

Quarterly Progress Report

Mercury and Plastic in Commercial and Recreational Fisheries in Lavaca, Matagorda, and San Antonio Bays: Risk Assessment and Interaction between the Two Contaminants

December 2021 Quarterly Report

Work Performed in Previous Quarter

Research progressed during the last quarter. At TAMUCC, progress was slower than Texas State. However, in late November, our new Postdoctoral researcher, Dr. Oluniyi Fadare, arrived in the U.S. His arrival will help generate steady progress each quarter and potentially help us catch back up. At Texas State, Dr. Dutton's lab continued sampling fish and shellfish from the three bay systems.

Objective 1. In the TAMUCC lab, we looked for plastic debris in the stomachs of 90 fish (30 red drum, 30 flounder, and 30 croaker). Only a couple of red drum had plastic in their stomach. However, the material found was all related to fishing. It was either a fishing line with a hook attached or a fishing lure. We will collect more fish stomachs in the coming months, but if we continue to find no visually evident plastic debris in the fish stomachs, we will likely scale back or stop this part of our sampling.

With Dr. Dutton's research, they have collected significant portions of their fish samples. Some of the stomachs from these fish will be examined in the TAMUCC lab for plastic debris. Information related to Dr. Dutton's work is described in more detail below because while it partially relates to Objective 1, it is more directly related to Objective 4.

Objective 2. No activities started. We have, however, started preliminary discussions on logistics and experimental design.

Objective 3. No activities started.

Objective 4. Below is a list of the species collected by Dr. Dutton during the last quarter.

- Red drum, black drum, spotted seatrout, flounder, striped mullet, and Atlantic croaker collected from Seadrift, Matagorda Harbor, Port O'Connor, Port Lavaca, and Palacios. The required sample size for some species at some sites has been reached.
- Shrimp, blue crab, and oysters have been collected from Seadrift, Matagorda Harbor, Port O'Connor, Port Lavaca, and Palacios. The required sample size for most species at most sites has been reached.

These samples are now being processed for freeze-drying in preparation for Hg and Se analysis. Freeze drying and Hg analysis will start in January for species with the required sample size. Dr.

Dutton is also working with Diane Wilson to obtain fish and shellfish from the closed area of Lavaca Bay. Collections should start in January. Last, they are trying to find a way to get muscle samples from black drum and sheepshead, as they have not been caught during sampling so far. Gafftopsail catfish are challenging to find, so they are switching to hardhead catfish.

Potential long-term issues going forward. As mentioned above, we have not found much material in fish stomachs so far. We will look at more in the coming quarters, but we may reduce this aspect of the research. This reduced workload will also lessen some spending, which would partially compensate for the increased costs associated with field research due to higher fuel prices, rental cars, and lab consumables due to inflation/etc.

Invoice Amount

Work Anticipated in the Next Quarter

In the upcoming quarter, project meetings will continue. TAMUCC will collect samples on December 15-16, 2021 (which is complete) and will potentially collect the next quarterly samples in early March 2022. These samples will be processed in the lab during the quarter. At Texas State, Dr. Dutton's group will continue fish sampling and being Hg and Se analysis.