

Polar Bear Conservation Management Plan Questions and Answers

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

The Conservation Management Plan (CMP) addresses the planning provisions of both the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). It also satisfies 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 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 included 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 CMP benefitted from Team members with 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 list of Polar Bear Recovery Team members is in the plan.

The Plan also reflects input provided by the individuals and entities who commented on the draft Plan during the 2015 public comment period (July 6 – Sept 21). The Service received 85 distinct comments including two petitions signed by approximately 280,000 individuals. In response to those comments, substantive changes were made to Plan including revisions to the treatment of climate change, the ESA demographic criteria, and the MMPA criteria.

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 actions that can be taken in the United States segments of these two subpopulations.

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 approximately 1,800 in 1986 (Amstrup et al. 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).

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 from 2001–2006 by 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) between those periods 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 even under the most optimistic climate change scenarios (Atwood et al 2015, 2016).

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 bear sea ice habitat, and thus polar bears, will likely be gone from much of their present-day range by 2050. Thereafter, polar bears will likely 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 (Atwood et al 2015, 2016).

7. Are there threats to the polar bear other than loss of its sea ice habitat due to climate change?

The primary threat to polar bear is loss of sea-ice habitat due to the effects of climate change. Other potential threats due to climate change include: corresponding declines in prey species and their availability to polar bears, increased exposure to potential storm events while swimming between sea ice and land, increased trans-Arctic shipping; increased 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. 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 expected reduction in populations and range.

10. What actions, and associated costs, are identified in the final 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 will 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 around \$13 million to meet the proposed actions for the United States' portion of the polar bear's range (within the Polar Basin Divergent Ecoregion) during the initial five-year period, from 2017–2021. It is anticipated that all of the high-priority recovery actions undertaken by the Service and its partners will need to continue until sea-ice loss is no longer driving population declines and projected declines, or until new information emerges as a result of monitoring or other analyses that provides a basis for modifying priorities or adopting new ones for polar bear recovery.

11. How does the plan affect current subsistence quotas and other requirements regulating subsistence harvest?

The Plan establishes a non-regulatory framework for managing polar bear take. That framework seeks to ensure that take is proportional to the population size and sensitive to changes in the intrinsic rate of growth of the population. Decisions regarding subsistence harvest quotas for specific subpopulations will continue to be made consistent with the laws and arrangements applicable to those subpopulations.

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 of human life 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 as described in the CMP.

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

The criteria are stated in terms of demographic processes (e.g., long-term 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?

The CMP does not set a target for atmospheric concentrations of greenhouse gases. Rather than identify a target level, we chose to define recovery criteria in terms of polar bear long-term persistence. Those criteria focus on availability of sea ice habitat and the importance of habitat

availability on polar bear demographics, including the assumption that future sea ice availability is accompanied by an adequate abundance of prey (i.e., ice seals). 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 paper produced by the U.S. Geological Survey in conjunction with development of the CMP indicated that the sooner sea ice loss is stopped, primarily by aggressive reductions in greenhouse gas emissions, the better the chances for the long-term persistence of polar bears even though reductions in current abundance and range would occur (Atwood et al. 2016). The best prognosis for polar bears entails immediate and aggressive mitigation of greenhouse gas emissions so as to stop sea ice loss, combined with optimal polar bear management practices (Atwood et al. 2015, 2016). This CMP provides a framework for FWS and its partners to accomplish the latter goal of optimizing polar bear management practices, while governments, industries and citizens throughout the world aspire to accomplish the former goal of stopping sea ice loss by addressing global warming as soon as possible.

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 U.S. 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 a species' classification must be done through the ESA listing process, which includes a status review. A status review includes the Service's recommendation on whether or not to reclassify, maintain status, or delist a species. The Service initiated a status review for polar bear in October 2015 (80 Fed. Reg. 61443). The Service will release the status review to the public once it is completed.

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. 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. They also require sufficient prey. 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 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 effects from those reductions to be realized in terms of recovered sea ice habitat for polar bears. In these intervening decades, the management of other challenges that polar bears face could reduce their impacts.

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. Where can the public access the Polar Bear Conservation Management Plan?

You can find the Polar Bear CMP at:

<https://www.fws.gov/alaska/fisheries/mmm/polarbear/pbmain.htm>

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