

Observing the Effects of Microplastics on Tissue Structure & Larval Development in Marine Snails

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A happy snail & *Corophium* sharing the mud

Objective: This study was conducted to determine whether environmentally relevant concentrations of microplastics effects tissue structure and larval development in the Eastern mud snail (*Tritia obsoleta*).

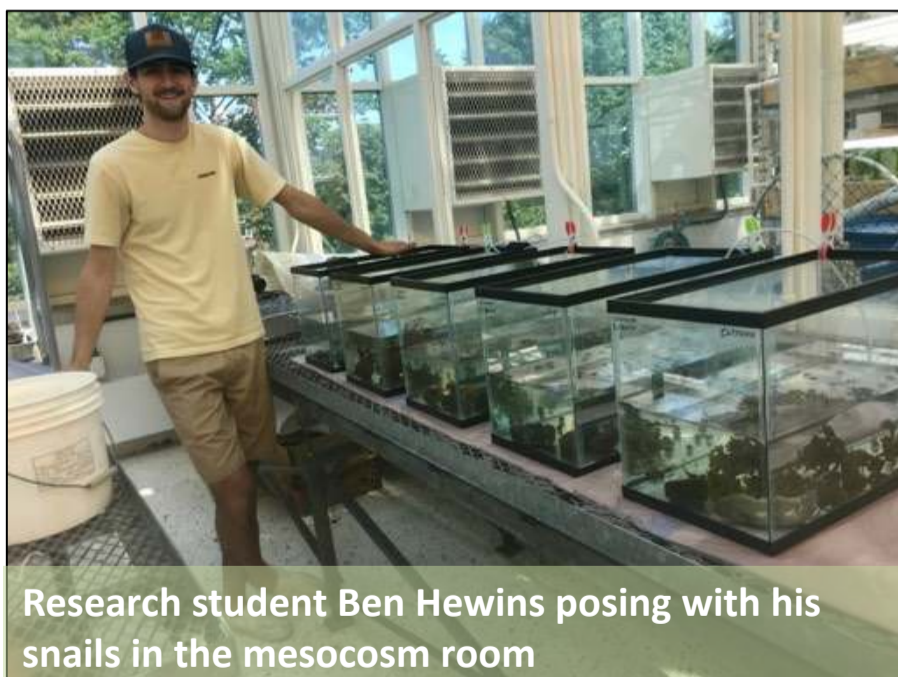
Microplastics are small plastic fragments that are found in our oceans and water systems. Microplastics may be defined as any plastic fragment less than 5mm in diameter. These fragments are created by direct introduction from facial scrubbers and cosmetic products, or by the degradation of larger plastics such as water bottles, from UV radiation, tidal agitation, or chemical abrasion.

These tiny particles are reaching a near-ubiquitous status in our oceans, and accumulate in marine sediments, posing a risk to organisms that rely on sediments for habitat and food.

Mature male and female snails were collected from Avonport Beach, Nova Scotia, brought back to the K.C. Irving Centre Environmental Science Centre, and placed into six aquaria. Each aquarium represents an experimental group (field, control, low plastic, high plastic, extreme plastic, biodegradable plastic). Microplastics were created by collecting plastics from a local beach and grinding them into small fragments. Following four weeks of exposure to the snails to microplastics in their diet (biofilm), tissues will be analyzed with histology and scanning electron microscopy (SEM) to visualize how tissue structure changes in response to microplastics in the snails diet.



Plastics collected in the field



Research student Ben Hewins posing with his snails in the mesocosm room

Scanning electron micrograph of microplastic fragments. Image courtesy of Haixin Xu- Acadia Centre for Microstructural Analysis (ACMA)

