

**Quarterly Report for Matagorda Bay Mitigation Trust  
Colorado River Delta II  
September 30<sup>th</sup>, 2025**

**Project:**

Relating variation in freshwater inflow and water quality to biological communities in the Colorado River Delta to inform future habitat restoration projects.

**Organizations:**

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<sup>2</sup>BIOWEST, INC.

**Investigators:**

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**RFP#:** 2023-2024-01

**Project Term:** 03/01/2024 – 08/31/2026

**Reporting Period:** 3/1/2024 – 8/31/2025 (6)

The contracted project with the Matagorda Bay Mitigation Trust was initiated as of March 1, 2024. After this date, we identified and received approval for a subcontractor with expertise in areas not covered by researchers at Texas A&M University-Corpus Christi. Areas for subcontract expertise include facilitation and coordination of meetings with potential sponsors of a pilot project to assess feasibility of controlled additions of freshwater to the Colorado River Delta and evaluating whether such additions may result in ecological benefits at potential habitat restoration sites. A technical memorandum will summarize key findings and recommendations. The chosen contractor was BIOWEST, Inc. and a subaward was issued to this group in March 2024 in the amount of \$25,000.

**Task 1 – Nekton Distribution & Community Structure:** Conduct a comprehensive assessment of juvenile finfish and shellfish distribution and community structure within the Colorado River Delta study area.

Status: Ongoing

Spring '24

- CSSC performed first of two sampling events for Spring 2024 on April 17<sup>th</sup>, 2024. Three epibenthic sled samples were taken at four sampling sites (CD\_1, CD\_2, CD\_4, CD\_5), totaling 12 samples, see map. All samples were preserved in 10% formalin and returned to CSSC Lab. Water samples were also collected at five sites (CD\_1, CD\_4, W1, W2, W3) and delivered to Dr. Wetz's lab later that same day. Lastly, water was recorded at two sentinel sites (Sal\_1, Sal\_2).
- CSSC performed the second Spring sampling event on May 1<sup>st</sup>, 2024. Epibenthic samples and water quality samples were taken from predetermined sites. Water

quality was also measured at sentinel sites. Currently CSSC lab has 24 epibenthic samples in house.

#### Summer '24

- CSSC carried out the first summer sampling trip on August 28<sup>th</sup>, 2024. Three replicate epibenthic sled tows were performed at four standard sites, resulting in 12 marsh edge nekton samples preserved and returned to lab. Water parameters were recorded at all sites in addition to two additional sites. Water samples for the Wetz lab were collected at 5 sites and handed over that night.
- CSSC performed second summer sampling on September 9<sup>th</sup>, 2024. Epibenthic samples and water quality samples were taken from predetermined sites. Water quality was also measured at sentinel sites and water samples were collected and passed on to the Wetz lab. Currently CSSC lab has 48 epibenthic samples in house and has begun identifying, enumerating, and measuring species.

#### Fall '24

- CSSC sampled for Fall of 2024 on October 30<sup>th</sup> and November 18<sup>th</sup>. Epibenthic samples and water quality samples were taken from predetermined sites. Water quality was also measured at sentinel sites and water samples were collected and passed on to the Wetz lab. Currently CSSC lab has 72 epibenthic samples in house and has begun identifying, enumerating, and measuring species.

#### Winter '24

- CSSC carried out the first Winter sampling event on 2/18/2025. Epibenthic samples and water quality samples were taken from predetermined sites. Water quality was also measured at sentinel sites and water samples were collected and passed on to the Wetz lab. Water levels during Winter are historically low and we had to wait for conditions to be right for sampling. To sample marsh edge in the Delta, we need a bare minimum of 0.6 ft of water MLLW. We had a small window of opportunity during the week of February 18<sup>th</sup>, see figure 1.
- Water level conditions were met once again during the first week of March, at which time CSSC carried out the second Winter sampling event on March 3<sup>rd</sup>, 2025, See figure 2. Even though this last sampling event technically falls outside of this reporting period, we have chosen to declare it in this report as it will statistically be coupled with the previous "Winter" event. All sites were inundated and CSSC successfully collected 12 nekton samples. Currently CSSC has 96 samples in house and is continuing to identify, enumerate and measure nekton species.

#### Spring '25

- CSSC carried out the first Spring sampling trips of 2025 on April 29<sup>th</sup>. Epibenthic samples and water quality samples were taken from the same predetermined sites. Water quality was also measured at sentinel sites and water samples were

collected and passed on to the Wetz lab. We returned with a total 12 epibenthic sled samples and 10 water quality samples for the Wetz Lab.

- CSSC carried out the second Spring sampling event on the 15<sup>th</sup> of May 2025. The same sites were sampled, and water quality was recorded and collected for lab analysis. At present, CSSC has 108 epibenthic samples in house.

#### Summer '25

- CSSC carried out the first Summer sampling trips of 2025 on August 13<sup>th</sup>. Epibenthic samples and water quality samples were taken from the same predetermined sites. Water quality was also measured at sentinel sites and water samples were collected and passed on to the Wetz lab. We returned with a total of 12 epibenthic sled samples and 10 water quality samples for the Wetz Lab.
- CSSC carried out the second Spring sampling event on the 29<sup>th</sup> of August 2025. The same sites were sampled, and water quality was recorded and collected for lab analysis. At present, CSSC has 132 epibenthic samples in house.

**Task 2 – Water Quality:** Process monthly water quality and nutrient samples collected over two full years at the two potential habitat restoration sites and the two control sites.

Status: Ongoing

#### Spring '24

- Wetz lab has water quality samples for the five sites on 4/17/24 and 5/1/24 and is currently analyzing for hydrographic parameters (salinity, temperature, dissolved oxygen, pH), chlorophyll, nutrients and phytoplankton abundance.

#### Summer '24

- On July 17<sup>th</sup>, 2024, CSSC went to the Delta to collect water samples from our five permanent water sites after heavy rains and flooding resulting from Hurricane Beryl.
- Wetz lab has Summer 2024 water quality samples for the five sites on 8/28/24 and 9/9/24 and is currently analyzing for hydrographic parameters (salinity, temperature, dissolved oxygen, pH), chlorophyll, nutrients and phytoplankton abundance. Fifty total water samples in house.

#### Fall '24

- Wetz lab has Fall 2024 water quality samples for the five sites on 8/28/24 and 9/9/24 and is currently analyzing for hydrographic parameters (salinity, temperature, dissolved oxygen, pH), chlorophyll, nutrients and phytoplankton abundance. 60 total water samples in house.

#### Winter '24

- Wetz lab has Fall 2024 water quality samples for the five sites on 2/18/25 and 3/3/2 and is currently analyzing for hydrographic parameters (salinity, temperature, dissolved oxygen, pH), chlorophyll, nutrients and phytoplankton abundance. 70 total water samples in house.

#### Spring '25

- Wetz lab has Spring 2025 water quality samples for the five sentinel sites collected on 4/29/25 and 5/15/2025 and is currently analyzing for hydrographic parameters (salinity, temperature, dissolved oxygen, pH), chlorophyll, nutrients and phytoplankton abundance. Wetz lab currently has 80 total water samples in house.

#### Summer '25

- Summer 2025 water quality samples for the five sentinel sites were collected on 8/13/25 and 8/29/2025 and is currently analyzing for hydrographic parameters (salinity, temperature, dissolved oxygen, pH), chlorophyll, nutrients and phytoplankton abundance. Wetz lab currently has 90 total water samples in house.

**Task 3 – Sponsor Engagement:** Engage likely sponsors to determine feasibility and logistical considerations of a pilot project to test whether controlled additions of freshwater can be detected and offer ecological benefits at potential habitat restoration sites.

Status: Underway

#### Spring '24

- Nothing to report for this quarter.

#### Summer '24

- BIO-WEST met with Mr. Jay Kleberg, Executive Director of the Gulf of Mexico Trust to discuss freshwater inflow pilot projects and potential opportunities specific to the Colorado River delta.
- BIO-WEST also had multiple conversations with the Lower Colorado River Authority discussing feasibility and logistical considerations of a pilot project to test whether controlled additions of freshwater could provide ecological benefits to the Colorado River delta. Activities planned for next quarter include organizing and conducting in person meetings with the Matagorda Bay Foundation and Texas Water Trade.

#### Fall '24

- BIO-WEST attended the Gulf of Mexico Trust (GOMT) policy council meeting in Houston, TX on October 25<sup>th</sup> to discuss freshwater inflow opportunities along the Texas Gulf Coast with other GOMT policy council members.
- BIO-WEST met with Mr. Bill Balboa (Executive Director, Matagorda Bay Foundation) in Columbus, TX on November 18<sup>th</sup> to discuss freshwater inflow

opportunities and potential pilot projects in Matagorda Bay and the Colorado River delta.

- BIO-WEST prepared for and participated in a meeting with Kevin De Santiago and Kyle Garmany (Texas Water Trade), Jay Kleberg (Executive Director, GOMT), and Dr. Matthew Streich (HRI) at TAMU-CC's Harte Research Institute in Corpus Christi, TX on November 25<sup>th</sup>. The meeting was centered on focused flow opportunities and existing Texas Water Trade pilot projects along the Texas Gulf Coast.
- BIO-WEST prepared for and participated in a digital meeting with Mr. James Dodson (San Antonio Bay Partnership) on December 11<sup>th</sup> to discuss potential water delivery projects to support the environment in the Guadalupe River delta and the Nueces River system.
- BIO-WEST met with Mr. Jay Kleberg (Executive Director, GOMT) in Austin, TX on December 12<sup>th</sup> to continue discussions on wastewater treatment plant infrastructure improvement in rural communities along the Texas Gulf Coast, and how these projects might support future freshwater inflow commitments.

#### Winter '24

- BIO-WEST prepared for and participated in an in-person meeting with Myron Hess (Environmental lawyer) in Austin, TX. The meeting was centered on focused flow opportunities in Matagorda Bay, San Antonio Bay and Nueces Bay.
- BIO-WEST prepared for and participated in an in-person meeting with Dakus Geeslin (Deputy Director/Management Resources Manager - Texas Parks and Wildlife Department (TPWD) Coastal Fisheries) in Austin, TX. The meeting was centered on freshwater inflow needs and potential opportunities along the Texas Gulf Coast as well as Coastal Management Areas (CMAs) currently owned or managed by TPWD.
- BIO-WEST continued coordination with environmental professionals with Texas river authorities, groundwater authorities and the Gulf Trust to continue discussions on freshwater inflow opportunities in various river basins in Texas.

#### Spring '25

- BIO-WEST prepared for and participated in an in-person meeting with Dr. George Ward (retired professor at the University of Texas – Austin and coastal estuaries expert) in Austin, TX. The meeting was centered on ecological benefits of freshwater inflow and potential opportunities for enhancement along the Texas Gulf Coast.
- BIO-WEST prepared for and participated in an in-person meeting with scientists

and managers of the Lower Colorado River Authority (LCRA) at their headquarters in Austin, TX. The meeting was centered on designing and implementing a freshwater inflow demonstration project in the lower Colorado River basin.

- BIO-WEST prepared for and participated in an in-person meeting with researchers from the Texas Comptrollers of Public Accounts Natural Resources program in Austin, TX to discuss freshwater inflow and opportunities for enhancement and potential funding along the TX Gulf Coast.
- BIO-WEST plans to continue stakeholder engagement in the next quarter with follow-up meetings with LCRA and the Gulf Trust as well as a meeting with the Conservation Fund and other entities as opportunities present.

#### Summer '25

- BIO-WEST prepared for and participated in an in person meeting with Jim Blackburn (Baker Institute – Rice University) and Jay Kleberg (Gulf Trust) in Houston on August 5<sup>th</sup>.
- BIO-WEST prepared for and participated in digital meeting with scientists and managers of the Lower Colorado River Authority (LCRA) in late August to discuss further scoping of a targeted inflow demonstration project in the lower Colorado River basin.
- BIO-WEST prepared for and participated in an in person meeting with Dr. George Ward (retired professor at the University of Texas – Austin and coastal estuaries expert) in Austin, TX on September 10<sup>th</sup>.

## Figures and Maps

Fig.1

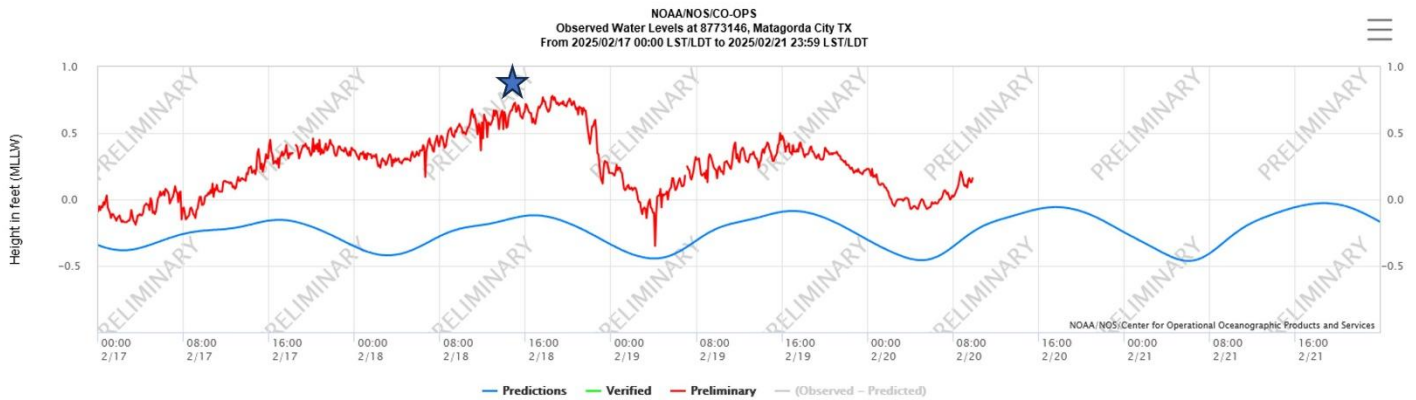
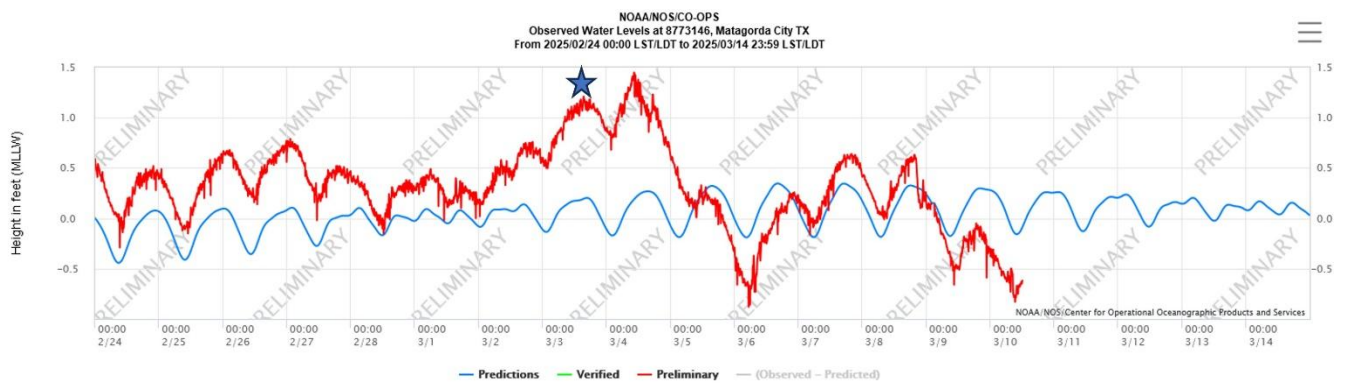


Fig. 2



Blue stars represent sampling dates when water levels were higher than 0.6' Mean Lower Low Water.

Map 1.

