Quarterly Report for Matagorda Bay Mitigation Trust
December 30, 2022

Project:
Trophic linkages and habitat connectivity of popular sportfish in the Matagorda Bay system
Organizations:
[1]Center for Sportfish Science and Conservation (CSSC) at Harte Research Institute for Gulf of Mexico Studies Texas A&M University at Corpus Christi
[2]Texas State University (TSU), Department of Biology
Investigators:
Kesley G. Banks, Ph.D.[1] (PI)
Matthew K. Streich, Ph.D.[1] (Co-PI)
Jessica Dutton, Ph.D.[2] (Co-PI)
Contract No.: 022
Project Term: 03/01/2022 – 02/28/2025
Reporting Period: 9/1/2022 – 11/30/2022 (3)

The contracted project with the Matagorda Bay Mitigation Trust was initiated as of March 1, 2022. The overall goal of this study is to evaluate the movement patterns, trace element concentrations (i.e., potential contaminants), and trophic linkages between three recreationally exploited sportfish species (black drum, red drum, and spotted seatrout) and their prey items in Matagorda Bay to determine whether movements throughout the bay system identified via acoustic tracking expose these sportfish to varying concentrations of trace elements.

Task 1 - Sample acquisition and TEXAAN maintenance: acoustic tagging of fish, sample acquisition for stable isotope/trace element analyses, receiver array [TEXAAN] installation, expansion, maintenance, and download.

Status: Ongoing

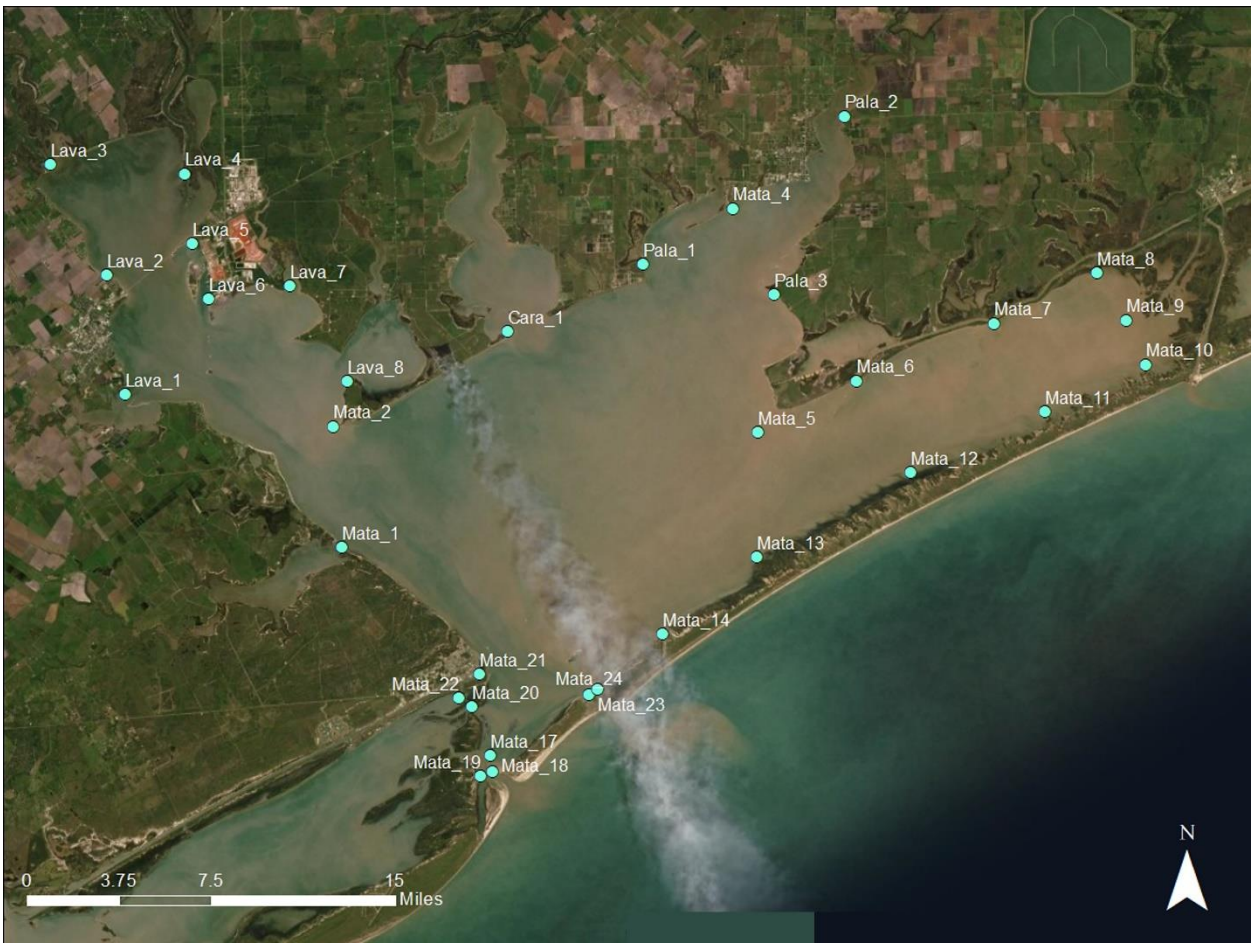
Spring ‘22

- CSSC purchased acoustic receivers, tags, and batteries to expand the TEXAAN and tag selected fish species as appropriate.
- CSSC received tags and receivers and has begun preparations for deployment of the acoustic transmitters. Tagging and equipment deployment will be initiated in the next quarter.
- CSSC purchased various lab supplies and fishing tackle as preparation for upcoming field operations.
- A field laptop was purchased with contributed funds from this project. This laptop will allow for efficient downloads and troubleshooting of acoustic equipment in the field.

Summer ‘22

- CSSC deployed 13 receivers to expand the TEXAAN. Eight were deployed in Lavaca Bay, 3 were deployed near Palacios, and 2 near Pass Cavallo.

- Two receivers previously deployed in Port Lavaca were downloaded and redeployed.
- CSSC acoustically tagged 10 red drum and 1 trout.
- TSU has started sampling sportfish in the closed/impacted area and have obtained 2 red drum, 1 trout, and ~10 black drum for toxicological analyses.
- TSU has collected oysters, mullet, and blue crabs representing prey items for toxicological analyses.



Fall ‘22

- CSSC acoustically tagged 5 red drum, 1 black drum and 5 trout.
- CSSC downloaded and replaced 29 receivers in the TEXAAN.
- TSU has completed sampling for the below listed sportfish in the closed/impacted area: red drum and black drum.
- TSU has completed sampling for oysters and mullet representing prey items for toxicological analyses.

Task 2 – Laboratory analyses: stable isotope and trace element analyses.

Status: Ongoing

Spring ‘22

- Nothing to report for this quarter as field sampling will begin in the next quarter.

Summer ‘22

- Nothing to report for this quarter as field sampling is on-going.

Fall ‘22

- Nothing to report for this quarter as field sampling is on-going. Trace element and stable isotope analyses will begin next quarter on species that targeted sampling quota has been met.

Task 3 – Data processing and administrative tasks: data processing and administrative tasks such as writing reports, invoicing, outreach materials, and disseminating results.

Status: Ongoing

Spring ‘22

- CSSC conducted project management, internal project team meetings, and task coordination.

Summer ‘22

- CSSC conducted project management, internal project team meetings, and task coordination.
- TSU recruited Miranda Sams, an M.S. student who will complete the project for her thesis.

Fall ‘22

- CSSC conducted project management, internal project team meetings, and task coordination.