

Analyzing plastic ingestion through time in Canadian Arctic-breeding Northern Fulmars (*Fulmarus glacialis*)



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Northern Contaminants Program

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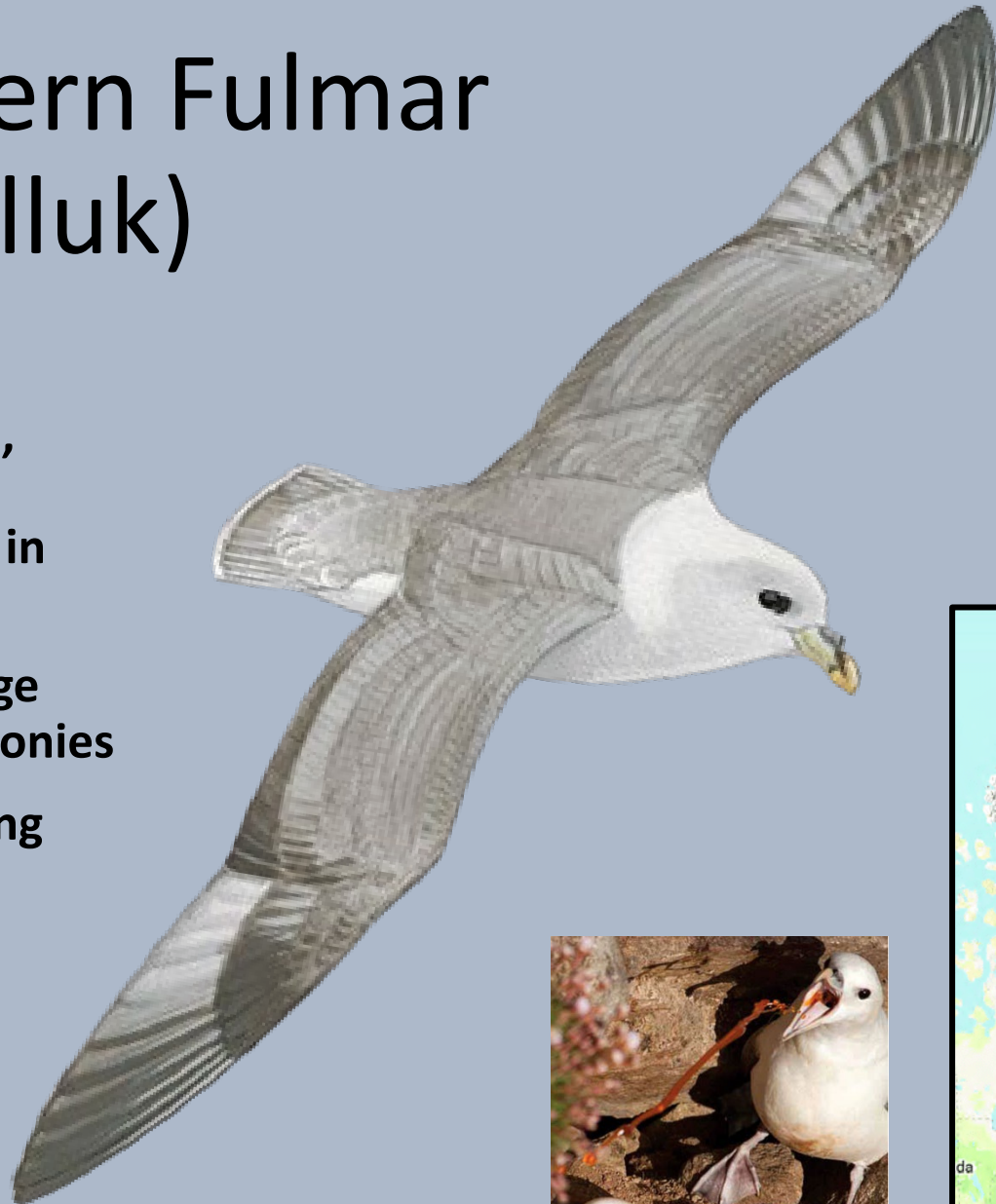


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Northern Fulmar (Qaqulluk)

- Widespread, circumpolar distribution in the north
- Breed in large cliff-side colonies
- Pelagic during winter

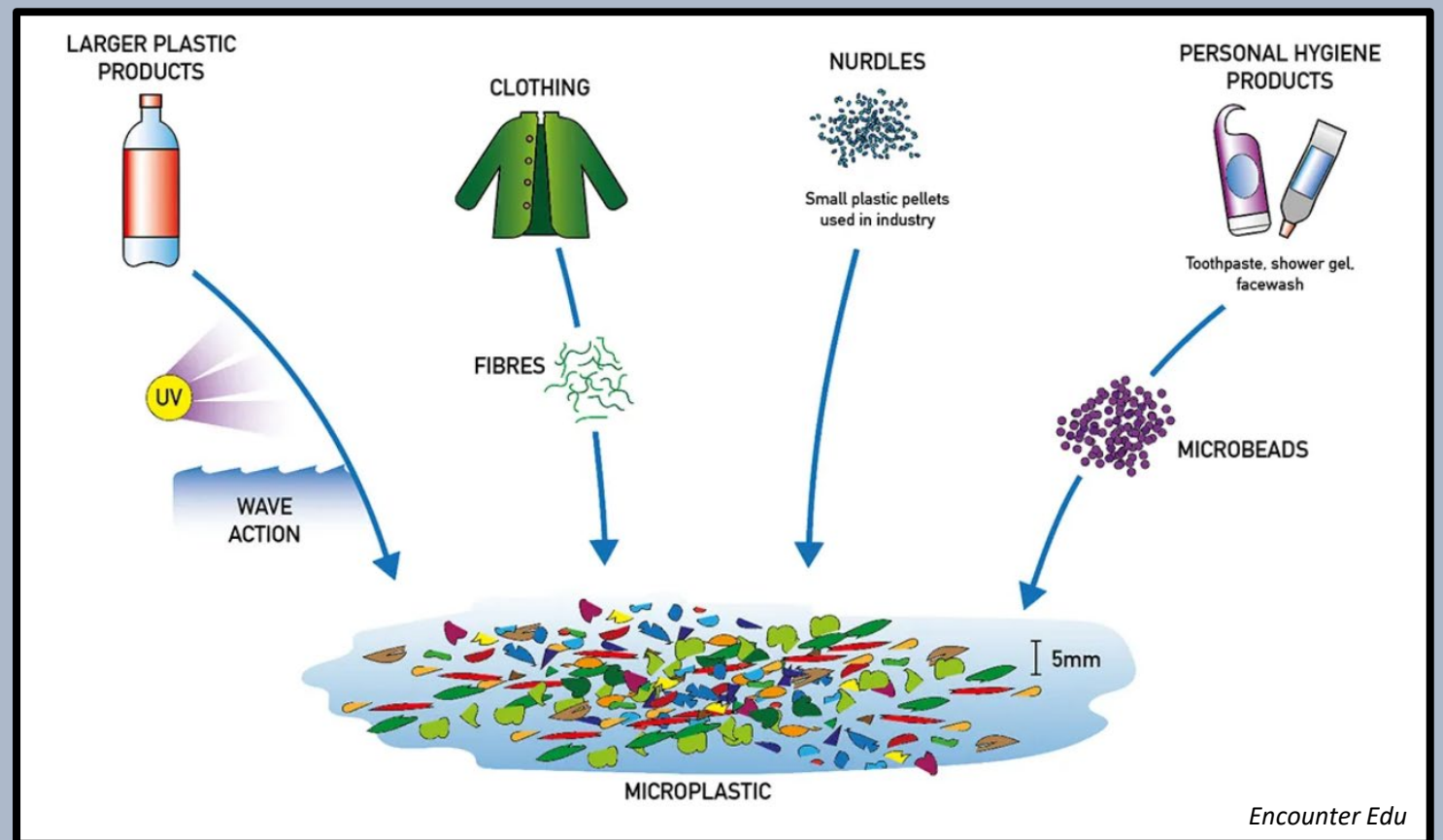


- Surface foragers
- Vast foraging range
- Well-developed olfactory senses
- Opportunistic generalists
- International biomonitor for marine plastics



Plastics in the Ocean

- Present in every ocean
- 19-23 million tonnes/year
- Shipping vessels, fisheries, residential effluent, industrial pellets
- Harmful contaminants
- Health risks to humans and wildlife
- Ingestion, entanglement, strangulation



Plastics in the Arctic

- Prevalent in remote areas
- Present in all levels of the food web
- Distant sources
 - Ocean currents
 - Biotransport
 - Ship traffic
- Local plastics input is low
- Projected to increase

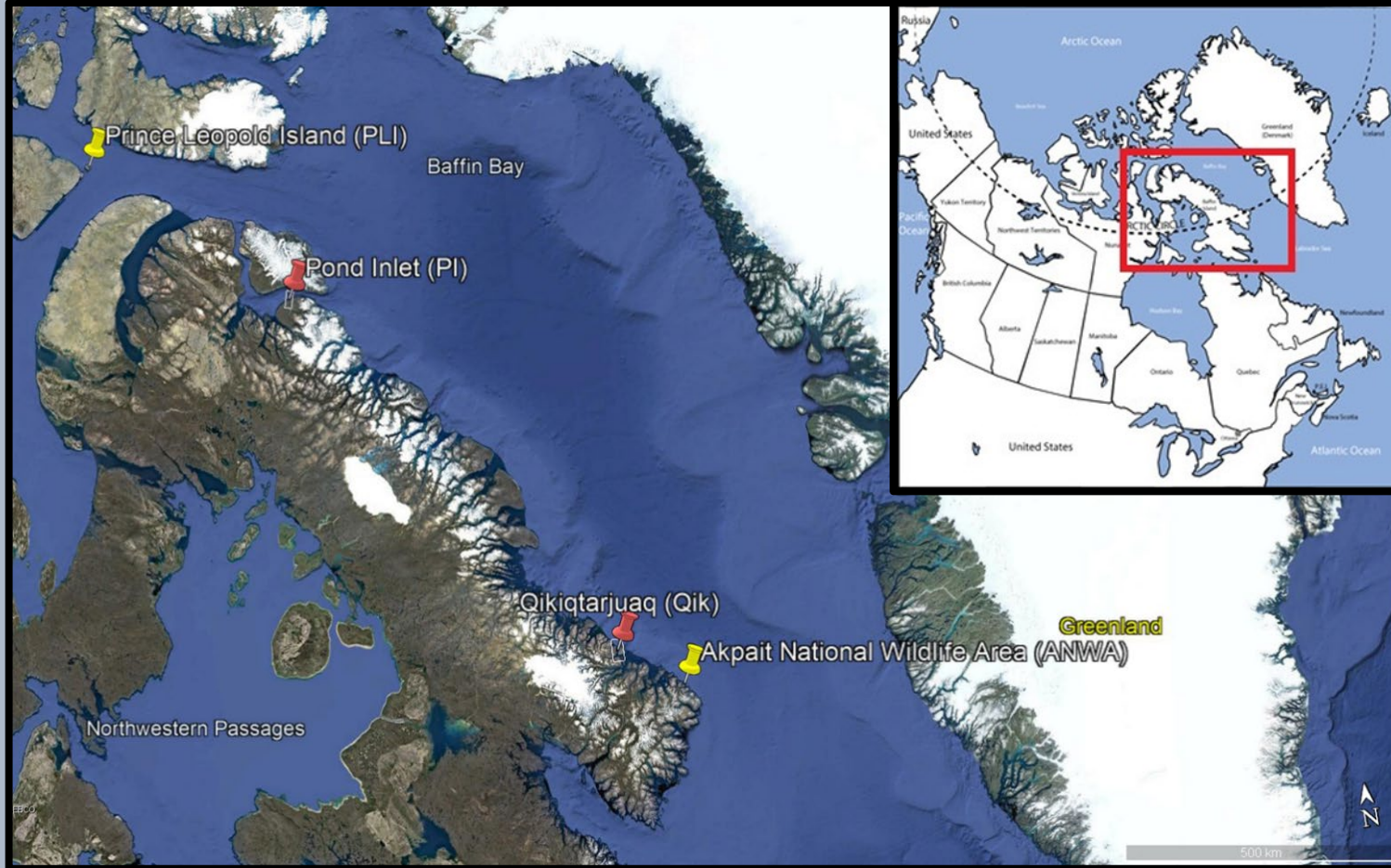
**plastic pollution + climate
change
=
tremendous pressure on Arctic
ecosystems**



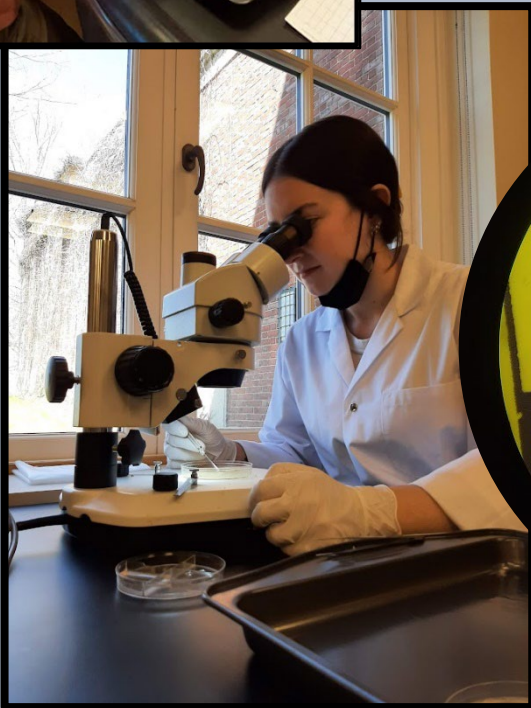
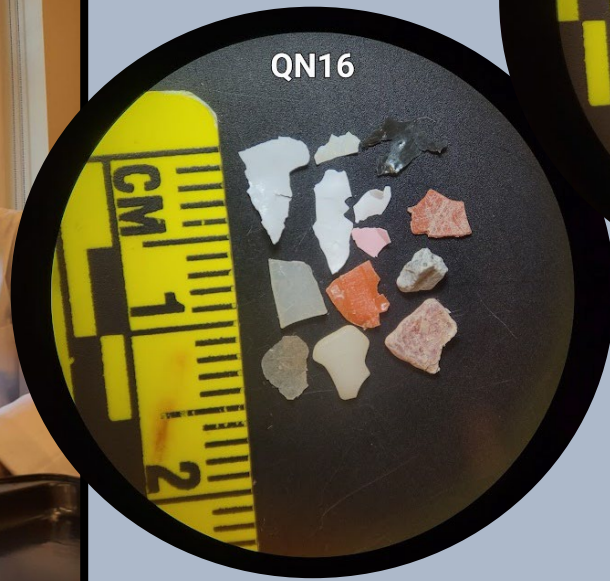
Objectives

- **Quantify frequency of plastic occurrence in Northern Fulmars**
 - **From 2 colonies in Canadian Arctic**
 - **Compare data to previous years**
 - **Compare frequency of occurrence between the 2 colonies**

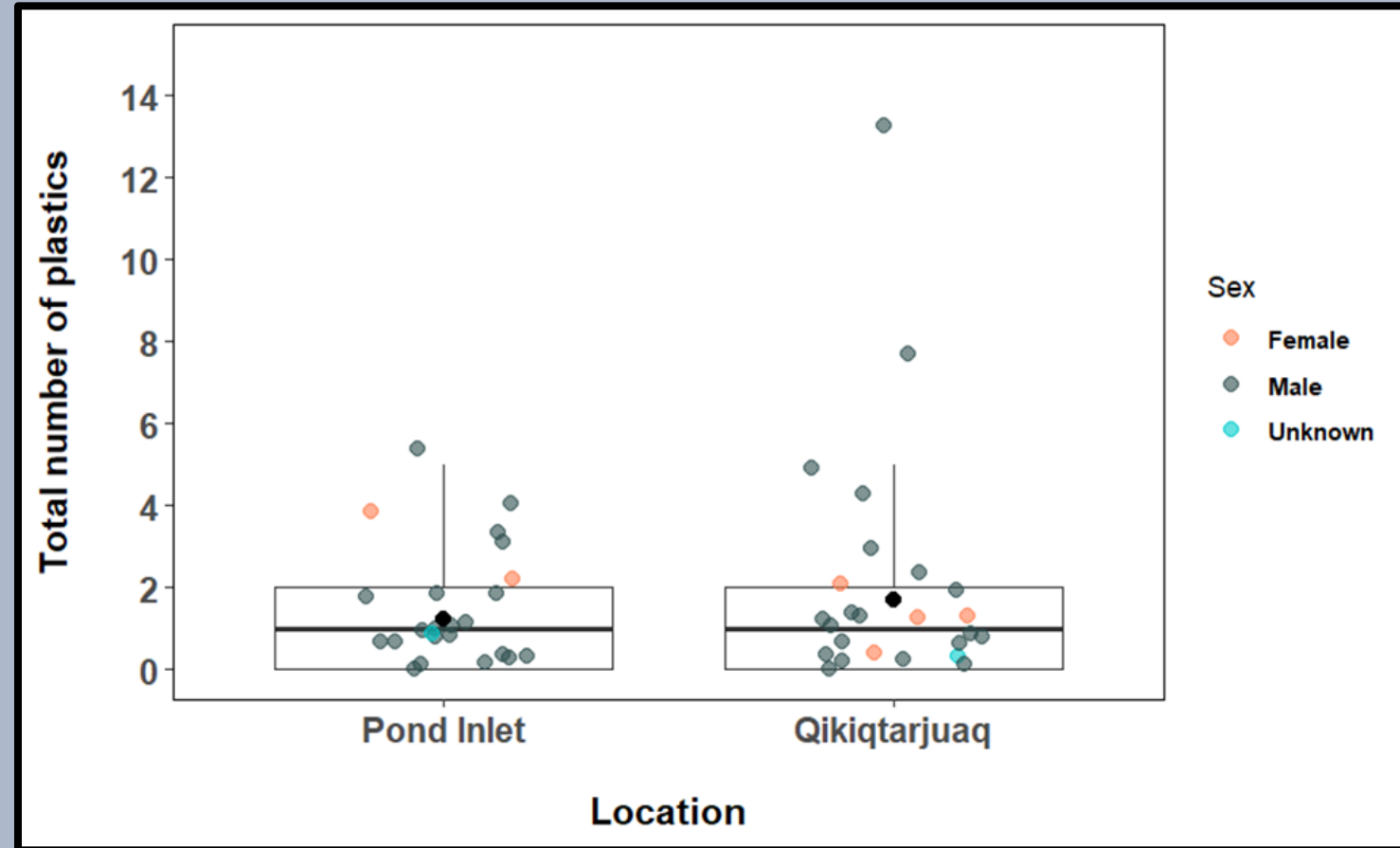
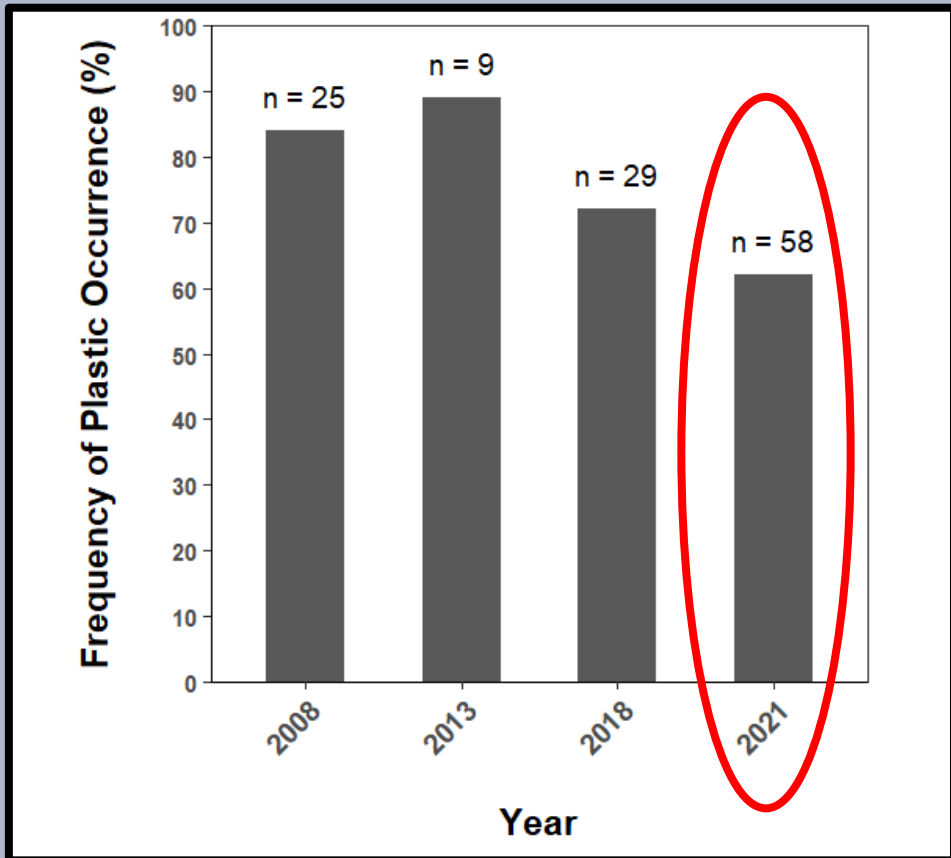
Study Area & Sample Collection



In the Lab



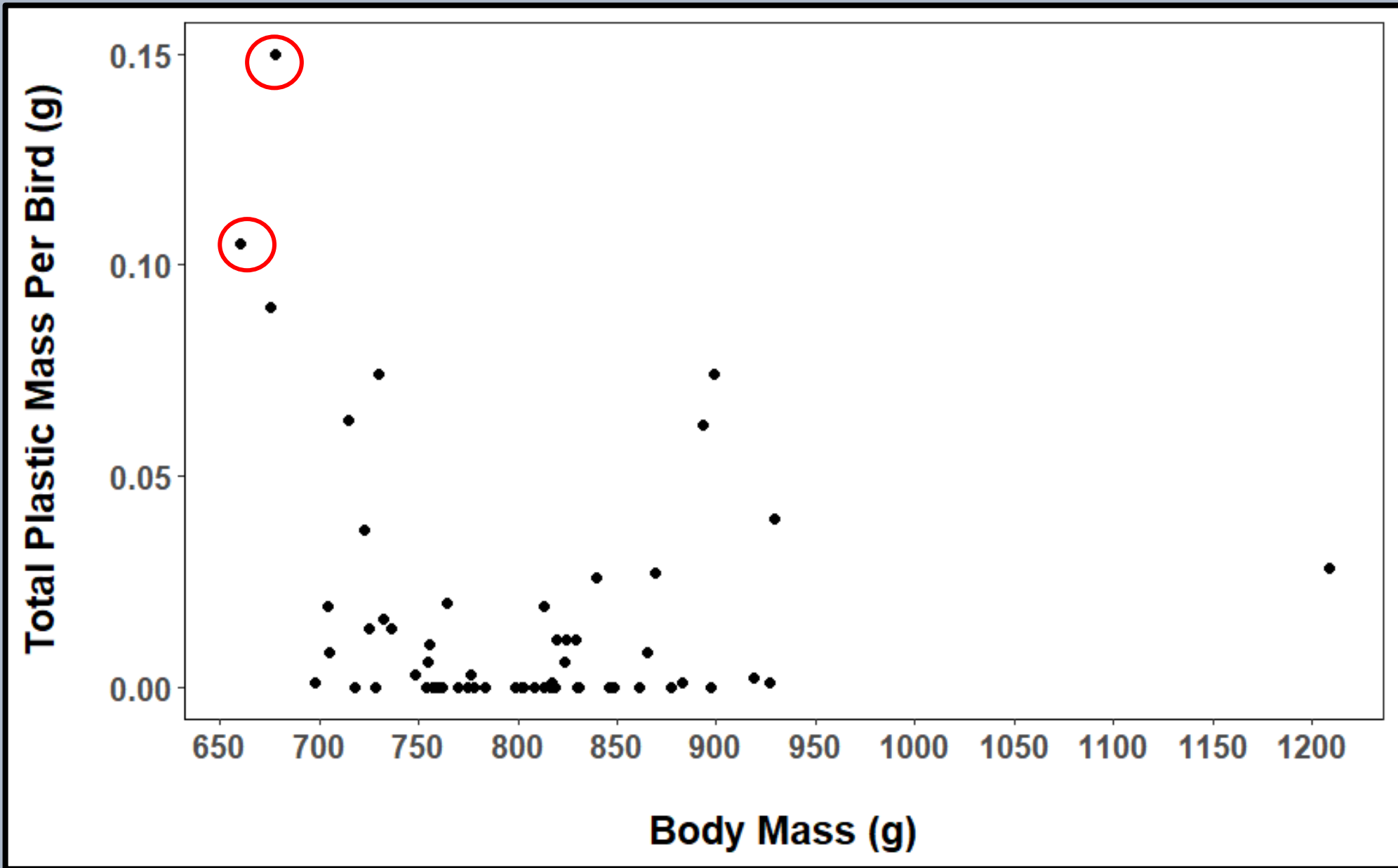
Results



- 62% frequency of plastic occurrence
- Lower than past years

- Similar results between colonies
- Pond Inlet mean: 1.2 pieces
- Qikiqtarjuaq mean: 1.5 pieces
- 2 outliers in Qikiqtarjuaq

- Average mass of plastics/bird = 0.027 g
- 2 birds (3.5%) contained > 0.1 g of plastic mass
 - Both from Qikiqtarjuaq



Key Takeaways



Fewer fulmars contained plastic in 2021 than previously

First report of plastics in Eclipse Sound fulmars

Fulmars in north equally as exposed to plastic as fulmars farther south

Fulmars remain an important biomonitoring tool for plastics in the North

Next Steps

- **Ongoing monitoring**
- **Thesis Ch. 2:**
 - Analyze dietary items from my samples
 - Compare to historic diet data
 - Determine potential dietary shifts from climate change

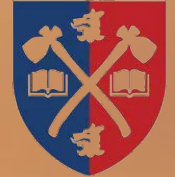


Thank You!



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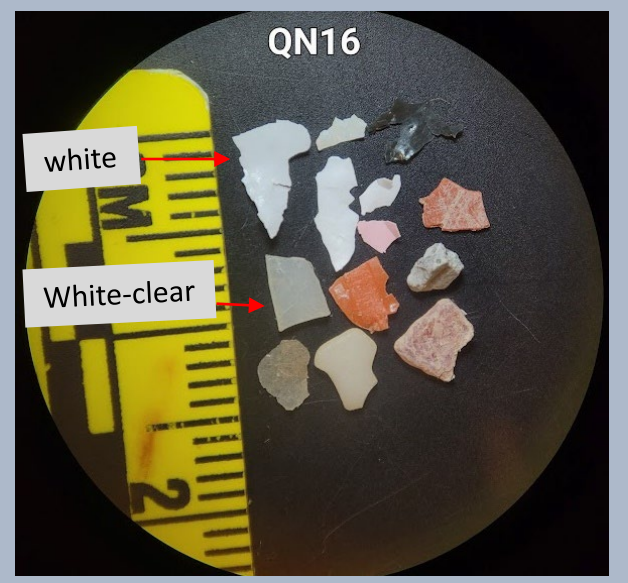
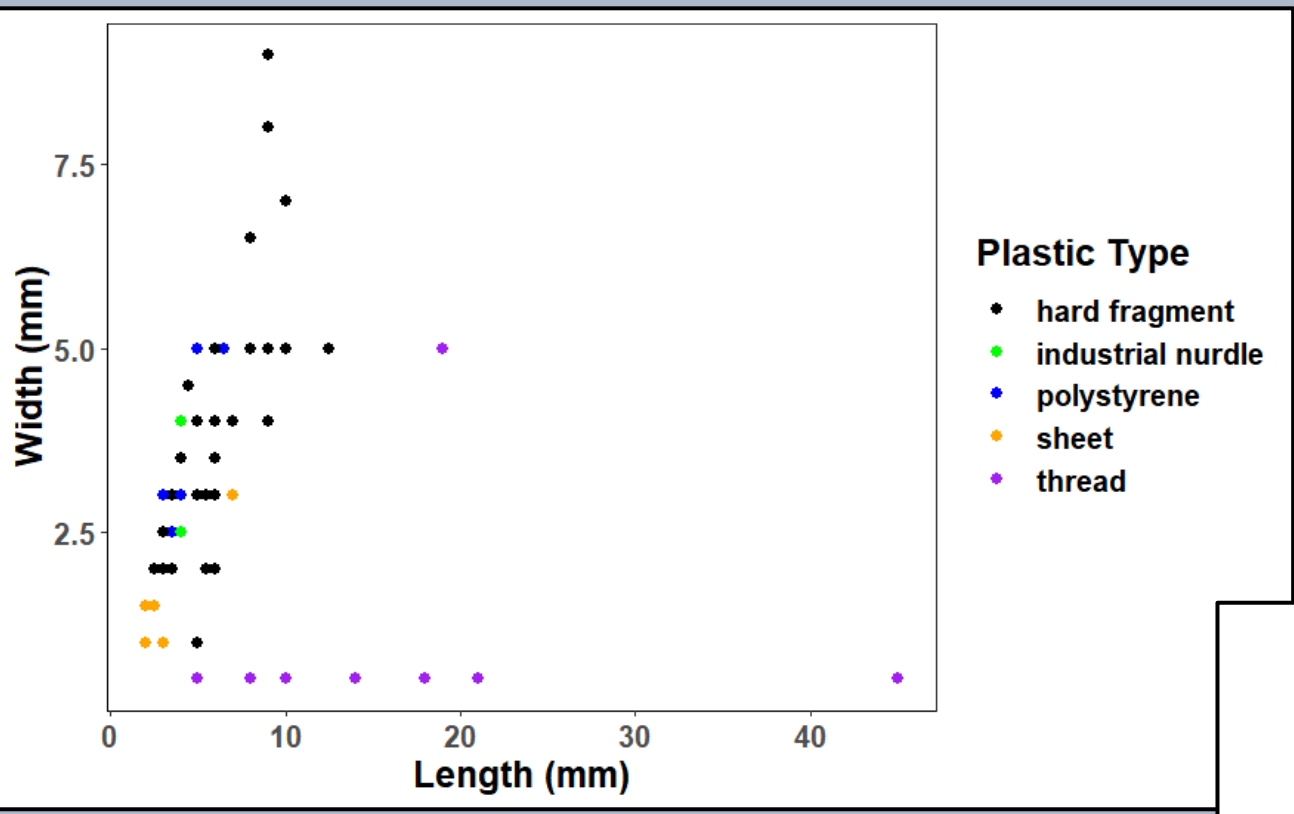


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- 43.5% white
- 13% white-clear
- 9% yellow

- 85 pieces
- 61% hard fragments
- 19% sheet plastics
- 3 nurdles from Pond Inlet fulmars

