

## Category 1:

**Activity:** Bahia Grande Wetland System Restoration (Implementation)

**Unique Identifier:** DOC\_RESTORE\_001\_001\_Cat1

**Location:** Texas, Cameron County

**Type of Activity:** Implementation

**FPL Category:** 2 – Funding Approved

**Cost Estimate:** \$968,863

**Responsible Council Member:** Department of Commerce (DOC)/National Oceanic and Atmospheric Administration (NOAA)

**Partnering Council Member(s):** Department of Interior/U.S. Fish & Wildlife Service (U.S. FWS), Texas Parks and Wildlife Department

**Originally submitted by:** The DOC as a component within the proposal “Connecting Coastal Waters: Restoring Coastal Wetland Hydrology”.

**Executive Summary:** The Bahia Grande Wetland System Restoration project is part of the Connecting Coastal Waters (CCW) initiative NOAA leads with partners to restore the extent, functionality, and resiliency of Gulf Coast. NOAA will work with partners to implement this project to restore freshwater flows to 600 acres of wetlands by re-routing freshwater flow north of Highway 100 into the Bahia Grande wetland system. NOAA will also work with partners to conduct monitoring of restoration outcomes, outreach and educational activities to share restoration practices and engage stakeholders.

**PROJECT DESCRIPTION:** If implemented in the future, the project would consist of the following.

**Specific Actions/Activities:** The CCW initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. Bahia Grande is a large coastal wetland ecosystem that has been greatly affected by hydrological modifications such as channelization, ditching, and road construction. This project will implement restoration activities, conduct monitoring to assess restoration outcomes to support an adaptive management approach, and engage in outreach and educational activities with restoration practitioners and stakeholders to share restoration practices and project results. The restoration of freshwater flows to 600 acres of wetlands will be accomplished by installing properly sized and located culverts under Highway 100, diverting water flow through the culverts, and excavating a conveyance channel to direct the water into the northern portion of the Bahia Grande system.

**Task 1: Planning and Local Involvement:** A project team will be assembled to provide technical input and expertise during the construction and monitoring of this project. Team

members will provide a multi-disciplinary approach to evaluate monitoring data and recommend any corrective actions necessary to meet restoration goals.

**Deliverable 1:** Project team member's list, roles, and team description.

**Task 2: Construction:** NOAA will develop a contract statement of work, select a construction contractor, determine a schedule, and finalize construction plans. The construction task includes both the action of restoring the site and post-construction management including monitoring of the construction. Monitoring will occur before, during, and after construction to ensure work is progressing and completed as designed.

**Deliverable 2.1:** Construction Plan of Work and Bid Documents.

**Deliverable 2.2:** Final construction as-built drawings and construction completion report.

**Task 3: Monitoring and Evaluation:** This task will implement a monitoring and evaluation plan developed through the project planning phase. The data collected before and after project construction will document progress toward achieving restoration project goals and objectives and inform adaptive management decision-making. Three types of monitoring will be conducted: 1) Pre-implementation monitoring—provides baseline information to compare with post implementation data to determine whether the restoration is having the desired effect; 2) Implementation monitoring—ensures the project is being implemented as planned and identifies needed modifications; and 3) Effectiveness monitoring—enables evaluation of whether a project has met its objectives.

**Deliverable 3.1:** Semi-annual Monitoring Reports and Data Sheets.

**Deliverable 3.2:** Final Monitoring and Evaluation Report.

**Task 4: Outreach and Education:** The project team will implement the Outreach and Education Plan developed through the project planning phase in cooperation with partners and existing community groups. Strategies may include site tours, presentations, interpretive outreach materials, videos, and other efforts to share project success. Activities conducted will be documented, including copies of materials produced, and compiled into a final report.

**Deliverable 4.1:** Outreach and Education Report.

**Ecological Benefits/Outcomes and Metrics:** Bahia Grande is a federally protected 20,000-acre coastal ecosystem that has been greatly affected by hydrological modifications. For more than seven decades, Bahia Grande and two smaller saltwater lagoons between Brownsville and Port Isabel have been cut off from the Laguna Madre Bay, landlocked behind spoil banks deposited during the dredging of the 17-mile long Brownsville Ship Channel in the early 1930s. This isolation left the Bahia Grande a vast flat of dry sediment with little to no value as habitat for fish and wildlife. This project will restore natural wetland hydrology by restoring the flow of fresh water from north of Highway 100 to La Laguna Larga in the upper Bahia Grande System and moderating salinity levels to 600 acres of this section of the Bahia Grande wetland system.

**Measures of Success:** Specific metrics to evaluate the ecological benefits and outcomes were established in the planning phase of this project. Potential measures of success will include:

**Restoration extent:** Acres of wetlands with restored freshwater flows.

**Hydrology Parameters:** Water depth, salinity, flow patterns.

**Leveraging and Co-Funding:** The Bahia Grande Restoration Partnership, a coalition of 65 partners including NOAA, was formed to work towards restoration of Bahia Grande, including a restoration project in 2005 that reconnected the Bahia Grande with tidal waters. This project builds on these efforts by implementing activities included in the Bahia Grande restoration master plan using proven restoration techniques with a high likelihood of success.

**Co-funding:**

- 1.5 million. DWH NRDA Texas Trustee Implementation Group, Bahia Grande Channel F implementation. This is a major component of the Bahia Grande Restoration Plan.

**Building on prior or other investments:**

- NOAA will work with the U.S. FWS to incorporate this project into their routine monitoring and outreach programs.

**Adjoining:**

- \$2.5 million. Texas General Land Office (Coastal Impact Assistance Program-CIAP and National Fish and Wildlife Gulf Environmental Benefit Fund-NFWF GEBF Funding), Bahia Grande Main Channel Construction. This project would widen the channel connecting the Bahia Grande system to the Brownsville ship channel to increase tidal flushing and lower salinities throughout the system. This is the main component of the Bahia Grande Restoration Plan.
- \$1.5 million. U.S. FWS and Ducks Unlimited (NFWF GEBF Funding), Wetland Restoration at Paso Corvino (Bahia Grande). This project would reconnect the Paso Corvino wetlands to the Bahia Grande to restore additional wetlands within the Bahia Grande System. This is a major component of the Bahia Grande Restoration Plan.

**Duration of Activity:** 6 years.

**Life of Activity:** Life span of culverts is conservatively estimated to be 25 years. The Bahia Grande (including the Channel F site) is protected in perpetuity as part of the U.S. National Wildlife System. With periodic maintenance, the life span of this project can be greatly lengthened.

**RESPONSE TO SCIENCE REVIEWS:**

**Comment:** External science review of the Connecting Coastal Waters proposal, which included a total of eleven projects, resulted in all or mostly positive comments, but with a request for more information. Reviewers requested information related to outcomes of planning, engineering, design, and permitting including, site-specific conditions, evaluation of uncertainties, risk, mitigation, measures of success, and data quality standards.

**Response:** This project will implement restoration activities with detailed restoration plans,

certified engineering and design, and approved permits completed by the project planning phase (Category 1). The project's construction design as well as the monitoring and evaluation plan will incorporate necessary steps to mitigate for project uncertainties and risk that were identified in greater detail through the permitting and environmental compliance process conducted under the planning phase (see additional information below). This project will also implement a detailed monitoring and evaluation plan developed under the planning Phase that will collect data to evaluate project specific measures of success. Data collected under this proposal will undergo verification to ensure the quality, utility, and integrity of information collected.

**Comment:** Another review included a project specific comment that Highway 100 was likely a greater contributor to hydrologic isolation than the dredging of the Brownville Ship Channel.

**Response:** Highway 100 is responsible for isolating this area for freshwater flows southward into the Bahia Grande system. The dredging of the Brownville Ship Channel isolated the entire Bahia Grande from tidal flows. Both of these activities have affected the Bahia Grande on a landscape scale. At this time, the culverts under Highway 100 are designed to drain the project area. The planning phase of the project would determine the proper location of the culvert under this highway to most effectively move fresh water into the system.

#### **ENVIRONMENTAL COMPLIANCE:**

To comply with NEPA, the Council has adopted the [July 2022 Deepwater Horizon Oil Spill Texas Trustee Implementation Group Final Restoration Plan/Environmental Assessment #2: Restoration of Wetlands, Coastal, and Nearshore Habitats; Nutrient Reduction; Oysters; Sea Turtles; and Birds \(Final RP/EA #2\)](#). This Final RP/EA #2 tiers off of the Deepwater Horizon Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement (Final PDARP/PEIS). The Final RP/EA #2 analyzes the environmental impacts of and alternatives for a portfolio of projects, including the Bahia Grande project, to address the diverse suite of injuries that occurred at both regional and local scales from the *Deepwater Horizon* spill.

NOAA has also completed additional environmental compliance coordination for the Endangered Species Act (ESA), the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and the National Historic Preservation Act (NHPA) in coordination with the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and the Texas State Historic Preservation Office. The Council has reviewed the applicable environmental compliance documentation. To ensure compliance with ESA, MSA, NHPA, and other relevant laws, the Council will require that the sponsors of the project adhere to all applicable conditions listed in the Final RP/EA #2 and [the associated environmental compliance documents](#).