Investigating Microplastic Contamination in American Lobster (Homarus americanus) from Mi'kma'ki (Nova Scotia), Canada

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Abstract

Global plastic production is ever-increasing and consequently, so is plastic pollution. As plastics move through the environment, they break down into micro-sized pieces called microplastics. These particles can contain harmful additives and carry surrounding contaminants with them. Microplastics are ingested by various marine organisms, such as lobsters. Ingestion occurs when microplastics are mistaken for food, following consumption of contaminated prey, and simply due to their abundance within the environment. Existing studies have consistently found large plastics and microplastics within lobsters, though most studies are not from within Canada, focus more on non-muscle tissues, and few have investigated the presence of microplastic-associated contaminants. This lack of knowledge represents a gap in commercial fisheries microplastics research, especially as lobster is the largest fishing industry in Canada. My objective is to measure the extent and characterize microplastic contamination in commercial American lobsters' tail tissue collected from four regions of Nova Scotia, Canada. I will determine the number of microplastics, particle sizes, and types of plastics present within this tissue. To investigate associated microplastic contaminants, the tissue will also be analyzed for common heavy metals. My research will generate some of the first data on microplastic contamination in lobsters within Canada. I hope to provide valuable information to fisheries microplastic research, policy, and management focused on protecting the health of lobsters, other commercial marine species, and seafood consumers.

Keywords: Microplastics, American Lobster, Atlantic Ocean, Associated Contaminants

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