

Conservation status, monitoring,
and information gaps



Andrew Derocher & Ian Stirling
IUCN/SSC Polar Bear Specialist Group





Overview

- IUCN/SSC Polar Bear Specialist Group
- Polar bear research
- Conservation status
- Circumpolar monitoring of polar bears
- Information gaps





IUCN/SSC Polar Bear Specialist Group

- SSC – Species Survival Commission
- PBSG is one of >100 Specialist Groups
- science-based network of ca. 7,500 volunteer experts
- no budget





IUCN/SSC Polar Bear Specialist Group

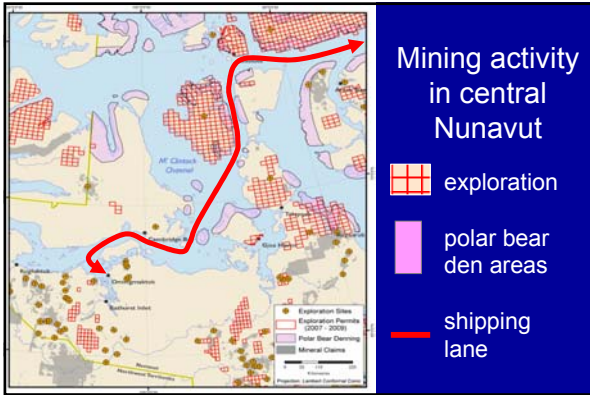
- 20 members from the 5 Agreement nations
- 3 members appointed by each nation
- 5 members appointed by the Chair
 - Russia 3
 - USA 4
 - Canada 5
 - Greenland/Denmark 4
 - Norway 4

IUCN/SSC Polar Bear Specialist Group

- Invited Specialists - 24 at Meeting in 2005
 - North Slope Borough, Alaska
 - Inuvialuit Game Council, Canada
 - Nunavut Tunngavik Incorporated, Canada
 - Ministry of Fisheries and Hunting, Greenland
 - KNAPK, Greenland
 - State Veterinary Laboratories, Norway
 - TINRO, Russia

2005 IUCN/SSC PBSG Resolutions

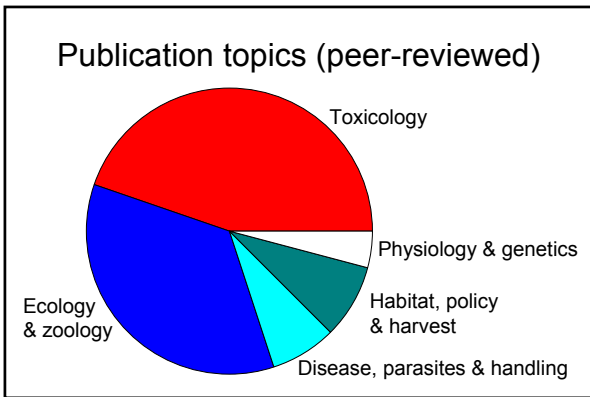
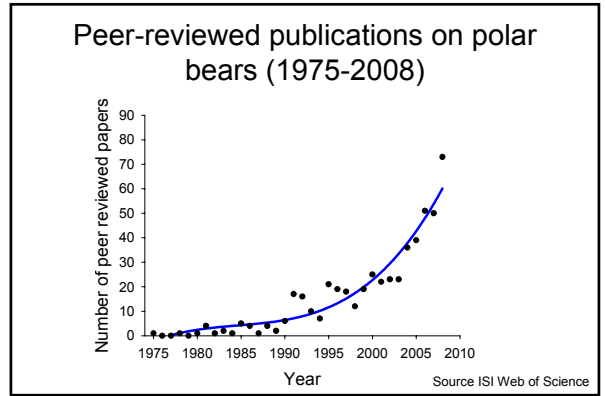
1. A precautionary approach when setting catch levels in a warming Arctic
 - harvest increases only if supported by scientific knowledge
2. An international study on the effects of pollution on polar bears
3. Status of the Western Hudson Bay population analysis
 - appropriate management required
4. Implementation of the U.S.A./Russia bilateral agreement
5. Wrangel Island nature reserve and other protected areas
6. Risks to polar bears from Arctic shipping
 - monitor, regulate and mitigate impacts on polar bears

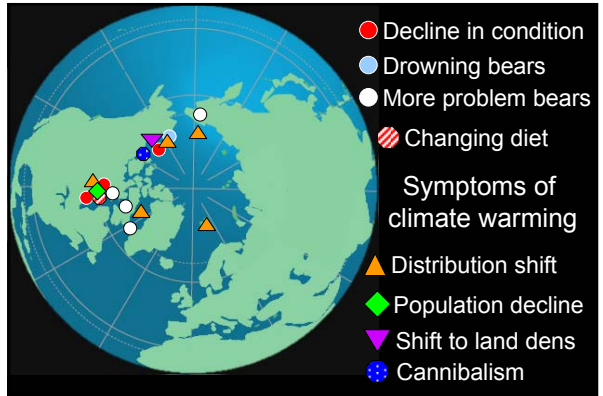
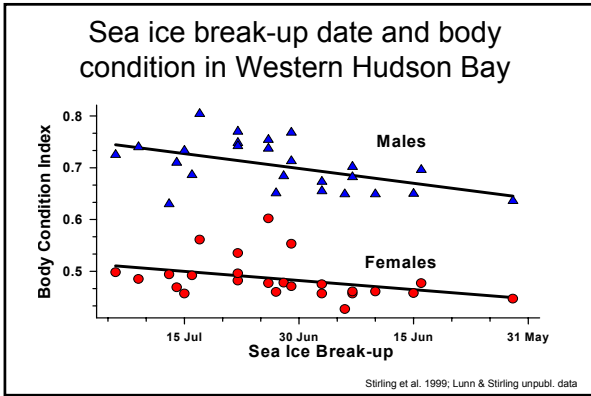
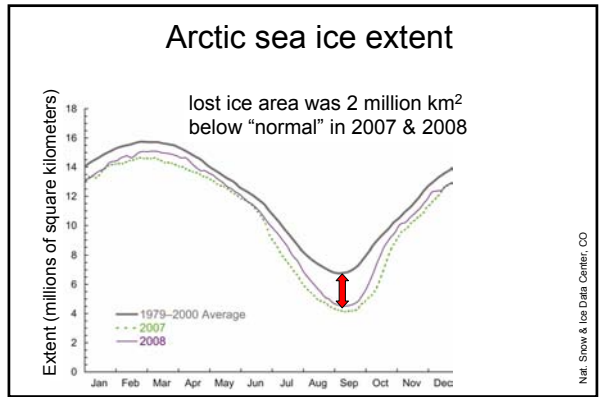


Circumpolar concerns for polar bear research

- Under staffed
- Under funded
- Significant loss of expertise occurring – retirements past and pending

Photos © G. Thiemann






Current conservation status


World

- IUCN Red List – **Vulnerable**
- Assessed in 2006
- Unanimous decision




U.S.A.

- Listed – **Threatened**
- Assessed in 2008



Norway


- Red List – **Vulnerable**
- Assessed in 2006



Current conservation status


Greenland

- Red List – **Vulnerable**
- Assessed in 2007




Russia

- Red Data Book – **Rare, Recovering, Uncertain**
- Assessed in 2001



Canada

- COSEWIC – **Special Concern**
- Assessed in 2008



The Precautionary Principle

Convention on Biological Diversity (1992)

“Where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat”

Committee on the Status of Endangered Wildlife in Canada



Status Report is inconsistent with findings of the PBSG Concerns:

1. Status “Special Concern” since 1991
2. Does not account for the effects of climate change
3. Lacks quantitative analysis of sea ice loss
4. Single status assessment applied to 13 populations
 - “one-size fits all” is inappropriate
5. Lack of a precautionary approach

Time frame for status assessment

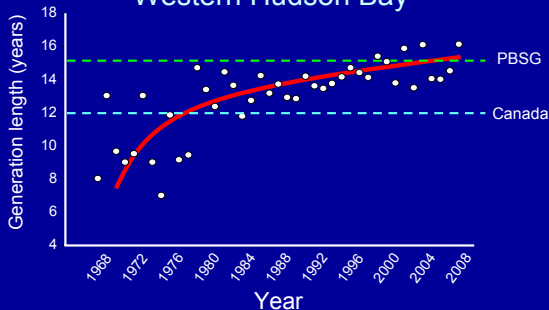
- Generation length is the average age of parents of the current cohort
- Assessment period = 3 x generation length



Time frame for status assessment

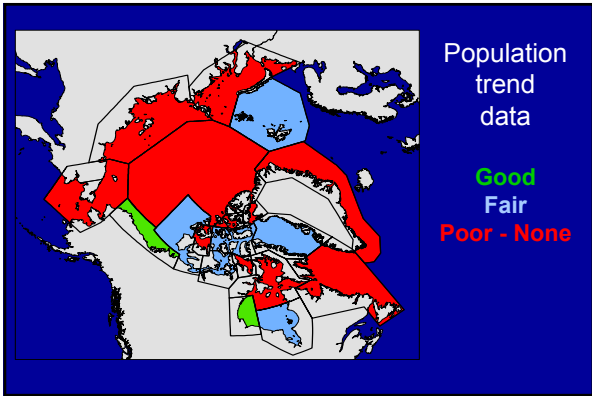
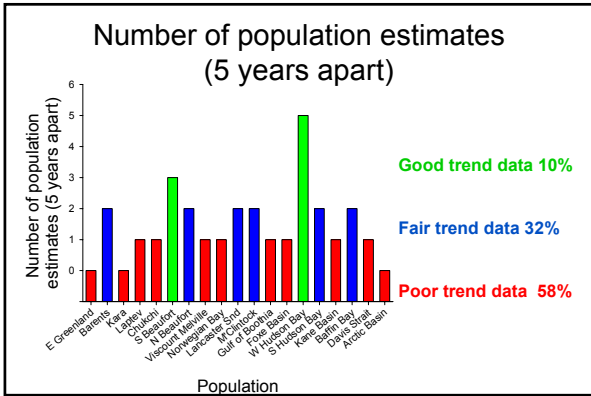
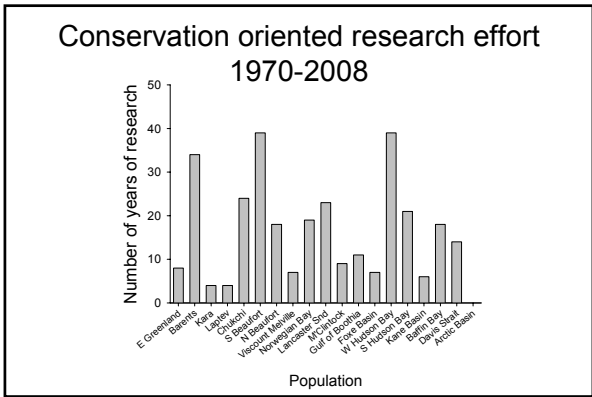
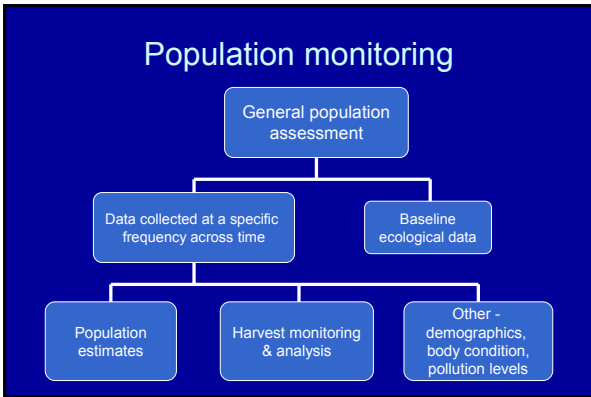
	Generation length (years)	Assessment period (years)
IUCN Red List	15	45
USA	15	45
Norway / Denmark & Greenland	15	45
Canada	12	36

Generation length in Western Hudson Bay



Population monitoring





- ### Population monitoring
- Detecting important changes
 - population size is the key parameter
 - demographic changes
 - Magnitude of change and direction of change
 - ecologically significant changes
 - conservation status changes
 - Timeframe of change
 - dictates monitoring intensity

- ### Population monitoring programmes
- What to monitor?
1. Population size
 2. Demographic parameters
 - survival and reproduction
 3. Ecological changes

– diet	– body condition
– movements	– pollution load
– distribution	– behaviour
– disease / parasites	

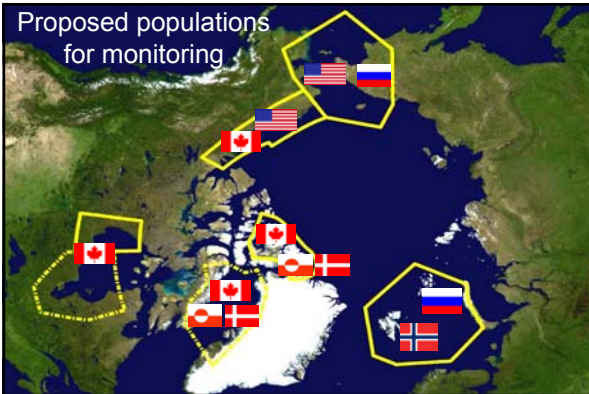
Conservation challenges and knowledge gaps

- Climate warming effects
- Habitat trends
 - must be polar bear oriented
- Need for alternative population estimation methods
 - aerial surveys
 - DNA darting

Conservation challenges and knowledge gaps

- Establishment and continuation of focal monitored populations
 - Southern Beaufort Sea
 - Western Hudson Bay
 - Barents Sea
 - Chukchi Sea
 - High Arctic
- } Primary
- Baffin Bay
 - Southern Hudson Bay
- } Secondary

Proposed populations for monitoring



International co-operation

- Increase co-operation across shared populations
- Standardization of methods
- Consider international monitoring projects
- Consult on harvest levels in shared populations

Conservation challenges and knowledge gaps

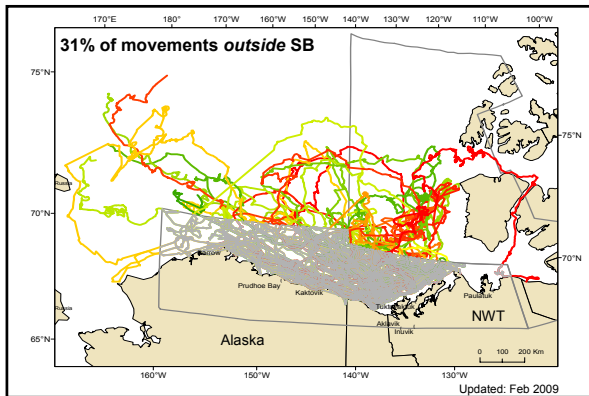
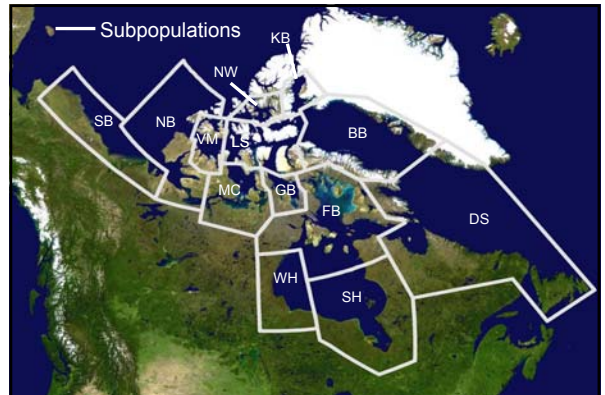
- Effects of pollution
- Traditional Ecological Knowledge - Science integration
 - an emerging field
 - integration of perspectives where applicable
 - collection and documentation of TEK
- Harvest management
 - what data do we need
 - how should we use the data

Depleted populations

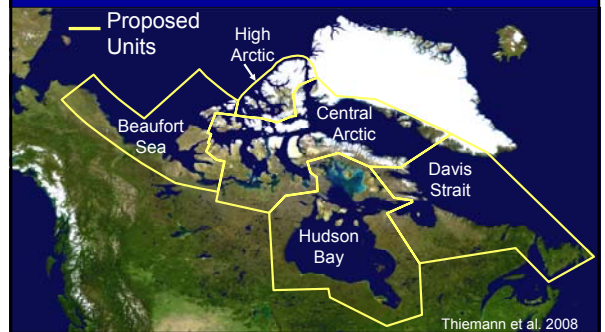


Conservation challenges and knowledge gaps

- Cannot use historic data to project population trend in a warming climate
 - use of population projection models is inappropriate unless ecosystem change is included
- Population boundaries will be dynamic
 - need to consider the ramifications of changing distributions



Designatable units for polar bears



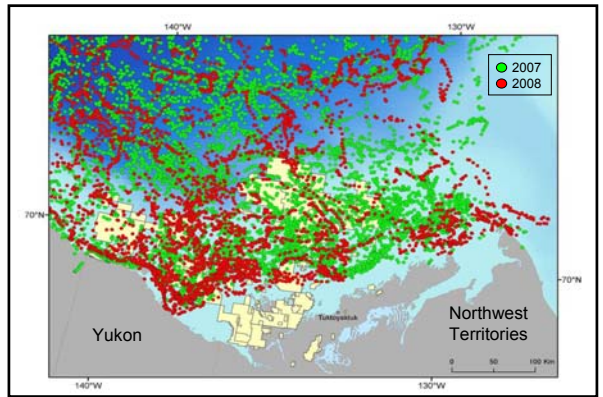
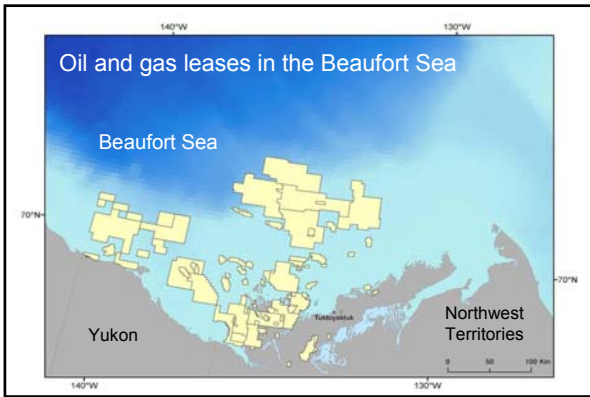
Sea ice ecoregions



Oil and gas preparedness

Despite rapid increase in exploration and development of oil and gas in polar bear habitat, there is little preparation for

1. Mapping critical polar bear habitats
2. Monitoring the effects of development
3. Creation of oil spill contingency plans



Contingency planning

To date, documented changes in polar bear populations have been gradual

- body mass
- reproduction
- survival rates
- population abundance



Contingency planning

We are not prepared for rapid ecological change and appropriate conservation responses

- relocation of animals
- increased problem bears
- fostering of cubs
- euthanasia of bears
- supplemental feeding



The direction forward

- Polar Bear Conservation Plan
 - population monitoring
 - standardized methods
 - habitat assessment
 - protection of critical habitat
 - sudden change contingency planning
 - oil spill contingency planning
 - shipping traffic
 - problem bears



Longer term:
reducing greenhouse gas production
is the only conservation "cure"

