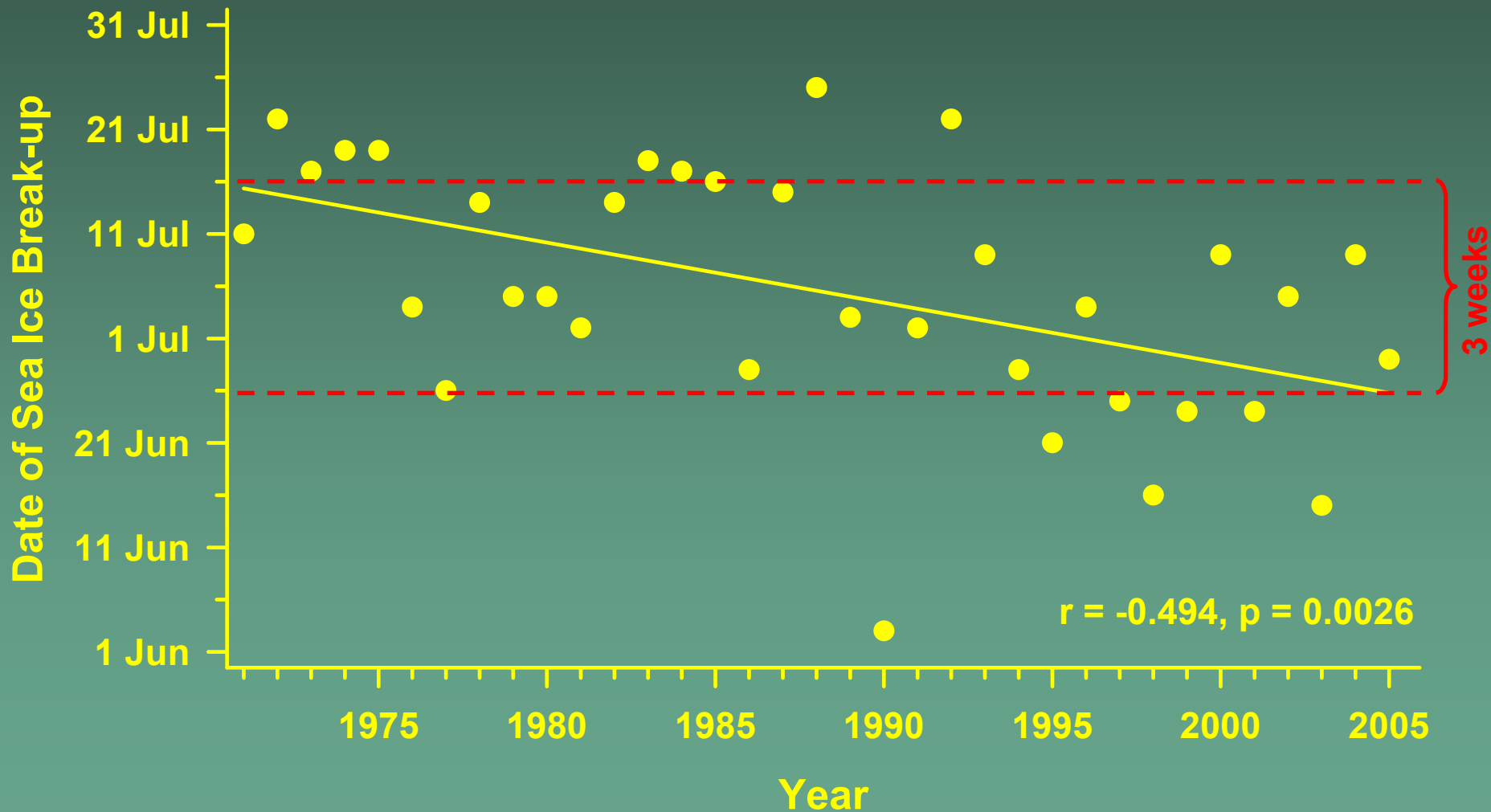
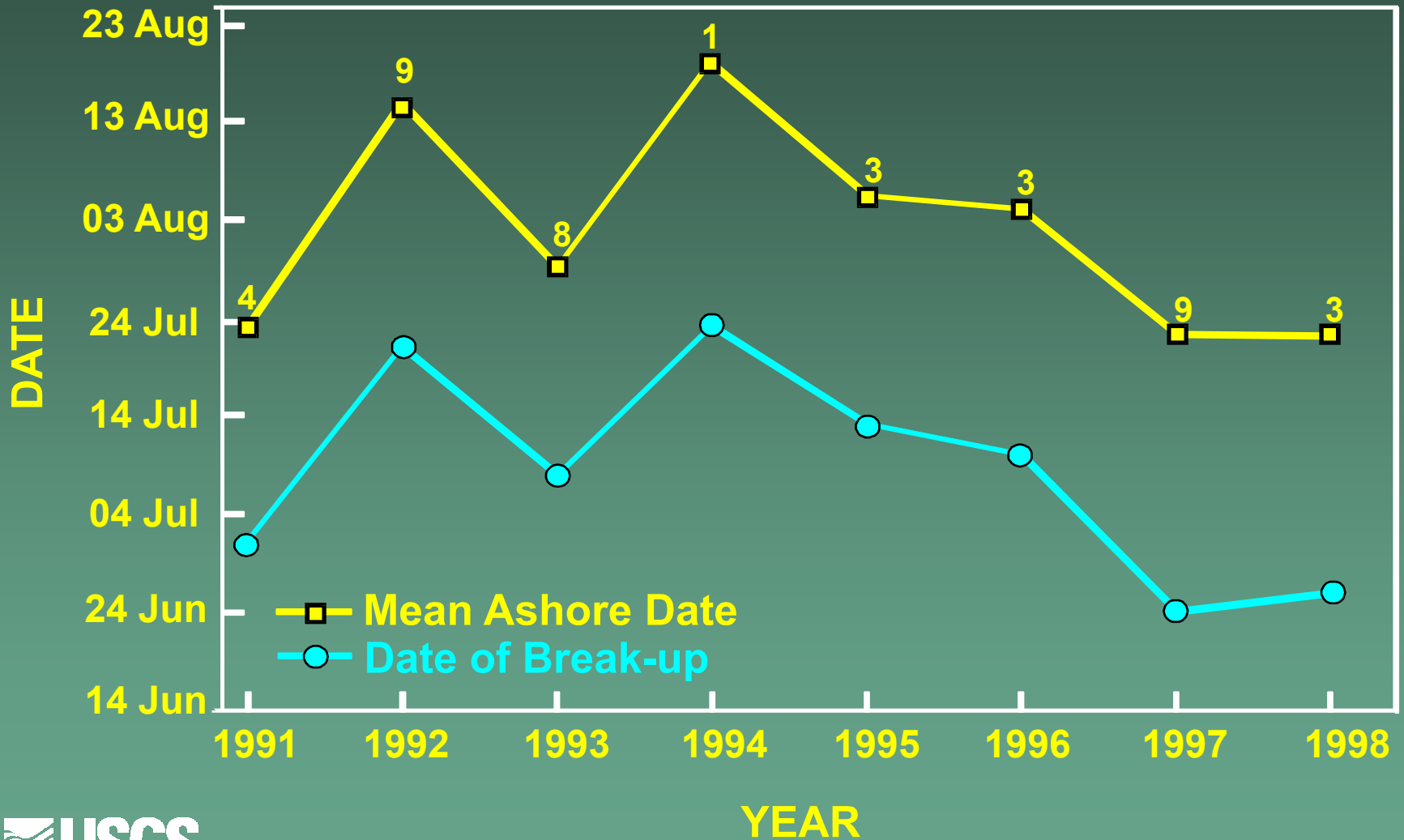


Timing of Break-up in Relation to Year, Western Hudson Bay, 1971-2005

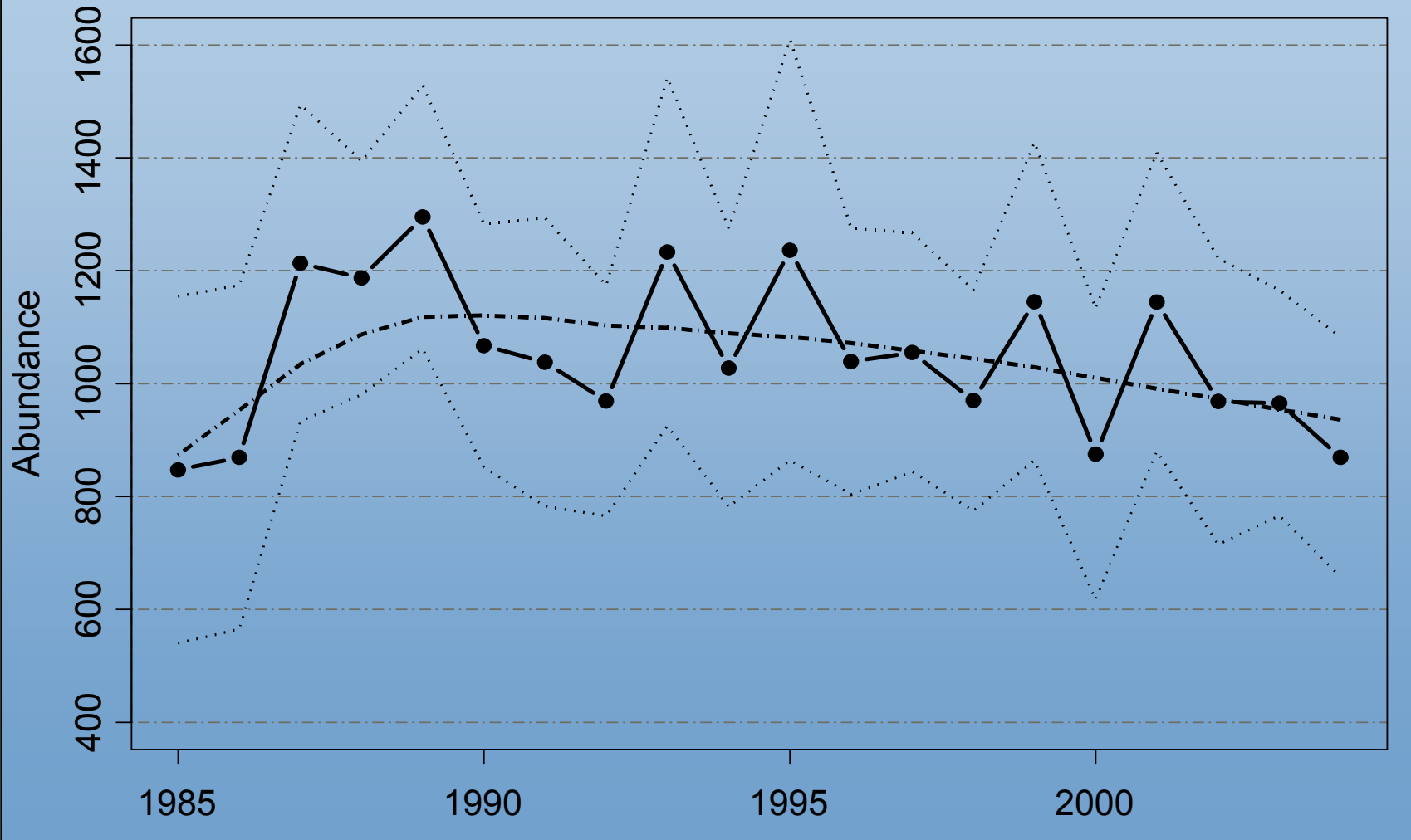
(after Stirling et al. 1999, *Arctic* 52:294-306; Lunn & Stirling unpublished data)



Trends in dates polar bears come ashore in Hudson Bay

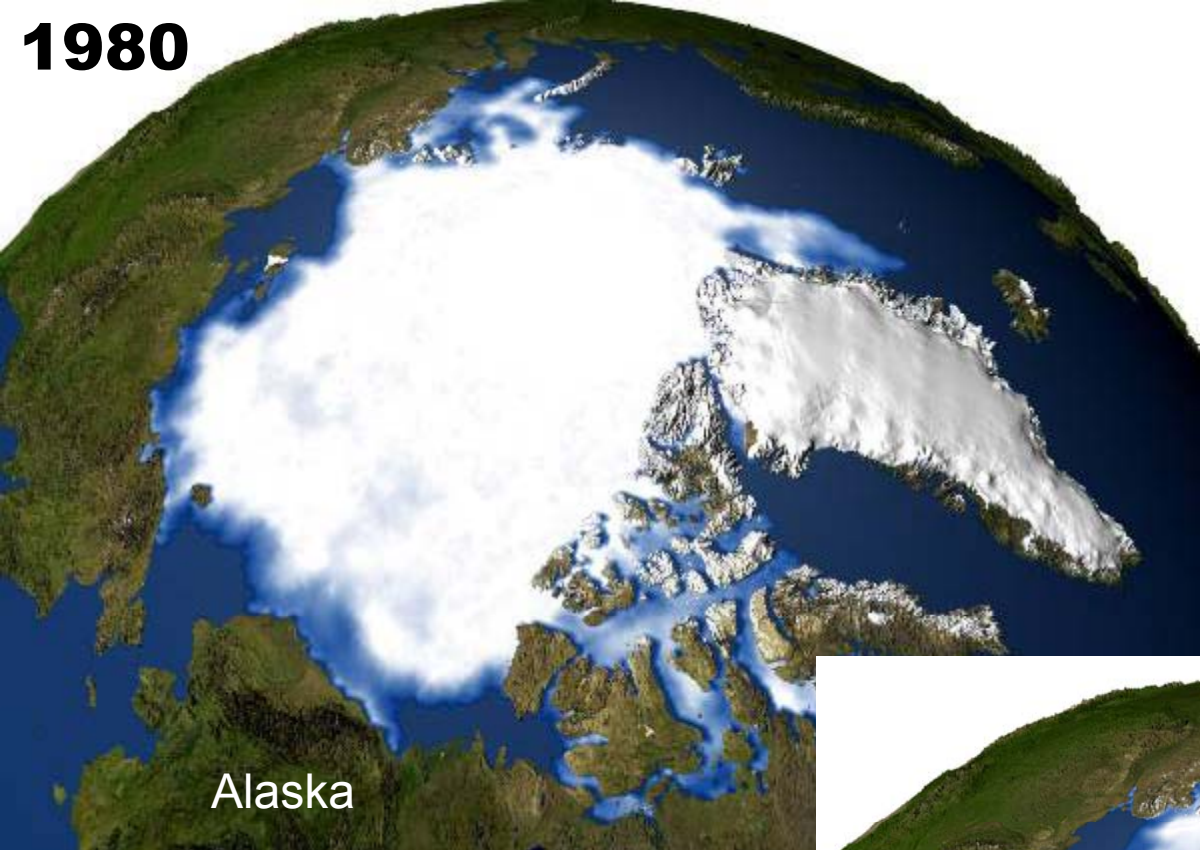


Estimates of abundance and 95% CIs for the Western Hudson Bay polar bear population.



The WHB polar bear population declined from over 1100 individuals in 1988 to fewer than 950 individuals in 2004.

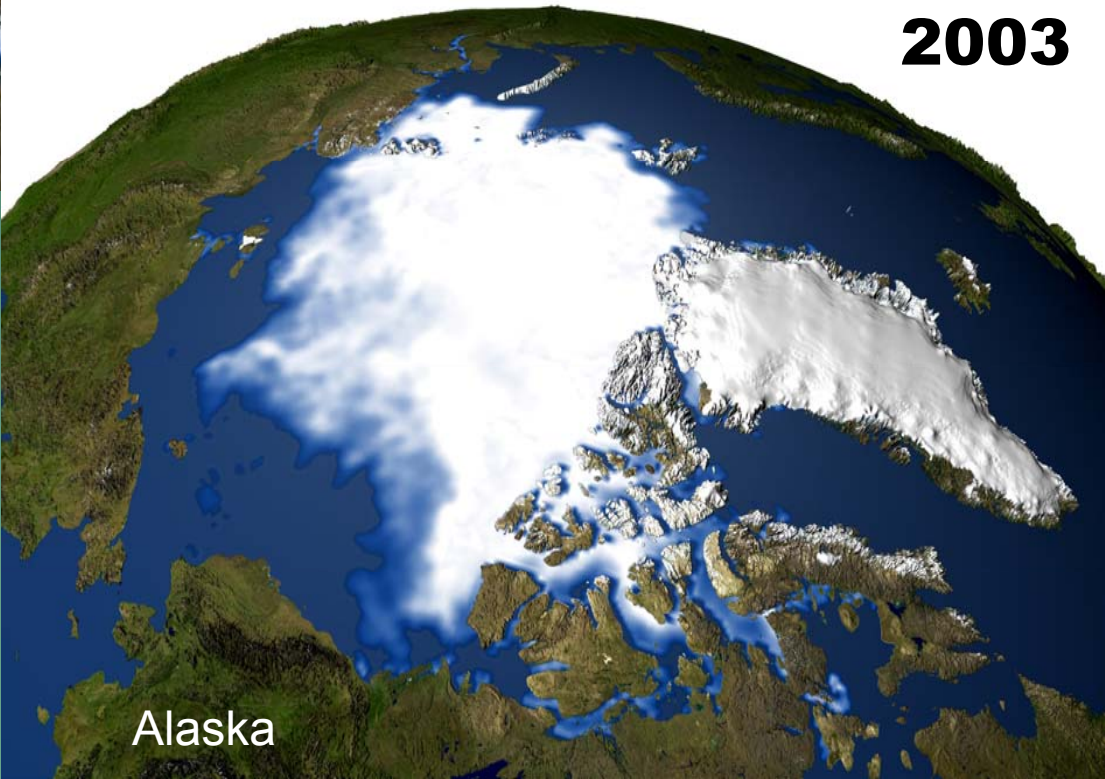




1980

Alaska

**But what
about
higher
latitudes?**

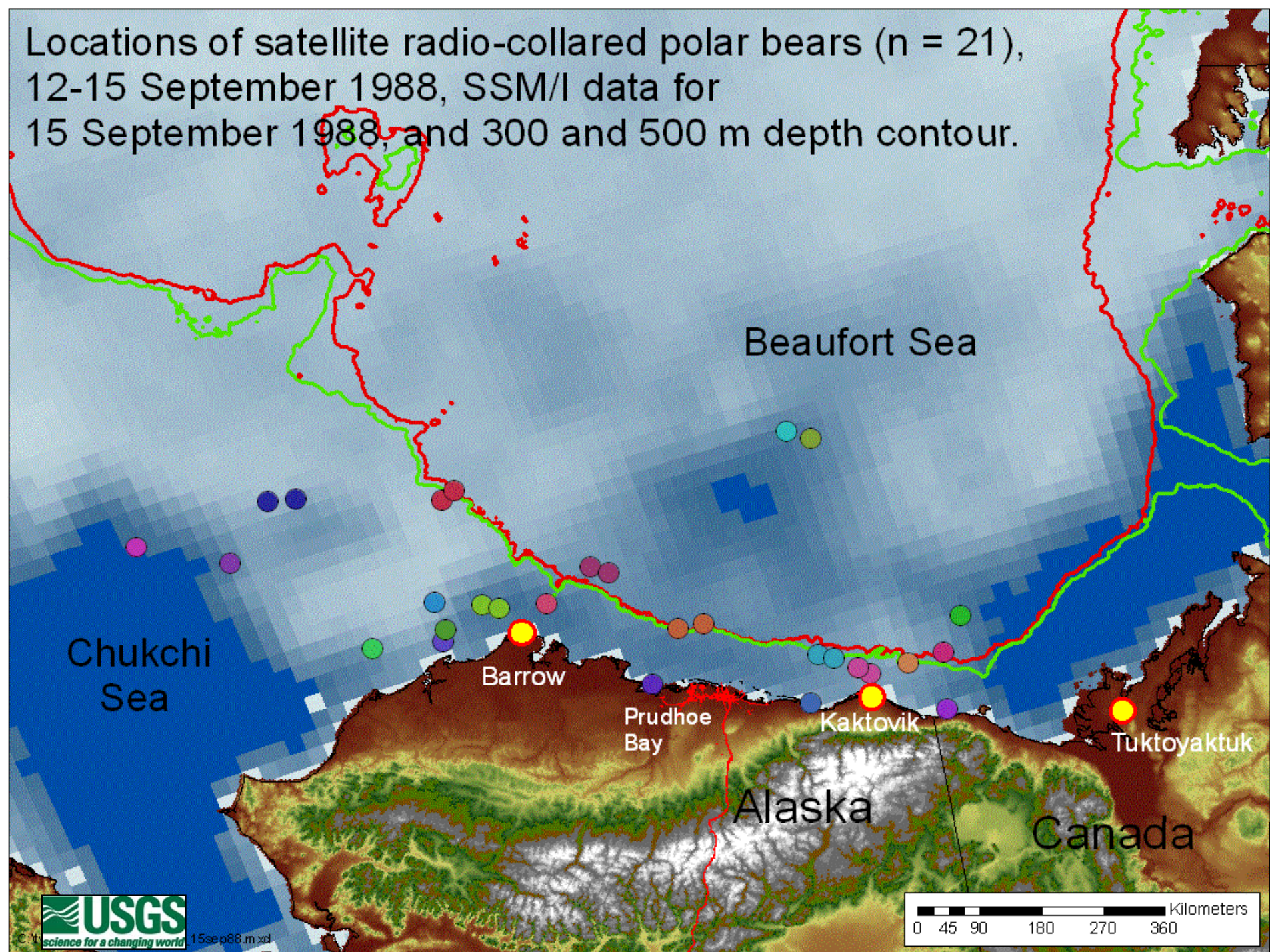


2003

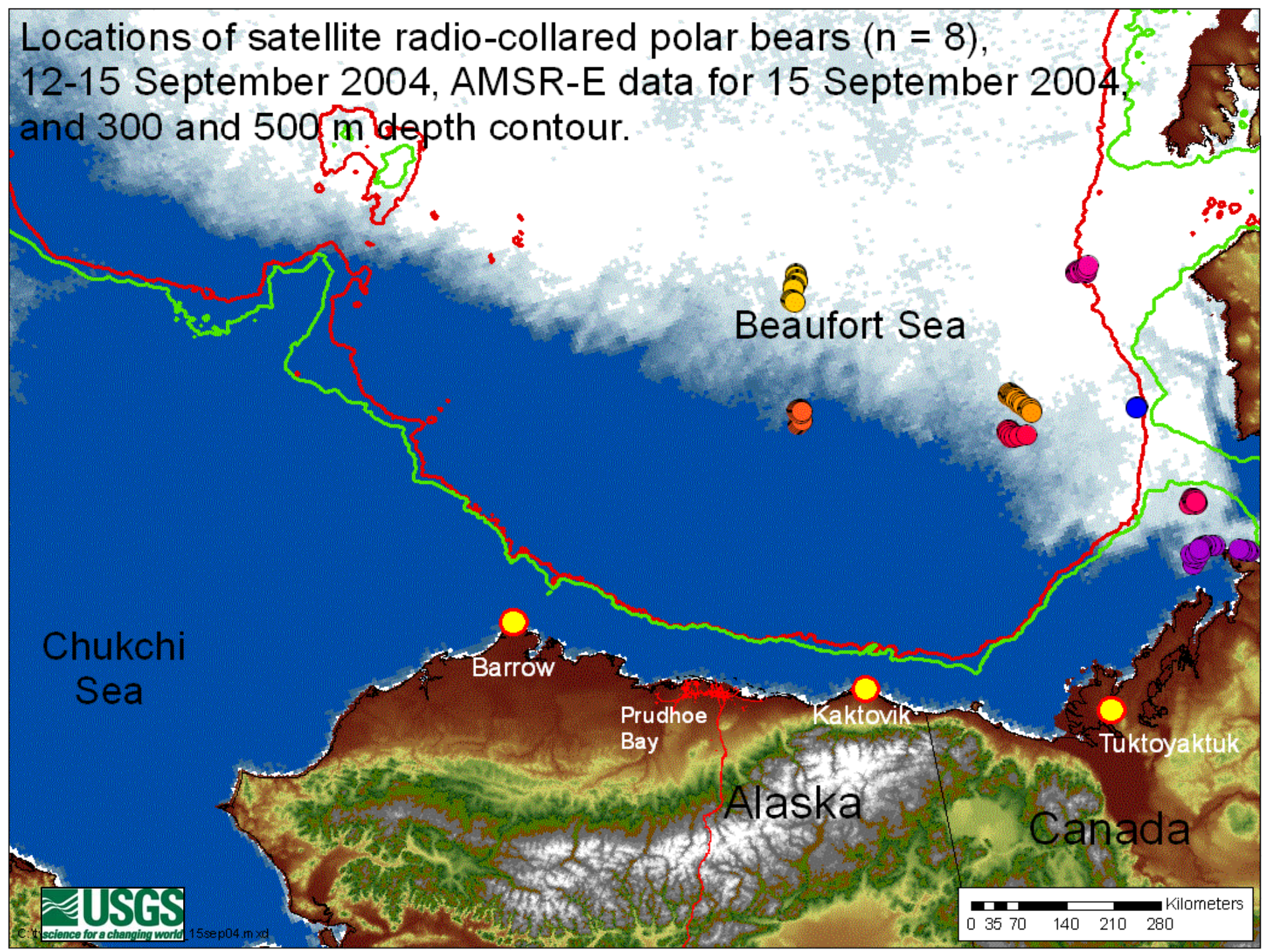
Alaska

**Comiso, J. C.
NASA**

Locations of satellite radio-collared polar bears (n = 21),
12-15 September 1988, SSM/I data for
15 September 1988, and 300 and 500 m depth contour.



Locations of satellite radio-collared polar bears (n = 8),
12-15 September 2004, AMSR-E data for 15 September 2004
and 300 and 500 m depth contour.





In either case, foraging success may be reduced

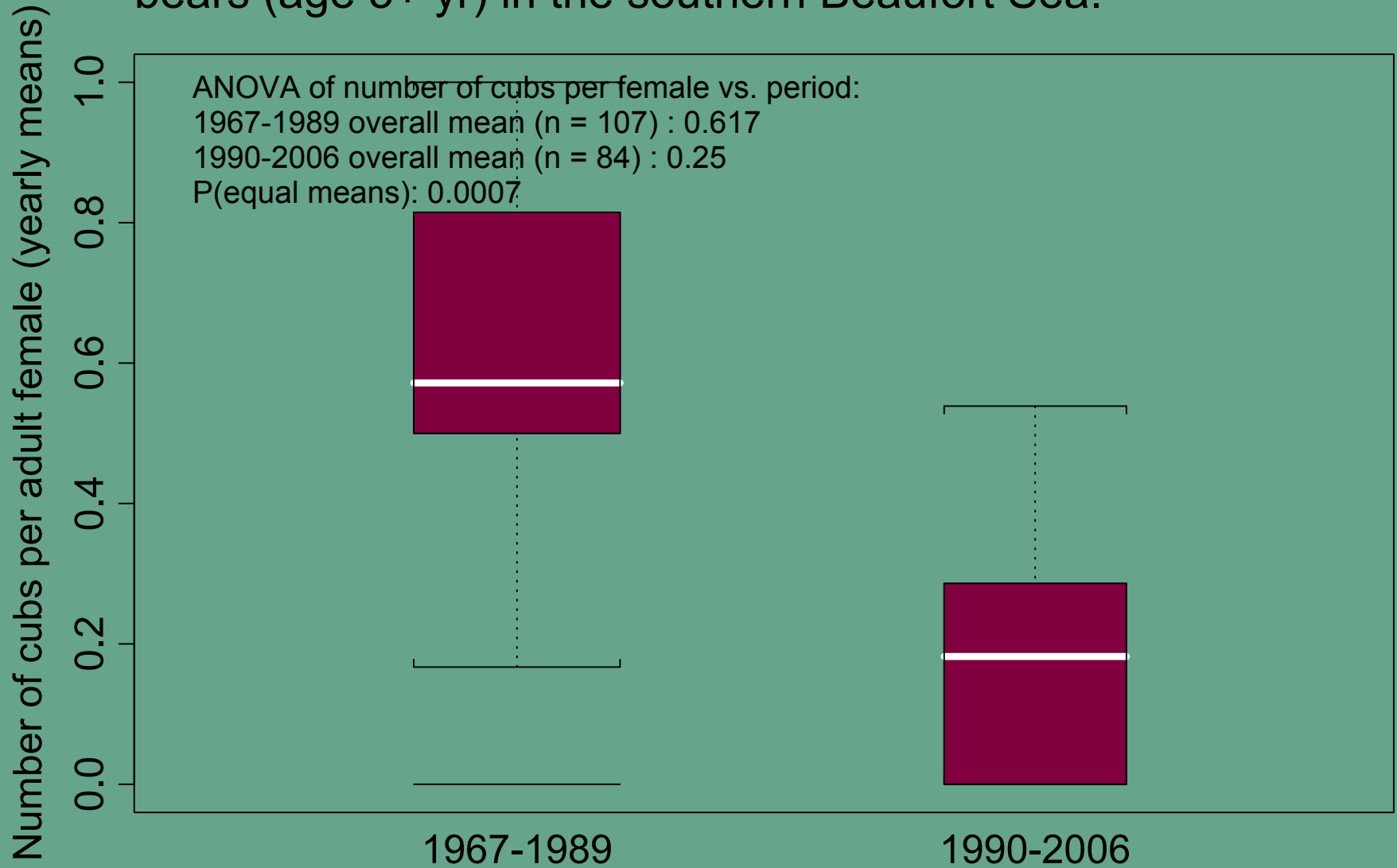


Cub-of-the-year production rates* for adult female polar bears (age 5+ yr) in the southern Beaufort Sea.



Spring Data

Cub-of-the-year production rates* for adult female polar bears (age 5+ yr) in the southern Beaufort Sea.

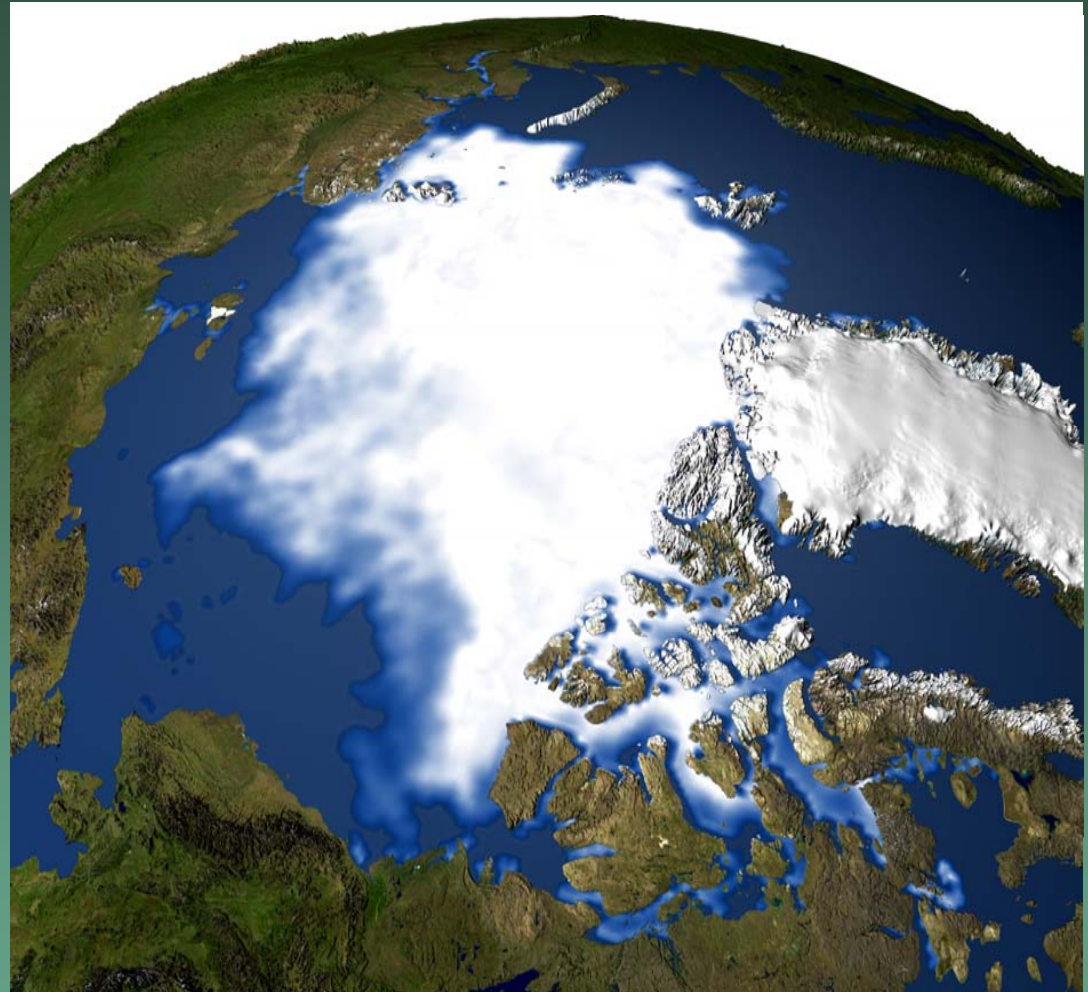


Autumn Data

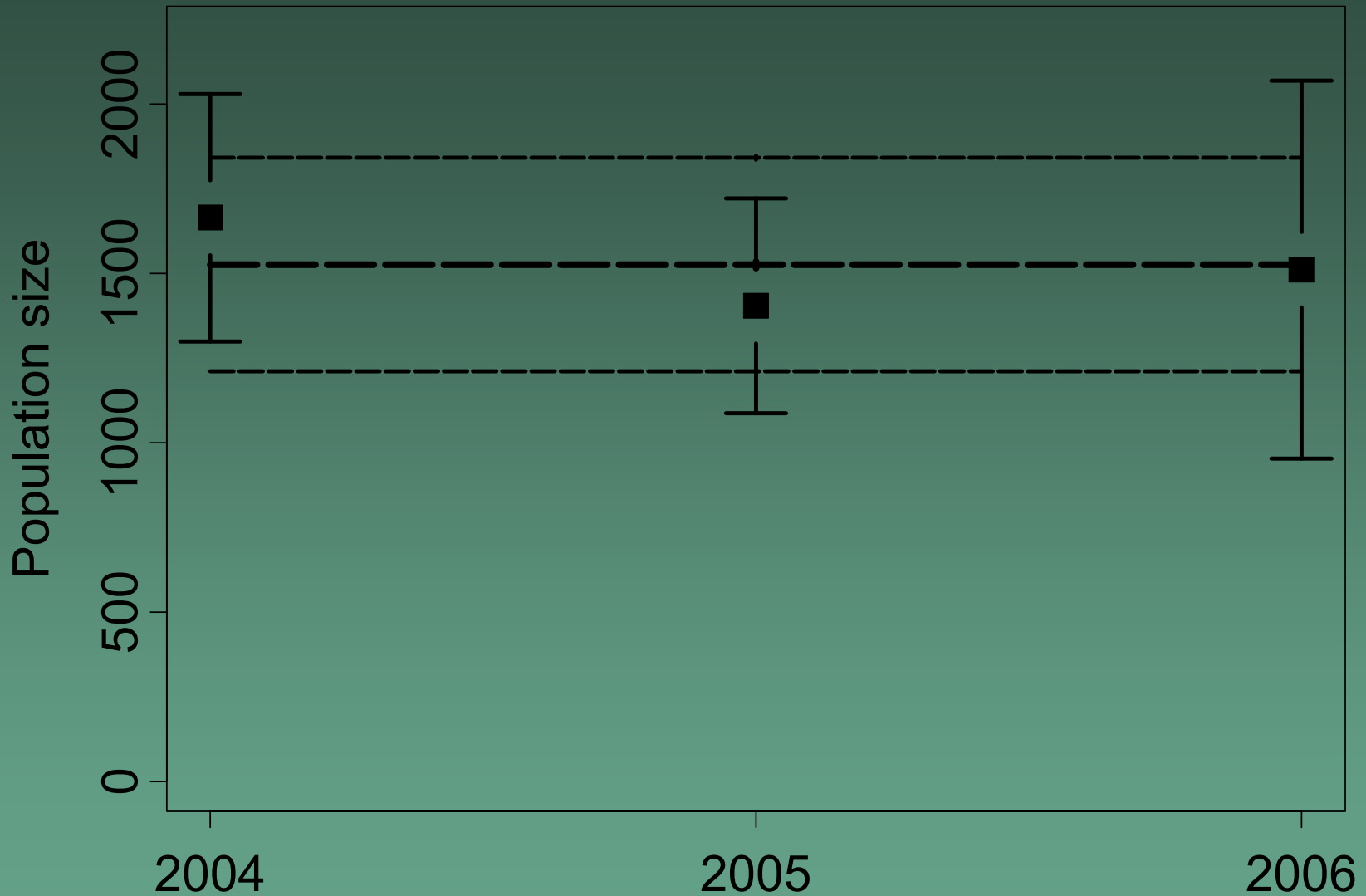
More Distant Ice Retreat =

- bears summer over deep water
- reduced size of adult males and cubs
- poorer survival of cubs

▪ Effect on population size?



Population Size of Polar Bears in the Southern Beaufort Sea



Polar Bears can definitely swim.



But not indefinitely!

In Conclusion

- Sea ice has been changing rapidly and is projected to continue to decline in extent and thickness throughout this century.
- Both walruses and polar bears are dependent on sea ice for some or all of their life history needs, and changes in their populations are anticipated as sea ice declines.
- Polar bears have been studied for over 3 decades, and long-term changes in population status and demography have been documented.
- Walruses are comparatively more difficult to study, and data on population status and demography are critically needed.
- **OUR CHALLENGE:** Determine how population status and distribution will change with future changes in the sea ice so that managers can develop the best possible strategies for assuring the future for polar bears and walruses.

Contact Information

- POLAR BEARS – Steven Amstrup
samstrup@usgs.gov – (907) 786-3424
- WALRUS – Chad Jay
cjay@usgs.gov – (907) 786-7414
- SEA ICE – Dave Douglas
ddouglas@usgs.gov – (907) 364-1576