes such as scientific trade.

Full skins (skins and bodies) account for 8,227 of the items reported. Figure 5.1 illustrates increases (peaks) in the quantity recorded in 1990, 1993, 1997 and 1999.

The increase in 1990 was for commercial purposes and the increase in 1993 was for scientific purposes (approximately 47 Greenland skins to Denmark). The increases in 1997 and 1999 were for commercial purposes and hunting trophies which correlate with changes to the US MMPA. The amendments to the US MMPA in 1994 (H.R. 1871) allowed importation of polar bear to the United States from five management units in Canada. However, the final rule was not enacted until 1997. This allowed grandfathered trophies (trophies acquired prior to 1994 that hunters had stored in Canada) to be imported into the United States (Aars *et al.*, 2006b; US Federal Register, 1997). In 1999, imports of polar bear trophies into the United States were approved for two additional management units (Aars *et al.*, 2006b; US Federal Register, 1999).

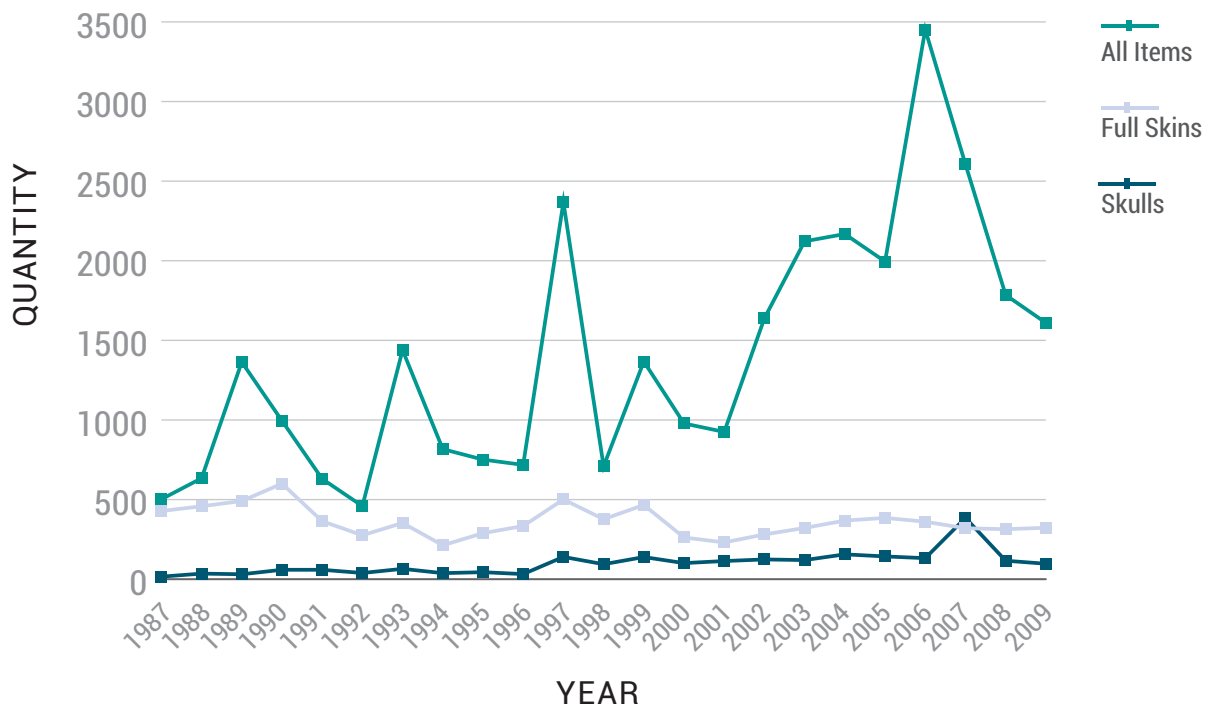
From 2005 to 2009, trade in full skins was relatively stable with a gentle decline observed until 2009, when the quantity of skins increased by a small amount (n=9 skins). However, the purpose of export fluctuated (Table 5.2 and Figure 5.2). An increase in exports for hunting trophies was observed in 2007; as mentioned,



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Figure 5.1

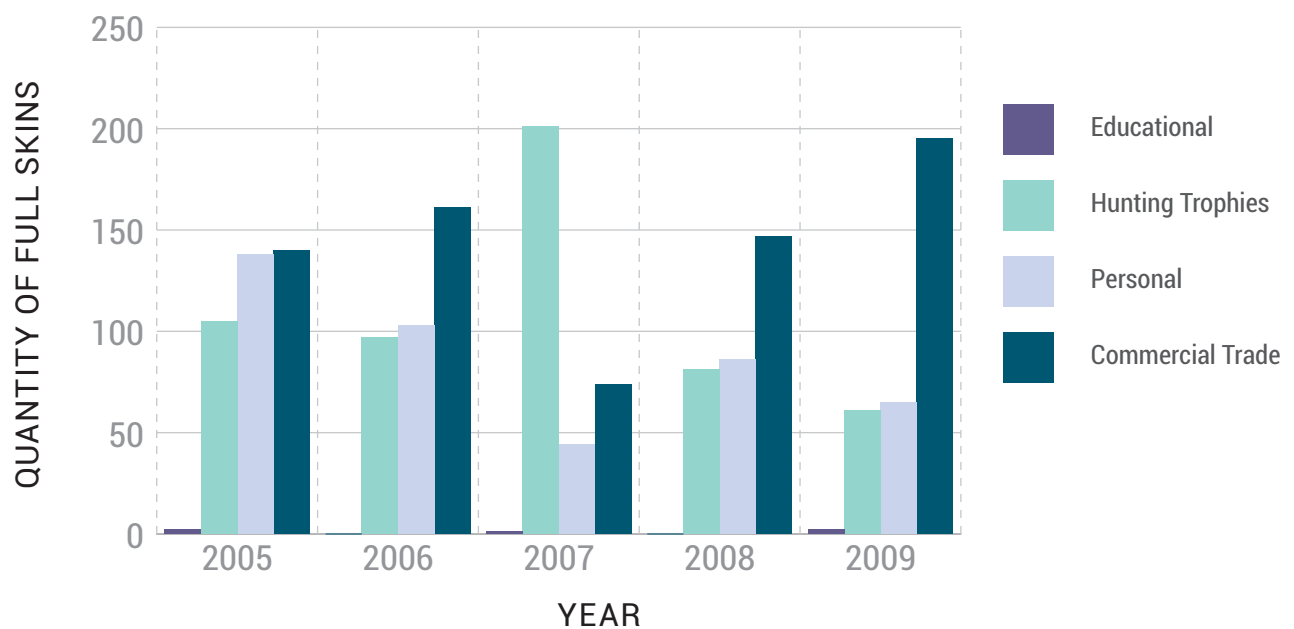
Trends in reported export of full skins and skulls



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

Figure 5.2

Purpose of export for full skins, per year, 2005 to 2009



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

Table 5.2

Polar bear full skins and purpose of export, per year, 2005 to 2009

COUNTRY OF EXPORT (PURPOSE OF EXPORT)	YEAR					TOTAL
	2005	2006	2007	2008	2009	
Canada	266 (2)	294 (1)	315	278	299	1,452 (3)
Educational	-	-	-	-	2	2
Hunting trophies	105	97	201	78	61	542
Personal	67 (2)	49 (1)	43	59	41	259 (3)
Commercial trade	94	148	71	141	195	649
Greenland¹	111	62	0	25	23	221
Personal	66	53	-	21	23	163
Commercial trade	45	9	-	4	-	58
Norway	4	2	2 (1)	3	1	12 (1)
Educational	1	-	1	-	-	2
Personal	3	1	1 (1)	3	1	9 (1)
Commercial trade	-	1	-	-	-	1
TOTAL	381 (2)	358 (1)	317 (1)	306	323	1,685 (4)
Educational	1	0	1	0	2	4
Hunting trophies	105	97	201	78	61	542
Personal	136 (2)	103 (1)	44 (1)	83	65	431 (4)
Commercial trade	139	158	71	145	195	708

Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

Note: Numbers in parentheses represent the proportion of items recorded as pre-Convention items.

1. Some country codes in the UNEP-WCMC CITES Trade Database refer to political entities that issue permits, but are not actually sovereign nations (e.g. Hong Kong or Greenland).

that year the polar bear was proposed for listing under the US ESA, and sport hunters may have been rushing to export their already harvested bear trophies into the United States before the listing came into effect. Normally there is a lag time of six to eight months between the date of harvest and date of export for sport hunting trophies which were prepared by taxidermists (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, Aug 16, 2012). The data show decreases in the quantity of items recorded in 2008 and 2009; the same time the US ESA designated polar bears as threatened. There was a decline in exports for commercial trade in 2007 and an increase in 2008 and 2009. This increase may have

been a response to depressed sport hunting opportunities following the US listing decision, where Aboriginal hunters may have sold skins in order to offset the loss of income from sport hunting. Although the purpose of export changed, the quantity of skins exported did not change drastically from 2005 to 2009.

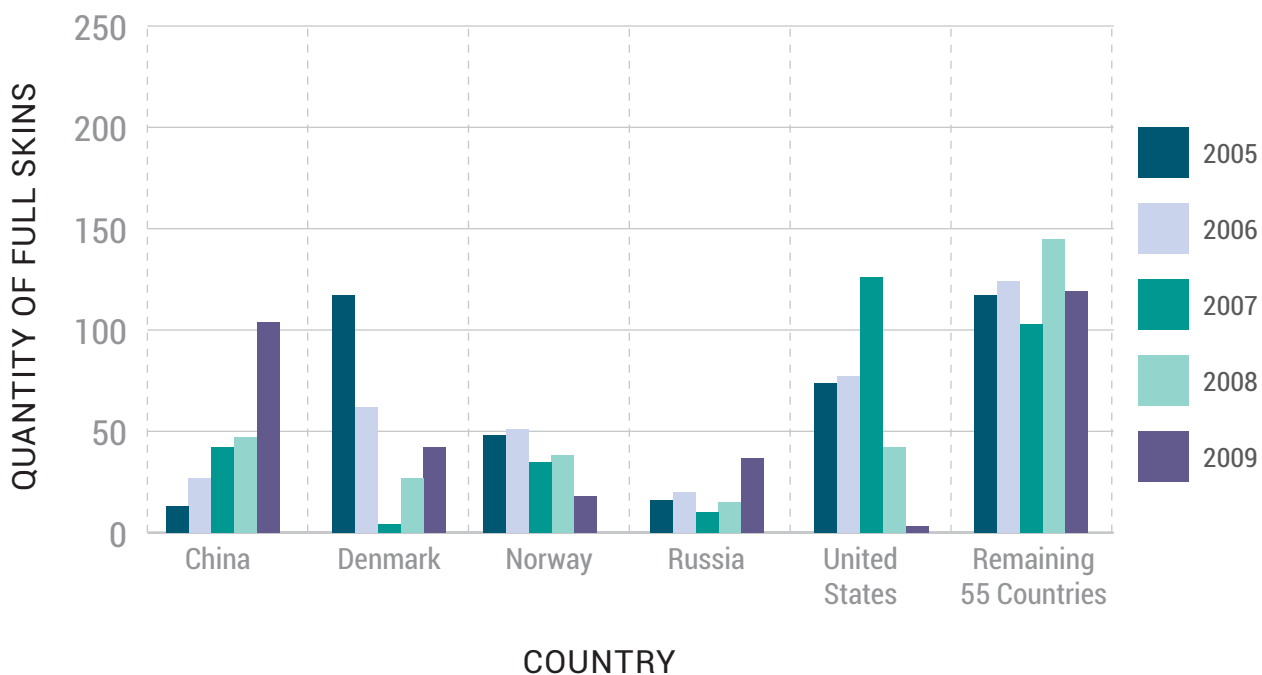
According to the available data, full skins were exported more frequently than skulls, which is likely tied to higher demand for fur rugs as opposed to bone trophies. Therefore, the export levels for full skins provide a better estimate for the number of polar bears represented in international trade. Based on this

data, on average 341 polar bears were represented in international trade per year. However, as there is no direct link between harvest and trade data, some of these skins could have been from polar bears killed in previous years (e.g. killed in 1990 and traded in 2006). Furthermore, these data do not record the year the bear was killed, only the year it was traded.

numbers exported to the United States in 2007 may have been in anticipation of the ESA listing (import of sport hunting trophies into the United States was eliminated), while the declines in 2008 and 2009 were probably a result of the ESA listing coming into effect. Fifty-five countries made up the rest of the trade in full skins, which was relatively stable.

The quantity of skins exported to key destination countries fluctuated from 2005 to 2009 (Table 5.3 and Figure 5.3). The number of skins exported to China and Russia increased (the majority of which were from Canadian polar bears) primarily for commercial trade; however, the number of skins exported to Norway decreased. The significant reduction in numbers of skins exported to Denmark in 2007 was likely due to the missing trade data for Greenland. The increased

Figure 5.3 Key destination countries for full skins according to export data, per year, 2005 to 2009



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

Table 5.3 Key destination countries for full skins and their purpose of export, per year, 2005 to 2009

DESTINATION COUNTRY (PURPOSE OF EXPORT)	YEAR					TOTAL
	2005	2006	2007	2008	2009	
China	10	27	42	46	104	229
Hunting trophies	-	-	2	1	-	3
Personal	9	2	6	9	12	38
Commercial trade	1	25	34	36	92	188
Denmark	117	62	4	27	42	252
Personal	54	42	4	16	22	138
Commercial trade	63	20		11	20	114
Norway	48	51	35	38	18	190
Hunting trophies	9	1	27	1	1	39
Personal	10	3	5	13	3	34
Commercial trade	29	47	3	24	14	117
Russia	16	20	10	15	37	98
Hunting trophies	3	1	5	3	12	24
Personal	6	4	-	3	4	17
Commercial trade	7	15	5	9	21	57
United States	74 (1)	77	126 (1)	42	3	322 (2)
Hunting trophies	64	66	115	39	2	286
Personal	3 (1)	7	11 (1)	3	-	24 (2)
Commercial trade	7	4	-	-	1	12
Remaining 55 countries¹	114 (1)	123 (1)	100	138	119	414 (2)
Educational	1	-	1	-	2	4
Hunting trophies	29	29	52	34	46	190(2)
Personal	54 (1)	45 (1)	18	39	24	-
Commercial trade	30	49	29	65	47	220
TOTAL	379 (2)	360 (1)	317 (1)	306	323	1,685(4)
Educational	1	-	1	-	2	4
Hunting trophies	105	97	201	78	61	542
Personal	136 (2)	103 (1)	44 (1)	83	65	431 (4)
Commercial trade	137	160	71	145	195	708

Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

Note: Numbers in parentheses represent the proportion of items recorded as pre-Convention items.

1. Some country codes in the UNEP-WCMC CITES Trade Database refer to political entities that issue permits, but are not actually sovereign nations (e.g. Hong Kong or Greenland).

Skulls account for 2,279 of the items reported from 1987 to 2009. Figure 5.1 illustrates increases (peaks) in the quantity recorded in 1997, 1999 and 2007. The increases in 1997 and 1999 were mostly for hunting trophies, likely influenced by changes to the US MMPA.

From 2005 to 2009, the quantity of skulls fluctuated, decreasing in 2006, increasing in 2007 and decreasing again in 2008 and 2009. The purpose of export also fluctuated, but for the most part the purpose was hunting trophies, with the exception of the large export of skulls in 2007 from Norway for scientific purposes (Table 5.4 and Figures 5.4). In 2007, the data show an increase in the quantity of items for hunting trophies, the same year the polar bear was proposed for listing under the US ESA. The data show a decrease in the quantity of items in 2008 and 2009, the same

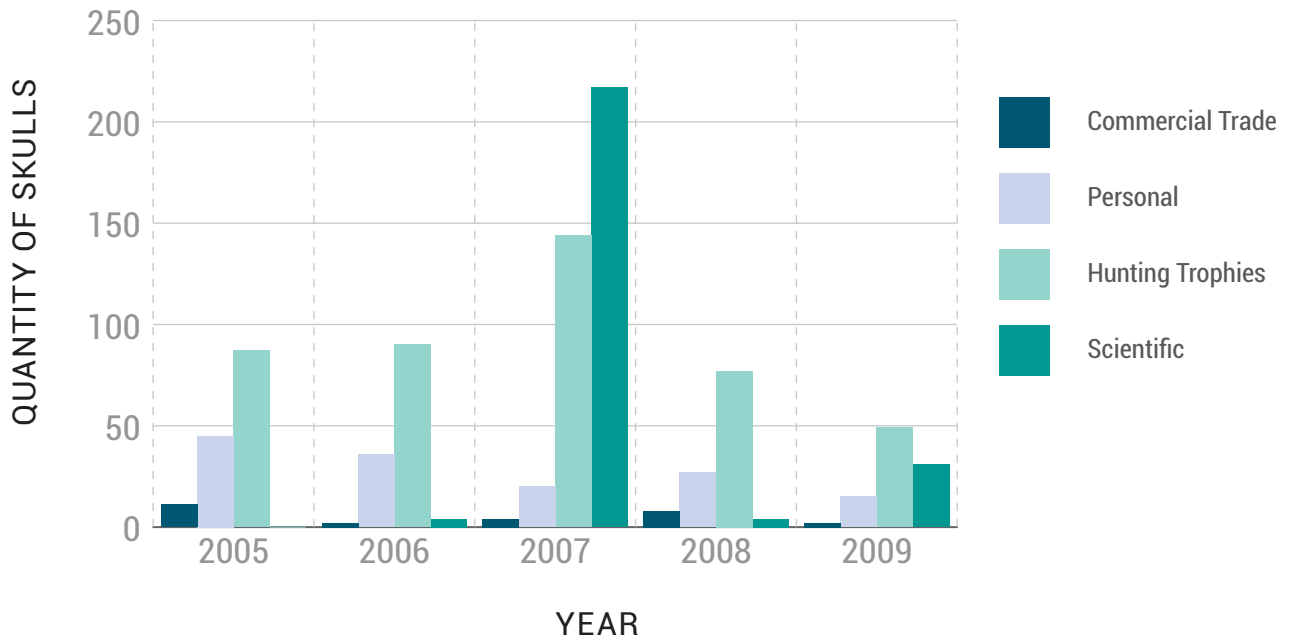
time polar bear was designated as threatened under the US ESA (import of sport hunting trophies into the United States was restricted) and after the implementation of the Greenland export ban.



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Figure 5.4

Purpose of export for skulls, per year, 2005 to 2009



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database

Table 5.4

Polar bear skulls and purpose of export, per year, 2005 to 2009

COUNTRY OF EXPORT (PURPOSE OF EXPORT)	YEAR					TOTAL
	2005	2006	2007	2008	2009	
Canada	111	102	168	98	57	536
Hunting Trophies	87	90	144	77	49	447
Personal	15	11	20	13	6	65
Commercial trade	9	1	4	8	2	24
Greenland¹	32	30	0	18	40	120
Personal	30	25	-	14	9	78
Scientific	-	4	-	4	31	39
Commercial trade	2	1	-	-	-	3
Norway	0	0	217	0	0	217
Scientific	-	-	217	-	-	217
TOTAL	143	132	385	116	97	873
Hunting Trophies	87	90	144	77	49	447
Personal	45	36	20	27	15	143
Scientific	0	4	217	4	31	256
Commercial trade	11	2	4	8	2	27

Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

1. Some country codes in the UNEP-WCMC CITES Trade Database refer to political entities that issue permits, but are not actually sovereign nations (e.g. Hong Kong or Greenland).

The quantity of skulls exported to key destination countries has not fluctuated drastically, with the exception of 2007. The data show an increase in the number of skulls exported to Denmark (scientific purposes from Norway) and to the United States (hunting trophies from Canada) in 2007, likely influenced by the proposal to list polar bears under the US ESA (Table 5.5 and Figure 5.5). The data show a decrease in the

number of skulls exported to the United States in 2008 and 2009, the same time the polar bear was designated as threatened under the ESA (import of sport hunting trophies into the United States was eliminated). The exports to the remaining 35 countries declined in 2006 and 2007, but increased again in 2008 and 2009 to the levels observed in 2005.

Table 5.5

Key destination countries for skulls according to export data, per year, 2005 to 2009

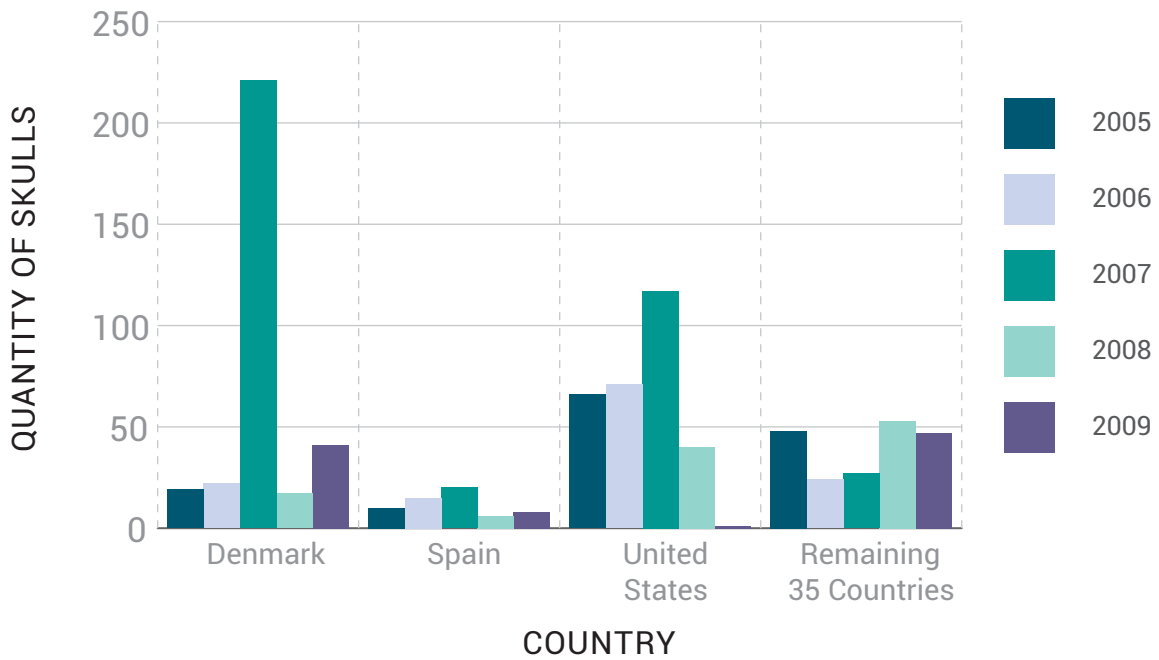
DESTINATION COUNTRY (PURPOSE OF EXPORT)	YEAR					TOTAL
	2005	2006	2007	2008	2009	
Denmark	19	22	221	17	41	320
Personal	18	17	4	13	10	62
Scientific	-	4	217	4	31	256
Commercial trade	1	1	-	-	-	2
Spain	10	15	20	6	8	59
Hunting trophies	9	12	18	5	8	52
Personal	1	3	2	1	-	7
United States	66	71	117	40	1	295
Hunting trophies	57	63	110	38	1	269
Personal	2	7	7	2	-	18
Commercial trade	7	1	-	-	-	8
Remaining 35 countries¹	48	24	27	53	47	199
Hunting trophies	21	15	16	34	40	126
Personal	24	9	7	11	5	56
Commercial trade	3	-	4	8	2	17
TOTAL	143	132	385	116	97	873
Hunting trophies	87	90	144	77	49	447
Personal	45	36	20	27	15	143
Scientific	0	4	217	4	31	256
Commercial trade	11	2	4	8	2	27

Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

1. Some country codes in the UNEP-WCMC CITES Trade Database refer to political entities that issue permits, but are not actually sovereign nations (e.g. Hong Kong or Greenland).

Figure 5.5

Key destination countries for skulls and their purpose of export, per year, 2005 to 2009



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database

Items that cannot represent an individual animal

It is not possible to determine the number of polar bears represented by the remaining commodities recorded in trade. Many of the items described as specimens, teeth and hair were traded for scientific purposes. It is not possible to determine whether these items were taken from live sedated polar bears during scientific research activities or from polar bears that were hunted for subsistence or killed in self-defence. Furthermore, the term “specimens” is not well defined and could refer to items such as blood or tissue samples, routinely taken during research activities. Similarly, the term “carvings” could represent a variety of items (e.g. a carved antler handicraft with polar bear hair trim around the edges or a carved ivory necklace with a polar bear claw attached).

Specimens account for 7,643 of the items reported from 1987 to 2009. Figure 5.6 illustrates increases (peaks) in the quantity of specimens recorded in 1989, 1994, 1997 and 2006. These increases were mostly the result of increased numbers of specimens traded for scientific purposes. The numbers decreased after the 2006 peak as a result of reduced trade for scientific purposes. Although the 2007 and 2008 levels were declining, they were still higher than trade levels prior to 2006. The number of specimens exported in 2009 was more comparable to export levels prior to the 2006 peak.

Teeth account for 2,462 of the items reported from 1987 to 2009. Figure 5.6 illustrates increases (peaks) in the quantity of teeth recorded in 1991 and 1997 and a general increase from 1999 to 2003. In most cases, these items were exported for scientific purposes, with the exception of 1991 and 1999 when the purpose was not recorded. The number of teeth declined after the 2003 peak, due mostly to a reduction in trade for scientific purposes.



Photo Caption: Blood Samples

Dr. Steven Amstrup takes blood samples from a captured polar bear. Beaufort Sea, Alaska.

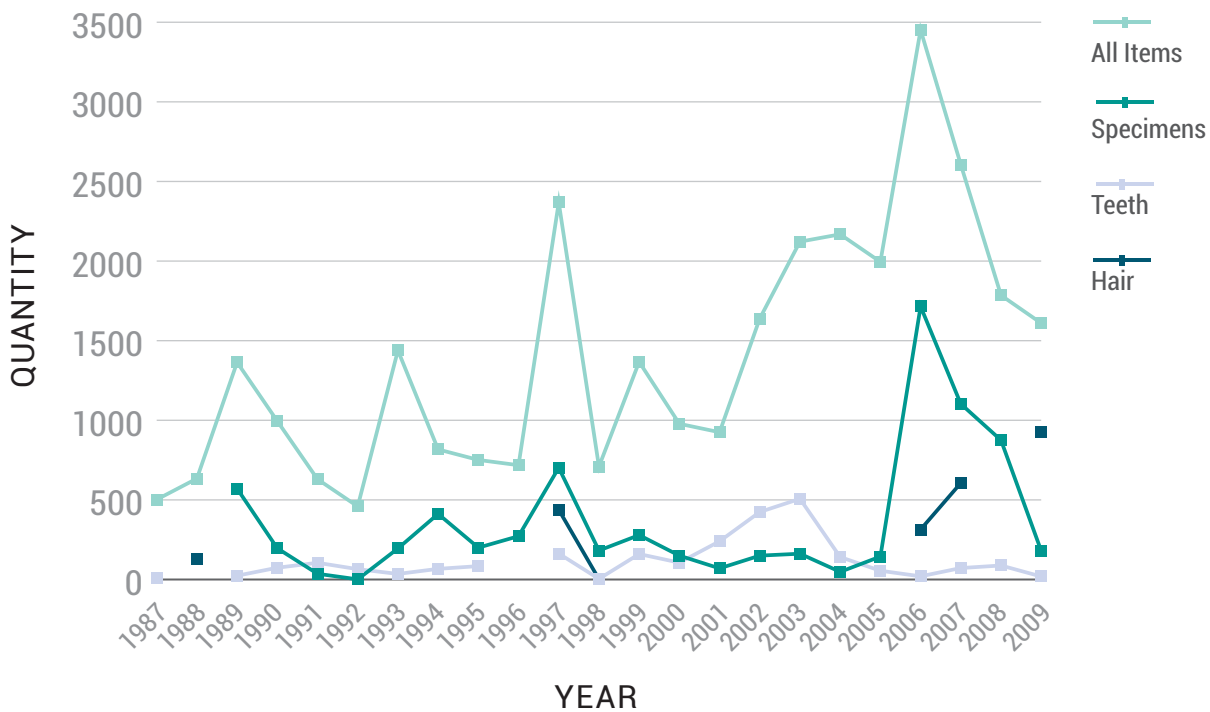


Photo Caption: Premolar Tooth

A polar bear's vestigial premolar. To age a polar bear properly it's necessary to remove one of the vestigial premolars, a tooth just behind the lower canines. It's thought that these teeth are not used a great deal and are unnecessary for survival. Kaktovik, Alaska.

Figure 5.6

Trends in reported export of specimens, teeth and hair



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database

Hair accounts for 2,414 of the items reported from 1987 to 2009. Figure 5.6 illustrates increases (peaks) in the quantity recorded in 1998, 1997, 2006, 2007 and 2009. All of these trade increases were due to scientific purposes, with the exception of 1997 which resulted from increased commercial trade.



Photo Caption: Polar Bear Hair

A close up of a Polar bear's dark skin and fair hair. Svalbard, Norway.

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Claws account for 3,713 of the items reported from 1987 to 2009. Figure 5.7 illustrates increases (peaks) in the quantity of claws recorded in trade in the late 1990s and early 2000s, peaking in 2004. The increases were the result of increased claws traded for personal purposes and, to a lesser extent, commercial purposes.

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Photo Caption: Polar Bear Claws

Skin parts (skin pieces, leather products, garments, hair products) account for 2,669 of the items reported from 1987 to 2009. Figure 5.7 illustrates increases (peaks) in the quantity of skin parts recorded in trade during 1993, 1997 and 2003 to 2006. In most cases, these items were exported for commercial trade.

Other items (trophies, carvings, bones, bone pieces and skeletons, paws, gallbladders, genitalia, tusks and unspecified) account for 2,626 of the items reported from 1987 to 2009. Figure 5.7 illustrates increases (peaks) in the quantity of items recorded in trade in 1989 and 2004 to 2006. The increase in 1989 was the result of greater numbers of bones and bone pieces for scientific and commercial trade, and 2004 to 2006 increases consisted of carvings for commercial and some personal trade.



Photo Caption: Leather Handicraft
Caribou skin and polar bear fur mask.



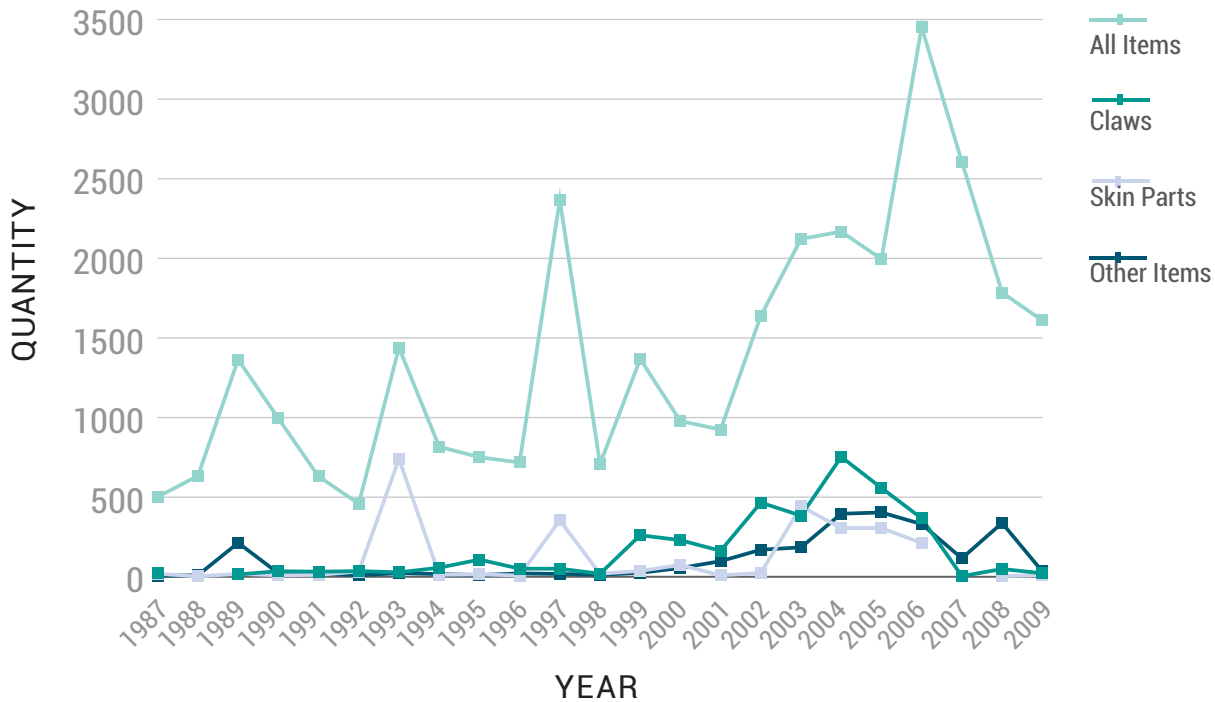
Photo Caption: Handicraft Carving
Carved whale bone and polar bear fur mask.

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Figure 5.7

Trends in reported export of claws, skin parts and other items



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database

5.3.2 Recent international trade data (2005 to 2009)

Approximately 11,448 items containing polar bear parts and/or derivatives were reported in the export data from 2005 to 2009. Nine main commodities made up this trade (Figure 5.8). The highest volume of items recorded was specimens, followed by hair, full skins, claws, skulls, carvings, bones, skin parts and teeth. The purpose of ex-

port for each commodity type, according to each polar bear range State, is summarized in Table 5.6.

Canada exported the majority of items, followed next by Greenland. Figures 5.9 to 5.12 provide a visual representation of trade for each range State (except Russia as there were only five items exported). The types of commodities and the purpose of export for each commodity are summarized in these figures.

Table 5.6

Polar bear commodities reported in export data, 2005 to 2009

COMMODITY (PURPOSE OF EXPORT)	COUNTRY OF EXPORT					TOTAL
	CANADA	GREENLAND ¹	NORWAY	RUSSIA	UNITED STATES	
Specimens	3,083	317	320	5	292	4,017
Commercial trade	410	-	-	-	-	410
Personal	-	119	-	-	-	119
Scientific	2,673	198	320	5	292	3,488
Hair	1,715	0	130	0	0	1,845
Scientific	1,715	-	130	-	-	1,845
Full skins	1,469 (3)	221	12 (1)	0	1	1,703 (4)
Commercial Trade	658	58	1	-	-	717
Personal	264 (3)	163	9 (1)	-	-	436 (4)
Educational	2	-	2	-	1	5
Hunting trophies	545	-	-	-	-	545
Claws	157	838	5	0	0	1,000
Commercial trade	78	48	5	-	-	131
Personal	75	790	-	-	-	865
Hunting trophies	4	-	-	-	-	4
Skulls	536	120	217	0	0	873
Commercial trade	24	3	-	-	-	27
Personal	65	78	-	-	-	143
Scientific	-	39	217	-	-	256
Hunting trophies	447	-	-	-	-	447
Carvings	2	651	0	0	0	653
Commercial trade	-	3	-	-	-	3
Personal	2	618	-	-	-	620
Circus	-	30	-	-	-	30
Bones	546	9	1	0	0	556
Commercial trade	23	-	-	-	-	23
Personal	22	9	1	-	-	32
Hunting trophies	501	-	-	-	-	501
Skin parts	507	34	0	0	6	547
Commercial trade	500	-	-	-	-	500
Personal	3	34	-	-	6	43
Educational	4	-	-	-	-	4

Table 5.6

Polar bear commodities reported in export data, 2005 to 2009 *continued*

COMMODITY (PURPOSE OF EXPORT)	COUNTRY OF EXPORT					TOTAL
	CANADA	GREENLAND ¹	NORWAY	RUSSIA	UNITED STATES	
Teeth	24	78	0	0	152	254
Personal	4	78	-	-	-	82
Scientific	20	-	-	-	152	172
Trophies	17	0	0	0	1	18
Commercial trade	9	-	-	-	-	9
Personal	5	-	-	-	-	5
Educational	-	-	-	-	1	1
Hunting trophies	3	-	-	-	-	3
TOTAL	8,039 ⁽³⁾	2,268	685 ⁽¹⁾	5	451	11,448 ⁽⁴⁾
Commercial trade	1,693	112	6	0	0	1,811
Personal	435 ⁽³⁾	1,889	10 ⁽¹⁾	0	6	2,340 ⁽⁴⁾
Scientific	4,408	237	667	5	444	5,761
Circus	0	30	0	0	0	30
Educational	6	0	2	0	1	9
Hunting trophies	1,497	0	0	0	0	1,497

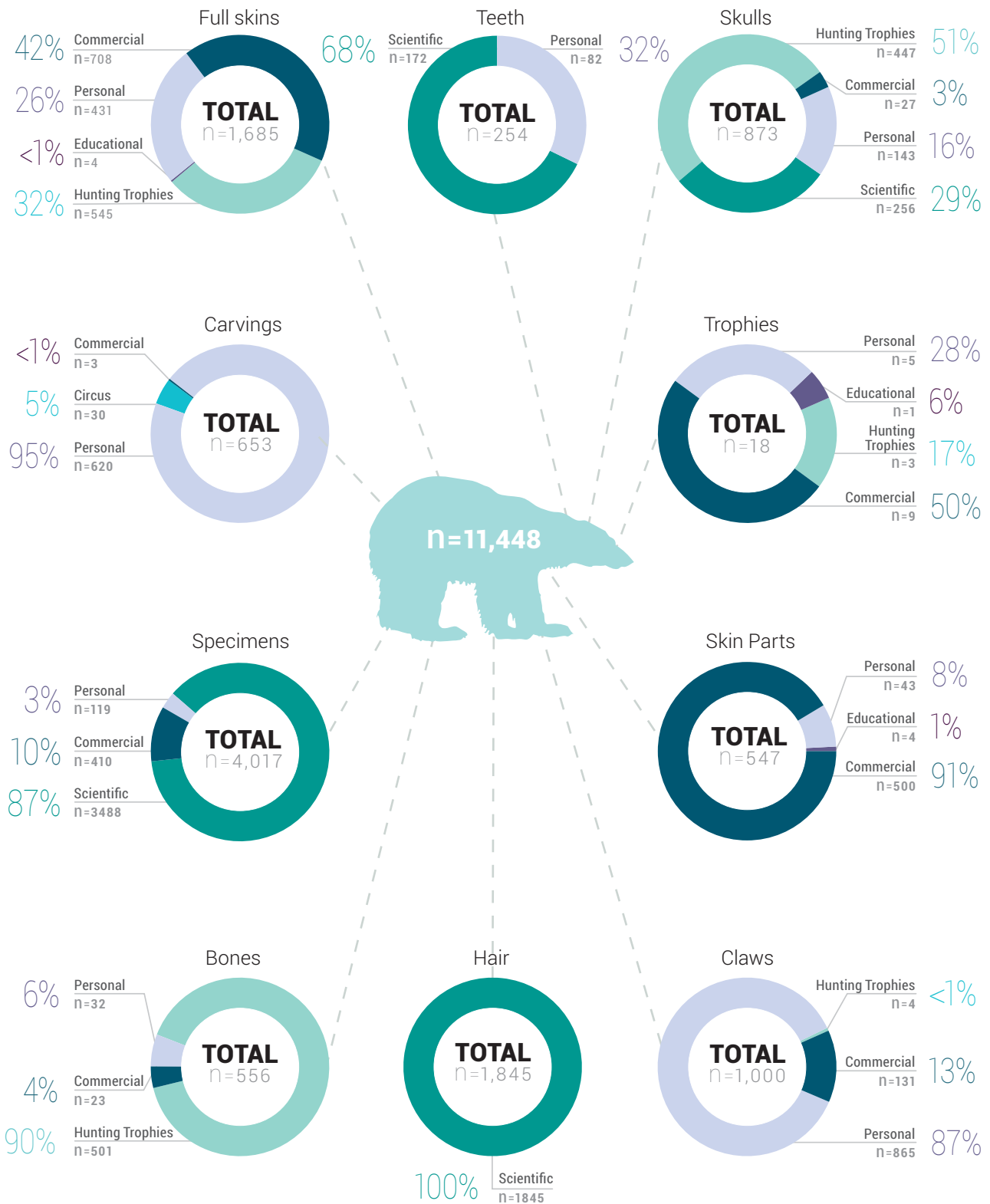
Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database.

Note: Numbers in parentheses represent the proportion of items recorded as pre-Convention items.

1. Some country codes in the UNEP-WCMC CITES Trade Database refer to political entities that issue permits, but are not actually sovereign nations (e.g. Hong Kong or Greenland).

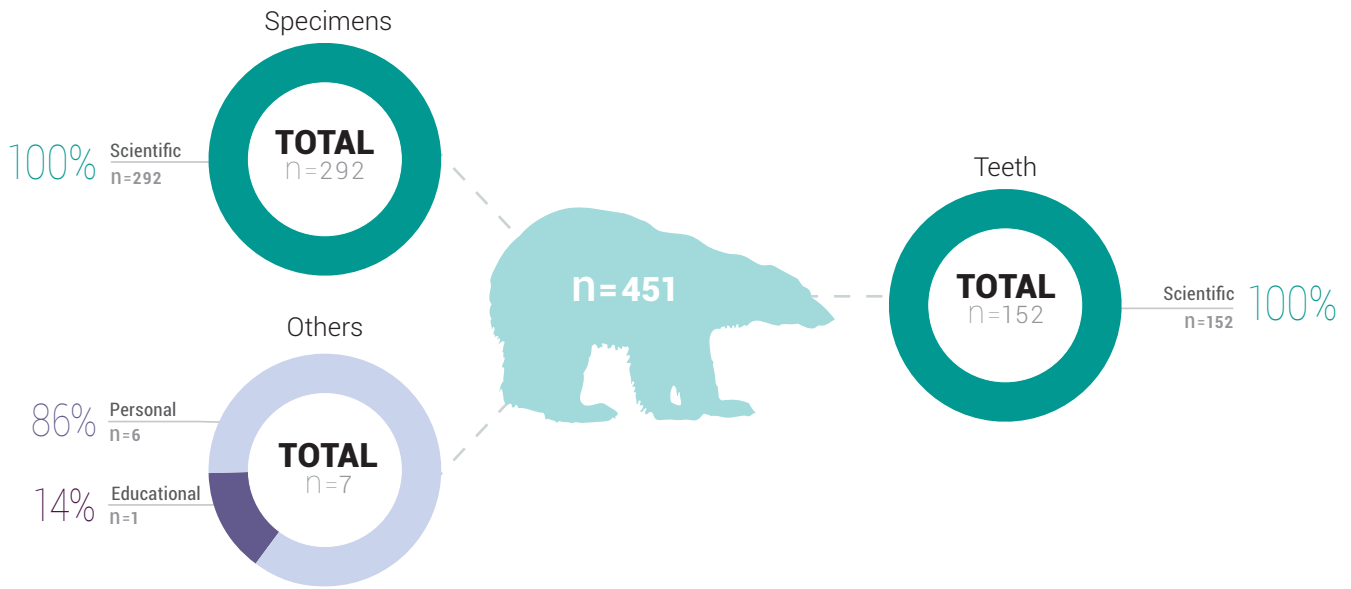
Figure 5.8

Polar bear commodities recorded by range State export, 2005-2009



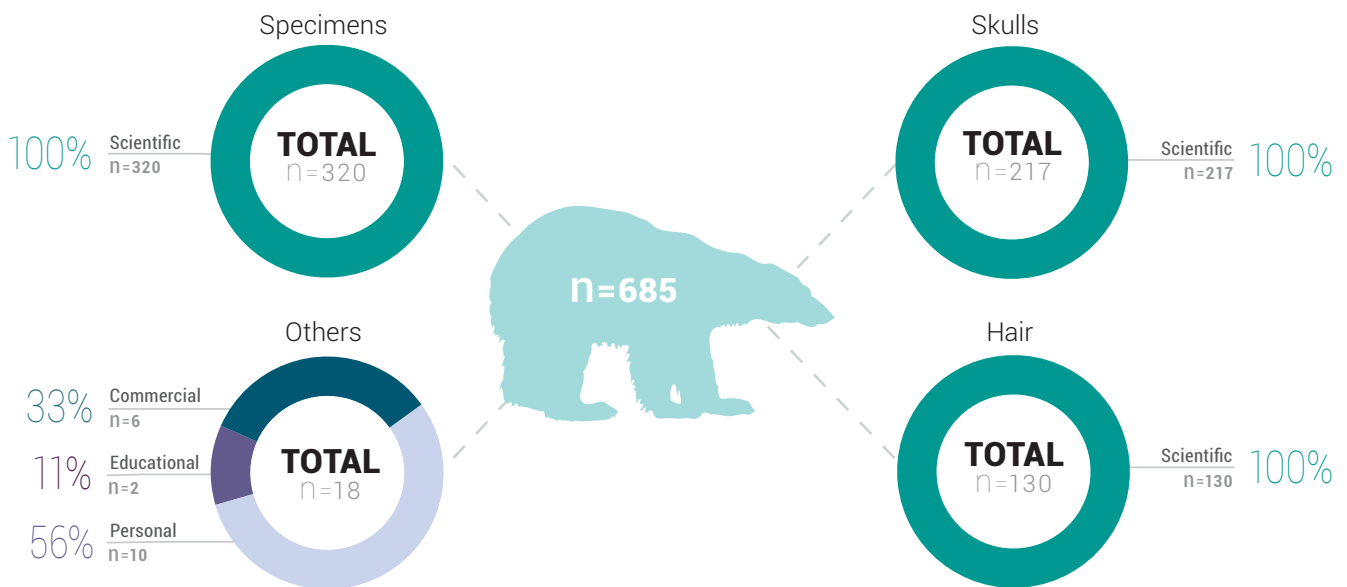
Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database

Figure 5.9 Polar bear commodities from the United States and their purpose of export, 2005-2009



SOURCE: COMPARATIVE TABULATION OF EXPORT DATA EXTRACTED FROM THE UNEP-WCMC CITES TRADE DATABASE

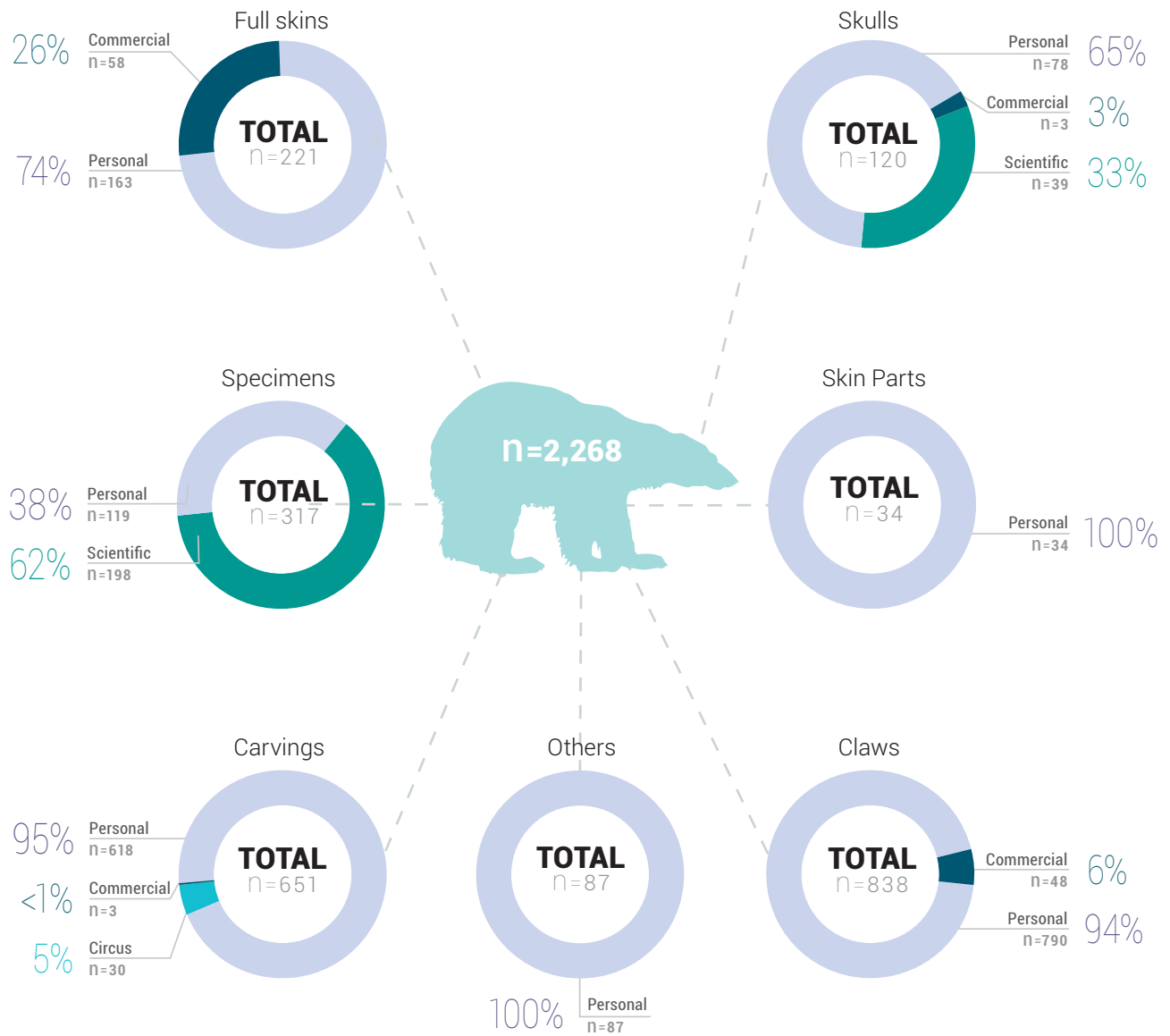
Figure 5.10 Polar bear commodities from Norway and their purpose of export, 2005-2009



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database

Figure 5.11

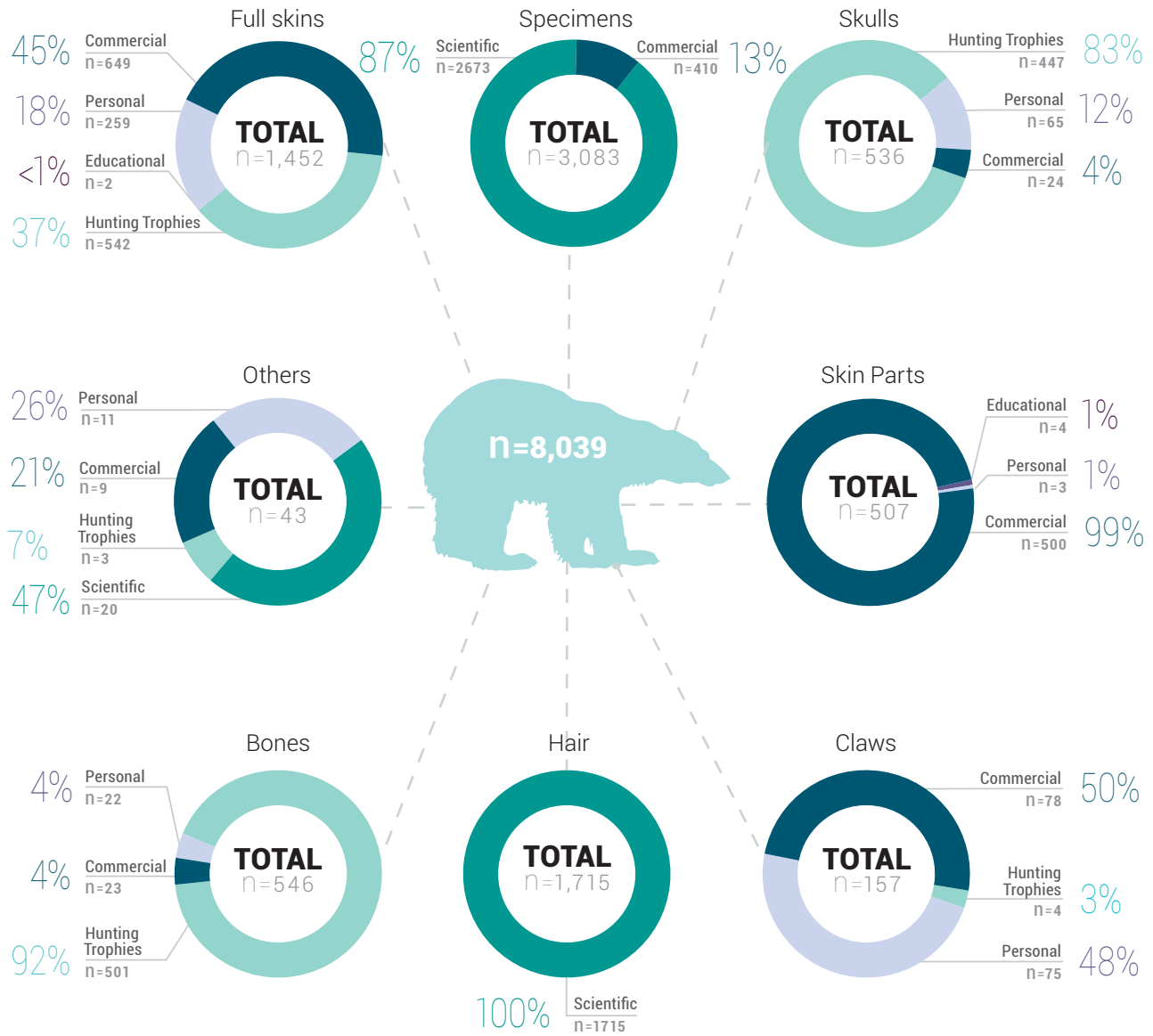
Polar bear commodities from Greenland and their purpose of export, 2005-2009



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database

Figure 5.12

Polar bear commodities from Canada and their purpose of export, 2005-2009



Source: Comparative tabulation of export data extracted from the UNEP-WCMC CITES Trade Database

5.4 Impact of trade on polar bears

According to the available data, legal international trade in polar bear parts and derivatives does not currently appear to be a significant threat to the conservation of the species. This is based on analysis of the volume of trade in full skins. The total number of items traded internationally increased during the years 2001 to 2009, which could mistakenly be interpreted to indicate that the numbers of polar bears being hunted for trade was also increasing. The increased total number of items in trade was primarily the result of greater numbers of claws, fur pieces, and specimens, hair and teeth entering trade. It is impossible to determine how many polar bears are represented by trade in these commodities. However, the numbers of full skins and skulls (which can represent an individual bear) remained relatively constant throughout the same period of time. The trade data for skins suggest that fewer than 400 polar bears were thought to be represented in international trade in any given year from 2005 to 2009. This figure could be an overestimate because some countries (such as Canada) report trade data on permits issued, not on permits actually used. If international trade were the primary incentive for harvest, the majority of polar bears harvested could be expected to be represented in international trade. However, that does not appear to be the case, considering that 700 to 800 polar bears are legally hunted each year. Although the value of skins has increased in recent years, and demand for skins has increased in some years (notably from China), the total number of skins exported from range States (primarily Canada) did not increase significantly from 2005 to 2009 (an increase of nine skins in 2009).

The increased value of skins is likely to be the result of one or a combination of the following;

- increased protection status (i.e. ESA listing, proposal for CITES Appendix I) which could fuel the

demand since some consumers seek to acquire rare or protected species;

- Inuit guides and hunters seeking to offset loss of revenue from other activities (e.g. the decline in polar bear sport hunting by Americans or the EU seal trade bans);
- increased and improved marketing of Canadian furs (which includes polar bears);
- increased market demand in China and Russia which cannot be met by increased numbers of skins, thereby driving prices up.

Regardless of demand pressures, if hunting quotas (and harvest) are unsustainable, or their sustainability is uncertain, under existing CITES II regulations, a negative NDF for any management units would prohibit international trade from these regions. This has already occurred for the Baffin Bay management unit in Canada and for all management units in Greenland. Prohibiting international trade via a listing in CITES Appendix I would not necessarily reduce the number of polar bears killed, as both subsistence harvest and domestic trade would continue. Therefore, the most important management actions should be directed at ensuring that harvest is occurring at sustainable levels. If harvest is not considered sustainable, then these concerns should be addressed under relevant inter-jurisdictional agreements and under the 1973 *International Agreement on the Conservation of Polar Bears*. All range States are signatories to this agreement, which, as noted previously, contains provisions for harvest management and conservation of the species.

Climate change

Research on polar bears regarding the current and projected effects of climate change is substantial and growing. This increase in research efforts and collaboration across range States likely increased the volume of trade for scientific purposes and increased the volume of total trade, with notable increases in the years



2006 to 2009. It is impossible to determine exactly what percentage of the items traded for scientific purposes were acquired from live bears (captive or wild) as this information is not currently reported. In both the United States and Canada, active and collaborative harvest monitoring programs ensure that a suite of samples are taken from polar bears that are killed due to conflict or by subsistence harvest and sport hunt. Given that the majority of scientific samples are taken from live sedated polar bears, the available trade data do not suggest that the number of bears being hunted for trade purposes is increasing. Therefore, the impact of scientific trade on the conservation of the species in the wild is likely to be insignificant in those countries. Increased protection of polar bears (e.g. CITES Appendix I) will not likely change the volume of scientific trade, as permits can still be issued for this purpose, but it would create additional burdens or increase the processing time to obtain permits. Scientific samples

provide valuable information on the status and health of polar bears; this information is important for adaptive management of the species given the potential threats of climate change. Clearly, restricting trade in polar bear specimens for scientific purposes would not be in the best interests of polar bear conservation.

Climate change is considered by the polar bear range States and the IUCN PBSG as the primary threat to polar bears. This overarches all other threats, including harvest. Loss of sea ice will improve access to remote regions, while an expected and concurrent increase in the number of polar bears onshore and potentially closer to human activities will result in easier access to bears. Changes in sea ice timing and occurrence will also disrupt traditional hunting as species either shift distributions or conditions make hunting impossible in some years. Changes in the historical availability of other animals humans eat may also increase pressure on polar bears as a substitute for food and as items of potential trade value. Increased vigilance of harvest, increased monitoring efforts, and the collaboration of hunters, managers and scientists will all be required to continue successful conservation of polar bears as they move into an uncertain future.

5.5 Socioeconomic importance and value of polar bear parts

Many Arctic communities are characterized by a mixed economy, which includes both the market economy and a subsistence economy (Environment Canada, 2011). This involves the commercial harvesting of fish and wildlife, mineral extraction, tourism, forestry and harvesting renewable resources from the land and sea (Nuttall *et al.*, 2005). Harvesting activities are not only dependent on the availability of animals; people need financial resources to purchase the equipment to perform these activities, which is extremely expensive in remote Arctic communities. Hunting activities are not only intended to satisfy

cultural, social and nutritional needs, but also financial needs of families and households. Money earned from the sale of animal products is used to purchase equipment for harvesting activities (rifles, boats, snow machines, and fuel) and also used to meet demand for modern standards of living (Nuttall *et al.*, 2005).

The subsistence hunt also provides Arctic communities with several non-economic benefits: continuing traditional practices (including the sharing of language, traditional knowledge and culture); social integration with the community; and connection with the land (Environment Canada, 2011). The polar bear hunt is highly regarded and hunters are often seen as role models for the community. The successful hunter will often share the meat and distribute it throughout the community (Environment Canada, 2011). The val-

ue of a subsistence hunt cannot be determined solely by the monetary value of the animal parts because this does not take into account other aspects of the hunt, such as providing food to the community and the cultural importance of the hunt itself (Dowsley, 2005). Numerous reports highlight the socioeconomic importance and value of polar bears (Wenzel; 2008; Foote and Wenzel, 2009; Environment Canada, 2011).

In 2006, the estimated annual value of sport hunting in Canada was CAD2.5 to 3 million (USD2.2 to 2.6 million), while the sale of skins was approximately CAD500,000 (USD440,900) (Dr. M.K. Taylor, Wildlife Research, *in litt.* to USFWS, April 6, 2006). In 2009, the estimated annual value of sport hunting in Canada was CAD1.3 million per year (USD1.1 million), while the sale of skins was valued at approximately CAD600,000 (USD489,000) (Environment Canada, 2011). These are significant numbers in a region where there are limited options to earn income.

Value of polar bear parts derived from subsistence harvest

For hunters in Canada, in 1999 a raw skin (untreated) was worth up to CAD1,500 (USD1,010); other parts of the bear, such as the claws, were worth up to CAD1,500 (USD1,010) per bear and the meat was worth up to CAD1,000 (USD673) per bear (NWMB, 1999). This was similar to findings from an Environment Canada report which estimated the value of meat to be CAD662 to 1,010 per bear (average of CAD836) in 2000 and 2001 and the value of a raw skin to be CAD500 to 1,200 (average of CAD850) in 2006 and 2007 (Environment Canada, 2011). In Greenland, a skin can be sold for DKK10,000 (USD1,973) or more (Born, 2008), and a large skin with a skull can be sold for EUR2,000 to 2,300 (USD2,491 to 2,865) (Hjarsen, 2005). Claws are also a popular item in Greenland, where they can be sold as part of a necklace for EUR80 to 100 each (USD100 to 125 (Hjarsen, 2005).



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The advertised prices of polar bear parts on the Internet varied. The price of a rug varied according to the size and quality of the skin. From 2006 to 2012, the advertised prices for fur rugs ranged from CAD4,750 to 30,000 (USD4,188 to 29,115) (Table 5.7). From 2009 to 2011, the price of a skull ranged from CAD400 to 750 (USD390 to 731), an uncarved claw ranged in price from CAD14 to 50 (USD13.65 to 48.7) (Wildlife Taxidermy Studios, 2011; Canadian Ivory Inc., 2011), and a carved claw ranged in price from USD225 to 500 (Alaska Native Arts, 2009, 2011; Alaskan Native Treasures, 2009, 2011; Kellers Trading Company, 2009, 2011).

According to fur statistics from Canada, the value of polar bear skins has fluctuated over the years (Table 5.8). From 1987 to 1990 the value of skins ranged from CAD1,000 to 1,600 (USD754 to 1,371). The value decreased to less than CAD1,200 (USD985) from 1991 to 2004, and rose to CAD1,900 (USD1,570) in 2005. The value decreased again, ranging between CAD1,100 (USD970) in 2006 to CAD1,600 (USD1,510) in 2008,

and rose again to CAD2,500 (USD2,200) in 2009. These statistics do not provide detailed information on the size or quality of the skin, nor do they provide an estimate on the range of prices per skin. The data only provide the total number and total value of skins. An average can be estimated, but the skins are likely to differ in value depending on size and quality (e.g. an eight-foot skin will have higher value than a five-foot skin).



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Table 5.7

Prices of skins advertised on the Internet (CAD currency)

SIZE OF SKIN	YEAR				
	2006	2007	2008	2009	2010
7 ft	\$4,750	\$5,900	\$7,000		
8 ft	\$6,200	\$7,000	\$9,950	\$8,000	\$12,000
9 ft	\$7,700	\$8,250	\$8,400	\$9,000	\$14,500
10 ft	\$10,700	\$12,250	\$9,000		\$30,000
Average of skins	\$7,338	\$8,350	\$8,588	\$8,500	\$18,833

Source: Fur Canada ,(2006-2010); Fur Source, (2006-2010); and Bear Skin World, (2006-2010).

Table 5.8

Fur statistics on quantity and value of polar bear skins in Canada

YEAR	NUMBER OF SKINS	VALUE OF SKINS IN DOLLARS	AVERAGE PRICE*
1987	288	\$313,103	\$1,087
1988	360	\$476,472	\$1,324
1989	380	\$605,305	\$1,593
1990	271	\$439,251	\$1,621
1991	279	\$325,453	\$1,166
1992	180	\$146,901	\$816
1993	117	\$100,016	\$855
1994	116	\$98,518	\$849
1995	57	\$36,394	\$638
1996	102	\$77,317	\$758
1997	101	\$82,126	\$813
1998	76	\$58,573	\$771
1999	134	\$116,020	\$866
2000	39	\$22,294	\$572
2001	28	\$20,802	\$743
2002	23	\$21,594	\$939
2003	126	\$95,763	\$760
2004	76	\$67,026	\$882
2005	7	\$13,500	\$1,929
2006	83	\$95,632	\$1,152
2007	65	\$102,464	\$1,576
2008	102	\$166,414	\$1,632
2009	259	\$665,816	\$2,571

Source: Statistics Canada (2012).

*Average price does not distinguish between size or quality.

Sport hunting

Sport hunting of polar bears is currently only legal within Canada and is an important financial opportunity for communities in Nunavut and the Northwest Territory (Dowsley, 2005). Polar bear sport hunts use traditional hunting methods (by foot or dog team), can last for up to 14 days and involve travelling long distances (300 to 500 km) in temperatures ranging from -25°C in March to 5°C in May. These conditions wear heavily on hunters and their equipment (Foote and Wenzel, 2009). Sport hunting provides local guides an opportunity to work on the land and use traditional skills (e.g. reading and responding to weather conditions, controlling a dog team and sled, interpretation of sex and age of a bear from its tracks). These skills are not utilized in a typical employment opportunity in their communities. Hunting guides also have a sense of pride in what they do and in the opportunity to demonstrate their skills to visiting hunters. Assistant guides are often younger people who have not had the opportunity to hunt a polar bear; by participating in the sport hunt they are able to acquire skills from experienced guides, and learn about the land and polar bear habits. Income from the hunt helps to meet hunters' cost of living, such as heat, food, clothing and investments in equipment for future subsistence hunts. Meat from the sport hunt also remains in the community (approx. 200 kg per bear), which is an added benefit (Foote and Wenzel, 2009).

In Nunavut, each community HTO is provided with annual tags for hunting polar bears. They determine whether a sport hunt should be allowed and how many tags are to be allocated for the hunt (Dowsley, 2005). In some areas, the tag is purchased from the individual hunter for up to CAD2,500 (USD2065) (which compensates for the loss of access to a bear and the sale of its skin). In other areas, tags can be purchased from HTOs for up to CAD2,100 (USD1,735) and that money is used to purchase equipment for subsistence hunting for the community (Dowsley, 2005). South-

ern wholesalers charge from CAD20,000 to 60,000 (USD17,598 to 52,794) for a polar bear sport hunt depending on the details of the trip (duration, inclusion of airfare, type of accommodation)(Foote and Wenzel, 2009; Wenzel, 2008). Based on surveys from various communities, Wenzel (2008) reported that the average cost of a guided sport hunt paid to a wholesaler or booking agent was USD21,538 with packages ranging in price from USD13,000 to 35,000 per trip.

Depending on the community, the local hunt outfitters receive up to 60% of the fee a sport hunter pays to a wholesaler or booking agent. The local hunt outfitter uses this money to pay for equipment and supplies, specialty items needed for the hunt, and hunt-related labour such as guides (Wenzel, 2008; Foote and Wenzel, 2009; Freeman and Wenzel, 2006). Guides' salaries range from CAD4,700 to 9,000 (USD4,136 to 7,919) per hunt, and hunting assistants' salaries range from CAD3,800 to 5,000 (USD3,344 to 4,400) per hunt (Foote and Wenzel, 2009). The guides and hunting assistants usually work at least two hunts per eight- to 12-week season (Foote and Wenzel, 2009). For a 10-day hunt, guides earn up to CAD37.50 (USD33) per hour and a hunting assistant earns up to CAD20.83 (USD18.33) per hour (Foote and Wenzel, 2009).



CONCLUSIONS

Polar bears range across a vast and diverse Arctic ecosystem. As such, they will be subjected to multiple stressors (threats) that vary from region to region—affecting each management unit in different ways and over differing time scales. The impacts of these stressors on polar bear conservation will be highly dependent on the health of the management unit and the resilience of that region.

The impacts of climate change are expected to be the most significant stressor for polar bears into the next century and will vary over time and location, but ultimately climate change will lead to declining populations across the Arctic.

Since each management unit responds to different realities on the ground, flexible and forward-looking management will be useful. An adaptive framework that rapidly assesses new information on various threats, including climate change, helps ensure that harvest and resulting trade will not detrimentally impact the conservation of the species. If management units decline to low numbers (e.g. below their carry-

ing capacity or OSP), management efforts can be adjusted accordingly and directed at recovering local populations to ensure harvest levels, where allowed and sustainable, are tied to specific and logical management targets. These targets can be based on biological information relevant to the species (e.g. population estimates or trend metrics) and in consideration of social carrying capacity (the target population size that can coexist with humans).

Management

- From 2006/2007 to 2010/2011 on average, 735 bears (min 651 to max 813) were killed in a given

year from a global population of 20,000 to 25,000 bears. Assuming a harvest ratio of 2:1 (two males for every female), approximately three to four percent of the global population was harvested annually. Although harvest above established levels or in excess of “sustainable yield” has occurred for certain management units in specific years, this is not presently a chronic or widespread issue. When it has occurred, management actions have been taken to address the situation either through management in the range State or trade measures by importing countries.

- Acknowledging the impacts of climate change on polar bear habitat, availability of prey, polar bear reproduction, and human-bear conflicts; if polar bears from some management units begin to show signs of decline, adaptive management (e.g. harvest and resulting trade in bear parts) can help to minimize additional stresses or pressures on the species.
- As sea ice melts, greater opportunities for development and transport routes will likely emerge, potentially increasing human-bear interactions. Although responses to habitat loss and increasing human pressures will vary by region and over time, the predicted overall impact on both polar bears and their sea ice habitat is negative. Polar bears cut off from suitable habitat are more likely to congregate on land. This makes them more vulnerable to novel disturbances, easier to reach

by hunters, and more likely to come into conflict situations with humans.

- Information regarding polar bear conflict is not always recorded in a consistent manner or shared with the appropriate agencies and/or jurisdictions. Regarding trade, any item of value from a polar bear killed in conflict is not to be made available for commercial purposes as stipulated under the *Agreement on the conservation of polar bears*. However, it is unclear what mechanisms are in place to track items of value and or to ensure these items are not used for commercial purposes. Although such mechanisms may exist in some jurisdictions, a national or circum-Arctic system does not exist.
- Policies, legislation and regulations are only effective if there are adequate measures or means to implement and enforce them. Monitoring and enforcement activities are hampered across range States due to the remote nature and sheer size of the habitat, limited infrastructure and insufficient funding. As such, co-management systems may be effective and economic solutions to this challenging issue.
- Scientific estimates of population size and or population trend metrics directly influence regional and community harvest limits or quotas. However, impressions of abundance by local residents do not always align with scientific survey results. This poses a challenge for wildlife professionals and policy-makers since the range States have all agreed to manage polar bears populations in accordance with sound conservation practices based on the best available scientific data, as per the *International Agreement on the Conservation of Polar Bears*.
- Polar bear range States have made significant efforts to improve the management and conservation of polar bears, as indicated by the various international and bilateral agreements, increased research and monitoring activities, and the estab-

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ishment of harvest limit or quotas in areas which previously had none. However, it is not clear whether all the agreements have mechanisms in place for review and non-compliance.

- Canada has greatly contributed to the conservation of polar bears and the country as a whole historically has sound management measures. Canada has maintained some of the most extensive research and monitoring efforts, including the longest studied population in Churchill, MB. Although concerns have been raised on the harvest levels in some jurisdictions and in specific years, the regional and national authorities are working to address such concerns by adjusting or implementing harvest limits where needed, and by monitoring the harvest across Canada (e.g. voluntary harvest limits or quota for Southern Hudson Bay management unit, a negative NDF for Baffin Bay management unit). Nevertheless, there remain valid concerns in regard to the information used in recent management discussions on harvest levels for at least two population units (Baffin Bay and Western Hudson Bay). However, it should be noted that all parties are actively updating population surveys for both regions and are prepared to review and adjust harvest as needed.
- In Russia there are ongoing concerns with illegal hunting of polar bears and subsequent trade of parts. Although there are recent provisions for a small and legal subsistence harvest under the bilateral agreement between the United States and Russia, until it can be shown that illegal harvest and trade is not a concern, the Russian government will not issue permits for hunting. Due to the lack of reliable data, it is difficult to quantify how much, if any, illegal hunting is occurring and what kind of an impact it is having on the species. More robust information is needed to validate and quantify the amount of illegal hunting and/or illegal trade, as well as baseline population trend data across Russia.



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- Greenland has made great contributions for the conservation of polar bears and maintains an active research program. The introduction of harvest limits or quotas has reduced hunting to more sustainable levels. The Greenland government has also issued a negative NDF for all of their populations until there is adequate information to indicate harvest and international trade is not a threat.
- The United States maintains one of the largest polar bear management and research teams and contributes significantly toward the collective understanding of polar bear ecology. The United States does not currently set federal harvest limits. Voluntary allocations and harvest guidelines established under co-management organizations and through bilateral agreements are respected even though they are not legally binding. Formal implementation of the proposed new harvest system for the Chukchi Sea management unit will require community outreach to explain the changes and ensure compliance. Since many communities do not have wildlife managers or enforcement authorities present, monitoring and enforcement will be dependent on buy-in from communities and hunters.
- Norway continues to be a strong voice for polar bear conservation and precautionary manage-

ment while supporting long term monitoring of its population. Norway also continues to implement its moratorium on hunting and is working to reduce human-bear conflicts between both residents and visitors to Svalbard.

International trade

- Analysis of CITES trade data could not provide a precise estimate of number of polar bears represented in trade. Much of the data are based on information from permits issued rather than permits used, and many commodities in trade cannot be extrapolated to individual polar bears. Only two commodities, full skins and skulls, can be used to make inferences on the impact of trade. From 2005 to 2009, fewer than 400 full skins were represented in international trade in a given year while approximately 700-800 polar bears were killed each year. Analysis of these data does not indicate that international trade in polar bear parts and derivatives is a significant threat to the conservation of the species at present. However, given the increased interest in and value of skins in recent years, monitoring should continue to ensure international trade is not a threat to the conservation of the species.
- The price of polar bear skins has increased in recent years. However, according to the available export data, the overall volume of Canadian skins exported has not increased significantly. Rather, there appears to be a shift in demand from importing countries (e.g. China and Russia). The purpose of export has also changed, with a reduction of exports for hunting trophies and an increase of exports for commercial and personal purposes. This suggests that the market dynamics may be shifting as a result of the following:
 - ▶ an increase in demand for skins influenced by increased protection status (e.g. the ESA listing in 2008, proposal for CITES Appendix I listing, which was defeated in 2010). Publicity surrounding these issues may have inadvertently increased demand for commercial purposes since some consumers seek to acquire rare or protected species;
 - ▶ the loss of revenue from other activities (sport hunting by Americans, EU seal trade bans) has affected the livelihoods of Arctic communities, possibly increasing dependence on the sale of polar bear skins;
 - ▶ increased and improved marketing of Canadian furs (which includes polar bear skins).
 - ▶ increased market demand in China and Russia which cannot be met by increased numbers of skins, therefore driving prices up.
- The total number of polar bear items traded internationally per year increased during the years 2001 to 2009. This could mistakenly be interpreted to indicate that the numbers of polar bears being hunted for trade was also increasing. However, the numbers of full skins and skulls (the most valuable parts of a polar bear for commercial purposes) remained relatively constant throughout the same period of time. The increased total number of items in trade was primarily the result of greater numbers of claws, fur pieces; and specimens, hair and teeth entering trade. In recent years there has been a substantial amount of research conducted regarding the current and projected effects of climate change on polar bears. This pulse in research efforts and collaboration across states likely influenced trade for scientific purposes and increased the volume of total trade, with notable increases in the years 2006 to 2009. It is impossible to determine exactly what percentage of the items traded for scientific purposes were acquired from live bears (captive or wild) as this information is not currently reported. But given that the majority of scientific samples are taken from live sedated polar bears, the available



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data do not suggest that the number of bears being hunted for trade purposes is increasing.

- Analysis of the currently reported CITES trade data indicate that there are substantial limitations in determining the implications of trends in trade and trade levels on polar bears under the current method of reporting trade on the species.
- Where permissible by law, hunting provides economic benefits to Arctic peoples through the sale of goods from the hunt (e.g. skins, skulls, bones, teeth, claws, etc.). A carefully managed sport hunt also provides an important source of income through guiding. Income from these activities is used to meet the basic standards of living and to help fund future subsistence activities. Thus, the financial return from the sale of items provides an incentive to encourage and maintain sustainable polar bear populations.
- Little information was available to estimate the extent of illegal trade. Few cases of illegal trade are uncovered, making it very difficult for authorities to assess the extent of the problem or decide where to allocate resources to address the problem.
- Although polar bear skins and rugs have been advertised for sale in Russia, they may not be from illegally hunted polar bears. There is concern that the importation of polar bear skins from Canada could be used to launder a poached bear from Russia. According to the CITES Trade Database, Canada has reported the export of skins to Russia; however, Russia has not recorded such imports, which raises questions about the effectiveness of CITES implementation in Russia. Without documentation, it is difficult to distinguish an imported skin from that of a poached Russian bear.
- The success of the regulated harvest and the monitoring of the hunt itself (acquiring harvest data) are connected to the sale of polar bear handicrafts and skins. For skins, a permit or tag is required before it can be sold and exported. This ensures the legality of the skin and acts as a disincentive to poaching bears, and helps to obtain harvest data.



RECOMMENDATIONS

Managers, enforcement authorities, biologists, Arctic communities and a spectrum of concerned conservation organizations may have differing opinions on particular topics or have different methods for achieving and measuring success or failure. However, they do share a common goal: to conserve polar bears.

Conservation success should not be measured by the level or number of legislative protections a species has (e.g. CITES, ESA, SARA), but rather by a lack of need to have such mechanisms. It could be argued that once a species merits a new protective designation that current conservation efforts have actually failed. It is critical, therefore, with a species like the polar bear that all interested parties work together and pool their resources to have a greater impact on conservation. Cooperation, collaboration and commitment are needed by all to ensure success and secure the future for polar bears. Successful management will result in a population that

is healthy, stable, resilient to threats and a resource to local communities for the longest possible time. Polar bears are a potent symbol of the challenge a warming world faces and a vital part of the Arctic ecosystem. The recommendations here require a concerted effort, driven by the desire to ensure that this iconic species survives its rapidly changing future.

Trade

- Efforts should be directed at determining the drivers of polar bear trade for countries of import. If markets are better understood and monitored, then measures can be taken to better manage trade ac-

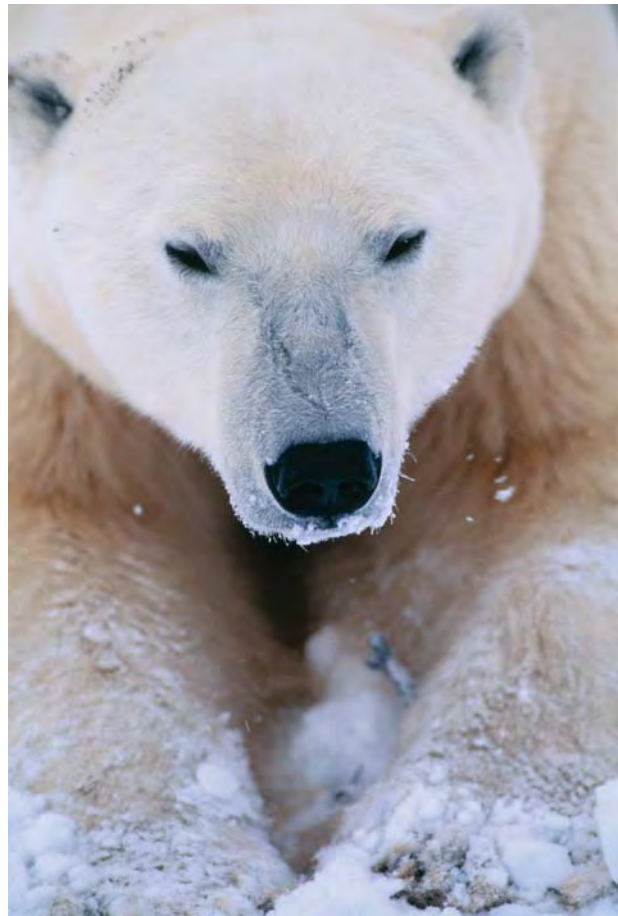
tivities and inform range states of emerging demand trends that could impact management efforts.

- The inconsistencies in CITES trade reporting are not specific to polar bears: they apply to all taxa listed by CITES. Therefore, any changes and improvements to the reporting of the data would require the agreement, participation and commitment of the signatory Parties. However, the polar bear range States could take a proactive stance as a signal to the CITES Parties by improving their monitoring and reporting of CITES trade data for this high-profile species. This could be facilitated by: development and agreement on definitions for the purpose of transaction codes; reporting trade data for the actual items traded rather than on permits issued; reporting seizures of polar bear specimens in trade and by following the guidelines for the preparations and submission of CITES annual reports. This would provide more consistent reporting of data and improve the analysis and monitoring of trade in the species.
- Polar bear range States should consider submitting additional information when inputting trade data in their CITES annual reports (e.g. whether parts were derived from live or dead animal, the year of harvest). They could add a separate code as supplementary information, to provide information on the harvest. This could be a hunting tag code or number, or a new code created to protect confidentiality. The code would allow tracking of products coming from individual polar bears. For instance, the claws, skin, skull of one polar bear would all be associated with the same hunting tag, so all of these items would have the same code. The code could also indicate the year of harvest. All of this would provide a more accurate estimate of the number of polar bears in trade.
- TRAFFIC encourages interested stakeholders and/or range States to develop a study on the supply chain and consumer demand dynamics for



polar bear parts and derivatives with analysis on key consumer markets such as China or the Commonwealth of Independent States. Such a study could help determine market drivers, evidence of illegal trade and indications of poaching activities in range States.

- TRAFFIC encourages the Russian government to improve reporting of import data, which would allow for improved monitoring of trade in polar bears.
- Range States should develop a shared database that compiles data on illegal activities involving polar bears. This could be similar to the EU-TWIX system.
- Exporting and importing countries should collaborate on efforts to develop consistent methods for elucidating and addressing illegal trade in polar bear products. This would assist Parties to comply with CITES and support efforts to conserve polar bears.
- A range State workshop on international trade in Arctic species could help to facilitate information sharing and discussion on issues related to trade, and recommend solutions.
- An updated and circumpolar socioeconomic study on the importance of trade in Arctic species (especially polar bears) would provide useful information to facilitate dialogue and insight into the potential effects of restricting hunting and trade. This study could involve a review of:
 - ▶ the impact of the ESA listing of polar bears on markets and livelihoods, and how Arctic communities are offsetting the loss of revenue;
 - ▶ the impact of the proposal to list polar bears in CITES Appendix I at CoP15 on the demand and value of polar bear products;
 - ▶ the impact of the SRG negative opinions under the EU WTR, which prohibit the import of polar bear products from particular management units.



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Management

- Polar bear range States should take appropriate action to ensure that population and harvest monitoring is adequate to adaptively manage harvest in accordance with sound conservation practices based on the best available scientific data. This will help ensure that threats on the species (including impacts of climate changes) are taken into account to ensure that harvest remain within sustainable limits.
- Any range State that permits the trade of polar bear skins, trophies, or skulls should develop a mandatory and modern tracking system (such as use of pit tags or microchips inserted in polar bear skins or mounted trophies) to track and identify their movements. Alternatively, range States could consider developing a documentation scheme to



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- help identify and track the source of skins in international trade (e.g. a certification program).
- Range States should review existing domestic and international policies, laws and agreements to ensure compliance, and to ensure that adequate penalties or means to prosecute violations exist.
- Governments and agencies should improve dialogue and collaboration on enforcement and capacity needs regarding Arctic species. Regular information exchange between enforcement agencies will help to identify and address enforcement challenges in the Arctic.
- Enforcement authorities should increase efforts to identify poachers and regions which may be sites of illegal activities of concern. This would also help identify the drivers and market dynamics for illegal trade. These operations would help to establish where resources and efforts should be directed. Governments and agencies should consider or adapt methods which have proven effective for other species and regions to help address concerns over potential poaching.
- Governments and agencies should create a multi-regional anti-poaching network with possible participation from non-governmental organizations and intergovernmental organizations (e.g. Interpol) to share intelligence on illegal activities.
- Awareness campaigns should be developed in Russia and other Commonwealth of Independent States countries to inform rural communities and urban markets on the possible conservation implications of illegal hunting and trade of polar bears.
- Management authorities and Arctic communities in each range State should consider implementing programs that promote local management of bear-human conflicts, including local polar bear patrols and reduction of food attractants. The development of community outreach and/or awareness programs focused on improved reporting of polar bear sightings and human-bear conflicts could help underscore the benefits of reporting incidents (e.g. reporting of problem bears can provide managers with justification to provide resources such as bear-proof bins).

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APPENDIX A

Table A1

Population estimates for polar bear management units

COUNTRY	MANAGEMENT UNIT	PREVIOUS ESTIMATE (WITH YEAR)	RECENT ESTIMATE (WITH YEAR)
Greenland	East Greenland ⁵	Unknown	Unknown
	Davis Strait ^{1,5,7}	1,650 in 2004a (95% CI 1000-2300)	2,158 in 2007 (95% CI 1798-2518)
Greenland/Canada	Baffin Bay ^{2,5,7}	2,074 in 1997 (95% CI: 1544-2604)	1,546 in 2004b (min 690 - max2402)
	Kane Basin ^{2,5,7}	Unknown	164 in 1998 (95% CI 94-234)
Canada	Norwegian Bay ^{2,5,7}	Unknown	190 in 1998 (95% CI: 102-278)
	Lancaster Sound ^{2,5,7}	1,031 in 1979 (95%CI: 795-1267)	2,541 in 1998 (95%CI: 1759-3323)
	Gulf of Boothia ^{5,7}	Unknown	1592 in 2000 (95%CI: 879-2314)
	Foxe Basin ^{6,7}	2,197 in 1994 (95%CI: 1677-2717)	2, 572 in 2009/2010 (95% CI: 2,018-3,126)
	Southern Hudson Bay ^{1,5,7}	1,000 in 1988 (95%CI: 684-1116)	900 in 2005 (95%CI: 396-950 for Ontario), (95%CI: 70-110 for James Bay)
	Western Hudson Bay ^{2,4,5,7}	1,194 in 1987 (95%CI: 1020-1368)	935 in 2004* (95%CI: 791-1079)
	M'Clintock Channel ^{2,5,7}	700 in 1978	284 in 2000 (95% CI: 166-402)
	Viscount Melville Sound ^{2,5,7}	161 in 1992 (95%CI: 121-201)	215 in 1996b (95%CI: 99-331)
	Northern Beaufort Sea ^{2,5,7}	867 in 1986 (95% CI: 726-1008)	980 in 2006 (95%CI: 6870-1290)
Canada/USA	Southern Beaufort Sea ^{2,3,5,7}	1,800 in 1983 (min1300 to max 2500)	1,526 in 2006 (95% CI: 1210-1842)
USA/Russia	Chukchi Sea ^{1,5}	Unknown	2,000 in 1993c
Russia	Laptev Sea ^{1,5}	Unknown	800-1,200 in 1982c
	Kara Sea ⁵	Unknown	Unknown
Russia/Norway	Barents Sea ⁵	Unknown	2,650 in 2004 (CI 95%: 1900-3600)
Greenland/Canada/ USA/ Russia/ Norway	Arctic Basin ⁵	Unknown	Unknown

Sources: 1. Aars *et al.*, (2006b) 2. COSEWIC (2008) 3. Regehr *et al.* (2006) 4. Regehr *et al.* (2007) 5. Lunn *et al.* (2010) 6. Nunavut Department of Environment, (2012a) 7. PBTC (2012).

Note: an Estimate is based on TEK and simulation modelling. b Estimate is based on simulation modelling. c Estimate is based on extrapolation of data from spring dens.

* Two surveys have been initiated for the Western Hudson Bay management unit. Results for the aerial survey for in 2012 is estimated to be 1,013 polar bears (95% CI: 717 - 1430); however the mark recapture survey data has not yet been finalized (Nunavut Department of Environment, 2012c).

Table A2

Polar bear management units trends and status

MANAGEMENT UNIT	CURRENT POPULATION TREND	CURRENT POPULATION STATUS	ESTIMATED RISK OF FUTURE DECLINE	NATIONAL STATUS
East Greenland	Data deficient	Data deficient	Data deficient	<p>Canada: Special Concern under COSEWIC and SARA (COSEWIC, 2008; Anon, 2011). COSEWIC is conservation status and SARA is legal designation of status.</p> <p>Greenland: Vulnerable under the Greenland Red List 2007) (Boertmann, 2007).</p> <p>Svalbard (Norway): Vulnerable under the 2010 Norwegian Red List for Species (Kålås et. al., 2010).</p> <p>Russia: Rehabilitated/ Rehabilitating, Rare and Uncertain under the 2001 Red Data Book of the Russian Federation which establishes both the conservation and legal status (Danilov-Danilian, 2001).</p> <p>US: Threatened on the List of Endangered and Threatened Wildlife under the US Endangered Species Act which establishes both the conservation and legal status (Anon, 2012).</p>
Davis Strait	Increasing	Not reduced	Stable	
Baffin Bay	Declining	Reduced	Data deficient	
Kane Basin	Declining	Reduced	Data deficient	
Norwegian Bay	Declining	Data deficient	Data deficient	
Lancaster Sound	Stable	Not reduced	Data deficient	
Gulf of Boothia	Stable	Not reduced	Data deficient	
Foxe Basin	Stable	Not reduced	Moderate	
Southern Hudson Bay	Stable	Not reduced	Very high	
Western Hudson Bay	Declining	Reduced	Very high	
M'Clintock Channel	Likely increasing	Reduced	Data deficient	
Viscount Melville Sound	Data deficient	Data deficient	Data deficient	
Northern Beaufort Sea	Stable	Not reduced	Not applied	
Southern Beaufort Sea	Likely declining	Reduced	Moderate	
Chukchi Sea	Declining	Reduced	Data deficient	
Laptev Sea	Data deficient	Data deficient	Data deficient	
Kara Sea	Data deficient	Data deficient	Data deficient	
Barents Sea	Data deficient	Data deficient	Data deficient	
Arctic Basin	Data Deficient	Data deficient	Data deficient	

Note: This table has been adapted from Lunn *et al.* (2010) and PBTC (2012).

* New trends, status and risk of future decline for the Foxe Basin management unit have been updated since the development of the tables by Lunn *et al.* (2010). The anticipated changes are expected to be a new population trend of stable, the new status is not reduced and the risk of future decline is moderate (Nunavut Department of Environment, 2012a).

APPENDIX B

International Polar Bear Agreement

During the early 1960s there was growing concern regarding the conservation of polar bears due to the increased numbers being killed (Derocher *et al.*, 1998a; USFWS, 1994). Researchers and managers suggested that the Arctic nations should hold an international conference to gather scientific knowledge on polar bears and develop recommendations for future action (Larsen and Stirling, 2009). This led to the First Scientific Meeting on the polar bear in 1965, which included participants from the polar bear range States in addition to Switzerland (where the IUCN is based) (Larsen and Stirling, 2009; USFWS, 1994). Delegates raised concerns about the lack of scientific knowledge on polar bears and effective management of the spe-

cies, and the delegates agreed that each nation should take steps to conserve polar bears until more precise management (based on research findings) could be applied (Larsen and Stirling, 2009). The IUCN was concerned about the future of polar bears and offered to exchange and disseminate information on polar bear management and research. The IUCN created a Polar Bear Specialist Group under its Survival Service Commission (precursor of the current IUCN Species Survival Commission (SSC)) (Larsen and Stirling, 2009). By 1968, researchers, managers and other stakeholders were suggesting that an international convention or agreement should be developed for polar bear conservation and on November 15, 1973, all the polar bear range States signed such an agreement (Anon., 1973c; Larsen and Stirling, 2009). This agreement, the international *Agreement on the Conservation of Polar Bears*

(also referred to as the Oslo Convention) came into force in 1976. Canada, Norway and the USSR ratified the agreement in 1976 and the United States and Denmark ratified it in 1977 (Larsen and Stirling, 2009).

One significant outcome of this agreement was the decision to limit the harvest of polar bears to “local people” using traditional methods as per their traditional rights (Larsen and Stirling, 2009). The agreement prohibited the taking of polar bears with the exception of circumstances outlined in Article III(1) of the agreement as follows (Anon., 1973c):

- “for bona fide scientific purposes; or
- by that Party for conservation purposes; or
- to prevent serious disturbance of the management of other living resources, subject to forfeiture to that Party of the skins and other items of value resulting from such taking; or
- by local people using traditional methods in the exercise of their traditional rights and in accordance with the laws of that Party; or
- wherever polar bears have or might have been subject to taking by traditional means by its nationals.”

In addition, Article III(2) of the agreement states: “The skins and other items of value resulting from taking under sub-paragraphs (b) and (c) of paragraph 1 [Article III(1)] of this Article shall not be available for commercial purposes” (Anon., 1973c). The term “local” was used instead of Aboriginal or indigenous because the Alaska State Constitution stated that no wildlife privileges are based on race. Therefore, the term “local” was adopted (Larsen and Stirling, 2009). Based on this interpretation, Canada allowed subsistence harvests to be used for sport hunting by non-Natives, provided the hunts were guided by Aboriginal peoples and carried out using traditional methods (IUCN/SSC PBSG, 2009). Article IV of the agreement also prohibited the use of large motorized vehicles or aircraft for purposes of taking polar bears (unless inconsistent with domestic law) (Anon., 1973c).

When the polar bear range States met in Iqaluit, Nunavut in October 2011, they agreed to produce a range wide circum-Arctic Conservation Plan for polar bears, to be tabled as a full draft report for the next meeting in 2013 (Directorate for Nature Management, 2011).

Alaska-Chukotka Agreement

On October 16, 2000, the United States and the Russian Federation signed the *Agreement between the Government of the United States of America and the Government of the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population* (Anon., 2000a). Ratified in 2007, the agreement’s goal was to establish joint management of the polar bear population shared between the two countries, and to regulate the hunting and use of polar bears in Chukotka (Russia) and Alaska (United States). The agreement established the United States-Russia Polar Bear Commission comprising four commissioners (two from the federal government and two Natives) who received equal powers and would be responsible for establishing annual quotas (Anon., 2000a; Vaisman *et al.*, 2009). The agreement also established the Scientific Working Group (SWG) to assist the commission in resolving questions pertaining to the protection and management of the Alaska-Chukotka polar bear population. The commission also agreed that, prior to any decisions on polar bear management, including harvest, the commission should obtain a report from the SWG regarding sustainable harvest levels and population status (K.D. Rode, Wildlife Biologist, USFWS, *in litt.* to G. York, February 17, 2010).

Using assumed population estimates, population models and assumed values of growth rate, the SWG evaluated the potential ranges of sustainable subsistence removals and identified two possible management options (US Federal Register, 2010):

- a moratorium on the subsistence harvest by both countries with enforcement of such a moratorium

in both countries;

- establishment of a regulated subsistence harvest for both the United States and Russia with implementation of community-level conservation programs and enforcement of the regulated subsistence harvest in both countries.

The commission reviewed the report of the SWG. After considering the management options provided by the SWG, traditional knowledge of coastal-dwelling Alaskan Natives and Native Chukotkans and the potential risk assessment on hypothetical harvest levels, the Commission adopted a quota of 58 polar bears to be taken per year for the United States-Russia subsistence harvest. However, no more than 19 females are to be taken, and all human-caused mortalities (e.g. kills in self-defence) are to be counted toward the annual limit (US Federal Register, 2010). Polar bear experts identified this level of harvest as likely to be sustainable, understanding that current information on the population estimate is poor and would be re-evaluated periodically based on scientific studies.

The agreement required both countries to develop documents to describe how the harvest will be regulated and implemented (US Federal Register, 2010). In Alaska, a team led by representatives of the USFWS and the Alaska Nanuuq Commission (ANC) was charged with developing procedures to implement the commission's decision and to present them to the commission at its next regular meeting in July 2011. Five-year quotas were established and the two countries were to develop the mechanisms and rules of implementation of these five-year quotas (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011). The countries made plans to work together to identify legal documents and requirements for the implementation of the harvest limit (US Federal Register, 2010). Monitoring and enforcement systems also need to be set in place in Chukotka before a legal subsistence harvest can begin. Article VI of the agreement provides regulations and guidelines on subsistence hunting as follows:

- the take is consistent with Article III(1)(d) of the 1973 Agreement;
- the taking of females with cubs, cubs less than one year of age, and polar bears in dens, including bears preparing to enter dens or who have just left dens, is prohibited;
- the use of aircraft, large motorized vessels and large motorized vehicles for the purpose of taking polar bears is prohibited; and
- the use of poisons, traps or snares for the purpose of taking polar bears is prohibited” (Anon., 2000a).

In March 2011, the Governor of Chukotka signed a decree to allow Chukotka Natives to harvest 29 polar bears for subsistence purposes. However, in April 2011, the Russian government announced that it had decided against using its allocated quota (Government of the Russian Federation, 2011). The Russian Ministry of Natural Resources and Ecology will not allow the Federal Supervisory Natural Resources Management Service to issue permits for the hunting of polar bears, thus preventing the subsistence hunt from occurring (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011; Government of the Russian Federation, 2011).

Canada-Nunavut-Greenland MOU

Canada, Nunavut and Greenland signed the *Memorandum of Understanding between the Government of Canada, the Government of Nunavut, and the Government of Greenland for the Conservation and Management of Polar Bear Populations* in October 2009. The goal is to create a framework for the cooperative management of the joint Canada/Greenland management units of Baffin Bay and Kane Basin to ensure their future conservation and sustainable management (Anon., 2009c; Environment Canada, 2010a). This goal includes coordinating recommendations for hunting quotas and a sustainable total allowable harvest level that will be provided to MAs (Anon., 2009c;

Environment Canada, 2010a). Under the MOU, a joint commission is to be established to advise the governments of Canada, Nunavut and Greenland (Anon., 2009c). The joint commission is to: provide recommendations on conservation and management activities; recommend sustainable total allowable harvest levels; identify science and traditional knowledge research priorities; identify outreach and communications priorities for management and conservation of polar bears; recommend a plan for action; and prepare and circulate an annual report (Anon., 2009c).

Canada-United States MOU

Canada and the United States signed the *Memorandum of Understanding between Environment Canada and the United States Department of the Interior for the Conservation and Management of Shared Polar Bear Populations* on May 8, 2008. The purpose of the MOU is as follows (Anon., 2008b):

- “... to facilitate and enhance coordination, cooperation and the development of partnerships between the Participants, and with other associated and interested entities, regarding the conservation and management of polar bears and to provide a framework for the development and implementation of mutually agreeable immediate, interim and long term actions that focus on specific components of polar bear conservation.”

As per the MOU, a Bilateral Oversight Group was to be developed consisting of participants with management experience or expertise in polar bear conservation to provide direction and oversight. The following representatives have been invited to participate: the Director General of the CWS, the Director of the United States Department of the Interior, one representative of Canadian Aboriginal organizations, one representative of the Native/Tribal Government of Alaska, one representative from the Alaska Department of Fish and Game (ADF&G) and one representative from the Canadian Provincial/Territorial Authorities (Anon., 2008b).

Specific cooperative conservation measures would be developed, reviewed and implemented by the participants and would integrate such programs and projects into their conservation priorities. Some of the activities would be to develop a conservation action, identify key habitats, share information on each country's efforts for polar bear conservation, develop a plan for enhancing forecasting models, develop baseline information on population trends and factors affecting the population, develop mechanisms for increasing the capacity to conduct research and develop outreach and educational materials (Anon., 2008b).

Inuvialuit-Inuit Agreement

The *Polar Bear Management Agreement for the North Beaufort Sea and Viscount-Melville Sound Polar Bear Populations* was signed on February 4, 2006 between the Kitikmeot Hunters and Trappers Association (on behalf of Inuit of Kitikmeot West Region in Nunavut) and the IGC (on behalf of the Inuvialuit). The agreement established a Joint Commission of three representatives, designated by the IGC and the Kitikmeot Hunters and Trappers' Association, to implement the agreement. As per the agreement, the Joint Commission appointed a Technical Advisory Committee to collect and evaluate management data (including traditional knowledge) and provide recommendations. The agreement also established provisions for the collection of data and sharing of information, including data on polar bears killed (sex of the bear, date and location of the kill), and collection of specimens from the carcass. This includes the lower jaw or post canine tooth for age determination, the baculum from a male, lip tattoos and ear tags or radio collars if present (Anon., 2006b).

Annual meetings are to be held to review the best available information on the joint management unit and make recommendations for research and management. Some of the agreement's objectives are to maintain the joint polar bear management units at

healthy levels using a sustained yield basis in accordance with best available information, allocate total sustainable yield between the two jurisdictions, encourage the harvest sex ratio less than of 1:3 females to males, identify research priorities and encourage collection of TEK and scientific information, minimize detrimental effects of human activities on polar bears and their habitat and encourage the wise use of polar bears and polar bear products (Anon., 2006b).

Inuvialuit-Inupiat Agreement

The *Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea* was developed with recognition that both the Inupiat and Inuvialuit traditionally harvested polar bears from the Southern Beaufort Sea management unit, and that it was essential to continue the hunting to maintain the cultural, dietary and economic base of these groups. The agreement was signed in January 1988 in Inuvik, Northwest Territory (Canada) and Point Barrow, Alaska (United States), and it established a Joint Commission consisting of two representatives from the IGC and the NSB Fish and Game Management Committee to implement the agreement (Anon., 2000b). As per the agreement, the Joint Commission appointed a Technical Committee consisting of hunters and scientists from government agencies to collect and evaluate scientific data and provide management recommendations (Anon., 2000b; Derocher *et al.*, 1998a). The Technical Committee provides an annual report (on behalf of the Inuvialuit and the Inupiat) which explains how the quota was taken (Derocher *et al.*, 1998a; Lunn *et al.*, 2002). On March 4, 2000, the agreement was re-signed and the revised version supersedes the pre-existing 1988 agreement (Anon., 2000b). The current quota of 80 polar bears is divided evenly between Canada and the United States (Lunn *et al.*, 2002). The agreement also establishes provisions for the collection of data and sharing of information which includes data on polar bears killed (sex of the bear, date and location of the kill), and collection of specimens

from the carcass, including the lower jaw or post canine tooth for age determination, the baculum from a male, lip tattoos and ear tags or radio collars if present (Anon., 2000b).

The best available information on the joint management unit and recommendations for research and management are reviewed at annual meetings. Some of the agreement's objectives are to maintain the joint polar bear management unit at healthy levels using a sustained yield basis in accordance with best available information, allocate total sustainable yield between the two jurisdictions, encourage the harvest sex ratio less than of one female to three males, identify research priorities and encourage collection of TEK and scientific information, minimize detrimental effects of human activities on polar bears and their habitat and encourage the wise use of polar bears and polar bear products (Anon., 2000b).

The agreement also provides regulations for polar bear hunting, such as the protection of all bears in dens or constructing dens, protection of all members of a family group, establishment of a hunting season (August 1 to May 31 in Canada and September 1 to May 31 in Alaska), prohibiting the use of aircraft or large motorized vessels for the purpose of hunting polar bears, establishing an annual sustainable harvest divided between Canada and Alaska (determined by the Joint Commission and the Technical Advisory Committee), working to keep polar bears away from villages during the closed season (Anon., 2000b). The agreement also establishes that any bears taken for human conflict must be counted as part of the total quota (Anon., 2000b)

Table B

BOARD/COUNCIL/COMMITTEE/ ORGANIZATION	REGION	MEMBERSHIP
Wildlife Management Advisory Council North Slope (WMAC-NS) Section 12(46) of the <i>Inuvialuit Final Agreement</i>	Inuvialuit Settlement Region of Yukon (North Slope area)	A chair and four representatives: <ul style="list-style-type: none"> • one from the federal Minister of the Environment • one from the Yukon government • two from the IGC
Wildlife Management Advisory Council Northwest Territories (WMAC-NWT) Section 14(45) of the <i>Inuvialuit Final Agreement</i>	Inuvialuit Settlement Region of Northwest Territory	A chair and six representatives: <ul style="list-style-type: none"> • one from the Government of Canada • two from the GNWT • three Inuvialuit
Inuvialuit Game Council (IGC) Section 14(73) of the <i>Inuvialuit Final Agreement</i>	Inuvialuit Settlement Region	A chair and 12 members: <ul style="list-style-type: none"> • two representatives from the six ISR communities which are appointed by each HTC
Hunters and Trappers' Committees Section 14(75) of the <i>Inuvialuit Final Agreement</i>	Inuvialuit Settlement Region	Membership-based
Regional Wildlife Organization Section 5.7.4 of the <i>Nunavut Land Claims Agreement</i>	Nunavut	Membership-based
Hunters and Trappers Organization Section 5.7.2 of the <i>Nunavut Land Claims Agreement</i>	Nunavut	Membership-based
Nunavut Wildlife Management Board section 5.2.1 of the <i>Nunavut Land Claims Agreement</i>	Nunavut	Eight representatives and a chair: <ul style="list-style-type: none"> • four from Designated Inuit Associations • three from the Governor in Council on advice of ministers responsible for fish and marine mammals, the Canadian Wildlife Service and Indian and Northern Affairs Canada • one from the Commissioner-in-Executive Council • one independent chair person
Hunting, Fishing and Trapping Coordinating Committee (HFTCC) Section 24.4.1 of the <i>James Bay and Northern Québec Agreement</i>	Parts of Québec	12 members/representatives <ul style="list-style-type: none"> • six from parties (three from the Cree Native party, three from the Inuit Native party) • six from government (three from the Government of Québec and three from the federal government).
Nunavik Marine Regional Wildlife Board (NMRWB) Section 5.7.1 of the <i>Nunavik Inuit Land Claims Agreement</i>	Northern Québec (Nunavik)	A chair and six representatives: <ul style="list-style-type: none"> • three from the Makivik Corporation. • three from governments (Fisheries and Oceans Canada, Environment Canada, and the Government of Nunavut.
Torngat Wildlife and Plant Co-Management Board Section 12.8.1 of the <i>Labrador Inuit Land Claims Agreement</i>	Newfoundland and Labrador	A chair and six representatives: <ul style="list-style-type: none"> • three from the Nunatsiavut Government • two appointed by the provincial minister • one appointed by the federal minister.

Source: Anon., 1984; 1993; 2005a; 2006a; NWMB, 2008b; Joint Secretariat ISR, 2010; WMAC NS, 2009.

ROLES

- Provide recommendations on harvest quotas and prepare management and conservation plans for the Yukon North Slope.
- Provide advice to appropriate ministers on all matters related to wildlife policy and the management, harvest, regulation and administration of wildlife and their habitat in the Yukon North Slope.
- Provide advice to appropriate bodies (such as the Porcupine Caribou Management Board, the Yukon Land Use Planning Commission and the Review Board) on issues pertaining to the Yukon North Slope.
- Provide recommendations on harvest quotas and preparing management and conservation plans for the western Arctic region.
- Provide advice to the appropriate ministers on all matters related to wildlife policy and the management, harvest, regulation and administration of wildlife and their habitat in the Northwest Territory portion of the western Arctic region.
- Provide advice to the appropriate bodies (such as the wildlife management boards, land use commissions, Screening Committee and review boards) on issues pertaining to the western Arctic regions.
- Provide advice on legislation, policy and administration respecting wildlife, research, conservation, management and enforcement to governments through the WMACs.
- Review and advise the government on Canadian positions for international purposes that relate to wildlife in the ISR.
- Distribute quotas to the communities.
- Provide advice on local wildlife matters (within their jurisdiction) on the division of the ISR into community hunting and trapping areas, and on requirements of subsistence users in regard to wildlife to the IGC.
- Create bylaws for harvest activities, sub-allocate quotas among individuals and participate in the regulation of the subsistence harvest.
- Assist in the collection of harvest information and data, or other duties as requested by the WMACs.
- Regulate harvest techniques and practices among members of the HTOs in the region (including the use of non-quota limitations), and managing harvesting among HTOs in the region.
- Allocate and enforce community basic needs levels and adjusted basic needs levels among HTOs in the region.
- Regulate harvesting techniques and practices among members (including the use of non-quota limitations) and manage harvesting among members.
- Allocate and enforce community basic needs levels and adjusted basic needs levels among members.
- Participate in research activities, identify wildlife management research requirements and conduct the Nunavut Wildlife Harvest Study.
- Establish, modify or remove levels of total allowable harvest and non-quota limitations, allocating resources to other residents and operators and establish qualifications respecting guides and setting trophy fees.
- Approve plans for the management and protection of particular wildlife or wildlife habitats, approve the designation of rare, threatened and endangered species and approve changes to boundaries of Conservation Areas which relate to the protection and management of wildlife and their habitat.
- Review, manage, and in some cases supervise and regulate the established Hunting, Fishing and Trapping Regime.
- Provide recommendations or advice to the appropriate ministers on harvest guidelines, enforcement of the Hunting, Fishing and Trapping Regime, protection of species, conservation and management of wildlife, etc.
- Participate in research activities.
- Establish, modify or remove levels of total allowable take for a species or population of wildlife, and establish non-quota limitations.
- Cooperate with wildlife management institutions that deal with species harvest in the Nunavut Marine Region and provide advice to relevant management institutions on matters relating to the protection, conservation, management and regulation of wildlife and wildlife habitat as required.
- Provide recommendations on the conservation and management of wildlife, plants and habitat within the Labrador Inuit Settlement Area to relevant provincial and federal ministers. This includes recommendations on harvesting restrictions, research regarding the management and conservation of wildlife, plants and habitat, establishment of protected areas for wildlife, plants and habitat, and on matters relevant to species or populations at risk.
- Establish, modify or limit the total allowable harvest of non-migratory species of wildlife and plants as necessary.

APPENDIX C

Canadian legislation

Under the Constitution of Canada, the conservation and management of wildlife are a shared responsibility of the federal, provincial and territorial governments. Section 35(1) gives constitutional protection to the rights of aboriginal people in Canada—Inuit, Indian and Métis people. This section dictates that existing treaty and Aboriginal rights are recognized and affirmed (Anon., 1982). The provinces and territories have jurisdiction over wildlife within their borders, while the federal government has jurisdiction over coastal and inland fisheries (including marine mammals), migratory birds and wildlife on federal land (i.e. national parks). The federal government also has jurisdiction over international and inter-provincial trade (Anon., 1867). Each province and territory has

legislation to manage and conserve polar bears within their borders. Management of polar bears in some provinces and territories is subject to land claims agreements (e.g. *Nunavut Land Claims Agreement*, *Inuvialuit Final Agreement*, etc.) or agreements with other nations (MOUs, bilateral agreements, etc.).

Federal legislation *Species at Risk Act*

The Species at Risk Act was proclaimed in June 2003. SARA's purpose is to prevent Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct, to provide for the recovery of extirpated, endangered or threatened species as a result of human activity, and to manage species of

concern to prevent them from becoming endangered or threatened (Anon., 2002b). The act established an official list of statuses for species at risk (Schedule 1): extirpated, endangered, threatened or of special concern³² (Anon., 2002b; Government of Canada, 2009). However, before a species can be listed under SARA, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), - the scientific advisory body for SARA, must perform a species assessment assessing the conservation status of wildlife species that may be at risk in Canada (Government of Canada, 2010). The best available scientific information along with community and Aboriginal knowledge is evaluated to determine the risk of extinction. After its assessment, COSEWIC recommends the appropriate status to the Governor in Council (Government of Canada, 2009). COSEWIC is also required to reassess the species at least once every 10 years, or at any time if there is reason to believe that the status may have changed substantially (Government of Canada, 2010). If the assessment is adopted by SARA, measures to protect and recover a listed species are implemented (Government of Canada, 2009).

In April 2008, COSEWIC assessed the polar bear as being of special concern. However, the polar bear was not immediately listed on Schedule 1 of SARA because Environment Canada wanted to undertake extensive consultations to determine if the assessment should be accepted. On July 2, 2011, after three years of consultation with northern communities, the polar bear was listed on Schedule 1 of SARA as a species of special concern (Anon., 2011).

Wild Animal and Plant Protection and Regulation of International and

Interprovincial Trade Act (WAPPRIITA)

In 1975, Canada ratified CITES and implemented it through the *Export and Import Permits Act*. This act was replaced by WAPPRIITA, which received royal assent in 1992 but it did not come into force until May 14, 1996, when the enabling regulations - the *Wild Animal and Plant Trade Regulations* (WAPTR) - were passed (Anon., 1970; Anon., 1992; Cooper and Chalfour, 2004). WAPPRIITA incorporates the animals and plants included on the CITES Appendices into Canadian law by listing them on Schedule I of the WAPTR. Inter-provincial trade within Canada is also regulated by WAPPRIITA and WAPTR. The CITES MA and CITES Scientific Authority (CITES SA) for Canada is the Canadian Wildlife Service (CWS) (CITES, 2010b).

Land claims agreements

Land claims agreements are essentially modern-day treaties that are negotiated in areas of Canada where Aboriginal rights and/or titles have not been addressed by existing treaties. These agreements are negotiated between Aboriginal groups, the Government of Canada and the relevant province or territory. Although they may differ, most include topics such as wildlife harvesting rights, land ownership, financial settlement, participation in land, resource, water, wildlife and environmental management and measures to protect Aboriginal culture and promote economic development. Some agreements also include provisions for Aboriginal self-government (INAC, 2009).

Twenty-two comprehensive land claims and two stand-alone self-government agreements have been concluded and implemented in Canada since 1973.

³² SARA defines extirpated species as "a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild"; endangered species as "a wildlife species that is facing imminent extirpation or extinction"; threatened species as "a wildlife species that is likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction"; and species at risk as "an extirpated, endangered or threatened species or a species of special concern" (Anon., 2002a).

The settlements have provided protection for traditional ways of life respect for Aboriginal land rights (approximately 40% of Canada's land mass), Aboriginal ownership of 600,000 km² of land, participation in land and resource management decisions, access to future resource management decisions, capital transfers of over CAD2.8 billion (USD2.7 billion at 2010 rates) and associated self-government rights and political recognition. These agreements have taken an average of 20 to 25 years to reach a final agreement (INAC, 2010). Five of these agreements which involve Inuit and Inuvialuit peoples of Canada are summarized below.

Inuvialuit Final Agreement

The Government of Canada and the Inuvialuit people of Canada signed the *Inuvialuit Final Agreement*³³ on June 5, 1984. It provided the Inuvialuit with the exclusive right to harvest wildlife (including polar bears) in the Inuvialuit Settlement Region which encompasses the western Arctic region of the Northwest Territories and the North Slope of Yukon (Anon., 1984). The main objectives or goals of the *Inuvialuit Final Agreement* are as follows (Anon., 1984):

- “to preserve Inuvialuit cultural identity and values within a changing northern society;
- to enable the Inuvialuit to be equal and meaningful participants in the northern and national economy and society;
- to protect and preserve the Arctic wildlife, environment and biological productivity.”

The *Inuvialuit Final Agreement* provided the Inuvialuit people with ownership of 90,650 km² of land in the Northwest Territory (including subsurface rights to 12,950 km² of land), a financial settlement of CAD512

million (USD497 million at 2010 rates) tax-free paid over 13 years, a one-time payment of a CAD7.5 million (USD7.28 million at 2010 rates) social development fund, a CAD10 million (USD9.7 million at 2010 rates) economic enhancement fund, exclusive rights for conducting commercial wildlife activities on lands within the settlement region and input into wildlife and environmental management through participation in boards and councils (PWGSC, 2007).

The *Inuvialuit Final Agreement* established two wildlife management councils: the Wildlife Management Advisory Council (North Slope) (WMAC NS) and the Wildlife Management Advisory Council (NWT) (WMAC NWT) (Anon., 1984). They are responsible for recommending harvest quotas and preparing management and conservation plans (Joint Secretariat ISR, 2010; Lunn *et al.*, 2006). In 1983, the Inuvialuit Game Council (IGC) was established in anticipation of the *Inuvialuit Final Agreement* to represent the collective Inuvialuit interest in all matters relating to wildlife (Anon., 1984). The roles of these councils are provided in more detail under the management section (see Table B).

James Bay and Northern Québec Agreement (JBNQA)

The Nunavik Inuit and Cree peoples of Québec, the Government of Canada, the Government of Québec, the James Bay Energy Corporation, Hydro-Québec and the James Bay Development Corporation signed the *James Bay and Northern Québec Agreement* on November 11, 1975 (Anon., 1975; PWGSC, 2009). During negotiations, the main goal of Nunavik Inuit was to secure their land base and traditional ways of life. They also wanted to improve their quality of life including educational and health services, commu-

³³ The *Inuvialuit Final Agreement* is also known as the *Western Arctic (Inuvialuit) Claims Settlement Act*. For more information on this Agreement, please refer to Anon., (1984).

nity infrastructure and services and police and justice services (Makivik Corporation, 2010).

The *James Bay and Northern Québec Agreement* provided Nunavik Inuit with ownership of 8,152 km² of land, exclusive harvesting rights over 81,596 km² of land and a financial settlement of CAD91 million (USD88 million at 2010 rates) which is a total of CAD225 million (USD218 million at 2010 rates) for both Cree and Nunavik Inuit (PWGSC, 2009). The Agreement established non-ethnic governance and influenced the decision to transfer responsibility for services from the Government of Canada to the Government of Québec (Makivik Corporation, 2010).

The Hunting, Fishing and Trapping Coordinating Committee (HFTCC) was established under the *James Bay and Northern Québec Agreement* to study, manage and on occasion monitor and/or regulate the hunting, trapping and fishing regime (HFTCC, 2010b; PWGSC, 2009). The HFTCC's role is outlined in Table B.

Labrador Inuit Land Claims Agreement

The Inuit of Labrador, the Government of Canada and the Government of Newfoundland and Labrador signed the *Labrador Inuit Land Claims Agreement* on January 22, 2005 (Anon., 2005b).

It designated approximately 72,500 km² of land as the Labrador Inuit Settlement Area under the *Labrador Inuit Land Claims Agreement*, of which 15,800 km² is owned by the Labrador Inuit. Inuit-owned land is often referred to as the Labrador Inuit Lands, and in this area Inuit have exclusive rights to carving stone, harvesting wildlife, a 35% ownership interest in subsurface resources and ownership of 3,950 km² of quarry materials. The Labrador Inuit also received ocean zone rights covering 48,690 km², and rights to harvest wildlife for food, social or ceremonial purposes throughout the Labrador Inuit Settlement Area (Nunatsiavut Government, 2009a). For regions of the

Labrador Inuit Settlement Area which are not owned by Inuit, co-management rights are provided, in addition to co-management rights extending 20 km offshore from the headland and island of Labrador (Nunatsiavut Government, 2009d). The Labrador Inuit also received cash compensation of CAD140 million (USD136 million at 2010 rates) in addition to CAD156 million (USD151 million at 2010 rates) for implementation of the agreement (Nunatsiavut Government, 2009a) the development of the Nunatsiavut Government (a regional Inuit government) and development of requirements for a Labrador Inuit Constitution (Nunatsiavut Government, 2009d).

Although the provincial and federal governments retain responsibility for the conservation and management of wildlife in the Labrador Inuit Settlement Area (Nunatsiavut Government, 2009a), the Torngat Wildlife and Plants Co-Management Board (TWPCB) was established as the primary body for making recommendations on the management and conservation of wildlife throughout the Labrador Inuit Settlement Area (Nunatsiavut Government, 2009a; Torngat Secretariat, 2010). The Nunatsiavut Government retains control over who may harvest wildlife in the Labrador Inuit-owned lands, and controls Inuit harvesting throughout the Labrador Inuit Settlement Area for food, social and ceremonial purposes (Nunatsiavut Government, 2009a). The TWPCB's role is outline in more detail in Table B.

Nunavik Inuit Land Claims Agreement

The Government of Canada, Government of Nunavut and the Makivik Corporation (representing Nunavik Inuit) signed the *Nunavik Inuit Land Claims Agreement* on December 1, 2006. The Nunavik Inuit Settlement Area encompasses the Nunavik Marine Region (Nunavut offshore islands adjacent to Québec) and the Labrador Inuit Settlement Area portion of the Nunavik Inuit/Labrador Inuit overlap area (Anon.,

2006a; INAC, 2008). The *Nunavik Inuit Land Claims Agreement* reflects a successful overlap agreement with three other Aboriginal groups in the region - the Crees of Eeyou Istchee, Labrador Inuit and Nunavut Inuit. (INAC, 2008). It also provides the Nunavik Inuit with the right to harvest any species of wildlife in the Nunavik Marine Region for social, economic, and cultural needs (INAC, 2008). The main objectives or goals of the *Nunavik Inuit Land Claims Agreement* are as follows (Anon., 2006a):

- “to provide for the continuation of harvesting by the Crees of Eeyou Istchee and the Nunavik Inuit in the Cree/Inuit Offshore Overlapping Interests Area, regardless of land claims agreement boundaries;
- to identify the Cree/Inuit Offshore Overlapping Interests Area and the three (3) zones comprised within this Overlap Area;
- to identify a Joint Inuit/Cree Zone within this Overlap Area, and with respect to such Joint Zone to provide for:
 - ▶ the joint and equal ownership of lands and the joint and equal sharing of other interests, benefits and revenues by the Crees of Eeyou Istchee and the Nunavik Inuit;
 - ▶ the sharing of wildlife between the Crees of Eeyou Istchee and the Nunavik Inuit in accordance with the harvesting interests of both groups;
 - ▶ the joint and equal participation of the Crees of Eeyou Istchee and the Nunavik Inuit in the management of the lands, resources and wildlife, including joint and equal participation in regimes for wildlife management, planning, land and water management and development impact assessment in such zone;
- to identify an Inuit Zone within this Overlap Area and with respect to such zone, to provide for:
 - ▶ the ownership of lands by the Nunavik Inuit

and other interests, benefits and revenues of the Nunavik Inuit;

- ▶ the sharing of wildlife between the Crees of Eeyou Istchee and the Nunavik Inuit in accordance with the harvesting interests of both groups;
- ▶ the participation of the Crees of Eeyou Istchee in the management of wildlife, including participation in the regime for wildlife management to be provided for in the Nunavik Inuit Final Agreement;
- to identify a Cree Zone within this Overlap Area and with respect to such zone, to provide for:
 - ▶ the ownership of lands by the Crees of Eeyou Istchee (save those islands described in schedule 6) and other interests, benefits and revenues of the Crees of Eeyou Istchee;
 - ▶ the sharing of wildlife between the Crees of Eeyou Istchee and the Nunavik Inuit in accordance with the harvesting interests of both groups;
 - ▶ the participation of the Nunavik Inuit in the management of wildlife, including participation in the regime for wildlife management provided for in the Crees of Eeyou Istchee Final Agreement;
- to promote cooperation and good relations between the Crees of Eeyou Istchee and the Nunavik Inuit and with third parties.”

The *Nunavik Inuit Land Claims Agreement* gave Nunavik Inuit ownership of 5,100 km² of land (including surface and subsurface rights), an additional 400 km² of land to be shared with the Québec Cree in a joint zone, a financial settlement of CAD54.8 million (USD53.2 million at 2010 rates) paid over nine years and CAD57.6 million (USD55.9 million at 2010 rates) for implementation of the *Nunavik Inuit Land Claims Agreement* paid over 10 years, royalties on resource development in the Nunavik Marine Region, rights to

harvest wildlife in the Nunavik Marine Region to fulfill their social, economic and cultural needs, and national park status for the Torngat Mountains National Park Reserve of Canada (INAC, 2008).

The *Nunavik Inuit Land Claims Agreement* established the Nunavik Marine Region Wildlife Board (NMRWB) for matters regarding wildlife management (INAC, 2008). Although the government retains ultimate responsibility for wildlife management, the NMRWB is considered the main instrument for wildlife management and main regulator of access to wildlife in the NMR (Anon., 2006a; NMRWB, 2010). The NMRWB's role is provided in more detail in Table B.

The Nunavut Land Claims Agreement

The Inuit of the Nunavut Settlement Area (Nunavut prior to its formation) and the Government of Canada signed the *Nunavut Land Claims Agreement*³⁴ was signed on May 25, 1993 (Anon., 1993). Covering one fifth of Canada's land mass, the Nunavut Land Claims Agreement is the largest land claims agreement in Canadian history (NWMB, 2008a). Its main objectives or goals are as follows (Anon., 1993):

- “to provide for certainty and clarity of rights to ownership and use of lands and resources, and of rights for Inuit to participate in decision-making concerning the use, management and conservation of land, water and resources, including the offshore;
- to provide Inuit with wildlife harvesting rights and rights to participate in decision-making concerning wildlife harvesting;
- to provide Inuit with financial compensation and means of participating in economic opportunities;

- to encourage self-reliance and the cultural and social well-being of Inuit.”

The Nunavut Land Claims Agreement provided Nunavut Inuit with ownership of approximately 352,00 km² of land (18% of Nunavut), a cash settlement of CAD1.14 billion (USD1.11 billion at 2010 rates) paid over 14 years, a share of royalties from development of Crown natural resources and land, rights to harvest wildlife throughout the Nunavut Settlement Area, exclusive rights to use water on Inuit-owned lands (including water flowing in and through Inuit-owned lands), input into wildlife management through participation in the NWMB (NTI, 2009) and the right for self-determination and self-government (Government of Nunavut, 2009).

Although Nunavut has the same status and power as the other territories in Canada, it is unique in that it incorporates Inuit beliefs and values into the system of government. Rather than using an Inuit-specific self-government model, the Inuit pursued their self-determination through a public government structure. Nunavut is governed through a public government framework which represents all residents - Inuit and non-Inuit alike. The public government structure includes an elected legislative assembly consisting of a premier, speaker, seven-member cabinet and 10 regular members. The system also includes the Nunavut Court of Justice and the Nunavut Public Service (Government of Nunavut, 2009).

The NWMB was established as a result of the *Nunavut Land Claims Agreement* for matters regarding wildlife management. Although the government retains ultimate responsibility for wildlife management, the NWMB is considered the main instrument for wildlife management in Nunavut (NWMB, 2008b). The NWMB's role is described in more detail in Table B.

³⁴ The *Nunavut Land Claims Agreement* is also known as the *Nunavut Final Agreement*. For more information on this Agreement please refer to Anon. (1993).

Provincial legislation

Manitoba

In Manitoba, polar bears are protected under the *Manitoba Wildlife Act*, the *Manitoba Endangered Species Act* and the *Polar Bear Protection Act*. The *Wildlife Act* of 1987 prohibits hunting, capture, possession, import, export, or sale of protected species including polar bears (Anon., 1987). The *Endangered Species Act* was created in 1990 to designate species as endangered, threatened or extirpated within the province, and to provide protection for those species to enable their survival. As of 2008, the act designates the polar bear as a threatened species within Manitoba (Anon., 1990). The *Polar Bear Protection Act* in 2002 outlined the only circumstances in which Manitoba would allow polar bears to be removed from the wild (Anon., 2002c).

Newfoundland and Labrador

Polar bears are classified as a big-game animal under the *Newfoundland and Labrador Wild Life Act* and its *Wildlife Regulations*. These regulations allow for the establishment of an annual *Hunting Order* which details terms of the hunting season, limits, methods used, location and any other details of the harvest (Brazil and Goudie, 2006). The *Labrador Inuit Land Claims Agreement* gives Inuit the exclusive right to harvest polar bears throughout the Labrador Inuit Settlement Area under the established Total Allowable Harvest (TAH) (Brazil and Goudie, 2006). In August 2008, the Newfoundland and Labrador *Endangered Species Act* was updated to include the polar bear as a vulnerable species. According to the act, a management plan for the species must be completed within three years (Anon., 2001b). Only Inuit have the right to harvest polar bears in the province.

Ontario

The Ontario *Endangered Species Act* of 1971 was designed to protect all species and their habitat listed under its regulations from harm (Anon., 1971). In 2007, it was amended and is now referred to as the Ontario *Endangered Species Act, 2007*. Its purpose is to: identify species at risk based on the best available scientific information (including Aboriginal traditional knowledge and information from community knowledge); protect species at risk (including their habitat) and promote recovery of such species; and promote stewardship activities that assist in the recovery and protection of species at risk (Anon., 2007a). As of 2009, the act recognizes the polar bear as a threatened species and protects the species as such (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, April 5, 2010). The *Ontario Fish and Wildlife Conservation Act* of 1999 classifies polar bears as fur-bearing mammals under its regulations (*Ont. Reg. 669/98*). It gives polar bears protection from hunting and trapping with the exception of a limited harvest by First Nations Treaty 9 members (of the *James Bay Treaty* of 1905) residing along James Bay and the Hudson Bay coast who possess a valid trapping licence (Lunn *et al.*, 2002; OMNR, 2008).

Québec

As of 2009, Québec's endangered species legislation, *Loi sur les espèces menacées ou vulnérable*, designates the polar bear as a vulnerable species (Anon., 1989; CITES SA, Environment Canada, *in litt.* to T. Shadbolt, April 5, 2010). In Québec, the polar bear harvest is regulated by the *James Bay and Northern Québec Agreement* and the *Nunavik Inuit Land Claims Agreement*, which gives exclusive hunting rights to Aboriginal people as a way to protect their traditional rights (Lunn *et al.*, 2002).

Territorial legislation

Nunavut

The *Nunavut Wildlife Act* provides a system for management of wildlife in Nunavut in a manner that implements provisions of the *Nunavut Land Claims Agreement* respecting wildlife and habitat and Inuit rights in relation to wildlife and habitat. This includes the protection, conservation and recovery of species at risk. There is no listing for polar bears under the *Nunavut Wildlife Act*; however, this act classifies the polar bear as a big-game species and regulates their harvest (Anon., 2003).

Northwest Territories

The *Northwest Territories Wildlife Act* classifies polar bears as big game under its *Wildlife Regulations* and regulates the harvest of polar bears (Anon., 1988). The *Inuvialuit Final Agreement* gives Inuvialuit the exclusive harvest rights. In 2010, the *Species at Risk (NWT) Act* was introduced; however, no species were listed as of March 2010 (CITES SA, Environment Canada, *in litt.* to T. Shadbolt, April 5, 2010).

Yukon Territory

There is no listing for polar bears under the *Yukon Wildlife Act*. However, the act does classify polar bears as big game under its *Wildlife Regulations* and provides regulations for their harvest (Anon., 2002d). The *Inuvialuit Final Agreement* gives the Inuit the exclusive right to harvest polar bears.

Greenlandic Legislation

In 1953, Greenland became an autonomous county of Denmark (Government of Greenland, 2009a). In subsequent opposition to Danish administration, Greenland obtained its own *Home Rule Act No. 577 of 29 November 1978*, thereby becoming a distinct community in the Kingdom of Denmark (Anon., 1978). On May 1, 1979 the Greenland Home Rule Government was for-

mally established (Government of Greenland, 2009a).

Denmark joined the European Economic Community (EEC) (now the European Union) in 1973. However, in 1979 Greenland held a referendum on its EU membership and decided to leave the EU in 1985. As such, it does not abide by EU regulations (Greenland Home Rule Government, 2008b). However, Greenland is a member of Overseas Countries and Territories of the European Union Association (OCTA). On June 21, 2009 Greenland was granted self-determination under *Greenland Self-Government Act No. 473 of 12 June 2009*, an extension of powers enacted in the *Greenland Home Rule Act No. 577 of 29 November 1978* (Anon., 2009a; Government of Greenland 2009a). As a result, Greenland was recognized as a people pursuant to international law with the right to self-determination, and *Kalaallisut* was established as the official language of Greenland (M. Frost, WWF-Denmark *in litt.* to T. Shadbolt, May, 15, 2012). These two acts allowed Greenland to elect its own government and parliament. Under the *Self-Government Act*, Greenland has sovereignty on matters regarding health, education, fisheries, hunting, mineral and hydrocarbon resources, conservation, environment and climate. Greenland can also take jurisdiction in other areas such as justice affairs (Anon., 2009a; Government of Greenland, 2009a). The *Self-Government Act* further establishes the economic relationship between Greenland and the Kingdom of Denmark and principles for possible future independence (M. Frost, WWF-Denmark *in litt.* to T. Shadbolt, May, 15, 2012).

Implementation of CITES

Denmark (including dependent territories such as Greenland) ratified CITES in 1977. In 1985, the Greenland CITES MA obtained the authority to issue CITES permits. In 2004, Greenland introduced its own legislation to implement CITES under *Home Rule Order No. 12 of 13 September 2004 on export and import of wild animals and plants, etc. covering the*

Convention of 3 March 1973 on International Trade in Endangered Species of Wild Fauna and Flora (Washington Convention/CITES) (Anon., 2004). This legislation is administered by the Ministry of Domestic Affairs, Nature and Environment (called the Ministry of Environment and Nature prior to 2009), which is also the CITES MA in Greenland (Anon., 2004). The Greenland Institute of Natural Resources (GINR) is designated as the CITES SA (Ministry of Fisheries, Hunting and Agriculture, 2009).

Even though Greenland is part of the Kingdom of Denmark, items may not be freely traded between the two. Import permits are needed to import Annex A and B species into Denmark (C. O'Criodain, WWF International, *in litt.* to T. Shadbolt, December 12, 2008).

In 1956, the *Order No. 218 of July 31 1956 concerning game preservation in Northeastern Greenland* (IUCN, 1985) provided limited regulations on polar bear hunting, which have been amended and/or replaced many times. The current regulations, *Greenland Home Rule Executive Order No. 21 of 22 September 2005 on protection and harvest of polar bears*, introduced quotas for harvest of polar bears in Greenland (Aars *et al.*, 2006b; Anon., 2005a; Jensen and Christensen, 2003).

On February 21, 2008, the Greenland Home Rule Government introduced a temporary export ban on all polar bear parts originating from Greenland (effective April 1, 2008) until a positive NDF can be made or additional information is provided (Government of Greenland, 2009c; Greenland Home Rule Government, 2008a; 2008b). This ban applies to tourist items, which means that (effective February 2012) there is no legal export of polar bear products originating from Greenland (Greenland Home Rule Government, 2008a; 2008b). However, export permits can be obtained for the movement of household effects between Greenland and other countries providing the applicant can show that all items were legally obtained and can document that he/she was living in Greenland for more than 185

days before moving to the other country (E. Topp-Jørgensen, Greenland CITES MA, *in litt.* to A. Knapp, TRAFFIC Europe and T. Shadbolt, December 29, 2008).

Norwegian Legislation

Polar bears are found in the Svalbard archipelago, located north of mainland Norway in the Arctic Ocean. The archipelago's largest two islands are Spitsbergen, Nordaustlandet (North East Island), and Edgeøya (Edge Island). Discovered in 1596, people from different nationalities carried out activities in the archipelago when no laws or courts were in place. However, at the beginning of the 20th century interest in mining and concerns over ownership of land and mineral deposits created a need for legislation and courts (Governor of Svalbard, 2008c).

The *Treaty of Versailles*, signed on June 28, 1919, was one of the treaties that ended World War I and allowed for the creation of the *Spitsbergen Treaty*, now known as the *Svalbard Treaty*. The *Svalbard Treaty* was signed on February 9, 1920, but did not come into force until August 14, 1925 (Anon., 1920; Governor of Svalbard, 2008c). Approximately 39 countries signed the treaty, but only Norway was given sovereignty over the Svalbard archipelago. However, citizens from other signatory countries were given equal rights to residence, property, research activities and commercial activities such as mining, hunting, fishing, etc. (Governor of Svalbard, 2008c).

Svalbard legislation

Svalbard Act

The *Svalbard Act of 17 July 1925* came into effect on August 14, 1925, and established Svalbard as a part of the Kingdom of Norway. This made all Norwegian civil laws, procedural laws and criminal laws applicable to Svalbard unless otherwise stipulated (Anon., 1925; Governor of Svalbard, 2008a).

Svalbard Environmental Protection Act

The *Svalbard Environmental Protection Act, Act of 15 June 2001 No.79 Relating to the Protection of the Environment in Svalbard*, came into effect on July 1, 2002. This act is essentially a collection of environmental legislation, the main purpose of which is to protect untouched areas of Svalbard (Anon., 2001a; Governor of Svalbard, 2008b). Under this act, the environmental protection authorities for Svalbard include the King of Norway, the Ministry of the Environment, directorates as decided by the ministry, and the Governor of Svalbard (Anon., 2001a). The Government of Svalbard is the supreme environmental authority and is responsible for matters regarding wildlife and its management in Svalbard (Governor of Svalbard, 2008d).

Legislation and regulations applicable to Svalbard

Implementation of CITES

In 1976, Norway ratified CITES under Act No. 29 of 13 December 1946 relating to the provisional ban on imports and Act No. 30 of 13 December 1946 relating to the provisional ban on exports (om innførselsregulering og utførselsregulering) (Anon., 1997). These acts were replaced by Act No. 32 of 6 June 1997 relating to the regulation of imports and exports (Lov om innførsle- og utførslerregulering) (Anon., 1997) and Delegation of authority pursuant to the Act regulating importation and exportation of goods (No. 618 of 1998) (Anon., 1998).

A new regulation for CITES was adopted by Royal Decree, Regulation no. 1276 of 15 November 2002 for the implementation of the Convention of 3 March 1973 on CITES, which came into effect in 2003 (Anon., 2008a; Anon., 2002a). The Directorate of Nature Man-

agement in Norway is responsible for the management of CITES (Directorate for Nature Management, 2009b), and is the CITES MA and SA for Norway (CITES, 2010b).

Protection of polar bears

In 1957, Norway introduced regulations on the harvest of polar bears in Norway and by Norwegian citizens under *Act of 22 March 1957 No. 4 relating to Hunting of Polar Bear* (Anon., 2001a). However, in August 1973, after a century of intensive hunting, Norway decided to implement a five-year moratorium on all hunting activities with exceptions possible for special purposes (Derocher *et al.*, 2002). A few months later, the international *Agreement on the Conservation of Polar Bears* was signed, prohibiting the hunting of polar bears with the exception of hunting by indigenous people. Norway continued to prohibit the hunting of polar bears in the country and bears may only be killed for protection of property, in self-defence and as mercy kills (Derocher *et al.*, 2002).

The *Svalbard Environmental Protection Act* allowed for amendments to be made to *Act of 22 March 1957 No. 4 relating to Hunting of Polar Bears*. The latter was modified to include the term “protection” in the title (becoming *Act of 22 March 1957 No. 4 relating to the Protection and Hunting of Polar Bears*) (Anon., 2001a). A further amendment to the 1957 act protected polar bears from all forms of hunting on Norwegian land and sea, and hunting of polar bears by all Norwegian citizens, the Kingdom’s inhabitants, or by Norwegian companies, associations or foundations outside of Norwegian territory, or their assistance in the hunting of polar bears (Anon., 2001a).

The *Svalbard Environmental Protection Act, Act of 15 June 2001 No.79 relating to the protection of the environment in Svalbard* also gave polar bears protection (T. Punsvik, Environmental Advisor for the Governor of Svalbard, *in litt.* to T.Shadbolt, March 9, 2009).

Russian Legislation

On Protection of Arctic Animals

The hunting of polar bears (including by Aboriginal people) in Arctic waters, and islands and shore lands bordering the Arctic Ocean, was banned on November 21, 1956 by the Russian Soviet Federated Socialist Republic Council of Ministers when they adopted Decree No. 738 *On Protection of Arctic Animals* (Belikov *et al.*, 2002). There was a recommendation for a small, regulated subsistence harvest for Chukotkan Natives as per the United States/Russia bilateral agreement. However, in early 2011, the Russian government decided not to use their quota and not issue permits for the subsistence hunt (Government of the Russian Federation, 2011).

Red Data Book of the Russian Federation

The Red Data Book of the Russian Federation is an official document that lists species considered rare and endangered (Belikov *et al.*, 2002; Vaisman *et al.*, 2009). Listed species are classified into one of six categories (Vaisman *et al.*, 2009):

- Category0: probably extinct.
- Category1: endangered.
- Category2: decreasing.
- Category3: rare.
- Category4: uncertain status.
- Category5: rehabilitated and rehabilitating.

The first edition of the Red Data Book for the former USSR was published in 1978 and the first edition of the Red Data Book for the Russian Federation in 1983 (Decree of the USSR Council of Ministers No. 313 of April 12, 1983 *On the Red Data Book of the USSR*; Decree of the Government of Russian Federation No.

158 of February 19, 1996 *On the Red Data Book of the Russian Federation*). The Red Data Book of the Russian Federation has been revised multiple times, most recently in 2001 (Vaisman *et al.*, 2009) and is the responsibility of the federal government. The species listed are subject to special protection and are managed by the Department of State Policy and Management of Hunting and Wildlife of the Ministry of Natural Resources and Ecology of the Russian Federation (Belikov *et al.*, 2002; Vaisman *et al.*, 2009; A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011). Legislative recognition for the Red Data Book is provided by the federal law *On Wildlife* (No. 52-FZ of 1995) and by the federal law *On Environmental Protection* (No. 7-FZ of 2002) (Belikov *et al.*, 2002; Vaisman *et al.*, 2009).

Polar bears were first included in the Red Data Book of the USSR in 1978 (Vaisman *et al.*, 2009). As of February 2012, the Red Data Book listed polar bears under various categories. The Kara Sea and Barents Sea subpopulations were listed in category 4 (uncertain status), the Laptev Sea subpopulation in category 3 (rare) and the Chukchi Sea subpopulation were listed in category 5 (rehabilitated and rehabilitating) (Danilov-Danilian, 2001).

Hunting and commercial use of species listed in the Red Data Book are generally prohibited with the exception of cases that are specified through legislation, primarily through the federal law *On Wildlife* (Vaisman *et al.*, 2009). Soviet-era regulations managed the harvest and taking of species included in the Red Data Book until 1997, when the Government of the Russian Federation issued Decree No. 13 of 6 January 1997 *On Approval of the Rules for the Taking of Animals Belonging to the Species Included in the Red Book of the Russian Federation, except for Aquatic Biological Resources* (Belikov *et al.*, 2010b; Vaisman *et al.*, 2009). These rules state that the taking of polar bears is only permitted "...in exceptional cases including the need to conserve the species, to regulate their numbers, to

secure human safety and to prevent threat to humans, to protect domestic animals from potential disease and to secure the needs of indigenous communities” and “...only on the basis of permits issued by the Federal Service for Supervision of Natural Resource (Rosprirodnadzor).” (Vaisman *et al.*, 2009).

On Environmental Protection

The federal law *On Environmental Protection* (No. 7-FZ of 2002) is the legal act regulating nature protection and natural resources use. It is based on the Constitution of the Russian Federation and its jurisdiction, which includes the territory of the Russian Federation, the Exclusive Economic Zone, territorial waters and the continental shelf of the Russian Federation. Article 60 of the act states: “...animals and other organisms that are listed in the Red Data Books are subject to a ban on any economic use throughout the entire territory” (Vaisman *et al.*, 2009).

On Wildlife

The federal law *On Wildlife* (No. 52-FZ of 1995) regulates all aspects related to the conservation, protection and use of wild animals and their habitats (Belikov *et al.*, 2010b; Vaisman *et al.*, 2009). The law has been changed multiple times; the current version is based on the Constitution of the Russian Federation and the federal law *On Environmental Protection* (Vaisman *et al.*, 2009). Exceptions for the hunting and commercial use of species listed on the Red Data Book of the Russian Federation are not generally permitted. However, exceptions may be granted for cultural, scientific and other purposes, but require the issuance of a special permit by the Federal Supervisory Natural Resources Management Services (Rosprirodnadzor) (Article 24) (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011). This article states that “...actions that might lead to mortality, population declines, or alteration of habitats of species listed in the Red Data Books are not allowed” (Vaisman *et al.*, 2009).

Legislation for the implementation of CITES

The Russian Federation has been a CITES Party since the Convention entered into force under the former USSR in 1976. Under the Constitution of the Russian Federation, all international agreements are automatically considered a part of national legislation once they come into force. The Convention’s text is considered a legal document in Russia and additional pieces of legislation relate to the implementation of CITES in Russia (Lyapustin *et al.*, 2007; Vaisman *et al.*, 2009). These laws regulate the import and export of CITES-listed species. However, there is no legislation that regulates the trade in CITES-listed species within its borders (Lyapustin *et al.*, 2007; Vaisman *et al.*, 2009). The Federal Supervisory Natural Resources Management Service (Rosprirodnadzor) is the CITES MA for the Russian Federation (A. Vaisman, TRAFFIC-Russia *in litt.* to G. York, Sept 7, 2011) and the All Russian Institute of Nature Protection is one of the CITES SAs for the Russian Federation (CITES, 2010b).

Agreement on the Conservation of Polar Bears

In 1973, Russia signed the international *Agreement on the Conservation of Polar Bears*, but did not put the agreement into force until 1976. In 1975, the USSR Council of Ministers issued Decree No. 986 of December 4, 1975 *On the Activities to Secure the Implementation of the Polar Bear Conservation Agreement* and the RSFSR Council of Ministers issued Decree No. 657 of December 18, 1975 *On the Measures to Enforce the Conservation of Polar Bears* (Vaisman *et al.*, 2009).

United States Legislation

Under the United States Constitution, the conservation and management of wildlife is a shared responsibility of the state and federal governments (Kannan, 2009). The State of Alaska was purchased from the

Russian Federation on March 30, 1867 and officially became a state of the United States on January 3, 1959 (Gislason, 2010). The State of Alaska managed polar bears until the passing of the MMPA in 1972, when authority over the species was transferred to the USFWS (USFWS, 1994).

Endangered Species Act

The United States signed the *Endangered Species Act of 1973* (ESA) on December 28, 1973, replacing the *Endangered Species Conservation Act of 1969* (Anon., 1973c). The ESA's purpose was to ensure the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and to ensure the conservation of the ecosystems on which they depend (NOAA, 2011). More than 1,900 species are listed as threatened or endangered under the ESA (NOAA, 2011). A species is considered endangered if it is in danger of extinction throughout all or a significant portion of its range, while a threatened species is one that is likely to become endangered in the future (NOAA, 2011). The polar bear was designated as threatened on May 15, 2008 (MMC, 2008).

The ESA is implemented through regulations found in *The Code of Federal Regulations* (CFR). According to section 9 of the ESA once a species is listed as endangered, certain actions are prohibited. These actions are specified in §17.21 of title 50 of the CFR (50 CFR) which refers to (among other things) the take, import, export and shipment (for commercial activities) of endangered species. This differs from species listed as threatened under the ESA, where specific prohibitions and exceptions to them are not specified. Instead the Secretary of the Interior is given discretion under section 4(d) of the ESA to specify prohibitions and any exceptions to them which are necessary to provide for the conservation of the species. Using this discretion,

general prohibitions were developed under section 50 CFR 17.31 and exceptions to them as stated in 50 CFR 17.32, which apply to most threatened species. For other threatened species, a special rule under section 4(d) of the ESA can be developed which details prohibitions and exceptions to them which are tailored to the particular conservation need of the species. This special rule can include some prohibitions and authorizations under 50 CFR 17.31 and 17.32, or additional ones which may be more or less restrictive than those dictated in 50 CFR 17.31 (US Federal Register, 2008). Once a marine mammal is listed under the ESA, the species automatically has a depleted³⁵ status under the MMPA (US Federal Register, 2008).

The United States signed CITES on March 3, 1973 and was the first country to ratify the Convention on January 14, 1974. It came into force on July 1, 1975 and is implemented in the United States via section 8 of the ESA (Anon., 1973c). The Secretary of the Interior delegated responsibility to the Director of the USFWS, and the USFWS is the CITES MA and SA for the United States (USFWS, 2010a).

Fisherman's Protective Act

Section 8 of the *Fisherman's Protective Act of 1967* (22 U.S.C. 1978, as amended) - better known as the "*Pelly Amendment*" - was enacted as a means of influencing international species conservation (Anon., 1967). The United States Congress originally enacted the *Pelly Amendment* of 1971 in response to unsuccessful efforts to persuade other countries to comply with the ban on high-seas salmon fishing that was promulgated by the International Commission for the Northwest Atlantic Fisheries (Greanias, 1998). In 1978, Congress amended the *Pelly Amendment* to authorize the US President to impose trade sanctions against a country for engaging in trade that diminishes the ef-

³⁵ Section 3 (1) of the MMPA defines the term depleted or depletion as "...a species or population stock is below its optimum sustainable population...[or]...a species or population stock is listed as an endangered species or a threatened species under the Endangered Species Act" (Anon., 1972).

fectiveness of any international program for endangered or threatened species—including CITES—even if the trade is legal under the laws of the offending country (Greanias, 1998). The Department of the Interior has used the *Pelly Amendment* several times in recent years to promote the conservation of CITES-listed species. For example, on December 18, 1996, the United States Secretary of Commerce certified Canada under the *Pelly Amendment* for its hunt of two bowhead whales in 1995. President Clinton opted not to impose trade sanctions, but did take other actions including the decision to withhold consideration of any Canadian requests for waivers to an existing moratorium on the importation of seals and/or seal products into the United States (Clinton, 1997).

Lacey Act

The *Lacey Act* was signed on May 25, 1900 (Anon., 1900). It originally focused on the conservation of native game and wild birds and preventing the introduction of non-native or exotic species into native ecosystems (USFWS, 2007). The *Lacey Act* has since been amended several times (Anon., 1981), with amendments in May, 2008 providing further protection to a broader range of plants (US Federal Register, 2008b). Under the *Lacey Act*, it is unlawful to import, export, sell, acquire or purchase fish, wildlife or plants taken, possessed, transported or sold in violation of United States or Indian law; or in violation of state or foreign law (USFWS, 2007). The law covers all fish and wildlife and their parts or products, and plants protected by State law in addition to those listed by CITES (USFWS, 2007).

Marine Mammal Protection Act (MMPA)

The MMPA (Public Law 92-522), was enacted by the United States federal government in 1972 in response to concerns among the public and scientists about the significant declines in some marine mammal

populations due to human activities (NOAA, 2009). The MMPA protects all marine mammals (including polar bears) and establishes a national policy to prevent stocks and species of marine mammals from declining to a point where they are no longer significant functioning elements of the ecosystem they inhabit (NOAA, 2009). The main goal of the MMPA is to maintain or return marine mammals to their optimum sustainable population (US Federal Register, 2008a). The MMPA established a moratorium on the taking and importation of marine mammals (including their products), unless exempted or authorized under the MMPA for certain specified purposes (US Federal Register, 2008a). The moratorium does not generally apply to coastal-dwelling Alaskan Natives if the taking of marine mammals is for subsistence purposes or for the purpose of creating and selling authentic Native handicrafts and clothing, provided this is not accomplished in a wasteful manner (Anon., 1972). Authentic handicrafts and clothing can be sold in interstate commerce, but edible portions of the marine mammals can only be sold in Alaskan Native villages and towns for Native consumption (Anon., 1972). However, if a marine mammal is considered depleted, the Secretary of the Interior may impose regulations upon the taking of such species by coastal-dwelling Alaskan Natives (Anon., 1972).

The Marine Mammal Commission (MMC) is an independent agency of the United States Government created under Title II of the MMPA to provide independent oversight of policies and programs pertaining to marine mammals carried out by the federal regulatory agencies (MMC, 2010). The primary focus is the protection and conservation of marine mammals. Their duties include the following (Anon., 1972):

- “undertake a review and study of the activities of the United States pursuant to existing laws and international conventions relating to marine mammals, including, but not limited to, the International Convention for the Regulation of

Whaling, the Whaling Convention Act of 1949, the Interim Convention on the Conservation of North Pacific Fur Seals, and the Fur Seal Act of 1966;

- conduct a continuing review of the condition of the stocks of marine mammals, of methods for their protection and conservation, of humane means of taking marine mammals, of research programs conducted or proposed to be conducted under the authority of this Act, and of all applications for permits for scientific research, public display, or enhancing the survival or recovery of a species or stock;
- undertake or cause to be undertaken such other studies as it deems necessary or desirable in connection with its assigned duties as to the protection and conservation of marine mammals;
- recommend to the Secretary and to other Federal officials such steps as it deems necessary or desirable for the protection and conservation of marine mammals;
- recommend to the Secretary of State appropriate policies regarding existing international arrangements for the protection and conservation of marine mammals, and suggest appropriate international arrangements for the protection and conservation of marine mammals;
- recommend to the Secretary such revisions of the endangered species list and threatened species list published pursuant to section 4(c)(1) of the ESA of 1973, as may be appropriate with regard to marine mammals; and
- recommend to the Secretary, other appropriate Federal officials, and Congress such additional measures as it deems necessary or desirable to further the policies of this Act, including provisions for the protection of the Indians, Eskimos, and Aleuts whose livelihood may be adversely affected by actions taken pursuant to this Act.”

The MMPA has provisions under section 119 for cooperative management agreements with Alaskan Native organizations to provide co-management of subsistence use by coastal-dwelling Alaskan Natives and to conserve marine mammals. Under section 502, the Secretary (acting through the Director of the USFWS) may share authority with the Alaska Nanuuq Commission (ANC) for the management of the taking of polar bears for subsistence purposes by monitoring compliance and administering its co-management program for polar bears (Anon., 1972). Created in 1994, the ANC represents Alaska Native hunters on issues related to the conservation and subsistence use of polar bears. The commission consists of representatives from 15 villages from northern and western Alaska (Alaska Nanuuq Commission, 2012).

TRAFFIC, the wildlife trade monitoring network, works to ensure that trade in wild plants and animals is not a threat to the conservation of nature.

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