Age, growth, and reproduction of beluga whales (*Delphinapterus leucas*) from the eastern Chukchi Sea

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Abstract:
We collected measurements and biological samples from most of the 688 beluga whales (*Delphinapterus leucas*) taken by subsistence hunters from Point Lay, Alaska from 1987 to 2005. These whales are from the eastern Chukchi Sea stock. Hunters at Point Lay selectively take larger, older animals, so few small, young whales were represented in the harvest. This bias for larger whales resulted in more males and fewer females being taken. Although age and length data were skewed to older and larger animals, several aspects of beluga biology, such as growth, female reproduction, gestation and age at first pregnancy, are likely not influenced by the biased harvest. Younger aged whales of both sexes had similar lengths. Color change from gray to gray-white to white has long been known to be age related. We found that lengths in both sexes were comparable until the whales turned white. Adult males were longer than females. The asymptotic length of males was 436 cm and that of females was 362 cm. The overall pregnancy rate was 0.56, which included females pregnant with small or near-term fetuses and some animals that were recently post-parturient. The pregnancy rate for females with only small fetuses was 0.41, which indicates a calving interval of between 2 to 3 years. Reproductive output of older females was also reflected in corpora counts. Numbers of corpora declined after about 40 years of age. We estimated a gestation length of 454 days, slightly less than the known gestation period of captive females. We estimated age at first birth to be about 8.5 years. This information will be valuable for modeling population dynamics, making sound management decisions for sustainable harvests, and evaluating potential impacts from climate change and industrial development.

Introduction and Objectives
Belugas whales are an important subsistence resource for many Arctic communities that depend on them for nutrition and culture. Therefore, it is important to understand the biology of the whales to ensure sustainable harvests. Further, biological samples can provide insights into impacts from climate change. Our objective was to document aspects of age, growth and reproduction of eastern Chukchi Sea belugas.

Reproduction

- **Males** are longer than females once they are physically mature (i.e. white in color).
- **Growth curves** similar among Alaskan stocks.
- **Live to at least 60 or 70 years.**
- **Pregnant every 2 to 3 years** (pregnancy rate of 0.41).
- **Age at first birth** is about 8.5 years (following DeMaster 1981).
- **Reproduction declines in older females.**

Conclusions

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