

# How do prey react to killer whales?



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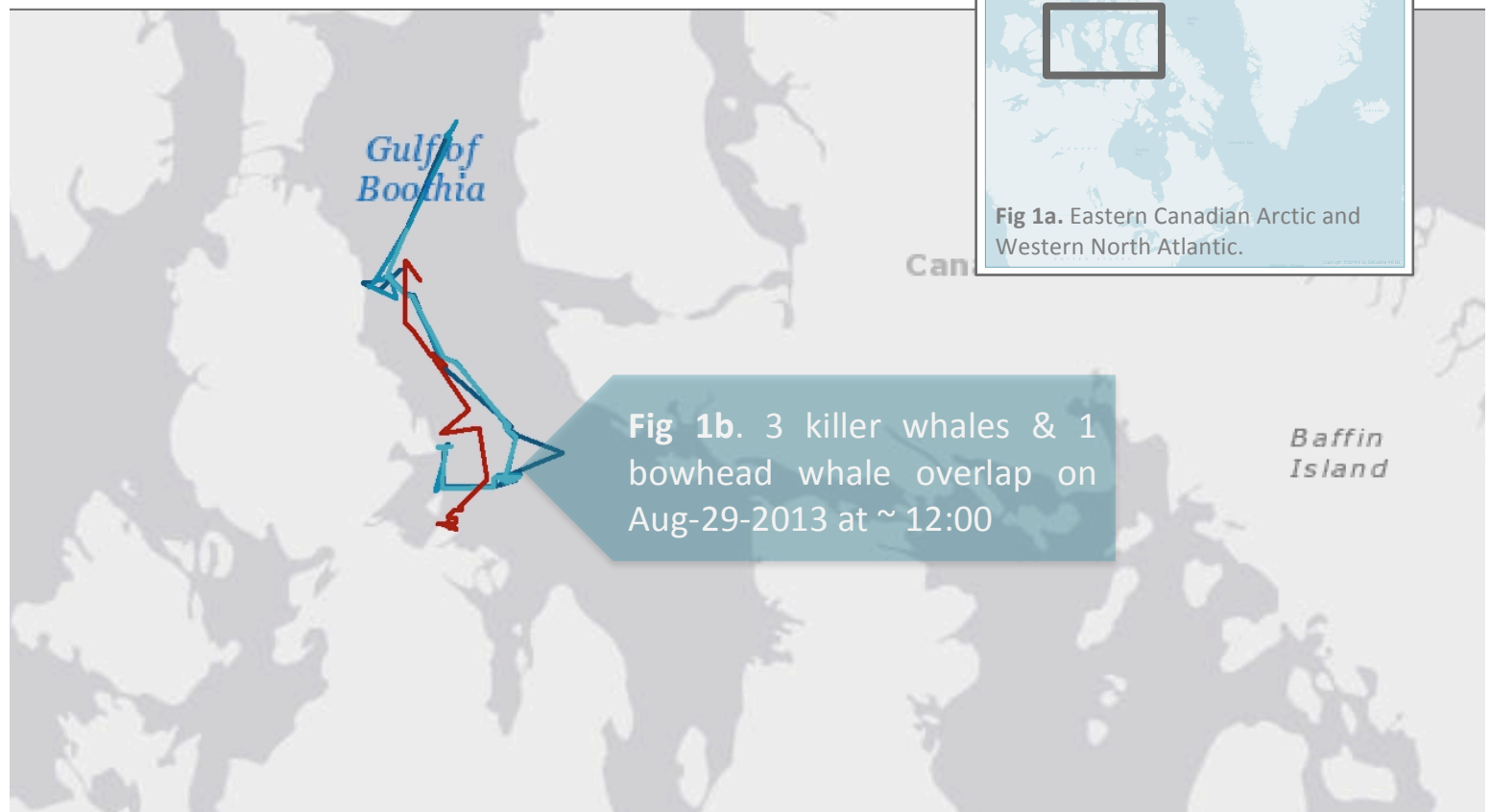
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## Introduction

As apex predators, killer whales shape ecological communities through top-down consumption<sup>1</sup>. Yet they also disrupt prey behaviour through intimidation that may have consequences for prey population fitness and survival<sup>2</sup>. 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.



# 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.



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## References

<sup>1</sup> Estes et al., 2001. Ecological role of predators. *Encyc Biodiv*, 4:857-878.

<sup>2</sup> Preisser et al., 2005. Scared to death? The effects of intimidation and consumption in predator-prey interactions. *Ecol* 86(2):501-509.

## Acknowledgements

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