Submission to the

Nunavut Wildlife Management Board

For

✓ Information:

Decision:

Issue: Circumpolar Action Plan for the Management and Conservation of Polar Bears-Part II.

Background:

In 1973 the governments of Canada, Denmark (now represented by Greenland), Norway, the Union of Soviet Socialist Republics (now Russia), and the United States, collectively known as the polar bear Range States, signed the *Agreement on the Conservation of Polar Bears*. This committed the Range States to coordinate national measures to protect the species, and to collaborate on polar bear research and conservation initiatives. One such initiative is the preparation of a Circumpolar Action Plan (CAP) to avoid, and mitigate threats to the polar bear, and ensure the persistence of the species throughout its historic range. This plan will focus on issues that benefit from international coordination (e.g. best management practice for marine shipping) and will not address issues that are better managed at national or lower levels (e.g. harvest management). Environment Canada represents Canada on the Range States Committee. Departmental officials have been involved in the drafting of this Plan and are consulting with wildlife management boards across the north.

As you will recall, we engaged in discussion with you on Part I of the Circumpolar Action Plan in the fall of 2014. As noted during those meetings, Part II is now being finalized. Part II contains best management practices that could be used by Canada and other range states, and outlines action items to be undertaken (for example, the development of a circumpolar population inventory schedule) by the Range States. Being that the NWMB is an active participant in the management of polar bear in Canada; Environment Canada would like to discuss Part II of the CAP.

That said, an official from the Canadian Wildlife Service would like to take 10-15 minutes to present Part II of the Action Plan at your upcoming meeting, and address any questions you may have. After allowance for questions we recommend a total time of 20-30 minutes for this agenda item.

Consultation:

Consultations on Part I of this Action Plan were conducted in Fall 2014 with all of the northern wildlife management boards.

The second round of consultations with the wildlife management boards, including the NWMB, will occur over the winter of 2014/2015 and spring of 2015. Simultaneously other Polar Bear Range States will be consulting and seeking comments on the document from relevant authorities within their own jurisdictions.

Recommendation:

We recommend that you accept this submission and afford Environment Canada the opportunity to present the Circumpolar Action Plan –Part II for the NWMB's comments.

Prepared by:

This submission was prepared by Andrea Gordon, Canadian Wildlife Service, Environment Canada

1-819-938-3980

Andrea.gordon@ec.gc.ca

Date:

Submission prepared November, 6th, 2014.

<u>Circumpolar Action Plan for Polar Bear</u> Part II

INTRODUCTION

- a. Reference principles, goal, objectives from Part I
- b. Participation of Indigenous people in management and research

STRATEGIES TO ADDRESS THREATS

1. Adaptive management and conservation

- a. General/overarching actions
 - i. Adaptive Management
 - Climate
 - Habitat
 - Prey
 - Disease
 - ii. Best Management Practices
 - Oil & gas
 - Mining
 - Contaminants
 - Tourism
 - Shipping
 - Human/Bear Interactions
- b. Threat specific management actions
 - i. Unsustainable harvest/poaching

2. Monitoring and research

- a. General/overarching actions
 - i. Inventory schedule for each subpopulation
 - ii. Traditional Ecological Knowledge inventory schedule for each subpopulation
 - iii. Identification of essential habitat
 - iv. Coordinated national monitoring of prey species
 - v. Polar Bear-Human Interactions
- b. Threat-specific research actions
 - i. Climate change
 - ii. Contaminants
 - iii. Disease
 - iv. Shipping

3. Communication and outreach

- a. General/overarching actions
 - i. Website
 - Best Management Practices

- Reports
- Fact sheets
- Educational Material
- Links to other websites
- ii. Outreach to/participation in other fora/organizations
- iii. Educational material

b. Threat-specific actions

- i. Climate change communication
- ii. CITES Trade Working Group report

IMPLEMENTATION SCHEDULE

Living document – revisited every two years.

- Table: Summary of actions and threats, that details:
 - Responsible jurisdiction
 - Estimate costs
 - Timeline to implement
 - Measureable targets

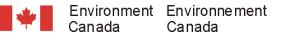
PERFORMANCE MEASURES

- Biennial report tabled at the Meeting of the Parties
- Review and evaluation of the Action Plan
- Achievement of plan objectives and goals

CONCLUSION

REFERENCES

APPENDICES



Canada

ᠳᢩᠣᢙᢩ ᠈᠘ᠳ᠘ᡊ ᠘ᡩᠳ᠘᠘ ᠘᠘ᡨᠳᠿ

POPULATION ASSESSMENT OF POLAR BEARS IN WESTERN HUDSON BAY

ხ°Ր°°⊂′σ°°, ____° 2014

Rankin Inlet, Nunavut 2014

© B. Baliko

ᡥᢂᡷᡟᡆ᠋ᠲᠫ᠈᠘ᡆ᠊ᢩᠣ᠈ᢣ᠋ᢣᡃᠲᠴᢩᠣᡏ᠑᠆᠘᠈ᡋᡃ᠋᠆ᢣ᠘ᢐ ᡆᢩ᠙᠆᠘ᢣ᠉ᢩᠣᡨᡐ

- We have been capturing and marking bears in northern Manitoba since 1985 to assess:
- ecology of WH polar bears
- survival and population health
- population changes
- Here today to discuss and share our report on an assessment of the population in WH
- Report will be submitted for publication
- atther and the and t
- $-\dot{\triangleright}$ L⁵Z/⁶C⁶ \triangleleft L⁵L⁵Z/⁶C⁶
- ᠆ ᢂ᠋ᠴ᠋᠋᠂᠆᠋᠈᠆᠕᠂ᡘ᠆ᠺ᠘
- ▷<ጋГ ▷<
 ▷
 ▷
 ▷
 ▷
 ▷
 ▷
 ▷
 ▷
 ▷
 ▷
 ▷
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
 ○
- ኦσ•ὑϲ⊲ሲィĹሃጵና ጋ°σናḋႶቦσ⊲ჼჼርጵና
 ኦቫሪሮኒႱႦჼჃႱჾ⊲ናႱና



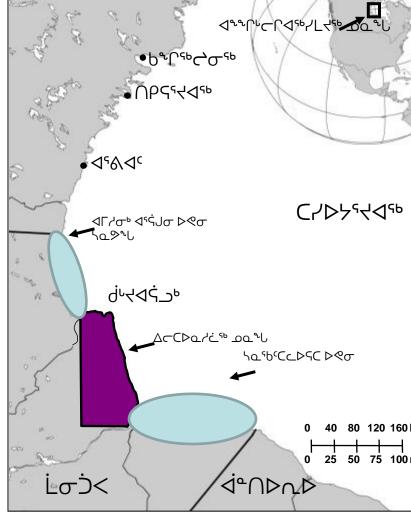




Environment Environnement Canada Canada

Canada

2000 2020 ᠂᠐᠋᠋᠋᠋᠆ᢑ᠆ᡩ ᡣ᠋᠋᠋᠋᠋P᠘ᢤ •⊲°&⊲° <u>୰</u>L५८० ४.८२२ **←**∫a≫²U ݸݛݺݼݤݤ n ∠→C>۹۲۲، ۵۹۲ ነፈናዮርር ኦኖር ኦኖ 40 80 120 160 km 0 25 50 75 100 mi 0 4° 10° 10° ĿσĊ<

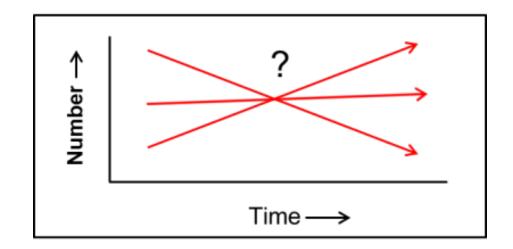




Environment Environnement Canada



ᡄ᠘ᢂ᠊᠉ᡣ᠅᠊ᡡᡉᡐᠧ᠖ᡪᠿ᠅ᠳᡐᢈᢄ᠕᠅ᠧ᠆ᡩᡄ ᠈ᡣ᠅᠊ᠳ᠅ᢄ᠈᠅ᠳ᠅ᢄᡔ᠅ᢓᢐᡶᠧ



- Supports harvest management by answering:
 - how many bears are there?
 - is this number stable or changing?
 - what is the health of the population?

- ^נףלך⊳&נ ס־ס⊽ני.
- ᠆ᢂ᠋ᠴ᠋ᡩ᠆᠘᠆ᡩᠥᢕᡕ᠋ᡄ᠆᠋ᠳ᠘᠃ᠿ᠅᠆᠅᠆᠅᠆᠅ ᠘᠘ᢣᢛᠵ᠋᠅
- ٩٩٩٠٢ ، ٩٩٩٠٢ ، ٩٩٩٠٢ ٩٩٩٢ ٩٩٩٢ ، ٩٩٩٢ ٩٩٩٢ ٩٩٩٢ ٩٩٩٢ ٩٩٩٢ ٩٩٩٢ ٩٩٩٢ ٩٩٩٢ ٩٩٩٢

$\Delta^{\mathsf{L}}\mathsf{L}\mathsf{b}^{\mathsf{c}}\mathsf{c}^{\mathsf{c}} \mathsf{q} \mathsf{c} \mathsf{d}^{\mathsf{c}}\mathsf{d}^{\mathsf{c}} \mathsf{d}^{\mathsf{c}}\mathsf{d}^{\mathsf{c}} \mathsf{d}^{\mathsf{c}}\mathsf{d}^{\mathsf{c}} \mathsf{d}^{\mathsf{c}}\mathsf{d}^$

- Numbers of bears in the 1940s and 1950s thought to be low due to unregulated harvest
- Population thought to have increased again in 1960s and 1970s:
- Game regulations introduced by Manitoba
- Closing of York Factory trading post
- Closing of Fort Churchill military base
- Thought to be about 1,200 bears in late 1980s
- ▷໑ჼσ°°° ▷໑ჼ┙<
 ▷໑ჼσ°°
 □ 1970-σ:
- LJGJF 746 QDGF6 CD6676%UC

1980.

- Lጋናጋσ C/Pヶና<< የ Pacsby

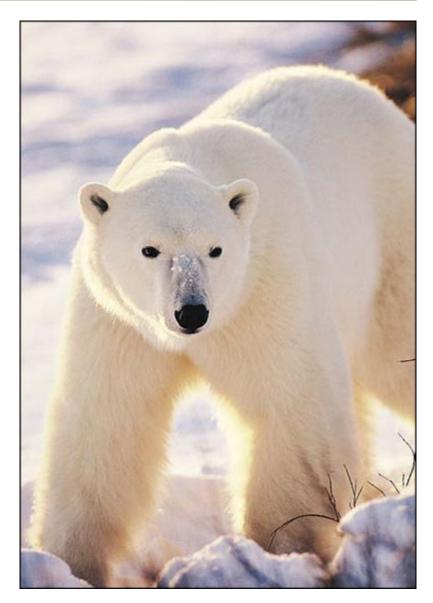
Δ/L<% borbo 1200 a_bbb// borbo 200

© B. Baliko



Canadä

- We recently evaluated the population size, trend and health of WH polar bears over the period 1984 – 2011
- Updates previous Environment Canada assessment for 1984 – 2004

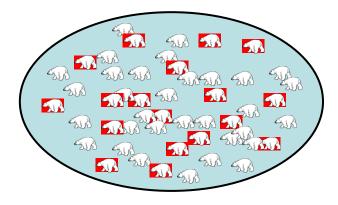


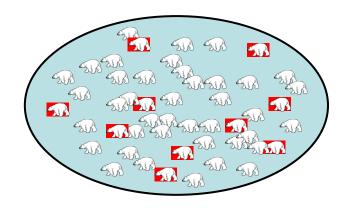
- We used data from bears handled in our research and by partners in Nunavut and Manitoba
- Also included harvest records of bears taken in Nunavut
- 6,743 records from 3,034 individual bears
 - 6,224 live encounters
 - 519 removals (harvest and problem bears)

- 6,743 ∩∩հ
 C
 C
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
 d
- 6,224 ϷLϞϲ <̈́ϤϷϹϷͼϷϲϹͼϷϽϲ

- We used a new statistical approach to analyze the data from WH
- This approach allowed us to:
 - Include data for bears with different recapture probabilities;
 - Estimate survival for different age, sex, and reproductive classes;
 - Estimate population trend;
 - Estimate population size over time.
- 42% 25% 20% 20% 20% 20% 20% 20% 20%
 40% 20% 20% 20% 20% 20% 20%
 40% 20% 20% 20% 20% 20%
- > > > < <p>> < <p>< < <p>< < <p>< < <p>< < <p>< <p>< < <p>< <
- ﺩՐᢣ᠌ᢄ᠆᠋᠕᠖᠋᠖᠋᠖ᢄ᠘ᢣᢂ᠘ᢣ᠋ᡗ᠖᠋᠕ ᠕᠕᠌᠌᠘ᢣᢛᢅ᠋

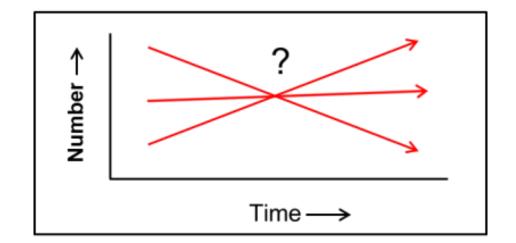
- $-\dot{\alpha}$





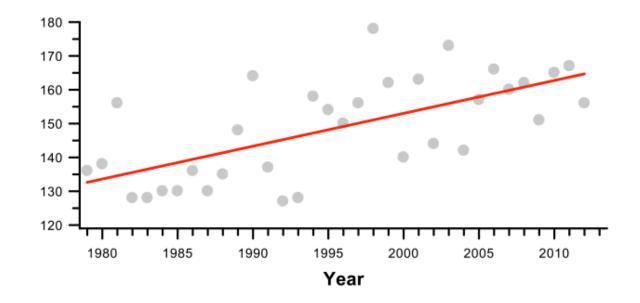
Canada



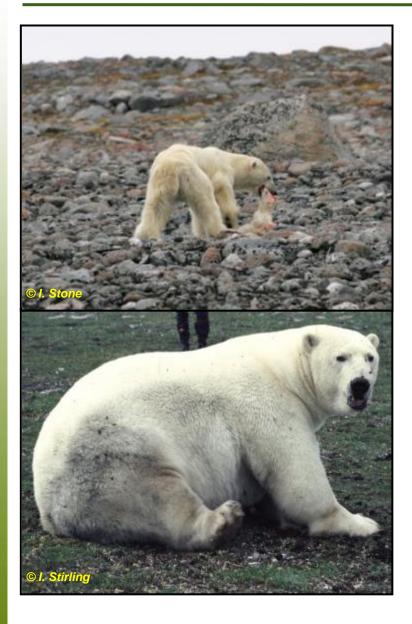


- We estimated past population trends up to 2011
- Also projected what future population trends might be under differing sea ice conditions
- Ϥၬ᠘ϽʹϹϷʹͽ ʹϿϿϪϹʹϞͶϭϤʹͰͺϞͺϳϹͺϒϿϭϧϤͺͶϘͺϷϿͼϧϥϽͽ ϤϞϲϧϧϹ;Ϸϲϲͼϫϥ;ϲͺϥϧϧϧϧϧϧϧϧϧϧϧϧϧϧϧϧϧϧϧϧϧ

^مەرىمىرى مەرمىك بى مەرمىك مەرمىك مەلەك كەت كەتمىرى



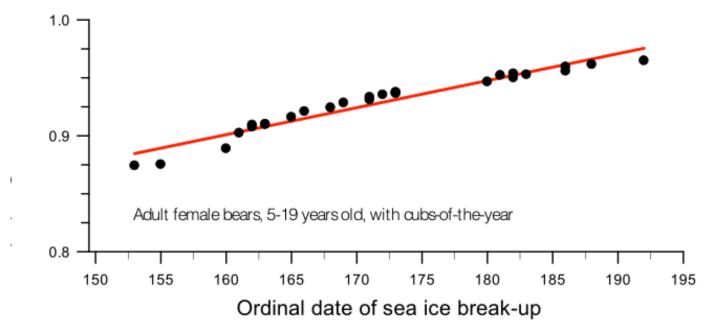
- Period with low or no ice in western Hudson Bay has increased over last 30 years
- The low ice period is roughly 30 days longer than in the early 1980's



- Condition of bears when they come ashore is related to timing of breakup
- Earlier break-up: bears tend to be thinner when they come ashore
- Later break-up: bears tend to be fatter when they come ashore
- ᠈᠘᠊᠋ᠴ᠘᠆᠈᠘ᡊ᠊ᡔ᠒᠕ᢞ᠊ᡔ᠘ᡄᡆ ᠈᠘ᢞ᠋᠘᠆ᢣ᠘᠉ᡋᡥ᠕ᢞᡀᠧᡃ᠆ᠴ᠘᠋ᠮ᠘
- ᠆᠋᠖᠋ᡊᡰ᠋ᡝ᠆ᢣ᠋ᡬ᠅᠋ᡶ᠄᠂᠘ᠴ᠘ ᠋᠆᠋᠆ᠴ᠆᠉᠆᠕ᠫ᠋ᡐᡬᠥᢗ᠉ᠫ᠂᠘ᡆ᠋ᢩ᠕ᡬ᠅᠐᠋ᠮ᠉
- ᠵᡃ᠋ᠺᡊᡅ᠋᠋ᢆ᠋ᢤ᠋᠅ᡁ᠄᠄ᡆᢩ᠘ ᠈ᡃᡆ᠘ᡔ᠋ᠣ᠋ᡧᡬ᠅᠘ᢄᡃ᠖ᡃᢗ᠁᠋ᠴᡆ᠋ᢩ᠕ᡬ᠅᠐᠋᠋



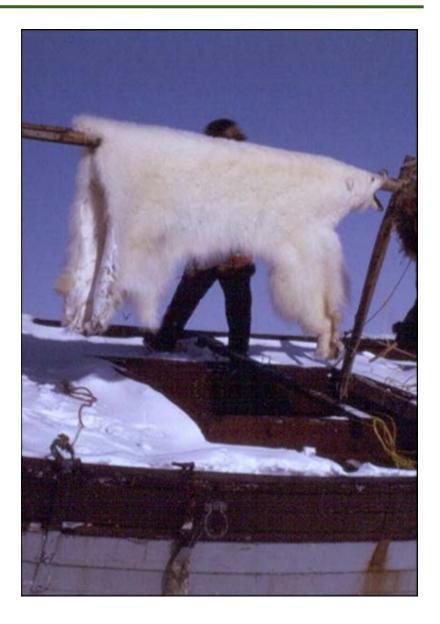
$\dot{\mathsf{A}}^{\mathsf{G}}\mathsf{P}\mathsf{P}\mathsf{A}\mathsf{C}^{\mathsf{C}} = \dot{\mathsf{A}}\mathsf{L}\mathsf{C}^{\mathsf{C}} = \dot{\mathsf{A}}\mathsf{L}^{\mathsf{C}} = \dot{\mathsf{A}}\mathsf{L}^{\mathsf{C}} = \dot{\mathsf{A}}\mathsf{L}\mathsf{C}^{\mathsf{C}} = \dot{\mathsf{A}}\mathsf{L}^{\mathsf{C}} = \dot{\mathsf{C}}\mathsf{C} = \dot{\mathsf{A}}\mathsf{L}^{\mathsf{C}} = \dot{\mathsf{A}}\mathsf{L}^{\mathsf{C}} = \dot{\mathsf{A}}\mathsf{L}^{\mathsf{C}} = \dot{\mathsf{C}} = \dot{\mathsf{A}}\mathsf{L}^{\mathsf{C}} = \dot{\mathsf{C}}\mathsf{L$



- Our analysis showed that with earlier the date of sea ice break-up, fewer bears survive through the year
- Sea ice affects survival of all age classes of female polar bears
- יטםאלישרבאשי כלחיחרבליש ללמשילהאליטי, ארלישירהישמי סשמי לבישרי אילטר
- C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C
 C

$\mathsf{A}^{\mathsf{G}}\mathsf{P}\mathsf{P}\mathsf{A}\mathsf{A}^{\mathsf{G}} \overset{\mathsf{G}}{\to} \mathsf{L}\mathsf{G}^{\mathsf{G}}\mathsf{P}^{\mathsf{G}}\mathsf{A}^{\mathsf{G}} \overset{\mathsf{G}}{\to} \mathsf{A}^{\mathsf{G}} \overset{\mathsf{G$

- Survival of males was not affected by sea ice conditions
- Human-caused mortality had a greater impact on male survival
 - Likely the Nunavut harvest has the greatest effect
- Δ_Δ^{*}σ^c CΔL^{*}Δ_DOCD4^c
 Ͻ^sdCD^sb^cC^{*}σ^{*}Γ_Δ 4^{*}Γσ^{*}^bL^{*}σ^{*}Γ^c
 Δ^bD^{*}CD²L4^c 4dO^c DLσ^{*}C^c
- ᠆᠘ᡃ᠋᠘ᡩ᠋ᢧ᠋ᢩ᠘᠆ᡘ᠅᠋᠋᠘᠆ᡘ᠅᠋᠘᠅ᢕᡄ᠋ᢅ᠆ᢂ᠋ ᠆᠘᠘᠆᠘ᢞ᠋᠋

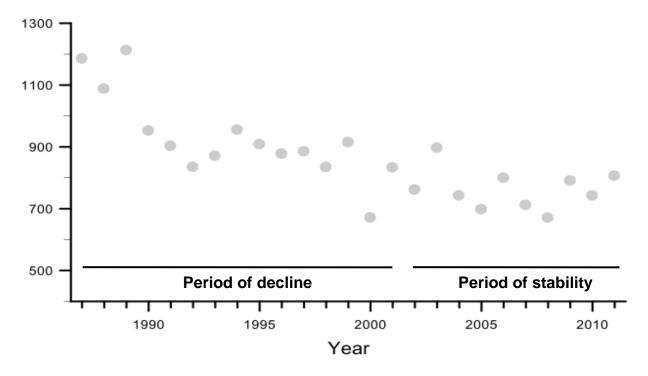




- Our new analysis estimated 806 bears (95% confidence intervals = 653-984) in Fall 2011
- The aerial survey estimated 1,030 bears (95% confidence intervals = 715-1398)
- Despite different sampling methods, these estimates overlap



᠊᠊ᠥᢩᢂ᠆᠕᠉᠊ᡐᡐ᠖᠖᠆᠘ᢞ᠆᠕ᢞᠧ᠖᠘᠈ᡩᠧᢂ᠆ ᢁᢩ᠘᠘ᢁ



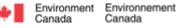
- Population has declined overall since the late 1980s
- However, it appears to have stabilized over last decade
- ϹΔΔ°ϘͿͻϭ··ͻͿ, ϲϲ·ϧϔͺͺͶϭͽϧͼϲͽϳϧͽͺϹϘΓͽϙϥͺ

$\Lambda^{L}L\Lambda^{D}Z^{C} \triangleleft \Lambda^{G}DZ^{C} \rightarrow DZ^{C}$

- Survival of females is important in determining the WH population trend
- Population growth of female polar bears was likely stable over the past decade, 2001-2011 (Lambda =1.02; 95%CI = 0.98-1.06)
- ▷L_ጋቦ^b ⊲በ^{sb}C^c Λ^LL^c ▷^b
 ^bD^c σ^d^s ⊃ σ C^JD^b^s ≺^{d^{sb}}
 ^dP^b^a^{sb} <^Jd^c D^s σ^bC^c
 ^dC^s D^s C^s C^s C^s









Sea Ice Condition Scenarios

ᡗᢀᠳᡃ᠋᠋ᠺᢉᠦ ᢗᡅᢂ᠂᠘ᡏ Conditions	⊦∕⊅თ [⊾] \∩თ ^ა ხ [∿] ს⊳თ [∿] ს Frame (years)	⊳_റ⁵ ്െറ Growth Rate	⊲ن∪ ^د 95% CI	^۲ dċσ 95% Cl
ݥᡃ᠘ᢉᢣᢂᢣ	10	1.02	0.99	1.05
ݥݚݛݛݤݤݛ	20	1.02	0.99	1.05
ݥᢩ᠘ᢉᢣ᠌ᢂ᠆ᡐᡞ ᠳ ^{ᠬᢑᡪᢈ}	10	0.96	0.85	1.01
ݥᢩ᠘ᢉᢣ᠌ᢂᢩ᠆ᡥᡳ ᠳ ^{ᠬᢑᡪᢈ}	20	0.96	0.88	1.01

- Under favourable sea ice conditions, the population would increase by about 2% per year
- Under less favourable sea ice conditions, the population would decline by about 4% per year

പറ∆് Subpopulation	o_c_⊳Ċ⁵₅ L≺ ^c Estimate	^ډ لیک ۳ Status	<u>ે</u> વ_ંઙ વ્ય્ય્ે વે	ჄႴჾႩႷႶႣ ⊲ჄჼჂჼჼ<∿ႣჼႱ Future Trend	
∖σናታ⊳< ርሲ⊳ኈႱ Foxe Basin	2,580	فـ ^ـ ـلە⊃۲ׂن⊃ Stable	ف [⊥] L⁵⊃۲́י⊃ Stable	ف [⊥] L⊃∆°م∩⊲ ⊂ ^ر Likely Stable	
তՐবত Cr⊳৮⁵≺ব⁵ Southern Hudson Bay	951	فـ ^ـ ـلە⊃۲ׂن⊃ن Stable	ف⊥L⁵⊃۲́ن⊃ Stable	_െൌ്∽െ⊲ൊ് Likely decline	
C୵⊳୨୕ଽ୕୕୕⊲ଦୁ ଏମିଂୁେଜ୍ଜ୍<ନ୍⊲ୁ Western Hudson Bay	1,030	൧ഀഄ഻഻഻⊃∆ഀ൧൩഻഻഻഻഻ Likely reduced	ف [⊥] L⊃∆°م∩⊲ ⊂ ^ر Likely stable	ഫ ^{പ്} നേ⊲∿⊃∿ Likely decline	

[•] In 2014, the Polar Bear Technical Committee assessed the *status*, • In 2014, the Polar Bear Technical Committee assessed the *status*, • One of the status, • One of the status, • One of the status • One of the status

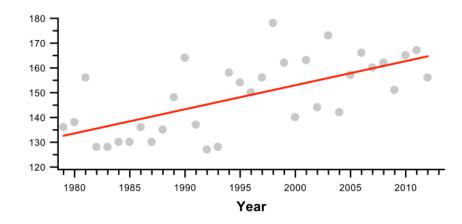
 In 2014, the Polar Bear Technical Committee assessed the *status*, *recent trend* and *future trend* of all subpopulations of polar bears in Canada

 For WH, the aerial survey was used for the population *estimate* and the EC study for *recent trend*

Environr Canada Canada

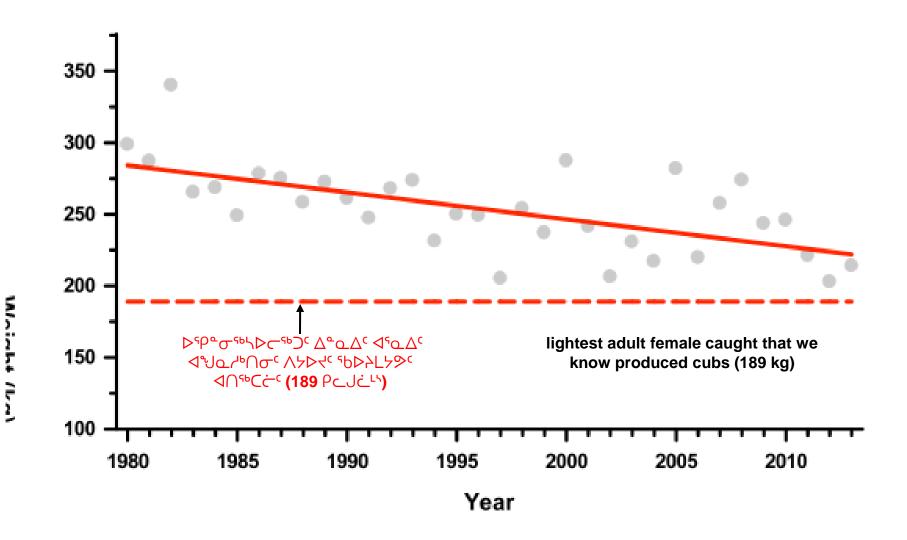
$\label{eq:linear} \Lambda^{L}L \wedge \forall^{C} \wedge \forall$





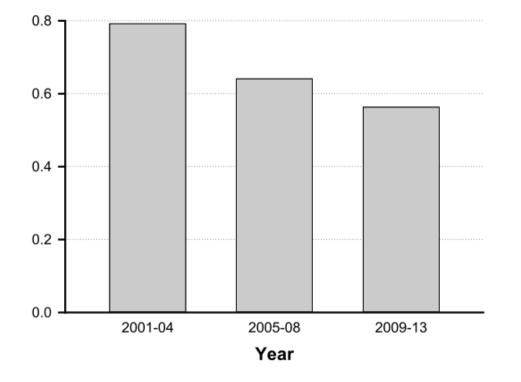
- Sea ice conditions were likely favourable over past decade
- But sea ice models predict continued decline over the longer-term
- It's important to know about trends in health of bears, as well as numbers
- የረላσ ር⊾ኦ< ረdላ የዾኌ∆ሮ∿Ⴑσ∿Ⴑ σ⊾ኦሷ™ጋ™ b៩ረረ୮Խ ഛህ<ና⊂ላσላ™ጋ™ ጳዕσኦσ™ኣኦ๙๗
- Λ^LL
 ^{Sb} 'b
 'b
 'b
 'b
 'b
 'b
 'c
 'c





Environment Environnement Canada Canada

Canada





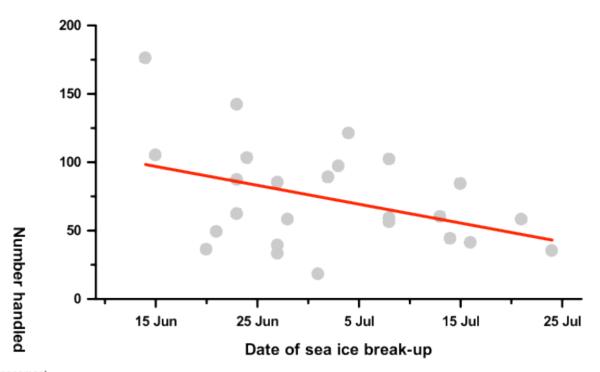


Canadä













- Sea ice conditions affected the survival of female bears but not male bears
- WH population has declined since 1980s. but appears to have been stable over past decade
- While this should be considered good news, we need to think about future environmental conditions
- Under favourable sea ice conditions, WH population has potential to increase but, under less favourable sea ice conditions it would certainly decline
- ርኊዾ< ነላላር ኄዾኯጏ፞፞፝፝፝፝፝ፚ፨ኯጏጚጚ፨ ፞ዾ፞፟፟ዾፚ፝ኯ፝ኯኯፙ ጞኯ፟በልላ ዾዾዾ
- ርፖኦትናላጭ ላዮሚጭሩፖላσ ዉውልና ኦውሲዮጵጭፖር ርሏLኈሁσ 1980-σ, የፖላታ ኦውዮፖኖር ላዉጦ ኦውዮጵጭናና ርላዉጦ ርሏLኈሁσ ነሪርና ላናናህσ
- ርልLے Þa ፊረLՐ՟ጋበJና ጋኣዖፐLናበላናσኄႱσ, ፊረLኦሲላናኮ፦ጋJናርኦ፦ ረዎσኑኣናበ ፈペበጵና የክቃፊሮኈႱσላኈጋና





