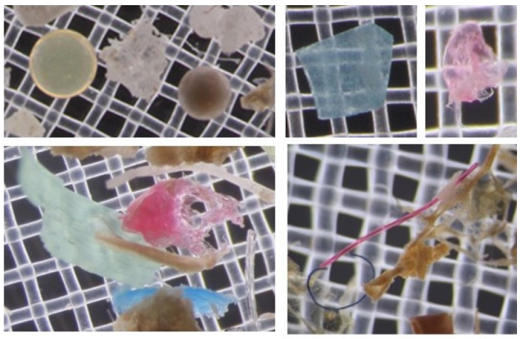
DRBC to Study Microplastics in the Delaware Estuary



As seen under the microscope: microplastics collected from the Delaware Bay by University of Delaware researchers. Photo courtesy of the University of Delaware.

Plastic is perhaps the most prevalent type of debris found in our oceans, rivers, and large lakes. Plastic debris comes in all shapes and sizes, but those that are less than five millimeters in length (or about the size of a sesame seed) are called microplastics." These tiny particles easily pass through water filtration systems and end up in receiving waters. Over time, larger plastics degrade into microplastics, but microplastics also include man-made products such as the following:

- Microbeads, found in cosmetics and personal care products;
- Industrial scrubbers used for abrasive blast cleaning;
- Resin pellets used in the plastic manufacturing process; and
- Microfibers, generated from washing synthetic clothing

Not much is known to date about microplastics and their impacts on human health and aquatic life. To date, few microplastics studies have been conducted in the Delaware River Basin. Understanding the inputs of microplastics is a vital first step towards understanding the prevalence and potential problems posed by this contaminant. In 2018, DRBC received a grant from the Delaware Watershed Conservation Fund to monitor for microplastics and model loadings of microplastics in the upper Delaware River Estuary—from Trenton, N.J. to the C&D Canal. This reach of river is largely urbanized and is likely a major contributor to microplastics found in the estuary and bay.

This project will provide greater detail into how microplastics are distributed in this section of the basin and which source tributaries are introducing the most microplastics. DRBC will collect samples from four sites in the upper Delaware River Estuary and ten tributary sites. Samples will be collected in spring and fall 2019 and will be analyzed for microplastic concentrations. Data collected during microplastic monitoring efforts will be used to model microplastic dynamics in the estuary. These models will allow us to identify high plastic-loading tributaries, which will be targeted for cleanup efforts.

Removing large plastic debris prevents fish and wildlife from becoming entangled in objects like cords, nets, and beverage containers. On a finer scale, removing these debris before they have a chance to break down will reduce the presence of microplastics and lower the risk of other harmful chemicals entering the basin's waters. These cleanup efforts will also provide outreach opportunities to educate the public about the complex problems associated with plastics and microplastics. The effects of this public education will hopefully reach beyond the actual cleanup efforts and into our communities.

This project will provide DRBC with a better understanding of the concentration and distribution of microplastics in the upper Delaware River Estuary and will lay the groundwork for future microplastics monitoring and cleanup efforts in the basin and beyond.

Learn more at https://www.nj.gov/drbc/quality/reports/microplastics.html

Delaware River Basin Commission
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DRBC: Managing, Protecting & Improving the Basin's Water Resources Since 1961

- The DRBC is a federal-interstate compact agency. Its members are the governors of the four basin states & the Commander of the U.S. Army Corps of Engineers' North Atlantic Division, who serves as the federal representative.
- DRBC was formed in response to major water resource challenges requiring regional solutions, and to this day is a successful model for federal-state collaboration.
- DRBC programs include water quality protection, water supply allocation, regulatory review, water conservation, drought management, watershed planning, flood loss reduction, and education/outreach.
- In its 50+ years, DRBC has achieved many noteworthy accomplishments, including:

⇒ DRBC regulations helped dramatically improve dissolved oxygen levels in the Delaware Estuary, allowing for resident and migratory fish populations to thrive;

⇒ DRBC's Special Protection Waters program protects the existing high quality waters of the river's non-tidal watershed;

⇒ DRBC's Pollutant Minimization Plan regulations have helped to significantly reduce PCB loadings to the river; and

⇒ DRBC has been recognized for its comprehensive water conservation, drought management, and watershed planning programs.

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