

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



Sixteenth meeting of the Conference of the Parties
Bangkok (Thailand), 3-14 March 2013

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Transfer from Appendix II to Appendix I of *Ursus maritimus* in accordance with Resolution Conf. 9.24 (Rev. CoP14), Annex 1, paragraph C) ii): A marked decline in the population 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.

B. Proponent

United States of America*

C. Supporting statement

1. Taxonomy

- | | |
|--|--|
| 1.1 Class: | Mammalia |
| 1.2 Order: | Carnivora |
| 1.3 Family: | Ursidae |
| 1.4 Genus, species or subspecies, including author and year: | <i>Ursus maritimus</i> (Phipps, 1774) |
| 1.5 Scientific synonyms: | <i>Thalarctos maritimus</i> |
| 1.6 Common names: | English: Polar bear
French: Ours blanc, Ours polaire
Russian: Бѣлыj медвѣdj
Norwegian: Isbjorn
Danish: Isbjorn
Spanish: Oso polar
Inuktitut: Nanoq |
| 1.7 Code numbers: | A-112.002.006.003 |

2. Overview

Article II of the Convention text provides that Appendix I shall include all species threatened with extinction which are or may be affected by trade. The polar bear is affected by trade within the context of CITES.

* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

According to the Polar Bear Specialist Group (PBSG, Obbard *et al.*2010), about 800 polar bears are harvested annually for primarily subsistence purposes. Of these, during the period 2001–2010, approximately 400-500 polar bears were exported/re-exported annually by the several range States (see Section 6). Most of these items came from wild polar bears. In addition, most specimens originated from Canada.

The available information indicates that polar bears are threatened with extinction in accordance with biological criteria in Resolution Conf. 9.24 (Rev. CoP15), Annex 1, paragraph C) ii), due to a marked decline in the population 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.

Polar bears exist entirely in the circumpolar Arctic sea-ice environment within five range States: Canada, Denmark (Greenland), Norway, Russian Federation, and the United States (DeMaster and Stirling 1981; UNEP-WCMC 2009). Polar bears are completely dependent on sea-ice, their habitat, which they use for hunting prey, reproduction and movement (Stirling 1998, 2006). Sea-ice has been reduced by 8 percent in the past 30 years alone, while summer sea-ice has been reduced by 15-20 percent (ACIA 2004b; Johannessen 2008). An additional decline of 10-50 percent of annual average sea-ice extent is predicted by 2100 (IPCC 2007). A half dozen climate models, the best at predicting observed changes in sea-ice to date, predict the complete loss of summer sea-ice in the Arctic in about 30 years (Amstrup *et al.*2007; Kerr 2009; but also see DeWeaver 2007 and Durner *et al.*2007 about model uncertainty). In some locations where sea-ice already completely disappears in summer — for example, the Canadian Arctic islands and Svalbard, northern Alaska and Russian Chukotka — use of land by polar bears is increasing (Schliebe *et al.*2006). The amount of time on land is critical because polar bears are not able to capture normal prey items and are more likely to be killed by human hunters (Stirling and Derocher 2007). Some experts have concluded that polar bears will not survive due to the complete loss of summer sea-ice (ACIA 2004a; ACIA 2004b; Derocher *et al.*2004; Amstrup *et al.*2007; Stirling and Derocher 2007; Amstrup *et al.*2009).

Sea-ice changes will likely negatively impact polar bears by increasing energetic demands of seeking prey. Remaining members of many populations will be redistributed, at least seasonally, into terrestrial or offshore habitats with marginal values for feeding, and increasing levels of negative bear-human interactions. Increasing nutritional stress will coincide with exposure to numerous other potential stressors. Polar bears in some regions already are demonstrating reduced physical condition, reduced reproductive success, and increased mortality. As changes in habitat become more severe and seasonal rates of change more rapid, catastrophic mortality events that have yet to be realized on a large scale are expected to occur.

The decrease in polar bear habitat – sea-ice -- exacerbates all other potential threats to polar bear, including but not limited to, utilization and trade, disease or predation, contaminants, ecotourism, and shipping (see Section 5). Therefore, a precautionary approach, which includes polar bears in CITES Appendix I, is necessary to ensure that primarily commercial trade does not compound the threats posed to the species by loss of habitat.

3. Species characteristics

3.1 Distribution

The polar bear is found in the circumpolar Arctic marine environments of Canada (Manitoba, Newfoundland, Labrador, Nunavut, Northwest Territories, Quebec, Yukon Territory, Ontario), Denmark (Greenland), Norway (Svalbard), Russian Federation [North European Russia, Siberia, Chukotka, Sakha (Yakutia)], and United States (Alaska) (Figure 1; Amstrup 2003:587; Schliebe *et al.*2006:10–12; Gunderson 2009).

3.2 Habitat

Polar bear habitat is sea-ice occurring in the circumpolar Arctic marine environment including coastlines, and shallow and open seas. Polar bears occur most commonly on the annual ice over the continental shelf and inter-island archipelagos that surround the polar basin (Schliebe *et al.*2006). Their range is limited by the southern extent of sea-ice (NatureServe 2008). Polar bears hunt throughout the year from sea-ice, but in those areas where sea-ice is absent during part of the year, they are forced to live on land and must fast using stored fat reserves (Schliebe *et al.*2006). Because

their principal habitat is the sea-ice surface rather than adjacent land masses, they are classified as marine mammals (Amstrup 2003:587).

3.3 Biological characteristics

Polar bears are the largest of the bear species, and the largest extant species in the Order Carnivora (DeMaster and Stirling 1981; Amstrup 2003:588). Adult males reach their maximum size at 8-14 years old; they measure 240-260 cm total length and usually weigh 400-600 kg, but some large males can weigh more than 800 kg. Adult females are smaller than males and reach adulthood at 5-6 years when they weigh 150-250 kg (Amstrup 2003; Derocher *et al.*2005; Taylor *et al.*2008a,b). Polar bears have a comparatively longer neck and smaller head than other bears (Stirling 1998, 2006). The skin itself is black (Amstrup 2003). Their feet are large, oar-like, and covered with fur on the underside (Stirling 1998, 2006). Their claws are shorter and more curved than those of brown bears (*Ursus arctos*) and larger and heavier than claws of black bears (*Ursus americanus*; Amstrup 2003). Research into the relationship between changes in polar bear body size and shape within the context of environmental contaminants is underway (Gill 2009; Pertoldi *et al.*2009).

Maximum life span is about 25 years for males and 30 years for females (Amstrup 2003:599). Age at first reproduction is 4-5 years for females and 8-10 years for males. Breeding occurs March-June, embryo implantation is delayed until autumn, and birth is believed to occur in November-January. Cubs are born in snow dens which are excavated by pregnant females located primarily on or along the coastline, but also within 10-20 km, or on fast sea-ice (Amstrup 2003:596). Mortality of cubs is high, sometimes exceeding 70 percent. Maternal dens are occupied by females for 5-6 months, during which time females subsist on stored fat. Average litter size is less than two. Cubs, altricial at birth, are usually dependent on their mothers until they reach 2.5 years of age, but in less-productive areas they may stay with their mothers for up to 4.5 years (Amstrup 2003:588; Rode *et al.*2007). Females normally reproduce every 3 years. A low reproductive rate, high cub mortality, and a long generation time contribute to the low reproductive potential of the species (Amstrup and Durner 1995; Schliebe *et al.*2006).

Polar bears do not wander aimlessly on the ice, nor are they carried passively with the ocean currents (Amstrup 2003:592-593). Rather, linear movements and activity areas are very large compared to those of most terrestrial mammals (Bergen *et al.*2007). Movement rates of > 4 km/hr and > 50 km/day have been observed. Annual activity areas by 75 females in the Beaufort Sea area, for example, were approximately 149,000 km², but ranged up to 597,000 km² (Amstrup 2003:593; Amstrup *et al.*2000).

3.4 Morphological characteristics

Bears (Family Ursidae; three genera with eight species) are large mammals with a big head and thick neck, small eyes, rounded ears, and no facial vibrissae (Garshelis 2009:448; Krause *et al.*2008). They have muscular bodies with stout legs, large paws, and a short tail. The genus *Ursus* has four species (*arctos*, *americanus*, *thibetanus*, and *maritimus*; Wilson and Reeder 2005:586-590). The polar bear taxon is not subdivided into subspecies. The body of a polar bear typically is stocky, but lacks a shoulder hump exhibited by *arctos* (DeMaster and Stirling 1981:1). Polar bears have a longer neck and smaller head than other ursids (Stirling 1998, 2006).

3.5 Role of the species in its ecosystem

Polar bears are the apex predator in the Arctic and the keystone species in their ecosystem (Amstrup 2003:591; NatureServe 2006; Schliebe *et al.*2008). The main prey of polar bears is ringed seals (*Phoca hispida*) and, to a lesser extent, bearded seals (*Erignathus barbatus*; Amstrup 2003:591-592; DFO 2009). They also prey occasionally upon other locally available mammals, including seals and whales, as well as polar bear cubs. On land they may consume large ungulates, as well as birds. Polar bears are known to scavenge on whale carcasses, as well as eat berries, grass and kelp. As apex predators, loss of polar bears would have significant consequences to their ecosystem (ACIA 2004b; Polar Bear International 2009).

4. Status and trends

4.1 Habitat trends

Arctic sea-ice extent typically is greatest during the month of March (late Arctic winter). The 1979–2000 average for maximum sea-ice extent was 15.86 million km², while the actual value for March 2012 was 15.24 million km² (NSIDC 2009, 2012). Arctic sea-ice extent typically is least during the month of September (late Arctic summer). The 1979–2000 average for minimum sea-ice extent was 6.70 million km², while the actual value for 16 September 2012 was 3.41 million km² (NSIDC 2012). This was the lowest seasonal minimum extent in the satellite record since 1979 and reinforces the long-term downward trend in Arctic ice extent (Figure 2; Stroeve *et al.*2007). An additional decline of 10-50 percent of annual average sea-ice extent is predicted by 2100 (IPCC 2007). Sea-ice thickness in the Arctic region is also declining (Kwok and Rothrock 2009). A half dozen climate models, the best at predicting observed changes in sea-ice to date, predict the complete loss of summer sea-ice in the Arctic in about 30 years (Figure 3; Amstrup *et al.*2007; Kerr 2009; but also see DeWeaver 2007 and Durner *et al.*2007 about model uncertainty). In some locations, sea-ice already completely disappears in summer (for example, the Canadian Arctic islands and Svalbard, northern Alaska, and Russian Chukotka; Schliebe *et al.*2006).

4.2 Population size

There are presently believed to be between 20,000 and 25,000 polar bears in 19 putative populations (Table 1; Obbard *et al.*2010). While the overall population size estimate has varied little over the past 15 years, individual population estimates have become more precise (see progression of population size estimates in, for example, IUCN/SSC PBSG 1999; Lunn *et al.*2002; Obbard *et al.*2007; Regehr *et al.*2007; Stirling *et al.*2007). In 1993, for example, the total population estimate was 21,470–28,370 individuals (Wiig *et al.*1995:24). A 20th polar bear population may occur in the central polar basin (Amstrup 2003:593).

4.3 Population structure

Polar bears are categorized into several age classes. While the proportion of individuals in each class varies according to the circumstances of the subpopulation, adult males (age 6 years and above) constitute about 12–18% of the subpopulation, adult females about 17–26%, and cubs of the year, yearlings, and 2-year old collectively constitute about 26–32% (DeMaster and Stirling 1981; see also: Hensel and Sorensen, Jr. 1980; Lentfer *et al.*1980; Kolenosky *et al.*1994). More recently, Regehr *et al.*(2010) determined that survival and breeding of polar bears in the southern Beaufort Sea decreased in relation to decreased sea-ice. Taylor *et al.*(2008) also characterized the Kane Basin subpopulation, including sex classes (42.6% males and 57.4% females), average natality (cubs per adult female; 0.63), and age at which 50% of the females had produced their first litter (6.2 years). Taken collectively, the population structure parameters suggested that the Kane Basin population was severely over-harvested during the period 1992–1997.

Adult males are generally solitary, while adult females travel with their cubs until they are about 2.3 years of age (Amstrup 2003:599). Polar bears are known to aggregate seasonally at some locations, such as Churchill (Mulvaney 2009). The sex ratio is roughly equal (Stirling 1998, 2006). Population genetic analyses from Hudson Bay, Canada, suggest a high level of gene flow among polar bear management units (Crompton *et al.*2008). Predicted changes in the distribution and duration of sea-ice in Hudson Bay, however, suggest that gene flow among these clusters may be reduced in the future. For most polar bear populations, information is largely unavailable on polar bear population size and structure, distribution, habitat use, and survival and breeding rates, but new technology, such as global positioning systems, increasingly are being incorporated into polar bear research (e.g., Marques *et al.*2006).

4.4 Population trends

While rangewide population data are not available, polar bear numbers likely were at a minimum during the late 1960s and early 1970s. At that time, hunting – both commercial and subsistence -- was widespread and largely unregulated (IUCN 1970, 1972; U.S. Department of the Interior and The University of Alaska 1966). Given those circumstances, species experts and range States worked together and developed the 1973 Agreement on the Conservation of Polar Bears and Their Habitat

(Obbard *et al.*2010:1 and 219–220). Since that time, the conservation status of the species has largely improved along with stable or increasing population trends in many regions.

Given the extreme nature of the environmental conditions where the polar bear occurs, it is very difficult to characterize accurately the population status or trends (Derocher *et al.*1998; Hunter *et al.*2007; DeGange 2008). Over the past 30+ years, however, many field studies have enhanced our knowledge of polar bear population trends (e.g., Andersen *et al.*2008; Aars *et al.*2009). The overall number of polar bears today, based on this research, probably is decreasing throughout their range, but some populations are stable while another is increasing in number (NatureServe 2008; Schliebe *et al.*2006; Schliebe *et al.*2008; Aars *et al.*2006; IUCN/SSC PBSG 2009a,b,c; Obbard *et al.*2010), as follows (Table 1):

- Increasing (M'Clintock Channel),
- Stable (Gulf of Boothia, Northern Beaufort Sea, and Southern Hudson Bay),
- Declining (Baffin Bay, Chukchi Sea, Davis Strait, Kane Basin, Lancaster Sound, Norwegian Bay, Southern Beaufort Sea, and Western Hudson Bay), and
- Data deficient (Arctic Basin, Barents Sea, East Greenland, Foxe Basin, Kara Sea, Laptev Sea, and Viscount Melville Sound)

Over the years, however, the current trend or status of the 19 subpopulations, as evaluated by the PBSG, in general has deteriorated (Table 2). In 1993 (Wiig *et al.*1995), for example, 13 subpopulations were reported as stable or stationary, while 2 were characterized as decreasing or possibly decreasing. By 2010 (Obbard *et al.*2010), 1 subpopulation was characterized as increasing or possibly increasing, 3 as stable or stationary, 8 as decreasing or possibly decreasing, and 7 as unknown or data deficient; see above).

Especially troubling is the lack of current polar bear population data. Only 8 of the 19 subpopulations have been surveyed and evaluated by the PBSG since 2000 (no published updates since 2007; Table 2). Of the remaining 11 subpopulations, 4 have not been surveyed ever (no date or unknown), while another 7 have not been evaluated since the 1990s (e.g., Viscount Melville in 1992, Laptev Sea in 1993, and Foxe Basin in 1994).

In 2008, the IUCN listed the polar bear as Vulnerable citing criterion A3c based on a suspected population reduction of >30% within three generations (45 years) due to decline in area of occupancy, extent of occurrence and habitat quality (Schliebe *et al.*2008). Some experts have concluded that polar bears will not survive due to the complete loss of summer sea-ice (ACIA 2004a; ACIA 2004b; Derocher *et al.*2004; Amstrup *et al.*2007; Amstrup *et al.*2009).

4.5 Geographic trends

Polar bears are distributed throughout the circumpolar basin with the southern extent of the distribution limited by the extent of Arctic sea-ice. Because they derive their sustenance from the sea, the distribution of polar bears in most areas changes with the seasonal extent of sea-ice cover (Amstrup 2003:587).

5. Threats

Under CITES, a species may be considered to be threatened with extinction and meet the biological criteria for inclusion in Appendix I if it can be shown to be experiencing a decrease in area of habitat or a decrease in quality of habitat. Polar bear habitat is both decreasing in area and quality [Biological criterion C ii)], and is projected to continue through the 21st century (Durner *et al.*2009). The decrease in polar bear habitat exacerbates all other potential threats, including but not limited to, utilization and trade (see Section 6), disease or predation, contaminants, ecotourism, and shipping.

5.1 Habitat area and quality

Polar bears have evolved in a sea-ice environment that serves as an essential platform from which they obtain prey and meet other life functions (Service 2008d:28275). As we indicated above in Section 4, status and trends for polar bear habitat and populations are not positive.

Polar bears currently are exposed to a rapidly changing sea-ice platform, and in many regions of the Arctic already are being affected by these changes. While other species may respond to warming climates by shifting their distribution northward, polar bears cannot shift significantly northward, their physiology has a limited capacity to tolerate warm temperatures, and the warming climate is rapidly altering their habitat (Derocher *et al.*2004). The long generation time and low reproductive rate of polar bears, and the rapid pace of sea-ice loss, means that polar bears are not expected to be able to adapt in an evolutionary sense (Service 2008d:28239). Sea-ice changes are projected to continue through the 21st century and positive feedbacks are expected to amplify changes in the arctic which will hasten sea-ice retreat. These factors likely will negatively impact polar bears by increasing energetic demands of seeking prey. Remaining members of many populations will be redistributed, at least seasonally, into terrestrial or offshore habitats with marginal values for feeding, and increasing levels of negative bear-human interactions. Increasing nutritional stress will coincide with exposure to numerous other potential stressors. Polar bears in some regions already are demonstrating reduced physical condition, reduced reproductive success, and increased mortality. As changes in habitat become more severe and seasonal rates of change more rapid, catastrophic mortality events that have yet to be realized on a large scale are expected to occur. Observations of drownings and starved animals may be a prelude to such events. These changes will in time occur throughout the world-wide range of polar bears. Ultimately, these interrelated factors will result in range-wide population declines (Stirling and Derocher 2007). Populations in different ecoregions will experience different rates of change and timing of impacts. Within the foreseeable future, however, all ecoregions will be affected.

Based on the information available on polar bear habitat (i.e., the current, inferred or projected effects of various factors, including climate change, on the area or quality of polar bear habitat will lead to a marked decline in the population size in the wild), the United States has determined that the polar bear meets the biological criteria for Appendix I [see: Annex 1; Conf. 9.24 (Rev. CoP15) *Criteria for amendment of Appendices I and II*].

5.2 Other Potential Threats

Utilization and Trade. The available scientific and commercial information on the utilization of polar bears for commercial, recreational, scientific or educational purposes indicates that harvest, increased bear-human interaction levels, defense-of-life take, illegal take, and take associated with scientific research live-capture programs are occurring for several populations (see Section 6, below). Loss of habitat will likely exacerbate the effects of utilization and trade habitat loss in several populations. In addition, polar bear mortality from harvest and negative bear-human interactions may in the future approach unsustainable levels for several populations, especially those experiencing nutritional stress or declining population numbers as a consequence of habitat change. The Polar Bear Specialist Group (Aars *et al.*2006:57), through resolution (Res#1-2009: Effects of global warming on polar bears; IUCN/SSC PBSG 2009m), urged that a precautionary approach be instituted when setting harvest limits in a warming Arctic environment. Continued efforts are necessary to ensure that harvest or other forms of removal do not exceed sustainable levels.

Disease or predation. Disease pathogen titers are present in polar bears; however, no epizootic outbreaks have been detected (see Service 2008:28280–28281 and references included therein). For example, *Toxoplasma gondii* (a parasitic protozoan that causes toxoplasmosis in many mammals, but with varying impact and unknown severity in polar bears) has been reported from Svalbard (significantly higher prevalence in males than in females) and has been linked to oceanic vessel traffic in the Arctic, as well as the redistribution of the parasite from further south to the Arctic (Jensen *et al.*2010). In addition, forms of intra-specific stress and cannibalism are known to be manifested by bear species, including polar bears (Derocher *et al.*2004; COSEWIC 2008). For polar bears, there is no indication that these stressors have operated to influence population levels in the past. While cannibalism is an indication of intra-specific stress (Stirling 2011), we do not believe, however, that it has resulted in population level effects.

The available scientific information indicates that disease and predation (including intra-specific predation) do not threaten the species throughout its range. Potential for disease outbreaks, an increased possibility of pathogen exposure from changed diet or the occurrence of new pathogens that have moved northward with a warming environment, and increased mortality from cannibalism all warrant continued monitoring and may become more significant threat factors in the future for polar bear populations experiencing nutritional stress or declining population numbers.

Contaminants, Ecotourism, and Shipping. A recent study suggests that polar bears may be affected by mercury and polychlorinated biphenyls in the Southern Beaufort Sea (Knott *et al.*2011). In general,

however, contaminant concentrations are not presently thought to have population level effects on most polar bear populations (Service 2008:28288–28292 and references included therein). Increased exposure to contaminants, however, has the potential to operate in concert with other factors, such as nutritional stress from loss or degradation of the sea-ice habitat or decreased prey availability and accessibility, to lower recruitment and survival rates that ultimately would have negative population level effects. Increasing levels of ecotourism and shipping may lead to greater impacts on polar bears (Andersen and Aars 2008). The potential extent of impact is related to changing sea-ice conditions and resulting changes to polar bear distribution. These factors, particularly contaminants and shipping, may become more significant threats in the future for polar bear populations experiencing nutritional stress brought on by sea-ice and environmental changes (Service 2008d:28280).

6. Utilization and trade

6.1 National utilization

The principle national uses of polar bears in the United States, Canada, and Greenland are for subsistence purposes. Most polar bears are killed by indigenous people during hunts that have an important cultural role (IUCN/SSC PBSG 2009b). Human subsistence uses of polar bears include consumption of meat and use of hides in the construction of clothing such as mittens, boots (mukluks), fur ruffs for parkas, fur pants, and creation of handicraft items (Schliebe *et al.*2006). Indigenous people also sell polar bear hides, skulls, and handicrafts made from polar bears. In Norway, the commercial, subsistence, or sport hunting of polar bears is prohibited (IUCN/SSC PBSG 2009k). In the Russian Federation, a program, based on harvest quotas, leading to the legal subsistence harvest of polar bears by Native people in the Chukotka region is being developed jointly with the United States (US Russia Polar Bear Treaty; Service 2011; also see Section 7.2).

6.2 Legal trade

Based on the UNEP-WCMC CITES Trade Database for the period 2001–2010 (10 years; for all Terms, Units, Sources, and Purposes combined; UNEP-WCMC 2012), approximately 32,000 polar bear items were reported as gross exports in international trade by the CITES Parties. Most of these items, however, were small parts, products, and derivatives that are difficult to link or relate back to the actual number of polar bears taken from the wild.

Restricting the items under consideration to “relatively large” polar bear items from the five range States, however, provides a clearer idea of the actual number of polar bears taken from the wild and traded internationally. During the period 2001–2010 (UNEP-WCMC 2012), a total of 6,798 relatively large polar bear items were reported as gross exports by the several range States, as follows: 4,114 Skins (60.5%), 1,441 Skulls, 867 Trophies, 294 Bodies, and 82 Live Bears. Based on separate data compiled by the PBSG, these items represent about 700–800 polar bears (ca. 3–4%) harvested annually worldwide of the total population size of 20,000–25,000 (Obbard *et al.*2010:62–67; Table 1).

By range State during the same 2001–2010 period (UNEP-WCMC 2012), 5,386 (79.2%) of the 6,798 relatively large polar bear items were exported by Canada, 827 by Greenland, 327 by Norway, 176 by Denmark (Denmark + Greenland = 1,003 items), 76 by the Russian Federation, and 6 by the United States (Table 3).

On an annual basis during the same 2001–2010 period (UNEP-WCMC 2012), the annual average number of relatively large polar bear items was 679.8 items (individuals; range: 307 [2010]–1,333 [2007]). In terms of whole polar bears (combining skins and trophies), about 400–500 polar bears are traded annually. While gross exports were relatively steady at 527–831 items or individuals annually during the period 2001–2006, gross exports have declined steadily from 1,333 to 307 items or individuals annually beginning in 2007 and ending in 2010. Harvest data from the Chukchi/Bering Sea population shared between the United States and the Russian Federation suggests that 1/3 of the harvested polar bears could be females while 2/3 could be males (Service 2012).

6.3 Parts and derivatives in trade

Polar bears are traded in a wide variety of forms, including live animals, processed and unprocessed body parts (e.g., skin pieces, claws, teeth, carvings, meat, hides, skins, and trophies), and biological specimens used for research. Given the large size of the polar bear versus the small sizes of many of these items (for example, claws or teeth), a total count of items is uninformative when attempting to

determine the approximate number of individual polar bears in trade. Furthermore, many parts and derivatives are exported and re-exported as they are converted into finished products (for example, trophies). This process may involve more than one country and may occur over more than 1 calendar year, thus potentially inflating and misrepresenting the overall trade in polar bears. In addition, because the polar bear is listed in Appendix II, items that qualify as personal effects, such as handicrafts, do not require CITES export permits by the Parties that recognize the CITES personal effects exemption and will be under-represented in the UNEP-WCMC CITES Trade Database.

6.4 Illegal trade

According to UNEP-WCMC (2012), a total of 528 items were reported as confiscated or seized during the period 2001–2010. These items were generally small polar bear parts, such as derivatives (62.9 % of items), teeth (13.4%), and skin pieces (7.2%; Table 4). It should also be noted that most Parties do not report seizures in their CITES Annual Reports).

Poaching of polar bears is not thought to be a major concern throughout most of the polar bear's range (IUCN/SSC PBSG 2009b). However, there are concerns about high levels of poaching in the Chukchi/Bering Sea population in Russia (Belikov 1998; Belikov *et al.*2002,2010), where several hundred bears may be killed illegally each year (Angliss and Lodge 2004; Angliss and Outlaw 2008).

6.5 Actual or potential trade impacts

The most obvious impact of trade on polar bears is the direct removal of live individuals from the population. According to the PBSG (Obbard *et al.*2010), approximately 800 polar bears are removed annually from the 19 subpopulations (estimated total population size of 20,000–25,000 individuals). Based on information from Canada (Lunn *et al.*2010), Russian Federation (Belikov *et al.*2010), and United States (Service 2010a,b), on average about 1/3 (= 33.3%) of the harvested polar bears are adult females. Beginning at the age of 5–6 years, adult females produce litters of about two cubs every 2–3 years for about 25–30 years (Gunderson 2009). This is approximately equivalent to an average annual rate of reproduction of 0.274 female cubs per adult female (DeMaster and Stirling 1981:2).

Recognizing the high likelihood of overharvesting shared polar bear populations due to communication and cooperation issues, several range States have initiated joint management and research agreements to limit actual or potential negative harvest and trade impacts:

- 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.—This 2000 agreement between the United States and the Russian Federation seeks to enhance the polar bear population the Alaska-Chukotka polar bear population (Chukchi Sea).
- Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea.—This 1988 agreement between the United States and Canada seeks to enhance the polar bear population of Southern Beaufort Sea.
- 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.—This 2008 agreement between Canada, Nunavut, and Greenland seeks to enhance polar bear populations in Kane Bay and Baffin Bay.

In response to public concerns about potential harvest and trade impacts in Canada, the Nunavut Wildlife Management Board in 2011 invited the PBSG to comment on a proposal to increase the total allowable harvest for the Western Hudson Bay (WH) polar bear subpopulation in the Nunavut Settlement Area. The proposal to increase the harvest from 8 bears to 21 bears for the 2011–2012 harvest season was based in large measure on Inuit Traditional Knowledge. In summary, the PBSG opposed the proposed increase (Vongraven 2011). In support of this conclusion, the PBSG specifically indicated that the current total allowable harvest was not sustainable, an increased harvest would be less sustainable, there was no evidence that other polar bear management agencies had been consulted or supported this proposal, and that the proposal perhaps was premature in that the results of two large polar bear research projects were about to be published. Despite this position, on

October 28, 2011, Nunavut made the decision to increase the total allowable harvest in WH from 8 to 21 bears (IUCN/SSC PBSG 2011: News Archive).

7. Legal instruments

7.0 General

Regulatory mechanisms directed specifically at managing many of the potential threats to polar bears, such as overharvest or disturbance, exist in all of the countries where the species occurs, as well as between (bilateral and multilateral) range countries (Service 2008d:28281; see also Section 5.4, above, as well as Marine Mammal Commission 2004:77–81). In the case of the polar bear, national and international legal instruments are also guided by members of an advisory group.

IUCN/SSC Polar Bear Specialist Group: The Polar Bear Specialist Group (PBSG), formed in 1968, is not a regulatory authority nor do they provide any regulatory mechanisms. The PBSG, however, contributed significantly to the negotiation and development of the Agreement on the Conservation of Polar Bears (1973 Polar Bear Agreement), and has been instrumental in monitoring the worldwide status of polar bear populations. The PBSG operates under the IUCN Species Survival Commission (SSC) and meets periodically at 3-to-5 year intervals. At the 2009 PBSG working group meeting, there were status reviews for all populations given by their respective jurisdictions, as well as presentations on the status, management, and research of polar bears from all five nations (for additional information, see: Obbard *et al.*2010).

Regulatory Mechanisms to Limit Sea-ice Loss: Although there are regulatory mechanisms for managing many of the potential threats to polar bears in all countries where the species occurs, as well as among range countries through bilateral and multilateral agreements, there are no known regulatory mechanisms that are directly and effectively addressing reductions in sea-ice habitat at this time (Service 2008:28287).

7.1 National

Canada:

- (a) Canada's constitutional arrangement specifies that the Provinces and Territories have the authority to manage terrestrial wildlife, including the polar bear, which is not defined as a marine mammal in Canada. The Canadian Federal Government is responsible for CITES-related programs and provides both technical and administrative support to the Provinces and Territories. Regulated hunting by aboriginal people is permissible under Provincial and Territorial statutes. Traditional knowledge about polar bears is being incorporated into some management plans (Tyrrell 2006). For additional information, see Service (2008d:28215), COSEWIC (2002, 2008), Environment Canada (2009), Government of Canada (2009), Lunn *et al.*(2010), Peacock *et al.*(2009), and Peacock *et al.*(2011).
- (b) The Species at Risk Act (SARA; implemented in 2004) provides a number of protections for wildlife species placed on the List of Wildlife Species at Risk, or "Schedule 1." Currently, under SARA, the polar bear is designated as a Schedule 3 species, "Species of Special Concern." A Schedule 3 listing under SARA does not include protection measures, whereas a Schedule 1 listing under SARA – being considered at this time for the polar bear (Lunn *et al.*2010) – may include protection measures for the polar bear and its habitat.
- (c) There are several intra-jurisdiction polar bear agreements within Canada (Service 2008:28285–28286). Polar bears occur in 13 populations that lie within or are shared with the Northwest Territories or Nunavut. Although Canada manages each of the 13 populations of polar bears as separate units, there is a complex sharing of responsibilities (Government of Nunavut 2005; Thiemann *et al.*2008; Peacock *et al.*2011). While wildlife management has been delegated to the Provincial and Territorial Governments, the Federal Government (the Canadian Wildlife Service of Environment Canada) has an active research program and is involved in management of wildlife population shared with other jurisdictions, especially one with other nations.

Denmark (Greenland):

Under terms of the Greenland Home Rule (1979), the Government of Greenland is responsible for management of all renewable resources, including polar bears (Service 2008:28287). Greenland is also responsible for providing scientific data for sound management of polar bear populations and for compliance with terms of the 1973 Polar Bear Agreement. Trophy hunting of polar bears is prohibited, but there are specific regulations that apply to traditional take within several protected areas. A preliminary meeting between Greenland Home Rule Government and the Government of Canada (with the participation of the Government of Nunavut) has occurred to discuss management of shared populations. For additional information, see: Born (2009) and Jessen (2009).

Canada and Greenland now have an Memorandum of Understanding: 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; signed in October 2009.

Norway:

- (a) According to the Svalbard Treaty of February 9, 1920, Norway exercises full and unlimited sovereignty over the Svalbard Archipelago. Polar bears have complete protection from harvest under the Svalbard Treaty (Derocher *et al.*2002b:75; cited by Service 2008:28287). Under Norwegian Game Law, all game, including polar bears, is protected unless otherwise stated (Derocher *et al.*2002b:75; cited by Service 2008:28287). The main responsibility for the administration of Svalbard lies with the Norwegian Ministry of Justice.
- (b) Approximately 65% of the land area of Svalbard is totally protected, including all major regions of denning by female polar bears (Service 2008:28287). Norway claims control of waters out to 200 nautical miles (nm; 370.4 km) and regards polar bears as protected within this area.
- (c) In 2001, the Norwegian Parliament passed a new Environmental Act for Svalbard (Service 2008:28287). This act was designed to ensure that wildlife, including polar bears, is protected, although hunting of some species is allowed. The only permitted take of polar bears is for defense of life.
- (d) In 2003, Svalbard designated six new protected areas, including the main polar bear denning area at Kong Karls Land (Service 2008:28287). For additional information, see: Directorate for Nature Management (2009a,b) and Gerland (2009).

Russian Federation:

- (a) Polar bears are listed in the second issue of the Red Data Book of the Russian Federation (cited by Service 2008:28286). The Red Data Book establishes official policy for protection and restoration of rare and endangered species in Russia. The main government body responsible for management of species in the Red Data Book is the Ministry of Natural Resources of the Russian Federation. Russia Regional Committees of Natural Resources are responsible for managing polar bear populations consistent with Federal legislation (Belikov *et al.*2002:86).
- (b) In the Russian Arctic, Natural Protected Areas (NPAs) have been established to protect marine and associated terrestrial ecosystems, including polar bear habitats (Service 2008:28286–28287). In May 2001, the Federal law “Concerning territories of traditional use of nature by small indigenous peoples of North, Siberia, and Far East of the Russian Federation” was passed and established areas for traditional use of nature (TTUN) within NPAs and other protected areas. The law “Concerning natural protected territories” (1995) regulates protection of plants and animals on the TTUNs. For additional information, see: Government of the Russian Federation (2009).

United States:

- (a) Marine Mammal Protection Act of 1972, as amended (MMPA). The MMPA was enacted to protect and conserve marine mammals, including the polar bear, so that they continue to be

significant functioning elements of the ecosystem of which they are a part (Service 2008d:28283–28284; National Marine Fisheries Service 1972, 1974; Service 1972). The MMPA places an emphasis on habitat and ecosystem protection. This act established a general moratorium on the taking and importing of marine mammals and a number of prohibitions, which are subject to a number of exceptions. Some of these exceptions include take for scientific purposes, for purposes of public display, for subsistence use by Alaska Natives, and unintentional incidental take coincident with conducting otherwise lawful activities. The interim final rule published in the Federal Register on May 15, 2008 (Service 2008e) addresses the ESA listing within the context of the MMPA. The Secretaries of Commerce and of the Interior have primary responsibility for implementing the MMPA.

- (b) U.S. Endangered Species Act of 1973 (Act or ESA): On May 15, 2008, the polar bear was listed as threatened under this act meaning it is at risk of becoming an endangered species throughout all or a significant portion of its range (Service 2008d). The law provides civil and criminal penalties for actions that kill or injure bears and bars Federal agencies from taking actions that are likely to jeopardize the species or adversely modify its critical habitat. A special rule, also published on May 15, 2008, reconciled the several prohibitions and exemptions under the Act, CITES, and the MMPA (Service 2008e).
- (c) Other domestic legislation: The Outer Continental Shelf Lands Act of 1953 (OCSLA) established Federal jurisdiction over submerged lands on the Outer Continental Shelf (OCS) seaward of the State boundaries (3 mile limit; 4.8 km). Implemented by the Minerals Management Service (MMS) of the Department of the Interior, the OCSLA does not itself regulate the take of polar bears, although through consistency determinations it helps to ensure that OCS projects do not adversely impact polar bears or their habitats. The Oil Pollution Act of 1990 established new requirements and extensively amended the Federal Water Pollution Control Act to provide enhanced capabilities for oil spill response and natural resource damage assessment by the Service. The Coastal Zone Management Act of 1972 (CZMA) was enacted to “preserve, protect, develop, and where possible, to restore or enhance the resources of the Nation’s coastal zone” (Service 2008:28284). This act provides for the submission of a State program subject to Federal approval and requires that Federal actions be conducted in a manner consistent with the State’s CZMA plan to the maximum extent practicable. This act applies to polar bear habitats of northern and western Alaska, but does not itself regulate the take of polar bears. The Alaska National Interest Lands Conservation Act of 1980 (ANILCA) created or expanded National Parks and National Wildlife Refuges (NWR) in Alaska, including the expansion of the Arctic National Wildlife Refuge. One of the establishing purposes of the Arctic NWR is to conserve polar bears. The ANILCA does not itself regulate the take of polar bears, although through its designations it has provided recognition of, and various levels of protection for, polar bear habitat. The Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA) was enacted in part to “prevent or strictly limit the dumping into ocean waters of any material that would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities” (Service 2008:28285).

For a more-detailed discussion of existing national laws that are relevant to polar bears or their habitat, see Service (2008d:28281–28288), as well as Haskett (2009) and Hepa (2009).

7.2 International

The polar bear is listed in Appendix II of CITES under the higher taxon listing of Ursidae. All range states are Parties to CITES and none has taken a reservation on this species listing.

Agreement on the Conservation of Polar Bears (1973): Canada, Denmark (on behalf of Greenland), Norway, Russian Federation, and the United States are parties to the Agreement on the Conservation of Polar Bears (1973 Polar Bear Agreement). The 1973 Polar Bear Agreement requires that all parties take appropriate action to protect the ecosystem of which polar bears are a part, with special attention to habitat components such as denning and feeding sites and migration patterns, and to manage polar bear populations in accordance with sound conservation practices based on the best scientific data.

Inupiat-Inuvialuit Agreement for the Management of Polar Bears of the Southern Beaufort Sea (1988): In January 1988, the Inuvialuit of Canada and the Inupiat of Alaska (United States), groups that both harvest polar bears for cultural and subsistence purposes, signed a management agreement for polar bears of the southern Beaufort Sea. This agreement, based on the understanding that the two groups

harvested animals from a single population shared across the international boundary, provides a joint responsibility for conservation and harvest practices (Treseder and Carpenter 1989:4; Nageak *et al.*1991:341; cited by Service 2008:28282). Provisions of the agreement include annual quotas, hunting seasons, and protection of dens.

Agreement between the United States of America and the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population: On October 16, 2000, the United States and the Russian Federation signed a bilateral agreement for the conservation and management of polar bear populations shared between the two countries. Article 7 of the Bilateral Agreement provides that “[n]othing in this Agreement is intended to authorize the taking of polar bears for commercial purposes, or to limit the ability of native people, consistent with the domestic law of the Contracting Parties, to create, sell, and use traditional articles associated with native harvest of polar bears.” It also commits the parties to the conservation of important polar bear habitats. The first meeting of the U.S-Russia Polar Bear Commission took place in Moscow on 23–25 September, 2009. The Commission developed the structure of a Scientific Working Group, which shall assist the Commission in resolving questions pertaining to the protection and management of the Alaska-Chukotka polar bear population.

For a more-detailed discussion of existing international laws that are relevant to polar bears or their habitat, see U.S. Department of the Interior (Service 2008d:28281–28288) and IUCN/SSC SSC PBSP (2009d,k; see: <http://pbsg.npolar.no/en/agreements/>).

8. Species management

8.1 Management measures [see Derocher and Stirling (2009) for a general summary, as well as IUCN/SSC PBSP 2009d].

In Canada, polar bears are managed by the Federal Government, three Territories and four Provinces which form management committees (Lunn *et al.*2010; Peacock *et al.*2009). With the signing of northern land claims and treaties, Canada has also integrated local aboriginal participation, values, and knowledge (Peacock *et al.*2011). The quotas for each jurisdiction are based on recommendations of the committees. There are co-management boards for most polar bear populations which allow management changes to be based not only on scientific data, but also traditional knowledge. Sport hunted polar bears taken as trophies come from a quota assigned to a community so that the community receives the share of financial returns that is not retained by booking agents. Polar bear management measures were most recently assessed in 2008 (COSEWIC 2008). Through treaties, the aboriginal public in Canada also participates in polar bear management (Peacock *et al.*2011). For additional information about polar bear research and management in Canada, see Lunn *et al.*(2010) and Obbard *et al.*(2010).

In Greenland, a quota system came into force on January 1, 2006 (prior to this there were no hunting quotas) (Schliebe *et al.*2006). Beginning on April 1, 2008, Greenland placed a temporary ban on the export of polar bear products due to a negative non-detriment finding (Born and Ugarte 2007; Government of Greenland 2008). For additional information about polar bear research and management in Greenland, see Winther Hansen (2010) and Born *et al.*(2010).

Norway has banned polar bear take in the Svalbard Archipelago since 1973 (Aars *et al.*2006). For additional information about polar bear research and management in Norway, see Vongraven *et al.*(2010) and Aars *et al.*(2010).

In the Russian Federation, polar bear hunting has been banned since 1956 (implemented in 1957; Belikov *et al.*2002). The recent Alaska-Chukotka agreement between Russian Federation and the United States will allow for legalized hunting by native peoples in the Russian Federation under a managed quota system that will begin in 2013. For additional information about polar bear research and management in the Russian Federation, see Belikov *et al.*(2010) and Ovsyanikov (2010).

In the United States (Alaska), a conservation plan for the polar bear was initiated in 1994 (Service 1994). In 2007 at Shepherdstown, West Virginia, representatives of the several range states met to discuss polar bear conservation and management issues (Service 2007b). Native subsistence hunting today is allowed. The Southern Beaufort Sea population is managed through the I/I and has a quota 70—reduced from 80 in 2010 by the I/I Joint Commission in response to polar bear population changes. In addition, the Alaska-Chukotka population is managed through the US-Russian Federation

bilateral agreement with a quota set in June 2010 but which will not be implemented until 2013. For additional about polar bear research and management in the United States, see DeBruyn *et al.*(2010) and Durner *et al.*(2010).

For a complete discussion of existing management measures that are relevant to polar bears or their habitat, see Service (2008d:28212–28234).

8.2 Population monitoring

The quality and quantity of population data are highly variable between polar bear populations. Of the 19 known populations of polar bears, population monitoring – according to the IUCN/SSC PBSG is insufficient to inform expert opinions on population status or current trends (“data deficient”; Obbard *et al.*2010; Table 2). In some areas population surveys occur so infrequently – for example, 10–15 years – that there is concern that unsustainable harvest levels could occur and remain undetected before the next survey is made (IUCN/SSC PBSG 2005, 2009b).

8.3 Control measures

8.3.1 International

The 1973 Agreement on the Conservation of Polar Bears prohibits the commercial use of skins and other items of value resulting from taking for “conservation purposes” or to “prevent serious disturbance to the management of other living resources.” Bilateral agreements between Canada and Greenland and between Canada and the United States allow subsistence harvests under quota systems. The harvest for subsistence purposes of polar bear specimens from the Chukchi/Bering Sea population is addressed under the Agreement between the United States and the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population.

8.3.2 Domestic

See Section 7.1 for information on legal instruments as they relate to controls and polar bear species management in the range States aimed at ensuring sustainable take from the wild.

8.4 Captive breeding and artificial propagation

According to UNEP-WCMC (2012), about 180 live polar bears were exported/re-exported overall during the period 2001–2010. Of these, 101 originated in the wild (Source code = W), 53 were captive-bred animals (Source code = C), 25 were born in captivity (F1; Source code = F), and 3 were pre-Convention.

8.5 Habitat conservation

The threat with the most serious impact on polar bear habitat is climatic warming which is causing a reduction in sea-ice (ACIA 2004a; ACIA 2004b; Derocher *et al.*2004). There are no known regulatory mechanisms in place at the national or international level that directly and effectively address the primary threat to polar bears—the rangewide loss of sea-ice habitat due to greenhouse gas emissions (Amstrup *et al.*2010; Hunter *et al.*2010; Service 2008d:28293; Stirling and DeRocher 2012).

8.6 Safeguards

Several organizations (primarily State and Federal) and ongoing activities provide an opportunity to safeguard species management for polar bears. The IUCN SSC Polar Bear Specialist Group (regularly scheduled meetings as well as outreach instruments), for example, as well as bilateral agreements and multilateral agreements (discussed elsewhere in this proposal) have regularly scheduled meetings between the Parties to discuss polar bear conservation and management issues. At the local or community level, polar bear populations are monitored for a variety of reasons, including for ecotourism activities and subsistence hunting. Several conservation non-governmental organizations also promote the conservation status of the polar bear through their support of plant and wildlife research projects and environmental education activities. Collectively, these mechanisms help safeguard polar bear populations.

9. Information on similar species

With the exception of the Spirit or Kermode bear, a white-phased black bear (Hedrick and Ritland 2011; Snyder Sachs 2010), the polar bear is the only all-white bear (except for the eyes, as well as black lips, skin, nose, and footpads). (Polar bear fur actually is transparent and reflects the color of the surrounding ice and snow.) Furthermore, there are no other large, all-white mammals (except for albino individuals). It is reasonable to expect an informed non-expert to be able to make a firm identification of essentially complete or intact specimens (e.g., rugs and trophies), while parts and derivatives of polar bears in trade (e.g., claws, teeth, and skulls) may be confused with those of other bears.

For additional information about similar species, see: Family Ursidae General Notes (CITES Identification Manual; Code A-112.002.000.001; Macey *et al.*1982); Family Ursidae Identification Aids: Bear Heads (Code A-112.002.000.002); Bear Feet (Code A-112.002.000.003); Bear Claws (Code A-112.002.000.004); Bear Pelts (Code A-112.002.000.005); Bear Skulls (Code A-112.002.000.006)

10. Consultations

Five range States: Canada, Denmark (Greenland), Norway, Russian Federation, and the United States. By a combination of fax, electronic mail, and letter (overnight mail; courier), the Government of the United States on May 1, 2012, submitted preliminary consultation letters to the CITES Management and Scientific Authorities of all five range States. At that time, we indicated that – while still undecided – the Service, on behalf of the U.S. Government, was contacting them to consult on a possible Appendix I proposal for submission to CoP16.

Canada: By letter dated June 15, 2012, the Government of Canada provided extensive and detailed information about the conservation status of the polar bear in that country and the several management programs that are being implemented there. Canada specifically called attention to recent ongoing harvest management issues at Western Hudson Bay, Southern Hudson Bay, and Baffin Bay, as well as the importance of traditional knowledge and co-management of polar bears in that country. In conclusion, Canadian officials remain convinced that polar bears do not merit inclusion in CITES Appendix I.

Denmark (Greenland): By letter dated June 18, 2012, the Government of Greenland (Greenland Institute of Natural Resources; CITES Scientific Authority) provided information about ongoing polar bear projects that were underway in that country. They provided information about polar bear populations under their jurisdiction, as well as new legislation and regulations that restrict polar bear harvests. Based on the information provided, as well as the results of these ongoing management and monitoring programs, Greenland did not see any need to transfer polar bears from Appendix II to I.

Norway: By electronic mail dated June 14, 2012, the Government of Norway provided information about the conservation status of polar bears in that country and the several management programs that are being implemented there. In Norway, the polar bear is fully protected and is the subject of ongoing research and management. Illegal harvest and trade are not a problem, and polar bear populations have increased since the 1973 Agreement. In conclusion, Norwegian officials suggested that the species was adequately protected under CITES and that no further action was indicated.

Russian Federation: By letter dated September 28, 2012, the Russian Federation (Director, Department of International Cooperation) indicated that they would support a proposal by the United States to transfer the polar bear to Appendix I at CoP16.

11. Additional remarks

None.

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Table 1. Population Status Table [Sources IUCN SSC Polar Bear Specialist Group (Obbard *et al.*2010)]

Subpopulation (abbreviation; see Figure 1)	Abundance Estimate (individuals)	Year of Estimate	Historical Annual Removals (5-year mean)	Potential Maximum Annual Removals	Status	Current Trend	Estimated Risk of Future Decline (10 years)
Arctic Basin	Unknown	---	N/A	0	Data deficient	Data deficient	Data deficient
Baffin Bay (BB)	2074	1998	212	176	Data deficient	Declining	Very high
Barents Sea (BS)	2650	2004	1	0	Data Deficient	Data deficient	Data deficient
Chukchi Sea(CS)	Unknown	---	37 (+ 100–200)	No quotas	Reduced	Declining	Data deficient
Davis Strait(ds)	2142	2007	60	66	Not reduced	Declining	Very high
East Greenland (EG)	Unknown	---	58	54	Data deficient	Data deficient	Data deficient
Foxe Basin (FB)	2197	1994	101	108	Data deficient	Data deficient	Data deficient
Gulf of Boothia (GB)	1592	2000	60	74	Not reduced	Stable	Very low
Kane Basin (KB)	164	1994–1997	11	13	Data deficient	Declining	Very high
Kara Sea (KS)	Unknown	---	N/A	0	Data deficient	Data deficient	Data deficient
Lancaster Sound (LS)	2541	1998	83	85	Data deficient	Declining	High
Laptev Sea (LV)	800–1200	1993	N/A	0	Data deficient	Data deficient	Data deficient
M'Clintock Channel (MC)	284	2000	2	3	Reduced	Increasing	Very low
Northern Beaufort Sea (NB)	1202	2006	29	65	Not reduced	Stable	Data Deficient
Norwegian Bay (NW)	190	1998	4	4	Data deficient	Declining	Very high
Southern Beaufort Sea (SB)	1526	2006	44	80	Reduced	Declining	Moderate
Southern Hudson Bay (SH)	900–1000	2005	35	61	Not reduced	Stable	Very high
Viscount Melville (VM)	161	1992	5	7	Data deficient	Data deficient	Data deficient
Western Hudson Bay (WH)	935	2004	44	16	Reduced	Declining	Very high
Total	19358–19858 + 4 Unknown		786 (+ 100–200)	812	Data deficient = 11 Reduced = 4 Not reduced = 4	Data deficient = 7 Declining = 8 Stable = 3 Increasing = 1	Data deficient = 9 Very low = 2 Moderate = 1 High = 1 Very high = 6

Table 2. Total population size (range), historical annual removals, potential maximum annual removals, and current trend or status of polar bear populations during 1993—present according to the IUCN SSC Polar Bear Specialist Group (Obbard *et al.*2010).

Reference [number of subpopulations characterized]	Total Population Size (individuals)	Historical Annual Removals (5- year mean; individuals)	Potential Maximum Annual Removals (individuals)	Current Trend or Status of Subpopulations			
				Increasing or Possibly Increasing	Stable or Stationary	Decreasing or Possibly Decreasing	Unknown or Data Deficient
PBSG Proc 11 (1993) [15 subpoplns.]	21470–28370	806–826	672–860		13	2	
PBSG Proc 12 (1997) [19 subpoplns.]	22000–27000	750–800	709–837	1	14	1	3
PBSG 13 (2001) [20 subpoplns.]	21500–25000	781	708	2	11	2	5
PBSG 14 (2006) [19 subpoplns.]	20000–25000	809	908	2	5	5	6
PBSG 15 (2010) [19 subpoplns.]	20000–25000	786	812	1	3	8	7

Table 3. Quantity of relatively large polar bear items aggregated by range State. A total number of 6,798 items were reported as gross exports during the period 2001–2010.

Term (relatively large items)	Polar Bear Range States ¹							%
	Canada (CA)	Denmark (DK)	Greenland (GL)	Norway (NO)	Russian Federation (RU)	United States (US)	Total	
Bodies	284	3	1	5		1	294	4.3
Live	5				75	2	82	1.2
Skins	3261	172	578	102	1	1	4114	60.5
Skulls	975	1	247	217			1441	21.2
Trophies	861		1	3		2	867	12.8
Total	5386	176	827	327	76	6	6798	100.0
%	79.2	2.6	12.2	4.8	1.1	0.1	100.0	

¹ Greenland is a dependent territory of Denmark, but CITES trade data are reported separately.

Source: UNEP-WCMC (2012)

Table 4. Quantity of confiscated or seized polar bear items (all Terms, Units, Sources, and Purposes combined; total = approximately 32,000 items reported as gross exports) during the period 2001–2010.

Term	Total (all units)	%
Derivatives	332	62.9
Teeth	71	13.4
Skin pieces	38	7.2
Claws	29	5.5
Hair	20	3.8
Hair products	17	3.2
[all other terms combined]	21	4.0
Total	528	100.0
%	100.0	

Source: UNEP-WCMC (2012)

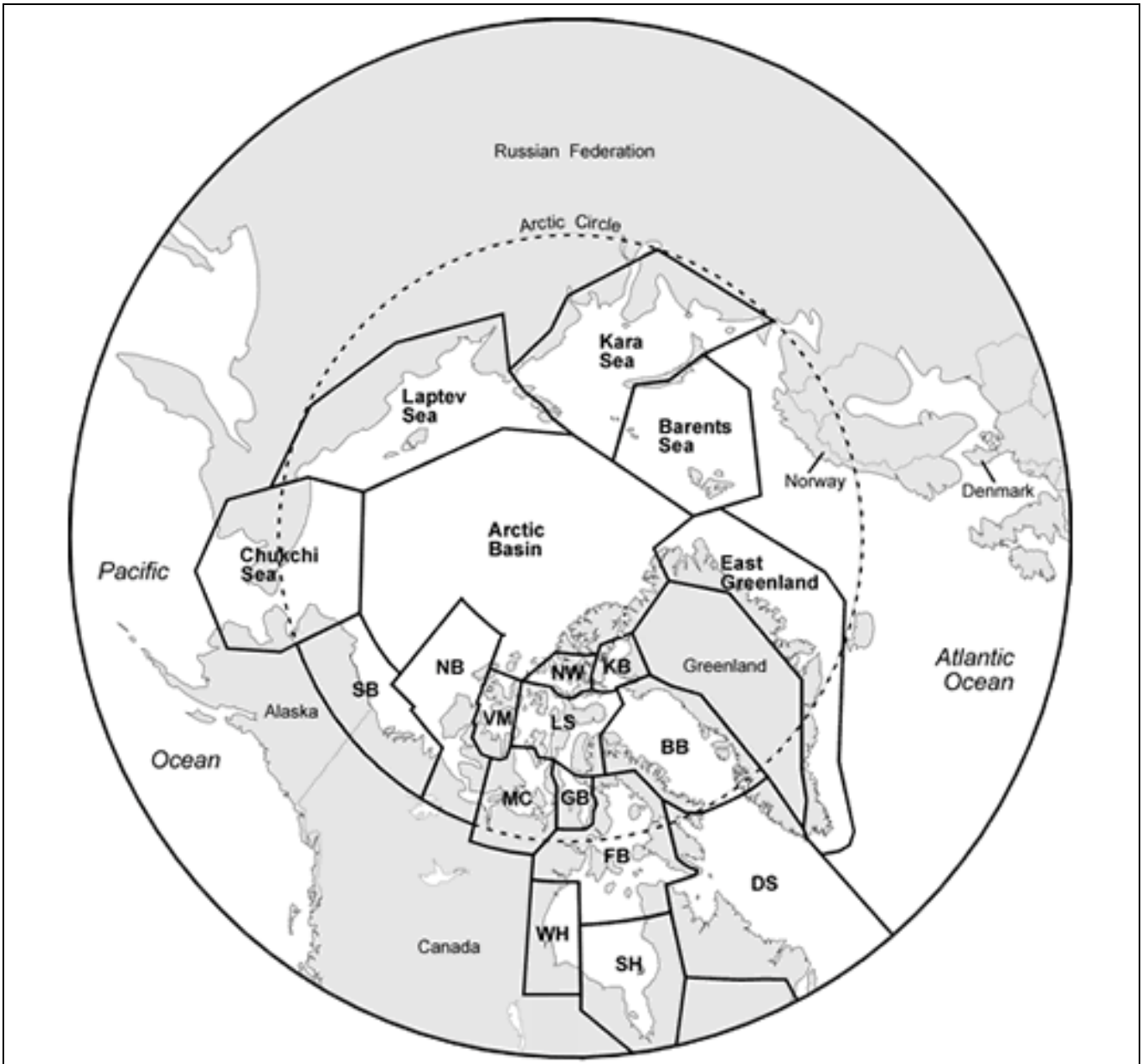


Figure 1. Polar bear population map
 [Source: Directorate for Nature Management (2009); see table for key to abbreviations]

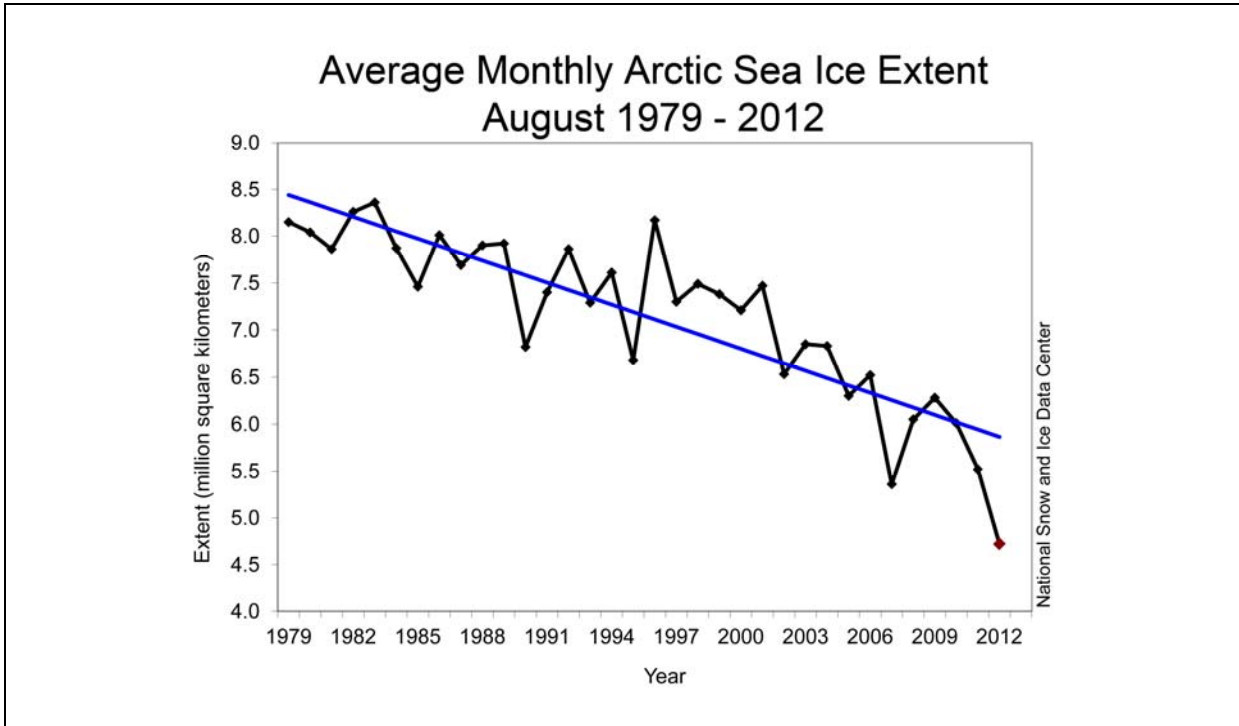


Figure 2. Monthly August ice extent for 1979 to 2012 shows a decline of 10.2% per decade. (Source: NSIDC 2012).

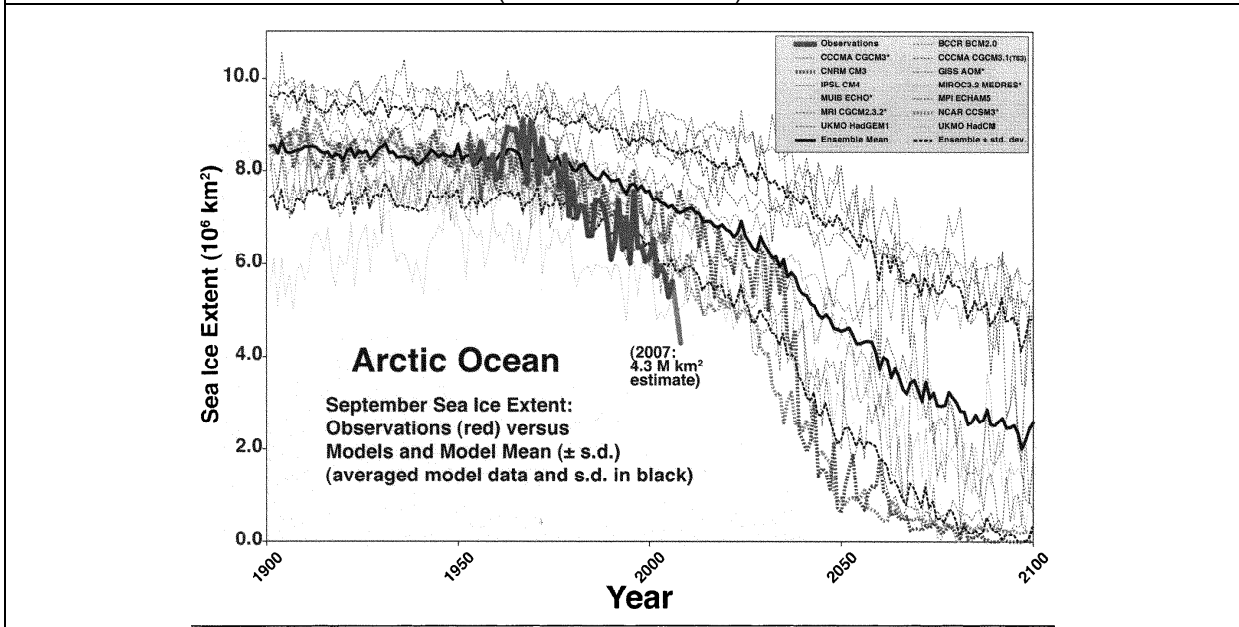


Figure 7. Arctic September sea ice extent. Comparison of observations with results of model runs (updated from Stroeve et al. 2007, pp. 1-5, used with permission).

Figure 3. Arctic September sea-ice extent. Comparison of observations with results of model runs. (Source: Service 2008d:28233; Stroeve et al.2007).