Light Extinction Sampling

* Model light extinction dynamics in the Estuary in the support of the eutrophication model
* Eutrophication model has a light extinction sub-model
  * Create a Delaware Estuary specific light extinction model
* Repeat of a 2018 project
* Collect a variety of parameters related to light extinction
  * 2018 - PAR, TSS, CDOM, chlorophyll a, turbidity, secchi depth
    * DO, temp, cond, pH
  * 2019 – adding color and DOC
* Samples collected from Trenton to Wilmington
* Sample locations are randomly distributed with 15 samples in each of zone 2, 3, 4, and 5.
* Total of 60 samples per event
* 3 sampling events scheduled for 2019. 1 each in July, August, and September
  * Goal is to get some low flow samples

Primary Productivity Sampling

* Collect estimates of primary productivity in Upper Estuary in support of the eutrophication model
* Repeat of project from 2018
* Extension of project from 2014 in which samples were collected in Delaware Bay
* Two events, May and July
* 5 longitudinal transect per event spaced evenly from Trenton to Wilmington
* 3 sites per transect with a surface and bottom sample collected at each site
* Total of 30 samples per event
* Water samples are sent to Tom Fisher at University of Maryland for analysis

Estuary Microplastics

* Received a NFWF grant for this work
* Sample water column microplastics in the upper portion of the estuary and tributaries
    * 10 tributary bridge sites and four mainstem boat sites
* Samples will be collected in July and October
* Analysis will be done by Temple WET center
    * FTIR imaging will be used to identify and quantify the types of microplastics
* Two-year, two part project
    * Year one will be sample collection and analysis
    * Year two will be targeted volunteer cleanup efforts in watersheds with high plastic loadings
* Compare findings to other agencies in the basin conducting similar work

Microplastics collected from Delaware Bay
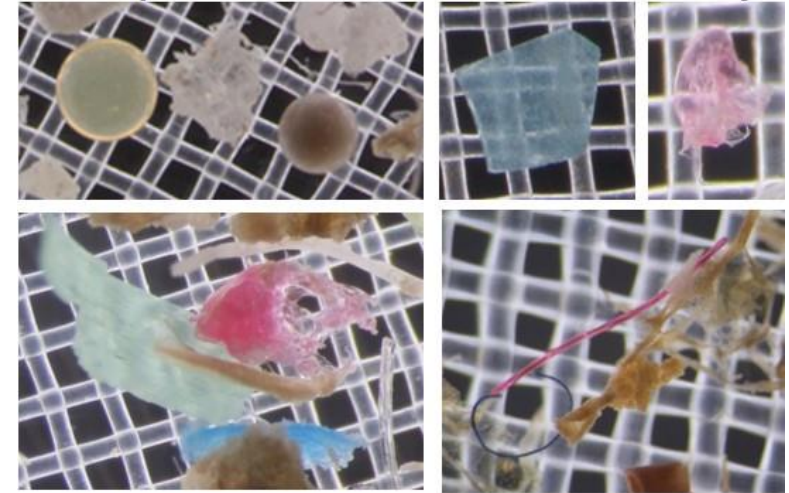
University of Delaware

Mussel Cage Study

* Collaborating with PDE to install mussel cages in the mainstem Delaware upstream and downstream of the Lehigh
    * Lehigh may be introducing poor quality water into the mainstem Delaware
    * Caged mussels will act as a potential bio-indicator of water conditions upstream and downstream of Lehigh
* Details are still in development but…
    * Install cages in August
    * Cages will be stocked with juvenile alewife floaters
    * Roughly 12 cages upstream and 12 cages downstream of lehigh
    * At a minimum, mussel will be monitored for growth and survival
    * Water quality measurement will be taken
    * Collect and freeze a subset of the mussels at each sampling event for potential future tissue chemical analysis.