

Polar Bear Management in Greenland

Ministry of Fisheries, Hunting and Agriculture

NAALAKKERSUISUT
GOVERNMENT OF GREENLAND



Meeting of the Parties of the Agreement on the Conservation of Polar Bears

Ilulissat, Greenland, 1-3 September 2015

Heidi Mary Hansen, Biologist/Head of Section &

Kristin Laidre, Research Scientist, Greenland Institute of Natural Resources



Content



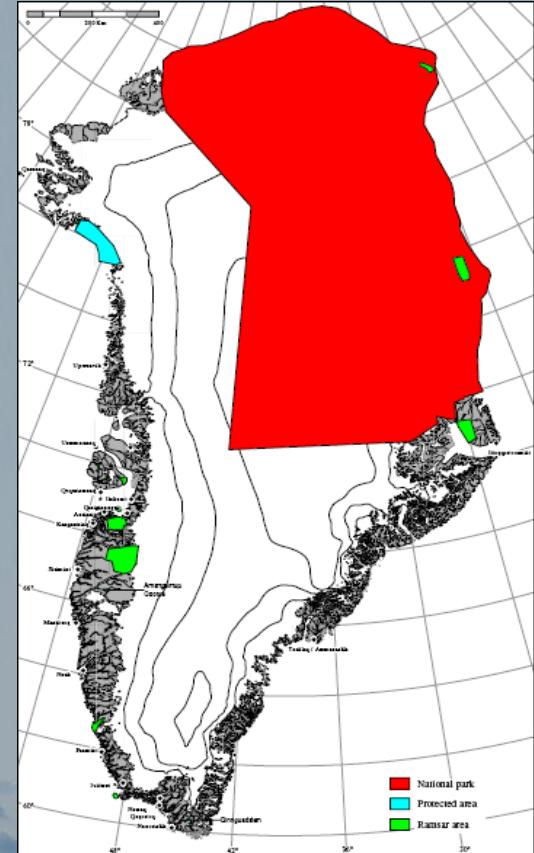
- **Polar Bear Management System in Greenland**
- **Overview of the Greenlandic polar bear sub-populations**
- **Catch reporting and control**
- **Quotas and harvest**
- **CITES Management**
- **Conflict bears and future work with PBHIMS**
- **Important next steps**
- **Research and Monitoring activities - By Kristin Laidre, PhD**

Polar Bear Management in Greenland



Geographical coverage of the executive order

- The executive order covers the land and the economic zones of Greenland
- Special provisions apply for access to the National Park in North and East Greenland (red), and the Melville Bay Nature Reserve (blue).





Polar Bear Management in Greenland

Greenland Home Rule Executive Order no. 21 of 22 September 2005
on the Protection and Hunting of Polar Bears

Initiated the use of the Government of Greenland's annual polar bear quota system and monitoring, taking into account:

- International agreements,
- Biological advice provided by Greenland Institute of Natural Resources (GINR),
- Harvest statistics, and
- TEK, through consultations with the Hunting Council and KNAPK, (and other relevant partners)

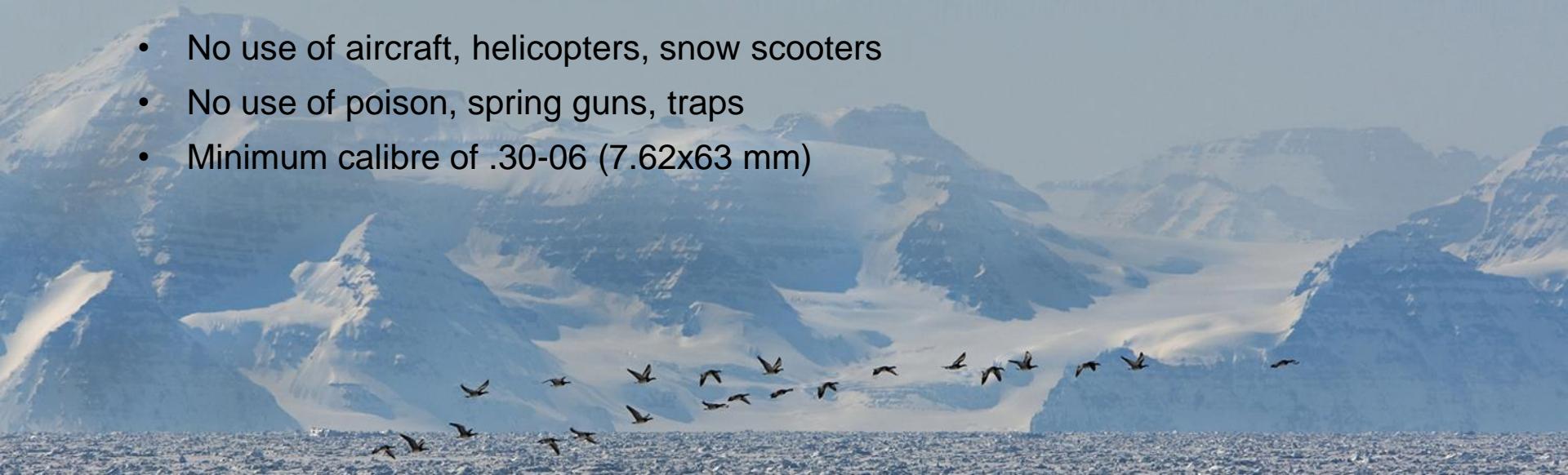




Polar Bear Management in Greenland

Protective elements in the executive order:

- Quota-system dictates permitted harvest level and permitted hunting period
 - Only occupational (full time) hunters can hunt polar bears
 - Cubs, and females accompanied by cubs, are totally protected
 - It is prohibited to disturb denning polar bears and deliver polar bear cubs to a zoo
-
- **Restrictions on hunting methods:**
 - No use of aircraft, helicopters, snow scooters
 - No use of poison, spring guns, traps
 - Minimum calibre of .30-06 (7.62x63 mm)

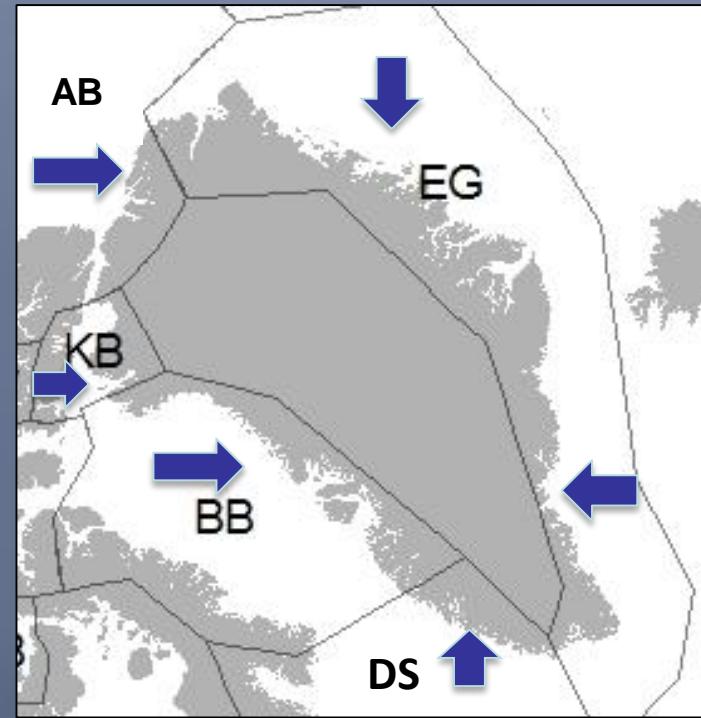




Overview of Greenland's polar bear populations

Greenlands 5 sub-populations:

1. East Greenland
2. Davis Strait
3. Baffin Bay
4. Kane Basin
5. Arctic Basin (no quota or harvest)



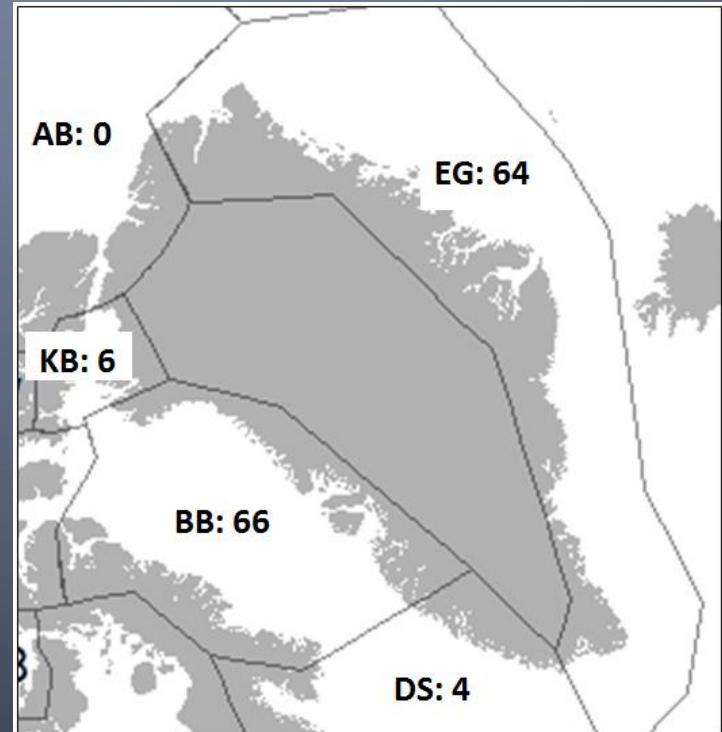
Current distribution of the polar bear quota in Greenland



Quota distribution on sub-population level

Currently we have a yearly polar bear quota of 140 bears

- No quota in the Arctic Basin
- The Baffin Bay & Davis Strait sub-populations have a total quota of 70
- Kane Basin has a quota of 6
- East Greenland has a quota of 64 (South East Greenland 4 + 60 for the rest)





Catch reporting and control

Only local trade of polar bear parts and products is legal:

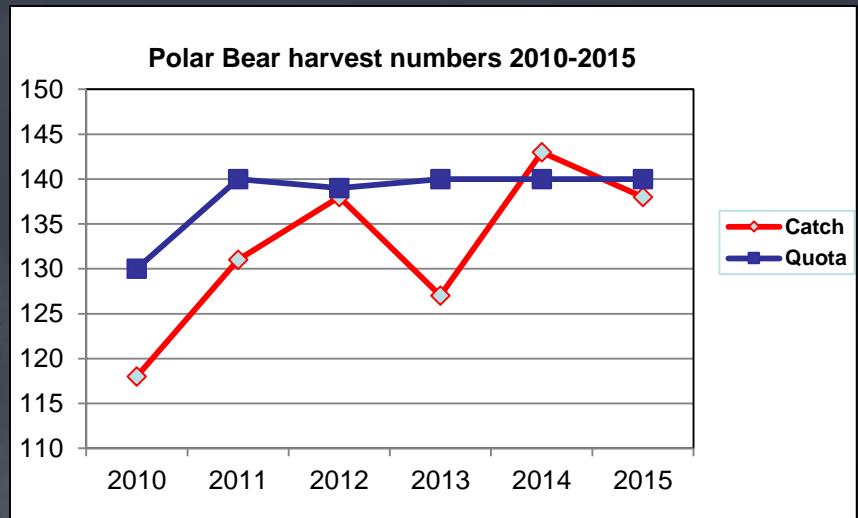
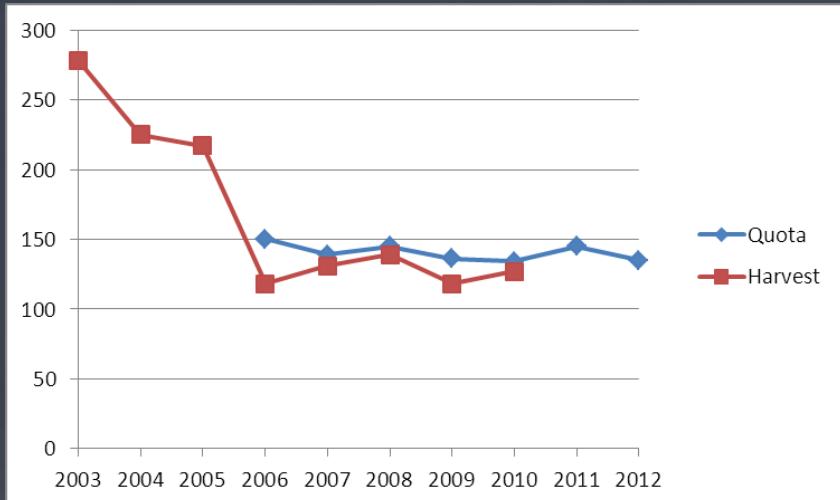
- 1 license = polar bear
- It is not allowed to sell polar bear meat to processing plants
- From harvest to “pants”
- The local authority forwards standard forms to the Ministry of Fisheries, Hunting and Agriculture





Harvest rates and quota

- After the introduction of quotas in 2006, the harvest rates have stabilized
- Current quotas cover the period of 2013-2015
- A new quota-block will be set in Fall 2015 for the period of 2016-2018
- New data expected fall 2015 from Baffin Bay & Kane Basin assessments





CITES Management

- In 1985 Greenland CITES Management Authority (M. A.) obtained authority to issue CITES permits
- The Greenland Institute of Natural Resources is the CITES Scientific Authority in Greenland
- In April 2008, the CITES M. A. introduced a voluntary temporary ban on export of Polar bear products after negative non-detrimental finding (NDF)





Polar Bear- Human Conflicts

- Guidelines on handling of "problem bears" for Municipalities, Police and Wildlife-Officers exist
- Public guidelines for handling bear encounters have recently been updated (spring 2015)
- In cooperation with scientists, Greenland has started tissue sampling from all harvested polar bears including polar bears killed in self-defense





Polar Bear- Human Conflicts

Number of polar bears killed in self-defense in Greenland:

2012-2015*:

2012 - Baffin Bay: 5 & East Greenland: 5

2013 - East Greenland: 3

2014 - Baffin Bay: 1 & East Greenland: 1

2015 - East Greenland: 2

- Many interactions → Few defense kills,
and very rarely human injury & death

*Preliminary data for 2015





Polar Bear- Human Conflicts

What are we doing?

- Initialized the planning process of testing the efficiency of bear spray and rubber bullets as physical deterrent measures
- The Danish enforcement authority in Greenland will be performing the tests at remote military bases in North East Greenland (the Northeast Greenland National Park)
- Information campaigns to promote and educate people about the importance of reporting human-bear interactions to our department



Important next steps for Greenland



Finalization of our National Action Plan

Need for updated or new population estimates, especially in East Greenland, to ensure continued sustainable quotas





Qujanaq !



Polar bear research in Greenland

Kristin Laidre, Erik W. Born, Fernando Ugarte
Greenland Institute of Natural Resources, Nuuk





Background

Population and habitat ecology

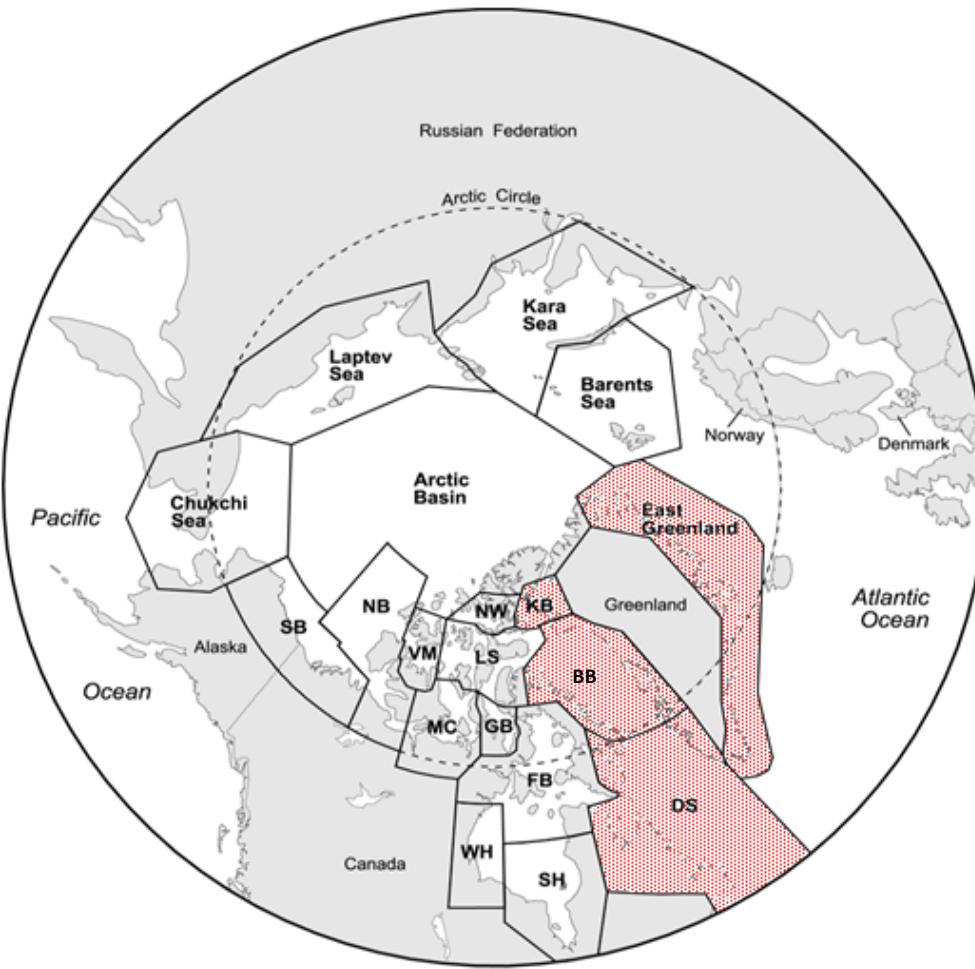
- West Greenland
- East Greenland

TEK

Health and condition

Harvest monitoring





- Kane Basin
 - Baffin Bay
 - Davis Strait
 - East Greenland
 - Arctic Basin
- Shared with Canada
- Important in the future



Use of polar bears in Greenland

- Hide used for traditional clothing
- Consumption of meat
- Hides and small artifacts are sold within the country





Background

Population and habitat ecology

- West Greenland
- East Greenland

TEK

Health and condition

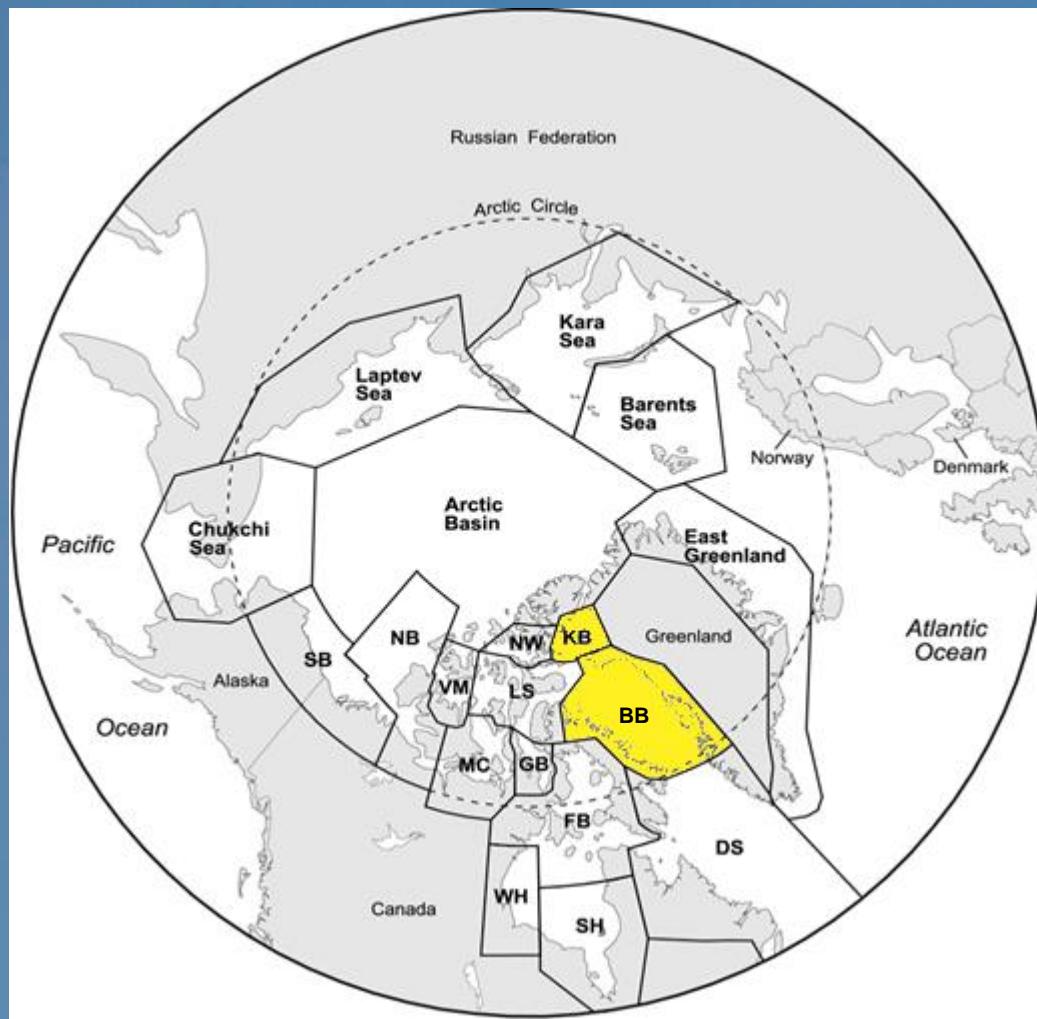
Harvest monitoring

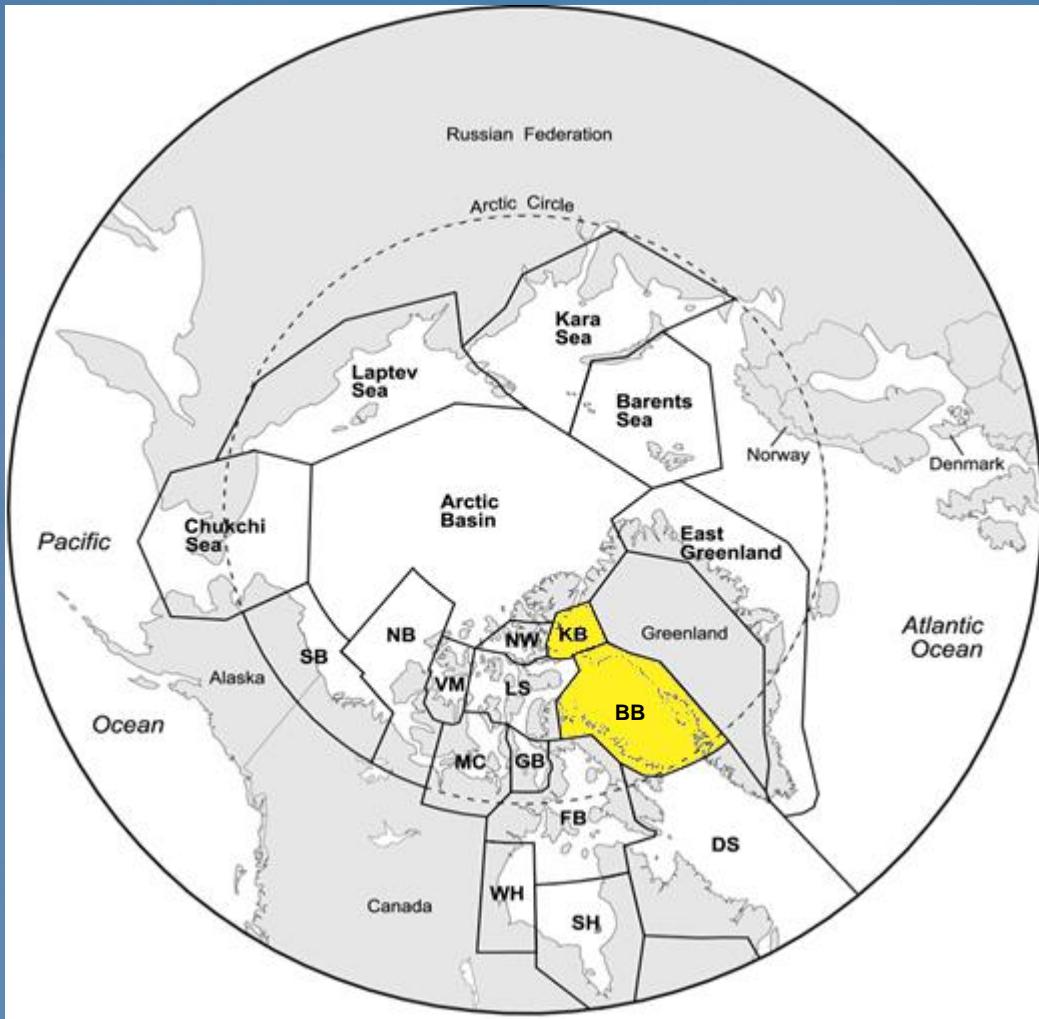


Kane Basin and Baffin Bay Polar Bears

Current estimates are out of date, come from a MR study 1993-1997 (Taylor et al. 2005, 2008)

2010: The Canada-Greenland Joint Commission on BB-KB requested updated advice from its Scientific Working Group





Requested advice on:

- (1) Total Allowable Harvest from BB and KB
- (2) Effects of sea ice habitat loss on polar bears





2011-2014: Multi-year genetic mark-recapture study in Baffin Bay and Kane Basin

Cooperative project: Government of Greenland, Greenland Institute of Natural Resources, Danish Government (Danish Ministry of the Environment), Government of Nunavut, Environment Canada, Nunavut Wildlife Management Board, Greenlandic and Canadian hunters and hunter organizations.



Objectives



Estimate the abundance BB and KB bears, examine relative to estimates from the 1990s to determine population trend.

Estimate BB/KB survival and reproductive parameters.

Re-assess delineation of sub-population boundaries.

Evaluate polar bear distribution and habitat use with respect to environmental variables, particularly ice conditions, using satellite telemetry.



Activities

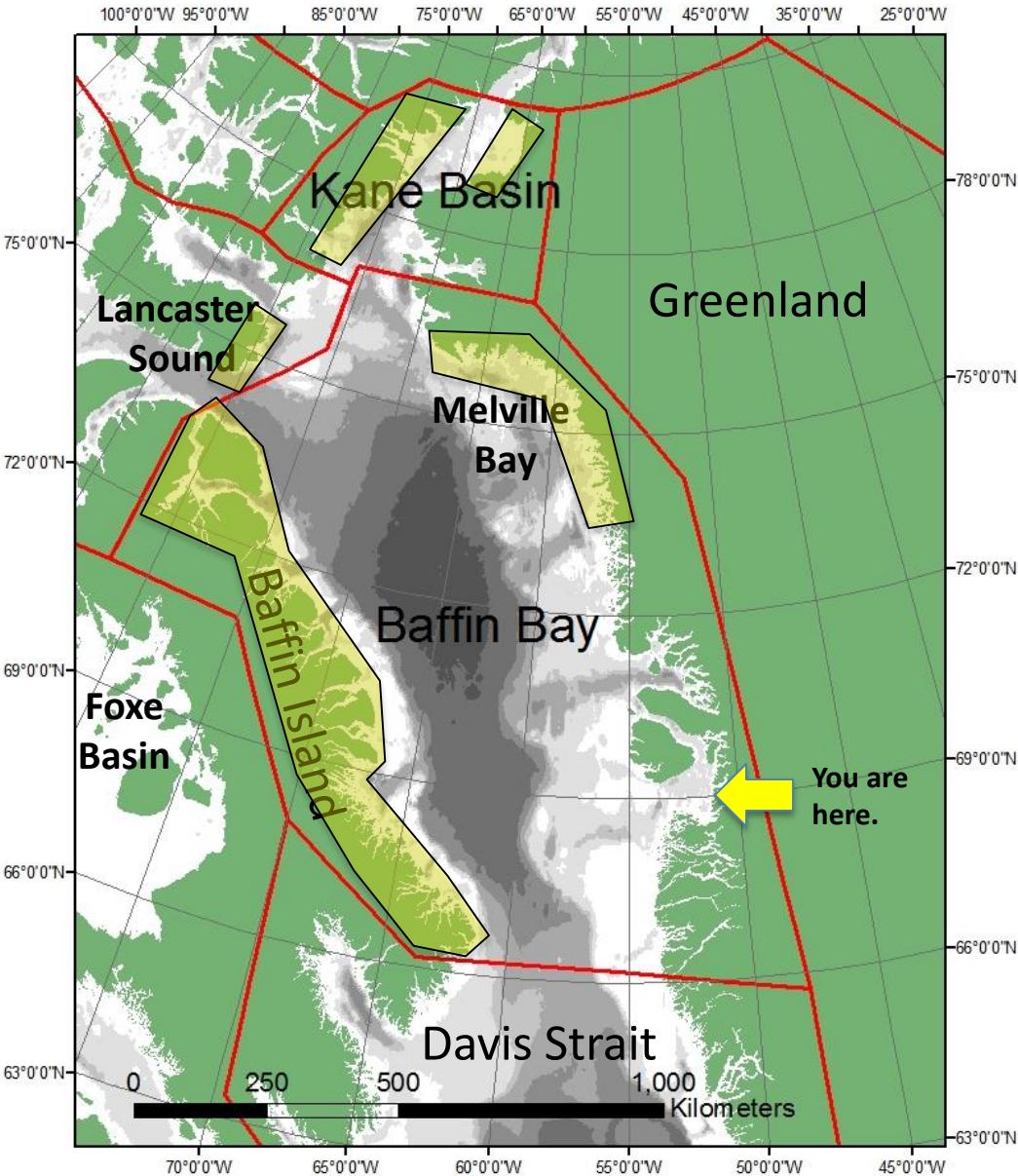
Biopsy darting in spring and fall in West Greenland, Baffin Island, and Kane Basin

Recoveries collected from subsistence harvest in Canada and Greenland

Also use archived samples from previous 1990s MR study



- Three years (2011-2013)
- Two teams on Baffin Island in fall (2011-13)
- One team in KB in spring (2012-2014)
- One team in NW Greenland in fall (2012-13)
- Minimized repeat sampling



A wide-angle photograph of a fjord landscape. In the foreground, a dark blue body of water with subtle ripples stretches across the frame. Behind it, a range of rugged, dark-colored mountains rises, their peaks partially covered in snow and ice. A large, white, textured glacier is visible, flowing down the side of one of the mountains. The sky above is a clear, pale blue with scattered, wispy white clouds.

Baffin Island

Photo Stephen Atkinson

West Greenland



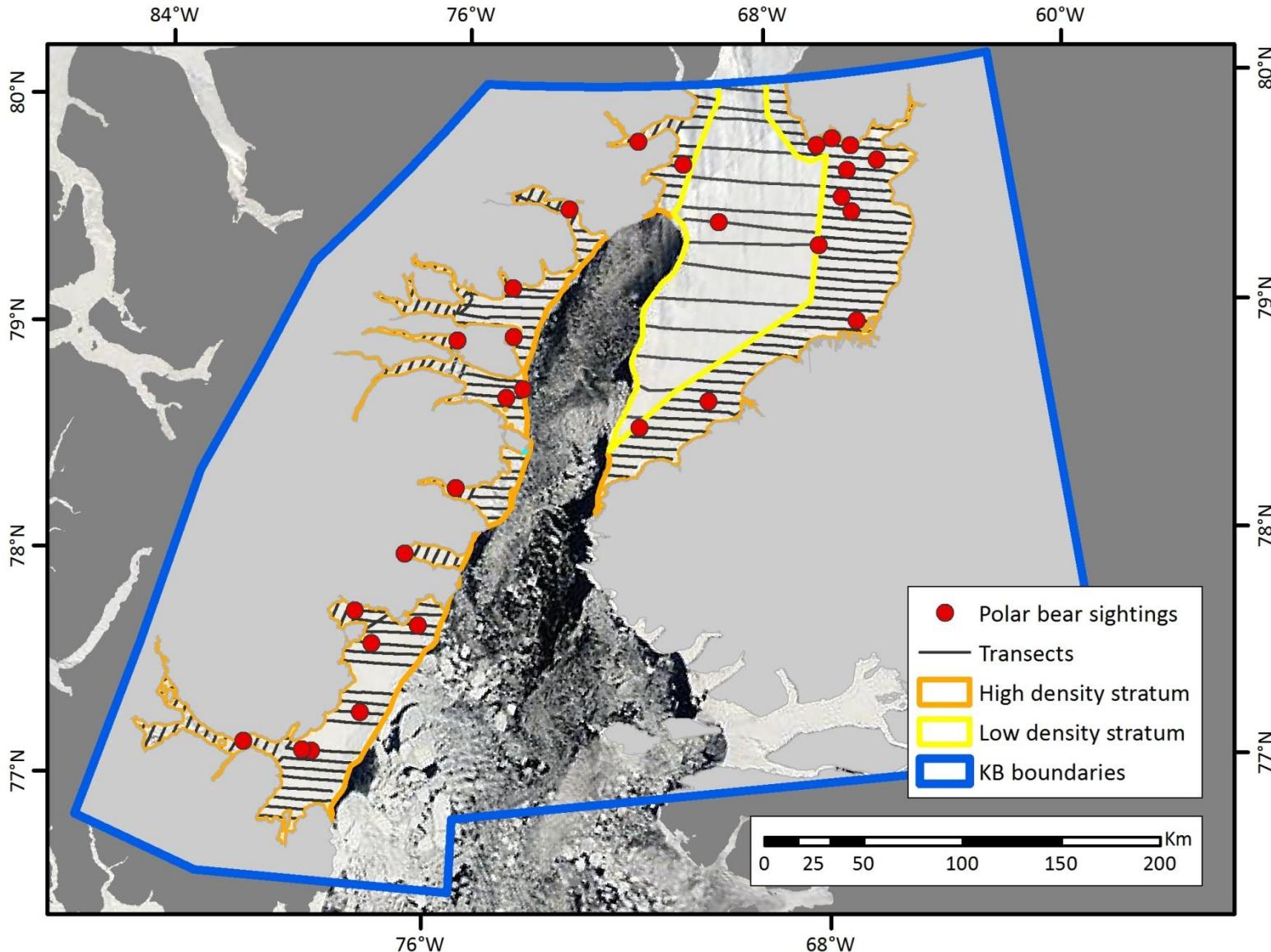
Photo Kristin Laidre

Sample sizes obtained for genetic MR study

Year	Baffin Bay	Kane Basin (spring)	Canada-Greenland
	Baffin Island (fall)	NW Greenland (spring + fall)	
2011	393	34	-
2012	675	39	42
2013	429	42	32
2014	-	-	59



2014 KB aerial survey: sight-resight distance sampling





Behavior and habitat ecology

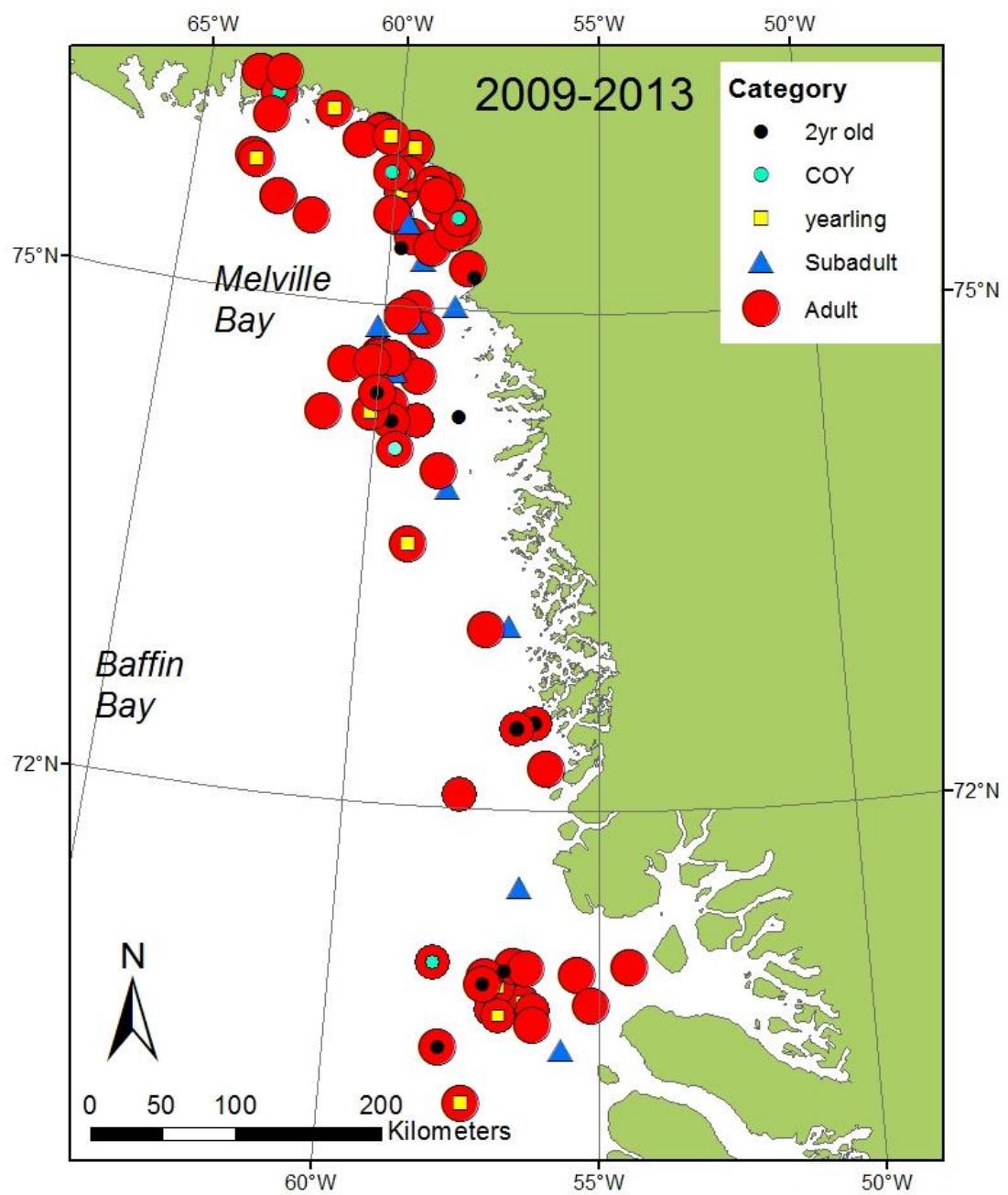
The Joint Commission requested information on changes in habitat selection and impacts of sea ice loss

2009-2013 (n=139 bears captured)

38 satellite collars in Baffin Bay (deployed in West Greenland)

20 satellite collars in Kane Basin (deployed Canada-Greenland)





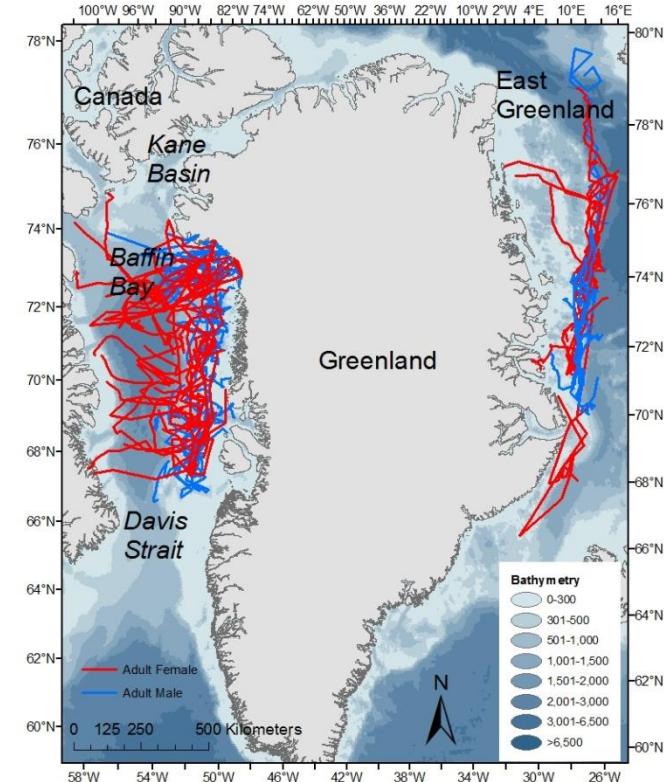
**BB tagging sites
2009-2013
N=139**

Comparison of adult movement patterns during the breeding season (2007-2011), Laidre et al. (2012)

Proc Royal Soc. B

2015 ongoing: Analyses of resource selection in BB and KB relative to 1990s data (n=55 collars)

- Stock identity
- Changes in distribution
- Sea ice resource selection
- On-land resource selection





Background

Population and habitat ecology

- West Greenland
- East Greenland

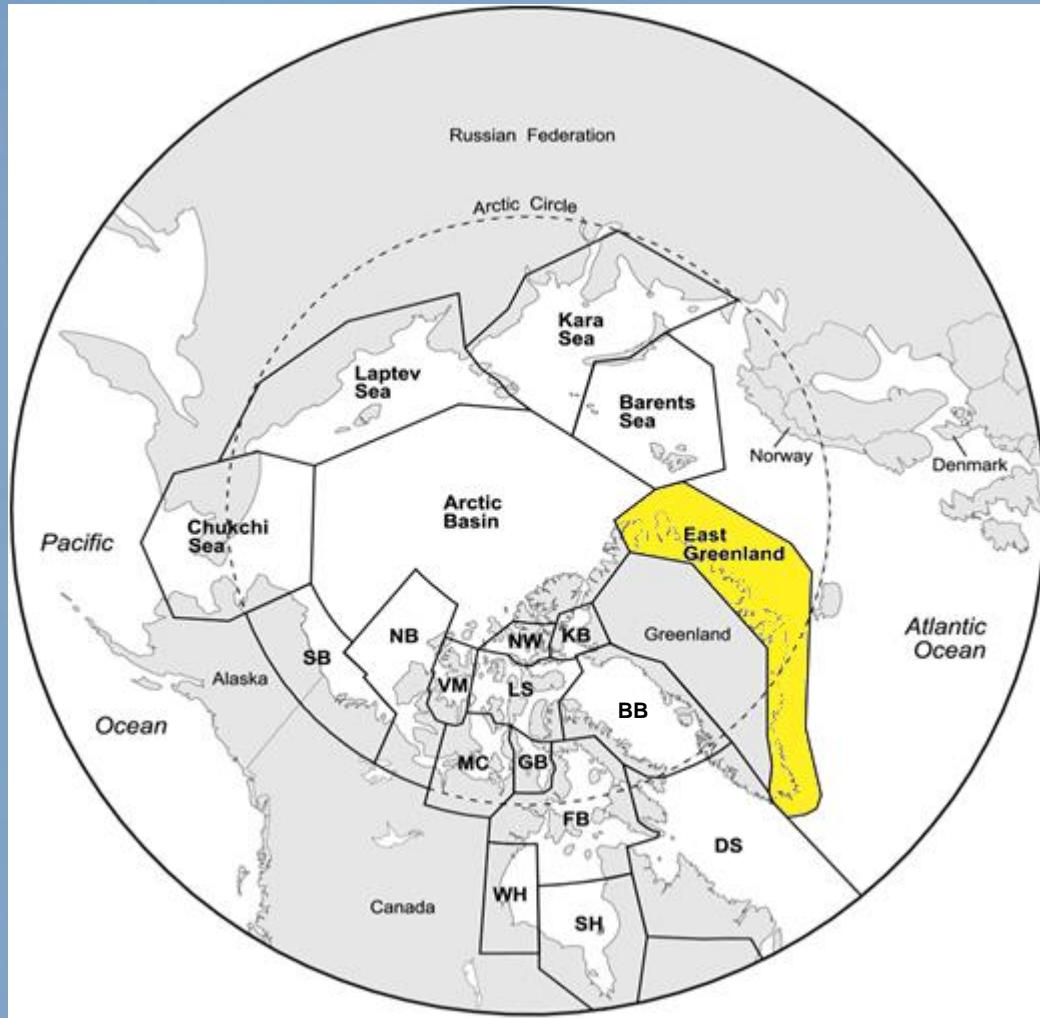
TEK

Health and condition

Harvest monitoring



East Greenland



An assessment has never been conducted

Abundance and trend unknown

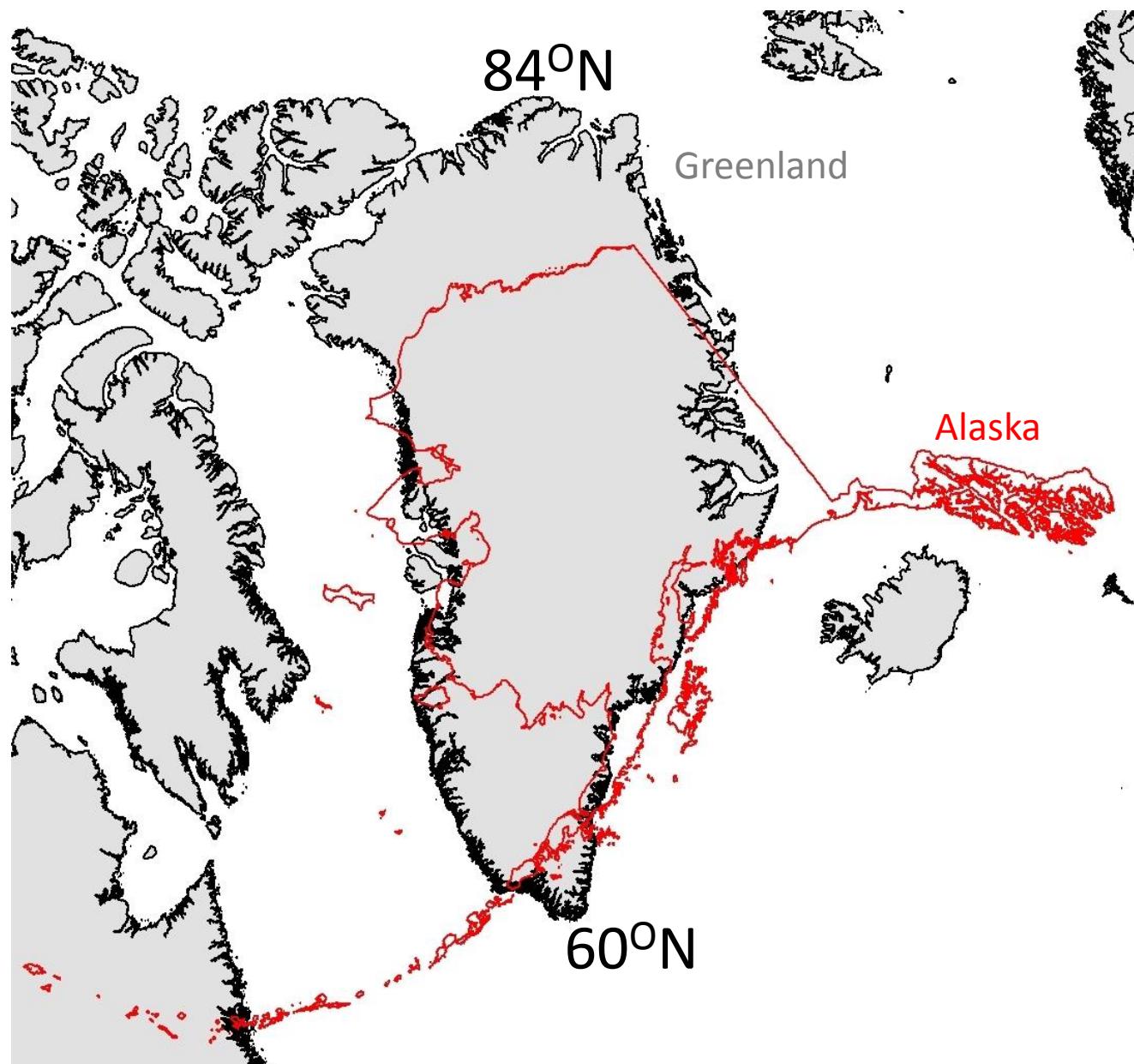
Telemetry data collected in NE Greenland from 1990s and 2007-08

Data deficient





For scale



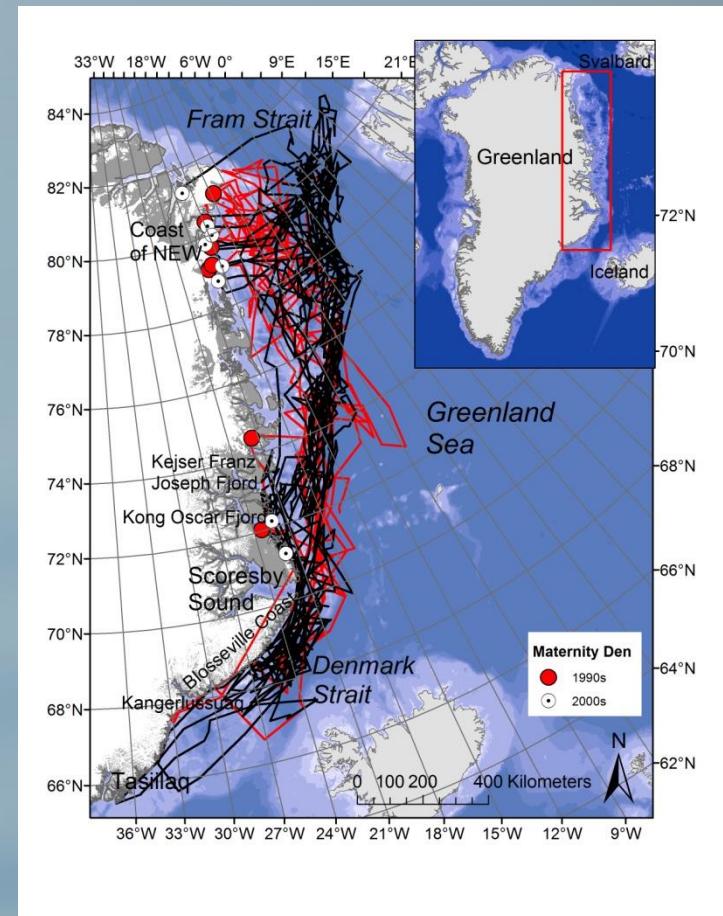


East Greenland

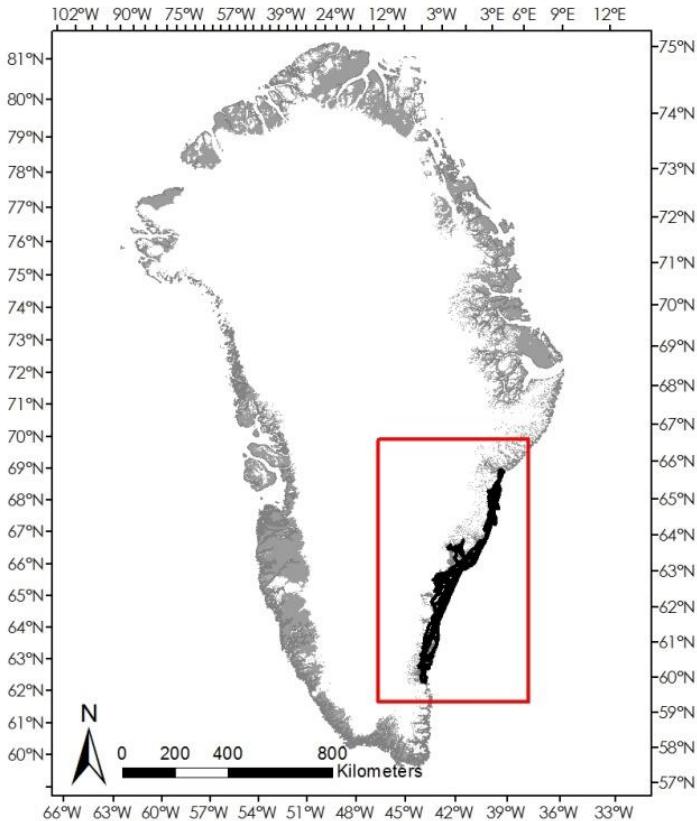
Resource selection modeling of sea ice habitat selection in East Greenland using historical data

Collars in 1990s and mid-2000s

Laidre et al. (2015) *Polar Biology*

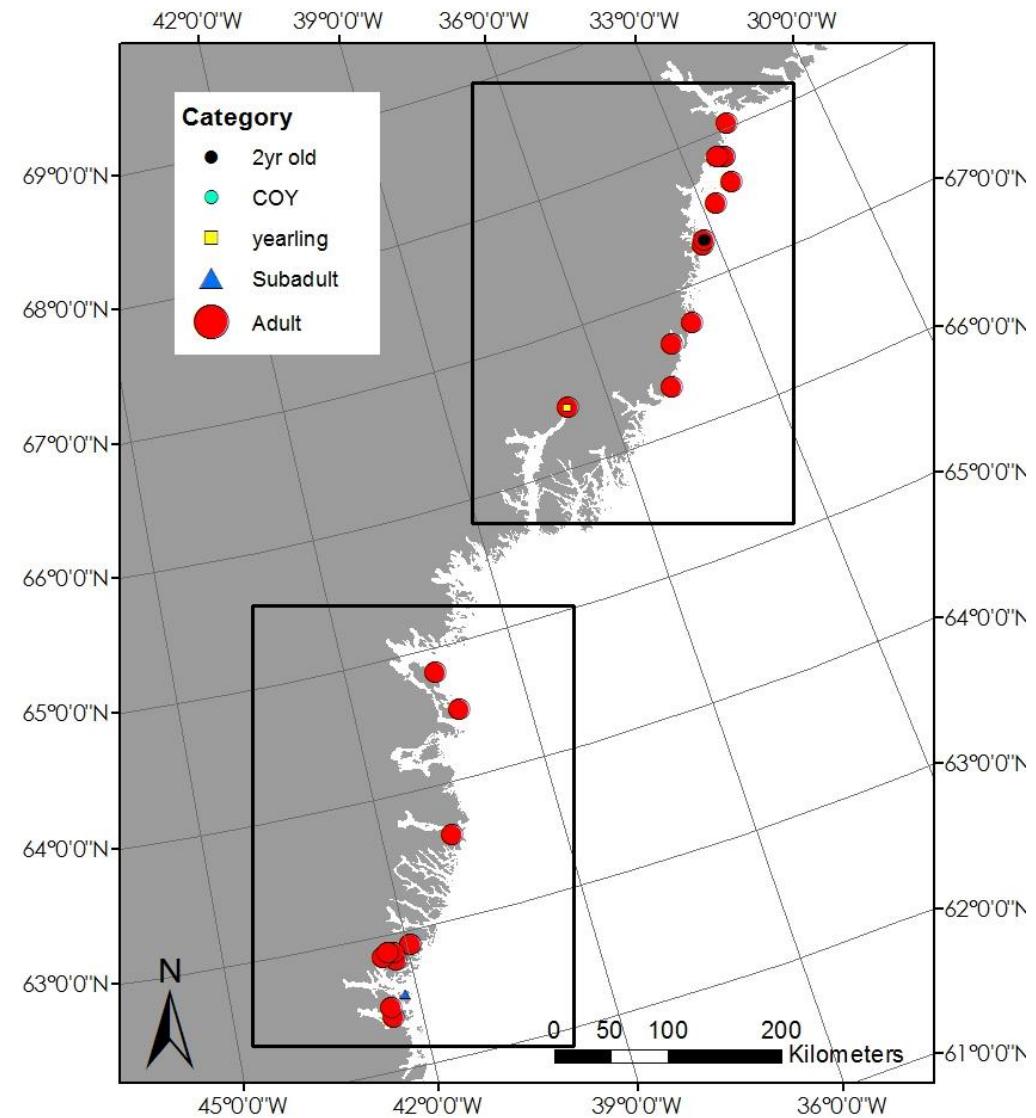
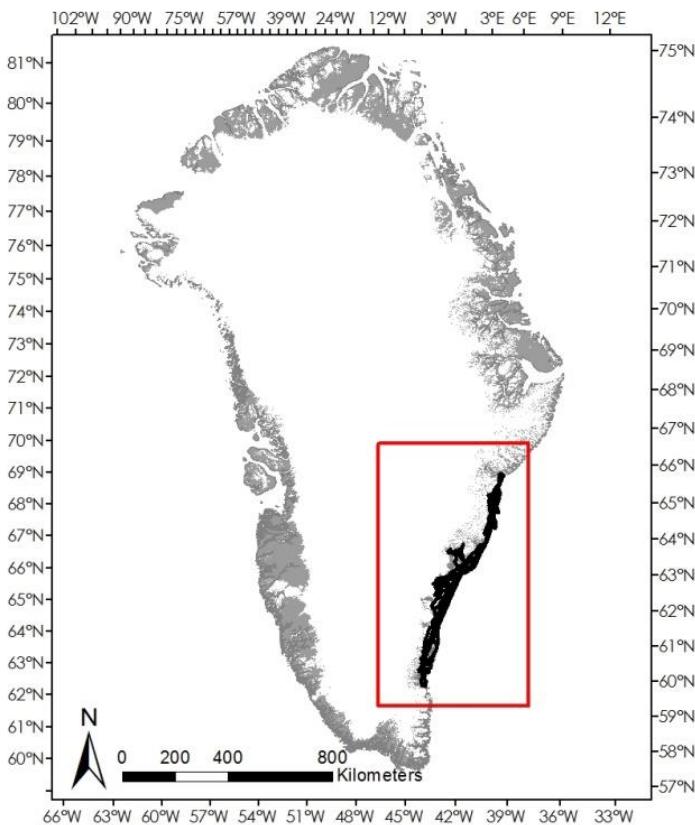


March-April 2015: SE Greenland
Pilot Study
Never been studied before



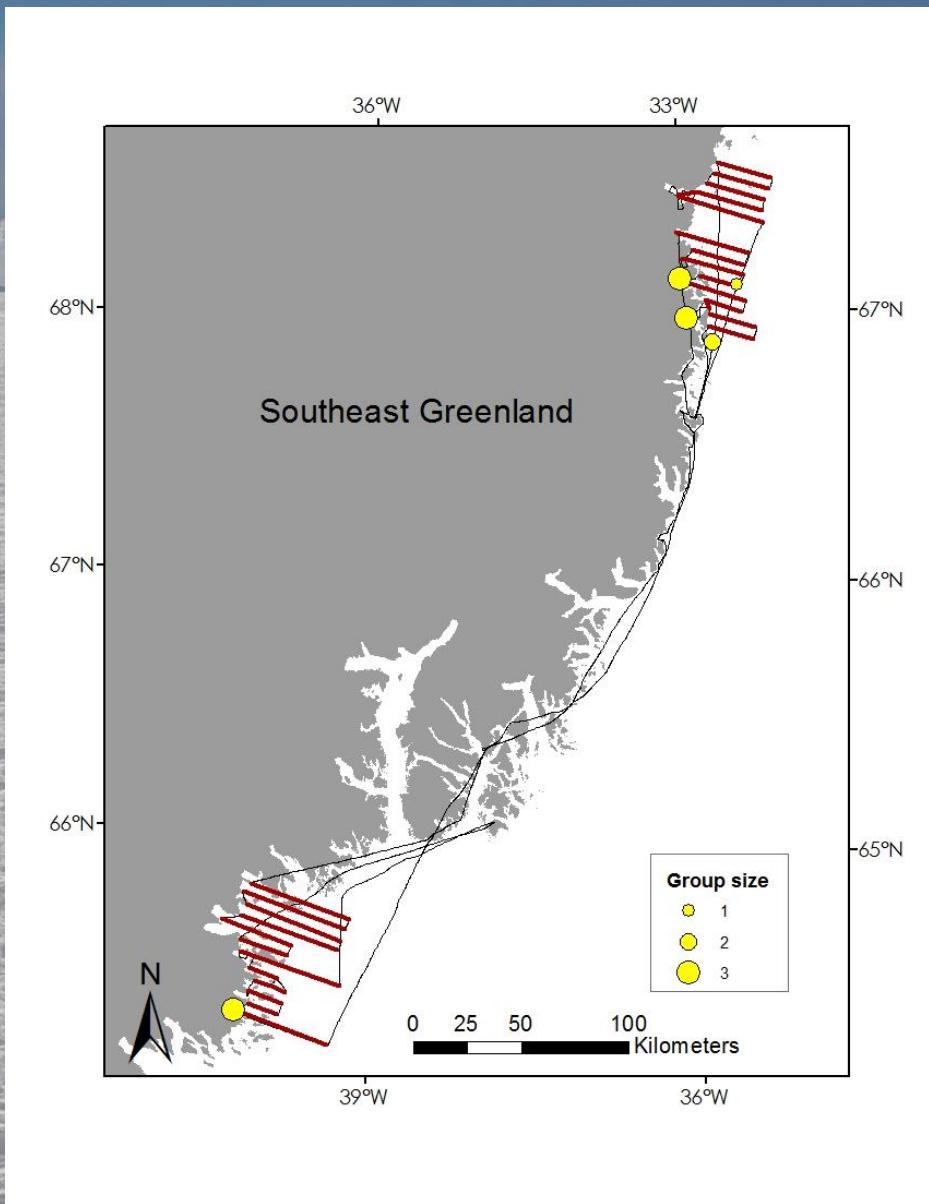
Pack ice
Captures in fast and glacial ice

N=30 bears captured (10 collars)



April 2015: Pilot aerial survey

Repeat in 2016





Baffin Bay and Kane Basin

Born, Helimann, Kielsen Holm, and Laidre (2011) Polar Bears in Northwest Greenland. *Monographs on Greenland.*

The book cover for "Polar Bears in Northwest Greenland" is displayed against a light blue background. The cover itself is white with a blue vertical band on the left side containing the title and authors' names. At the top right of the cover is the MoG logo. Below the title, it reads "Erik W. Born, Anna Heilmann, Lene Kielsen Holm, and Kristin L. Laidre". In the center, it says "Polar Bears in Northwest Greenland". At the bottom, it lists "Museum Tusculanum Press" and the MoG logo again.

Erik W. Born, Anna Heilmann, Lene Kielsen Holm
and Kristin L. Laidre

Polar Bears in
Northwest Greenland

An Interview Survey about the Catch and the Climate

East Greenland TEK



The first step in an EG assessment was a TEK interview study (2014-2015)

Completed interviews with n=25 full-time hunters in the two EG communities (Ittorqqortoormiit and Tasiilaq)

Similar to Born et al. (2011)



Interview studies



Photo: F. Ugarte

Inuit knowledge on polar bears in East Greenland – 2015

- Changes in the catch after quotas were established in 2006
- Impacts from climate change on the catch and the polar bears
- Opinions about important areas to cover/consider for the EG assessment
- Provide information on the current economic and social significance of the polar bear hunt in East Greenland

Translations of surveys: spring 2015

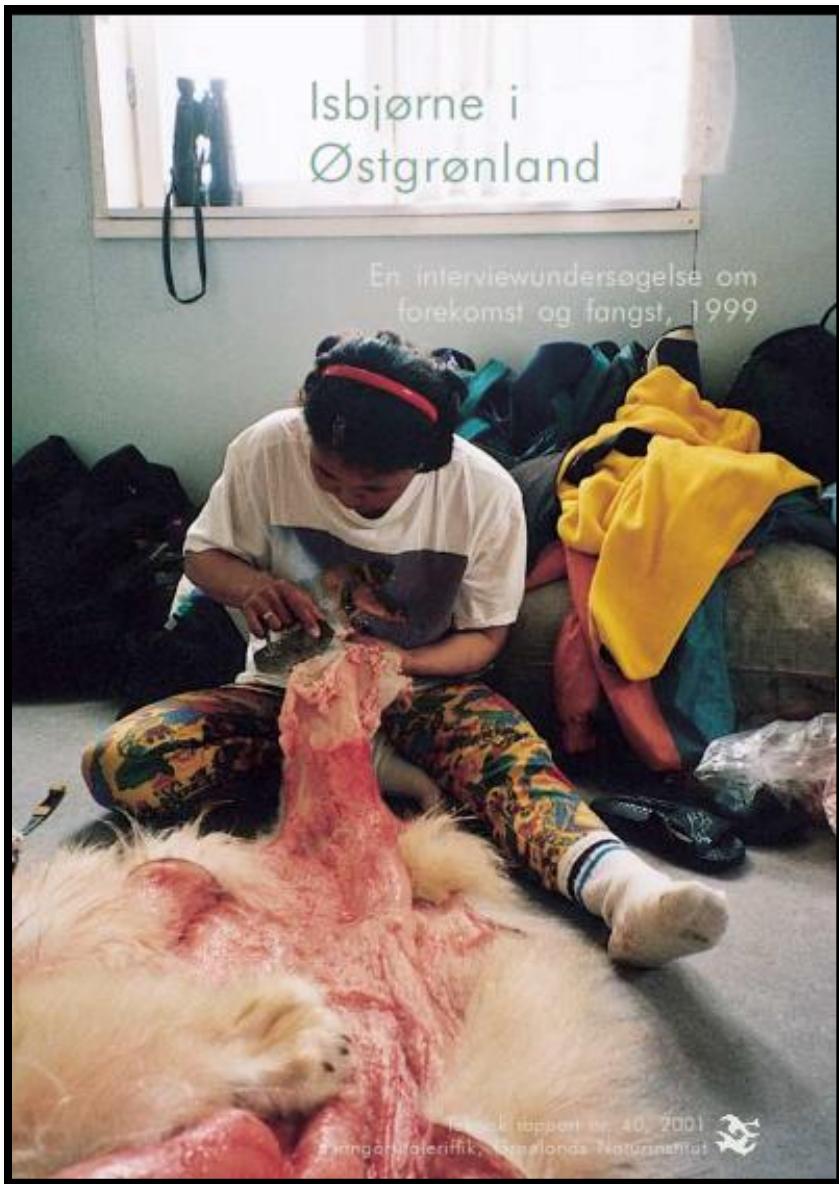
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Greenland Institute of Natural Resources
Grønlands Naturinstitut



Photo: F. Ugarte



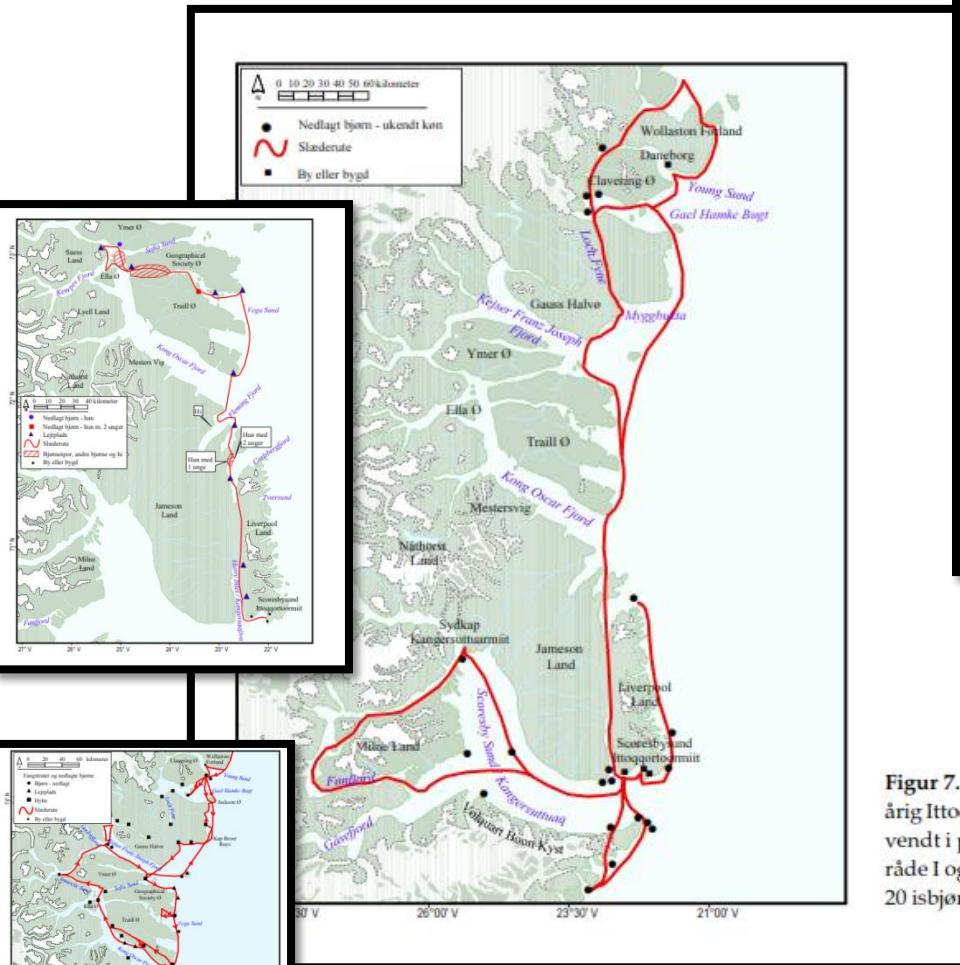
Interview survey in East Greenland conducted in 1999



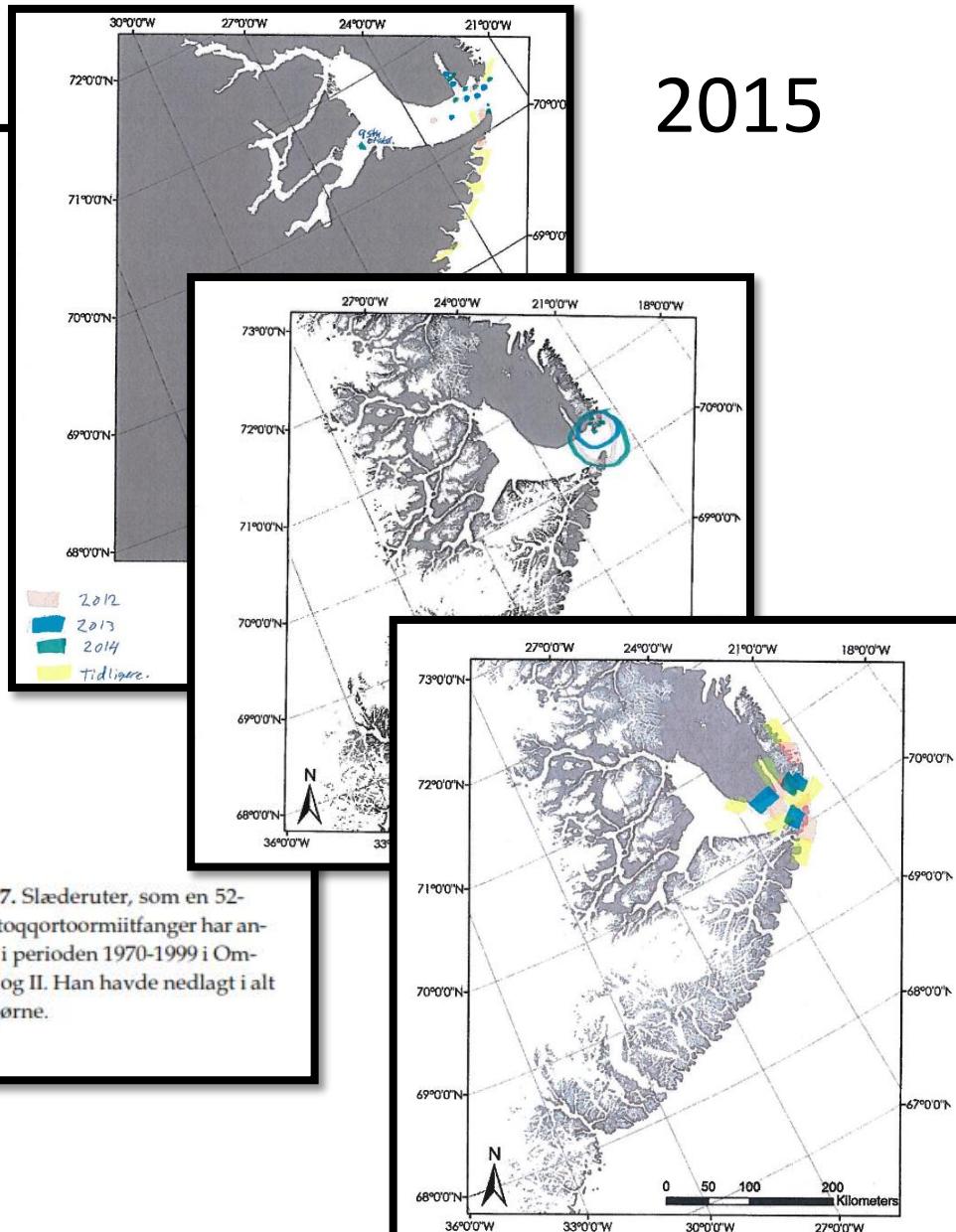
Ability to compare over decades



1999



2015



Figur 7. Slæderuter, som en 52-årig Ittoqqortoormiitfanger har anvendt i perioden 1970-1999 i Område I og II. Han havde nedlagt i alt 20 isbjørne.

We used the information from hunters to search for and capture bears during the SE Greenland pilot study



Photo: F. Ugarte

Health and condition: West and East



University of Aarhus (Dietz and Sonne): Long term projects on contaminant levels based on polar bear harvest samples and polar bear captures.

Part of Arctic Monitoring and Assessment Program (AMAP) under the Arctic Council.

Harvest monitoring: West and East

In 2012, the Government of Greenland requested that a genetic sample will be submitted from all polar bear catches as a requisite for a polar bear hunting license

Sex, skin/hair, tooth for age and details on each catch

Start of a long-term genetic database in Greenland and detailed catch information





Nannuttanit misiligtissanik katersineq

2022-imi januariip ullaasap aallaqgataaniit nannunnat tamarmik nannuttamit ogamerngani kigutaanillu misiligtissanik tunniussisalissapput.

Sooq?

Oqaq: Oqamat misiligtut DNA-vi misissueqissaariffingeqasapput, taamailflutik nanoqatigikkutuat qanoq immunnit attuumassuteqarnersut ilisimatursut paasiinnanaissammassuk. Misiligtut Qimussierarsuarmi aamma Kane Basinini nannut qanoq amerlatiginnerannik naatsorsuinerut ilangunmegassapput, nanoqatiggit tamakku Nunavutlu avilugit pisusuttaqavut umassusillit.

Kigut: Nannup illuttit tuloriaasa tunuinipput kiguteernigut. Nannup qassunik ukioqarnera kigutip taassuma ipaasa tutittarpai. Nanoqatiggit ukialla anggutaarerut paasisin-naagutsigu nanoqatiggit qanoq innersut paasisinnaavarpuit.

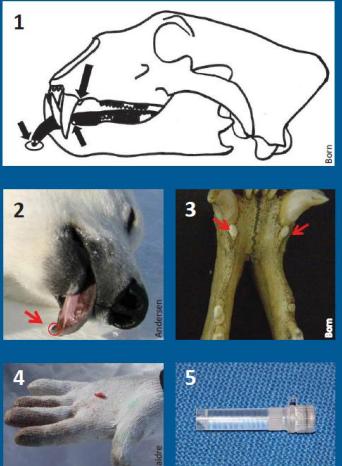
Qanoq?

Oqaq: Oqgap nuuanit ilangarsigit ($1 \times \text{ca. } 0.5 \text{ cm}$ miss.) (Fig. 1 & Fig. 2)

Kigut: Tulerissap tunuanitoq kigutinnguaq savimmik ukusutumik aaltilugu peeruk. Kigutip manqua napinaveersaark. (Fig. 1, 3 & 4)

Oqameeq kigullu ruujorimut taratsumik imalimmut ikineqasapput. (Fig. 5)

Ruujon similuarneqassaqqaaq taannalu imai ilangullugit kom-munimi inuussuttiarsutinut siunnersortimut tunniunneqassalluni. Nannuniarneq pillugu paassisutissanik immersorffis-sap immersornissaq eqqamaajuk.



Nannut

Nannuttanit misiligtissanik katersineq

Sumut?

Ruujori misiligtissanik imalik skiiamik immersukkamik ilallugu allakkat puissaannut ikineqassaaq taannalu kom-munimi inuussuttiarsutinut siunnersortimut nassiu-ne-qassalluni. Misiligtissanik ketersoqanissa pingarute-qarpoq, taamailfluta nannut pijuqartissagagisgit siunisa-milu nunguaattingitsumik nannunniartarnisaq qulak-kissallutigut. Ruujorinik misiligtisanut puussanik ami-gateqaruit kommunimi inuussuttiarsutinut siunnersor-timut attaveqassaaat.

Apeqquqtiisaqarpit?

Arlaannik nannunit misiligtissanut tunngasumik apequ-tissaqaruit una nalunaarfingisinaavat

Pilerausuamiut ataqatigiisaarisog, Peter Hegelund
Oqarasuau: 361244 e-mail: pehe@natur.gl

Katersineq pillugu annertunerusumik paasisaqarusukkuit una alakkarak: www.natur.gl



The background of the slide is a photograph of a vast, snow-covered landscape, likely a tundra or polar region. In the distance, several large, white icebergs float on a body of water. To the right, there are dark, mountainous landforms partially covered in snow. The sky is overcast with heavy, grey clouds, suggesting a cold, Arctic environment.

Qujanaq.

Thank you for your attention.