Progress Report, Action #7

2015-2017 Bilateral and Multilateral Actions, Circumpolar Action Plan: Conservation Strategy for the Polar Bear

POLAR BEAR RANGE STATES

Action	Summarize and develop strategies for responding to bears stranded on shore near communities and human developments and consider the consequences including those for human safety and bear health.
Title	Strategies for dealing with large numbers of bears stranded on shore near communities and human developments
Timeline	2015-2019
Description of Activity from 2017 Implementation Table	A report will be prepared which summarizes the existing information on strategies for addressing large numbers of bears stranded on shore near communities and human developments, and the risks to human safety. The report will, if possible, identify the geographic areas where the likelihood of such events is higher.
Baseline status	Information exists but has not been analyzed as part of international report
Planned Outputs	Each Range State will share documents they have developed (Best Management Practices [BMPs] and sponsored research) that directly pertain to action #7, including how to handle orphaned cubs. These will be posted on the Range States website.
Modifications	The title and description of this action were modified to better match the exact language from the Circumpolar Action Plan (CAP) document "2 YearImplementationTable_FINAL.pdf". Further, based on discussions within the Conflict Working Group (CWG), the phrase "nutritionally-stressed" was dropped from the title and description to better reflect the need to manage large concentrations of bears on shore, regardless of their nutritional status. The original timeline for this action was 2015-2017; however, the CWG was not able to fully complete the task in that timeframe. Therefore, this action will be completed during the 2017-2019 timeframe. The CWG and the CAP Implementation Team (CAP IT) both agreed that this action is best handled at the individual Range State level, with BMPs being shared on what each Range State has found works best for them. As a result, the CWG will not write a strategy that would apply to all the Range States because this action is not a collective Range States action. Individual Range States will benefit by sharing BMPs amongst jurisdictions.
Progress Report Date	December 14, 2017

Progress Report on Activity

Because the CWG and CAP IT have both agreed that this action is best addressed at the individual RS level, progress here is reported by country:

Not country specific:

1. 2017. Wilder, J. M., D. Vongraven, T. Atwood, B. Hansen, A. Jessen, A. Kochnev, G. York, R. Vallender, D. Hedman, and M. Gibbons. Polar bear attacks on humans: Implications of a changing climate. Wildl. Soc. Bull. doi:10.1002/wsb.783
2. 2016. Review of human-polar bear conflict reduction measures. Thesis report by Marianne Doelman.

Canada:

1. 2017. Summary of tools for reducing human-bear conflict in Canada based upon input from Canadian jurisdictions. Unpublished report.
2. 2016. N. W. Pilfold, D. Hedman, I. Stirling, A. E. Derocher, N. J. Lunn, and E. Richardson. Mass loss rates of fasting polar bears. Physiol Biochem Zool. 2016 Sep-Oct;89(5):377-88.
3. 2013. Derocher, A. E., J. Aars, S. C. Amstrup, A. Cutting, N. J. Lunn, P. K. Molnár, M. E. Obbard, I. Stirling, G. W. Thiemann, and D. Vongraven. Rapid ecosystem change and polar bear conservation. Conservation Letters 6:368-375.
4. 2010. Towns, L., A. E. Derocher, I. Stirling, N. J. Lunn, and D. Hedman. Spatial and temporal patterns of problem bears in Churchill, Manitoba. Polar Biology 32:1529-1537.

Greenland: no report.

Norway:

1. 2016. The Governor of Svalbard. Response plan for handling of potential problem bears near settlements in Svalbard.

Russia: no report.

United States:

1. 2017. Atwood, T.C., C. Duncan, K. Patyk, P. Nol, J. Rhyan. M. McCollum, M. McKinney, A. Ramey, O.H. Kwok, S. Hennager, and J.P. Dubey. Environmental and behavioral changes influence exposure of an Arctic apex predator to pathogens and contaminants. Scientific Reports 7, doi:10.1038/s41598-017-13496-9.
2. 2017. Neuman-Lee, L., P.A. Terletzky, T.C. Atwood, E.M. Gese, G.D. Smith, S. Greenfield, J. Pettit, and S.S. French. Demographic and temporal variations in immunity and

condition of polar bears (*Ursus maritimus*) from the southern Beaufort Sea. Journal of Experimental Zoology Part A: Ecological Genetics and Physiology 327:333-346.

3. 2017. McKinney, Melissa A., T. C. Atwood, S. J. Iverson, and E. Peacock. Temporal complexity of southern Beaufort Sea polar bear diets during a period of increasing land use. Ecosphere 8(1):e01633. 10.1002/ecs2.1633.
4. 2017. Atwood, T. C., K. Simac, S. W. Breck, G. York, and J. Wilder. Human–Polar Bear Interactions in a Changing Arctic: Existing and Emerging Concerns. Book chapter in Marine Mammal Welfare.
5. 2017. Wilson, R., E. Regehr, M. St. Martin, T. Atwood, E. Peacock, S. Miller, and G. Divoky. Relative Influences of Climate Change and Human Activity on the Onshore Distribution of Polar Bears. Biological Conservation 214: 288-294.
6. 2017. USFWS. Some Examples of Planning, Actions Taken, and Outreach Tools. Marine Mammals Management, unpublished literature, Anchorage, Alaska.
7. 2017. USFWS. Tools and Methods for Reducing Human-Polar Bear Conflicts in Coastal Alaska Communities. Unpublished report, Marine Mammals Management, Anchorage, Alaska.
8. 2017. USFWS. Emergency Response for Polar Bears: Decision Matrix. Marine Mammals Management, unpublished literature, Anchorage, Alaska.
9. 2016. Atwood, T. C., E. Peacock, M. A. McKinney, K. Lillie, R. Wilson, D. C. Douglas, S. Miller, and P. Terletzky. Rapid environmental change drives increased land use by an Arctic marine predator. PLoS ONE 11:e0155932
10. 2015. Miller, S., J. Wilder, and R. R. Wilson. Polar bear–grizzly bear interactions during the autumn open-water period in Alaska. Journal of Mammalogy 96:1317-1325.
11. 2015. Rode, K. D., R. R. Wilson, E. V. Regehr, M. St. Martin, D. C. Douglas, and J. Olson. Increased Land Use by Chukchi Sea Polar Bears in Relation to Changing Sea Ice Conditions. Plos One 10:e0142213.
12. 2015. USFWS. Coping with Polar Bears Along Alaska's Beaufort Sea Coast. Unpublished report, Marine Mammals Management, Anchorage, Alaska.
13. 2015. USFWS. Oil Spill Response Plan for Polar Bears in Alaska. Marine Mammals Management, Anchorage, Alaska. https://www.fws.gov/alaska/fisheries/contaminants/pdf/Polar%20Bear%20WRP%20final%20v8_Public%20website.pdf
14. 2011. USFWS. Polar bear diversionary FEEDING workshop report.
15. 2009. McKinney, Melissa A., T E. Peacock, and R. J. Letcher. 2009. Sea Ice-associated Diet Change Increases the Levels of Chlorinated and Brominated Contaminants in Polar Bears. Environ. Sci. Technol. 43:4334–4339.

16. The following are in prep:
    a. Fry, T., T.C. Atwood, C. Duncan, K. Patyk and T. Goldberg. Monitoring the health status of polar bears using hematology and serum biochemistry.
    b. Rode, K.D., R.R. Wilson, M. St. Martin, and E.V. Regehr. Cumulative effects of disease, contaminants and diet on polar bear body condition in the Chukchi Sea.

Next Steps

The CWG will continue to compile information and BMPs relevant to this action and will post them in a designated section of the Range States website for public access by those charged with managing polar bears stranded on shore.

The CWG is helping to develop the agenda for the 5th Human-bear Conflict Workshop that will be held in Tennessee in March 2018. One topic that will be addressed at that workshop is a facilitated discussion on developing strategies to address the increasing numbers of bears on coastlines in close proximity to human activities. Two aspects to the issue that will be addressed are: 1) More bears onshore for longer periods and in more regions regardless of their body condition and, 2) Episodic events where poor ice conditions/prey failure leads to large numbers of bears in poor to very poor condition on land.