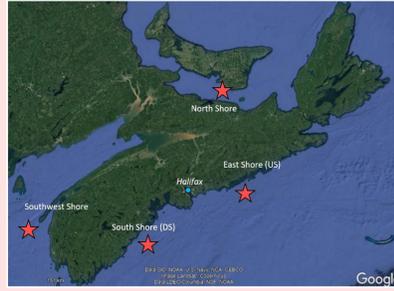




Introduction

Microplastics are plastic pieces between the sizes of 5 mm (grain of rice) and 1 μ m (micron) (60x smaller than width of human hair). They have been found in seafoods including lobsters¹ and in humans². Currently evidence suggests adverse health effects caused by their ingestion^{1, 3}. Microplastics also contain and carry other contaminants such as hormone-disrupting additives, heavy metals and pharmaceuticals, among many others. These associated contaminants may then be absorbed following ingestion or released into the surrounding environment⁴.



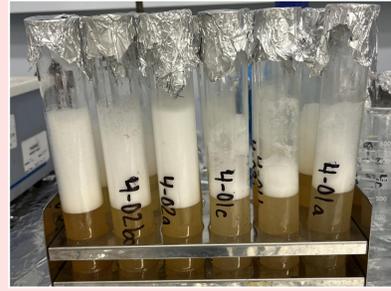
1) Sample site locations



2) Purchased lobsters



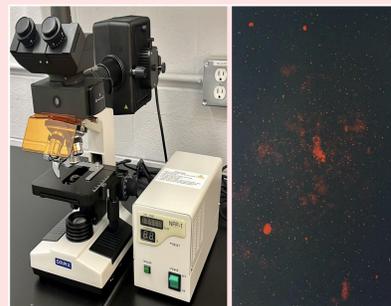
3) Preparing a sample



4) Digesting organic material



5) Filtering digested samples



6) Fluorescence microscopy

Methodology

16 lobsters from four sites in NS were collected summer 2022. Four lobsters per site (male, female, 1lb, 2lbs) per site were purchased from local sellers. Tail muscle tissue (~10 g) was heated to 40°C and organic material dissolved with 10% KOH and 30% H₂O₂ solutions. This was filtered onto 2.2 μ m fiberglass filters and analyzed with a fluorescence microscope to find particle abundance, shape, size. A subset of filters (10%) will be analyzed with Raman micro-spectroscopy to find particle composition.

Objectives

1. Determine if lobsters from NS contain microplastics, and characterize the contamination (abundance, composition, particle size, associated contaminants, etc.)
2. Investigate if sex and/or size and/or spatial distribution influences contamination characteristics

Anticipated Results

1. I expect to find the presence of microplastics in samples
2. Will provide foundational information on microplastics and associated contaminants in lobsters
3. Will inform future studies on microplastics in the ocean, commercial seafood / other foods intended for human consumption

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