How do prey react to killer whales?

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Introduction

As apex predators, killer whales shape ecological communities through top-down consumption¹. Yet they also disrupt prey behaviour through intimidation that may have consequences for prey population fitness and survival². The objective of this project is to quantify narwhal and bowhead whale anti-predatory behaviours in response to killer whale presence and in relation to environmental characteristics in the eastern Canadian Arctic (Fig 1a & b).

Proposed Methods

• 1 killer whale, 3 bowhead whales & 7 narwhal tracked in 2009.
• 3 killer whales & 9 bowhead whales tracked in 2013 (subset of data shown in Fig 1b).
• Calculate prey turning angles & movement speeds.
• Environmental variables: sea-ice concentration, bathymetry, distance to coast, distance to ice & shoreline type.

Fig 1a. Eastern Canadian Arctic and Western North Atlantic.

Fig 1b. 3 killer whales & 1 bowhead whale overlap on Aug-29-2013 at ~ 12:00
Network Importance

- Expand our understanding of species interactions in the Arctic by including the top marine predator (OTN Framework Question 2).
- Quantify the cumulative effects of killer whales in the eastern Canadian Arctic (consumption & intimidation) to inform management of Arctic marine mammal stocks that are important natural resources for Inuit subsistence hunting.

References

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