Evaluating abundance, energetic requirements, and prey consumption of the Eastern Canadian Arctic killer whales (*Orcinus orca*)

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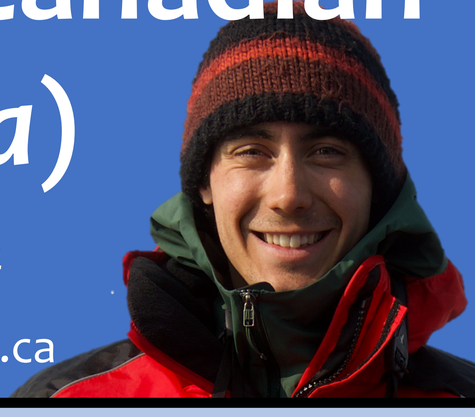
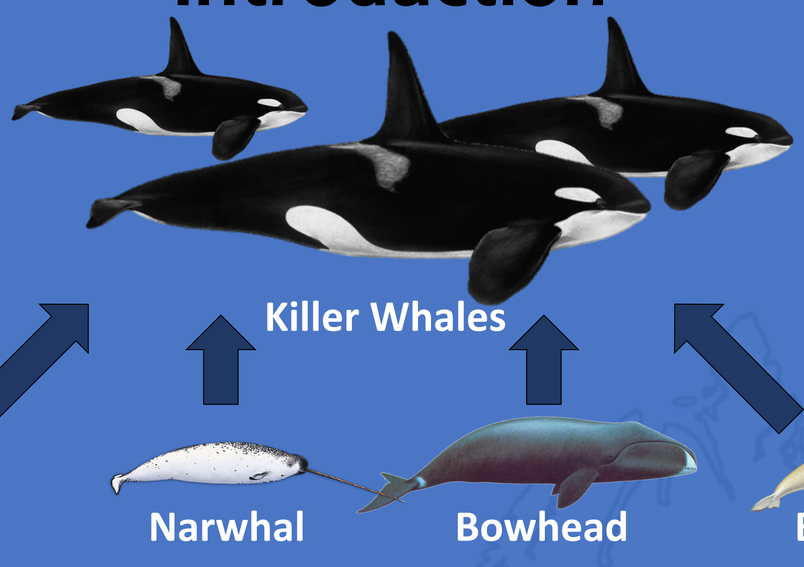


Introduction

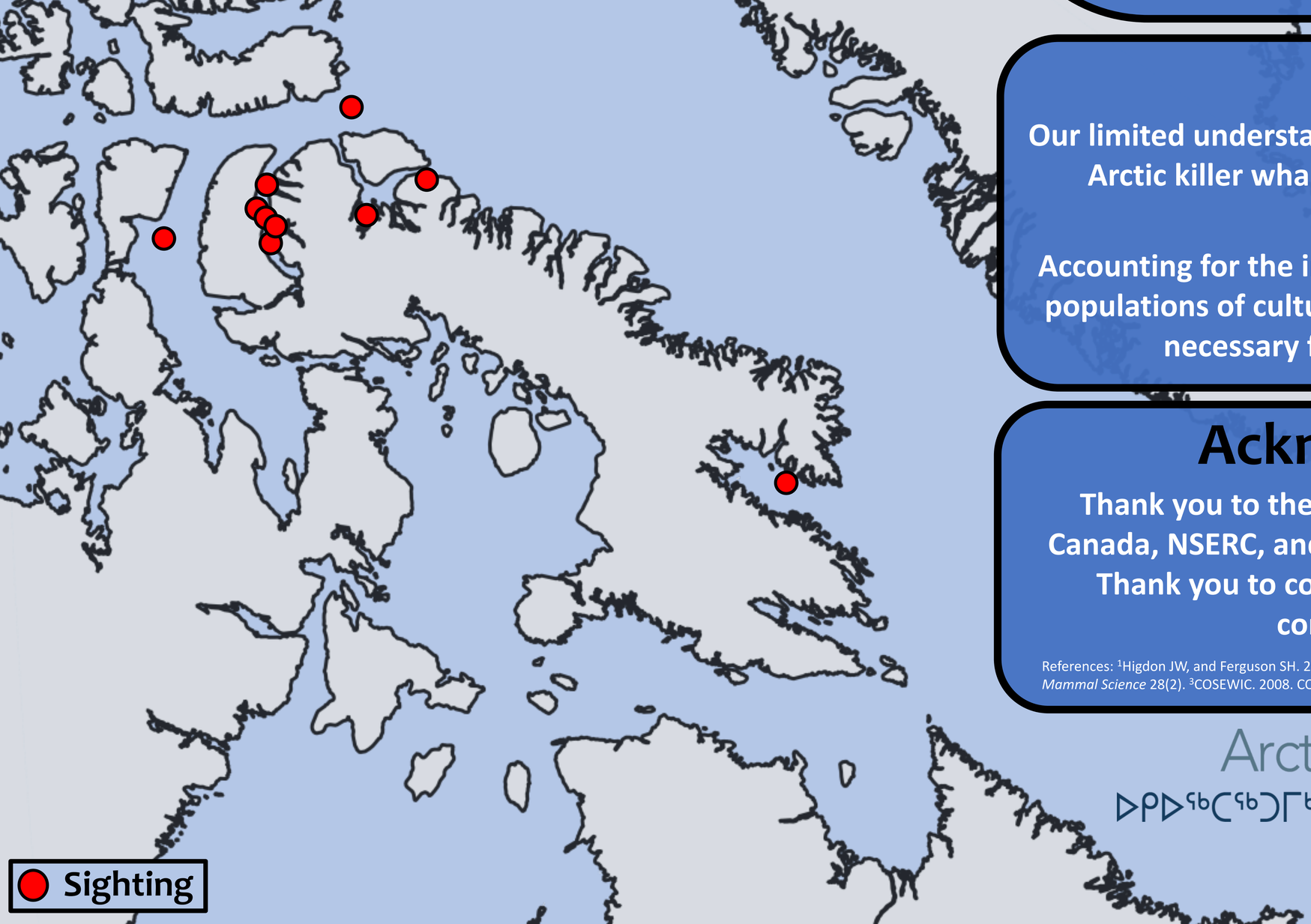


Increased killer whale sightings[1] → Increased marine mammal predation[2] → Potential ecological impacts

Objectives

Estimate the abundance of killer whales in the Eastern Canadian Arctic using a photographic mark-recapture approach

Model prey consumption of killer whales in the Eastern Canadian Arctic



Methods

- Analyze Photographs
- Generate Sightings Histories
- Estimate Abundance [Mark-Recapture]
- Estimate Caloric Requirements [A]
- Estimate Prey Consumption [B]

[A] $Calories_{Total}$ = Abundance * Daily Caloric Requirements * Time

[B] $Consumption_x = \frac{Calories_{Total} * \%Diet_x}{mass_x * \%Consumed_x * kcalValue_x}$

where x = prey type

Discussion

Our limited understanding of the ecology of Eastern Canadian Arctic killer whales makes it difficult to quantify their ecosystem impacts[3]

Accounting for the impacts of killer whale predation on prey populations of cultural and economic importance to Inuit is necessary for effective stock management

Acknowledgements

Thank you to the U of Manitoba, Fisheries and Oceans Canada, NSERC, and ArcticNet for supporting this research. Thank you to community HTOs and to all those who contributed photographs.

References: [1]Higdon JW, and Ferguson SH. 2009. *Ecological Applications* 19. [2]Higdon JW, Hauser DDW, and Ferguson SH. 2012. *Marine Mammal Science* 28(2). [3]COSEWIC. 2008. COSEWIC assessment and update status report on the Killer Whale *Orcinus orca* in Canada.

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