

## **Polar Bear Conservation Management Plan Questions and Answers**

### **1. Why was the Conservation Management Plan for polar bear developed?**

The draft Conservation Management Plan (CMP) is intended to address the planning provisions of both the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). It is also intended to satisfy our commitment to international partners to develop a national plan.

On May 15, 2008, the U.S. Fish and Wildlife Service (FWS) listed the polar bear (*Ursus maritimus*) as a threatened species under the ESA (73 FR 28211). As a result, the polar bear automatically became a “depleted” species under the MMPA. Both the ESA and the MMPA provide for written plans to improve the status of the species. Under the ESA, FWS is required to develop a plan that identifies “objective, measurable” recovery criteria and site-specific recovery actions with estimated time and cost to completion (16 USC §1533(f)(1)(B)). The MMPA strives to conserve and restore the species to its optimum sustainable population (16 USC § 1383 (b)).

### **2. Who developed the draft Conservation Management Plan?**

FWS asked numerous stakeholders to participate on a team to develop a conservation management plan for the polar bear. The Polar Bear Recovery Team includes 35 representatives from federal agencies, the State of Alaska, the North Slope Borough, Alaska Native organizations, industry, non-profit organizations and the Canadian Wildlife Service. The plan benefits from diverse expertise in polar bear biology, climate science, policy, communications and traditional and contemporary indigenous ecological knowledge, and is more likely to be successful because of stakeholder participation in its development. A full member list can be found on the Polar Bear Recovery Team web page (<http://www.fws.gov/alaska/pbrt/Team/about.html>).

### **3. Which polar bear populations does the plan address?**

Polar bears were listed under the ESA as a single species. Polar bears occur in four ecoregions and involve 19 subpopulations throughout the northern hemisphere in Canada, Denmark (Greenland), Norway, Russia and the United States. The United States contains portions of two subpopulations: the Chukchi Sea and the Southern Beaufort Sea. The Plan focuses on these two subpopulations in the United States.

### **4. How many polar bears are in the U.S. part of the range?**

The U.S. shares two polar bear subpopulations. The Southern Beaufort Sea subpopulation is shared with Canada and had an estimated population size of approximately 900 bears in 2010 (Bromaghin et al. 2015). This represents a significant reduction from previous estimates of 1,800 in 1986 (Amstrup 1986), and 1,526 in 2006 (Regehr et al. 2006). The Chukchi Sea population is shared with Russia and we do not have a current or reliable abundance estimate. The most recent estimate, based on expert opinion of the IUCN Polar Bear Specialist Group (PBSG) and

extrapolation of previous denning surveys on Wrangel Island (Russia), was 2000 bears in 2002 (PBSG 2002). Therefore, it is likely that a total of approximately 3,000 bears are in subpopulations shared by the U.S.

**5. What is the projection for the population in the U.S. part of the range – are they expected to go extinct? If so, when?**

We do not have projections that are specific to the U.S. Based on population dynamics data collected 2001-2006 (Regehr et al. 2010), Hunter et al. (2010) estimated a high probability that the Southern Beaufort Sea subpopulation would face severe reductions by the end of the 21st century, and possibly by mid-century. This was based on a correlation between reduced sea ice and reduced survival and breeding during from 2001-2006, combined with projected sea-ice conditions from global climate models. A more recent study for the Southern Beaufort Sea covering the years 2001-2010 (Bromaghin et al. 2015) indicated a more complex relationship between ice and population dynamics. Projections for the Southern Beaufort Sea subpopulation have not yet been updated in light of Bromaghin et al. (2015), although the expected risk of extirpation likely remains high. No projections exist for the Chukchi Sea subpopulation. However, a comparison of 1986-1994 with 2008-2011 data indicated very similar body condition and productivity (such as number of yearlings per female) despite sea-ice loss (Rode et al. 2014).

We do not have specific projections of when sea-ice loss may have a negative effect on the individual subpopulations of polar bears. The Southern Beaufort Sea and Chukchi Sea subpopulations are two of five subpopulations in the Divergent Ice Ecoregion, which is one of the four recovery units in the Plan. Recent projections for this ecoregion are that polar bears there have a relatively high probability (50%) of greatly reduced populations by as soon as 2025, with increasing probabilities of greatly reduced populations through the end of the century (Atwood et al 2015).

**6. Why was the polar bear listed as threatened under the ESA?**

The polar bear was listed due to the threat posed by the loss of sea-ice habitat resulting from the effects of climate change, and the inadequacy of existing mechanisms to curtail that threat (73 FR 28277). It was the first species listed by FWS under the ESA due to the ongoing and projected impacts of climate change. Polar bears depend on sea ice as a platform on which to: hunt and feed on seals; seek mates and breed; travel to terrestrial maternity denning areas; den; and make long-distance movements. Due to the level of greenhouse gases already in the atmosphere plus continued emissions, polar bears will likely be gone from much of their present-day range by 2050. Thereafter, polar bears will be further reduced in abundance and distribution, with changes occurring on a shorter timeframe and to a greater extent if greenhouse gas emissions continue to rise at current rates throughout the 21st century.

**7. Are there threats to the polar bear other than climate change?**

The primary threat to polar bear is loss of sea-ice habitat due to the effects of climate change and the anticipated decline in marine prey. Potential threats are posed by other activities including:

subsistence harvest; interactions with humans defending life and property; trans-Arctic shipping, oil and gas exploration; and oil spills.

#### **8. What can be done to save the polar bear from extinction?**

The single-most important action for the conservation of polar bears is reducing global greenhouse gas emissions, which are the primary cause of Arctic warming and the loss of the bear's sea-ice habitat. Without significant reductions in greenhouse gas emissions, it is unlikely that polar bears will be recovered. While the CMP calls for action to promptly reduce greenhouse gas emissions, the focus is on actions FWS and its partners can take now that will contribute to the survival of polar bears in the interim, so that they are in a position to recover once Arctic warming has been abated.

#### **9. If climate change is the primary threat to polar bears, why doesn't the CMP call for specific actions to reduce greenhouse gas emissions?**

Under the ESA, FWS must evaluate the effects of climate change to species and acknowledge those threats in recovery plans. The CMP identifies the single-most important action for the conservation and recovery of polar bears is reduction of greenhouse gas emissions. Without global action to address climate change, polar bears will continue to be threatened with extinction.

Addressing climate change to an extent sufficient to protect polar bears for the long-term will require the coordinated action of many countries across the globe. The level of response required for addressing climate change cannot be undertaken by any one agency, or indeed, any one country.

The CMP therefore focuses on two things: 1) informing U.S. and global audiences of the urgent need to reduce greenhouse gas emissions and the consequences to polar bears of failing to do so; and 2) sustainably managing existing polar bear populations until the United States and the larger global community are successful in reducing greenhouse gas emissions and the impacts of climate change.

#### **10. Why do the ESA recovery criteria accept that bears may recover at a lower population level than today?**

A key purpose of the ESA is to reduce threats to the point that a species is no longer in danger of extinction, nor likely to become so in the foreseeable future throughout all or a significant portion of its range. For many species, recovery can be achieved at less than historical population levels. Given the nature of the threats the polar bear faces, populations are expected to decline significantly from current levels. Our goal is to arrest the decline of polar bears and then recover them to the point that the protections of the ESA are no longer necessary, despite the reduction in populations and range.

### **11. What actions, and associated costs, are identified in the draft plan?**

The most important action identified in the plan is reducing global greenhouse gas emissions to curb the loss of the polar bear's sea-ice habitat. Although this action is not under the control of the Service and its partners, building awareness and effectively communicating the need for such action is a key component of the plan. Other actions that can be implemented by FWS and its partners include: management of human-polar bear conflicts, protection of denning habitat (including collaboration with the oil and gas industry), collaborative management of subsistence harvest, minimizing the risk of contamination from oil and chemical spills, and conducting strategic monitoring and research.

The CMP includes projected annual costs of almost \$13 million to meet the proposed actions for the United States' portion of the polar bear's range (Polar Basin Divergent Ecoregion) during the initial five-year period, from 2016-2020. It is anticipated that all of the high-priority recovery actions will need to continue until sea-ice loss is no longer driving population declines, or until our adaptive management efforts lead us to identify new priorities.

### **12. Why does the plan allow for continued subsistence harvest?**

Polar bears are important as a nutritional, cultural, and economic resource for indigenous people around the Arctic. In the U.S., the MMPA and the ESA allow Alaska Native people to harvest threatened species like polar bears for subsistence purposes, including making and selling handicrafts. Maintaining opportunities to harvest polar bears for future generations is a fundamental goal of polar bear management and the CMP.

It is possible to manage polar bear removal (i.e., the combination of subsistence harvest, defense kills, and other mortalities) in a way that does not have a negative effect on population status if certain conditions are met, and if a rigorous framework for management is followed. The CMP describes the principles for that framework: (1) the sustainable harvest rate reflects the population's intrinsic growth rate; (2) the sustainable harvest rate reflects the quality of population data (e.g., lower harvest when data are poor); and (3) the level of removal can be adjusted on a regular basis in response to information about the condition of the population.

### **13. What criteria for conservation and recovery are identified in the plan?**

The criteria are stated in terms of demographic processes (e.g., persistence, survival, reproduction, carrying capacity, anthropogenic mortality) that link back to the fundamental goals for polar bear conservation. Several of these criteria are framed in terms of probability of persistence. The conservation criteria under the MMPA and the recovery criteria under the ESA are not stated in terms of a desired population size. That is because conservation and recovery can be achieved with sustainable polar bear populations at various levels.

#### **14. Is there a recommendation for greenhouse gas levels to support recovery?**

There is no target for atmospheric concentrations of greenhouse gases in the CMP. Rather than identify a target level, we chose to set recovery criteria more directly connected with polar bear persistence. Those criteria focus on availability of sea ice habitat and the direct impact of habitat availability on polar bear demographics. Specifically, the plan's ESA recovery criteria state that sea-ice loss, the primary threat identified in the 2008 listing determination, will cease to be a threat to polar bear recovery when the average duration of the ice-free period in each recovery unit (i) is expected not to exceed four months over the next 100 years based on model projections, or (ii) is expected to stabilize at longer than four months and there is evidence that polar bears can meet the demographic criteria under that longer ice-free period. The plan has additional recovery criteria which also need to be met to achieve the goals of the plan.

A companion scientific report produced by the U.S. Geological Survey in conjunction with development of the CMP indicated that long-term persistence of polar bears may be achieved if sea ice loss is adequately addressed, which likely would entail stabilizing anthropogenic radiative forcing (human-caused warming) under  $4.5 \text{ W/m}^2$ , which could be accomplished primarily by aggressive reductions in greenhouse gas emissions (Atwood et al. 2015). The best prognosis for polar bears entails prompt and aggressive mitigation of greenhouse gas emissions (so that forcing is kept under  $3.5 \text{ W/m}^2$ ) combined with optimal polar bear management practices, which together could maintain viable polar bear populations in most regions of the Arctic (Amstrup et al. 2010). The CMP provides a framework for FWS and its partners to accomplish the latter goal, while governments, industries and citizens throughout the world aspire to accomplish the former.

#### **15. In light of the scientific projections for greatly decreased polar bear populations or likely extirpation across most of the range in the coming decades, why isn't the Service proposing to revise the status of the species from threatened to endangered?**

The purpose of the CMP is to provide criteria for identifying conditions whereby polar bears will no longer need protection under the ESA, and identifies management actions the US can take for its subpopulations. The purpose of the CMP was not to identify whether the polar bear should be reclassified from threatened to endangered under the ESA. Consideration of such a reclassification must go through the ESA listing process, which includes conducting a formal status review.

#### **16. How is the widespread loss of Arctic sea ice likely to affect the whole marine ecosystem and the seals that are the primary prey of polar bears? What if sea ice is stabilized but the changes in the marine environment have altered the number and distribution of seals so that polar bears will not have sufficient prey? Did your modeling look at that possibility?**

The widespread loss of sea ice is expected to fundamentally change the Arctic marine ecosystem (e.g., by boosting primary production, and through the potential alteration of pelagic-benthic coupling). However, at present, there is a limited understanding of how physical changes other than loss of sea ice will affect seal species. There are six ice-associated seal species that live within Arctic and sub-Arctic areas: ringed, bearded, harp, hooded, spotted, and ribbon seals.

Ringed and bearded seals are the dominant prey of polar bears, but harp and hooded seals are also important prey in some regions (e.g., McKinney et al. 2009 and 2013, Peacock et al. 2013). All of the six seal species rely on a stable sea ice platform with sufficient snow for lair construction, birthing and nursing young. However, variation in the life histories of some species could result in differential responses to changing environmental conditions. As a result, some seal species may be more resilient to the seasonal loss of sea ice habitat.

The plan focuses on addressing the loss of sea-ice habitat, because the sea ice serves as a platform from which polar bears hunt their prey. If the sea ice extent decreases, polar bears will have fewer opportunities to hunt, and reduced nutrition will result. A reduction in sea ice could also change the abundance of seal prey. If this occurs, sea ice could stabilize at some lower amount and yet polar bears might not have access to enough prey. The CMP addresses this concern by establishing minimum criteria for polar bear survival and reproductive rates, to be achieved along with the sea-ice criteria. These survival and reproductive criteria could not be achieved without adequate polar bear prey.

The information available at this time is insufficient to quantify with certainty the relationship between sea ice conditions and polar bear abundance (Atwood et al 2015). This is one of the reasons why the CMP calls for development and implementation of an adaptive management strategy, as well as monitoring and research to better understand these relationships over time so that management can be adjusted as new information becomes available.

**17. Since the long-term outcome for polar bears depends on global action on climate change, what difference will it make to limit subsistence harvest, or other human actions like oil and gas development?**

Short of timely global action addressing climate change, it is unlikely that polar bears will be recovered, and thus not need protection under the Endangered Species Act. While the CMP emphasizes the importance of prompt action to limit global atmospheric levels of greenhouse gases that are driving climate change and the loss of sea ice, its primary focus is on actions the Service and its partners can take that will contribute to the survival of polar bears in U.S. subpopulations in the interim.

The best prognosis for polar bears entails both timely, aggressive global reductions in greenhouse gas emissions and optimal polar bear management practices. The CMP provides a framework for the Service and its partners to manage existing polar bear populations. Managing human-related activities such as subsistence harvest, oil and gas development, and human-bear interactions is an effort to ensure the survival of the U.S. subpopulations of polar bears in the wild, while global governments, industries and citizens work to address climate change.

**18. Since the projections for the long-term outcome for polar bears during this century are bleak regardless of the greenhouse gas scenario used, what is the rationale for spending \$13 million a year for the US actions in the plan?**

Polar bears are an important part of Arctic ecosystems and are important to Alaska Native cultures and traditions. A primary objective of the CMP is to ensure that populations in Alaska

remain a healthy, functioning component of the ecosystems in the Bering, Chukchi and Beaufort seas.

Even if greenhouse gas emissions are dramatically reduced, by most estimates it will take several decades for the positive effects from those emissions reductions to be realized in terms of recovered sea ice habitat for polar bears. In these intervening decades, the management of other polar bear stressors can serve to slow (but not halt or reverse) the threatening circumstances for polar bears and assist in their long-term persistence.

Specific actions that will be carried out through the CMP include: raising awareness about the threats of climate change to polar bears and their Arctic environment; raising awareness of the need for global action to reduce GHG emissions; supporting international conservation efforts by engaging polar bear Range States; collaboratively managing subsistence harvest; protecting denning habitat; minimizing the risk of contamination from spills; and conducting strategic monitoring and research.

**19. How is the public able to participate in the planning process?**

You can find the draft Polar Bear Conservation at <http://www.fws.gov/alaska/pbrt/>

**To submit comments, you can send by U.S. mail or hand-delivery:** Public Comments Processing, ATTN: FWS-R7-ES-2014-0060. U.S. Fish and Wildlife Service Headquarters, MS: BPHC, 5275 Leesburg Pike, Falls Church, VA 22041-3803; or go to **Federal eRulemaking Portal:** <http://www.regulations.gov>, search Docket No. FWS-R7-ES-2014-0060, and follow the instructions for submitting comments.

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