

Colonial Waterbird Rookery Island Restoration

RESTORE Council Proposal Document

General Information

Title:

Colonial Waterbird Rookery Island Restoration

Project Abstract:

Many coastal breeding colonial waterbirds are in decline. Restoration of their nesting sites is needed to slow and reverse declines in these waterbird species. Recently, the National Oceanic and Atmospheric Administration (NOAA) RESTORE Science Program funded a project to develop a planning tool to guide rookery island restoration based on bird biology, nesting productivity, and food resources. This tool, called "Colony Island Network Design and Implementation (CINDI)," is being designed and co-produced by the Harte Research Institute (HRI) and will help managers plan a network of colony islands where rehabilitation and management opportunities are balanced by cost effectiveness and target the geographies and bird species to yield the greatest benefit.

This proposal will leverage the CINDI tool to support restoration actions on islands of the Texas coast. Actions and associated monitoring will be conducted when funds are available (expected 2026) and carried out over 5 years. Actions may include restoration through sediment placement, erosion protection, vegetation manipulation, invasive species control, and/or disturbance abatement. The Department of the Interior (DOI) U.S. Fish and Wildlife Service (USFWS) will work with the Texas Parks and Wildlife Department (TPWD), the Texas General Land Office (GLO), the Texas Commission on Environmental Quality (TCEQ), HRI and non-governmental organization (NGO) partners to implement the projects in support of waterbird rookery island restoration actions.

The goal of this proposal is to maintain or increase breeding waterbird use by restoring, enhancing, or managing island habitat in places that have the highest potential for success on the Texas coast. The objectives are to implement restoration/management actions on a minimum of 5 island locations, restoring/enhancing or managing at least 10 acres of habitat for breeding colonial waterbirds. Success will be measured by stable or increasing numbers of waterbirds nesting at locations where actions are carried out.

FPL Category: Cat1: Planning/ Cat2: Implementation

Activity Type: Project

Program: N/A

Co-sponsoring Agency(ies):
DOI/FWS

Is this a construction project?:
No

RESTORE Act Priority Criteria:

(IV) Projects that restore long-term resilience of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands most impacted by the Deepwater Horizon oil spill.

Priority Criteria Justification:

Coastal breeding waterbirds were significantly affected by the Deepwater Horizon disaster. This proposal meets RESTORE Priority Criteria 4 (Projects that restore long-term resilience of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands most impacted by the Deepwater Horizon oil spill) by carrying out projects to improve island nesting habitat for waterbirds. A Project Advisory Committee using the CINDI tool will help ensure that projects carried out are in geographic locations and for targeted species that will yield the most effective benefits with the resources available.

Project Duration (in years): 5

Goals

Primary Comprehensive Plan Goal:

Replenish and Protect Living Coastal and Marine Resources

Primary Comprehensive Plan Objective:

Restore, Enhance, and Protect Habitats

Secondary Comprehensive Plan Objectives:

N/A

Secondary Comprehensive Plan Goals:

N/A

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 bays and estuaries from the east side of Galveston Bay south to the Rio Grande River. This is the CINDI project boundary.

HUC8 Watershed(s):

Texas-Gulf Region(Trinity) - Lower Trinity(Lower Trinity)
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(South Laguna Madre)
Texas-Gulf Region(Nueces-Southwestern Texas Coastal) - Southwestern Texas Coastal(North Laguna Madre)
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 - Kenedy
TX - Kleberg
TX - Liberty
TX - Matagorda
TX - Nueces
TX - Refugio
TX - San Patricio
TX - Victoria
TX - Willacy

Congressional District(s):

TX - 22
TX - 27
TX - 14
TX - 36
TX - 34

Narrative

Introduction and Overview:

Many coastal breeding colonial waterbirds are in decline (Kushlan et al 2002). For example, black skimmers have declined by approximately 70% in Texas over the past 50 years (Heath and Hackney 2013, Newstead, 2024). These declines are related to the loss of islands to erosion and sea-level rise, improper vegetation, invasive species, predators, and disturbance during the breeding season (Hackney 2016). Direct experience in habitat restoration/enhancement and management on islands demonstrated success in creating favorable conditions for breeding waterbirds in Texas bays. The USFWS and its partners have used various approaches to restore and enhance rookery islands. These include complete island creation and/or restoration, e.g. Dickinson Bay Bird Islands I and II, Evia Island, West Bay Bird Island II, Nueces Bay Bird Island, etc. Enhancement of existing islands includes vegetation management, disturbance intervention, supplemental sediment addition, and predator control. Through the years, adaptive management including vegetation control, invasive species control and post storm event maintenance have insured the long-term success of the islands for

breeding waterbirds. Funding is needed to support restoration actions to slow and reverse declines in waterbirds.

Funding through the Deepwater Horizon Natural Resource Damage Assessment (NRDA) Trustees, the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund (NFWF-GEGBF) and other sources has been directed for island creation, restoration, and management (Deepwater Horizon NRDA Trustees, 2016, and NFWF-GEGBF, 2024); however, more is needed to effectively restore coastal waterbird populations. The Texas GLO produces a Coastal Resilience Master Plan to identify coastal projects that are needed to make coastal communities and natural resources more resilient to natural disasters. The 2019 and 2023 plans included waterbird colony projects in every region in the Tier-1 (highest) category with a total funding needed estimated to be over \$50 million in the 2019 plan and over \$90 million in the 2023 plan (Texas GLO, 2019 and 2023). The need to restore waterbird habitat is great and well documented (Deepwater Horizon NRDA Trustees 2016, Hackney et al., 2016, Hardegree 2014, Kushlan et al 2002). Because it is not possible from a funding perspective to restore/manage all potential waterbird nesting habitat on the Texas coast, conservation efforts must be targeted at locations that have the highest probability for success to reverse waterbird population declines. The Service employs the Strategic Habitat Conservation Framework in our efforts to ensure conservation is carried out based on biological science (USGS and USFWS 2006).

The NOAA RESTORE Science program provided \$2,000,453 in funding to develop the CINDI tool to prioritize rookery island restoration based on bird biology, nesting productivity and food resources (<https://restoreactscienceprogram.noaa.gov/projects/rehabilitation-of-waterbird-nesting-islands>). The CINDI tool will help managers prioritize a network of colony islands where rehabilitation and management are cost effective and the potential for enhancing waterbird populations is high. The tool is an expansion of a pilot project that was carried out in the upper Laguna Madre (Gawlik 2024). While the CINDI tool will be finalized in September 2027, users will have access to preliminary products in 2026, which can support the success of this restoration project in the long term. Incorporating the results from the CINDI tool into this proposal provides the conservation community with a tool designed to guide more effective actions based on geography and avian biology. It also provides the opportunity to test and possibly refine the island design tool. While best professional judgement has been used by the conservation community to target funds in the past, an objective tool was not available to support decision making.

The CINDI tool is based on a multi-criteria decision-making (MCDM) process using five focal species that represent the broader group of waterbirds that use islands for nesting in Texas. The focal species represent guilds that nest in trees, shrubs, low vegetation, and bare ground. These include the reddish egret, great egret, tricolored heron, black skimmer, and Caspian tern (<https://www.birdislands.org/>). The criteria used will be species-specific and will include number of breeding pairs, nest survival rates, and habitat suitability within the foraging range of a colony. Use of MCDM in the process helps reduce uncertainty and establishes shared understanding for the decision makers (Shao et al 2020). This approach has been used to create resource

allocation methods for wetland management identifying effective and efficient strategies that are robust to uncertainty with respect to sea level rise (Lyons et al 2020).

The MCDM process includes 6 steps: 1) selection of alternative sites for rehabilitation, 2) estimation of performance measure (PM) metrics, 3) normalization of the metrics, 4) application of expert-elicited weights to PMs, 5) scoring alternative sites based on summed PM values, and 6) validation of island rankings by experts (Essian, D., Personal Communication January 5, 2025).

This proposal will leverage the CINDI tool by providing funds for restoration actions on islands in coastal Texas. Using CINDI as a guide, the goal of this proposal is to maintain or increase breeding waterbird use by restoring, enhancing, or managing island habitat in places that have the highest potential for success on the Texas coast. The objectives are to implement restoration/management actions at a minimum of 5 island locations, restoring/enhancing or managing at least 10 acres of habitat for breeding colonial waterbirds as funding allows (actual site locations are currently unknown – see Proposed Methods section below). The success will be measured by stable or increasing numbers of waterbirds nesting at locations where actions are carried out. Actions and associated monitoring will be conducted when funds are available (expected in 2026) and carried out over 5 years. Other potential sources of leveraged funding to carry out restoration projects include Deepwater Horizon NRDA, Texas GLO through the Coastal Resiliency Master Plan, and also the proposed program “Protecting and Restoring Waterbird Rookery Habitat Program.” It is expected that this DOI proposal will provide TCEQ with needed information as they implement projects under their program area.

The USFWS has been restoring, enhancing, managing, and monitoring waterbird populations in Texas for more than 30 years. With partners such as the Coastal Bend Bays and Estuaries Program, Galveston Bay Foundation, TPWD, Texas GLO, Texas Colonial Waterbird Society, and Deepwater Horizon NRDA trustees, we have provided funding and technical support for waterbird island restoration/management and monitoring in every bay system in Texas. USFWS staff have extensive experience in providing financial and technical assistance to project partners in all phases of waterbird colony restoration/enhancement and management. Staff provide input on project designs, regulatory permitting assistance, construction oversight, vegetation establishment or management, invasive species control, disturbance abatement, and monitoring of birds and habitat.

Proposed Methods :

A Project Advisory Committee (PAC) will be established to help guide the restoration project ideas through site identification, actions to be taken, development of restoration/monitoring plans and selection of contractors. The PAC will include state and federal agencies, HRI, and other conservation partners. Within the first 6 months, the PAC will identify potential sites along coastal Texas where restoration/enhancement actions could be carried out. The PAC will build a list of potential habitat restoration/enhancement projects by using their knowledge of previously proposed projects, projects identified in existing plans, and new potential projects. The PAC will use the CINDI tool to help prioritize locations and projects that have the highest benefit for either specific species of colonial nesting waterbirds or guilds based on nesting

habitat (nesting in trees, shrub, low vegetation, or bare ground). The CINDI tool and non-biological factors related to feasibility and budget will be used by the PAC to identify the projects that will be carried out. Actions could include island creation/restoration through sediment placement, erosion protection, vegetation manipulation, invasive species control, and/or disturbance abatement. Disturbance abatement could include public outreach and education efforts.

This proposal allows for the possibility for island creation or restoration through sediment placement and armoring shorelines. Island restoration or enhancement must balance multiple factors to achieve the desired goal including longevity, water depth, targeted species, site natural resource values, and others. Because island restoration costs are expensive (approximated to be \$1M/acre) and can take more than 2 years to permit, implementation of restoration projects in the timeframe outlined in this proposal will not be possible unless already well into planning stages with permits received and other significant funding sources identified. In that case, the PAC will need to leverage RESTORE funding with additional funds from other sources such as NRDA to complete restoration projects. It is also likely that most projects funded by this proposal will enhance existing sites through vegetation manipulation, invasive species control, and/or disturbance abatement or sediment placement using lower cost alternative means. Those actions are more economical and will likely result in more acres of habitat improvement overall helping to achieve the 10-acre goal.

Once site specific actions are identified and monitoring and adaptive management plans developed, cooperative agreements or contracts will be implemented with organizations to carry out restoration/management or monitoring plans. Monitoring plans will include data on numbers of breeding waterbird pairs collected 3 times from each site during the breeding season. Success will be assessed at the species or guild response level on a site-by-site basis. Site improvements (restoration actions, vegetation manipulations/plantings or other management actions will be monitored outside the nesting season.

Environmental Benefits:

The environmental benefits of this proposed effort include:

- Improving colonial waterbird nesting habitat on no less than 10 acres,
- Improving the resilience of restoration actions across at least 5 island sites,
- Testing the process and functionality of using the CINDI tool,
- Testing the restoration actions by monitoring their effectiveness,
- Improving our knowledge and experience levels shared across the Gulf of America, and
- Stabilizing or increasing numbers of waterbirds nesting at locations where actions were implemented.

Metrics:

Metric Title: HR004 : Habitat restoration - Acres restored

Target: 10

Metrics Narrative: The objectives are to implement restoration/management actions on a minimum of 5 island locations, restoring/enhancing or managing at least 10 acres of habitat for breeding colonial waterbirds. Actions could include island creation/restoration through sediment placement, erosion protection, vegetation manipulation, invasive species control, and/or disturbance abatement. Area of islands affected will be reported in acreage of the island.

Risk and Uncertainties:

Short-term Risk: Island creation, erosion protection and placement of material is not only very costly but also takes much more environmental permitting than other potential aspects of this proposed effort. The financial cost and time required to plan potential restoration projects could limit the ability to have more spatially robust outcomes. Recent bird rookery island creation projects have cost approximately \$1 Million/acre and can take more than two years to plan and permit. Therefore, without additional funding, the restoration actions described in this proposal could be limited.

Short-term Risk: Island restoration that requires sediment placement or armoring of shorelines has uncertainty related to supply. Sediment can be a limiting factor and cost prohibitive for many projects. Often sediment that comes from channel maintenance activities is not suitable for island restoration. Armoring requires sufficient water depth to transport stone or other materials to the site. These elements will be evaluated in the multi-criteria decision-making process used by the PAC.

Short-term Uncertainty: The CINDI tool has not been completed and therefore the robustness of its outcomes has not yet been evaluated. This introduces some uncertainty into the process. The tool is not the only factor in decision process. This proposed effort will have a PAC to help guide site identification, actions to be taken, development of restoration/monitoring plans and selection of contractors. This process has proven successful and the use of the tool should only strengthen that process.

There is always short-term risk and uncertainty that actions carried out on islands to increase bird nesting could fail to produce the desired result. The use of a MCDM tool like CINDI should help reduce that risk. Even with an experienced PAC using the CINDI tool, there is potential that birds do not respond as anticipated. Having a robust site-specific monitoring plan can help reduce uncertainty, identify issues, and help to adapt or modify the treatments to have the desired outcome.

Long-term Risk and Uncertainty: Projects that enhance habitat on existing sites through management actions such as predator control, vegetation manipulation or disturbance abatement are processes that are usually not permanent and must be repeated for the accrued benefits for waterbirds to persist. Therefore, there is risk that, post-project, a restored area could revert to its previous state and lose waterbird use, resulting in uncertainty about how to maintain objectives. Projects carried out where there is a strong partner base (National Estuary Programs or others) who have a continued interest in maintaining restoration efforts helps reduce this risk.

Long-term Uncertainty: Climatic events, such as hurricanes, extreme storms, and tide surges from such events pose a threat to actions carried out under this proposal in the short and long-term. Planning to construct for such events comes at a financial cost and reduces the area of project benefits. This calculated risk could be impacted by more frequent or more severe storm events (Balguru et al., 2023). A severe storm and prolonged high tides could remove any improvements carried out. Carrying out projects along the whole coast and not concentrated in one bay system could help reduce this risk.

Long-term Uncertainty: Various factors influence the population structure of birds. These include outbreaks of avian disease, economic investment in conservation, changes in foraging habitat and fisheries resources, etc. These can change in as little as a year's time or take decades to have effects on bird populations.

Monitoring and Adaptive Management:

A site-specific Monitoring and Adaptive Management (MAM) Plan will be developed for each location prior to implementing actions to restore or enhance island habitat for nesting waterbirds. Monitoring could include island habitat pre/post action implementation as well as numbers and species of waterbirds nesting over the last decades (if available). The duration of monitoring will depend on the action carried out and could range from one to three years post-implementation. The numbers of waterbirds which are nesting will be determined by 3 surveys of colonies during the breeding season. One of the surveys will be carried out as part of the Texas Colonial Waterbird Society Annual Survey. Since 1973, the Society has been surveying all coastal waterbird colonies since 1973 in May or early June in each year.

Implemented actions (island structural component integrity, vegetation plantings or manipulations or other management actions) will be monitored at least twice each year pre and post nesting season. This will ensure that the action has resulted in the desired habitat outcome. Should monitoring show the action did not result in the desired habitat outcome then the approach will be modified as needed to meet the objective. This monitoring will increase understanding of the effects of management actions on breeding bird abundance at specific locations helping reduce uncertainty related to management and furthering the goals of the Gulf Avian Monitoring Network Strategic Bird Monitoring Guidelines (Wilson et al, 2019).

Success will be evaluated by the response of the species or guild targeted at each site on an annual basis.

Data Management:

A Data Management Plan will be developed for the proposed effort. Data will be collected using standard monitoring practices based on restoration actions taken at a site. Data will be collected in the field on predesigned datasheets and notes taken in field notebooks. Data will be entered into appropriate databases or spreadsheets for analysis. Data will be housed on USFWS secure servers. The completion of this effort will include a final report that once approved will be provided to the public through emails and through partners.

Collaboration:

The USFWS will work with TPWD, Texas GLO, TCEQ, HRI, and NGO partners to implement projects in support of waterbird rookery island restoration actions. HRI will be a key partner as they are developing the CINDI tool. USFWS will set up a PAC with the partners to help lead and guide this effort. The TCEQ has submitted a proposal to fund the “Protecting and Restoring Waterbird Rookery Habitat Program.” In their proposal, they have emphasized the need to use habitat suitability assessments (like CINDI) to assess the potential for long-term success or failure of proposed restoration projects. Having TCEQ as a PAC member will aid and inform their program area when they move to implementation.

Public Engagement, Outreach, and Education:

Results of this proposed effort will be shared with various conservation community organizations that include the Gulf of America Alliance, Trustee Implementation Groups, Gulf Coast Joint Venture, The Waterbird Society, Estuary Programs, and National Estuarine Research Reserves. Outreach to local resource and recreational organizations will also be undertaken to support the recognition that coastal resources influence and benefit multiple stakeholders.

Leveraging:

Funds: \$2,000,453

Type:

Status:

Source Type: Other Federal

Description: The NOAA RESTORE Science Program has provided \$2,000,453 in funding to develop the CINDI tool to prioritize rookery island restoration based on bird biology, nesting productivity and food resources. The CINDI tool is being designed and co-produced by the HRI and will help managers prioritize colony islands rehabilitation and management work. This proposal will leverage the CINDI project by providing funds for restoration actions on islands in coastal Texas. Funding will be used to implement actions using this tool as a guide. Actions and associated monitoring will be conducted when funds are available (expected in 2026) and carried out over five years.

Environmental Compliance:

Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site-specific details are needed prior to completing all environmental compliance documentation.

Bibliography (All references listed below that were published prior to 2025 may reference the Gulf of Mexico. This nomenclature has been retained to maintain the integrity of the referenced material. The Council recognizes the name change Gulf of America):

Balaguru, K., W. Xu, C. Chang, L.R. Leung, D.R. Judi, S.M. Hagos, M.F. Wehner, J.P. Kossin and M. Ting. 2023. Increased U.S. coastal hurricane risk under climate change. *Science Advances*, Vol 9, No. 14. <https://www.science.org/doi/10.1126/sciadv.adf0259>.

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Hardegree, B. 2014. "Report 3: Colonial Nesting Water Birds (Pp. 1-33). In San Antonio Bay?: Status and Trends Reports." Coastal Bend Bays & Estuaries Program Publication CBBEP-92.

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National Fish and Wildlife Foundation Gulf Environmental Benefit Fund. 2024
<https://www.nfwf.org/gulf-environmental-benefit-fund>.

Newstead, David. 2024. Black Skimmer Project Update – Coastal Collaborations. What's Happening Around the Bend Newsletter. Coastal Bend Bays and Estuary Program.

Rehabilitation of Waterbird Nesting Islands, Colony Island Network Design and Implementation (CINDI): a prioritization tool to rehabilitate colony islands along the Texas coast. NOAA RESTORE Science Program 2024.
<https://restoreactscienceprogram.noaa.gov/projects/rehabilitation-ofwaterbird-nesting-islands>

Shao, Meng & Han, Zhixin & Sun, Jinwei & Xiao, Chengsi & Zhang, Shulei & Zhao, Yuanxu. (2020). A review of multi-criteria decision making applications for renewable energy site selection. Renewable Energy. 157. 10.1016/j.renene.2020.04.137.

Strategic Habitat Conservation (SHC) framework (U.S. Geological Survey and the U.S. Fish and Wildlife Service, 2006).

Texas General Land Office, Texas Coastal Resiliency Master Plan, 2019.
Texas General Land Office, Texas Coastal Resiliency Master Plan, 2023.

Budget

Project Budget Narrative:

Total project budget is \$2,000,000 to carry out restoration actions on at least five island sites in Coastal Texas. It is expected that \$200,000 will be used to develop site specific restoration plans for five locations. These plans will include all actions necessary for the site including monitoring plans. Another \$200,000 will be used for project oversight and management of individual funding agreements with cooperators to carry out actions on the islands, including up to 5 sub-recipient cooperative agreements for actions. Finally, \$200,000 will be used in cooperative agreements to implement monitoring and adaptive management plans, and \$1,400,000 will be used in cooperative agreements with partners to carry out site specific actions identified in the restoration plans on at least five island sites. Actions could include island creation/restoration through sediment placement, erosion protection, vegetation manipulation, invasive species control, and/or disturbance abatement.

Total FPL Project/Program Budget Request:
\$ 2,000,000.00

Estimated Percent Monitoring and Adaptive Management: 10 %

Estimated Percent Planning: 10 %

Estimated Percent Implementation: 70 %

Estimated Percent Project Management: 10 %

Estimated Percent Data Management: 0 %

Estimated Percent Contingency: 0 %

Is the Project Scalable?:

Yes

If yes, provide a short description regarding scalability.:

The project is scalable. If more funding is provided or if funds can be leveraged with other partners, the accomplishments can be expanded beyond the goal of five islands. If funding is reduced by half, then half of the projected accomplishments can be achieved.

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	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Endangered Species Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
National Historic Preservation Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Magnuson-Stevens Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.

Fish and Wildlife Conservation Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Coastal Zone Management Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Coastal Barrier Resources Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Farmland Protection Policy Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Clean Water Act (Section 404)	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
River and Harbors Act (Section 10)	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Marine Protection, Research and Sanctuaries Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Marine Mammal Protection Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
National Marine Sanctuaries Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.

Migratory Bird Treaty Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Bald and Golden Eagle Protection Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Clean Air Act	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.
Other Applicable Environmental Compliance Laws or Regulations	No	Environmental Compliance will be completed on a site-by-site basis at the time of project identification. Site specific details are needed prior to completing all environmental compliance documentation.

Maps, Charts, Figures



Caption : Texas bays where the project will be carried out.

Other Uploads

GIS Data_1:
RESTORE_GIS_Template.gdb.zip
Caption : N/A

Council Staff Review:

Colonial Waterbird Rookery Island Restoration

Note: All comments indicated below were addressed in the proposal provided above.

FPL Internal Staff Review

Project/Program	Colonial Waterbird Rookery Island Restoration		
Primary Reviewer	Amy Newbold	Sponsor	DOI
EC Reviewer	John Ettinger	Co-Sponsor	
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?			Yes
Notes			
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?			Yes
Notes			
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?		More information needed
Notes	<p>The proposal indicated work is spread over 5 islands. The target is set at 10 acres? Please provide more details about the restoration goals for each island and why 10 acres was selected.</p> <p>Note: Restore Council staff worked with the state to resolve these comments.</p>	
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 portion of the project is in FPL Cat 2.	

Summary of Best Available Science Review:

Colonial Waterbird Rookery Island Restoration

The proposal for the rookery restoration project has received significant feedback from multiple reviewers, highlighting several key areas of concern. The objectives and methods are seen as vague, with insufficient justification based on peer-reviewed or publicly available data. The reliance on the CINDI tool, which is still under development, has raised doubts about the project's foundation, as it lacks a solid, peer-reviewed scientific basis. Reviewers also emphasized the need for more comprehensive literature to support the project, as only two references were cited, both of which are insufficient to justify the project's methods and objectives. While the proposal generally pertains to the Gulf Coast region, reviewers noted the lack of detailed evaluation on risks and uncertainties, particularly regarding the long-term viability of rookery restoration in the face of challenges like sea level rise. The project's goals and methods were seen as insufficiently defined, with a general lack of clarity on how success would be measured, beyond a vague goal of restoring 10 acres of habitat. Furthermore, there was little discussion on past successes or failures of similar projects, and the adaptive management strategy was underdeveloped. Although the proposal does mention the involvement of experienced collaborators, the lack of detailed information regarding past projects leaves reviewers uncertain about the team's capability. In conclusion, while the proposal aligns with the broader goals of habitat restoration, its current form is too vague and lacks critical details on methods, monitoring, risk assessment, and implementation to instill confidence in its success.

Summary of DOI's Response to BAS Comments:

The proposal will undergo revisions to address feedback from the BAS, incorporating more detail and scientific justification regarding the goals, objectives, and methods. References such as the North American Waterbird Conservation Plan, Texas Waterbird Society data, and the NRDA Deepwater Horizon Programmatic Damage Assessment and Restoration Plan will be included to support the need for restoration actions. Specific examples of past successful island restoration projects in Texas will also be added. The CINDI tool, a multi-criteria decision-making process designed to rank the most effective restoration actions for waterbird populations, will be more thoroughly referenced, including its use with five focal species that represent different nesting guilds. The methods section will also describe the establishment of a Project Advisory Committee (PAC), which will guide the project through site identification, restoration actions, and monitoring plan development. The PAC will utilize the CINDI tool to prioritize sites for restoration, incorporating both biological and non-biological factors.

The proposal will outline the specific restoration actions that could include island creation, erosion protection, vegetation manipulation, and invasive species control. Success will be evaluated based on stable or increasing waterbird populations. Short-term risks such as the high costs and permitting requirements for island creation will be acknowledged, as well as the uncertainties related to sediment supply and the completion of the CINDI project. Long-term risks, including sea-level rise, will also be addressed. Furthermore, the proposal will emphasize

the importance of a robust monitoring and adaptive management plan for each site, which will include pre- and post-action habitat assessments and annual waterbird surveys. The revisions will provide detailed descriptions of past projects, success factors, and lessons learned to ensure the highest potential for success in the proposed restoration efforts.

The proposal will be revised to include a site-specific Monitoring and Adaptive Management Plan for each location before implementing restoration actions for waterbird nesting habitats. Monitoring will include pre- and post-action assessments of both habitat conditions and waterbird nesting numbers, with monitoring occurring at least twice annually. The duration of monitoring will vary based on the action taken, ranging from one to three years post-implementation, and success will be evaluated annually by assessing the species response at each site or at the guild level. If monitoring reveals that the actions do not achieve the desired habitat outcome, the approach will be modified accordingly. The revised proposal will also clarify the project's objectives, methods, and associated costs. While island creation or restoration through sediment placement is an option, these projects are expensive and require over two years for permitting, making them unlikely to be completed within the proposal's timeline unless already well into the planning stage. Instead, the proposal will focus on enhancing existing sites through more cost-effective methods like vegetation manipulation, invasive species control, and disturbance abatement, which will likely result in broader habitat improvements.

Best Available Science Review Forms:

Colonial Waterbird Rookery Island Restoration



Proposal Title: Colonial Waterbird Rookery Island Restoration
Location (If Applicable): Texas coastal bays and estuaries from the east side of Galveston Bay south to the Rio Grande River. This is the CINDI project boundary.
Council Member Bureau or Agency: U.S. Department of the Interior United States Fish and Wildlife Service
Type of Funding Requested: Planning / Implementation

Reviewed by: In State
Date of Review: October 2, 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?	No
Comments:	

The proposal objectives and methods are quite vague. I realize that CINDI is not expected to be a finished product until 2026-2027, but there is no literature review included in the narrative and methods other than the Hackney 2016 Rookery Conservation Plan. It was mentioned in the priority justification about particular species (e.g., brown pelican) that were affected by Deepwater Horizon but there is nothing in the narrative or methods about what species and or areas might be considered in island creation/restoration. This project seems premature in timing due to the progress of CINDI is still very much beginning.

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 proposal is focused on Texas coastal rookeries within the Gulf of America.

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?

No

Comments:

As stated before, there is no use of literature other than reference to funded CINDI project and Hackney et al 2016 paper. There is no use of published or unpublished data, information about past or current restoration projects and how sediment deposition, erosion protection, vegetation management, predator/disturbance mitigation has benefitted nesting waterbirds.

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?)

No

Comments:

The only risk/uncertainty that the proposal discusses is the need for more funding, which I do understand and agree with. But there is no discussion about risks and uncertainties on whether rookery restoration would lead to increased bird use, increased nesting productivity, etc. Furthermore, there is no discussion about long-term success (and conversely risks/uncertainties) in terms of sea level rise, increased storm intensity/frequency.

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?	No
Comments:	
The entire proposal is based on the success of CINDI and does not provide any other justification. While I think CINDI is going to be a very useful tool, the proposal is entirely dependent on the success and utility of CINDI, which at this point in time, is unclear.	

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)?	No
Comments:	
No. As stated earlier, the proposal hinges on successful development of CINDI.	

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?	No
Comments:	

Future funding is a real and stated uncertainty and the proposal's justification of this is sound. But as mentioned above, there are many other risks associated with this project. I have addressed some but an additional risk/uncertainty that has not been discussed is U.S. Army Corps of Engineers' availability, use, placement of beneficial dredge materials. Also, there is no discussion on the risk of success – if we build it, will they come? Will birds respond positively to the creation/restoration of rookeries and how will that be evaluated. What are the risks associated with rookery restoration where birds do not respond. Additionally, sea level rise is not discussed in risks and uncertainties section. CINDI will include SLR in its prioritization tool but SLR should be at least discussed in this proposal.

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?	Need more information
Comments:	
It is unclear but based on the collaboration section, I think the expertise and experience is there as collaborators include DOI, TPWD, TX GLO, HRI and NGO partners.	

Question B	
Does the project/program have clearly defined goals and objectives?	No
Comments:	
The project goals are clearly stated but there does not appear to be any associated objectives with the stated goals.	

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)?	No
Comments:	
As discussed earlier, the methods are very brief (1 sentence) and do not provide any justification other than use of CINDI.	

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 proposal plans to implement actions on at least 5 waterbird rookeries but there is not further justification or explanation about environmental benefits. CINDI is gathering telemetry data from specific species but there is no mention in this proposal how those species might be considered in the 5 waterbird rookeries selected for conservation action. Additionally, it is unclear if this funding will have meaningful impact since as stated in proposal, costs have been approximately \$1M/acre and this proposal plans on actions on 5 islands for target 10 acres.	

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:	
The proposal states that metric is acres restored with a target of 10. This is in alignment with the primary conservation plan goal. It is unclear if requested \$2M in funding will achieve that goal for 10 acres restored based on a stated estimate of \$1M/acre but metric is stated and in alignment.	

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)	Need more information
Comments:	
As stated earlier, more information is needed as potential long-term environmental risks are not clearly stated other than potential lack of funding which is not an environmental risk. CINDI incorporates environmental risks (e.g., SLR) but it is not stated in this proposal.	

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:	
The monitoring and adaptive management section does address how monitoring would be conducted but there is not really any discussion about adaptive management and how mitigating actions may be undertaken to deal with risks and uncertainties.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	No
Comments:	

As stated earlier, the proposal is lacking in recent and relevant information other than use of CINDI and Hackney 2016 rookery plan.

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:

There is no discussion about other restoration efforts for rookery islands nor provision of examples on successes and failures in rookery island restoration. There are rookeries that have been restored (e.g., erosion control, sediment deposition, control of invasive plants, etc.) but this information/data is not discussed or presented in this 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 as defined by the RESTORE Act)

Yes

Comments:

The data management plan appears to be sound and the proposal does discuss how monitoring would be implemented. As mentioned earlier, no real discussion on adaptive management and how it could be implemented to adjust to results from monitoring.

Overall, this project is very vague on methods, risks and uncertainties, adaptive management and seems to very much hinge on the potential success of CINDI. While I think rookery island restoration is very much needed and is in alignment with RESTORE Act Priority Criteria, the current proposal lacks details in many areas and therefore makes it more difficult to effectively evaluate the potential success of the proposed project(s).



SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Colonial Waterbird Rookery Island Restoration

Location (If Applicable): Texas coastal bays and estuaries from the east side of Galveston Bay south to the Rio Grande River. This is the CINDI project boundary.

Council Member Bureau or Agency: U.S. Department of the Interior United States Fish and Wildlife Service

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:

In general, yes. The objectives and methods are justified but the depth of evaluation and support is limited. To define the bird populations as declining is logical but fairly cursory without more specifics. Some of the project material leaves open for flexibility but there also needs to be some parameterization of what will be achieved.

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:	
The material presented does pertain to the Texas coast and has the ability to make changes in the proposed area.	

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?	Need more information
Comments:	
There are only two references provided. Given the potential ramifications of this proposed work and the foundations on which it is prefaced, I think inclusion of additional references would be beneficial.	

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, there is an evaluation of uncertainty and an understanding of risk. The proposed work though seems to carry a premise of flexibility through which there is less a definitive framework and more a pattern of what will be evaluated as it is determined at the time of the project being carried out.	



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, there is reference to using an existing tool to identify areas best suitable for this project to be carried out. This said, the references included in the proposal and the associated map do not provide specifics. The map shows the Texas coast with some proposed sections but does not indicate specific areas where the project will be carried out.

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)?	No
Comments:	
In some ways the proposal does provide some information on the project but specific details are largely lacking as it reads more of an evaluation of where things could be possibly done. The framework of using the tool (CINDOI) to identify possible project sites is good but there are not diagnostics presented on how benefits to waterbirds will be evaluated.	

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:	
The proposal lists risks associated with the methods but also indicates that the costs of the proposed work could significantly inhibit much conservation activity.	

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?	Need more information
Comments:	
Perhaps the project participants have engaged in similar work but it is not explicitly clear in the proposal as presented. There is mention of the different groups involved in the project but there is no detail to how similar projects have been implemented by this collaboration.	

Question B	
Does the project/program have clearly defined goals and objectives?	No

Comments:	
There are goals but there is also a lack of specificity to what will be carried out, in part owing to present uncertainty of how the objectives will be met, where, when, and how.	

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)?	No
Comments:	
Methods are noted but there is also note of the need for flexibility in these methods as the ability to carry out the objectives in particular places will depend on targets that are currently uncertain.	

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?	No
Comments:	
There is mention of what could benefit from this project but there are not clearly defined targets to illustrate achievement. For instance, if Black Skimmer populations are declining, and this project would assist these populations then I think there should be some details to how the project will benefit this species and what metrics will illustrate that these goals are being met.	

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:	
What is noted towards measurements of success are acres of islands that are restored. However, what defines 'restored' is not clear nor how the intended audience of this restoration will benefit.	

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:
There is note of risk in the objectives or restoration in that what is restored could ultimately be lost to unforeseen processes. However, the basis of this project and the methods involved seems to rely on flexibility around the unforeseen and methods that must be adapted during project implementation. Less speculation would likely benefit the objectives and goals for this project.

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:	
See comment to question F, above. I did not see specifics to potential socioeconomic issues that could arise through this project.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Yes
Comments:	
Yes, there is mention of financial costs associated with some restoration programs and that these costs could exceed \$1 million/acre. This cost, if relevant to the proposed work, would significantly inhibit the amount of restoration that could occur. There is note that a cost of \$1 million/acre for restoration would limit objectives on at least five island locations but it is not clear what specific five these are nor if these costs would curtail efforts on other islands beyond these five.	

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:	
Additional detail on similar projects carried out by the applicants would assist this evaluation. As it is written it is unclear if similar project have been completed and what the outcome of these efforts have been.	

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)	Need more information
Comments:	
A data management plan has been included that lists how relevant data will be stored and who will archive these data. However, evaluations of milestones for this proposed work and what will be used in gauging success or failure are unclear.	



Please summarize any additional information needed below:
I understand the length of the proposal limits much of what can be included but generally, it seems that the proposal does not afford much insight into the objectives nor are specific means to carry out and monitor project performance explicitly noted. I have some reservations about this project, the implementation, evaluation of potential benefits that will be derived from the allocation of support, if given.



SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Colonial Waterbird Rookery Island Restoration

Location (If Applicable): Texas coastal bays and estuaries from the east side of Galveston Bay south to the Rio Grande River. This is the CINDI project boundary.

Council Member Bureau or Agency: U.S. Department of the Interior United States Fish and Wildlife Service

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?

Need more information

Comments:

With only two sources listed in the Bibliography this is a difficult question to answer. Understood that both sources are almost certainly drawing from peer-reviewed literature, but I would have appreciated a more thorough and diverse sourcing of material to justify both the need and selection criteria for rookery restoration.

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?	
Comments:	
Not applicable; project is 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?	Need more information
Comments:	
I would have appreciated a more thorough and diverse sourcing of material to justify both the need and selection criteria for rookery restoration.	

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?)	No
Comments:	
A surprisingly short paragraph dedicated to this is insufficient, and it seems to address the question only in terms of permitting and planning.	

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?	Need more information
Comments:	
Again, the entire application is backed by only two references. I have to assume that the CINDI tool is based on extensive peer-reviewed and other relevant 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)?	Need more information
Comments:	
There's not enough information here to assess this. It seems this proposal is leveraging the CINDI tool, which is still in development, and therefore I don't know how well CINDI will use scientific information to maximize the quality, objectivity, and integrity of information.	

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?	No
Comments:	
The proposal does not adequately address these issues.	

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:	
It would appear that the applicants are familiar with how these kinds of projects are implemented.	

Question B	
Does the project/program have clearly defined goals and objectives?	Yes
Comments:	
The goal is to restore at least 10 acres of waterbird nesting habitat. Details regarding what constitutes "success" for projects are not provided.	

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:	
I think the goal is to use CINDI, but that doesn't help me understand specific methods to be used. Also difficult to address this question because the projects to implemented have not yet been selected.	

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)	Yes
Comments:	
The goal is to restore waterbird nesting habitat (HR004).	

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)	No
Comments:	
This is not addressed in the proposal.	

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	No

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)	
Comments:	
Inadequately addressed. Applicants only discuss risks/uncertainties in terms of the permitting and planning process.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	No
Comments:	
I have to assume the CINDI tool takes current data on storm risks and sea level rise into account, but this is not addressed directly in this proposal.	

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:	
Applicants mention that past projects have cost ca. \$1 Million/acre, but no discussion of success vs failure. Encouraging that applicants describe some aspects of Adaptive Management, which—if implemented well—can help mitigate imminent failures.	

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 as defined by the RESTORE Act)	Need more information
Comments:	
Applicants don't describe any Data Management Plan other than using "predesigned datasheets" and entering data into spreadsheets or databases. This by itself does not constitute a Data Management Plan. There is no specific connection drawn between data collection (Texas Colonial Waterbird Society Annual Survey) and how those data would feed into an adaptive management framework.	

Please summarize any additional information needed below:

Understood that the goal of this proposal is to use a newly-developed tool (CINDI) for selecting restoration projects for funding, and that exactly which projects would be chosen for funding is not yet known. The funding requested (\$2 million) would seem to be inadequate for the goal of 10 acres of restored habitat when the average cost of this type of restoration is stated to be \$1 million/acre. The proposal is frustratingly vague in a number of details with respect to site selection, planning and implementation, and data collection and management.