Protecting and Restoring Waterbird Rookery Habitat Program

RESTORE Council Proposal Document

General Information

Title:
Protecting and Restoring Waterbird Rookery Habitat Program

Project Abstract:
The Protecting and Restoring Waterbird Rookery Habitat Program for Texas is dedicated to safeguarding and enhancing critical nesting habitats for waterbirds. With over 600 bird colonies mapped across Texas, many located on dredge-material islands, resources are needed to address waterbird population decline associated with factors such as inadequate ground cover, human disturbance, and predation. This program aligns with the Council's Goal 1 to restore and conserve habitats by focusing on the protection and enhancement of rookery islands. With a proposed budget of $12.8 million, the program will support restoration techniques that include sediment placement, protecting natural shorelines, and habitat management and stewardship. It will also include planning, implementation, and monitoring activities to ensure success. Priority will be given to projects that have undergone prior vetting and align with key criteria, such as project readiness, scalability, and potential effectiveness. The overall goal is to improve the resilience and sustainability of waterbird populations in Texas.

FPL Category: Cat1: Planning/ Cat2: Implementation

Activity Type: Program

Program: N/A

Co-sponsoring Agency(ies):
TX

Is this a construction project?:
No

RESTORE Act Priority Criteria:
(II) Large-scale projects and programs that are projected to substantially contribute to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast ecosystem.
(III) Projects contained in existing Gulf Coast State comprehensive plans for the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and

coastal wetlands of the Gulf Coast region.

Priority Criteria Justification:
This is a large-scale program that will help restore coastal bird populations through restoring key nesting habitats along the entire Texas coast. Protecting and restoring waterbird habitat is an important issue of Gulf-wide importance. In Texas, nearly $34.4 M have been invested to enhance the understanding and implementing restoration of bird rookeries (DWH project tracker), yet additional work is needed to continue to address this large-scale concern.

Colonial waterbirds and their island rookeries are key resources addressed in various regional, state, and Gulf-wide Plans including:

- The Texas Coastal Resiliency Master Plan (GLO, 2023)
- Deepwater Horizon Oil Spill Natural Resource Damage Assessment Texas Trustee Implementation Group Draft Restoration Plan/Environmental Assessment #2: Restoration of Wetlands, Coastal, and Nearshore Habitats; Nutrient Reduction; Oysters; Sea Turtles; and Birds (2022)
- Restoring the Gulf of America for Birds and People (The National Audubon Society, 2019)
- San Antonio Bay Rookery Island Management Plan (San Antonio Bay Partnership, 2015)
- Whooping Crane Strategic Plan (International Crane Foundation, 2016)
- Gulf Coast Join Ventures Conservation Plans (various: reddish egret (2009), little blue heron (2016), mottled duck (2007))
- Colonial Waterbird and Rookery Island Management Plan (Coastal Bend Bays and Estuaries Program 2005)
- North America Waterbird Conservation Plan (USFWS 2002)

Project Duration (in years): 7

Goals

Primary Comprehensive Plan Goal:
Restore and Conserve Habitat

Primary Comprehensive Plan Objective:
Restore , Enhance, and Protect Habitats

Secondary Comprehensive Plan Objectives:
Protect and Restore Living Coastal and Marine Resources

Secondary Comprehensive Plan Goals:
Replenish and Protect Living Coastal and Marine Resources

PF Restoration Technique(s):

Create, restore, and enhance coastal wetlands, islands, shorelines and headlands: Protect natural shorelines

Create, restore, and enhance coastal wetlands, islands, shorelines and headlands: Sediment placement

Protect and conserve coastal, estuarine, and riparian habitats: Habitat management and stewardship

Location

Location:

Texas Coastal Zone, particularly in areas identified as rookery habitat. This includes coastal and estuarine areas within Texas RESTORE eligible counties including Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris, Jackson, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, Orange, Refugio, San Patricio, Victoria, and Willacy.

HUC8 Watershed(s):

Arkansas-White-Red Region(Red-Washita) - Red-Lake Texoma(Southern Beaver)
Texas-Gulf Region(Neches) - Neches(Lower Neches)
Texas-Gulf Region(Neches) - Neches(Pine Island Bayou)
Texas-Gulf Region(Trinity) - Lower Trinity(Lower Trinity)
Texas-Gulf Region(Galveston Bay-San Jacinto) - San Jacinto(West Fork San Jacinto)
Texas-Gulf Region(Galveston Bay-San Jacinto) - San Jacinto(Spring)
Texas-Gulf Region(Galveston Bay-San Jacinto) - San Jacinto(East Fork San Jacinto)
Texas-Gulf Region(Galveston Bay-San Jacinto) - San Jacinto(Buffalo-San Jacinto)
Texas-Gulf Region(Galveston Bay-San Jacinto) - Galveston Bay-Sabine Lake(East Galveston Bay)
Texas-Gulf Region(Galveston Bay-San Jacinto) - Galveston Bay-Sabine Lake(North Galveston Bay)
Texas-Gulf Region(Galveston Bay-San Jacinto) - Galveston Bay-Sabine Lake(West Galveston Bay)
Texas-Gulf Region(Galveston Bay-San Jacinto) - Galveston Bay-Sabine Lake(Austin-Oyster)
Texas-Gulf Region(Lower Brazos) - Lower Brazos(Lower Brazos)
Texas-Gulf Region(Lower Colorado-San Bernard Coastal) - Lower Colorado(Lower Colorado)
Texas-Gulf Region(Lower Colorado-San Bernard Coastal) - San Bernard Coastal(San Bernard)
Texas-Gulf Region(Lower Colorado-San Bernard Coastal) - San Bernard Coastal(East Matagorda Bay)
Texas-Gulf Region(Central Texas Coastal) - Lavaca(Navidad)
Texas-Gulf Region(Central Texas Coastal) - Guadalupe(Lower Guadalupe)
Texas-Gulf Region(Central Texas Coastal) - San Antonio(Lower San Antonio)
Texas-Gulf Region(Central Texas Coastal) - Central Texas Coastal(East Matagorda Bay)
Texas-Gulf Region(Central Texas Coastal) - Central Texas Coastal(West Matagorda Bay)
Texas-Gulf Region(Central Texas Coastal) - Central Texas Coastal(East San Antonio Bay)
Texas-Gulf Region(Central Texas Coastal) - Central Texas Coastal(West San Antonio Bay)

Texas-Gulf Region(Central Texas Coastal) - Central Texas Coastal(Aransas Bay)
Texas-Gulf Region(Central Texas Coastal) - Central Texas Coastal(Mission)
Texas-Gulf Region(Central Texas Coastal) - Central Texas Coastal(Aransas)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Nueces(Lower Nueces)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(North Corpus Christi Bay)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(South Corpus Christi Bay)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(Palo Blanco)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(South Laguna Madre)
Texas-Gulf Region(Galveston Bay-San Jacinto) - Galveston Bay-Sabine Lake(Sabine Lake)
Texas-Gulf Region(Central Texas Coastal) - Lavaca(Lavaca)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(North Laguna Madre)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(San Fernando)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(Baffin Bay)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(Central Laguna Madre)

State(s):
Texas

County/Parish(es):
TX - Aransas
TX - Brazoria
TX - Calhoun
TX - Cameron
TX - Chambers
TX - Galveston
TX - Harris
TX - Jackson
TX - Jefferson
TX - Kenedy
TX - Kleberg
TX - Matagorda
TX - Nueces
TX - Orange
TX - Refugio
TX - San Patricio
TX - Victoria

TX - Willacy

Congressional District(s):
TX - 18
TX - 22
TX - 27
TX - 14
TX - 36
TX - 34
TX - 7
TX - 9
TX - 8
TX - 38

Narratives

Introduction and Overview:
The Protecting and Restoring Waterbird Rookery Habitat Program for Texas is dedicated to safeguarding and enhancing critical nesting habitats for waterbirds. This initiative aligns with the Council's Goal 1: Restore and Conserve Habitat and Objective 1: Restore, Enhance, and Protect Habitat. The program considers planning and implementation projects that use the Council's priority approaches to create, restore, and enhance coastal wetlands, islands, shorelines, and headlands (sediment placement and protect natural shorelines) and protect and conserve coastal, estuarine, and riparian habitats (habitat management and stewardship).

A study found that since 1970, there has been a net loss of 2.9 billion birds (a 29% reduction) across all biomes in the continental United States (Rosenberg et al., 2019). Texas is home to numerous important nesting waterbirds, including various herons, egrets, ibises, terns, skimmers, and gulls. Over 600 bird colonies have been mapped in Texas, many of which are located on dredge-material islands (Gao and Hardegree,2022) (see Figure 1). Yet, populations of water birds in Texas have been declining; this decline is attributed to several causes, including the availability of appropriate ground cover and substrate, impacts from recreational activities and human disturbance, and competition among birds for limited nesting space (Chaney, Blacklock, and Bays, 2003). Also contributing to this decline is predation from imported red fire ants, raccoons, coyotes, and feral pigs (Gibson et al., 2018; DeRose-Wilson et al., 2018; Hardegree, 2014).

A content analysis of 119 planning and restoration documents, including those from local, state, and federal entities as well as NGOs, was conducted to identify priority issues and coastal restoration and conservation needs in Texas. These documents included various area management plans, state environmental program plans, conservation plans for various species, and documents related to restoration projects that were either funded or in need of funding. This analysis identified altered, degraded, or lost habitat as a primary issue of concern. Rookery habitat was identified as the third most mentioned habitat in the plans, following wetlands and rivers and streams. This information, in addition to other habitat trend information, was used to create an initial list of

potential programs for Texas.

The proposed programs were presented for discussion in July of 2023 to two Texas state working groups (government agency and NGO) that advise the Texas RESTORE process. Following the presentation, a survey was administered to the working groups. The responses indicated that the rookery program is a high priority for many of the working group agencies and their contributing partners. There was significant interest in examining alternative approaches, ways to reduce costs, and concerns regarding the longevity of habitat due to erosion and submersion.

The rookery program was one of five that proceeded to public comment in March of 2024. This program received 14 comments, five of which were in support of the program. Two supporting comments highlighted the decline in waterbird populations and argued that this program would help address that need. There were no specific comments opposing the program.

Many rookery islands in Texas were originally created through the placement of channel dredge material in shallow coastal bays and estuaries (Chaney et al.,1978). Some of these islands have developed into productive habitats for colonial waterbirds, while others have eroded and are now submerged. Many dredge spoil islands have not been replenished over the years and face erosion, putting them at risk of becoming unusable (Hackney et al., 2016).

To address these issues, the program will fund planning and implementation projects that include key strategies such as:
1.) Dredge Material Placement: The use of dredged material can help address erosion and build habitats.

2.) Erosion Control: Shoreline protection measures, such as living reefs, shoreline armoring and nourishing, segmented breakwaters, and artificial reef structures, can help control erosion.

3.) Vegetation Planting and Control: Restoration can be enhanced by planting specific vegetation required by certain species for nest construction. The removal of exotic grasses, which can invade uplands where woody vegetation would otherwise establish, is beneficial for maintaining the preferred substrate for the colony.

4.) Control of Predation and Other Disturbances: Managing predation and reducing human disturbances are crucial for protecting waterbird nesting success. This may include activities like public education.

Rookery island protection and restoration are top priorities for several Texas working group entities. Various plans, such as those by Coastal Bend Bays and Estuaries, Texas Audubon, and Gulf Coast Joint Ventures, identify rookery habitats for restoration across the state. These reports outline conservation and management goals for primary nesting sites, focusing on focal species and habitat goals. Focal species in this program include, but are not limited to, Great Blue Heron, Great Egret, Reddish Egret, Little Blue Heron, Gull-billed Tern, Black Skimmer, Caspian Tern, and Tricolored Heron (Hardegree, 2014; Harte Research Institute, 2024a).

The program will develop a framework for selecting priority projects. Example projects for consideration can be found in current planning documents such as the Texas Coastal Resiliency Master Plan (TCRMP) (Texas General Land Office, 2022). The TCRMP proposes an estimated $1.87 billion in 121 Tier 1 coastal resilience projects, spanning 10 priority statewide actions. These reflect a careful consideration of the complex characteristics of the Texas coastal zone by the TGLO and the Plan's Technical Advisory Committee (TAC). The TAC includes coastal planners, community leaders and decision-makers, coastal scientists and engineers, ports and navigation professionals, private industry leaders, technical experts, resource agency and regulatory staff members, and individuals. There are 11 rookery projects on the TCRMP Tier 1 list with budgets ranging from $2.3M to $37.5M (see Table 1). In selecting which projects to support through this program, considerations will be taken to leverage ongoing work and opportunities to make the most impact on rookery habitat conservation. While the TCRMP Tier 1 list provides examples of funding needs, consideration of support from this program will be open to other proposals as well.

Fundable projects must demonstrate rigorous planning, feasibility and support by the public and conservation community. These projects will incorporate activities such as those described in the methods section.

By implementing these strategies, the Protecting and Restoring Waterbird Rookery Habitat Program for Texas will help to ensure the sustainability and enhancement of vital waterbird habitats, contributing to the conservation of these important species and their ecosystems.

Proposed Methods:

This program will implement a project selection process that evaluates the need for the project, its potential to benefit key species, the feasibility of the design and location, and the applicant's (and team's) demonstrated ability to implement and successfully construct the project. In addition, project applicants will be required to submit project success metrics, examples of which are presented in this program description under "Metrics."

Funds will be used for activities related to the planning and implementation of waterbird rookery habitat conservation and restoration. It is recommended that proposed projects utilize a habitat suitability assessment to determine the potential for long-term success or failure of the proposed project. Resources to support placement of a project include the Colony Island Network Design and Implementation (CINDI) Project Mapping Application (Harte Research Institute, 2024). the Texas Waterbird Survey (Texas Waterbird Society, 2024), and the Texas Beneficial Use Master Plan (in development)(RESTORE the Texas Coast, 2024).

This program will support the beneficial use of dredge material for the restoration of bird island habitat. The EPA reports that several hundred million cubic yards of sediment are dredged from U.S. ports, harbors, and waterways each year. The beneficial use of dredged material involves repurposing sediment that would otherwise be disposed of in a manner that benefits society and the natural environment, such as for habitat restoration and development (US EPA, 2007). In Texas,

dredging of the Gulf Intracoastal Waterway (GIWW) has led to the development of bird island habitats, showing success in providing habitat for waterbird colonies (Chaney et al., 1978). Project planning activities may involve an assessment of the feasibility of using dredged material, obtaining the appropriate permits, and construction designs. Project implementation would involve coordination and construction of the designed project.

This program would also support the use of erosion control and shoreline stabilization methods. The use of breakwaters protects shorelines from wave activity and promotes sediment retention. They can be in the form of living reefs, shoreline armoring, segmented breakwaters, and artificial reef structures. Projects implementing shoreline protection should consider substrate and shoreline slope requirements for specific bird species.

Restoration can be enhanced by planting specific vegetation required by certain species for nest construction. The removal of exotic grasses, which can invade uplands where woody vegetation would otherwise establish, is beneficial for maintaining the preferred substrate for the colony. Some bird islands may require additional material such as crushed shell, oyster, or limestone to reduce the growth of undesirable vegetation (NFWF, 2024; Raynor et al., 2012).

Managing predation and reducing disturbances are crucial for protecting waterbird nesting success. This may include activities like creating deeper trenches to prevent predator access to the islands, physically removing predator species, or treating pests such as fire ants (Raynor et al., 2012; A. C. Chaney, Blacklock, and Bays, 2003). A public education campaign may also be implemented to prevent human disturbances to islands, which can lead to rookery abandonment and negatively impact the survivability of hatchlings.

Environmental Benefits:

This program will fund projects with the highest potential to enhance the availability and quality of nesting habitats, thereby increasing avian utilization. The goal of these investments is to protect and bolster colonial waterbird populations in the region by improving the resilience and sustainability of their critical nesting habitats. Projects will be evaluated based on their ability to reduce mortality and enhance the survivability of key waterbird populations. By focusing on strategic enhancements, the program aims to ensure long-term conservation and support for these vital bird populations. Supporting healthy bird populations enhances the ecology of estuarine ecosystems across Texas and the Gulf of America.

Metrics:

Metric Title: HR013 : Wetland restoration - Acres restored

Target: 0.99

Narrative: The program will consider the following as it applies to individual project goals: the number of acres restored, cubic volume or mass of sediment deposited, and the number of vegetation plugs. Target to be determined.

Metric Title: HR012 : Shoreline protection - Miles of living shoreline installed

Target: 0.99

Narrative: The program will consider the following as it applies to individual project goals: linear feet of shoreline protection installed. Target to be determined.

Metric Title: HR008 : Removal of invasives - Acres restored

Target: 0.99

Narrative: The program will consider the following as it applies to individual project goals: acres of management types (i.e., acres over which different management activities are performed) or acres restored (if only one management activity is performed). Target to be determined.

Metric Title: PRM013 : Restoration planning/design/permitting - # environmental compliance documents completed

Target: 0.99

Narrative: Number of environmental compliance documents completed

Metric Title: PRM011 : Restoration planning/design/permitting - # E&D plans developed

Target: 0.99

Narrative: Number of E&D plans developed

Risk and Uncertainties:

Throughout the Gulf states, the U.S. Army Corps of Engineers (USACE) contracts the dredging of more than 100 million cubic yards of sediments annually from federal navigation channels, an estimated 30% of this material is used for beneficial use projects (Parson and Swafford, 2012). The availability, source, and timing of materials present is one of the largest uncertainties in implementing the program. Many ports and channels have maintenance dredging permits, specifying the amount of material to be dredged to maintain navigation. However, the implementation and timing of maintenance dredging depends on various factors, such as budget availability. Another potential delay to the implementation of a restoration project can result from the planning, engineering, and permitting process for a beneficial use project typically taking between three to six years (Parson and Swafford, 2012).

In Texas, coastal habitats and communities are increasingly vulnerable to storm surge damage, especially when combined with heavy precipitation. Periodic and long-term inundation of estuarine habitats can profoundly alter the hydrology of these systems, (Hayhoe et al., 2018; Sweet et al., 2022) undermining their resilience and ability to support diverse wildlife and ecosystem functions. These potential effects on coastal areas include submergence and erosion, saltwater intrusion, and a decline/change in coastal wetlands (Gornitz ,1991; Nicholls and Cazenave, 2010; Mitchell, Herman, and Hershner, 2020). These impacts also extend to the nesting habitats of coastal bird nesting species (Von Holle et al., 2019). Considerations for relative SLR along the Texas coast and local hydrodynamics should be integral in evaluating the potential success and longevity of restoration projects. In cases where data is lacking, expert opinions could be valuable in bridging these gaps (Cooke et al., 2021; Windhoffer et al., 2024).

Impacts of increasing and prolonged inundation extend to nesting habitats of coastal bird species (Von Holle et al., 2019). Trends in sea level rise along Texas bays, as reported by NOAA's Tides and Currents website, exhibit variation along the coast. In Cameron County, Port Isabel shows a rate of 4.32 mm/year, and Port Mansfield records 3.69 mm/year. Along the central coast, Rockport experiences a higher rate of 5.66 mm/year. The upper coast, particularly Eagle Point, shows the most significant trend at 12.93 mm/year (NOAA Center for Operational Oceanographic Products and Services, 2025). These variations highlight regional differences in sea level rise influenced by factors such as subsidence, hydrodynamic changes, and localized environmental conditions. Considerations for relative tide levels and hydrologic trends along the Texas coast and local hydrodynamics should be integral in evaluating the potential success and longevity of restoration projects. In cases where data is lacking, expert opinions could be valuable in planning restoration projects (Cooke et al., 2021; Windhoffer et al., 2024).

Climatic events, such as hurricanes, extreme storms, and prolonged droughts, pose significant risks to restoration activities. These events can lead to increased erosion, sediment displacement, and habitat destruction, directly impacting the construction, effectiveness, and longevity of restoration projects (Zabin et al., 2022). Hurricanes and extreme storms can affect estuarine water quality and can redistribute sediment across barrier islands and bay systems (Wetz and Yoskowitz, 2013; Hayes, 1978). Recently, a report examined the impacts of two 2024 tropical storm events on bird rookeries on the Texas central coast. Tropical Storm Alberto primarily affected bird populations through storm surge and heavy rainfall, leading to widespread nest failures, particularly for Black Skimmers and Royal Terns on low-elevation islands. Hurricane Beryl followed Alberto and had a less severe initial impact because many species had ceased nesting. Subsequent predation and habitat erosion in northern areas, however, led to long-term challenges, including loss of nesting substrate and reduced habitat quality for waterbirds (Gawlik et al., 2024). Because hurricane activity is variable and uncertain from year to year, addressing these potential impacts requires incorporating adaptive management strategies, such as flexible project designs and ongoing monitoring, to ensure the resilience and sustainability of restoration activities in the face of climatic uncertainties.

In addition to the challenges previously mentioned, predation and human disturbance significantly threaten the success of rookery habitat projects. Ground-nesting seabirds often rely on offshore

islands as refuges from mammalian predators, yet predators can reach islands from nearby lands. For example, raccoons, coyotes, and feral pigs can pose substantial risks (Ellis et al., 2007; Chaney and Blacklock, 2005). Factors like predation by red imported fire ants, snakes, and other predators further jeopardize breeding success (Chaney and Blacklock, 2005; Hardegree, 2014). Human disturbances, including recreational activities, exacerbate the difficulty of protecting nesting birds (Stanzel et al., 2018; Hardegree, 2014). Effective measures, such as predator control, public education, and signage to minimize disturbances during nesting seasons, are critical to support the recovery and resilience of these habitats (Hardegree 2014).Project risk and probability of success will be assessed considering the challenges mentioned above.

Monitoring and Adaptive Management:

Given the uncertainties in restoration, the principles of adaptive management are useful in both planning and managing projects to increase the probability of success. Adaptive management is a method to systematically assess and improve the performance of restored systems and contribute to restoration technology (Thom, 2000). In essence, adaptive management involves synthesizing existing knowledge, exploring alternative actions, making explicit predictions of their outcomes, implementing actions, monitoring to determine whether outcomes match those predicted, and using these results to adjust future plans (Murray and Marmorek, 2003).

In implementing adaptive management, this program will use a goal-oriented approach focused on increasing the success of coastal waterbirds. The program will engage established working groups in the development of criteria to select priority projects and utilize monitoring to assess needs and performance. Adaptive management is important considering the risks and uncertainties mentioned above, in particular those that may lower the effectiveness, delay, or prevent the implementation of a project (e.g., storms, drought, permitting issues). Due to these and other potential challenges, the program allocates 10% of the total budget for contingencies, providing a buffer for adaptive management.

Monitoring activities will occur at both the program level and for each project. The core components for determining the success of rookery habitat restoration and creation include metrics such as acres of habitat restored or created, linear feet of shoreline protected, volume of sediment deposited, number of vegetation plugs planted, area restored from invasive species, and number of successful predator treatments. Also, tracking the successful use of the project sites by waterbirds is important to determine if program outcomes are achieved.

Monitoring of coastal habitat restoration sites will follow established guidance from entities such as TPWD and USFWS and reference guides like the GoMAMN Strategic Bird Monitoring Guidelines (Frederick and Green, 2019). Monitoring will use established reference sites or baseline bird colony data and trends as reference conditions for this program.

Data Management:

Data management for this program is designed to promote transparency in the project selection process. Planning data will be made publicly available, including historical shoreline change data for rookery islands in the state's estuaries, vegetation cover, elevation data, and ecological data related to bird diversity and abundance. Additionally, other information used in decision-making, such as supporting plans, program budgets, and past project performance reports, will also be accessible to guide potential project decisions.

Once projects are selected, geotechnical and engineering data, along with construction specifications, will be made available. Furthermore, data related to post-project implementation will be collected and shared publicly. This includes information on project performance, such as shoreline position, sedimentation, elevation, vegetation succession, bird diversity and abundance, and bird nesting and chick survival.

The Texas Commission on Environmental Quality (TCEQ) and the Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC) will collaborate with data producers to ensure data is shared after key activities conclude. GRIIDC, a multidisciplinary repository, tracks, curates, and archives diverse datasets, making them publicly discoverable through digital object identifiers and detailed ISO 19115-2 metadata. This publicly accessible repository will facilitate data access for performance monitoring and adaptive management and ensure data interoperability and reuse.

Collaboration:

Two Texas workgroups were established to provide input on coastal priorities: state & federal Representatives (federal/state) and Non-Governmental Organizations (NGO). Moving forward, the 2026 FPL process will also integrate with ongoing coastal restoration planning processes such as TGLO's Coastal Resiliency Master Plan. The Texas Rookery Program will leverage state and federal efforts including the DOI-FWS Colonial Waterbird Program (2026 FPL proposed). Engagement will also continue with Texas stakeholders and working groups during the project selection process and at that time potential leveraging opportunities (co-funding, adjoining or building on other work) will be considered.

Public Engagement, Outreach, and Education:

The engagement process for 2026 FPL is ongoing and involves multiple steps to ensure comprehensive input and alignment with restoration priorities. A content analysis of 119 planning and restoration documents, including those from entities participating in our federal/state and NGO working groups, was conducted to identify key concerns, past restoration projects and programs, and current restoration needs. This analysis, combined with other environmental data, guided the development of potential 2026 FPL programs. These programs were presented to the working groups in the summer of 2023 and followed by a survey to gather feedback on the level of support and to request suggestions for changes. The working groups were also given the opportunity to submit additional programs for consideration. After edits and budget adjustments, the proposed programs were opened for public comment (March of 2024). Based on the feedback received and the availability of funding, the programs were then refined, combined, and revised to better meet the needs and priorities identified throughout the process.

Moving forward, the selection process for 2026 FPL grant subrecipients will require that projects are vetted through the Texas 2026 FPL process or other public process, such as the TGLO's Coastal Resiliency Master Plan. Criteria for selecting projects will include, but are not limited to, the following factors: alignment with issues outlined in the program activity description, availability of funds for the program, project readiness, leveraging opportunities, scalability, risk/benefit ratio, and distribution of funds along the Texas coast. This comprehensive process, which includes both completed and forthcoming steps during program planning and implementation, will ensure that the final project selections align with the RESTORE Planning Framework document and reflect the input of workgroups, elected officials, the public, and the Office of the Governor.

Leveraging:
N/A

Environmental Compliance:
The planning of this program's activity is covered by the Council's NEPA Categorical Exclusion for planning and related activities (Section 4(d)(3) of the Council's NEPA Procedures).

For implementation of FPL activity, environmental compliance will be updated. Potential permitting that may be necessary in implementation of rookery habitat restoration includes USACE permits, permits for Beneficial Use of Dredge Material, Coastal Zone Management Consistency Certification (TGLO), Surface Lease (TGLO), 401 Water Quality (TCEQ), and consultation with appropriate agencies related to Essential Fish Habitat, Endangered Species Act, Migratory Bird Treaty and Marine Mammal Protection Act. All specific environmental compliance needs will be identified during project identification and development activities.

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Budget

Project Budget Narrative:
A total budget of $12,800,000 is proposed for 2026 FPL activities associated with this program. These funds are intended for planning, implementation and monitoring of activity related to the protection and restoration of waterbird rookery habitat. An estimated 3% will be used for project planning, which includes activities such as project selection and development. An additional estimated 5% will be allocated for monitoring and data management activities which include project activity monitoring and collection of data to support metrics for evaluation of success.

Total FPL Project/Program Budget Request:
$ 12,800,000.00

Estimated Percent Monitoring and Adaptive Management: 5 %

Estimated Percent Planning: 3 %

Estimated Percent Implementation: 82 %

Estimated Percent Project Management: N/A

Estimated Percent Data Management: N/A

Estimated Percent Contingency: 10 %

Is the Project Scalable?:
Yes

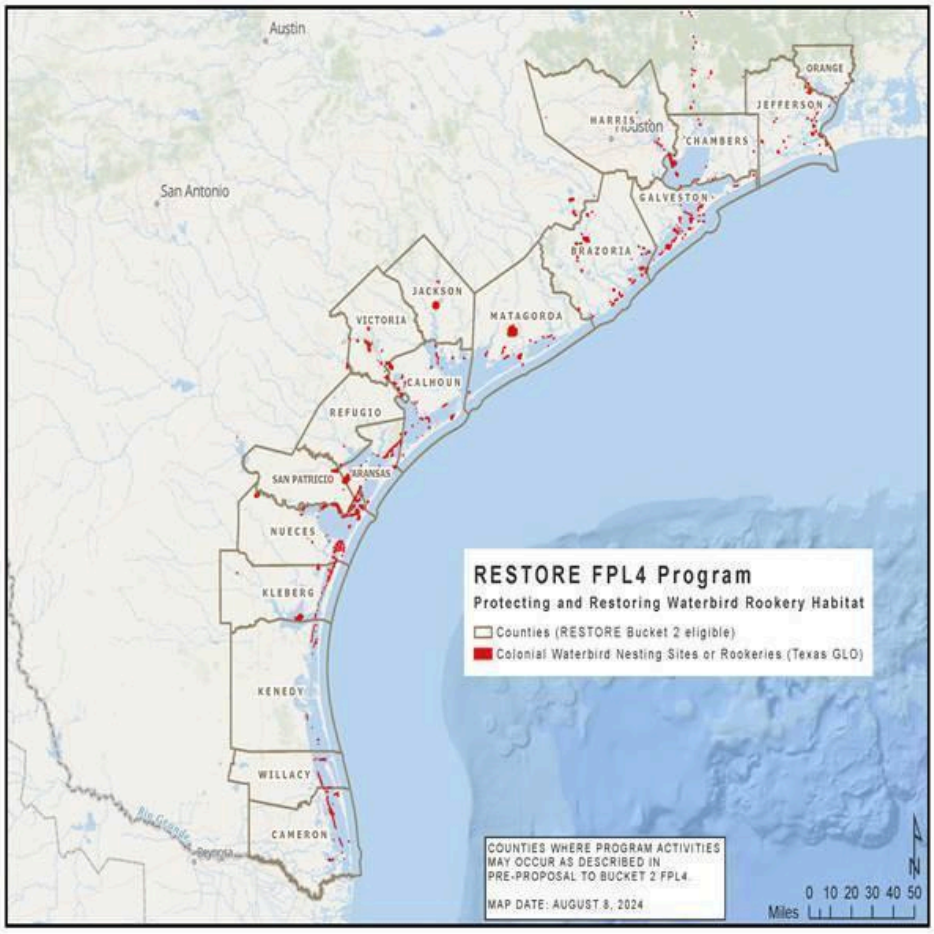
If yes, provide a short description regarding scalability.:
Given the program's budget of $12.8 million and Texas's estimated need of over $92.9 million (Table 1. Texas Coastal Resiliency Master Plan Tier 1 Rookery Habitat Projects*), this program will prioritize and scale projects to maximize impact. The program will consist of several independent projects, which can be scaled down or reduced in number based on available funding. For instance, funds might be allocated to restore one island in a chain where broader restoration is required, allowing additional funds to be leveraged for further restoration efforts.

Environmental

Environmental Requirement	Has the Requirement Been Addressed?	Compliance Notes (e.g.,title and date of document, permit number, weblink etc.)
National Environmental Policy Act	N/A	Note not provided.
Endangered Species Act	N/A	Note not provided.
National Historic Preservation Act	N/A	Note not provided.
Magnuson-Stevens Act	N/A	Note not provided.
Fish and Wildlife Conservation Act	N/A	Note not provided.
Coastal Zone Management Act	N/A	Note not provided.
Coastal Barrier Resources Act	N/A	Note not provided.
Farmland Protection Policy Act	N/A	Note not provided.
Clean Water Act (Section 404)	N/A	Note not provided.
River and Harbors Act (Section 10)	N/A	Note not provided.
Marine Protection, Research and Sanctuaries Act	N/A	Note not provided.
Marine Mammal Protection Act	N/A	Note not provided.

National Marine Sanctuaries Act	N/A	Note not provided.
Migratory Bird Treaty Act	N/A	Note not provided.
Bald and Golden Eagle Protection Act	N/A	Note not provided.
Clean Air Act	N/A	Note not provided.
Other Applicable Environmental Compliance Laws or Regulations	N/A	Note not provided.

Maps, Charts, Figures



Caption : Protecting and Restoring Waterbird Rookery Habitat Program

Other Uploads

Tx-Rookeries-Table1.docx

Table 1. Texas Coastal Resiliency Master Plan Tier 1 Rookery Habitat Projects*

Project ID	Project Name	Project cost (Millions)
9230	Bay Harbor Island Stabilization	$2.30
9228	Jones Bay Oystercatcher Habitat Restoration	$3.20
1394	Protection and Restoration of Rabbit Island South	$3.30
1268	Bird Island Restoration and Creation of Gulf Cut Island Complex	$4.00
1393	Protection and Restoration of Benny's Shack Islands	$4.70
72	Long Reef and Deadman Island Shoreline Stabilization and Habitat Protection	$5.30
696	Shamrock Island Restoration - Phase 2	$5.90
1202	Tern Island and Triangle Tree Island Rookery Habitat Protection	$5.90
797	Dickinson Bay Rookery Island Restoration – Phase 3	$6.40
9062	Restore Laguna Madre Rookery Islands	$14.40
21	Galveston Bay Rookery Island Restoration	$37.50
	Total	**$92.90**

**For more information on these projects visit the GLO's website at https://www.glo.texas.gov/coast/coastal-management/coastal-resiliency/resources/files/2023-tcrmp-overview.pdf*

GIS Data_4:

TX_FPL3b_LA.zip

Council Staff Review: Protecting and Restoring Waterbird Rookery Habitat Program

FPL Internal Staff Review

Project/Program	Protecting and Restoring Waterbird Rookery Habitat Program		
Primary Reviewer	Heather Young	Sponsor	Texas
EC Reviewer	John Ettinger	Co-Sponsor	N/A

1. Is/Are the selected Priority Criteria supported by information in the proposal?	Yes
Notes	

2. Does the proposal meet the RESTORE Act geographic eligibility requirement?	More information needed
Notes	Location states all activity will be within TX Coastal Zone within Texas RESTORE eligible counties including Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris, Jefferson, Matagorda, and Refugio. However, 18 counties were selected in PIPER and featured on a map. Need clarification. Response: TX added the 8 other eligible counties: Orange, Jackson, Victoria, San Patricio, Nueces, Kleberg, Kenedy, Willacy

3. Are the Comprehensive Plan primary goal and primary objective supported by information in the proposal?	Yes
Notes	

4. Planning Framework: If the proposal is designed to align with the Planning Framework, does the proposal support the selected priority approaches, priority techniques, and/or geographic area?	Yes
Notes	

5. Does the proposal align with the applicable RESTORE Council definition of project or program?	Yes
Notes	

6. Does the budget narrative adequately describe the costs associated with the proposed activity?	More information needed

Notes	The 2026 FPL proposal provides the total funding amount requested for the activity, along with the percentage breakdown between FPL Categories 1 and 2. By applying the percentages to the total for the activity the requested amount in FPL Category 1 is $2,304,000 and Category 2 is $10,496,000. Need to verify numbers are correct. This comment has been addressed.

7. Have three external BAS reviews been completed and has the proposal sponsor provided their response?	More information needed
Notes	Please see the external BAS review comments, and external reviews summary attached with these review comments.

8. Have appropriate metrics been proposed to support all primary and secondary goals?	Yes
Notes	

9. Environmental compliance: If FPL Category 1 has been selected for the implementation component of the project or program, does the proposal include environmental compliance documentation that fully supports the selection of Category 1?	N/A
Notes	The implementation component is in FPL Category 2.

Summary of Best Available Science Review: Protecting and Restoring Waterbird Rookery Habitat Program

The Texas Rookery Islands proposal was generally well-received by reviewers for its scientific foundation and thoughtful planning. Reviewers agreed that the proposal is supported by peer-reviewed and publicly available information, with clear objectives and methods that are relevant and adaptable to the Gulf Coast region. The proposal includes a comprehensive bibliography and acknowledges a variety of environmental risks, including sea level rise and storm impacts, though some reviewers recommended further elaboration on these risks and the inclusion of additional literature—particularly regarding sustained predator and human disturbance management. Reviewers praised the adaptive management framework and the use of the GRIIDC data repository for monitoring and data management.

However, several areas were flagged for improvement. These include the need for clearer articulation of success metrics (e.g., restoration targets), prioritization of species or geographic areas, and better definition of potential project selection criteria. Some reviewers noted the lack of explicit discussion of past successes or failures from similar efforts, suggesting that incorporating case studies would strengthen the proposal. Despite these gaps, the proposal was recognized for integrating best available science, employing sound restoration principles, and offering a flexible, adaptive structure suited to evolving conditions and varied implementation scenarios. Overall, the proposal is seen as scientifically robust and ready for advancement, with minor enhancements recommended to improve clarity and strategic focus.

Summary of Texas' Response to BAS Comments: Protecting and Restoring Waterbird Rookery Habitat Program

In response to BAS comments, the state committed to strengthening the proposal by addressing several key areas. They included additional information on the risks posed by sea level rise (SLR) along the Texas coast and also incorporated discussion of predator risks and long-term sustainment of restored rookery islands. The state provided more detail on how priority species or habitats may factor into project selection, as well as example scenarios illustrating potential project risks. Furthermore, considerations for past project successes, failures, and challenges were used to inform future efforts. Lastly, they included more detail on the types of projects that may be selected or the criteria that will guide project selection.

Best Available Science Review Forms: Protecting and Restoring Waterbird Rookery Habitat Program

SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Protecting and Restoring Waterbird Rookery Habitat Program
Location (If Applicable): The location of this program activity within the Texas Coastal Zone, particularly in areas identified as rookery habitat. This includes coastal and estuarine areas within Texas RESTOREeligible counties including Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris,Jefferson, Matagorda, and Refugio.
Council Member Bureau or Agency: Texas Commission on Environmental Quality
Type of Funding Requested: Planning / Implementation

Reviewed by: In State
Date of Review: 1 October 2024

Best Available Science:

These 4 factors/elements help frame the reviewer's answers to A, B and C found in next section:

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Yes
Comments:	

The proposal adequately provides justification using peer-reviewed and publicly available information. In the narrative/overview, I think use of the Texas Colonial Waterbird Society dataset would have provided stronger justification for declining waterbird species. Otherwise, the available information was properly used in the proposal.

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Yes
Comments:	
This project proposal is within the Gulf Coast region, specifically along the Texas coast.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
Overall, yes. In some sections of the proposal, more literature could have been provided. For example, in risks and uncertainties, the section on sea level rise was minimal in terms of available literature out there on modeling SLR and future scenarios for GOM including Texas coastline. SLR is potentially the greatest risk and uncertainty facing rookery islands and using available literature and developed models will be important in determining which subprojects are funded.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
Yes but as discussed in Question 3, sea level rise and more specifically the extent of rise and potential exacerbation by storms, storm surge, etc. play a significant role in achieving the proposal's stated goals, especially over the long-term.	

Based on the answers to the previous 4 questions, and *giving deference to the sponsor to provide within reason the use of best available science,* the following three questions can be answered:

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer- reviewed and publicly available data?	Yes
Comments:	
Yes, this proposal is justified and based on sound science.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	Yes
Comments:	
Yes, development of the proposal included many planning and restoration documents, discussion with state working groups and made available for public comment.	

Question C	
Has the applicant provided reasonable justification that the proposal is based on science that clearly documents and communicates risks and uncertainties in the scientific basis for such projects/programs?	Need more information
Comments:	
Risks and uncertainties are definitely addressed in the proposal and communicated. I would recommend that the sustainment of predator management and human disturbance mitigation be included in risks and uncertainties as these management issues likely persist into the future and funding beyond the proposed projects would be needed to ensure a restored rookery continues to function as suitable habitat for nesting waterbirds.	

Science Context Evaluation:

Question A	
Has the project/program sponsor or project partners demonstrated experience in implementing a project/program similar to the one being proposed?	Yes
Comments:	
Yes, project sponsors and partners have achieved similar goals in waterbird rookery restoration and protection and the experience and expertise needed to achieve these goals are present as outlined in the Collaboration section of the proposal.	

Question B

Does the project/program have clearly defined goals and objectives?	Yes

Comments:

The proposal goals are overall clearly stated. I am unsure if creation of rookery islands is a goal or is the focus on restoration and protection of rookery islands. There is some verbiage about creation of habitat but unclear if this is the goal or just was used in the proposal under Council's priority for "create, restore, enhance coastal wetlands, islands….". I would recommend that rookery island creation be included in

potential projects to be funded especially as the proposal outlines risks and uncertainties concerning availability, source, and timing of materials of beneficial use. Opportunities may present themselves where creation of islands may be more feasible and achievable.

Question C

Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	Need more information

Comments:

It would be useful to include if there are priority species and or priority areas (e.g., estuaries, bays) that this proposal would target for proposed projects. For example, if Black Skimmers are prioritized (just an example), proposed projects need to address if this species would benefit. Likewise, if a bay or estuary was deemed priority due to loss of existing rookery islands, proposed projects would need to address potential benefits. Also, it is unclear how predator management and/or human disturbance management would be sustained after the proposed projects are implemented. Predator and human disturbance management should be included in risks and uncertainties since these management actions would likely be required into the future for any restored rookery island.

Question D

Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Yes

Comments:

Yes, the proposal identifies the environmental benefits, namely enhancement of nesting habitats for waterbirds and improving resilience and sustainability of rookery islands. The proposal is a bit vague on how these restored rookeries will be sustained against environmental stressors like human disturbance, predation and even sea level rise (other than shoreline protection).

Question E

Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	Need more information

Comments:

Perhaps I am unclear here but the proposal lists metrics to be collected and evaluated but there is no target provided for any of the metrics (e.g., acres restored – target: 0). While sub-projects under this may vary in size and scope, it seems useful for an overall project proposal with a budget of 12.8M would have some idea of targets to be achieved.

Question F

Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Yes

Comments:

Yes, the proposal discusses potential risks to long-term environmental change. See Question G for some concerns that I have.

Question G

Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Yes

Comments:

As stated before, I would recommend any proposed project to clearly state how future projections of SLR could impact the proposed rookery restoration. I think the biggest risk to proposed projects is the sustained protection of rookeries over the long-term after they have been restored in the short-term.

Question H

Does the project/program consider recent and/or relevant information in discussing the elements above?	Yes

Comments:

Yes

Question I	
Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	No
Comments:	
While I think this proposal is very sound, there does not seem to be any documented evaluation of past successes and or failures of similar efforts. The proposal discusses the risks and uncertainties but no examples of evaluations of successes and failures. There are known rookeries that have been extensively restored in Texas (e.g. Chester's Island) but there does not seem to be examples like this included in the proposal.	

Question J	
Has the project/program identified a monitoring and data management strategy that will support project measures of success (i.e., metrics). If so, is the appropriate best available science justification provided? If applicable, how is adaptive management informed by the performance criteria? (Captures statistical information requirement a defined by the RESTORE Act)	Yes
Comments:	
Yes, use of GRIIDC is sound and will ensure data storage and sharing.	

I recognize this is a review of proposal for FPL program so project-specific details are lacking. I would recommend more thought be given to what specific types of projects may be most needed for this program, that is, ones that benefit species of greatest conservation need or bays/estuaries experiencing the greatest loss of rookery islands, or other factors. I think a prioritization list of project ideas could be beneficial in selecting projects funded under this program/proposal.

SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Protecting and Restoring Waterbird Rookery Habitat Program
Location (If Applicable): The location of this program activity within the Texas Coastal Zone, particularly in areas identified as rookery habitat. This includes coastal and estuarine areas within Texas RESTOREeligible counties including Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris,Jefferson, Matagorda, and Refugio.
Council Member Bureau or Agency: Texas Commission on Environmental Quality
Type of Funding Requested: Planning / Implementation

Reviewed by: Out of State
Date of Review: Sept. 23, 2024

Best Available Science:

These 4 factors/elements help frame the reviewer's answers to A, B and C found in next section:

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Yes
Comments:	

Yes, there is good and sufficient reference given to existing work that is relevant to this proposed project.

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Yes
Comments:	
Yes, though there is specific reference to the proposed area of this work the references provided do afford broad perspective and applicability to a variety of locations.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
Yes, there is a diversity among the references provided, diversity in focal area, sources, and how they are presented in support of the proposed efforts.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
Yes, risks and potential limitations are noted. There are specific objectives noted and the larger framework is presented as adaptive in that the methods incorporate an updatable program that can be modified dependent upon outcomes and learning.	

Based on the answers to the previous 4 questions, and *giving deference to the sponsor to provide within reason the use of best available science,* the following three questions can be answered:

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer- reviewed and publicly available data?	Yes
Comments:	
Yes, given the limited scope in which the project proposal can be delivered I believe the applicants have done a good job capitalizing on presenting the most relevant information in a clear, tractable manner.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	Yes
Comments:	
The application is presented in a clear way that manages objectives within a clearly-defined scope. The integration of existing programs within the proposed work also supports the strength of this project and it proceeds in using existing science to improve and implement targets.	

Question C	
Has the applicant provided reasonable justification that the proposal is based on science that clearly documents and communicates risks and uncertainties in the scientific basis for such projects/programs?	Yes
Comments:	
Please see response to questions B and C, above.	

Science Context Evaluation:

Question A	
Has the project/program sponsor or project partners demonstrated experience in implementing a project/program similar to the one being proposed?	Yes
Comments:	
The collaborators in this proposal are defined. Although not explicit in noting prior, comparable accomplishments, the descriptions of collaborative ventures showcase that they are capable of providing sound results.	

Question B	
Does the project/program have clearly defined goals and objectives?	Yes
Comments:	
Yes, goals and objectives are provided in a clear manner in that metrics of success are interpretable.	

Question C	
Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	Yes
Comments:	
This project provides clear methodology including potential contingencies based on possible changes that could occur through various circumstances. There is also good reference to existing plans and programs that lend to the adaptive framework proposed. Inclusion of control systems to act as comparables through the restoration process is commendable.	

Question D	
Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Yes
Comments:	
The objectives are associated with particular goals and means by which success can be appraised during the implementation process.	

Question E	
Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	Yes
Comments:	
Included within the proposal are goals and means through which meeting these objectives can be evaluated. The adaptable nature of the proposed work along with allowance for contingencies allows for some flexibility that presents in a realistic fashion.	

Question F

Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Yes

Comments:

Yes, including contingencies there is also detail on potential for stochastic events that can affect the performance of this project and where the goals may be influenced. These potential changes are more aligned with physical changes to natural systems and less on socioeconomic changes that may be borne out through unexpected events. As a proposal focused on restoration these contingencies make sense in context.

Question G

Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Yes

Comments:

Yes, see response to question F, above.

Question H

Does the project/program consider recent and/or relevant information in discussing the elements above?	Yes

Comments:

The potential for unexpected occurrences that could affect project implementation are noted along with relevant references. The possibility of unforeseen events is also noted within the context of the adaptive framework proposed for this project.

Question I

Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	Need more information

Comments:

There is some reference to similar projects that have been carried out. There is also consideration to potential unexpected events and inclusion of an adaptive process within the methods. There did not appear to be specific mention to how other projects have curbed their methods when potential unexpected events occurred that affected methods.

Question J

Has the project/program identified a monitoring and data management strategy that will support project measures of success (i.e., metrics). If so, is the appropriate best available science justification provided? If applicable, how is adaptive management informed by the performance criteria? (Captures statistical information requirement a defined by the RESTORE Act)	Yes

Comments:

Specific goals and objectives are noted within the proposal. These objectives provide a framework by which the delivery of the proposed work can be assessed. Inclusion of specific goals and objectives for a variety of facets and scales within the proposed work points a positive image for this proposal.

Please summarize any additional information needed below:

Overall, the project seems very well-conceived and detailed. The proposal builds on an adaptive foundation that includes potential limits while clearly defining goals and milestones. Specific details within this project such as evaluation of metrics specific to restoration and some of the organisms involved shows that there is consideration and assessment at a variety of different ecological, temporal, and spatial scales.

SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Protecting and Restoring Waterbird Rookery Habitat Program
Location (If Applicable): The location of this program activity within the Texas Coastal Zone, particularly in areas identified as rookery habitat. This includes coastal and estuarine areas within Texas RESTOREeligible counties including Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris,Jefferson, Matagorda, and Refugio.
Council Member Bureau or Agency: Texas Commission on Environmental Quality
Type of Funding Requested: Planning / Implementation

Reviewed by: Out of Gulf
Date of Review: 31 October 2024

Best Available Science:

These 4 factors/elements help frame the reviewer's answers to A, B and C found in next section:

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Yes
Comments:	
I appreciated the extensive Bibliography.	

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Yes
Comments:	
Project is within the Gulf Coast region; question not applicable.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
The proposal contains a thorough and correctly prepared literature cited section.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
The applicants provide a detailed description of what can go wrong with such projects, and describe steps to mitigate challenges.	

Based on the answers to the previous 4 questions, and *giving deference to the sponsor to provide within reason the use of best available science,* the following three questions can be answered:

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer- reviewed and publicly available data?	Yes
Comments:	
The applicants draw on a wide array of peer-reviewed and publicly-available literature.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	Yes
Comments:	

Question C	
Has the applicant provided reasonable justification that the proposal is based on science that clearly documents and communicates risks and uncertainties in the scientific basis for such projects/programs?	Yes
Comments:	
Applicants seem well aware of the challenges associated with large scale restoration projects.	

Science Context Evaluation:

Question A	
Has the project/program sponsor or project partners demonstrated experience in implementing a project/program similar to the one being proposed?	Yes
Comments:	
Applicants demonstrate a clear understanding of how these kinds of projects are implemented.	

Question B	
Does the project/program have clearly defined goals and objectives?	Yes
Comments:	
Goals are defined as clearly as possible considering it is not yet known which restoration projects will be selected for implementation.	

Question C	
Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	Need more information
Comments:	

Understood that this project seeks to fund restoration projects, but not clear exactly what criteria are used to select projects – is it based entirely on using the CINDI tool being developed by the Harte Institute?

Question D	
Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Yes
Comments:	

Question E	
Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	Need more information
Comments:	
Difficult to answer since metrics of success are likely different depending on each specific project.	

Question F	
Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
Applicants do a good job describing risks related to storms, sea level rise, invasive species, etc.	

Question G	
Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Need more information
Comments:	

Difficult to answer since these kinds of risks and uncertainties could vary considerably on which specific projects are chosen for implementation.

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Need more information
Comments:	
Difficult to answer since it is not yet known which project will be implemented.	

Question I	
Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	Yes
Comments:	
Although specific past failures are not cited, it seems to me this is the purpose of developing adaptive management approaches, which the applicants discuss.	

Question J	
Has the project/program identified a monitoring and data management strategy that will support project measures of success (i.e., metrics). If so, is the appropriate best available science justification provided? If applicable, how is adaptive management informed by the performance criteria? (Captures statistical information requirement a defined by the RESTORE Act)	Yes
Comments:	
I appreciate that the Data Management Plan includes the use of GRIIDC, which is a well-established data repository, and that data (as a measure of restoration success) are collected via standardized bird survey approaches (GoMANN).	

Please summarize any additional information needed below:
This proposal outlines a substantial project to select and fund restoration projects for coastal waterbirds in Texas. The approaches seem well-supported by the available peer-reviewed and other literature, and I appreciate the effort taken to demonstrate an awareness of the many entities involved in coastal restoration activities along the Texas coast.