

**United States Fish and Wildlife Service
Environmental Action Statement**

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of Proposed Beach Ridge Restoration on McFaddin National Wildlife Refuge, Jefferson County, Texas:

Check One:

- is a categorical exclusion as provided by 516 DM 6 Appendix 1. No further NEPA documentation will be made.
- is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.
- is found to have special environmental issues as described in the attached Environmental Assessment. The attached Finding of No Significant Impact will not be final nor any action taken pending a 30-day period for public review, 40 CFR 1501.4(3)(2).
- is found to have significant effects, and therefore a "Notice of Intent" will be published in the Federal Register to prepare an Environmental Impact Statement before the project is considered further.
- is denied because of environmental damage, Service policy, or mandate.
- is an emergency situation. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents: Environmental Assessment and Finding of No Significant Impact
Intra-Service Section 7 Consultation

Signature Approval:

Jim Cooper
Project Leader

9/6/16
Date

Carol A. Jansz
Environmental Coordinator,
R2 NWRS

9/21/2016
Date

William D. Hoke
Refuge Chief,
R2 NWRS

9/27/16
Date

ACTING
Way E. Nicholas
Regional Director

9/27/16
Date

FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT
BEACH RIDGE RESTORATION ON
MCFADDIN NATIONAL WILDLIFE REFUGE,
JEFFERSON COUNTY, TEXAS

The United States Fish and Wildlife Service (Service) has prepared an Environmental Assessment (EA) on a proposal to restore the McFaddin beach ridge on McFaddin National Wildlife Refuge (NWR) located near the City of Sabine Pass, Jefferson County, Texas. The Service is proposing to restore the longevity of the McFaddin beach ridge in a manner that will delay shoreline retreat and prevent breaching of the beach ridge, in all but the most extreme cases, for decades to come. Preventing Gulf waters from breaching the degraded dune is paramount to the protection of the McFaddin NWR wetlands, located near Sabine Pass, Texas. The proposed action for the entire McFaddin NWR Gulf shoreline will restore the beach sand veneer that formerly protected the underlying clay shoreface from the erosive effects of wave action during everyday conditions as well as storms. The project will take sand from an offshore source and place it on McFaddin beach through dredge pipe deposition. The project may need to be conducted in phases to allow for use of various funding mechanisms to support the completion of the entire project.

This EA was prepared in compliance with the National Environmental Policy Act to provide decision-making framework that: 1) explores a reasonable range of alternatives to meet project objectives, 2) evaluates potential issues and impacts to the refuge, resources, and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. The EA evaluated the effects associated with a range of alternatives to nourish a 20-mile stretch of shoreline to restore the degraded dune ridge, thus reducing the frequency and extent of sea water inundation of interior fresh water marshes located within McFaddin NWR, arrest shoreline retreat along the McFaddin coastline, and restore the historic, native beach habitat. The EA considered three construction alternatives, three source alternatives, and three delivery alternatives, as described below.

While addressing primarily onshore impacts, this document is intended to support full compliance of all Federal and State regulations related to the project. The Service's decision, a Finding of No Significant Impact (FONSI), must ensure that the requirements of all Federal and State permit authorities are addressed to a point where they are no longer deemed significant. The refuge has participated in meetings between the applicant, U.S. Army Corps of Engineers (USACE), and U.S. Environmental Protection Agency (EPA) on both onshore and offshore impacts of this project to ensure that the any coordination issues are addressed. To comply with all regulations, this FONSI is contingent upon receipt of a Section 404 Permit from USACE prior to any irretrievable commitment of resources associated with this project.

BACKGROUND

McFaddin NWR is part of the Salt Bayou ecosystem, the largest contiguous estuarine marsh complex in Texas. This ecosystem is approximately 139,000 acres in size within a Chenier Plain landscape that includes freshwater to estuarine marsh, coastal prairie grasslands, tidal flats, creeks and basins and associated aquatic vegetation. This diversity of communities creates an extremely productive complex for an array of fish and wildlife resources.

In 2000, the Salt Bayou Marsh Workgroup, comprised of Federal, State, and County level government representatives and wetland conservation non-government organizations, assembled to collaborate on a plan that would "...describe and address the importance of the Salt Bayou system's ecological functions, to discuss natural and man-made causes of decline, and to propose a plan of action that would maintain ecological functions and values or reverse their decline." In May 2013, this technical stakeholder group completed the Salt Bayou Watershed Restoration Plan, a document reflecting the Salt Bayou Workgroup's understanding and knowledge of this ecosystem, as well as consensus on strategies to improve conditions of the Salt Bayou system. The final plan also represented a consensus of the workgroup members on a strategy to collectively improve conditions in the Salt Bayou system. One of the workgroup's recommendations was to restore the historic beach ridge where it was missing from High Island to Sabine Pass.

Major elements of the proposed beach restoration have been documented in a significant engineering analysis performed by Jefferson County using federal Coastal Impact Assistance Program funds appropriated in 2001. In addition, USACE actively studied the McFaddin NWR coast, in partnership with Jefferson County, (2001-2009), as part of a feasibility study for erosion response. In 2003, a test section consisting of imported beach sand and a constructed dune was put in place on McFaddin Beach by USACE as a demonstration project. This test project yielded valuable information about the potential performance of the proposed project.

Although the project may have large scale benefits from the current degraded state of the beach, it would represent a more likely site condition if marine jetties on both sides of the project area were not affecting natural sediment deposition in the area. Additionally, the placement of dams on the Sabine and Trinity Rivers are also contributing to unnatural low sediment loading in the project area. The mechanical placement of suitable material will also provide for a more resilient acclimation to sea level rise.

The placement success will depend on putting adequate volumes of sand into the system to ensure that the material remains in the system. Littoral currents and storm systems often move sand around in the littoral zone, therefore adequate material needs to be placed to allow for natural redistribution. Based on oldest photographic evidence and shoreline surveys dating back to the late 19th century, the previous veneer included a sandy beach and a dune system, but was composed of a sand volume on the order of less than half of the total sand volume of the proposed nourishment on a per-mile basis. The time horizon of the beneficial effects of the proposed nourishment can be compared to that of the thinner, previously existing sand veneer, which limited average annual shoreline retreat between the late 19th and late 20th century to roughly half of its more recent rate. The retreat rate increased as the remains of the sand veneer all but disappeared in the late 20th and early 21st century leaving an exposed clay layer as much of the current

shoreline. Accordingly, given the additional volume, the proposed project can be projected to perform at least as well as the system it replaces, for at least as long, meaning through the remainder of the 21st century.

PURPOSE AND NEED FOR ACTION

The proposed action is needed to help conserve one of the largest freshwater marshes on the Texas Coast, along with thousands of acres of intermediate to brackish marsh. McFaddin NWR supplies important feeding and resting habitat for migrating and wintering populations of waterfowl. Meeting the habitat needs of McFaddin NWR's diversity of wetland dependent resident and migratory birds requires maintaining a range of coastal marsh habitat types and sequential stages of the plant community within these marsh types. Providing freshwater inflows and restricting saltwater intrusion are critical to maintaining the Chenier Plain's historic continuum of fresh, intermediate, and brackish saline marshes. Habitat values for waterfowl, shorebirds, and many wading bird species are greatly enhanced in intermediate marshes with early successional plant communities containing several perennial and annual plant species (primarily grasses and sedges) which provide important food resources. Additionally, disturbance reduces the height and/or density of vegetation.

ALTERNATIVES CONSIDERED AND ANALYZED

No Action Alternative

The no action alternative would allow continued over wash of the historic beach ridge. This regular over wash would quickly degrade a clay berm that was intended to protect the 59,000 acres of wetlands, and support the functions of the 100,000 acre Salt Bayou watershed, from seawater inundation. Erosional loss related to vehicle trespass and subsequent vegetation loss would continue to affect the remaining beach ridge as increasing levels of beach sand is lost. Emergency access to areas to protect the beach from chemical spills or other public safety concerns will continue to be problematic.

The no action alternative will result in the premature loss of the clay core berm, as well as sporadic conversion of tens of thousands of acres of refuge habitat into open water habitat due to organic soil loss. In recent years, more than 200 acres of marsh habitat have been lost annually. Historically, it has required an entire growing season or longer for these marshes to recover following sea water inundation, as subsequent rainfall helps flush the system and reduce salinities. The berm currently being constructed will help marsh recovery and decelerate marsh die off; but, in order for McFaddin NWR to benefit from the maximum armoring potential, the Chenier beach ridge needs to be restored as well. Without the combination of both efforts, increased salinities will ultimately have significant negative impacts to most coastal marsh species, including estuarine fisheries species, as water conditions deteriorate in one of the largest estuaries on the Texas coast.

Cascading effects include reduced biomass production, collapse of the root zone leading to shallow surface subsidence, and loss of organic soils leading to rapid conversion to open water. Aquatic habitats

will decline in value as increased salinity levels remain. Open water areas will increase in size, leading to increased turbidity and loss of aquatic vegetative communities. As emergent marsh communities are lost in the conversion of marsh to open water, species utilizing the interior marshes will be displaced into more suitable habitat, if available. In addition to hundreds of acres per year converting to open water at the Gulf shoreline, the interior of the marsh will open up and eventually connect to the Gulf of Mexico. Examples of this progression are evident in Southern Louisiana.

The no action alternative will also result in the continuation of increased shoreline retreat along the McFaddin Beach coastline. In addition, a clay-based substrate already exposed along many thousands of feet of shoreline increases turbidity in the water column through suspension of small silt and clay particles from direct wave energy impacts. This increase in suspended sediments can reduce visibility in the water.

Action Alternatives

Construction Alternatives

Each of the three initial construction considerations for McFaddin NWR shoreline stabilization was screened under the following parameters:

- Potential environmental impacts
- Potential impacts to recreation and navigation
- Cost
- Delivery time

Construction alternatives considered included: A) stabilizing the shoreline with structural options such as groins, revetments, and offshore breakwaters, B) re-building the dune and beach face with material similar to the native sand, and C) utilizing a combination of alternatives A and B.

Source Alternatives

The borrow source identification process was a two-step method involving both a preliminary and final investigation. The purpose of the investigation was to locate a sand source with sufficient quantity and quality of sediments to meet the needs of the project.

Both onshore and offshore borrow sites were considered for this project. Onshore, commercial sources would incur costs of several dollars per cubic yard resulting in millions of dollars of additional cost to the project whereas an offshore material source is a state-owned resource and adds zero cost to the project. Therefore, based on costs of both materials and transportation, and impacts to the local environment, onshore site alternatives were not pursued further. Of the five offshore borrow site alternatives considered, four of the sites were deemed nearshore and one alternative was considered an offshore site.

Delivery Alternatives

Three sediment delivery alternatives were considered for delivering the sediments to the project site. An initial material volume of four million cubic yards (CY) was assumed for all three sediment delivery alternatives. The delivery methods were evaluated based on the following:

- Potential environmental impacts
- Potential impacts to recreation and navigation
- Cost estimate
- Delivery time

In addition, limiting the construction footprint within the McFaddin NWR is paramount. These delivery methods included: A) trucking sand through the refuge from an upland source, B) pumping a sand/water slurry by pipeline through the refuge from the Hwy 87/124 intersection, and C) utilizing an offshore borrow area and transferring sediments to the shoreline via a cutter-head dredge and pipeline.

Selected Alternative

The proposed project is a combination of the preferred alternatives for beach ridge restoration measure (construction), material source (source), and delivery method (delivery). The project can be described as shoreline nourishment using material dredged from an offshore sediment source by a cutter head-suction dredge and hydraulically pumped to shore as sediment-water slurry through a temporary pipeline. Different means for construction, source, and delivery methods were analyzed. The following is a description of the methods preferred.

The preferred construction alternative involves the re-building of the dune line and beach face with material similar to the native sand. This alternative would utilize sand from a source outside the Refuge to re-create historic dune heights and beach widths to reduce shoreline retreat and protect the sensitive inland marshes. Dune plantings would be conducted to increase dune stability. This alternative was selected based on reduced costs, construction time, and environmental impacts while increasing recreational usage along the McFaddin NWR shoreline. This Alternative will also re-create lost dune and beach habitat, as well as return needed sediments to the near shore littoral system.

The preferred source alternative was identified by a two-step process involving both a preliminary and final investigation. The purpose of the investigation was to locate a sand source with sufficient quantity and quality of sediments to meet the needs of the project. Both onshore and offshore borrow sites were considered for this project. However, based on cost of both materials and transportation, as well as impacts to the local environment, only offshore borrow sites were analyzed. A minimum of four million CY of sediment is needed. Based on field investigations by Coastal Planning and Engineering, Inc., USACE, Bureau of Economic Geology, and others, five possible offshore sand source locations were identified within a reasonable proximity to the proposed project area. The preferred source alternative was identified by sub-bottom seismic data collection and review, as well as sediment sampling and analysis.

The preferred delivery alternative involves utilizing sediments from an offshore sand source. The material would be dredged using a cutter-head dredge from the borrow area and transferred to the shore via pipeline. Once onshore, the material would be pumped along the shoreline to the local construction areas and graded to the required construction template with heavy equipment. Based on conversations with State and Federal archeologists and biologists, impacts to cultural and biological resources can be mitigated by allowing for a maximum of six pipeline corridors between dredge/pipeline connections

offshore and the coastline. This method also reduces the need for extra booster pumps by limiting the along-shore pipeline reach on either side of the shoreline connection points.

In response to comments expressed during the public comment period from the EPA and from an on-site meeting with USACE, a revision was made regarding the grade restoration area and overburden placement. The marsh grade raising feature has been eliminated from the proposed project. All overburden (fine-grained) materials will be sidecast into offshore Placement Areas A & B, as shown in the revised appendices, B and H. Based on offshore source delineation, an estimated 1.8 million CY of overburden could be placed in these areas. Additionally, avoidance zones are incorporated into the placement areas to avoid existing potential cultural resource targets or other features identified in the offshore site investigation. Revisions were also made regarding the dune and beach nourished cross sections. Currently, the dune volume as a percentage of total added material has been increased to 10% (see Appendix I).

SUMMARY OF EFFECTS

The Service's decision to implement the preferred alternative would not, in and of itself, impact the human and physical environment. Potential impacts to the physical, biological, and human environment were considered and found not to be significant for the following reasons:

The proposal is a restoration project resulting in creation, rather than loss, of habitat. The project may result in temporary degradation of water quality and clarity due to increased sediment distribution in the water column, especially in the vicinity of the borrow area. Effects would be short-term and localized to work areas.

Temporary effects to water quality are expected to be minimal and short-term and are not expected to negatively affect any listed species. Ultimately, the project will enhance habitat in the area, which could potentially have a beneficial effect on species listed under the Endangered Species Act (ESA).

The proposed project is not expected to significantly contribute to cumulative effects of any ESA-listed species. There will be a significant net benefit to the McFaddin NWR and shoreline. All adverse impacts associated with the construction of the dune ridge/beach nourishment project are considered short-term and primarily restricted to the construction phase of the operation. No net cumulative impacts are expected as a result of sediment placement. Once sediments have been discharged and spread into associated configurations, new habitats are created for shorebirds and other wildlife. These actions will result in a wider and more stabilized beachhead that is intended to provide protection for the area infrastructure and wetlands for decades to come. Conservation measures are discussed in section 5.0 of the proposal.

The proposal is not expected to have any significant cumulative impacts. The effects of this project, when considered in the context of its effects being added to the combined effects of other past, present, and foreseeable future activities within all jurisdictions (Federal, State, and private) are not expected to have significant additive effects over the long-term.

AGENCY COORDINATION AND CONSULTATION

This proposal represents consultation and compliance with applicable Federal agencies, statutes, regulations, Executive Orders, and other compliance documents. Among those consulted were the U.S. Army Corps of Engineers (Historical and Archeological Preservation), National Oceanic and Atmospheric Administration - National Marine Fisheries, and the U.S. Environmental Protection Agency - Coastal Ecology.

Further, this proposal reflects consultation and compliance with applicable State of Texas and local authorities (i.e. Texas General Land Office, Texas Historical Commission, Texas Commission on Environmental Quality and Texas Parks and Wildlife Department), regulations, statutes, policies, and standards for conserving the environment and environmental resources such as water and air quality, endangered plants and animals, and cultural resources.

PUBLIC REVIEW

A Legal Notice on Availability of the EA and Compatibility Determination was published on February 24, 2016 in the Beaumont Enterprise newspaper. A copy of the Draft EA was posted on the refuge website (<https://www.fws.gov/refuge/mcFaddin/>) for a 30-day review period. Additionally a public hearing was scheduled on March 21, 2016 at the Jefferson County Court House. An oral presentation was provided by Jefferson County Judge Branick and Project Leader Tim Cooper. Despite extensive efforts, the proposed project has drawn little attention from the general public and no formal comments.

During the release of the Draft EA on February 24, 2016, 50 individual entities, composed of government officials and local interest groups, were mailed a notice alerting them to the availability of the Draft EA and given a 30 day review period. During the Draft EA review period, the Service received response letters from Texas Parks & Wildlife (TPWD) and the Environmental Protection Agency (EPA). TPWD commented:

Although construction would impact fish and wildlife habitat, it is TPWD's opinion that the project's overall benefits outweigh the impacts. Therefore, TPWD does not object to the construction of the proposed project due to expected habitat protection and enhancement of more than 40,000 acres of combined fresh, intermediate, and brackish marsh within McFaddin NWR.

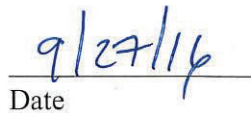
EPA provided a letter commenting on several topics, the majority of which centered on a previous beach berm project that had public/agency comment in 2012. Comments, related to the proposed project, were addressed through: 1) changes to offshore casting of overburden material; 2) other project documents (Biological Assessment, Section 7 and Section 10 compliance, etc); and 3) other state and federal agency requirements.

All comments were thoroughly reviewed by the Service and addressed in the Response to Comments attached to this FONSI. There were no substantial changes made to the EA as a result of the comments.

DETERMINATION

Based upon a review and evaluation of the information contained in the EA, and inclusion of the recommended clarifications, as well as other documents and actions of record affiliated with this proposal, including public comments associated with all other documents, the Service has determined that the proposed action would not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of Section 102 (2) (C) of the National Environmental Policy Act of 1969. As such, an environmental impact statement is not necessary. An EA has been prepared in support of this finding and is available upon request from the refuge.


Regional Director


Date

References:

U.S. Fish and Wildlife Service. 2016. Environmental Assessment: Beach Ridge Restoration on McFaddin National Wildlife Refuge. Jefferson County, Texas.