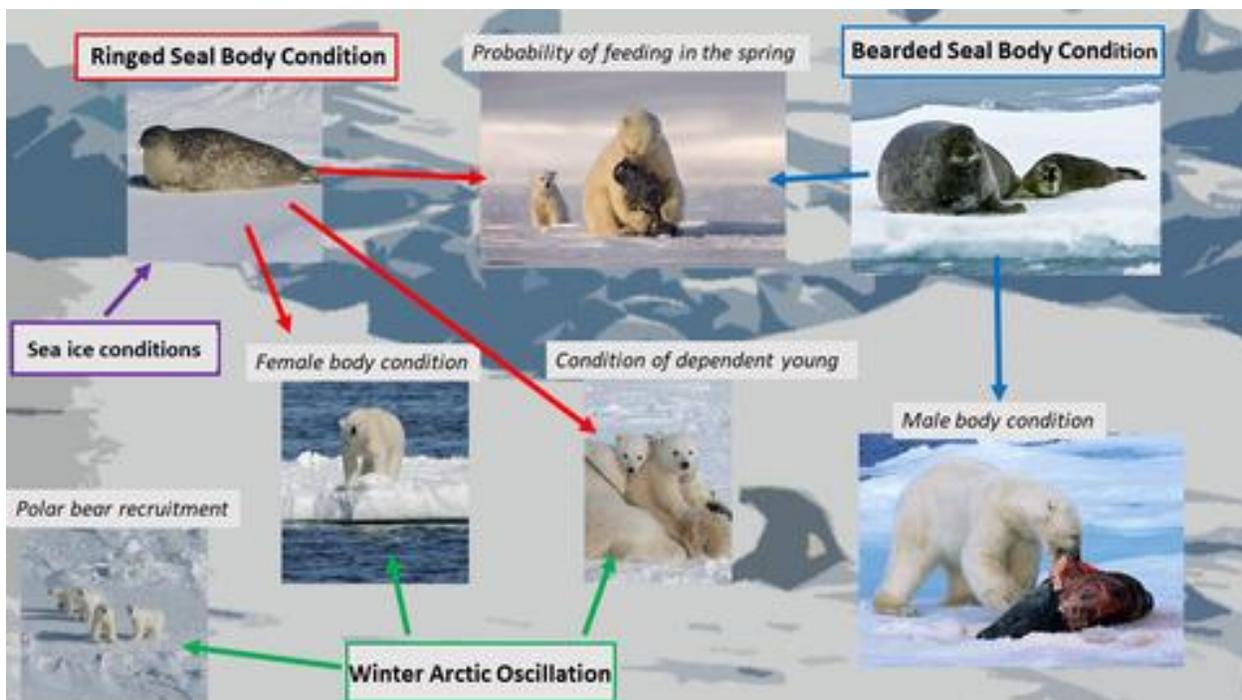


Seal body condition and atmospheric circulation patterns influence polar bear body condition, recruitment, and feeding ecology in the Chukchi Sea

Blubber thickness data collected from ringed and bearded seals harvested by Alaska Native subsistence hunters for the Alaska Fish and Game Ice Seal Biomonitoring program were used in a new study that identified relationships between seal body condition and the body condition of polar bears in the Chukchi Sea. Residual blubber thickness, an index of seal health, of ringed seals in the fall was related to the body condition of female and subadult polar bears whereas the residual blubber thickness of bearded seals was related to the body condition of adult male polar bears. The importance of these two seal species to different sex/age classes of polar bears is consistent with diet data reported in the study. Diets of male polar bears estimated by tracing fatty acids in seals and polar bear adipose tissue consisted of 40% bearded seal and 21% beluga whale whereas the diets of females and subadults were >50% ringed seal. These results emphasize the importance of seals to the health of polar bear populations and the value of monitoring seal health as an indicator of the health of the Pacific Arctic marine ecosystem, including polar bear populations. The study also found an atmospheric circulation pattern that affects sea ice conditions, it is called the winter Arctic oscillation index and was related to cub recruitment in the population. How the winter Arctic oscillation index affects seals and polar bears is unknown but indices of cub recruitment were higher following winters where thicker ice remained in the middle of the Arctic.



CONTACT

Dr. Karyn D. Rode – Research Wildlife Biologist

USGS Alaska Science Center, 4210 University Drive, Anchorage, AK 99508

(907) 342-5790

krode@usgs.gov

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