Annex III: Summary Table of Bilateral and Multilateral Actions to Address Threats 2015-2025

No.	Actions	Sub-actions	Objectives addressed*	Threats addressed**
Adaptive Management				
	Take climate change effects into account in polar bear management		1,2,3,4,5	CC,CP,DI, ME, SH
1		Consider the cumulative effects of climate change and human activities on polar bear subpopulations and habitats when making management decisions using tools such as predictive modeling		
2		Investigate how climate change effects vary among subpopulations on both temporal and spatial scales and incorporate this knowledge into management actions		
	Document and protect essential habitat		1, 2, 3, 5	CC, SH, ME, CP
3		Identify essential polar bear habitat and redefine it as changes occur over time		
4		Disseminate essential polar bear habitat information broadly to Arctic communities and industries. Work with communities and industries to apply the appropriate habitat protection measures so that anthropogenic		

		development and expansion do not adversely affect habitat		
5		Conduct research into application of the concept of carrying capacity of polar bear subpopulations to polar bear management		
	Consider the impact of diet changes		1,4,5	CC, HM, DI
6		Identify and monitor changes in the availability and use of prey species and other food sources when making management decisions		
7		Develop strategies for responding to the potential for large numbers of nutritionally-stressed bears being close to communities and consider the consequences including those for human safety and transmission of disease between bears		
	Consider the current and future impacts of disease and parasites		1,3	DI
8		Ensure that information on the impacts of disease and parasites in bears is considered when making management decisions		
9		Communicate disease findings and predicted disease prevalence information, as well as provide guidelines for consumption of polar bear meat by people and sled dogs, as appropriate		

Best Management Practices				
			3,5	All
10		Identify additional BMPs that need to be developed, determine who is best positioned to develop them and support this action as appropriate		
11		Examine the efficacy of BMPs as they relate to polar bear conservation and revise as appropriate		
12		Consider, and implement as appropriate, recommendations from the Range States' Trade Working Group		
	Mineral and energy resource exploration and development		1, 3, 5	CP, ME, HM
13		Assess the adequacy of existing oil and contaminant spill emergency response plans to protect essential polar bear habitat, and prevent polar bears from being exposed to oil		
14		Work with appropriate authorities to develop the necessary emergency response plans		
15		Provide guidance to the spill response authorities for the handling of bears		

		that have come into contact with oil		
16		Compile, and prepare as necessary, international, national, and local BMPs for mineral and energy exploration and development		
17		Use regional land-use planning processes, regional strategic environmental assessments and project environmental assessments to mitigate the effects of mineral and energy development activities on polar bears		
	Contaminants and Pollution		1,3	CP
18		Develop and implement BMPs or action plans to mitigate contamination, or debris, and their effect on polar bears in subpopulations where contaminants are a concern		
	Tourism and Related Activities		1, 3, 5	SH, TO
19		Establish working relationships with tourism organizations		
20		Collect occurrence data, and develop BMPs, with the goal of minimizing the impact of tourism-related activities and their impact on polar bears		
	Shipping		1, 3, 5	SH, TO

21		Examine shipping routes in essential habitat and adjacent areas, and assess the threat posed by expected activities over the next 10 years, and identify appropriate responses, as required		
	Human-Bear Interactions		1,5	ME,SH,TO, HM
22		Reduce the risk of injury and mortality to humans and bears as a result of their interactions by: a. continuing to support the work of the Range State Conflict Working Group; b. implementing and making available to all Range States the Polar Bear-Human Information Management System (PBHIMS); c. developing and implementing appropriate data-sharing agreements among the Range States and making the data available to Range State management authorities; d. entering all available data on human-bear interactions into the PBHIMS database on an ongoing basis; and e. developing BMPs on tools and techniques for use in preventing and mitigating human–bear conflicts		
Monitoring and Research				
	Climate Change Research		1,2,3,4	CC
23		Develop models to better understand the potential effects of climate change within the circumpolar region on polar bear subpopulations		

24		Validate models based on empirical data and use them to identify high-priority information needs		
25		Monitor and quantify changes in sea ice habitat for polar bears using satellite observations or other associated data		
	Obtain Information on all Polar Bear Subpopulations		All	All
26		Develop subpopulation-specific research plans, which include *a priori* study design considerations, based on clearly stated objectives and applied conservation needs and in light of limited resources for research and variation in the ecological and management status of the 19 polar bear subpopulations		
27		Share research plans among jurisdictions to encourage consistency of methods and data		
28		Coordinate joint research studies of shared subpopulations and of adjacent subpopulations with significant movement of animals		
29		Obtain population size estimates for all 19 subpopulations of polar bears according to the inventory schedule provided in this Plan (see Appendix V)		
30		Obtain information, where possible, on vital rates for all 19 subpopulations of polar bears. Improve methods to evaluate ecological indicators (e.g.,		

		reproduction) as proxies for robust estimates of vital rates		
31		Improve methods to quantify and mitigate potential bias in estimates of population status and trend		
32		Improve methods to use all available information to address management questions		
33		Have the relevant scientific authorities conduct regular population assessments		
34		Obtain TEK as per the acquisition schedule (Appendix VI) and consider, in conjunction with scientific data, in management decisions, where appropriate		
35		Determine what kinds of TEK are most useful for conservation and management and develop objectives, guidelines, and standards for collection and reporting of such information to maximize its utility		
	Prey Abundance and Other Food Sources		1,3,4	CC
36		Evaluate the relationships between sea ice, prey abundance and distribution, and polar bear vital rates		
37		Monitor abundance, availability and types of polar bear prey and analyze data for seasonal and regional characteristics and trends		

38		Examine the importance of other food sources to the polar bear diet today and those anticipated over the next 10 years		
39		Monitor the distribution and abundance of ringed seal over time and space		
40		Monitor polar bear diets and nutritional status over time and space		
41		Design studies to reassess areas with existing data for comparative purposes and to assess, at intervals, the effect of climate warming, changes in sea ice, and changes in oceanography that influence the prey species of polar bears		
	Contaminants and Pollution Research		1	CP, CC, SH
42		Compile the state of knowledge on (both global and local source) contaminants affecting polar bears and prey		
43		Examine the impact of contaminants and pollution on polar bear life history characteristics		
44		Where appropriate, monitor contaminants and pollution to determine temporal and spatial trends, modes of transmission etc.		
45		Investigate how contaminants interact in order to establish cause-and-effect relationships and assess the hazards from exposure to multiple contaminants		
46		Periodically monitor for the presence of new contaminants/pollutants (i.e.,		

		those not previously detected in polar bear samples)		
	Disease Research		1	DI, CC
47		Compile the current state of knowledge of how parasites and diseases affect polar bears		
48		Establish sampling methodologies and common protocols to screen for relevant diseases/parasites, and monitor changes over time (recommended sampling period is every 10 years)		
49		Develop baseline occurrence estimates of identified diseases/parasites in each of the 19 subpopulations		
50		Investigate the relationships between disease occurrence and changes to sea ice, feeding ecology, nutritional stress, contaminant exposure, etc.		
51		Measure the impact of diseases/parasites on polar bears at the individual and population level		
52		Establish reference intervals for key biomarkers to monitor individual and population health		
Communications and Outreach				
	Website		2, 5	All
53		Establish and maintain a Range States' website to disseminate information		

		and provide links to relevant information sources		
54		Produce biennial progress reports for release to the public (starting in 2017)		
	Targeted Outreach		2,3,5	All
55		Develop and implement a communications plan that includes regular information updates about the outcomes of this Plan		
	Educational Materials		1,2,3,5	All
56		Develop targeted educational material on BMPs (e.g., posters, fact sheets, website materials) for the shipping, mining and energy sectors and other industries, to minimize their interactions with, and impacts on, polar bears		
57		Develop educational material on polar bear biology and status, harvest management regimes, levels and control of international trade under the CITES and other topics of interest for use in international forums		
58		Use the PBHIMS database to produce safety education materials for use throughout the Arctic in order to minimize and mitigate human-bear interactions		
	Communication on Climate Change		2,3	CC

59		Develop and implement a communications strategy on climate change in order to bring global focus to the threat to the Arctic and to polar bears and the need for the global community to reduce GHG emissions		
Performance Measurement				
60		Regular reporting of the results of the Plan will be done according to Table 4. The reports will be made public a) Biennial reviews will be made before each Meeting of the Parties, measuring progress on the action points b) A more in-depth mid-term review will be made after four years, measuring progress on the objectives	All	All
61		Baseline values for reporting on indicators on all levels will be presented prior to the biennial meeting in 2017		
62		After the full 10-year period, a final report of results will be made, including an evaluation of the Plan, which will determine the need for renewal of the Plan		

*__Action Plan key objectives__

1. Minimize threats to polar bears and their habitat through adaptive management based on coordinated research and monitoring efforts, use of predictive models and interaction with interested or affected parties;

2. Communicate to the public, policy makers, and legislators around the world the importance of mitigating greenhouse gas emissions to polar bear conservation;

3. Ensure the preservation and protection of essential habitat for polar bears;

4. Ensure responsible harvest management systems that will sustain polar bear subpopulations for future generations;

5. Manage human–bear interactions to ensure human safety and to minimize polar bear injury or mortality;

6. Ensure that international legal trade of polar bears is carried out according to conservation principles and that poaching and illegal trade are curtailed.

****Threats**

CC Climate Change

CP Contaminants and Pollution

DI Disease and Parasites

ME Mineral and energy resource exploration and development

HM Human caused mortality

SH Shipping

TO Tourism and related activities