



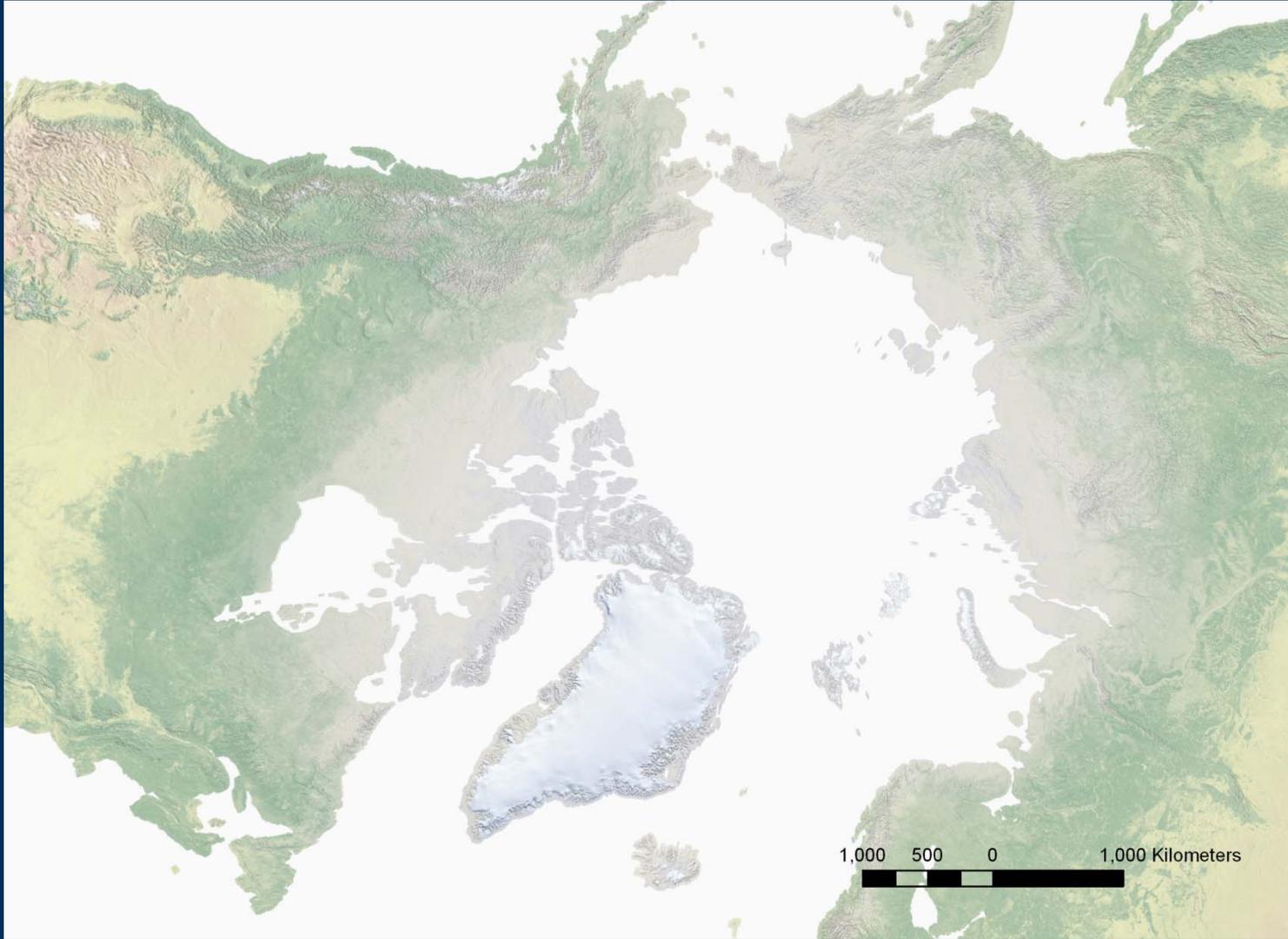
A Global Perspective on the Conservation and Monitoring of Polar Bears

Conservation & Recovery Planning Workshop
Anchorage, Alaska

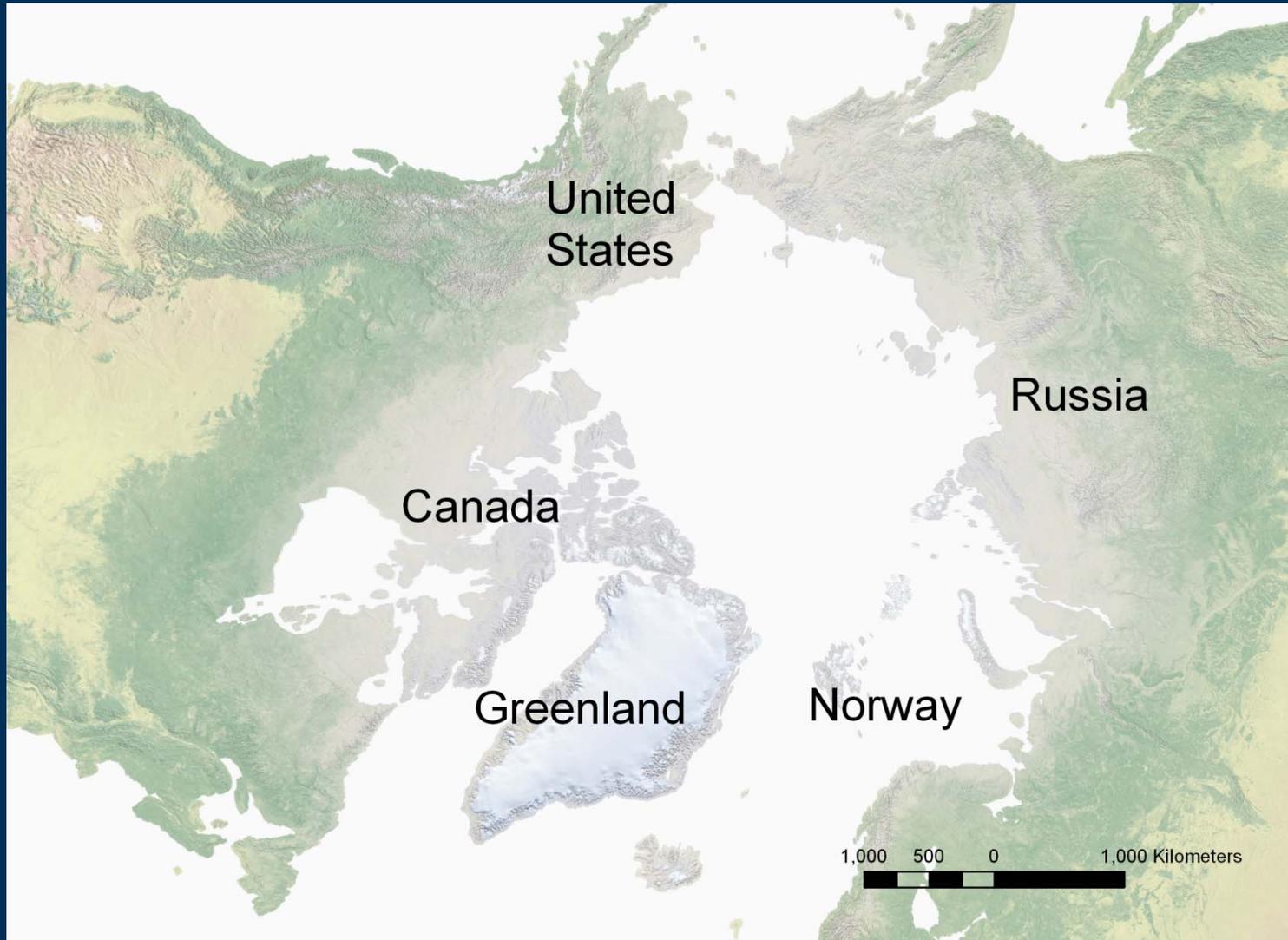
Lily Peacock

U.S. Department of the Interior
U.S. Geological Survey

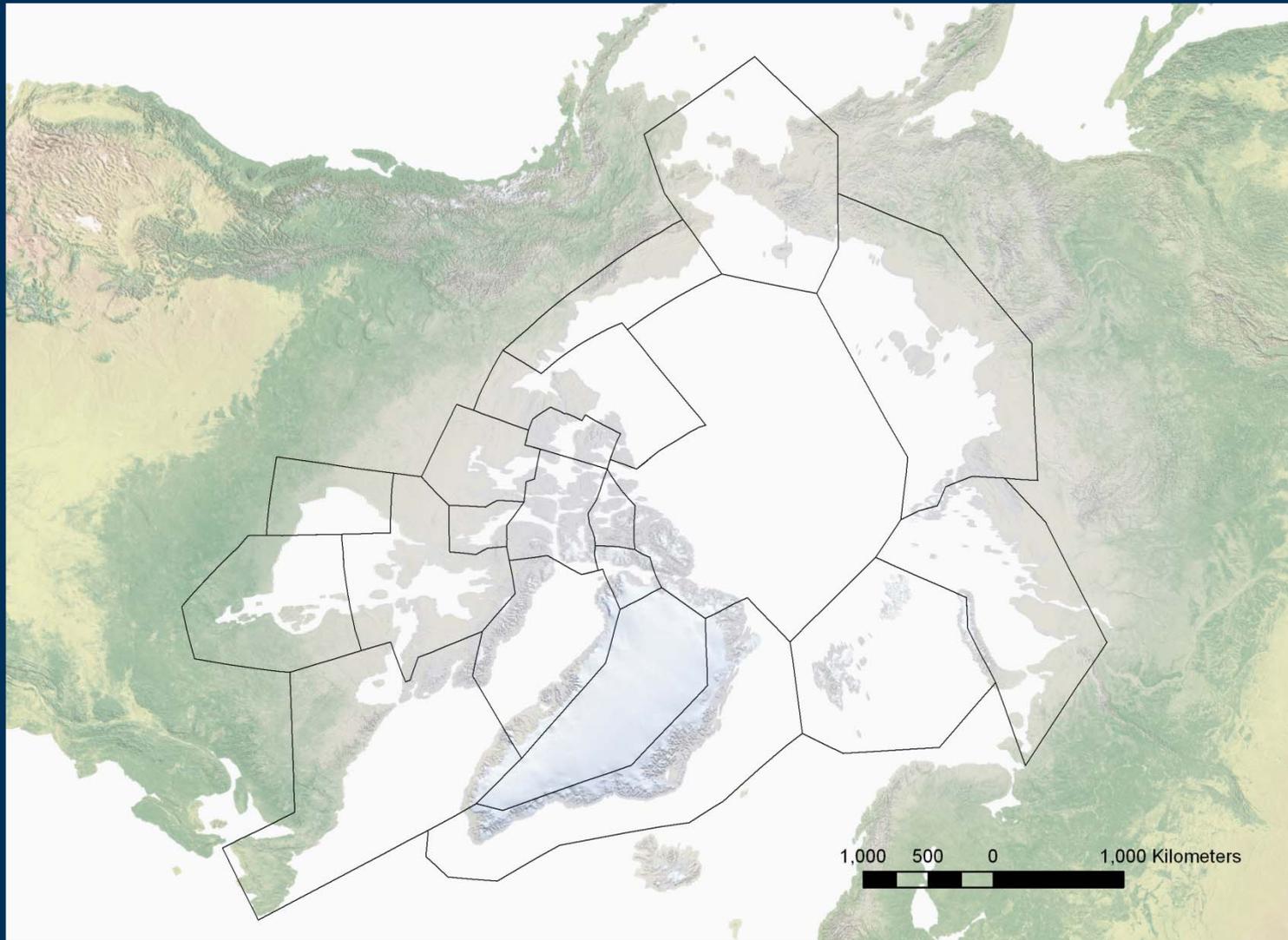
The Arctic



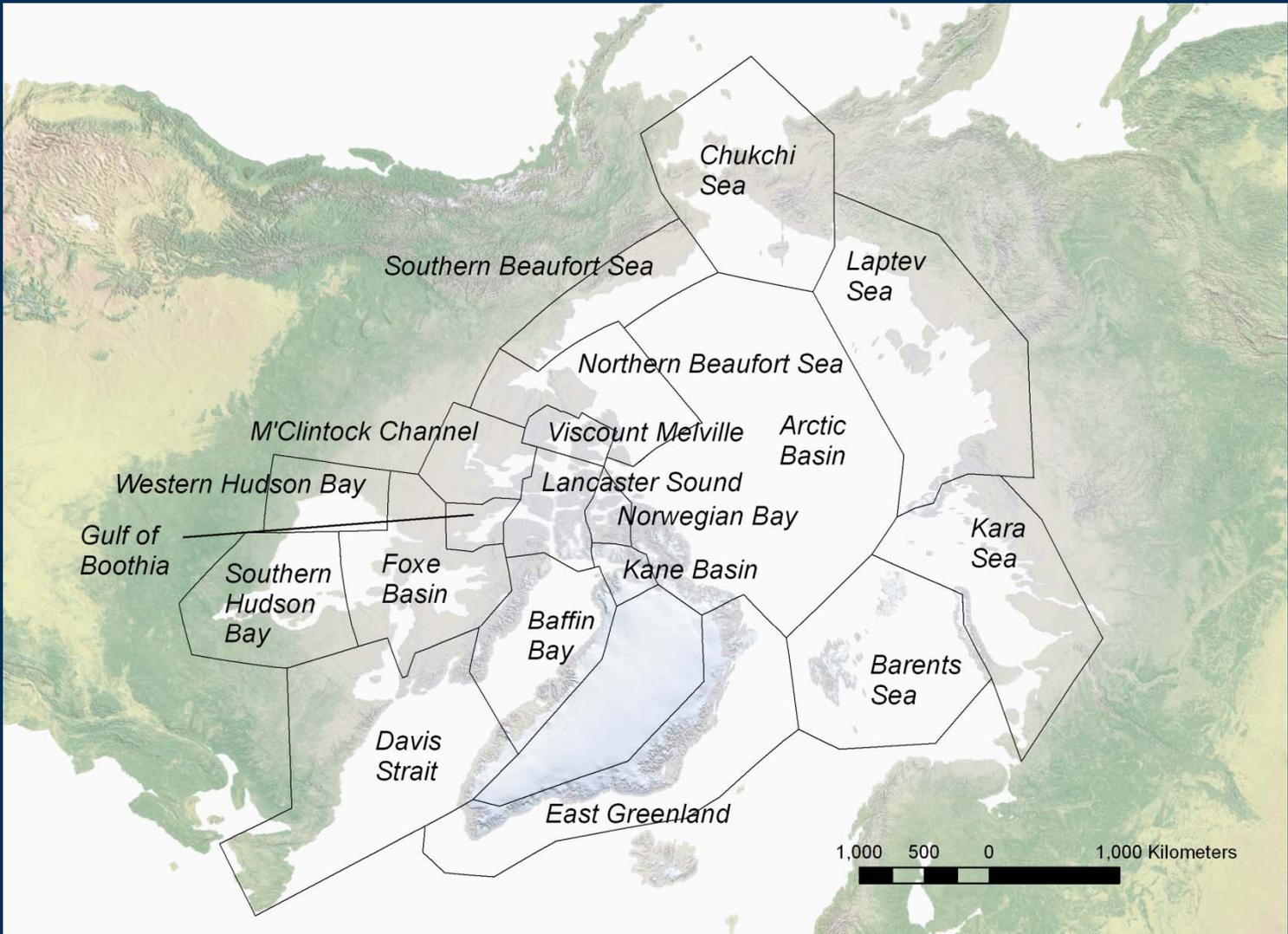
Range States



19 Subpopulations (IUCN/Polar Bear Specialist Group)



19 Subpopulations (IUCN/Polar Bear Specialist Group)



PROCEEDINGS OF THE FIRST
INTERNATIONAL SCIENTIFIC MEETING ON THE
POLAR BEAR

at Fairbanks, Alaska • 6-10 September 1965

International Coordination - 1965

THE WHITE HOUSE
WASHINGTON

August 24, 1965

DEAR BOB:

I am delighted that you will be able to convey my greetings on the opening of the First International Scientific Meeting on the Polar Bear. I am happy that the United States is host for this meeting, and I am hopeful that in the years ahead it will be possible to have similar discussions in numerous subjects of common concern.

Cooperation on polar scientific problems will be of benefit in many ways. It will provide a means of exchanging important data and information and a framework for coordinated action leading to the proper management and conservation of Arctic natural resources.

International cooperation, now being fostered world-wide by International Cooperation Year, has a value over and above the immediate results of this conference. Peace and the avoidance of world destruction are paramount and the problems of man the world over are indivisible. Anything that furthers man's ability to cooperate with his neighbor serves the cause of peace.

Clearly, this conference is exemplary in serving this cause. May your discussions regarding the polar bear provide another path to continued international cooperation.

Sincerely,

(S) LYNDON B. JOHNSON

HONORABLE E. L. BARTLETT
United States Senate



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES
AND WILDLIFE, and
THE UNIVERSITY OF ALASKA

Agreement on the Conservation of Polar Bears (1973)

- The harvest of polar bears will be prohibited, except by local people using traditional methods
- Each party shall
 - protect ecosystems;
 - manage populations with sound conservation practices and on the best available scientific data;
 - conduct national research programs

Impacts on polar bear populations

- Unidirectional decline in habitat as a result of climate warming (Range States 2007, 2008; IUCN/PBSG 2005, 2009)
 - Int'l Agreement's Article II ... the Contracting Parties should "... *take appropriate action to protect the ecosystems of which polar bears are a part*"
- Human-caused mortality
- Contaminants
- Development in the Arctic



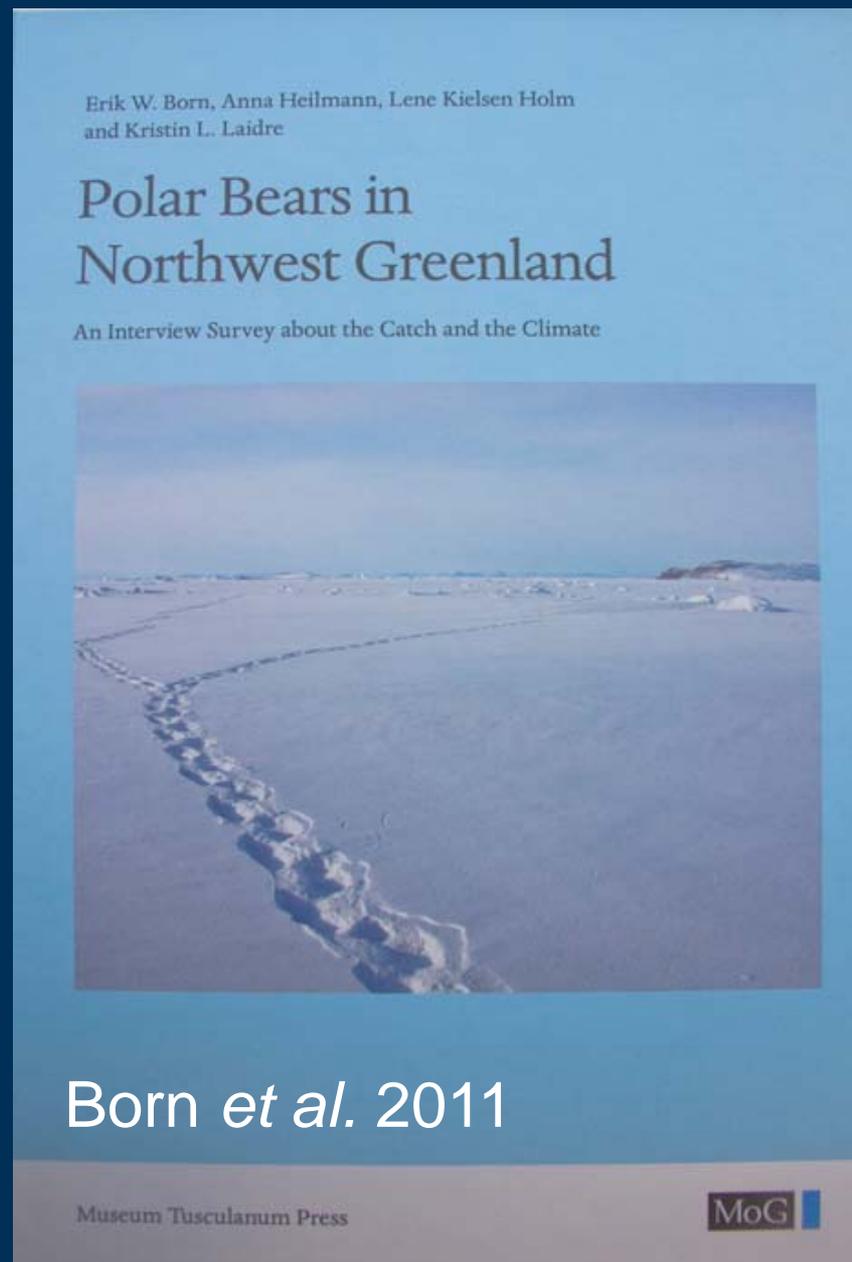
Greenland

- Four subpopulations
- “Local people” interpreted as aboriginal hunters who perform hunting as their primary occupation
- Concerns of overharvest
- Quota system in 2006



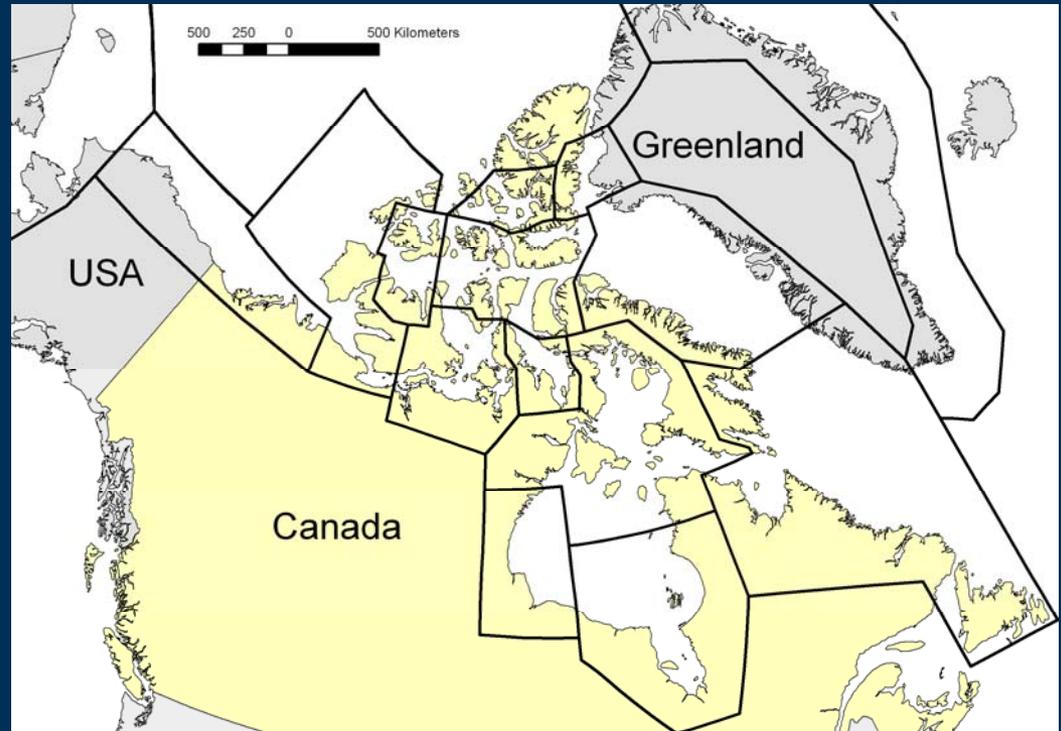
Greenland

- Periodic mark-recapture of polar bears in Kane Basin and Baffin Bay
- Satellite telemetry
- Traditional Ecological Knowledge



Canada

- 65% of world's polar bears
- Sport harvest
- Co-management – 7 jurisdictional governments + Native boards
- Monitoring and research varies
- Science and Traditional Ecological Knowledge
- Species at Risk Act



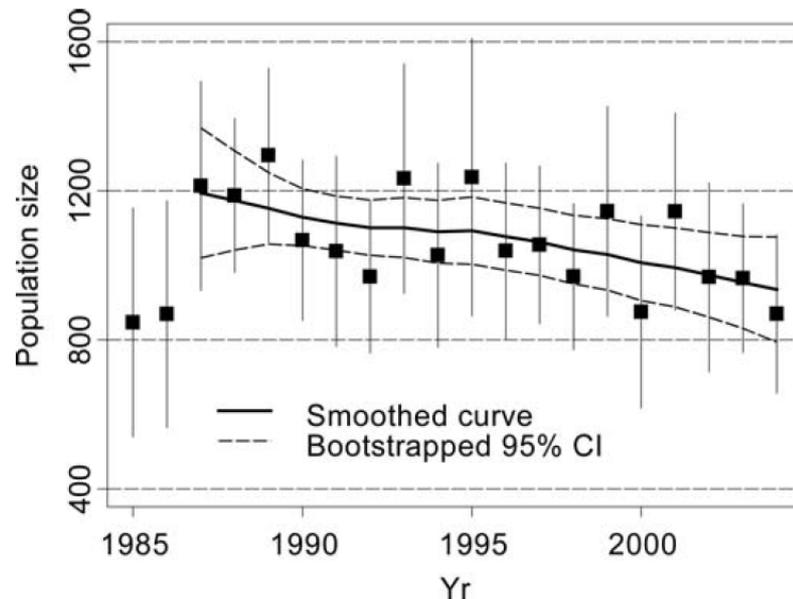
Canada

ARCTIC
VOL. 46, NO. 3 (SEPTEMBER 1993) P. 240-245

Possible Impacts of Climatic Warming on Polar Bears

IAN STIRLING^{1,2} and ANDREW E. DEROCHER^{1,3}

EMPIRICAL DATA relating polar bear condition/natality/survival/population size with ice conditions:
Regehr *et al.* 2006; Stirling *et al.* 1999



Canada – Abundance/Trend Monitoring

Population	Estimate	Year	Method	Jurisdiction	TEK
Viscount Melville	161	1992	Mark-recapture (Taylor <i>et al.</i> 2002)	Nunavut, NWT	
Kane Basin	164	1993	Mark-recapture (Taylor <i>et al.</i> 2008a)	Nunavut (with Greenland)	Born <i>et al.</i> 2011
Baffin Bay	2,074	1994-1997	Mark-recapture (Taylor <i>et al.</i> 2005)	Nunavut (with Greenland)	Dowsley & Wenzel 2008; Born <i>et al.</i> 2011
Lancaster Sound	2,541	1998	Mark-recapture (Taylor <i>et al.</i> 2008b)	Nunavut	

Canada – Abundance/Trend Monitoring

Population	Estimate	Year	Method	Jurisdiction	TEK
Norwegian Bay	190	1998	Mark-recapture (Taylor <i>et al.</i> 2008b)	Nunavut	
Gulf of Boothia	1,592	2000	Mark-recapture (Taylor <i>et al.</i> 2008)	Nunavut	Keith <i>et al.</i> 2005
M'Clintock Channel	284	2000	Mark-recapture (Taylor <i>et al.</i> 2006)	Nunavut	
Western Hudson Bay	935	2004	Mark-recapture (Regehr <i>et al.</i> 2007)	Nunavut, Manitoba	Tyrrell <i>et al.</i> 2008

Canada – Abundance/Trend Monitoring

Population	Estimate	Year	Method	Jurisdiction	TEK
Southern Beaufort	1,546	2006	Mark-recapture (Regehr <i>et al.</i> 2006)	Yukon, Northwest Territories (with USA)	On-going (Canada)
Southern Hudson Bay	900-1000	2006	Mark-recapture (Obbard <i>et al.</i> 2007)	Nunavut, Ontario, Quebec	McDonald 1997
Northern Beaufort	1,200	2006	Mark-recapture (Stirling <i>et al.</i> 2011)	Nunavut, Northwest Territories	On-going

Canada

Population	Estimate	Year	Method	Jurisdiction	TEK
Davis Strait	2,158	2005-2007	Mark-recapture (Peacock <i>et al.</i> submitted)	Nunavut, Quebec, Labrador	Kotierk 2009, 2010
Foxe Basin	2,598	2009-2010	Aerial Survey (Stapleton, <i>et al.</i> , in prep)	Nunavut, Quebec	Sahanatien <i>et al.</i> in prep.

Russia

- Hunting ban since 1957
- Concerns over illegal harvest
- US-Russia Bilateral Agreement in the Chukchi Sea – 2007
- Ice modeling, Wrangell Island and community-based monitoring



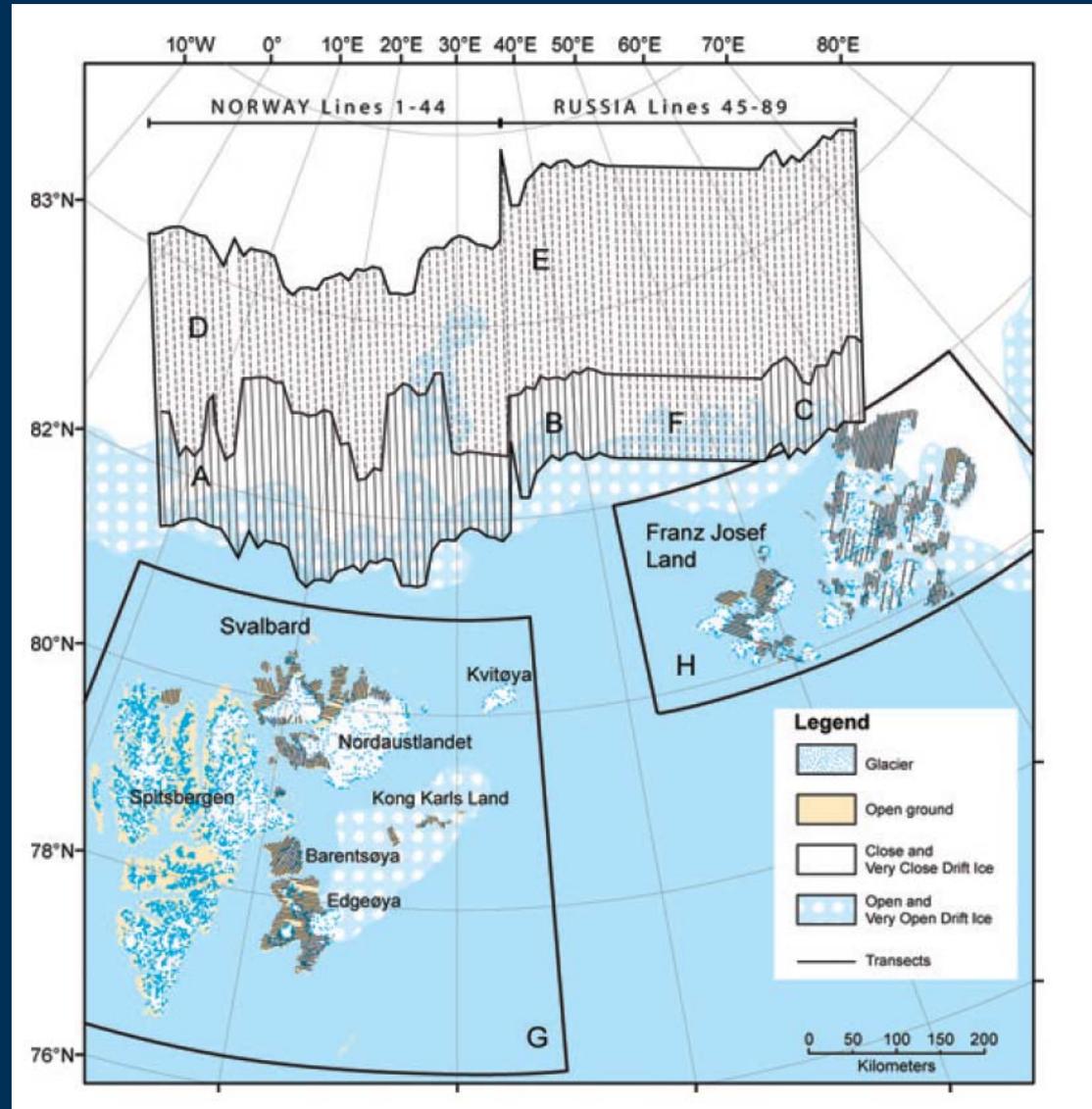
United States

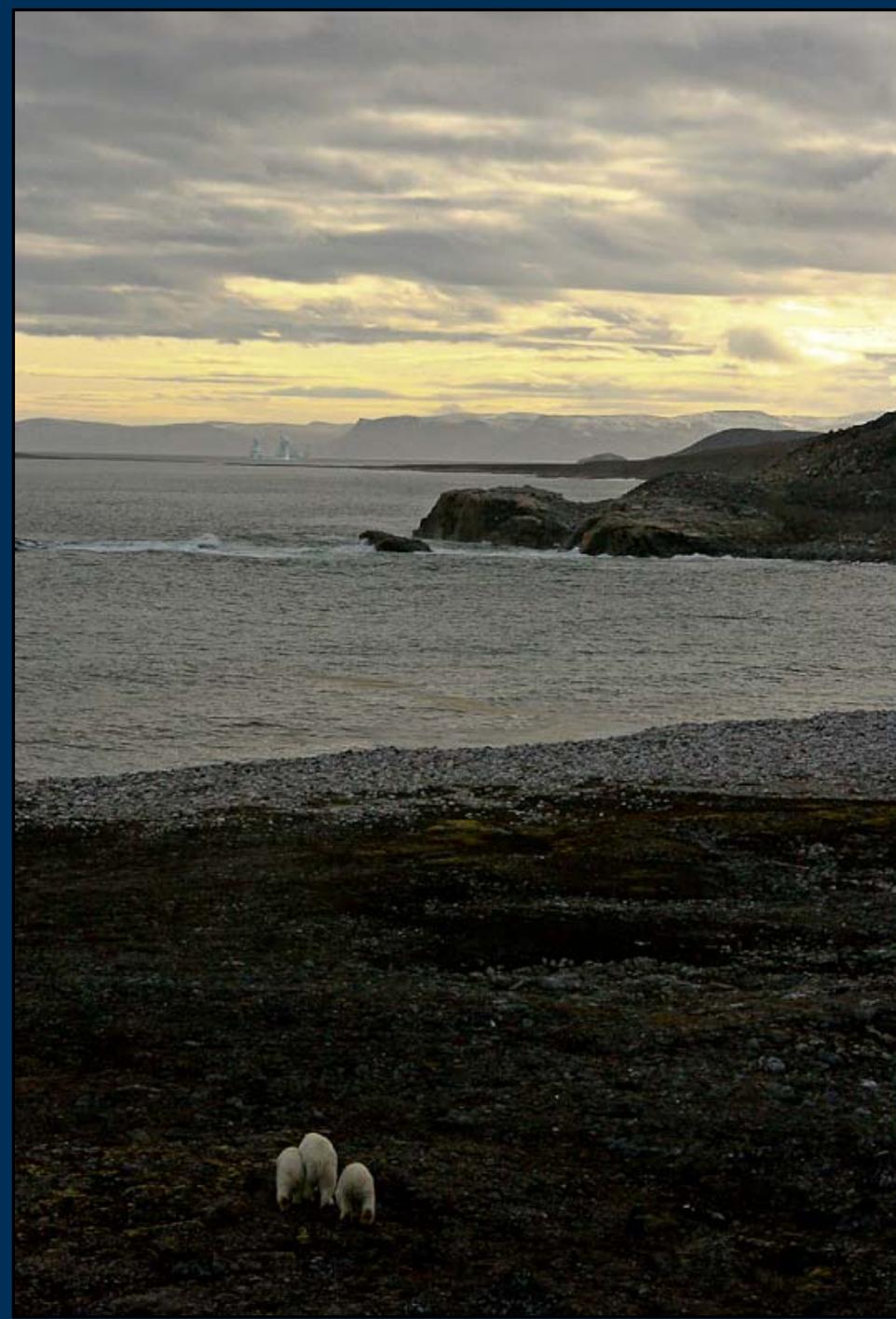
- MMPA 1972
- Inuvialuit-Inupiat Agreement, 1988
- US-Russia Agreement, 2007
- US-Canada MOU, 2008
- US EPA 2008, *threatened*
- Long-term research program since 1980's, Beaufort Sea
- Collaborative research with Russia in the Chukchi Sea



Norway

- Long term studies on ecology, movement and contaminants in the Barents Sea (Larsen 1986; Derocher 2005)
- Recent success of using aerial survey for population abundance



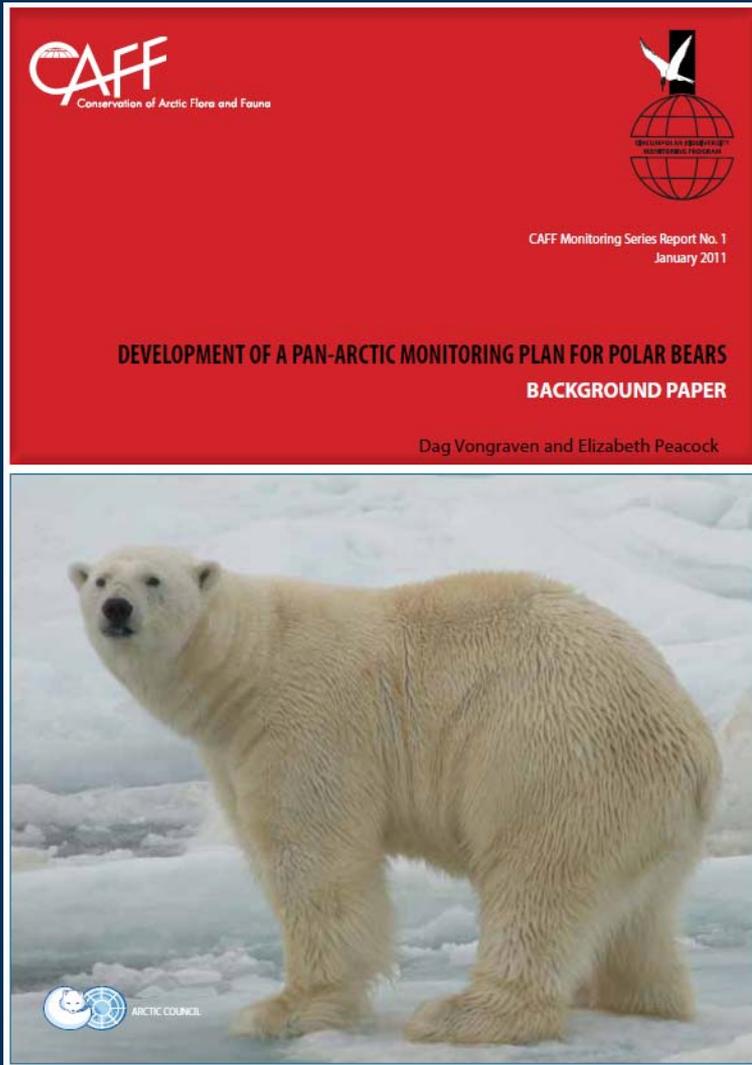


Status of Subpopulations: *Risk of Future Decline*

- Data deficient – 9
- Very low – 2
- Moderate – 1
- High – 1
- Very High – 6

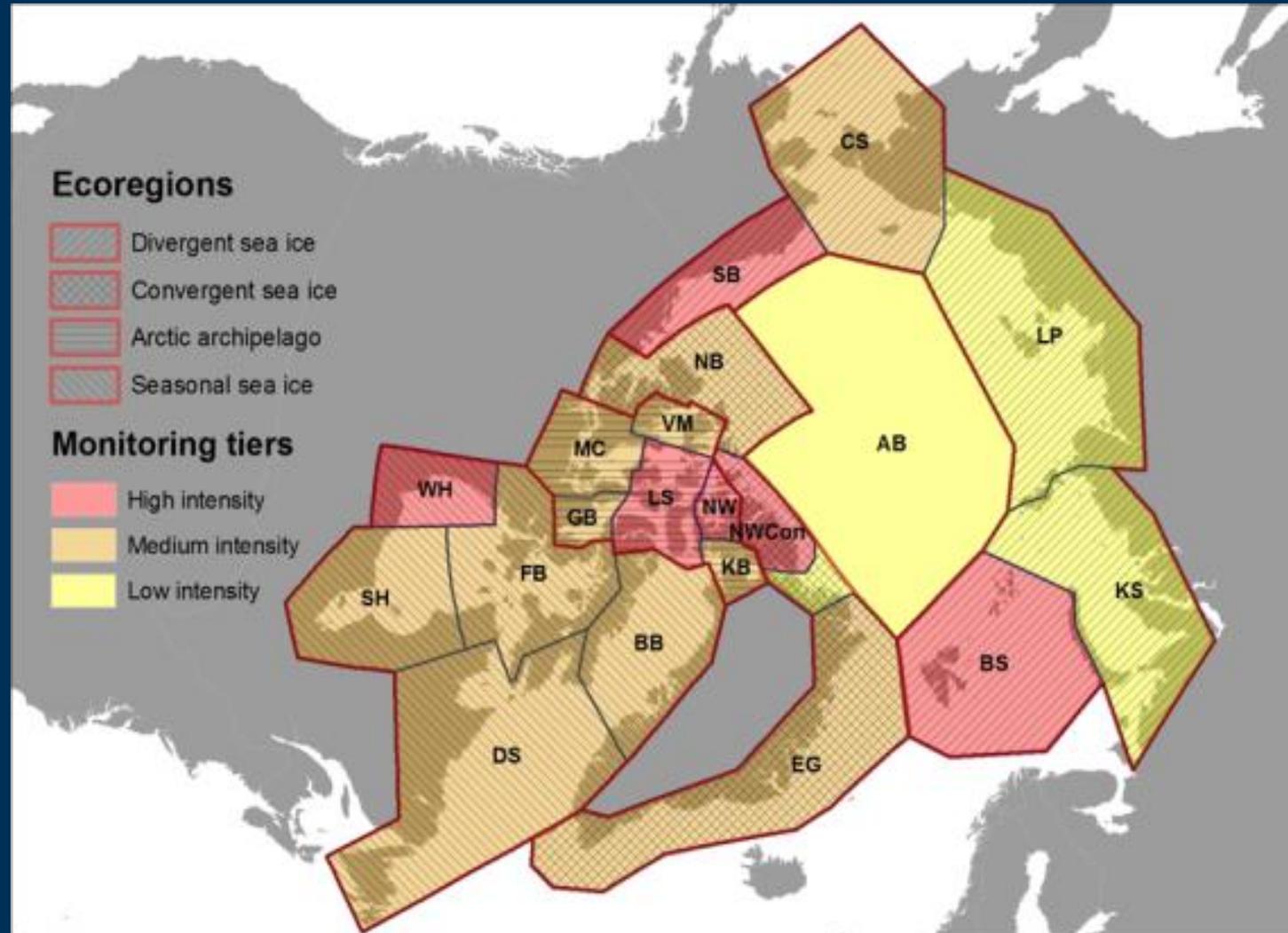
IUCN/SSC Polar Bear
Specialist Group 2009

Circumpolar Monitoring - CAFF



Implementing a plan could improve the ability to detect future trends, identify the most vulnerable subpopulations, and, with frequent analysis of the data, could guide effective harvest, habitat and disturbance management.

Eco-region (Amstrup et al. 2008) and tiered approach to monitoring



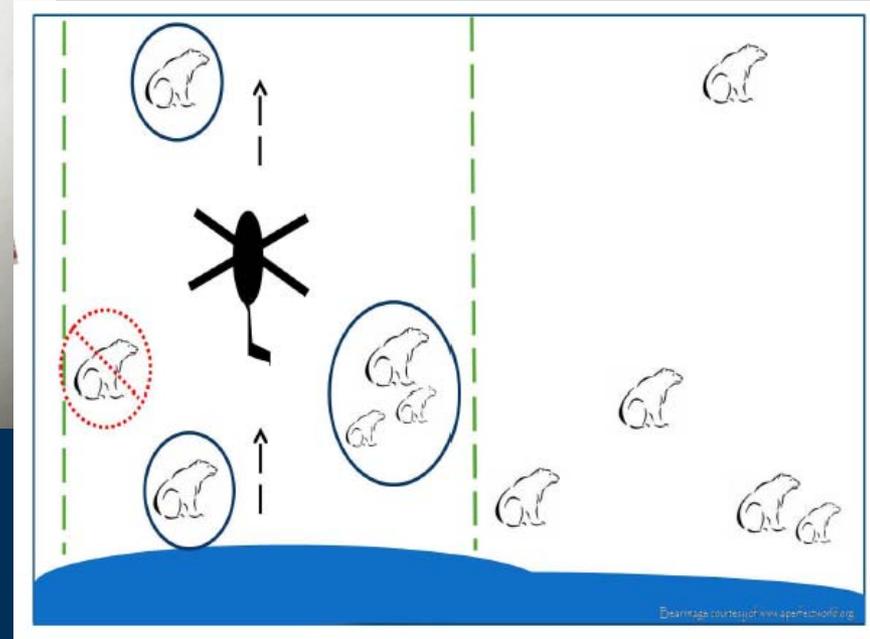
Abundance, reproduction, survival & trend



Abundance, reproduction, survival & trend

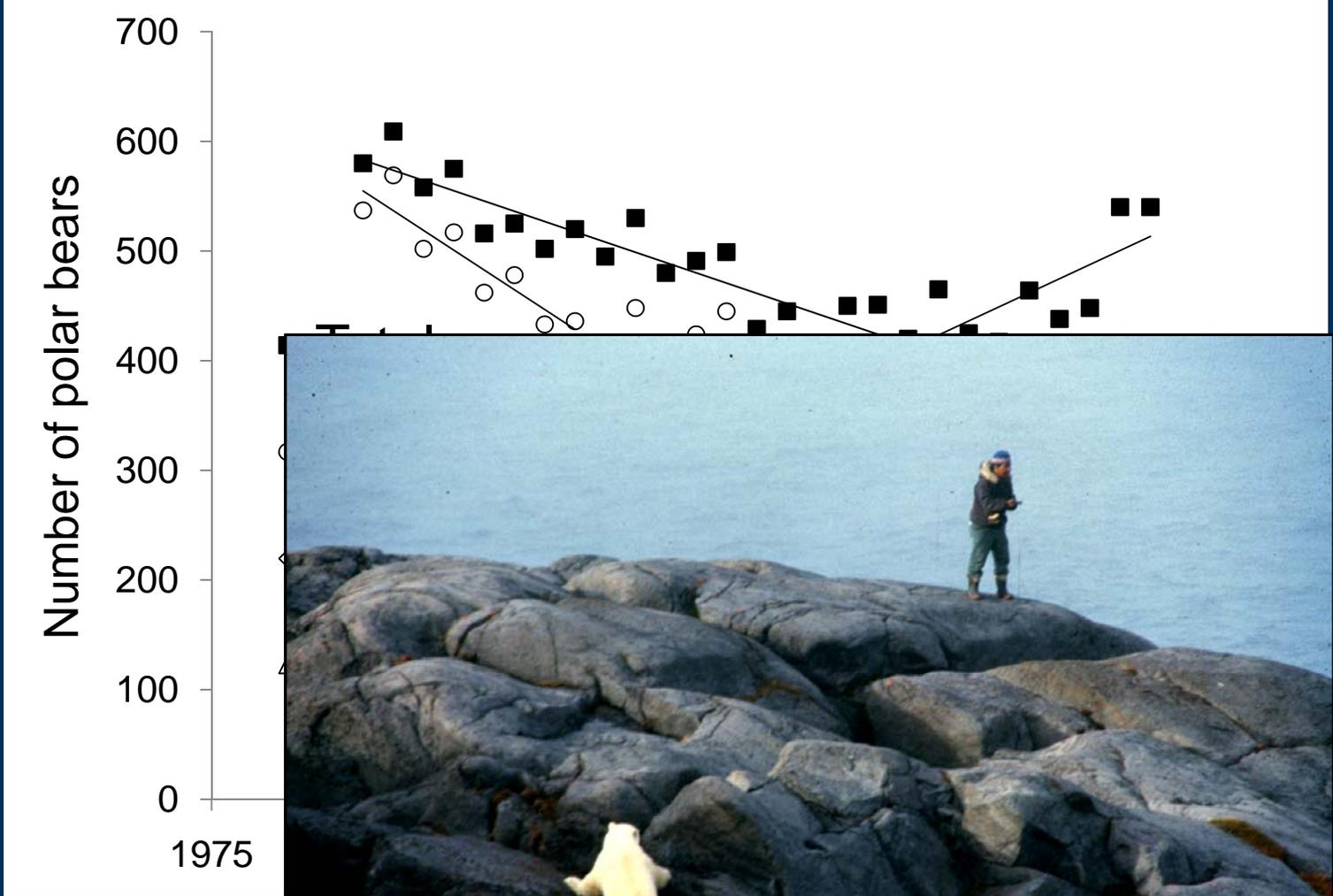


Biopsy darting (USGS)



Aerial Surveys (Aars et al. 2009; Stapleton et al. in prep)

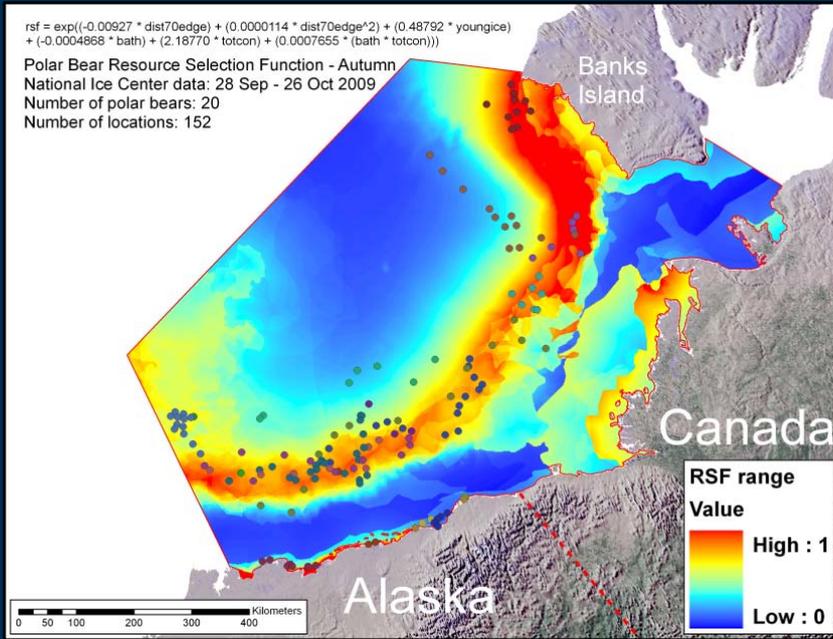
Monitor harvest, poaching and interactions



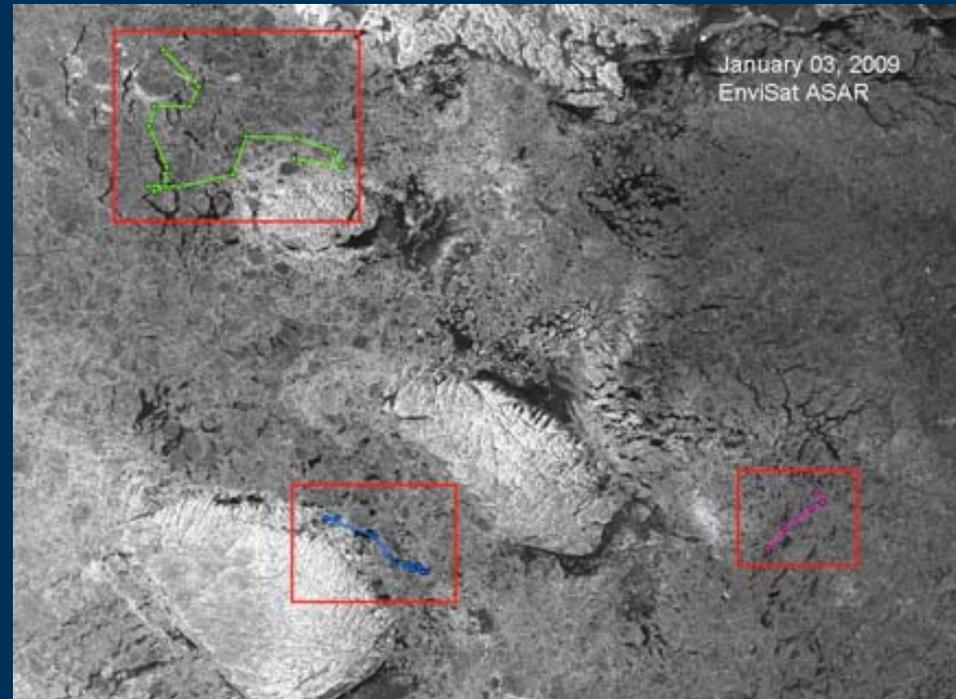
Monitor Habitat and Habitat - Use



Monitor Habitat and Habitat - Use



Resource Selection
Functions:
Durner *et al.* 2009



Sahanatien *et al.* in prep

Monitor health and condition

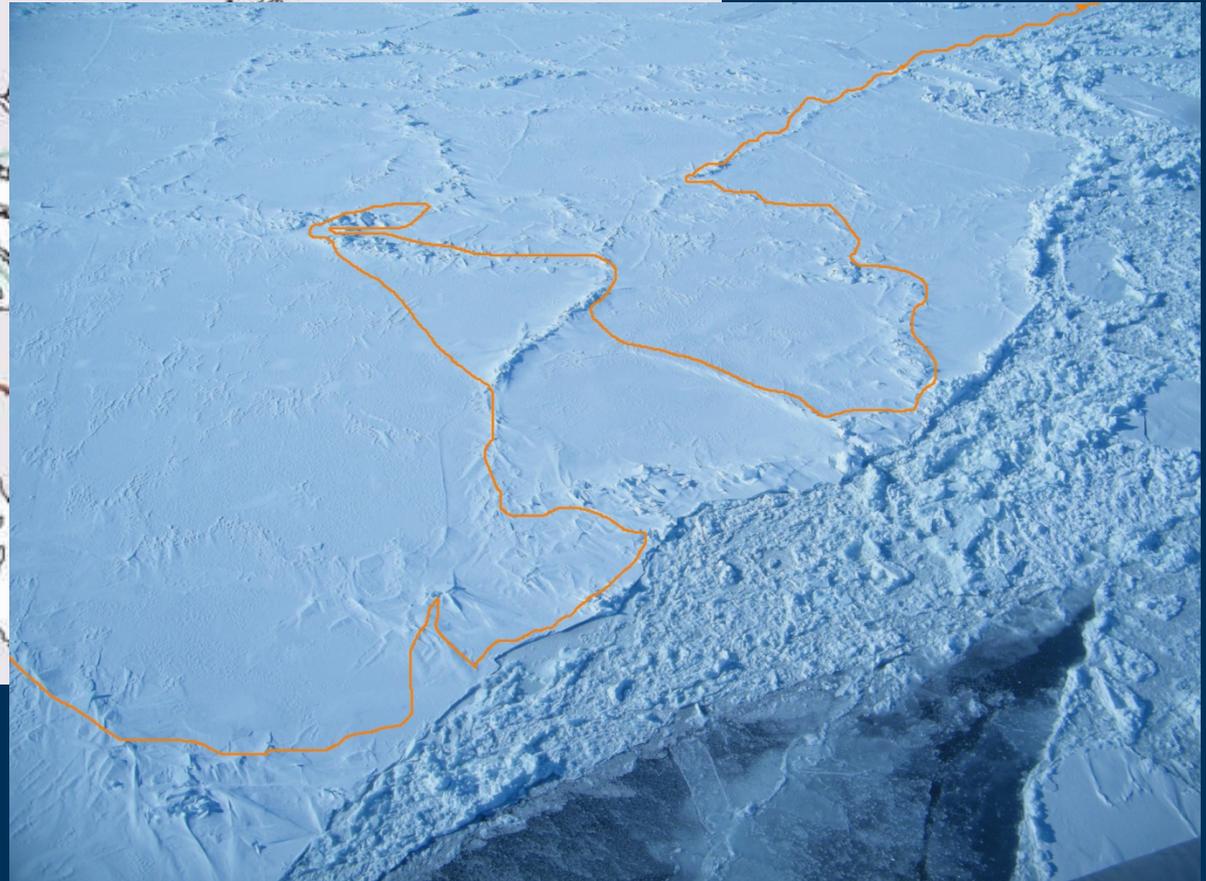


- Develop circumpolar standards
- Develop metrics that can be obtained from capture, harvest and community-based monitoring

Collect Traditional Ecological Knowledge



Collect Traditional Ecological Knowledge



Community-based monitoring

- Surveys and indices
- Collection of harvest samples, data and effort (condition, contaminants, distribution, abundance)



Conservation Strategies

- Curb greenhouse gas emissions

Province of Ontario

- First jurisdiction in North America - to legislate the shutdown of coal-fired plants.
- By 2008, > 75% of electrical generation came from emission-free sources
- By 2014, all 19 coal plants will be closed



Ontario's Long-Term Energy Plan



Building Our Clean Energy Future



Global Conservation Strategies

- Curb greenhouse gas emissions
- Protect denning and land habitat
- Maintain sustainable harvest
- Increase efforts in deterrence including reducing human food and waste as attractants
- Prepare for extreme events (oil spills, mass stranding)

