GIT Funding Project Overview

Water Quality Goal Implementation Team

Assessing Biological Effects of Plastic Pollution Exposure on Young-of-Year Striped Bass (Morone saxatilis) in Chesapeake Bay and its tributaries

- In order to develop a complete ERA, the PPAT requires additional data on:
  1) Presence of microplastic contamination in mysid shrimp collected in the Chesapeake Bay and its tributaries. Quantitative food web analysis previously conducted for the preliminary ERA has shown that mysids are a very important prey item for striped bass.
  2) Biological impacts on YOY striped bass fed with mysid shrimp contaminated with microplastics. Examples of biological impacts include, but are not limited to, hepatosomatic ratio, growth, stress response, and mortality.
- The PPAT is interested in funding a proposal that couples a lab-based study examining biological impacts of microplastics on YOY striped bass fed with contaminated mysid shrimp, with field surveys sampling mysid shrimp in the Chesapeake Bay and one or more of its tributaries for microplastic contamination

Project Timeline

Step 1: Study Preparation and Field Surveys

In Step 1, the Awardee will work with the CBP to develop and approve a Quality Assurance Project Plan (QAPP) for both the field and laboratory studies. The Awardee will work with the PPAT to select site for field surveys to collect mysid shrimps and YOY striped bass. Environmental load samples will be collected for representative laboratory studies.

- Months 0-4 – Develop QAPP and Sampling Plan
- Months 5-7 – Collect Field Surveys

Step 2: Exposure Studies

In Step 2, the Awardee will complete a laboratory exposure study

- Months 8-12 – Exposure Study (expose YOY striped bass to microplastic dosed mysid shrimp to evaluate biological impacts)

Step 3: Analysis and Reporting

In Step 3, the Awardee will summarize the findings from the survey and present them to the Plastic Pollution Action Team at a meeting. The Awardee will then draft a report of the findings and share with the PPAT for comments. A final draft will be submitted to the Chesapeake Bay Partnership with PPAT comments considered.

- Months 12 -16 – Data Analysis
- Months 17 –20 – Report Draft
- Months 21 – Comment Period
- Months 22-24 – Final Report

Proposed Outcomes

- Data on microplastic contamination in young-of-year (YOY) striped bass sampled from Chesapeake Bay and its tributaries.
- Data on physiological impacts of microplastic contamination on YOY striped bass.
- Study findings should lead to additional data on the exposure of YOY striped bass to microplastics and characterization of risk of microplastic exposure on YOY striped bass inhabiting Chesapeake Bay.
- This will support the completion of an ecological risk assessment being developed for striped bass by the CBP Plastic Pollution Action Team.

Next Steps

- September 28th – Technical sessions for questions and review
- Early/Mid October – Final notifications if projects were selected
- Mid/End October – Projects are posted in Chesapeake Bay Trust's website