Weaning Age and Dietary Variation in Narwhals (*Monodon monoceros*) Using Stable Isotope Analysis of Dentine from Embedded Tusks

**Objective**
- Investigate weaning variation among individuals, between males and females, and over time (pre-1982 & pre-2015)
- Evaluate dietary variation among individuals and changes over time

**Method**
- Embedded tusks were collected from males & females, in 1982 (n=39) and 2015 (n=21), near Pond Inlet
  - Dentine is deposited in annual growth layer groups (GLGs) (Fig. 2)
  - Dentine is not altered, and provides an archive of isotopic profiles
  - Sectioned tusks will be drilled along growth layer groups (GLGs) to collect dentine material for δ¹⁵N and δ¹³C analysis
  - **Weaning age** will be identified through a decline in δ¹⁵N over the first few GLGs
  - **Individual dietary variation** will be evaluated by differences in δ¹⁵N and δ¹³C values

**Significance**
Investigating variation in weaning and diet among narwhals and over time will help understand narwhal sensitivity to resource change.

**References**

**Changes in food web structure can alter narwhal diet, nutrition, and foraging success - such alteration will influence narwhal energetics. Altered female energetics can lead to prolonged or premature weaning of calves, subsequently affecting narwhal population growth.**

**A Changing Arctic**
- Reduced ice coverage and longer ice free season
- Northern expansion of southern prey such as capelin

**Narwhals are highly adapted to Arctic environment**
- Primary prey includes Greenland halibut, Arctic cod, polar cod, and shrimp
- Restricted distribution
- Potentially sensitive to climate change

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