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Sabine Neches Navigation Improvement Project Integrated Section 203 Feasibility Report and Environmental Assessment

Appendix E

Draft Biological Assessment and USFWS Correspondence

February 2026

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Texas Coastal and Central Plains Ecological Services Office
Houston Sub-Office
17629 El Camino Real, Suite 211
Houston, Texas 77058
PHONE: 281/286-8282
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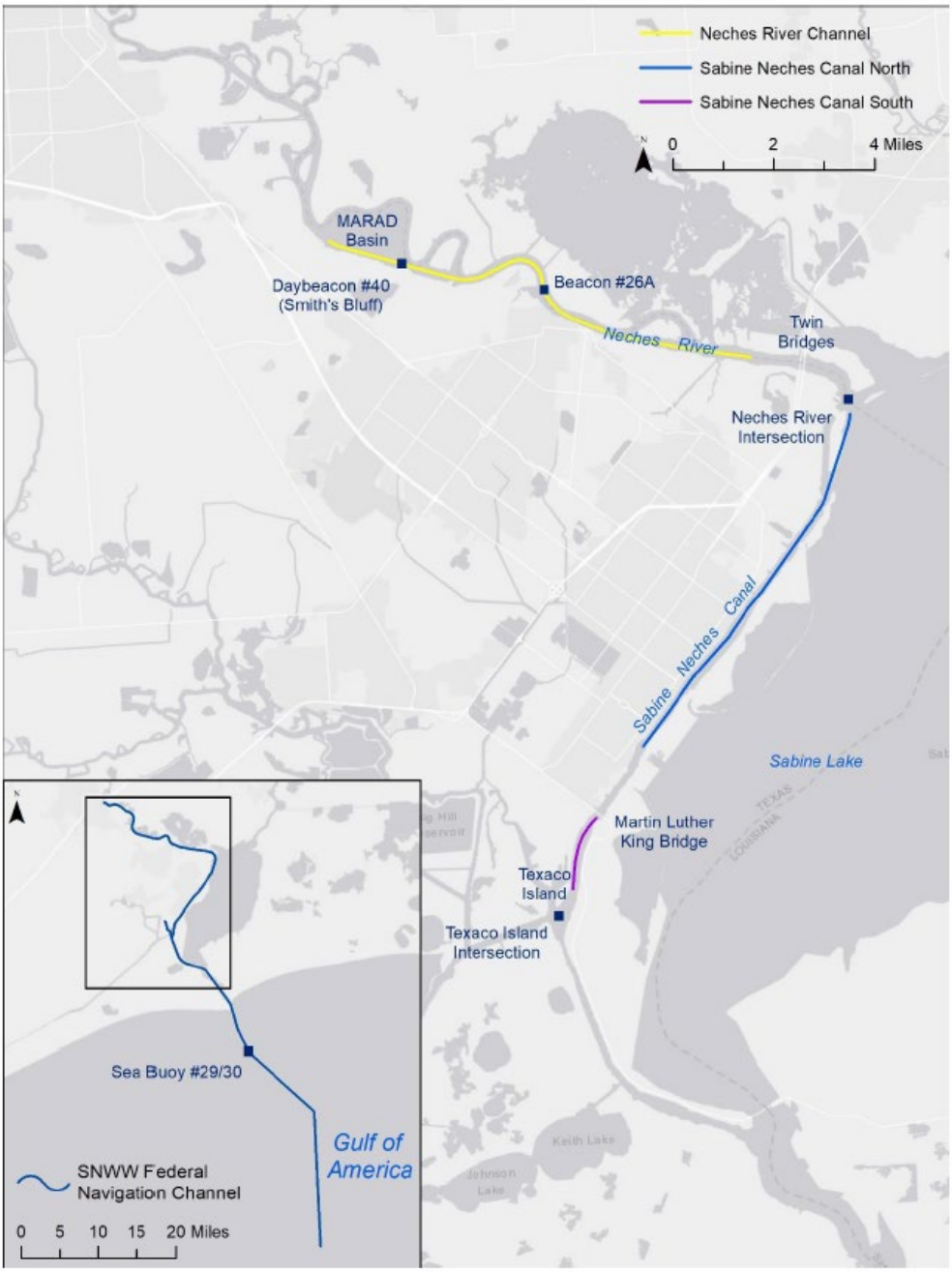
In Reply Refer To:
2024-0081207

September 15, 2025

Colonel David W. Dake
District Commander
U.S. Army Corps of Engineers. Galveston District
Attention: Regulatory Division, CESWG-RDE
2000 Fort Point Road
Galveston, Texas 77550

Dear Colonel Dake:

Thank you for the opportunity to review and comment on the request for concurrence for the Sabine Neches Waterway Widening Project, dated May 2025. The purpose of the project is to widen three lengths of the existing Sabine Neches Waterway (SNWW) along approximately 19.4 miles of the federal navigation channel to improve navigational efficiency, within Jefferson and Orange Counties, Texas. The widening would be along three discontinuous lengths of the SNWW, specifically within the Sabine-Neches Canal (South), Sabine-Neches Canal (North), and the Neches River Channel (Figure 1). Of the 19.4 miles to be widened, 16.8 miles would occur completely underwater resulting in no changes to the adjacent shoreline. The proposed project will use a cutterhead dredge to widen the existing federal channel by 100 feet (i.e. from 400 to 500 feet wide) and placing the dredged material into existing confined placement areas and a beneficial use site. In areas where dredging would occur, the dredge would remove approximately 15,000 cubic yards/day, seven days a week, 24-hours per day. Dredging the entire widened areas would take approximately 30 months. Staging areas for equipment and materials would use existing industrial waterfront facilities within the adjacent ports in Port Arthur and Port Neches, Texas.



Within the North segment, widening would require the removal of non-engineered shoreline protection (i.e. concrete rubble). The subtidal area of the widened navigation channel would be approximately 98.5 acres, the upland area of disturbance would be approximately 10.9 acres, and the affected shoreline length would be approximately 1.3 miles. Within the South segment, the widening of the navigation channel would be approximately 18.2 acres, and the upland area of disturbance and the affected shoreline length would be approximately 0.0 acres and 0.0 miles, respectively. Within the Neches River Channel segment, the widening to the subtidal area of the

navigation channel would be approximately 115.1 acres, the upland area of disturbance would be approximately 6.2 acres, and the affected shoreline length would be approximately 1.2 miles.

Where widening would result in uplands dredged to open water, vegetation clearing would occur prior to dredging and would be removed from the site using barges. Equipment for vegetation clearing would include a bulldozer and bobcat-type equipment with brush hog or similar attachments. Access to the areas adjacent to the North segment would be via public surface roads and access along the lower Neches River would be via private roads maintained by the Sabine Neches Navigation District.

The project and associated dredging contract will include the requirement to develop and follow an environmental protection plan (EPP), to present an overview on known or potential environmental issues that must be considered and addressed during construction. The EPP will also include best management practices to follow during construction. It includes updating the Information for Planning and Consultation Report to ensure no changes have occurred since Section 7 consultation was completed. It also includes the development and implementation of a project-specific stormwater protection prevention plan that meets the requirements of 40 CFR 122.26 and the Texas State General Permit for stormwater discharges from construction sites prior to the commencement of work.

The following endangered, threatened, proposed, and candidate species are known to occur in Jefferson and Orange Counties, Texas:

Tricolored bat (*Perimyotis subflavus*) – proposed endangered
West Indian manatee (*Trichechus manatus*) – threatened
Eastern black rail (*Laterallus jamaicensis ssp. jamaicensis*) - threatened
Piping plover (*Charadrius melodus*) – threatened
Red knot (*Calidris canutus rufa*) – threatened
Whooping crane (*Grus americana*) – endangered
Green sea turtle (*Chelonia mydas*) – threatened
Hawksbill sea turtle (*Eretmochelys imbricata*) – endangered
Kemp's ridley sea turtle (*Lepidochelys kempii*) – endangered
Leatherback sea turtle (*Dermochelys coriacea*) – endangered
Loggerhead sea turtle (*Caretta caretta*) – threatened
Monarch butterfly (*Danaus plexippus*) – proposed threatened
Alligator snapping turtle (*Macrochelys temminckii*) – proposed threatened
Louisiana pigtoe (*Pleurobema riddellii*) – proposed threatened
Texas heelsplitter (*Potamilus amphichaenus*) – proposed endangered

We are providing our response on the evaluation report and effects determinations in accordance with the Endangered Species Act of 1973 (Act) (16 U.S.C. 1531 et seq.). The United States Army Corps of Engineers (USACE) determine the project "may affect, is not likely to adversely affect" the eastern black rail, piping plover, red knot, West Indian manatee, and whooping crane. USACE also determined the project would have "no effect" on the green sea turtle, hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, and loggerhead sea turtle due to lack of

suitable habitat in the proposed project area. Under Section 7(a)(2) of the Act, consultation is not required for proposed actions that are determined to have no effect on listed species. The USACE also determined that the proposed project "is not likely to jeopardize" the tricolored bat, alligator snapping turtle, Louisiana pigtoe, Texas heelsplitter, and monarch butterfly. While consultations are required only when the proposed action may affect listed species, a conference is required only when the proposed action is likely to jeopardize the continues existence of a proposed species or destroy or adversely modify proposed critical habitat. Therefore, conferencing under Section 7 of the Act is not required for this project.

Based on the information provided by the USACE in your concurrence request specific to eastern black rail, West Indian manatee, and whooping crane, the USACE will implement the following avoidance and minimization measures to minimize potential effects to these species.

Avoidance and Minimization Measures

General Measures

- All personnel (contractors, workers, etc.) will attend training sessions prior to the initiation of, or their participation in, project work activities. Training will include: 1. Recognition of piping plovers, rufa red knot, whooping crane, eastern black rail, West Indian manatee, and sea turtles, and each species' habitat, and signs of presence; 2. Impact avoidance measures; 3. Reporting criteria, 4. Contact information for rescue agencies in the area; and 5. Penalties of violating the Act.
- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area.
- Because dredging would occur 24 hours a day, designated monitor(s) will be identified who will act as a single point of contact responsible for communicating and reporting any endangered species issues throughout the construction period.

Measures at the Beneficial Use (BU) Site

- Project equipment and vehicles transiting between the dredging area and the BU site will be minimized, including but not limited to using designated routes and confining vehicle access to the immediate needs of the project.
- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area. This will help reduce confusion to night-flying or crepuscular bird species and prevent collisions with equipment due to excessive lighting.
- Construction crews should avoid working in important shorebird habitats when winter winds above 20 miles per hour co-occur with temperatures below 40 degrees Fahrenheit. These conditions can cause the birds to roost for energy conservation, often in available ruts. If placement of dredged material is not able to be avoided during nesting season, all efforts will be made to avoid placement of material within emergent shell hash areas along the shoreline to the best extent practicable.

- Material should be placed from the back of the marsh area first, working towards open water, to allow for birds and other species to seek refuge or vacate the area prior to dredged material placement within the open-water area.

Eastern Black Rail

Avoid clearing the terrestrial habitat on the left descending bank of the Neches River and avoid marsh construction activities (i.e. the placement of dredged materials into the beneficial use site), during the breeding season (March – September). If this is unavoidable, the following will occur:

- Acoustic surveys and biological monitors will be used to ensure any potential impact to eastern black rail is minimized. In addition, vegetation field surveys will be conducted to detect any potential Eastern black rail habitat.
- The contractor will minimize traffic in temporary access routes, pipeline routes, and/or staging areas that occur within identified Eastern black rail habitat.
- Identified areas of high marsh habitat will be left intact to provide refugia for the Eastern black rail to ensure escape access routes. The USACE will work with the Service to identify refugia areas.
- Efforts will be made to mitigate noise and vibration within and adjacent to Eastern black rail habitat to include planning and performing work outside of peak breeding call times (i.e. one hour before and after dawn and one hour before and after dusk).
- A biological monitor may be required to maintain a sufficiently slow pace of equipment moving through potential habitat, which allows for the escape of the birds ahead. Biological monitors should be aware that the species will run to escape oncoming disturbances and are highly unlikely to fly during daylight.
- The biological monitor will have stop work authority if an eastern black rail, chicks, or eggs are observed in the project area. The point of contact will contact the Texas Coastal and Central Plains Ecological Services Field Office – Houston at (281) 286-8282. The need for a biological monitor will be determined based on the results of surveys for eastern black rail habitat and time of year the work is completed.
- In the rare instance that equipment is left idle within Eastern black rail habitat (e.g. mechanical failure, temporary stoppage), a complete inspection of the equipment surroundings will take place prior to moving it to ensure that no birds have settled around the equipment.
- Biological monitors are required to assist construction crews with avoidance and minimization of Eastern black rail habitats once work begins.

West Indian Manatee

- All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

- All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shut down if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- Any collision with or injury to a manatee shall be reported immediately to the Texas Marine Mammal Stranding Network (TMMSN) Hotline at 1-888-9-MAMMAL. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Houston (1-281-286-8282).
- Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shutdown of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities.
- Placement of material at the Galveston ODMDS will follow Section 102 of Marine Protection, Research, and Sanctuaries Act (MPRSA), the EPA and USACE Galveston ODMDS Site Management and Monitoring Plan (SMMP), developed jointly by EPA, Region 6 and USACE, Galveston District (USACE-SWG). In accordance with Section 102(c)(3) of the MPRSA, as amended by Water Resources Development Act 92. The transportation of dredged material for the purpose of placement into ocean waters is required to meet environmental criteria established by the U.S. Environmental Protection Agency in the Ocean Dumping Regulations (40 CFR Parts 220-229).

Whooping Crane

Project activities during the seasonal timing restriction for whooping crane migration, January 15 - June 15, is not ideal. Because the seasonal timing restriction cannot be avoided the following conservation measures will be implemented.

- A biological monitor qualified in identifying whooping cranes and with stop work authority will be on site when any work is being done in suitable habitat if the work is performed during the breeding/nesting season (January-June) or the wintering season (October-April).

- Prior to the start of work each day, the project area will be surveyed for the presence of whooping cranes within 1,000 feet of the project area. If whooping cranes are observed, no work will be performed until the birds have moved-away from the project area. If birds move into the project area during project construction implementation, all mechanized equipment actions will cease until the birds vacate the project area.
- If construction equipment is over 15 feet tall, the equipment must be marked with visual flagging as bird avoidance measures when equipment is in use and laid horizontally on the ground when not in use; and contractors are to ensure equipment is placed horizontally on the ground when not in use to the maximum extent practicable during fog or inclement weather, and at dusk and overnight to avoid whooping crane strikes during low visibility conditions.
- All whooping crane sightings should be immediately reported to the Texas Coastal and Central Plains Ecological Services Field Office at 281-286-8282.

The Service concurs with the "may affect, not likely to adversely affect" determination for eastern black rail, West Indian manatee, piping plover, red knot, and whooping crane, based on the implementation of these avoidance and minimization measures, and minimal amount of suitable habitat for each species in the project action area.

No further endangered species consultation will be required unless: 1) the proposed action is subsequently modified in a manner that causes an effect on a listed species or designated critical habitat; 2) new information reveals the proposed action may affect federally listed species or designated critical habitat in a manner or to an extent not previously considered; or 3) if a new species is listed or a critical habitat is designated under the Act that may be affected by the proposed action. If you have any questions or comments, please contact Courtney Dvorsky at courtney_dvorsky@fws.gov or by phone at (832) 205-3926. Please use the Service consultation code 2024-0081207 in any future correspondence. Thank you for your coordination on this project.

Sincerely,

For
Catherine Yeargan
Field Supervisor

Sabine Neches Navigation Improvement Project
Section 203 Feasibility Study

Biological Assessment for Federally-listed Threatened and Endangered Species

Orange and Jefferson Counties, Texas

May 2025

Prepared by: Sabine Neches Navigation District

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Executive Summary

This proposed project intends to widen three lengths of the existing Sabine Neches Waterway (SNWW) federal navigation channel to improve navigational efficiency. The action described in the Biological Assessment (BA) involves using a cutterhead dredge to widen the existing federal navigation channel by 100 feet (i.e., from 400 to 500 feet wide) and placing the dredged material into existing confined placement areas and a beneficial use site. This BA serves to initiate formal consultation with the U.S. Fish and Wildlife Service (USFWS) for the U.S. Army Corps of Engineers, Galveston District (USACE) and the Sabine Neches Navigation District (SNND) for the Sabine Neches Navigation Improvement Project - Section 203 Feasibility Study (Project Code Number: 2024-0081207).

This BA discusses the presence and status of threatened and endangered species in the Action Area, evaluates the expected impacts to these species through project actions, and makes a final determination on the effects anticipated for those species. Table ES-1 provides a summary of the 15 ESA-listed, candidate, or proposed for listing species identified in the USFWS' Information for Planning and Consultation (IPaC) database and evaluated in this BA.

The National Marine Fisheries Service (NMFS) has asserted that their March 2024 BO applies to all actions from the proposed widening under this Section 203 Navigation Improvement Project (NMFS, 2024). As such, this BA only addresses the species within the USFWS' purview.

Table ES-1. USFWS Effect Determination Summary for Proposed Action

Species Common Name Scientific Name	Federal Status	Habitat Association	Effect Determination	Summary of Effects
BIRDS				
Piping plover (*Charadrius melodus*)	*threatened*	Bayshore tidal sand and algal flats, ocean side beaches, washover passes, and mainland tidal mud flats	MA, NLAA	It is unlikely that piping plover would frequent the Action Area because of the low quality of potentially suitable habitat and extensive areas of urban/industrial land use along the waterway. Potential for disturbance to individual piping plovers during the dredging, placement of dredged material within the existing placement areas, and placement of material into the BU site.
Rufa red knot (*Calidris canutus rufa*)	*threatened*	Coastal marine and estuarine habitats with large areas of exposed intertidal sediments in migration and wintering areas. Supratidal sandy habitats of inlets for roosting. Artificial habitats that mimic natural conditions (e.g., nourished beaches, dredged spoil sites, impoundments)	MA, NLAA	It is unlikely that the rufa red knot would frequent the Action Area because of the low quality of potentially suitable habitat and extensive areas of urban and industrial land use along the waterway. Potential for disturbance to individual rufa red knots during the dredging, placement of dredged material within the existing placement areas, and placement of material into the BU site.
Eastern black rail (*Laterallus jamaicensis jamaicensis*)	*threatened*	Salt, brackish, and freshwater marsh habitats that can be tidally or non-tidally influenced with soils that are moist to saturated, occasionally dry, and interspersed with, or adjacent to, very shallow water of 1-6 cm. Requires dense vegetation cover that allows movement underneath the canopy	MA, NLAA	The areas to be disturbed by the proposed widening are dominated by urban and industrial land use along the waterway and do not include dense vegetation, moist soils, and the shallow flood depth preferred by the Eastern black rail. Beneficial use of dredged material would accelerate the creation of intermediate and high marsh and would contribute to restoration of high-quality habitat.

Species Common Name Scientific Name	Federal Status	Habitat Association	Effect Determination	Summary of Effects
Whooping crane (*Grus americana*)	*endangered*	Wintering population migrates to Texas' coastal plains in and around the Aransas National Wildlife Refuge (NWR) from November through March	MA, NLAA	Disturbance of individual birds stopping through the construction areas could occur during migration or foraging or resting while enroute to higher quality areas. Beneficial use of dredge material would accelerate restoration of intermediate marsh and could be beneficial to the whooping crane by restoring quality foraging habitat sooner because of the additional dredged material.
MAMMALS				
West Indian manatee (*Trichechus manatus)*	*endangered*	Found in shallow coastal waters, bays, lagoons, estuaries, rivers, and inland lakes throughout much of the tropical and sub-tropical regions.	MA, NLAA	Rare visitor to the project area as Texas' upper coast is generally lacking the preferred habitat and food sources desired by the manatee.
Tricolored bat (*Perimyotis subflavus*)	*proposed endangered*	Forages along forest edges and over ponds and waterways, roosts among live and dead leaf clusters of live or recently dead deciduous hardwood trees and prefer landscapes with greater forest area, forest aggregation, and tree corridors.	NLJCE	Due to their mobility, tricolored bats have the chance to occur within the Action Area. However, the area disturbed by construction is expected to have a low potential for encounter of the tricolored bat. The potentially affected habitat is near urban/industrial areas, is dominated by herbaceous vegetation, and does not include large, forested areas.

Species Common Name Scientific Name	Federal Status	Habitat Association	Effect Determination	Summary of Effects
REPTILES				
Alligator snapping turtle (*Macrochelys temminckii*)	*proposed threatened*	Rivers, lakes, backwater swamps, and occasionally brackish water systems. Associated with shallower water occupied in early summer and deeper depths in late summer and mid-winter. Prefer structure (e.g., tree root masses, stumps, submerged trees, etc.), and may occupy areas with a high percentage of canopy cover or undercut stream banks.	NLJCE	Presence in the project area is unlikely as the habitat is entirely disturbed shorelines, without the characteristic habitat features preferred by alligator snapping turtles (e.g., woody structure, tree root masses, canopy cover).
green sea turtle *Chelonia mydas*	*threatened*	Shallow habitats such as lagoons, bays inlets, shoals, estuaries, and other areas with abundant marine algae and seagrass. High-energy beaches with deep sand for nesting, usually coarse to fine grain sizes, with little organic content.	NE	Lacks suitable nesting habitat.
Kemps' ridley sea turtle *Eretmochelys imbricata*	*endangered*	Shallow coastal and estuarine waters, usually over sand or mud bottoms. Adults primarily shallow-water benthic feeders; juveniles feed on *Sargassum* and associated infauna.	NE	Lacks suitable nesting habitat.

Species Common Name Scientific Name	Federal Status	Habitat Association	Effect Determination	Summary of Effects
loggerhead sea turtle *Lepidochelys kempii*	*endangered*	Foraging throughout the shallow continental shelf waters, but also found in bays, estuaries, lagoons, and river mouths. Adults occupy turbid bays to clear water reefs; subadults occur in nearshore and estuarine waters. High-energy, open sandy beaches above the high-tide mark and seaward of well-developed dunes preferred for nesting.	NE	Lacks suitable nesting habitat.
hawksbill sea turtle *Dermochelys coriacea*	*endangered*	Largely inhabit nearshore foraging grounds, especially healthy coral reefs. Hatchlings take shelter in floating algal mats and drift lines of flotsam and jetsam; juveniles migrate to shallower coastal feeding grounds and remain into adulthood. Found around rock formations, high energy shoals, and estuaries that provide habitat for sponge growth.	NE	Lacks suitable nesting habitat.
leatherback sea turtle *Caretta caretta*	*endangered*	Mainly pelagic, inhabiting the open ocean, where they dive to great depths continuously. Found in coastal waters during nesting or when following concentrations of jellyfish. Typically nests on beaches with a deep-water approach in Malaysia, Mexico, French Guiana, Suriname, Costa Rica, and Trinidad.	NE	Lacks suitable nesting habitat.

Species Common Name Scientific Name	Federal Status	Habitat Association	Effect Determination	Summary of Effects
INSECTS				
Monarch butterfly (*Danaus plexippus)*	*proposed threatened*	Migrate through Texas during the fall and spring between the principal breeding grounds in the north and the overwintering in Mexico. Habitat that supports milkweed and nectar species along migration paths.	NLJCE	Shoreline and adjacent uplands within the Action Area are characterized as "*degraded habitat with low habitat values"* and botany sampling at 30 discrete sampling locations in the Action Area did not identify a single milkweed plant (*Asclepias spp*.).
MOLLUSKS				
Louisiana pigtoe (*Pleurobema riddellii*)	*proposed threatened*	Occurs in medium to large-sized freshwater streams/rivers in flowing waters over cobble and rock or sand, gravel, and woody debris; are often associated with riffle, run, and sometimes larger backwater tributary habitats.	NLJCE	The project area in the Neches River is tidal, downstream of the saltwater barrier, and therefore, not freshwater habitat necessary for the Louisiana pigtoe as defined in the USFWS' SSA.
Texas heelsplitter (*Potamilus amphichaenus*)	*proposed endangered*	Occurs in gravel and coarse sandy substrates of freshwater rivers, streams, and within manmade reservoirs with high organic matter substrates, areas of large channel widths with at least one low bank	NLJCE	The project area in the Neches River is tidal, downstream of the saltwater barrier, and therefore, not freshwater habitat necessary for the Texas heelsplitter as defined in the USFWS' SSA.

MA, NLAA – may affect, not likely to adversely affect
NLJCE - Not likely to jeopardize the continued existence (for species proposed for listing)
NE – no effect

1 Introduction

This Biological Assessment (BA) has been prepared by the Sabine Neches Navigation District (SNND) to fulfill the U.S. Army Corps of Engineers (USACE) consultation requirements as outlined under Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended, and to assist United States Fish and Wildlife Service (USFWS) personnel in fulfilling their obligations under the ESA.

This BA is the *"information prepared by or under the direction of the Federal agency concerning listed and proposed species and designated and proposed critical habitat that may be present in the Action Area and the evaluation potential effects of the action on such species and habitat"* (50 CFR § 402.02) and this BA has been reviewed by the USACE, Galveston District. The proposed action (see Section 1.3) consists of widening a total of approximately 19.4 miles of inshore portions of the Sabine Neches Waterway (SNWW) in Jefferson and Orange Counties, Texas. The widening would be along three discontinuous lengths of the SNWW increasing the channel width from 400 to 500 feet (+ 100 feet in width) along the left descending bank.

This BA documents USACE's evaluation and the rationale to support the conclusions regarding the potential effects of constructing and maintaining the proposed action on species under the jurisdiction of the USFWS under the ESA. The project components that are considered include the initial channel modification construction, disposition of the dredged material into existing placement areas (PAs), the beneficial use (BU) of dredged material where applicable, and future maintenance dredging of the widened areas. This BA demonstrates the proposed action complies with Section 7, which ensures that, through consultation with the USFWS and NMFS, the proposed federal actions do not jeopardize the continued existence of any threatened, endangered or proposed species, or result in the destruction or adverse modification of designated critical habitat (CH).

The USFWS provided a species list of threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of the proposed widening and/or that may be affected by the proposed widening (USFWS, 2024). The list of potentially affected species provided by the USFWS includes: piping plover (*Charadrius melodus*), rufa red knot (*Calidris canutus rufa*), Eastern black rail (*Laterallus jamaicensis jamaicensis*), whooping crane (*Grus americana*), tricolored bat (*Perimyotis subflavus*), West Indian manatee (*Trichechus manatus*), green sea turtle (*Chelonia mydas*), Kemp's Ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), hawksbill sea turtle (*Eretmochelys imbricata*), leatherback sea turtle (*Dermochelys coriacea*), alligator snapping turtle (*Macrochelys temminckii*), monarch butterfly (*Danaus plexippus)*, Louisiana pigtoe (*Pleurobema riddellii*), and Texas heelsplitter (*Potamilus amphichaenus*). The USFWS correspondence also asserted that "*…there are no critical habitats within your project area under this office's jurisdiction*" (USFWS, 2024). A recent re-examination using the USFWS' IPaC site indicated there continue to be no critical habitats within the project area (USFWS, 2025).

Section 1.3 of this BA describes the construction and future maintenance assumptions for the proposed action based on the design assumptions developed during the feasibility stage of planning. During the pre-construction, engineering, and design (PED) phase of project execution, the USACE will continue to coordinate with the USFWS and NMFS on the Services' recommendations to avoid or minimize potential impacts to listed species as well as the potential destruction or adverse modification to critical habitat.

Section 2 identifies the federally-listed and candidate species that could be affected by implementing the proposed widening, Section 3 provides the Environmental Baseline for the Action Area, Section 4 describes the estimated effects (including cumulative effects) on the same listed and candidate species as well as a consideration of the potential for the destruction or adverse modification of designated critical habitat. Section 5 presents the conservation measures and commitment to monitoring during construction and Section 6 presents the summary of effects determinations.

1.1 Project Location - Proposed Channel Widening

The proposed project would widen three discontinuous lengths of inshore channel within the SNWW as depicted with the magenta, blue, and yellow lines in Figure 1-1. The segments of the navigation channel excluded from the proposed widening (i.e., the segments of no proposed widening between the magenta, blue, and yellow lines) were excluded because the Sabine Pilots would not pass vessels in these areas (the Martin Luther King Bridge across the Sabine-Neches Canal, the Twin Bridges across the Neches River, and the bend at the confluence of the Sabine-Neches Canal and the Neches River Channel).

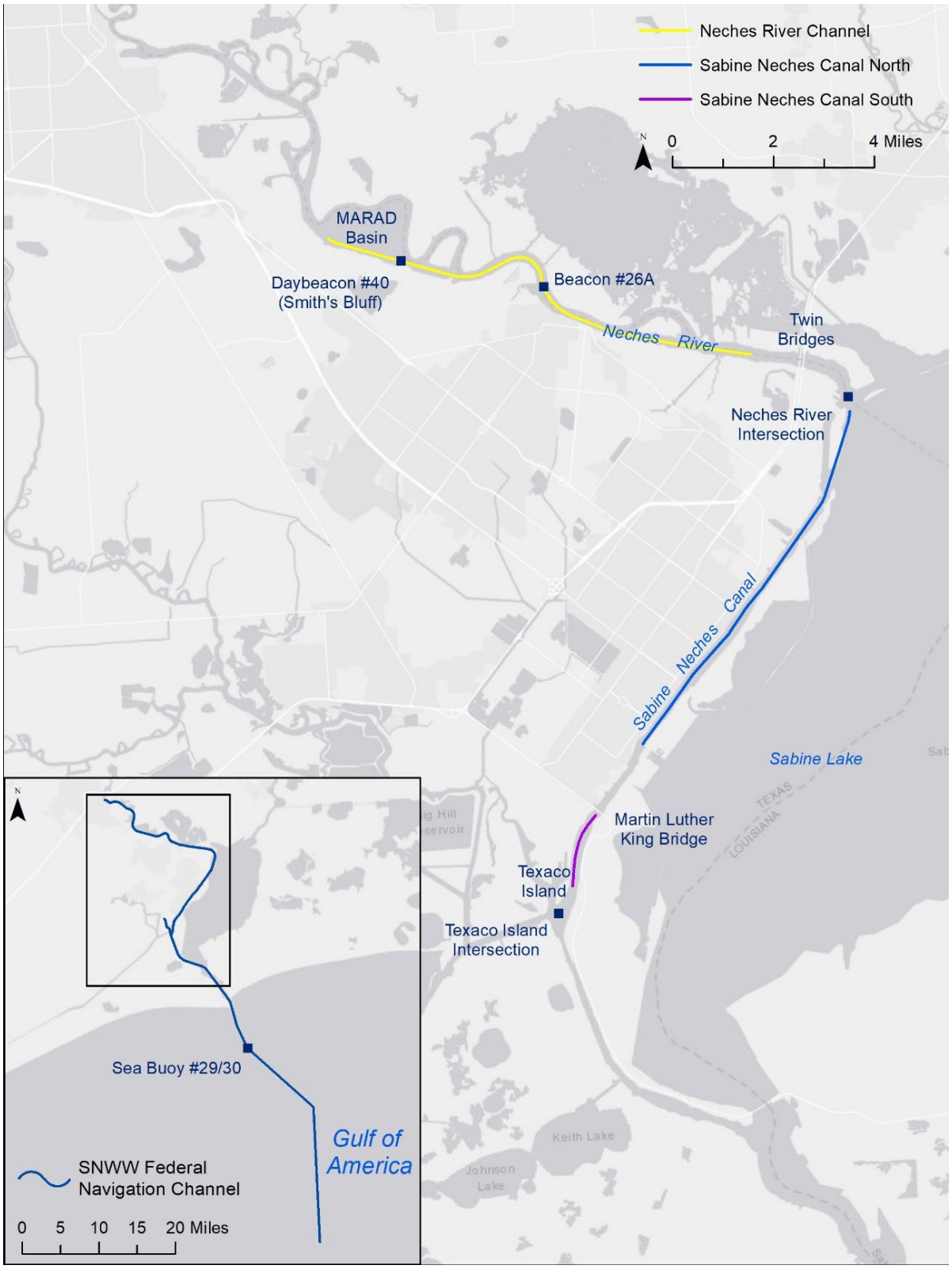

Figure 1-1.
Proposed Areas to be Widened

1.2 Definition of the Action Area

The regulations governing consultations under the ESA (50 CFR 402.02) define the Action as "*all areas to be affected directly or indirectly by the proposed action and not merely the immediate area involved in the action*." Therefore, the Action Area is typically larger than the area directly affected by the proposed action. As listed in the bullets below, the Action Area for this BA includes the:

- Areas where the proposed widening would occur and adjacent deep draft channel (see Figure 2-1),
- Existing upland PAs into which dredged material would be placed,
- Beneficial Use site (see Section 2.1.3) where dredged material would be used for marsh restoration,
- Aids to Navigation that would be relocated, and
- The area surrounding an electricity transmission tower on the lower Neches River owned and operated by Entergy Corporation.

The Action Area also includes staging areas for construction equipment, employee parking, portable restrooms, and other necessary equipment. Other areas of potential indirect effects include the consideration of potential changes to the hydrodynamics of the waterway could affect listed species or their critical habitat.

Because the downstream-most areas proposed for widening would occur more than 12 miles upstream from the confluence with the Gulf of America, the BA does not include evaluation of the environmental resources that are exclusively in the offshore (i.e., ocean) environment. However, to the extent that species life cycles or behavior could include use of the inshore channels, the potential effects to those species are considered.

1.3 Proposed Action

The proposed action would widen the existing 400-foot wide federal navigation channel by 100 feet (i.e., from the existing 400 to 500 feet) along the left descending bank, over a combined length of approximately 19.4 miles. As shown in Figure 1-1, the proposed widening would only be within the:

- Sabine-Neches Canal (South) (magenta line in Figure 1-1),
- Sabine-Neches Canal (North) (blue line in Figure 1-1), and
- Neches River Channel (yellow line in Figure 1-1).

1.3.1 Proposed Dredging Areas

Of the 19.4 miles to be widened that are shown in Figure 1-1, 16.8 miles of the channel widening (> 86 %) would occur completely underwater resulting in no changes to the adjacent shoreline or land. The locations where the proposed widening would result in changes to the adjacent land would occur at the locations shown as red polygons in Figure 1-2. Figure 1-2 shows the areas converted from land to open water on the left descending bank of the lower Neches River and the Sabine-Neches Canal (North) (i.e., from Pleasure Island). Depicted at scale in Figure 1-2, these polygons are narrow strips

of habitat that would be converted to open water by the widening. The detailed locations of these areas and the habitat characteristics of these affected areas are described in Section 4.3.

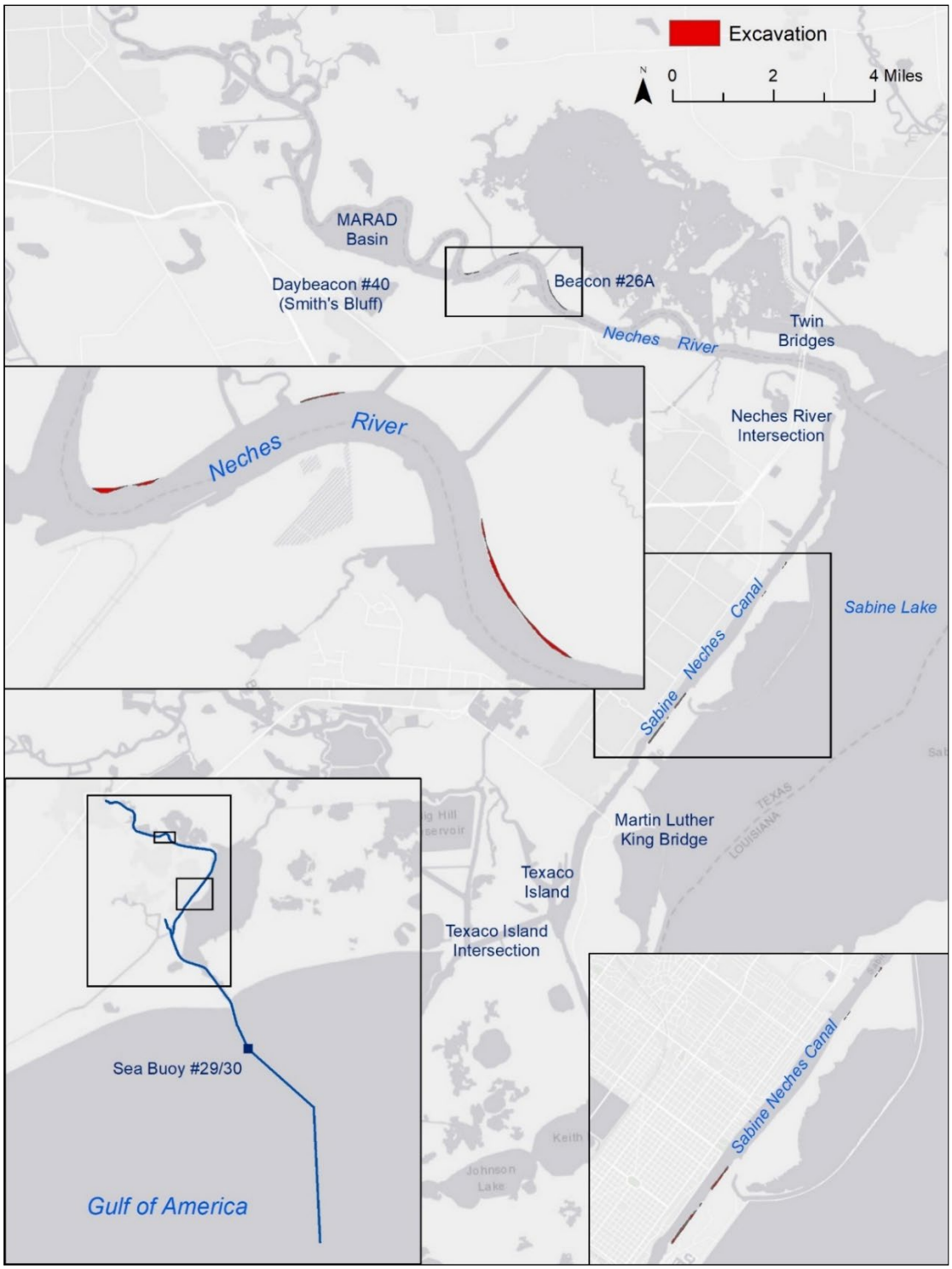

Figure 1-2.
Areas of Landside Excavation from the Proposed Widening

Along the Sabine-Neches Canal (North), (i.e., along Pleasure Island, blue line in Figure 1-1), widening would require removal of the non-engineered shoreline protection (i.e., concrete rubble) along the shoreline. Figure 1-3 is a photograph of typical non-engineered shoreline protection along Pleasure Island that would be removed prior to dredging; this material would be removed using a barge-based crane.

Figure 1-3.
Typical Non-Engineered Shoreline of Pleasure Island

Table 1-1 shows the predicted changes to physical environment from the proposed widening, depicted in Figures 1-1 and 1-2. As shown in Table 1-1, the total area to be added to the federal navigation channel for the widened segments shown in Figure 1-1 would be approximately 231.8 acres and would be entirely under the existing water line.

Table 1-1.
Extent of Physical Modifications for the Proposed Widening

Segment of Federal Channel Widening	Subtidal Area of Widened Navigation Channel (AC)	Upland Area of Disturbance (AC)	Affected Shoreline Length (MI)	Dredge Volume Removed (CY)
Sabine-Neches Canal (South)	18.2	0.0	0.0	867,000
Sabine-Neches Canal (North)	98.5	10.9	1.3	5,677,000
Neches River Channel	115.1	6.2	1.2	5,102,000
TOTAL	231.8	17.2	2.5	11,646,000

Source: SNND, 2022.

Because the downstream-most area for widening (Sabine-Neches Canal (South) segment, magenta line in Figure 1-1) is already relatively deep water, widening in the Sabine-Neches Canal (South) segment would not result in any changes to adjacent shoreline or land. As such, Table 1-1 shows the area of upland disturbance for the

Sabine-Neches Canal (South) segment is zero because the entire footprint of disturbance for this segment would be under water.

Within the Sabine-Neches Canal (North) segment (blue line in Figure 1-1), 1.3 miles of shoreline and a total of 10.9 acres of uplands would be converted to open water. Within the Neches River Channel segment, 1.2 miles of shoreline and a total of 6.2 acres of uplands would be converted to open water. Dredging the widened segments in the Sabine-Neches Canal (North) and the Neches River Channel would affect a cumulative total of 2.5 miles of shoreline and 17.2 acres of upland habitat as summarized in Table 1-1.

Dredging to widen the navigation channel would be performed by a 30-inch cutterhead suction (pipeline) dredge. The dredge would remove approximately 15,000 cubic yards/day based on seven days a week, 24-hours per day operation, and actively dredging 60-percent of the time. Dredging the entire widened areas would take approximately 30 months and would remove nearly 11.7 million cubic yards of dredged material as shown in Table 1-1. Staging areas for equipment and materials would use existing industrial waterfront facilities within the adjacent Port Arthur and Port Neches.

Where widening would result in uplands dredged to open water, there would be clearing and grubbing of surface vegetation prior to dredging and the cleared vegetation would be removed from the site using barge-based equipment. Equipment for the clearing of vegetation would be presumed to utilize a bulldozer and bobcat-type equipment with brush hog or similar attachments. Access to the areas adjacent to the Sabine-Neches Canal (North) segment would be via public surface roads to the property and access along the lower Neches River would be via private roads maintained by the Sabine Neches Navigation District for management of the dredged material placement areas.

1.3.2 Future Maintenance Dredging of Widened Areas

The widening would not be expected to change the frequency of maintenance dredging within the waterway, but would increase the area of the federal navigation channel being maintained and the associated volume of maintenance material generated per maintenance dredge cycle. The increase in the maintenance material represents an increase of slightly over half a million cubic yards per year and would add approximately 20 additional days per year of maintenance dredging to the approximately 130 days per year of maintenance dredging assumed for the Sabine-Neches Canal and Neches River Channel combined (SNND, 2022).

1.3.3 Dredged Material Placement

Figure 1-4 shows the array of dredged material placement areas adjacent to the waterway in the Action Area. During the construction of the widened areas, the dredged material would be pumped from the pipeline dredge, through temporary pipelines, and hydraulically discharged into existing, designated confined dredged material placement areas. Review of the existing Dredged Material Management Plan indicates that sufficient placement capacity is available for the material generated during initial construction as well as future increased maintenance dredging volumes as a result of maintaining the wider channel segments (USACE, 2011d; SNND, 2022).

As part of the ongoing dredged material management, the height of PA area perimeter dikes is periodically raised to increase PA capacity. Dike-raising would not be required prior to implementing the proposed widening, but would necessitate raising the elevation of some PA dikes sooner than scheduled without the proposed widening. Implementing the proposed widening, and the increased future maintenance material would not require the design, site selection, or construction of any additional dredge material placement areas (SNND, 2022). As under current practices, heavy equipment (e.g., dozers, excavators) would be used within the PAs to ensure proper material distribution and effluent would be released (and monitored) from the PAs through existing weirs.

This BA presumes that the ongoing deepening of the entire waterway's channels will have been completed prior to the implementation of the proposed widening being evaluated in this BA. When the dredged material from the proposed widening is to be placed in the PAs, these PAs would have recently received hundreds of thousands of cubic yards of dredged material from the ongoing channel deepening construction as well as material from ongoing maintenance dredging. As such, the interior of the PAs that would be used for placement of dredged material for the widening would have had large quantities of recently-placed dredged material within them.

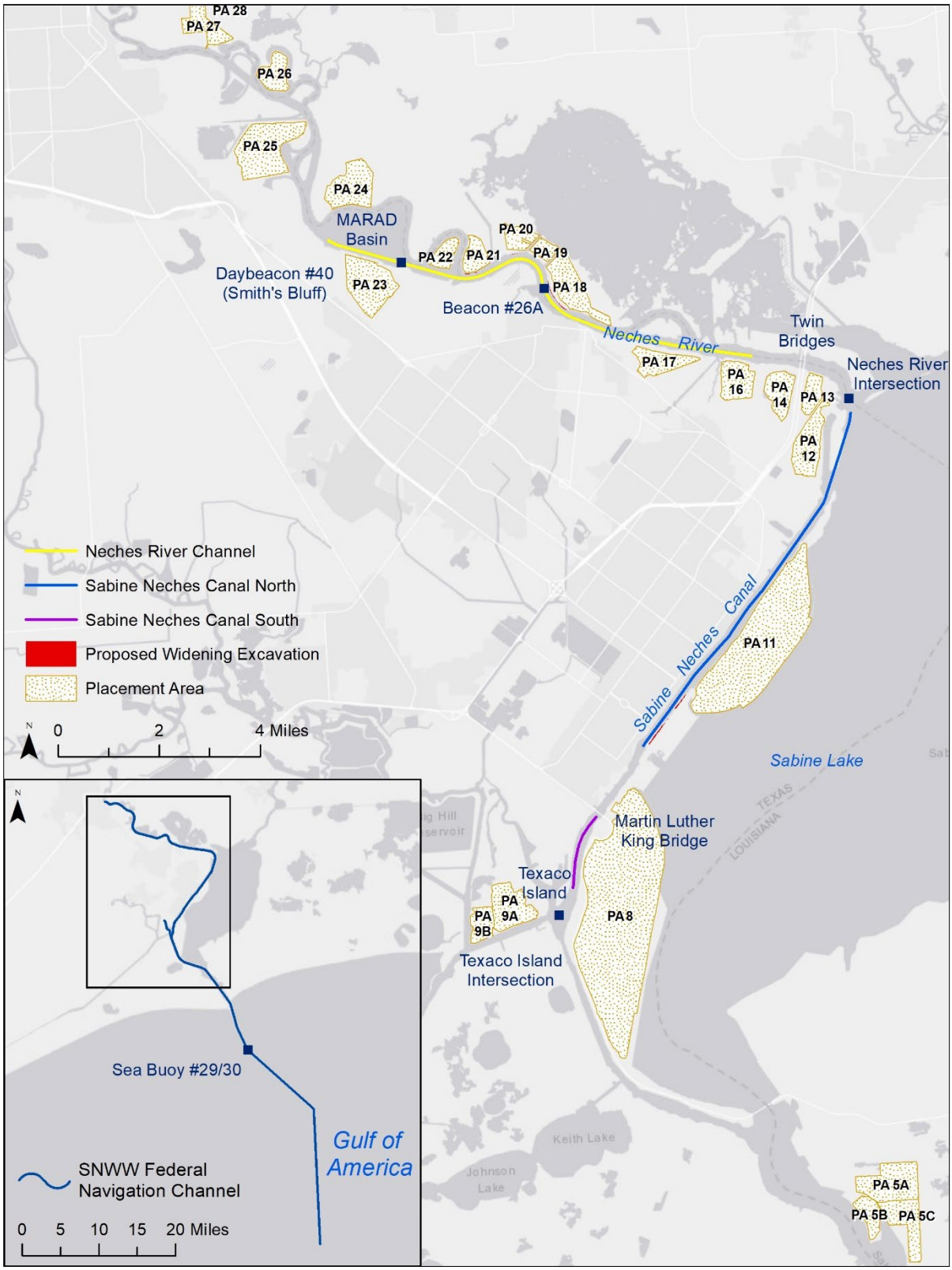

Figure 1-4.
Dredged Material Placement Areas in the Action Area

1.3.4 Beneficial Use of Dredged Material

Dredged material planning for proposed widening included evaluation of beneficial use (BU) opportunities. Where economically feasible, up to 500,000 CY of dredged material from the widening would be placed in a BU site that is being designed and constructed in support of another project (USACE, 2011a). The Bessie Heights Marsh BU site is entirely in Texas, is currently under design, will be constructed to restore marsh habitat, and has an assumed 30-year construction based on the availability of dredged material. Placing dredged materials generated during widening construction would accelerate the completion of the Bessie Heights Marsh BU site and delivery of the associated ecosystem benefits. Providing BU material to the Bessie Heights Marsh area was specifically identified in the USFWS' Planning Aid Letter for the proposed widening (USFWS, 2024c).

1.3.5 Relocations and Aids to Navigation (ATON)

Constructing the proposed widening would not require relocation of any bridges, docks, or wharfs. Within the footprint of the widening, pipelines, cables, and utilities that traverse the channel were identified. Based on their configuration, there would be no pipeline, cables, or utility relocations expected as part of the proposed widening. During Preconstruction Engineering and Design (PED), utility depths would be verified, and a detailed hazard survey (e.g., magnetometer, side-scan sonar, or similar) would be performed as a best management practice. On the lower Neches River Channel, an overhead electricity transmission tower owned by Entergy Corporation would need to be relocated from the current location and relocating the tower is part of the action.

Relocating aids to navigation (ATONs) is a federal responsibility with the U.S. Coast Guard (USCG) responsible for new channel markers (aids to navigation) and relocation of existing ATONs. Large ATONs (*e.g.*, range towers) requiring relocation for both the deepening and the proposed widening were assumed to be moved only a single time because of the time and expense required to move these types of structures. Other ATONs (*e.g.*, channel marker lights) were assumed to be moved for the deepening and again for the proposed widening. Approximately 24 ATONs require relocation to implement the proposed widening.

1.4 Best Management Practices

Each dredging contract will include the requirement to develop and follow an environmental protection plan (EPP) to present an overview of known or potential environmental issues that must be considered and addressed during construction. Within the EPP, best management practices (BMPs) are specified to protect environmental resources during construction. The following BMPs are measures that are specified in the contracts language and would be required for this work. The contractor's EPP shall include:

- an updated IPaC report from the U.S. Fish and Wildlife Service listing the threatened and endangered species and any critical habitat designated within the potentially affected area to determine whether there have been changes;

- a project-specific stormwater pollution prevention plan (SWPPP) that meets the requirements of 40 CFR 122.26 and the Texas State General Permit for stormwater discharges from construction sites prior to the commencement of work;
- a construction site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage areas (on-site and off-site)), access and haul routes, avenues of ingress/egress, locations of safety and construction fences, construction entrances, temporary sanitary facilities, and worker parking;
- a dredge spill contingency plan including procedures to be followed in the event of a spill where (1) the dredge shall cease operations in a placement area, (2) immediately notify the Contracting Officer who in turn will notify U.S. Fish and Wildlife Service, Texas Parks and Wildlife, and Texas General Land Office, (3) submit a specific clean-up plan for approval, and (4) no clean-up actions will commence until the plan has been approved;
- requirements to maintain spill cleanup equipment and materials at the work site so that, in the event of a spill, take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Fire Department, the Command Duty Officer, the Environmental Office, the Contracting Officer and the Texas Commission on Environmental Quality;
- drawings that identify features for environmental consideration (e.g., proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, storm drains and conveyances, and stockpiles of excess soil);
- construction related objectives, targets, and measures for protecting natural and cultural resources as well as the measures the contractor must implement for protecting these resources;
- a work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse;
- requirements for depositing material in confined areas using methods that reduce conditions conducive to breeding of mosquitoes, flies, and other disease-bearing insects and pests and will prevent or control the release of obnoxious odors and gasses deleterious to human life and property; and
- measures for marking the limits of use areas, including methods for protection of features to be preserved within authorized work areas and methods to control runoff and to contain materials on site.

Additional Placement Area BMPs:

- Control dredged material placement to confine material within the existing placement areas using the available upland dredged material placement areas so that the placement of dredged material would avoid effects to existing areas of marsh by avoiding the need to establish new upland placement areas;
- reduce turbidity to the lowest practicable level using the normal best management dredging practices;

- continuously monitor (24-hours a day) the placement areas during placement operations and the personnel monitoring the dikes shall be in radio contact with the dredge;
- provide and maintain minimum field-type sanitary facilities and periodically empty wastes into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Must also obtain approval from the system owner prior to discharge into any municipal, district, or commercial sanitary sewer system;
- comply with applicable federal, state and local laws, rules and regulations governing the placement of materials and wastes in navigable waters including approval of the appropriate Texas Commission on Environmental Quality for the discharge of materials and wastes in the navigable waters within its jurisdiction, and including the provisions of 33 USC 1342 (National Pollutant Discharge Elimination System); exercise precaution to prevent dredged material and dredge effluent from flowing into areas or waterways and ditches not designed for the deposit of dredged material or the flow of effluent runoff;
- exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated in accordance with 40 CFR 300;
- do not enter, disturb, destroy, or allow discharge of contaminants into waters of the United States. Authorization to enter specific waters of the United States identified does not relieve the contractor from any obligation to protect other waters of the United States within, adjacent to, or in the vicinity of the construction site and associated boundaries, and
- monitoring of discharge effluent from each placement area spillway and the corresponding receiving body of water shall be sampled at least twice daily. If the effluent density exceeds eight (8) grams per liter for total suspended solids (TSS) more than the corresponding density of the receiving body of water, the contractor may either: add ponding capacity by raising the spillway invert within the placement area or discontinue dredge placement into the placement area until the effluent density returns to an acceptable eight (8) grams per liter differential or less. The minimum frequency of sampling at the weir shall be increased when the effluent density increases or nears the maximum specified limit. Samples of the receiving body of water shall be taken upstream or opposite to the direction of tidal flow where the discharge effluent enters the channel.

1.5 Monitoring and Reporting

A biological monitor will be present on the dredge plant and at each upland/terrestrial work area that will be cleared prior to dredging. They will inspect the active work areas prior to work starting each day and stay on site during the duration of field activities.

Qualified biological monitors will monitor and document habitat impacts and potential impacts to federally regulated species. All monitors will communicate activities to the POC and the POC will coordinate with the USACE Environmental Specialist. Monitors will document the following daily in field logs:

1) Identify the dominant vegetation species in any terrestrial areas that will be cleared and dredged (i.e., converted into open water), including the diameter at breast height (DBH) of tree species;
2) Photograph the terrestrial habitat areas prior to clearing activities with GPS coordinates with sub-meter accuracy noting whether the effects are temporary or permanent;
3) Document potential migratory bird roosting habitat within the area, including the physical characteristics, for non-nesting season months (September 2 – February 28/29). Presence/absence surveys will not be conducted in the non-nesting season, but if migratory birds are seen during field work, species will also be noted;
4) In accordance with the Migratory Bird Treaty Act (MBTA), nesting season is between March 1 – September 1, and surveys will be conducted prior to work commencing each day. Biological monitors will check surrounding trees and shrubs for active nests and document their presence, as well as note species, for the MBTA survey;
5) Conduct daily surveys for threatened and endangered species, before and during activities, for Federally regulated species. Species-specific monitoring protocols are provided in Section 7. Presence will be documented and relevant parties contacted as necessary including USFWS, Texas Parks and Wildlife Department (TPWD), and the USACE Environmental Specialist;
6) Survey and document potentially affected areas where bald and golden eagle nests could be present (in accordance with the Bald and Golden Eagle Protection Act). If identified, biological monitor(s) will document any active nests and provide GPS coordinates with sub-meter accuracy; and
7) Document any instances of spills or contaminants and spill response.

2 Species and Habitat Descriptions

The list of threatened, endangered, proposed for listing, or candidate species addressed in this BA was compiled from an official species listed using the USFWS IPaC tool (Attachment A).

2.1 Consultation History

Coordination with the USFWS, NOAA Fisheries, Texas Parks and Wildlife Department (TPWD), Texas Commission on Environmental Quality (TCEQ), and the Texas General Land Office (GLO) has occurred as noted below. The following list documents coordination with USFWS and NMFS regarding ESA and general resource agency coordination relevant to this consultation:

- 15 April 2025 – SNND webinar meeting with Jan Culbertson (USFWS) to review the Proposed Action, Action Area, and discuss expectations for the BA;
- 24 February 2025 - IPaC Resource List Update on the Action Area;
- 17 September 2024 – Louisiana Ecological Services Office (LESO) provides USACE and SNND with a Planning Aid Letter (USFWS, 2024c);
- 21 May 2024 – NMFS email from Anthony Sogluizzo, NOAA Fisheries Directorate Office to Blake Westmoreland, USACE;
- 21 May 2024 – NMFS agrees to serve as a Cooperating Agency on the Feasibility Study/Environmental Assessment;
- 6 May 2024 – SNND webinar with USFWS, NOAA Fisheries, USEPA, TCEQ, TPWD, and General Land Office, to review the proposed project and introduce the SNND. SNND provided a Project Summary read ahead for resource agency review; and
- 24 April 2024 – USACE receipt of the Official Species List from the USFWS Texas Coastal & Central Plains Office for the proposed widening.

Upon formal request from NMFS for the official species list of identified threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under their jurisdiction that may occur within the widening project action area, NMFS responded that "*It is the opinion of NMFS Protected Resources Division, who oversees compliance with the Endangered Species Act, that the Biological Opinion for the Sabine deepening [SERO-2023-00049] will directly apply to the current project to widen the channel. Therefore, when issues arise regarding the ESA, please refer to the completed Section 7 consultation*" (NMFS, 2024a). As such, NMFS has asserted that their March 2024 BO (NMFS, 2024) applies to all actions proposed under this Section 203 Navigation Improvement Project. Therefore, this BA only addresses species that are within the purview of the USFWS.

2.2 Listed Species and Critical Habitat in the Action Area

The USFWS' Texas Coastal Ecological Services Field Office provided the official species list (USFWS, 2024) of the identified threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of the proposed project in fulfillment of the requirements of the Service

under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). A total of 15 ESA-listed, candidate, or proposed for listing species were listed as potentially occurring in the Action Area (Table 2) and no critical habitat was identified as occurring within the Action Area.

Describing the likely occurrence and status of species in the Action Area on ESA-listed species involves developing species profiles from multiple sources including: the USFWS' and NMFS' species-specific webpages; interview of recognized experts on listed species including local authorities; on site habitat investigations; digital data sources (e.g., habitat databases, record occurrences, aerial imagery); federal status reports and recovery plans; peer-reviewed journal articles; regional Biological Opinions; and other standard references as cited in the species-specific summaries.

Table 2-1.
Proposed, Listed Species, and Critical Habitat in the Action Area

Common Name	Scientific Name	Listing Status	Critical Habitat in the Action Area
BIRDS			
piping plover	*Charadrius melodus*	threatened	No
rufa red knot	*Calidris canutus rufa*	threatened	No
Eastern black rail	*Laterallus jamaicensis jamaicensis*	threatened	No
whooping crane	*Grus americana*	endangered	No
MAMMALS			
West Indian manatee	*Trichechus manatus*	endangered	No
tricolored bat	*Perimyotis subflavus*	proposed endangered	No
REPTILES			
alligator snapping turtle	*Macrochelys temminckii*	proposed threatened	No
green sea turtle	*Chelonia mydas*	threatened	No
Kemps' ridley sea turtle	*Eretmochelys imbricata*	endangered	No
loggerhead sea turtle	*Lepidochelys kempii*	threatened	No
hawksbill sea turtle	*Dermochelys coriacea*	endangered	No
leatherback sea turtle	*Caretta caretta*	endangered	No
INSECTS			
monarch butterfly	*Danaus plexippus*	proposed threatened	No
MOLLUSKS			
Louisiana pigtoe	*Pleurobema riddellii*	proposed threatened	No
Texas heelsplitter	*Potamilus amphichaenus*	proposed endangered	No

2.3 Species Eliminated from the Analysis

During the development of this BA, five federally listed species of sea turtle were identified in the IPaC search as listed species with the potential to occur within the Action Area (USFWS, 2024). These five species of sea turtles are the (green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), Kemp's ridley *(Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and loggerhead (*Caretta caretta*)). All five species travel widely throughout the South Atlantic, Gulf of America and the Caribbean.

Under the ESA, the NMFS and USFWS, together, share responsibility to conserve sea turtles as described in the 2015 revision of the memorandum of understanding (MOU) Defining the Roles of USFWS and NMFS in Joint Administration of the Endangered Species Act of 1973 as to Sea Turtles (NMFS and USFWS, 2015). Under the MOU, the USFWS is responsible for all consultations under Section 7(a)(2) of the ESA for activities affecting sea turtles and their habitat in the *terrestrial* environment and NMFS is responsible for all consultations under Section 7(a)(2) of the ESA for activities affecting sea turtles and their habitat in the *marine* environment (NMFS and USFWS, 2015).

Section 2.1, Consultation History, states that this BA is exclusively directed to the species under the USFWS' jurisdiction. As such, the consideration of the potential effects to sea turtles in this BO is limited to the USFWS' consideration of activities affecting sea turtles and their habitat in the *terrestrial* environment (i.e., nesting habitat). After review, all five sea turtles were eliminated from further consideration because there is no suitable nesting habitat (i.e., the terrestrial environment) within the Action Area.

Table 2-2.
Species Eliminated from Analysis for a No Effects Determination

Common Name *Scientific Name*	Habitat Association	Effects Determination	Effects Analysis
green sea turtle *Chelonia mydas*	Shallow habitats such as lagoons, bays inlets, shoals, estuaries, and other areas with abundant marine algae and seagrass. High-energy beaches with deep sand for nesting, usually coarse to fine grain sizes, with little organic content.	No effect	Lacks suitable nesting habitat
Kemps' ridley sea turtle *Eretmochelys imbricata*	Shallow coastal and estuarine waters, usually over sand or mud bottoms. Adults primarily shallow-water benthic feeders; juveniles feed on *Sargassum* and associated infauna.	No effect	Lacks suitable nesting habitat
loggerhead sea turtle *Lepidochelys kempii*	Foraging throughout the shallow continental shelf waters, but also found in bays, estuaries, lagoons, and river mouths. Adults occupy turbid bays to clear water reefs; subadults occur in nearshore and estuarine waters. High-energy, open sandy beaches above the high-tide mark and seaward of well-developed dunes preferred for nesting.	No effect	Lacks suitable nesting habitat
hawksbill sea turtle *Dermochelys coriacea*	Largely inhabit nearshore foraging grounds, especially healthy coral reefs. Hatchlings take shelter in floating algal mats and drift lines of flotsam and jetsam; juveniles migrate to shallower coastal feeding grounds and remain into adulthood. Found around rock formations, high energy shoals, and estuaries that provide habitat for sponge growth.	No effect	Lacks suitable nesting habitat
leatherback sea turtle *Caretta caretta*	Mainly pelagic, inhabiting the open ocean, where they dive to great depths continuously. Found in coastal waters during nesting or when following concentrations of jellyfish. Typically nests on beaches with a deep-water approach in Malaysia, Mexico, French Guiana, Suriname, Costa Rica, and Trinidad.	No effect	Lacks suitable nesting habitat

2.4 Species Accounts

2.4.1 Piping Plover

Description, Range, and Habitat

Piping plovers (*Charadrius melodus*) are small, stocky shorebirds that breed in three areas in North America: the Great Plains, the Great Lakes, and the Atlantic Coast (USACE, 2020). They typically nest on the shorelines of oceans, rivers, and inland lakes on sandy beaches, especially where scattered tufts of grass are present; sandbars; causeways; bare areas on dredge-created and natural alluvial islands in rivers; gravel pits along rivers; silty flats; and salt-encrusted bare areas of sand, gravel, or pebbly mud on interior alkali lakes and ponds (USACE, 2020).

The breeding population of the Northern Great Plains piping plover extends from Nebraska north along the Missouri River through South Dakota, North Dakota, and eastern Montana, and on alkaline (salty) lakes along the Missouri River Coteau (a large plateau extending north and east of the Missouri River) in North Dakota, Montana, and extending into Canada (USFWS, 2016).

Piping plover feed on a variety of invertebrates such as polychaete marine worms, various crustaceans, amphipods, terrestrial and benthic insects, and occasionally bivalve mollusks (USFWS, 2008). Feeding occurs any time and at all stages in the tidal cycle on moist substrate features (*e.g.,* intertidal portions of ocean beaches, washover areas, mudflats, sand flats, algal flats, shoals, wrack lines, sparse vegetation, and shorelines of coastal ponds, lagoons, ephemeral pools adjacent to salt marshes) (USFWS, 2009).

The primary constituent elements for piping plover wintering habitat essential are those habitat components that support foraging, roosting, and sheltering, and the physical features necessary for maintaining the natural processes that support these habitat components (USFWS, 2015). The primary constituent elements are found in coastal areas with intertidal ocean-facing and bay shoreline beaches and flats (between annual low tide and annual high tide); associated dune systems and flats above annual high tide; and seasonally emergent sand bars, mud flats, and oyster reefs (USFWS, 2015).

The area with the least modified habitat, (i.e., retaining the most constituent elements of the wintering critical habitat designation) appears to be in Texas because of the long stretches of undeveloped barrier islands and peninsulas, with overwash passes and flats, discontinuous dunes, and sparse vegetation common on the Texas coastline (USFWS, 2015). Wintering plovers are dependent on a mosaic of habitat patches, and move among these patches, depending on local weather and tidal conditions (USFWS, 2009).

As defined by the USFWS (2009), the primary constituent elements (PCEs) of the critical habitat for the wintering population are:

1) Intertidal sand beaches (including sand flats) or mudflats (between the MLLW and annual high tide) with no, or very sparse, emergent vegetation for feeding. In some cases, these flats may be covered or partially covered by a mat of blue-green algae;
2) Unvegetated or sparsely vegetated sand, mud, or algal flats above annual high tide for roosting. Such sites may have debris or detritus and may have micro-

topographic relief (less than 20 inches above substrate surface) offering refuge from high winds and cold weather;
3) Surf-cast algae for feeding;
4) Sparsely vegetated back beach which is the beach area above mean high tide seaward of the dune line, or in cases where no dunes exist, seaward of a delineating feature such as a vegetation line, structure, or road. Back beach is used by plovers for roosting and refuge during storms;
5) Spits, especially sand, running into water for foraging and roosting;
6) Salterns, or bare sand flats in the center of mangrove ecosystems that are found above mean high water and are only irregularly flushed with sea water;
7) Unvegetated washover areas with little or no topographic relief for feeding and roosting. Washover areas are formed and maintained by the action of hurricanes, storm surges, or extreme wave actions; and
8) Natural conditions of sparse vegetation and little or no topographic relief mimicked in artificial habitat types (*e.g.,* dredge spoil sites).

Status

Piping plovers were listed under the provisions of the ESA on January 10, 1986, with two distinct population segments listed separately (50 FR 50726). The Northern Great Plains population, which winters on the Texas coast, was listed as threatened. The USFWS manages the Northern Great Plains piping plover population as a stand-alone, Distinct Population Segment (DPS) (USFWS, 2016). The 2009 5-year review considered this issue and concluded that this population satisfies the criteria of a DPS and can be delisted separately from the remaining piping plover populations (USFWS, 2016).

Critical habitat was designated on the Northern Great Plains breeding grounds in September 2002 (67 FR 57638), designated for all populations of piping plovers on the wintering grounds on July 10, 2001 (66 FR 36037), and then re-designated in 2008 (73 FR 62816) and May 2009 (74 FR 23476) (USACE, 2016). The 2009 revised designation of critical habitat was specifically for the wintering population of the piping plover in Texas (USFWS, 2009). The nearest critical habitat designated in Texas (Unit TX-37) is more than 35 miles to west of the Action Area and the nearest critical habitat designated in Louisiana (Unit LA-1) is along the Gulf Shoreline of Louisiana and greater than 10 miles east of the Action Area.

As part of the piping plover recovery plan for the Northern Great Plains population, the USFWS has goals to ensure that habitat is available on the coastal migration and wintering grounds in quantity and quality to support conservation of the species at recovery levels (USFWS, 2016). This will include designated Critical Habitat, and additional habitat that was not designated but is regularly used by wintering piping plovers (USFWS, 2016).

The primary threats to the wintering population on the Texas coast are human-caused disturbance factors that may affect the survival of piping plover or utilization of wintering habitat include recreational activities, inlet and shoreline stabilization projects, dredging of inlets that can affect spit formation, beach maintenance and renourishment, groins, seawalls and revetments, exotic and invasive vegetation, wrack removal, and pollution

(USFWS, 2009). There is also concern with projects that would impede the ability of barrier islands to respond to natural habitat building processes in the context of accelerating sea-level rise (USFWS, 2009).

Distribution in the Action Area

In total, approximately 35-percent of the known global population of piping plovers winters along the Texas Gulf Coast, where they spend 60 to 70 percent of the year (mid-July through April) (USACE, 2020). Piping plovers begin arriving on their wintering ground in late July, although most wintering birds arrive at the Texas coast in August and September (USFWS, 2008). They begin leaving the wintering grounds in late February and by mid-May almost all wintering birds have left the Texas coastal area for their nesting grounds (USACE, 2020). Because birds may cross over from the Gulf or Atlantic coasts, birds on Texas wintering grounds may be from any of the three breeding areas (USFWS 2008).

On the wintering grounds, piping plovers forage and roost along barrier and mainland beaches, sand, mud, and algal flats, washover passes, salt marshes, and coastal lagoons (USFWS, 2016). Wintering piping plover are characteristically observed along the Louisiana and Texas Gulf shoreline (predominantly in Brazoria and Jefferson counties) but have also been sighted along the Sabine Neches Waterway and the western shore of Sabine Lake at Pleasure Island (Cornell University, 2020). Thus, although less frequent, wintering piping plovers have been observed on a variety of other habitats including mudflats, sandflats, dunes, and offshore emergent placement areas, as well as sandy areas in existing USACE dredged material placement areas (USACE, 2022).

Except for the sandy areas in the interior of dredged material placement areas, the Action Area does not include the preferred habitat characteristics (e.g., intertidal sand beaches, mud flats, surf cast algae for feeding, spits, washovers, etc.) where the wintering piping plover would prefer to forage or roost.

2.4.2 Rufa Red Knot

Description, Range, and Habitat

The red knot is a stocky, medium-sized shorebird with relatively short bill and legs. Across all subspecies, the rufa red knot (*Calidris canutus rufa*) is a specialized molluscivore, eating hard-shelled mollusks, sometimes supplemented with easily accessed softer invertebrate prey, such as shrimp- and crab-like organisms, marine worms, and horseshoe crab eggs (USFWS, 2014). Rufa red knots migrate annually between their breeding grounds on the central Canadian arctic tundra and four wintering regions. Each of these four separate wintering regions are considered to support four different populations of the rufa red knot (USFWS, 2023) as follows:

1) the Atlantic coasts of Argentina and Chile (particularly the island of Tierra del Fuego that spans both countries);
2) the northern coast of South America (particularly in the Brazilian State of Maranhão);

3) the western Gulf of America from the Mexican State of Tamaulipas through Texas (particularly at Laguna Madre) to Mississippi and extending south along both coasts of Central America and then and along the Pacific coast of South America to Chiloé Island in Chile; and
4) the southeast United States from Alabama (particularly Florida's central Gulf coast) to North Carolina, with smaller numbers in the northeast and additional birds throughout the Caribbean (USFWS, 2023).

The population wintering in the southernmost tip of South America (Tierra del Fuego) has one of the longest yearly migrations of any bird, flying more than 9,300 miles between their wintering and breeding grounds in the Arctic (USFWS, 2020). Before migration, red knots accumulate and store large amounts of fat to fuel migration and undergo substantial changes in metabolic rates (USFWS, 2020). In addition, the leg muscles, gizzard, stomach, intestines, and liver all decrease in size, while the pectoral (chest) muscles and heart increase in size (USFWS, 2020).

Due to these physiological changes, red knots arriving from lengthy migrations are very thin to emaciated and not able to feed maximally until their digestive systems regenerate (USFWS, 2020). Because stopovers are time-constrained, red knots require stopovers rich in easily digested food to achieve adequate weight gain that fuels both the next migratory flight and eventual breeding in the Arctic (USFWS, 2020). The birds have been shown to gain up to 10-percent of their body weight each day, doubling their body weight during their stopover stay (USFWS, 2014).

On the Atlantic coastline, the Delaware Bay serves as the principal spring migration staging area for from 50 to 80 percent of the rufa red knot population because of the superabundance of nutritious and easily-foraged horseshoe crab eggs (USFWS, 2020). Staging areas are a subset of stopover areas with abundant, predictable food resources where birds prepare for an energetic challenge (usually a long flight over a barrier such as an ocean or a desert) requiring substantial fuel stores and physiological changes without which significant fitness costs are incurred (USFWS, 2023). Pausing migration to gorge on horseshoe crab eggs allows these birds to efficiently gain weight faster than all known stopover populations of red knots in the world (USFWS, 2014). The weight gains are among the highest rates observed in the entire animal kingdom; birds can eat enough in two weeks to nearly double their body weight (USFWS, 2014).

The 1990s saw steep increases in the harvest of horseshoe crabs for the bait and biomedical industries (USFWS, 2020; 2022a). Thereafter, the shorebird numbers in Delaware Bay saw modest declines in the 1990s, and several lines of evidence indicated that reduced availability of horseshoe crab eggs was negatively impacting rates of shorebird weight gain and survival (USFWS, 2020). Researchers showed that a high proportion of red knots leaving the Delaware Bay had failed to achieve threshold departure weight needed to fly to breeding grounds and survive an initial few days of snow cover and this corresponded to reduced annual survival rates (73 FR 75176, December 10, 2008). The USFWS determined that the horseshoe crab bait harvest has been adequately managed at least since 2013, when the 2012 plan update went into effect (USFWS, 2020). However, the continued sufficiency of future crab egg supplies

remains uncertain, and the management of this fishery remains controversial (USFWS, 2020).

In wintering areas, rufa red knots need wide, sparsely vegetated beaches, shoals, tidal mud or sand flats, or mangrove-dominated shorelines with ample, small (less than 0.8 inches) mollusk prey (*e.g.,* snails, clams, mussels) and other invertebrate prey (USFWS, 2023). In wintering and migration habitats, red knots commonly forage on bivalves, gastropods, and crustaceans. It has been reported that Coquina clams (*Donax variabilis*) serve as a frequent and often important food resource for red knots along Gulf beaches. Rufa red knots use mangrove areas in parts of Brazil and Florida, but generally not in Texas (USFWS, 2023). Foraging areas for the red knot are intertidal, from the wrack line seaward to a water depth of 1.2 inches, with prey probed from the surface to a similar depth (USFWS, 2023). Roosting areas are supratidal habitats (i.e., tidal flat areas above the mean high water for spring tides) with open vistas, located near foraging areas (USFWS, 2023).

Status

There are six recognized subspecies of red knots (*Calidris canutus*) and on December 11, 2014, the USFWS listed the rufa subspecies of red knot (*Calidris canutus rufa*) as a threated species under the ESA (79 FR 73706). The rufa red knot was determined to be endangered under the Canadian Species at Risk Act in 2012 and the rufa subspecies is also listed or otherwise protected under the laws of several other countries and U.S. States in which it occurs (USFWS, 2023).

When first listed in 2014, no critical habitat was designated or proposed for the rufa red knot; however, in April 2023, the USFWS reopened the comment period on a proposed rule (both listing a species as an endangered or threatened species and designating critical habitat can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process) to designate critical habitat for the rufa red knot (88 FR 22530, April 13, 2023; https://www.govinfo.gov/content/pkg/FR-2023-04-13/pdf/2023-06619.pdf). The USFWS proposes to designate critical habitat across a total of approximately 683,405 acres in 127 units (18 of which are further subdivided into 46 subunits) in Massachusetts, New York, New Jersey, Delaware, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas (88 FR 22530). There are two proposed units of critical habitat in Texas: Units TX–1 (Rollover Pass to Bolivar Flats on the barrier island south of Galveston Bay) and TX–11 (South Bay/Boca Chica at the southernmost extent of Texas near the border with Mexico) (88 FR 22530). The nearest of these proposed areas of critical habitat (Unit TX-1) is more than 35 miles to the west of the Action Area.

The 2020 rufa red knot Species Status Assessment Report (USFWS, 2020) asserts that "*We* [USFWS] *have no evidence that the Southeast United States/Caribbean population has declined, and earlier regional abundance estimates suggest this population has been roughly stable since the 1980s*." Overall, the rufa red knot abundance is diminished relative to the 1980s but is currently stable (USFWS, 2023).

Main threats to the rufa red knot in the United States include reduced forage base at the Delaware Bay migration stopover (stopover areas are places where migrant birds stop to rest, drink, and eat (USFWS, 2023)); decreased habitat availability from beach erosion, sea level rise, and shoreline stabilization in Delaware Bay; reduction in or elimination of forage due to shoreline stabilization, hardening, dredging, beach replenishment, and beach nourishment in Massachusetts, North Carolina, and Florida; and beach raking which diminishes red knot habitat suitability. (USFWS, 2014).

Distribution in the Action Area

Geolocator results from red knots wintering in Texas have shown that these birds typically use a central, overland flyway across the midcontinental United States, with birds departing Texas between May 16 and May 21 and using stopover areas in the Northern Great Plains and along southern Hudson Bay (USFWS, 2020). Texas-wintering birds typically also use a similar, direct interior flyway across the midcontinental United States during the southbound migration, using southbound stopover sites on the south shore of Hudson Bay (USFWS, 2020). Red knots winter primarily on the beaches in Brazoria County, more than 50 miles to the southwest of the Action Area.

Red knots need wide, sparsely vegetated beaches, shoals, tidal mud or sand flats, or mangrove-dominated shorelines for foraging and roosting and these habitats are not present in the Action Area. Cornell University's eBird reporting notes a few red knot observations from the Lake Sabine shoreline of Pleasure Island (to the south of the Action Area), but no reported observations within the Action Area.

2.4.3 Eastern Black Rail

Description, Range, and Habitat

The species description for the Eastern black rail (*Laterallus jamaicensis jamaicensis*) in the Cornell University Lab of Ornithology's eBird website asserts that that this is a "*tiny rail, the size of a sparrow and nearly impossible to see without tremendous effort* [that] *inhabits drier areas in fresh and saltwater marshes with cattail, sedge, and other tall grasses* [and is] *typically rare even in proper habitat.* [They are] *incredibly difficult to locate even when vocalizing within mere feet of an observer* [and they are] *the easiest to detect by its distinctive song, most often heard at night*" (https://ebird.org/species/blkrai/US). Evaluating populations is challenging because of the reclusive and elusive behavior of the black rail as they almost never take flight and rarely venture out from thick vegetated cover. These birds are also very sensitive to human disturbance, including individuals broadcasting black rail vocalizations to identify individual birds. Because black rails require dense overhead vegetation during all stages of their life cycle, one of the most difficult aspects of their ecology to study is breeding biology and reproductive performance (Watts and Biesler, 2021).

In terms of nest success, nests must be well hidden in a dense clump of vegetation over moist soil or shallow water to provide shelter from the elements and protection from predators. Flooding is a frequent cause of nest failure; therefore, water levels must be lower than nests during egg-laying and incubation in order for successful nesting. In

addition, shallow pools that are one to three cm deep may be the most optimal for foraging and for chick-rearing (USFWS, 2019).

The eastern black rail has a broad but poorly known breeding range that includes the Atlantic and Gulf Coasts of North America, parts of Colorado, Oklahoma and the mid-west, the West Indies including Cuba, Jamaica and historically Puerto Rico, and parts of Central America from Mexico through Panama. A total of 1,937 occurrence records were found within this area between 1836 and 2016. Credible evidence of occurrence was found for 21 of the 23 states including 174 counties, parishes, and independent cities and 308 named properties. Based on breeding evidence and seasonality of occurrence, 34 (19%) counties were classified as confirmed, 97 (56%) as probable breeding, and 43 (25%) as possible breeding. Many of the named properties are well-known conservation lands including 46 (15%) national wildlife refuges, 44 (14%) state wildlife management areas, 26 (8%) state and municipal parks and many named lands managed by non-governmental conservation organizations (USFWS 2019).

Status

The Eastern black rail was listed as threatened in October 2020 with a Section 4(d) Rule under the ESA (85 FR 63764) (https://www.govinfo.gov/content/pkg/FR-2020-10-08/pdf/2020-19661.pdf). As part of that ruling, the USFWS determined that designation of critical habitat for the eastern black rail is not prudent (85 FR 63764), because doing so would more widely announce the exact locations of this species, which is extremely vulnerable to disturbance (83 FR 50627-50628).

The primary threats to the Eastern black rail are: (1) habitat fragmentation and conversion, resulting in the loss of wetland habitats across the range; (2) sea level rise and tidal flooding; (3) land management practices (*e.g.*, incompatible fire management practices, grazing, and haying/mowing/other mechanical treatment activities); and (4) stochastic events (*e.g.,* extreme flooding, hurricanes) (USACE, 2022). Additional stressors to the species include oil and chemical spills and environmental contaminants; disease (West Nile virus); and predation and altered food webs resulting from invasive species introductions (*e.g.*, fire ants, feral pigs, nutria, mongoose, and exotic reptiles (USFWS 2022d).

Distribution in the Action Area

A comprehensive status assessment of the Eastern black rail was completed in 2016 that included all Atlantic and Gulf of America Coast states, including Texas (Watts, 2016). The following summary of the Eastern black rail in Texas is summarized from Watts' 2016 work:

> "*Texas is a black rail crossroad making it difficult to differentiate breeders from winter residents from migrants. The upper Texas coast has a long history of black rail records that are concentrated within national wildlife refuges and state wildlife management areas. This area is close to major urban centers and receives considerable attention from bird watchers. Exploration of black rail distribution along the central Texas coast is more recent dating back mostly to the early 1990s. Recent research within both of these geographic areas is beginning to clarify the*

important role that Texas plays in the life cycle of multiple populations. Black rails in Texas use tidal salt marshes along the barrier islands and the mainland fringe, as well as, drier coastal prairie. Tidal marshlands are threatened by ongoing sea-level rise. The coastal prairie is a small remnant of an earlier widespread ecosystem and continues to be threatened by grazing and agricultural conversion. A loose population estimate for the state is set to 100 to 500 pairs with high uncertainty."

The majority of black rails that have been recorded in Texas have been associated with the barrier island-lagoon system along the outer coast with birds using the tidal salt marshes either along the landward side of barrier islands or the extensive marshes along the mainland fringe (Watts, 2016). Along the upper Texas coast (Jefferson, Chambers, Galveston, Harris, and Brazoria counties), much of the black rail observations have been concentrated on the Bolivar Peninsula and Brazoria, Anahuac and San Bernard National Wildlife Refuges (Watts, 2016), in the Galveston Bay area. Black rail reports from the historic strongholds along the upper coast have increased in recent years with some producing several reports of multiple birds annually (Watts, 2016).

Observations have also been made periodically on Texas Point National Wildlife Refuge, Sea Rim State Park, and the McFaddin National Wildlife Refuge in Jefferson County (Watts, 2016). Surveys since 2010 suggest that occupancy rates in Texas are much higher than elsewhere in the range and the status of current information presents a challenge for estimating the population (Watts, 2016). Watts' status assessment specified the Texas counties with reported black rail occurrences included Jefferson, but not Orange Counties (Watts, 2016).

In 2017, the Texas Parks and Wildlife Department in partnership with the Texas Comptroller's Office initiated the Texas Black Rail Working Group with the main purpose of providing a forum for collaboration between researchers and stakeholders (Watts and Biesler, 2021). The TPWD report (Moore et al., 2017) summarized habitat preferences measured in the Texas coastal habitat stating *"…that Black Rail occupancy increased in marsh habitats with high levels of herbaceous vegetative cover (>60%), dominated primarily by graminoids and with sparse woody cover."* Using telemetry, the average home range was measured at 1.3 acres (SD = 0.89, 95% MCP, n=14), with no difference between males and females (Moore et al., 2017). Also, most black rail home ranges were in the intermediate marsh with Gulf cordgrass *"…typically dominating these sites, sometimes to the near exclusion of other species*" (Moore et al., 2017).

The Texas Species Research report (Moore et al., 2017) concluded that the focus of Eastern black rail habitat management in coastal Texas should be on the conservation, enhancement, and proliferation of intermediate marshes with substantial herbaceous cover that includes plant species such as Gulf cordgrass (*Spartina spartinae)*, marshhay cordgrass (*Spartina patens)*, sea-oxeye daisy (*Borrichia frutescens*), with minimal woody cover.

The USFWS' Texas Coastal and Central Plains Ecological Services Field Office staff has noted that areas within the National Wetlands Inventory designated as E2EM1N

(commonly described as a salt- to brackish-water marsh with persistent vegetation) in the serve to identify areas of high marsh used by Eastern black rail (Pers. Com., Jan Culbertson). Figures 2-1 and 2-2 show the habitat mapped as E2EM1N and the Action Area and all polygons of the high marsh habitat are greater than 5,000 feet from the areas of proposed terrestrial habitat excavation.

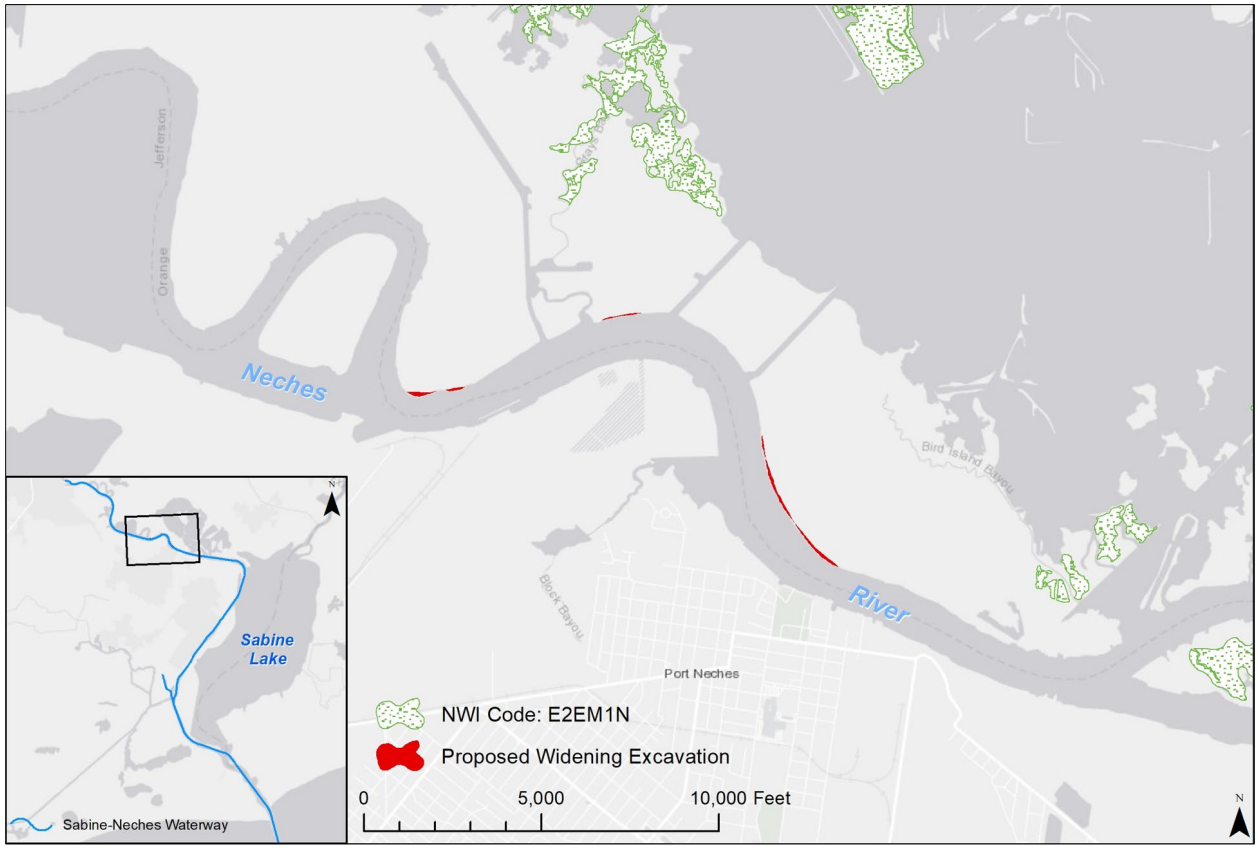

Figure 2-1.
High Marsh Designated E2EM1N Near the Neches River

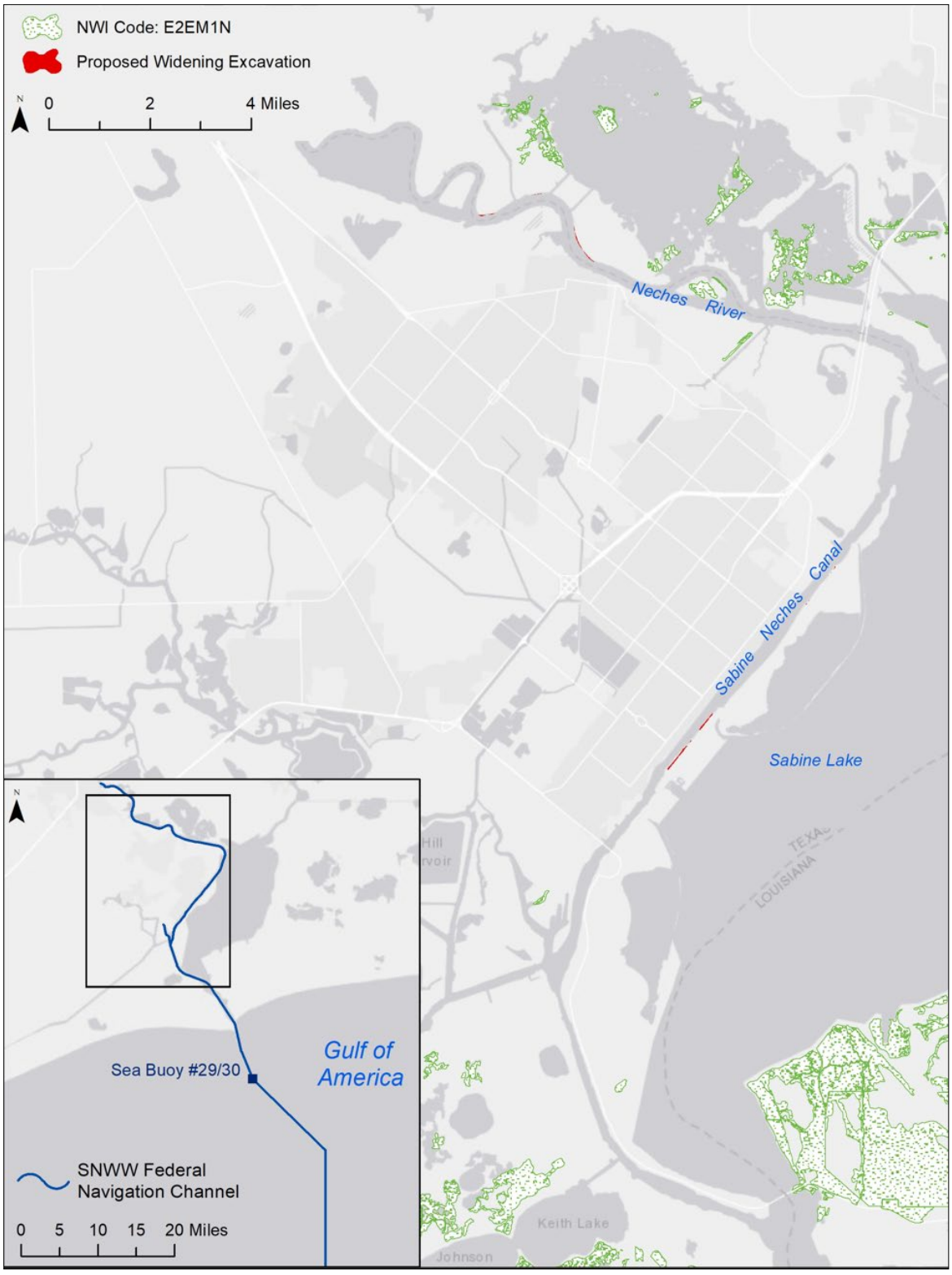

Figure 2-2.
High Marsh Designated E2EM1N Near the Sabine Neches Canal

Within the Action Area and along the lower Neches River, there are intermittent pockets of marsh habitat and invasive stands of Chinese tallow at the toe of the slope of dredged material placement areas (see Figure 1-4) and Section 3.1.5, Terrestrial Habitat of the Action Area. The area along the lower Neches River also has cattle grazing within the Action Area.

The Action Area along the Sabine-Neches Canal (i.e., along Pleasure Island) includes an abandoned golf course with hardened shorelines and no marsh habitat. The preferred habitat of intermediate marsh dominated by Gulf cordgrass with minimal woody cover does not exist within areas to be directly affected by the widening. Dredged materials will be placed into existing upland placement areas that will have recently received hundreds of thousands of cubic yards of dredged material from the ongoing channel deepening project as well as ongoing routine maintenance dredging as discussed in Section 1.3.3. The restoration of intermediate marsh with dredge material in the Bessie Heights beneficial use site would contribute to, and accelerate the availability of, high quality habitat for the Eastern black rail.

2.4.4 Whooping Crane

Description, Range, and Habitat

The whooping crane (*Grus americana*) is the tallest North American bird with males approaching five feet in height, is snowy white with black primary feathers on the wings, and a bare red face and crown. Whooping cranes form monogamous pairs for life and return to the same breeding territory in Wood Buffalo National Park, in Canada to nest in late April or May. Whooping cranes return to wintering grounds of Aransas National Wildlife Refuge (NWR) by late October to mid-November where they migrate singly, in pairs, in family groups or in small flocks and remain until March or April.

During migration, whooping cranes use cropland and emergent wetlands for feeding, and shallow seasonal or semi-permanently flooded wetlands for roosting, along with some riverine habitats (Canadian Wildlife Service and USFWS, 2007). Whooping cranes are omnivorous and forage by probing and gleaning foods from soil, water, and vegetation. Summer foods include dragonflies, damselflies, other aquatic insects, crayfish, clams, snails, grasshoppers, cricket, frogs, mice, voles, small birds, minnows, reptiles, and berries. During the winter in Texas, they eat a wide variety of plant and animal foods, with blue crabs, clams, and berries of Carolina wolfberry (*Lycium carolinianum*) being predominant in the diet. Foods taken at upland sites include acorns, snails, crayfish, and insects. Waste grains, such as barley and wheat, form an important part of the diet during the spring and fall migrations.

The whooping crane is sensitive to disturbance on the breeding grounds and will not remain near human activity; however, the egg transfer and banding programs have demonstrated that cranes will tolerate human intrusion for short intervals (Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2007).

Status

The whooping crane was listed as endangered in 1967 under a precursor to the Endangered Species Act of 1973 (32 FR 4001). Critical habitat has been designated in Aransas, Calhoun, and Refugio counties in Texas, and includes the Aransas National Wildlife Refuge; there is no critical habitat designated or proposed to be designated in Orange or Jefferson Counties, Texas. Breeding populations of the crane were extirpated from the U.S. portion of its historic breeding range by the early 1900's.

The main factors for the decline of the whooping crane were loss of habitat to agriculture (hay, pastureland, and grain production), human disturbance of nesting areas, uncontrolled hunting, specimen and egg collection, collisions with power lines, fences, and other structures, loss and degradation of migration stopover habitat, disease such as avian cholera, predation, lead poisoning, and loss of genetic diversity. Biological factors, such as delayed sexual maturity and small clutch size, prevent rapid population recovery. Drought during the breeding season presents serious hazards to the species. Exposure to disease is a special problem when large numbers of birds are concentrated in limited areas, as often happens during times of drought.

Distribution in the Action Area

In 2011, the USFWS reintroduced a non-essential experimental population (NEP) of whooping cranes at the White Lake Wetlands Conservation Area in Vermilion Parish (LDWF, 2022) approximately 75 miles east of the Sabine Neches Waterway. An NEP population is a reintroduced population designated as not essential for the survival of the species, but important for its full recovery and eventual removal from listing under section 10(j) of the ESA of 1973, as amended.

As of 30 June 2022, 153 juvenile whooping cranes have been released in Louisiana since 2011 and a total of 175 whooping cranes have been reintroduced or have fledged in the wild during the 11.5 years of the project (LDWF, 2022). The maximum size of the Louisiana non-migratory population at the end of the most recent report period (30 June 2022) was 76 individuals (38 males, 29 females, 9 unknown) with 74 birds located in Louisiana and two in Texas (LDWF, 2022). During the 2022 breeding season, eight chicks (from seven pairs) survived to fledging and represent a record number of chicks fledged from the reintroduction project (LDWF, 2022). Individual birds that are part of the NEP population are known to use typical marsh habitat along with rice and crawfish fields year-round in Orange County and a nesting pair has been documented in Jefferson and Chambers County (USACE, 2022).

Whooping crane use of the Action Area is possible, but unlikely due to the proximity to human activity on the waterway. However, areas of adjacent, intact marsh to the east of the Action Area are likely to have whooping crane visit. During the 1 July 2021 – 30 June 2022 LDFW period of analysis, whooping cranes were monitored via remote tracking devices and in real time via very high frequency (VHF) transmitters to record movements, assess behaviors indicative of nesting and molting, and document the general health and survival of the population (LDWF, 2022). The distribution of location data is shown in Figure 2-3 and illustrates that 75-percent of the birds were in four parishes in Louisiana,

16-percent were distributed across another 15 parishes in Louisiana, 8-percent were in three counties in Texas (Jefferson, Chambers, Limestone), and less than 1-percent were from five additional counties in Texas (LDWF, 2022).

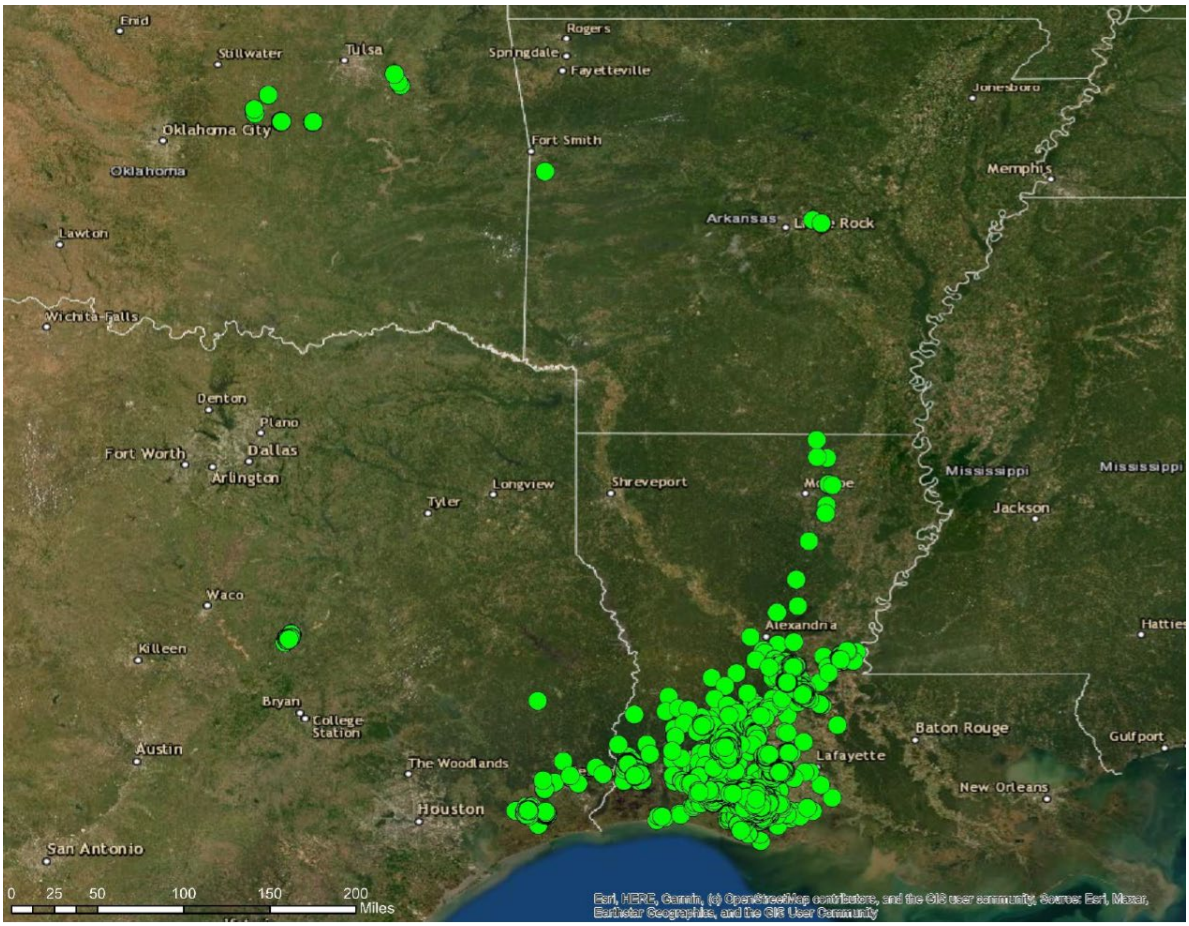

Figure 2-3.
Location Data from Reintroduced Whooping Cranes - NEP Population

During the 2021-2022 winter, the USFWS surveys conducted along the Texas Gulf Coast confirmed that the wintering population of whooping cranes continues to slowly increase as a record wintering population of 543 whooping cranes at the Aransas NWR and adjacent habitats indicated the expansion of their winter range (USFWS, 2022). The easternmost areas surveyed during USFWS' 2021-20222 winter survey are more than 170 miles southwest from the Action Area.

2.4.5 West Indian Manatee

Description, Range, and Habitat

The West Indian manatee (*Trichechus manatus)* is a large aquatic mammal with two subspecies: the Antillean manatee (*Trichechus manatus manatus*) and the Florida manatee (*Trichechus manatus latirostris*) (USFWS, 2017). Each subspecies has

distinctive morphological features and occurs in discrete areas with rare overlap between ranges (USFWS, 2017). The West Indian manatee was historically found in shallow coastal waters, bays, lagoons, estuaries, rivers, and inland lakes throughout much of the tropical and sub-tropical regions of the New World Atlantic, including many of the Caribbean islands (USFWS, 2023a). However, the Florida manatee is now rare or extinct in most parts of their former range occurring primarily in Florida and southeastern Georgia, but individuals can range as far north as Rhode Island on the Atlantic coast and as far west as Texas on the Gulf Coast (USFWS, 2023a).

Manatees are found in freshwater, brackish, and marine environments and their typical habitats include coastal tidal rivers and streams, mangrove swamps, salt marshes, and freshwater springs (USFWS, 2010a). As herbivores, manatees feed on the wide range of aquatic vegetation that these habitats provide; shallow seagrass beds with ready access to deep channels are generally preferred feeding areas in coastal and riverine habitats (USFWS, 2010a). In coastal Georgia and northeastern Florida, manatees feed in salt marshes on smooth cordgrass (*Spartina alterniflora*) by timing feeding periods with high tide (USFWS, 2010a).

Manatees use springs and freshwater runoff sites for drinking water; secluded canals, creeks, embayments, and lagoons for resting, cavorting, mating, calving, and nurturing their young; and open waterways and channels as travel corridors (USFWS, 2010a). Although manatees occupy different habitats during various times of the year, they are a subtropical species with little tolerance for cold (USFWS, 2010a). As such, their year-round presence in Florida represents the northern limit of their winter range; they require stable, long-term sources of warm water during winter and prolonged exposure to cold water temperatures can result in debilitation and death (USFWS, 2010a). Historically, manatees relied on the warm, temperate waters of south Florida and on natural warm-water springs scattered throughout the State as buffers to the lethal effects of cold winter temperatures (USFWS, 2010a). Although manatees overwinter at major springs throughout peninsular Florida, nearly two-thirds of the population winter at industrial warmwater sites, which are now made up almost entirely of power plants (USFWS, 2010a).

As water temperatures rise manatees disperse from winter aggregation areas with some individuals remaining near their winter refuges, others undertaking extensive travels along the coast and far up rivers and canals (USACE, 2020).

Status

The USFWS listed the West Indian manatee as endangered under the Endangered Species Conservation Act of 1966 (Pub. L. 89-669; 80 Stat. 926) in 1967 (32 FR 4001). In 1970, Appendix A to 50 CFR Part 17 was amended to include additional names to the list of foreign endangered species (35 FR 18319). This listing incorporated West Indian manatees into the list under the Endangered Species Conservation Act of 1969 (Pub. L. 91-135; 83 Stat. 275) and encompassed the species' range in the Caribbean and northern South America, thus including both Antillean (*T. m. manatus*) and Florida manatees (*T. m. latirostris*) in the listing (USFWS, 2010a). Based on the best available scientific and commercial information, the West Indian manatee (including both subspecies) no longer

met the definition of endangered under the ESA, so on May 5, 2017, the manatee was reclassified from endangered to threatened (USFWS, 2017). The West Indian manatee is thus currently listed as threatened species under the ESA and the population is further protected under the Marine Mammal Protection Act (16 U.S.C. 1361-1407).

Critical habitat was designated for the Florida manatee on September 24, 1976 (41 FR 41914) and articulated the CH within specific waterways in Florida that were known to be important concentration areas for manatees at that time (USFWS, 2010a). The USFWS' regional description of manatee habitat and region-specific threats to manatees defines the Northwest Management Unit as "*Located along Florida's northwest coast, the southern boundary of the unit is defined by the Hernando- Pasco County line. While the majority of use occurs east of the Wakulla River, manatees from this unit range as far west as Texas*" (USFWS, 2010a). The critical habitat designated did not delineate CH on the Florida panhandle and there was no critical habitat designated for West Indian manatee in Texas (USFWS, 2010a). The USFWS published an initial recovery plan for the West Indian manatee in 1980 (USFWS, 1980) and subsequently published recovery plans at the subspecies level for manatees found within the United States.

The major threats to manatee populations are human related, and include watercraft strikes (e.g., direct impacts and propeller cuts), which can cause injury and death; entrapment and crushing in water control structures (gates, locks, etc.); and entanglement in fishing gear (USACE, 2022). Natural threats include red tide and exposure to cold (USFWS, 2010a).

Distribution in the Action Area

The West Indian manatee historically inhabited the Laguna Madre, the Gulf, and tidally influenced portions of rivers (USACE, 2020). Their occurrence, however, is extremely rare in Texas waters with individual manatees historically observed in the Cow Bayou, Sabine Lake, Copano Bay, the Bolivar Peninsula, and the mouth of the Rio Grande (USACE, 2020). These intermittent sightings have occurred because of the warm season scattering of some individuals, but the upper coast is generally lacking the preferred habitat and food sources desired by the manatee (USACE, 2020). When the sightings occurred, the areas in which they were observed had a higher incidence of water hyacinth from rain and flooding and that was thought to be the reason the individuals were attracted to the area (USACE, 2020). None of the individuals stayed in the area for any substantial length of time and none are expected to regularly frequent the upper coast (USACE, 2020). The most recent sighting was on November 28, 2023 in Beaumont, TX (upriver from the Action Area) on the downstream (i.e., South) side of the Neches River salt water barrier (USACE, 2024).

2.4.6 Tricolored Bat

Description, Range, and Habitat

The tricolored bat (*Perimyotis subflavus*) is a small insectivorous bat that is distributed throughout the eastern United States, ranging as far west as Nebraska, Kansas, Oklahoma, and Texas, and from southern Canada south to Honduras. Tricolored bat populations have declined dramatically due to a disease known as white-nose syndrome

(WNS) (USFWS, 2024a). WNS is caused by a fungal pathogen and has led to 90 to 100-percent declines in tricolored bat winter colony abundance at sites impacted by the disease. Since white-nose syndrome was first observed in New York in 2006, it has spread rapidly across the majority of the tricolored bat range.

The tricolored bat has a wide range, encompassing forested habitats in the summer and caves and mines (hibernacula) in the winter for hibernation. During the winter, tricolored bats hibernate in caves and mines, although in the southern U.S., where caves are sparse, they often hibernate in road-associated culverts (USFWS, 2021). During the spring, summer, and fall (i.e., non-hibernating seasons), tricolored bats use a variety of forests and woodlands. The tricolored bat will roost in a variety of tree species, especially oaks (*Quercus spp.*), and often select roosts in tall, large-diameter trees, but will roost in smaller diameter trees when potential roost substrate (e.g., leaf clusters, Spanish moss (*Tillandsia usneoides)*) is present (USFWS, 2024a). They utilize cavities and crevices in live and dead trees, although not preferring a single species of tree, if there are appropriate conditions for roosting (USFWS, 2021).

The tricolored bat forages along forest edges and over ponds and waterways for small insects, such as leafhoppers, ground beetles, flies, small moths, and flying ants (TPWD, 2024). Lastly, the tricolored bats prefer landscapes with greater forest area, forest aggregation, and tree corridors; as such, they are less abundant among urban development (USFWS, 2021).

The tricolored bat performs short annual migrations between winter hibernation and summer nursery sites. Such travel is not known to exceed 50 miles and averages 31 miles or less. These bats often swarm at cave or mine entrances before entering hibernation. Tricolored bats spend six to nine months per year hibernating in caves or mines, mostly at ambient temperatures of 46.4-55.4° F (8-13° C). They typically hibernate singly on cave walls or ceilings where there is minimal airflow. These bats are loyal to their hibernation sites and may return to the same cave or mine every winter of their lives. However, in the southern portions of their ranges, where caves and mines are sparse, tricolored bats also roost in trees, road-associated culverts, and bridges and remain active and feed during the winter (USFWS, 2024a). During summer, the sexes live separately; males are often solitary while females form small maternity colonies of 35 individuals or fewer in buildings, tree cavities, and rock crevices (TPWD, 2024).

Within the Action Area, tricolored bats are within their “Year-round Active Range, Zone 2” (USFWS, 2024a). Year-round Active Range, Zone 2 excludes activities such as, hibernation, winter torpor, spring staging, and fall swarming (i.e., important behaviors with vulnerabilities to threats that are noted for tricolored bats within the more northern portions of their range). These are not relevant behavioral considerations, because the Action Area is completely within the zone designated as Year-round Active Range, Zone 2 (USFWS, 2024a).

Within the Year-round Active Range, Zone 2, the only bat activity periods are summer occupancy (March 15-July 15) and pup season (May 1-July 15) (USFWS, 2024a). Summer occupancy is the timeframe when bats are present and roosting in trees on their summer home range and/or roosting in colonies and pup season is the timeframe during

late pregnancy and when most young are born until they can fly and forage independently (USFWS, 2024a).

Status

As a result of the WNS, the USFWS proposed to list the tricolored bat as an endangered species under the Endangered Species Act of 1973 as amended, in September 2022 with no designation of critical habitat proposed (87 Fed Reg 56,381).

WNS is the primary threat that has led to the species' current condition and is predicted to continue to be the primary influence into the future (USFWS, 2021). Wind energy related mortality is also proving to be a pervasive and consequential threat to the tricolored bat's viability, with an estimated 3,327 individuals killed annually at wind facilities across the species' range (USFWS, 2021). Although habitat loss has been widespread across the tricolored bat range, their historical abundance and spatial extent would indicate that habitat loss was not a primary threat in the relatively recent population collapse (USFWS, 2021). Tricolored bats will likely struggle to recover from these low abundances given their low fecundity of two pups per year (USFWS, 2021).

Distribution in the Action Area

Tricolored bats have been documented from all the vegetative regions of Texas except for the far western portions of the Trans-Pecos (Schmidly and Bradley, 2016). These bats can be found in the eastern half of Texas including the Rolling Plains west to Armstrong County and central Texas as far west as Val Verde County, and a recent record from Lubbock County (TPWD, 2024). According to Schmidly and Bradley, the tricolored bat is "*most common in the eastern half and central part of the state*" and that "*recent records from Lubbock, Brewster, and Presidio counties suggest a northward and westward expansion of its range in Texas.*" In 2021, National Park Service bat research at the Big Thicket National Preserve (approximately 35 miles northwest from the Action Area) confirmed the presence of the tricolored bat.

2.4.7 Alligator Snapping Turtle

Description, Range, and Habitat

The USFWS published an updated Species Status Assessment Report for the alligator snapping turtle (*Macrochelys temminckii*) in March 2021 (USFWS, 2021b) and the species information below is substantially sourced from that document. The alligator snapping turtle is the largest species of freshwater turtle in North America and is among the most aquatic, emerging only for nesting and occasionally basking. Preferring freshwater that is slow, including deep rivers and shallow creeks, they are confined to river systems that flow into the Gulf of America, extending from the Suwannee River in Florida to the San Antonio River in Texas. Their preference for slow-moving deep water (usually large rivers, major tributaries, bayous, canals, swamps, lakes, ponds, and oxbows) typically has seasonal variation with shallower water occupied in early summer and deeper depths in late summer and mid-winter, representing a thermoregulatory shift. Individual animal movements can be highly variable, but are generally limited to a few, to hundreds of feet per day.

Alligator snapping turtles are also associated with structure (e.g., tree root masses, stumps, submerged trees, etc.), and may occupy areas with a high percentage of canopy cover or undercut stream banks. Deadhead logs and fallen riparian woody debris, where present, provide refugia during low- water periods and resting areas for all life stages and support important feeding areas for hatchlings and juveniles.

Alligator snapping turtles are easily identifiable due to their triangular head, hooked beak, and prominent ridges on their carapace. Adult males can reach 175 pounds or more with females weighing around 50 pounds and sexual maturity is achieved in 11-21 years for males and 13-21 years for females. Nesting typically occurs between late April and early June, with hatching through August. No more than one clutch per year per female (average 27.8 eggs per clutch) has been observed in the wild, and they exhibit lower reproductive output than the smaller common snapping turtle (*Chelydra serpentina*). Although hatchling survival is low, the lifespan of adults can be over 100 years.

They are opportunistic scavengers, and while fish comprise the majority of their diet, they've been known to consume crayfish, mollusks, insects, nutria, snakes, birds, and vegetation, including acorns. The current range of the alligator snapping turtle extends across fourteen states in the southeastern U.S. including all the major river basins in East Texas. The USFWS has assigned Analysis Units for the alligator snapping turtle and the Action Area is divided between the Western unit and the Southern Mississippi-East unit loosely representing the difference between the Neches River drainage to the west and the Sabine River drainage to the east (USFWS, 2021b).

Within the Western Analysis Unit, the main water bodies that currently or historically supported alligator snapping turtles include the Trinity River, Sabine River, and Neches River. Current abundance in this analysis unit is estimated to be between 1,000 and 100,000 alligator snapping turtles, indicating a high degree of uncertainty resulting from limited monitoring and research (USFWS, 2021b).

Within the Southern Mississippi – East Analysis Unit, current abundance is estimated to be 50,000 alligator snapping turtles, with 80-percent confidence that the true abundance is between 2,000 and 75,000 (USFWS, 2021b). Historically extensive bottomland hardwood forests associated with the alluvial plains of the rivers in this unit still provide extensive aquatic habitat for alligator snapping turtles in the form of bayous, sloughs, brakes (swamps), and oxbow lakes (USFWS, 2021b). Stream modifications within Louisiana for drainage, irrigation, navigation, and recreational purposes have been extensive, but the transformation of the adjoining terrestrial environment includes significantly more edge habitat that is suitable for mesopredators such as raccoons, increasing the vulnerability of nest predation (USFWS, 2021b). Gordon et al. (2023) found that the largest proportion of sites where alligator snapping turtles were detected in surveys of the Sabine and Neches River watershed, were within areas that were surrounded by forested habitat.

Status

In 2021, the alligator snapping turtle was proposed for listing as a threatened species with a rule issued under Section 4(d) of the Act ("4(d) rule") (USFWS, 2021a). At the time of

the proposed listing, the USFWS determined that designation of critical habitat for the alligator snapping turtle may be prudent, but is not determinable at that time (USFWS, 2021a).

Primary threats to the alligator snapping turtle are from historic commercial harvest, legal recreational harvest (in Louisiana and Mississippi), illegal harvest, bycatch from commercial and recreational fishing, nest predation, and alterations to their aquatic and nesting habitats by natural and anthropogenic disturbances (USFWS, 2021b). In Texas, which makes up the vast majority of the Western Analysis Unit, alligator snapping turtles are protected at the state level and there is no legal harvest.

Activities and processes that can alter habitat include dredging, deadhead logging (removal of submerged or partially submerged snags, woody debris, and other large vegetation for wood salvage), removal of riparian cover, channelization, stream bank erosion, siltation, and land use adjacent to rivers (e.g., clearing land for agriculture). Historically, these activities negatively influence habitat suitability for alligator snapping turtles. Channelization destroys the natural benthic habitat by affecting the water depth and normal flow. Submerged obstacles may be removed during the channelization, which affects the microhabitat dynamics within the waterway and removes important structures for alligator snapping turtles to use for resting, foraging, and cover from predators.

Distribution in the Action Area

The USFWS' range map for the alligator snapping turtle excludes the Action Area including all of Sabine Lake and the tidal (i.e., brackish) segments of the Sabine and Neches Rivers. Although exhibiting a strong preference for fresh waterbodies, alligator snapping turtles can presumably tolerate some salinity and brackish waters, as barnacles have been found on the carapace of some turtles (USFWS, 2021b). Sampling for alligator snapping turtles in the lower Sabine watershed failed to trap any individuals from three Louisiana sites adjacent to the Texas border (Huntzinger et al, 2019) and anecdotally documented one juvenile drowned on a passive fishing line, "*…which suggests relative abundance in the lower Sabine may be low.*"

Alligator snapping turtle surveys in east Texas were performed by the Environmental Institute of Houston at the University of Houston – Clear Lake from March 2021 through November 2022 with alligator snapping turtles captured in the riverine areas of the Neches River and Sabine River watersheds, but all captures were upstream of the saltwater barriers (i.e., upstream from the Action Area) and survey sites nearest the saltwater barriers recorded no captures (Gordon et al., 2023).

A similar investigation by Rosenbaum, et al. (2023) repeated sampling from 22 of 23 sites assessed from 1999 to 2001 and sampled 29 additional sites in 2020–2021 to document current alligator snapping turtle range and temporal changes in distribution and demography in Texas. Sampling was conducted throughout the putative range, including both the Sabine and Neches watersheds, but sampling effort was above the areas of tidal influence (i.e., not within the Action Area) in both watersheds (Rosenbaum, et al., 2023).

2.4.8 Monarch Butterfly

Description, Range, and Habitat

The monarch butterfly (*Danaus plexippus)* is a species of butterfly globally distributed throughout 90 countries, islands, and island groups and is well known for their long-distance migration in the North American populations (USFWS, 2020a). Descendants of these migratory monarch populations expanded from North America to other areas of the world where their larval host plant, milkweed (*Asclepias spp.*), was already present or introduced (USFWS, 2020a). With the year-round presence of milkweed and suitable temperatures, many of these global monarch populations no longer migrate (USFWS, 2020a). Two North American populations (migratory populations located east and west of the Rocky Mountains) have been monitored at their respective overwintering sites in Mexico and California since the mid-1990s (USFWS, 2020a).

Status

While these populations fluctuate year-to-year with environmental conditions, these census data indicate long-term declines in the population abundance at the overwintering sites in both populations and these declining trends led to the petition of the USFWS to list the monarch butterfly for protection under the Endangered Species Act of 1973, as amended (USFWS, 2020a).

On December 15, 2020, the USFWS announced that listing the monarch as endangered or threatened under ESA was warranted but precluded by work on higher-priority listing actions to amend the Lists of Endangered and Threatened Wildlife and Plants (85 FR 81813) (USFWS, 2020a). On December 12, 2024b, the USFWS proposed to list the monarch butterfly as a threatened species with protective regulations under Section 4(d) of the Act (a “4(d) rule”) (USFWS, 2024). In that same publication, the USFWS proposed to designate critical habitat for the monarch butterfly in approximately 4,395 acres in Alameda, Marin, Monterey, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura Counties, California (USFWS, 2024b).

The primary drivers affecting the health of the two North American migratory populations are: loss and degradation of habitat (from conversion of grasslands to agriculture, widespread use of herbicides, logging/thinning at overwintering sites in Mexico, senescence and incompatible management of overwintering sites in California, urban development, and drought), and the continued exposure to insecticides (USFWS, 2020a). The North American migratory populations are the largest relative to the other rangewide populations, accounting for more than 90-percent of the worldwide number of monarch butterflies (USFWS, 2022c).

Relative to the recent past, both the eastern and western North American populations have lower abundances and declining population growth rates (USFWS, 2020a). In the SSA, the USFWS estimated the probability of the population abundance reaching the point at which extinction is inevitable for each North American population given their current abundance and growth rate, as well as under projected future conditions (USFWS, 2020a). The probability of the population reaching the point at which extinction is inevitable for the western population is high (60-percent to 68-percent chance within 10

years, reaching 99-percent by year 60) under current conditions and increases under projected future conditions (USFWS, 2020a). For the eastern population, the probability of the population reaching the point at which extinction is inevitable in 60 years under current conditions ranges from 48-percent to 69-percent, and under the projected future conditions, it ranges from 56-percent to 74-percent (USFWS, 2020a). The range in the estimates represents the best and worst plausible future state conditions of the primary drivers (USFWS, 2020a).

Distribution in the Action Area

Monarchs migrate through Texas during the fall and spring as it is between the principal breeding grounds in the north and the overwintering areas in Mexico (USACE, 2022). Early each March overwintering monarchs leave their Mexico's overwintering grounds and fly north, seeking emerging milkweeds where they lay their eggs before dying (USACE, 2022). Most of their offspring continue heading north to repopulate the eastern half of the U.S. and southern Canada over several successive generations each summer (USACE, 2022). During breeding and migration, adult monarchs require a sufficient quality and quantity of nectar to feed upon (spring through fall) (USACE, 2022).

Monarchs use two principal flyways across Texas. The first is a 300-mile wide path from Wichita Falls to Eagle Pass with butterflies traversing between the last days of September and early November (USACE, 2022). The second flyway is along the Texas coast where monarchs traverse Texas from the third week of October to the middle of November (USACE, 2022).

Attachment C to this BA is the final report of a botany survey of the Action Area in June 2021. That investigation collected data at 30 discrete sampling locations and identified 92 different plant species from 39 different families; however, the investigation did not identify a single milkweed plant (*Asclepias spp*.) (Wiley, 2021). Within the Action Area, there would be nectar flowering species in the fall and spring that monarchs could use along their migration.

2.4.9 Louisiana Pigtoe

Description, Range, and Habitat

The Louisiana pigtoe (*Pleurobema riddellii*) is a medium-sized freshwater mussel (shell lengths to greater than 2.4 inches) with a brown to black, triangular to subquadrate shell without external sculpturing, sometimes with greenish rays and is considered rare throughout its range (USFWS, 2022b).

Louisiana pigtoe occurs in medium to large-sized freshwater streams and rivers in flowing waters (1.3-4.6 feet/second) over substrates of cobble and rock or sand, gravel, cobble, and woody debris; they are often associated with riffle, run, and sometimes larger backwater tributary habitats (USFWS, 2022b). These mussels are typically found in shallower waters (0.3 — 3.9 feet depth); however, recent surveys found Louisiana pigtoe in water 10.8 feet deep (USFWS, 2022b).

Louisiana pigtoe generally require 1) flowing water of sufficient quantity and quality (i.e., low or no contaminants) to meet their life history requirements and that of their host fishes, 2) adequate food supply, 3) habitat that provides refugia from both high- and low-flow events, 4) appropriate substrate that is generally characterized as stable and free of excessive fine sediment, 5) access to appropriate fish hosts, and 6) habitat connectivity (i.e., lack of impoundments and other barriers to fish passage) (USFWS, 2022b). Because mussels are filter feeders, they rely on natural, high quality (i.e., pollutant free) flowing water of sufficient volume to support their life cycle, and that of their host fishes, which are essential for reproduction (USFWS, 2022b).

In addition to being found in east Texas rivers, the range of the Louisiana pigtoe extends into portions of east Oklahoma, southeast Arkansas, south Louisiana, and west Mississippi (USFWS, 2022b). More specifically, the Louisiana pigtoe currently occupies areas within five states across seven major river basins (San Jacinto, Neches, Sabine, Big Cypress-Sulphur, Red, Calcasieu-Mermentau, and Pearl) as depicted in the lower inset in Figure 2-2 (USFWS, 2022b).

The reproductive cycle of Louisiana pigtoe, as well as the primary host fish for the species, are currently unconfirmed, but the bullhead minnow (*Pimephales vigilax*), red shiner (*Cyprinella lutrensis*), and blacktail shiner (*Cypinella venusta*) have been identified as potential fish hosts (USFWS, 2022b).

There are two known populations of the Louisiana pigtoe within the Sabine River system: one located above the Toledo Bend Reservoir between Hawkins and Tatum, Texas, and a second population within a tributary to the Sabine River, Bayou Anacoco, in Louisiana (USACE, 2022b). The downstream-most population of the Louisiana pigtoe in the Sabine River system is the portion within Bayou Anacoco, more than 70 river miles upstream of the Sabine River's confluence with Lake Sabine (USFWS, 2022b).

The Neches River Basin in Texas has three populations of Louisiana pigtoe, one each in the Angelina (above Sam Rayburn Reservoir), Neches (above B.A. Steinhagen Reservoir), and Lower Neches rivers (below B.A. Steinhagen Reservoir) and above the saltwater barrier (USFWS, 2022b). These three populations combined extend over 400 river miles in a basin believed to contain some of the best remaining habitat and most diverse populations of freshwater mussels in Texas (USFWS, 2022b).

Status

In March 2023, the USFWS published (88 FR 16776) a proposed rule with their determination that the Louisiana pigtoe meets the definition of a threatened species and proposed a designation of critical habitat as shown in the areas of green in Figure 2-4 (USFWS, 2023b). Where proposed critical habitat for the Louisiana pigtoe is coincident with proposed critical habitat for the Texas heelsplitter (Section 3.9.3) in Figure 2-4, the green areas are visible beneath the purple (USFWS, 2023c).

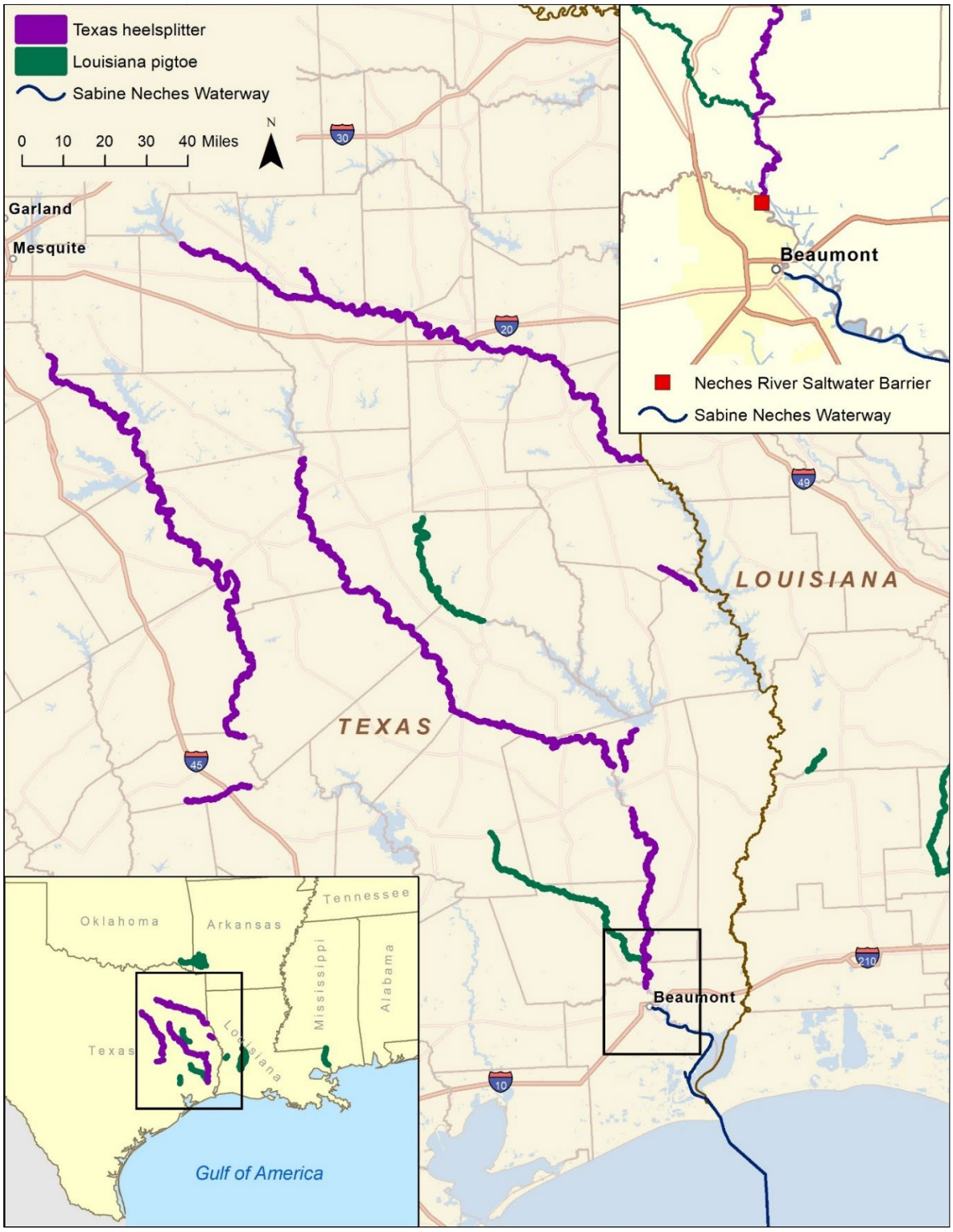

Figure 2-4.
Proposed Critical Habitat for the Louisiana Pigtoe and the Texas Heelsplitter

Distribution in the Action Area

The Neches River population of the Louisiana pigtoe that is nearest to the Action Area extends from below B.A. Steinhagen Reservoir's Town Bluff Dam in Tyler and Jasper counties, Texas (USFWS, 2022b) to the Neches River Saltwater Barrier on the northern edge of Beaumont, Texas. The Saltwater Barrier effectively isolates the tidally influenced sections of the Neches River (i.e., downstream from the Saltwater Barrier to Sabine Lake) from the upstream, freshwater areas, in which the Louisiana pigtoe is found (NPS, 2012). The Texas Commission on Environmental Quality has designated the Neches River downstream of the Saltwater Barrier as the *Neches River Tidal,* 0601 (TCEQ, 2022) because the segment is subject to tidal flows and has the associated salinity. Because the Neches River downstream of the saltwater barrier is tidal, it is not freshwater habitat that is necessary for the Louisiana pigtoe as defined in the USFWS' SSA (USFWS, 2022b).

2.4.10 Texas Heelsplitter

Description, Range, and Habitat

The Texas heelsplitter (*Potamilus amphichaenus*) is a medium to large-sized freshwater mussel (up to 7-inch shell length) that has a tan to brown or black elliptical shell, with lighter coloration on the beaks and is considered very rare throughout its range (USFWS, 2022b).

The Texas heelsplitter is known to occur in portions of three major river basins in Texas: the Trinity, the Neches, and the Sabine (USACE, 2022b). Like most freshwater mussels, these mussels occur in gravel and coarse sandy substrates of freshwater rivers, streams, and—in the case of the Texas heelsplitter—within manmade impoundments (i.e., reservoirs) (UFSWS, 2022b). The Texas heelsplitter typically occurs on substrates consisting of "*firm mud, sand, or finer gravels bottoms, in still to moderate flows"* and sometimes associated with fallen timber (USFWS, 2022b). They have been found to occur in areas with high organic matter substrates, areas of large channel widths with at least one low bank, in sandy substrates, and at depths of four inches and deeper within the substrate (USFWS, 2022b). Although information specific to Texas heelsplitter reproduction is described in the USFWS' proposed rule as "*unavailable*," the freshwater drum (*Aplodinotus grunniens*) has been confirmed as a host fish (USFWS, 2022b).

The Texas heelsplitter population in the Sabine River Basin occurs in an approximately 245 river mile segment that includes the Toledo Bend Reservoir, Sabine River upstream to Lake Tawakoni's Iron Bridge Dam, a portion of Lake Fork Creek upstream from its confluence with the Sabine River, and a portion of Patroon Bayou upstream from its confluence with Toledo Bend Reservoir (USFWS, 2022b).

There are two Texas heelsplitter populations in the Neches River Basin: one in a greater than 240 mile segment of the Neches River/B.A. Steinhagen Reservoir and the other in the Lower Neches River (USFWS, 2022b). The Lower Neches River population extends approximately 74 river miles downstream from Lake B.A. Steinhagen Reservoir's Town Bluff Dam to approximately 4.5 river miles downstream from the Neches River-Village Creek confluence (USFWS, 2022b), at approximately the Neches River Saltwater Barrier

on the northern edge of Beaumont, Texas. The National Park Service's Big Thicket National Preserve encompasses this Neches River corridor from the B.A. Steinhagen Reservoir to the Neches River Saltwater Barrier (NPS, 2012).

Status

In March 2023, the USFWS published (88 FR 16776) a proposed rule with their determination that the Texas heelsplitter meets the definition of an endangered species and proposed a designation of critical habitat as depicted by the purple areas in Figure 2-2 (USFWS, 2023b).

Distribution in the Action Area

The downstream-most population of the Texas heelsplitter in the Sabine River system is more than 100 river miles upstream of the Action Area (USFWS, 2022b) and the downstream-most population of Texas heelsplitter in the Neches River is above the Neches River Saltwater Barrier, more than 10 miles upstream from the Action Area.

The Texas Commission on Environmental Quality has designated the Neches River between the Saltwater Barrier and the confluence with Sabine Lake as the *Neches River Tidal,* 0601 (TCEQ, 2022). The Saltwater Barrier effectively isolates the tidally influenced sections of the Neches River from the upstream freshwater areas in which the Texas heelsplitter is found. Because the Neches River downstream of the saltwater barrier is tidal, it is not freshwater habitat essential for the Texas heelsplitter as defined in the USFWS' SSA (USFWS, 2022b).

3 Environmental Baseline

The project area is in the Coastal Plain physiographic province of Texas containing marine sediments (USACE, 2010a) and is characterized by a diversity of features that are a result of the natural transition between marine and freshwater environments and substantial anthropogenic alterations to the landscape (USACE, 2011). Sabine Lake is the drowned valley of the converged Sabine and Neches River systems at the border between Texas and Louisiana. The area is characterized by low-lying flat land formed by by erosion, deposition, compaction, subsidence, and anthropogenic transformations, all of which are still active. At approximately 100 square miles in area, this is the fifth largest estuary in Texas (USFWS, 2010).

The hydrodynamic regime in the northwestern Gulf results from a complex interaction of tides, meteorological driving forces, freshwater inflows, and Coriolis acceleration where major storms profoundly influence waves, tides, currents, and sediment movement (USACE, 2011). Astronomical tides are generally small in the Gulf with an average amplitude of approximately one foot (USACE, 2011). The study area for the proposed widening includes a larger geographic area in addition to the inshore channels, because the proposed channel widening has the potential to affect the waterway, Sabine Lake, and other hydrologically connected areas.

Within the estuary, the federal navigation channel is a Y-shaped commercial waterway (see inset in Figure 1-1) comprised of interlocking natural river channels and manmade canals (USFWS, 2010). The waterway presently extends approximately 63.8 miles inland from the Gulf of America, through the Sabine Jetties, across the western edge of Sabine Lake and inland to the Port of Beaumont.

3.1.1 Past Land Use in the Action Area

The environmental baseline/biological characteristics of a landscape are inexorably connected to past habitat manipulation and land use. Within the Action Area, the habitat manipulation for the benefit of commercial and military navigation is evident as the land use is dominated by industrialization, urbanization, and adjacent land dedicated to placement of dredged material.

The extent of the history of dredge material management practices along the lower Neches River is apparent in the 1938 aerial photo shown in Figure 3-1. This photo shows the lower Neches River just upstream from the confluence with Sabine Lake (the Rainbow Bridge at right of the figure remains a current landmark). The white, circular forms arrayed along the riverbanks in the image are piles of dredged material and provide an indication of the scale, extent, and duration of anthropogenic alterations to the terrestrial habitat adjacent to the waterway.

The present day terrestrial habitat along the left descending bank of the Neches River where widening would occur has "*been modified extensively by past placement activities and levees that isolate them and prevent contributions to the adjacent wetlands and riparian corridor. All contain degraded habitat with low habitat values, primarily roosting habitat for birds and some wildlife cover*" (USACE, 2011). The dredged material

placement areas adjacent to the proposed widening continue to be operated for dredged material placement.

Figure 3-1.
1938 Aerial Photo of the Lower Neches River

The terrestrial habitat that would be removed from Pleasure Island during widening (in the Sabine-Neches Canal segment) was once the open waters of Sabine Lake and was made dry land by the dredging of the Sabine Neches Canal in this segment and placing the dredged materials onto Sabine Lake to create the present-day Pleasure Island (USACE, 1982). Figure 3-2 shows the 1901 Sabine Lake shoreline along the City of Port Arthur, prior to the construction of the Sabine-Neches Canal and Pleasure Island. Figure 3-3 is a contemporary aerial image of approximately the same area showing the extent of the created land that is in the present day, identified as Pleasure Island. Within the municipality of Port Arthur, diagonal roads originating from a circular feature are visible in Figure 3-2 and marked red in Figure 3-3, to help the viewer see the extent of the history of dredged material fill into Lake Sabine. Over the subsequent decades, the Pleasure Island shorelines within the Action Area were armored with various types of rubble/concrete debris/etc. as shown in Figure 1-3.

Within the Action Area, this land on Pleasure Island was most recently modified into a golf course which was abandoned after repeated hurricane damage. The history of the land creation and use (made land with constant anthropomorphic modifications for dredged material placement and then modification into, and maintenance as, a golf course) dictate the soils present, the seed bank within the soils, the slope and the hardening of shorelines, drainage, and the current natural succession dominated by invasives and alien plant species as the abandoned golf course progresses through “old field” succession.

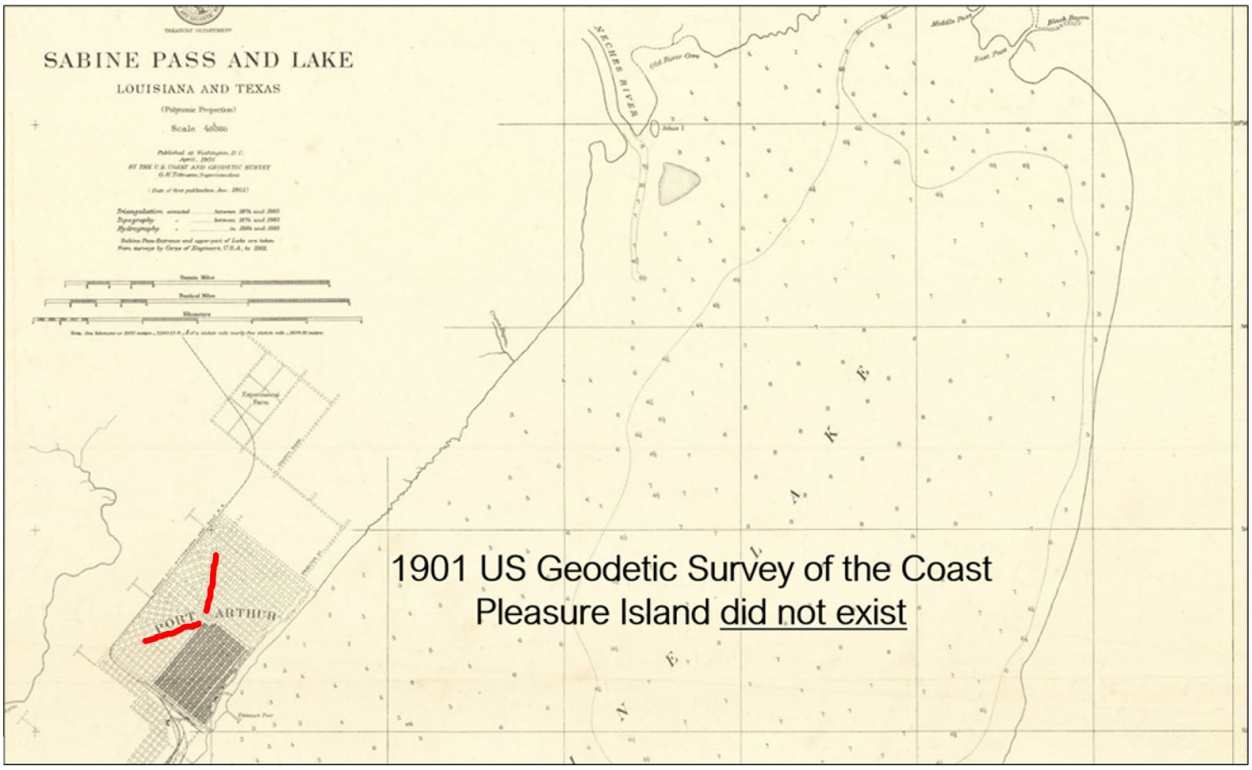

Figure 3-2.
Port Arthur and Sabine Lake (1901)

Figure 3-3.
Port Arthur, Sabine Lake, and Pleasure Island (2024)

3.1.2 Water Quality of the Action Area

Extensive Action Area modeling was conducted to examine the potential changes to water quality from implementing the proposed channel widening. The modeling domains encompassed a large area for evaluation of potential indirect effects, including the inshore channels, Lake Sabine, and hydrologically connected coastal habitats to assess potential changes to aquatic habitat and to infer potential changes to water quality (SNND, 2022). The modeling effort included two-dimensional (2D) modeling of hydrodynamics associated with daily tides, storm surge events, and 3D modeling of hydrodynamics to assess water quality changes (SNND, 2022). The modeling investigated the potential effects of the proposed channel modifications on current speeds, water surface elevation, salinity, water temperature, and dissolved oxygen (DO) (SNND, 2022). The results of the modeling indicated negligible predicted changes to all modeled parameters (SNND, 2022). With such negligible changes to salinity predicted in the Action Area, there would be no basis to predict changes to modeled parameters in the surrounding marshes.

Sabine Neches Canal

As shown in Figure 1-1, the Sabine Neches Canal is hydrologically connected to the Neches River, Sabine River, Sabine Lake, and Taylor's Bayou. The federal navigation channel within the Sabine Neches Canal has a maintained depth of approximately -40 feet MLLW with the ongoing deepening of the channel to a maintained depth of -48 feet MLLW. The canal is identified as Segment 0703 in the Texas Commission on Environmental Quality (TCEQ's) surface water segment system, within the Neches-Trinity Coastal Basin (Basin 7).

As part of TCEQ's Surface Water Quality Monitoring Program, water quality data are collected in segment 0703 for dissolved oxygen, pH, temperature, and turbidity. The 2024 Texas Integrated Report (adopted on June 26, 2024, and approved by the U.S. Environmental Protection Agency on November 13, 2024) indicates that the water quality of the Sabine Neches Canal is classified as generally good, with no major issues reported in the 2024 Integrated Report Basin Assessments (TCEQ, 2024). In addition, the absence of segment 0703 on the 2024 303(d) List of impaired waters, indicates Segment 0703 met the Texas Surface Water Quality Standards in 2024. Annual maintenance dredging and the ongoing channel deepening construction result in temporary, localized diminishment of water quality from turbidity during dredging work.

Neches River Tidal

The Neches River Tidal section spans 27 miles, from the confluence with Sabine Lake to the Neches River Saltwater Barrier, covering parts of Jefferson and Orange counties and is identified as Segment 0601 in TCEQ's surface water segment system within the Neches River Basin (Basin 6). Historically, high concentrations of bacteria (found in both human and animal waste) have been observed in the Neches River Tidal portion of the river (Segment 0601) impairing contact recreation (swimming or wading). However, in the 2024 303(d) List, bacteria are no longer listed as an impairment for segment 0601, suggesting that because of the TMDL implementation, Segment 0601 no longer exceeds the Texas water quality standards. This improvement indicates potential progress in water quality for recreational use in the Neches River Tidal section of the Action Area.

The tidal section of the Neches River is impaired due to PCBs (polychlorinated biphenyls) in edible fish tissue, as per the 2024 Texas Integrated Report - Texas 303(d) List (Category 5), and has been listed since 2012 (TCEQ, 2024a). This impairment affects fish consumption, posing health risks, and is noted for all four assessment units (AUs): 0601_01, 0601_02, 0601_03, and 0601_04. The category 5c designation indicates a TMDL has been established, but the impairment persists.

3.1.3 Benthic Community of the Action Area

The benthic community of the Action Area is strongly influenced by the dynamism of the tidal and wind-driven saltwater and tributary freshwater inputs; the river bottom of predominantly soft muds and clay; ambient water quality as described in Section 3.1.1; human disturbance from federal navigation channel construction and maintenance; and the tens of thousands of vessel/barge transits on the waterway per year.

Sabine Neches Canal

The saltwater intrusion into the Sabine Neches Canal from the Gulf and seasonally high salinities during times of low freshwater inflows, support a mix of species adapted to seasonal and episodic changes in salinity. These unique environmental pressures (e.g., changes to salinity, soft substrate, relatively warm and turbid water, as well as extensive vessel traffic and dredging actions) favor hardy, disturbance-tolerant species. This includes a mix of polychaete and oligochaete worms, clams (e.g., *Rangia cuneata*), crustaceans (e.g., amphipods, isopods, blue crabs (*Callinectes sapidus*), and box crab (*Calappa sulcata)*) as well as shrimp species (e.g., brown shrimp (*Farfantepenaeus aztecus*) white shrimp (*Penaeus setiferus*), and pink shrimp (*Penaeus duorarum*))

The USFWS' National Wetlands Inventory maps the entire open water area of the Sabine Neches Canal as Estuarine and Marine Deepwater habitat (E1UBLx) where the habitat is continuously covered with tidal water (i.e., below extreme low water), deepwater habitat with at least 25-percent cover of particles smaller than stones, is tidal, and is in an area where channels have been excavated by humans.

Neches River Tidal

The benthic community in the tidal section of the Neches River, near its confluence with Sabine Lake is a complex ecosystem of bottom-dwelling organisms within a highly modified ecosystem. As with the Sabine Neches Canal, the macroinvertebrates show a mix of brackish species, most notably influenced by large variations in salinity, the soft-bottomed substrate, and the routine disturbances maintenance dredging of the navigation channel and vessel transits. Similar to the Sabine Neches Canal, the benthic community of the Neches River tidal section of the Action Area includes polychaete and oligochaete worms, clams, crustaceans (e.g., shrimp, crabs), and mollusks.

3.1.4 Submerged Aquatic Vegetation (SAV) in the Action Area

Submerged aquatic vegetation (i.e., seagrass) is scarce in bays of eastern Texas where rainfall and inflows are high, salinities are low, and these areas are also turbid, which limits sunlight penetration for seagrass growth (USACE, 2011). Seagrasses and other types of submerged aquatic vegetation (SAV) are not found in the Action Area because

conditions conducive for SAV growth (e.g., calm waters and low turbidity) are not present (USACE, 2011a). Prevailing environmental conditions do not favor the growth of SAV along the navigation channel (e.g., low salinity, high turbidity). As such, seagrasses or other types of SAV are not present within the Action Area as confirmed on the Texas Parks and Wildlife Department Seagrass Viewer application (https://tpwd.maps.arcgis.com/apps/webappviewer/index.html?id=af7ff35381144b97b38fe553f2e7b562).

3.1.5 Terrestrial Habitat of the Action Area

The area of potential terrestrial habitat excavation to implement the proposed widening is described in Section 1.3.1 and shown in Figure 1-2. A field assessment of the existing terrestrial habitat (i.e., vegetation communities) within the Action Area was conducted June 2021 to characterize the plant communities. The final report and master plant list are included as Attachment C (Wiley, 2021). These vegetation habitat surveys were conducted landward of the existing shoreline on the left descending bank in the lower Neches River and the Sabine-Neches Canal along Pleasure Island (Wiley, 2021). Vegetation samples were collected within 30-foot diameter circular plots wherein all observed species were identified and listed. In addition, each identified species was assigned a value corresponding to their estimated proportion of the presence of each and each species was rated with a number from 1 to 100 to approximate its presence/dominance within a sample plot (Wiley, 2021). Sample sites were inspected for 15 to 30 minutes to observe and record the data, depending on the diversity and vegetation density.

As described in Section 3.1.1, the potentially affected shorelines and adjacent land within the Action Area have been highly modified by more than a century of historical use for dredge material placement adjacent to the deep draft navigation channel. The present-day vegetation composition of these areas reflects disturbed habitat because of the repeated disturbance (*e.g.*, dredge material placement, construction and abandonment of the golf course). In addition, the presence of exotic/invasive feral hogs (i.e., wild pigs, *Sus scrofa*) on Pleasure Island and on the left descending bank of the lower Neches River is readily apparent in trails, wallows, and rooting areas. As such, the shoreline and adjacent uplands within the Action Area have been altered by the placement and repeated placement of dredged material, manipulation into golf courses and dredged material placement areas, and the effects of invasive species.

On wet to moist sites, the invasive alien species common reedgrass (*Phragmites sp*.) and deep-rooted sedge (*Cyperus entrerianus*) were the most common (Wiley, 2021).

Sabine Neches Canal

As described in Section 1.3 and shown in Figure 1-2, the potential footprint of landside excavation from widening measures along the left descending bank of the Sabine Neches Canal (i.e., Pleasure Island) is an area of abandoned golf course and shoreline areas adjacent to dredged material PAs. As described in Section 3.1.1, the entirety of Pleasure Island was created by the placement of dredged materials during navigation channel creation.

As shown in Tables 3-1 and 1-1, the areas to be excavated sum to 10.9 acres of terrestrial habitat. The habitat to be excavated to construct the widening in this area is characterized by a waterside concrete rubble/rip-rap toe (Figure 1-3) below a steep, eroded former confinement levee slope and the relics of an abandoned golf course. If the steep slope and rip-rap areas are vegetated, these areas are dominated by invasive common reedgrass (*Phragmites sp*.) due to that species' ability to tolerate moderate salinity in the adjacent Sabine-Neches Canal (Wiley, 2021).

Areas above the steep slope to the waterline, and parallel to the water course, (i.e., the former golf course) has typical golf course features (e.g., fairway, sand traps, etc.) proceeding through oldfield succession and a meandering, paved asphalt cart path parallel to the water. The invasive alien tallow tree (*Triadica sebifera*) was the most common woody species, followed by the native sugarberry (*Celtis laevigata*) and the single most dominant herbaceous species on the former golf course was wrinkleleaf goldenrod (*Solidago rugosa*) (Wiley, 2021).

Using the habitat data from the Texas Parks and Wildlife Department (TPWD) Ecological Mapping Systems (EMS) of Texas (https://tpwd.texas.gov/gis/team/), the cumulative habitat classifications are shown in Table 3-1. The single largest area of terrestrial habitat that would be excavated for channel widening is 6.2 acres for which there is no habitat overlay in the EMS system as depicted in the Pleasure Island section of the Proposed Widening Mapbook (Attachment B to this BA).

Table 3-1.
TPWD Ecological Mapping Systems of Texas Areas – Pleasure Island

EMS Habitat Classification (Veg ID)	Acres
No EMS Habitat Overlay	6.2
Gulf Coast: Coastal Prairie (5207)	2.6
Gulf Coast: Salty Prairie (2207)	1.6
Open Water (9600)	0.4
Native Invasive: Common Reed (9107)	0.1
TOTAL	10.9

The USFWS' National Wetland Inventory of the area of terrestrial habitat along Pleasure Island identifies no wetlands along the shoreline the area to be excavated for the widening as described in Section 1.3 (https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/). Water hazards constructed as golf course features are designated PUBH (palustrine unconsolidated bottom wetland), but these areas are outside the area affected by construction.

Neches River Tidal

As described in Section 1.3 and shown in Figure 1-2, the potential footprint of landside excavation from widening measures within the lower Neches River is a narrow strip of

discontinuous shorelines adjacent to dredged material PAs and along the left descending bank. The shorelines along the Lower Neches were created by navigation channel excavation through the flood plain or were formed by the placement of dredged materials.

As shown in Tables 3-2 and 1-1, the areas to be excavated along the Neches River shorelines sum to 6.2 acres of terrestrial habitat. Using the habitat data from the Texas Parks and Wildlife Department (TPWD) Ecological Mapping Systems (EMS) of Texas (https://tpwd.texas.gov/gis/team/), the cumulative habitat classifications of these landside excavations are shown in Table 3-2. Mapping of the entire Neches River section of this terrestrial habitat is attached to this BA as Attachment B, Proposed Widening Mapbook. The dominant vegetation within these areas reflects degraded habitat with a history of routine disturbance as 4.8 acres (4.5 acres of Non-Native Invasive + 0.3 acres of Native Invasive) of the total of 6.2 acres are dominated by invasive species (Wiley, 2021).

Table 3-2.
TPWD Ecological Mapping Systems of Texas Areas - Neches River

EMS Habitat Classification (Veg ID)	Acres to be Excavated
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland (9214)	4.5
Gulf Coast: Coastal Prairie (5207)	0.5
Open Water (9600)	0.4
Native Invasive: Deciduous Woodland (9104)	0.3
Chenier Plain: Fresh and Intermediate Tidal Marsh (5807)	0.2
Gulf Coast: Coastal Prairie Pondshore (5307)	0.2
TOTAL	6.2

4 Effects on Listed Species and Critical Habitat

This section describes, species by species, the effects of the action on listed, proposed, and candidate species, and their critical habitat, if applicable. Based on the agency database information and knowledge of the project area, an assessment as to whether implementing the proposed widening may impact federally listed or proposed species and any designated or proposed critical habitat was made using the following effect determinations (USFWS and NMFS, 1998):

No effect – This determination is appropriate when the proposed project will not directly or indirectly affect (neither negatively nor beneficially) individuals of listed, proposed, or candidate species or designated/proposed critical habitat of such species;

May affect, but not likely to adversely affect – This determination is appropriate when the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial; or

May affect, likely to adversely affect – This determination is appropriate when the adverse effects to listed species and/or critical habitat may occur as a direct result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or completely beneficial.

The analysis describes the consequences to listed and candidate species that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. As defined in 50 CFR Part 402, as amended in 2019, a consequence "*is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur.*" As such, the effects analysis describes those impacts that are reasonably certain to occur as a result of the proposed action.

Planned measures to reduce the potential for adverse effects to protected species are provided in Section 5.

4.1 Piping Plover

4.1.1 Construction and Dredge Material Management

Dredging activities to widen the channel would occur within, and along, the edges of the left descending bank of the lower Neches River and Sabine-Neches Canal as described in Section 1.3 and shown in Figures 1-1 through 1-4. Construction would include the permanent transition of shoreline and terrestrial (i.e., upland) habitat to open water submergent habitat in the areas depicted in Figure 1-2. All other areas of proposed dredging to widen the channel (as shown in Figure 1-1) would be constructed below the existing water line and have no changes to the adjacent shoreline or terrestrial habitat.

The channel dredging actions to construct the widened areas with the cutterhead (pipeline) dredge would not directly affect piping plovers or result in the permanent loss of high-quality foraging or roosting habitat. Post-construction of the widened areas, protected/armored shorelines along the Sabine Neches Canal would be re-armored and the gentler slopes along the lower Neches segments would revegetate shoreline habitat

similar to the current state. Direct effects to the species would be expected to be limited to the disturbance of incidental individuals stopping through the construction areas during migration or to forage or rest while enroute to higher quality areas.

As stated in Section 2.4.1, wintering piping plovers have been observed occasionally on sandy areas in existing USACE dredged material placement areas (USACE, 2022). As such, there is a potential for disturbance to individual piping plovers during the placement of dredged material within the existing dredged material PAs. The potential could also exist for disturbance to individual piping plovers during the placement of dredged material within the beneficial use site if the BU site has already received sufficient material to have created areas of suitable habitat. As of 2025, the BU sites are not yet constructed (i.e., open water and severely degraded marsh) as described in the 2011 FFR/FEIS for the ongoing channel deepening (USACE, 2011). Utilizing dredged material from the widening would accelerate the accumulation of ecosystem benefits by utilizing dredged material sooner than would be available without the material generated during widening. However, only marginal habitat would be present along the shorelines of the BU marsh restoration, since no individuals have been documented foraging in marsh or permanently inundated open water areas (USACE 2021).

While piping plover may be in the vicinity of the dredge pipeline delivering material to the PAs or BU site during foraging/wintering, the risk of impacts from these construction activities would be negligible because of the birds' mobility, migratory habits, and the limited suitable habitat within, or adjacent to, workspaces. Piping plovers could likely avoid areas of on-going construction activity (e.g., noise, vessels/vehicles, presence of workers) due to their mobile nature and the abundance of undisturbed habitats available in proximity. Disturbance of individual piping plovers in an operating PA or the BU site would be temporary and would not result in permanent loss of suitable habitat. In addition, any inadvertent leaks and spills of hazardous materials during construction would be contained and remedied as soon as practicable, and in compliance with the contractor's required spill plans.

4.1.2 Food Supply

As described in Section 1.5.1, the affected shorelines and adjacent land within the Action Area have been highly modified and the habitat does not include components of the primary constituent elements (PCE), including those related to foraging, as listed in Section 2.4.1.

4.1.3 Effects Determination – May affect, not likely to adversely affect

Piping plover could occur adjacent to the Action Area, but the footprint of terrestrial habitat disturbance would not occur in areas characteristically used for foraging or roosting. The nearest critical habitat designated in Texas (Unit TX-37) is more than 35 miles to the west of the Action Area and the nearest critical habitat designated in Louisiana (Unit LA-1) is along the Gulf Shoreline of Louisiana, east of the Action Area and greater than 10 miles south from the nearest proposed widening. The USACE has determined that implementing the proposed widening *may affect, not likely to adversely affect* the piping plover, because the temporary adverse impacts are anticipated to be insignificant and

discountable and conservation measures will be implemented as noted in Section 5. In addition, there will be *no effect* on piping plover designated critical habitat because there is no critical habitat designated in or near the Action Area, including all areas for dredged material placement or beneficial use of dredged material.

4.2 Rufa Red Knot

4.2.1 Construction and Dredge Material Management

Dredging activities to widen the channel would occur within, and along, the edges of the left descending bank of the lower Neches River and Sabine-Neches Canal as described in Section 1.3 and shown in Figures 1-1 through 1-4. Construction would include the permanent transition of shoreline and terrestrial (i.e., upland) habitat to open water submergent habitat in the areas depicted in Figure 1-2. All other areas of proposed dredging to widen the channel (as shown in Figure 1-1) would be constructed below the existing water line and have no changes to the adjacent shoreline or terrestrial habitat.

As described in Section 2.4.2, the rufa red knot winters along the Texas coast, foraging on beaches, oyster reefs, and exposed bay bottoms and roosting on high sand flats, utilizing the same areas as piping plovers (USACE, 2022). The rufa red knot and the piping plover share very similar foraging and roosting behaviors and share similar coastal habitats (USACE, 2020); as such, the potential for occurrence in the Action Area is approximately the same as that of the piping plover described in Section 4.1. It is unlikely that the rufa red knot would frequent the Action Area because of the low quality of potentially suitable habitat and extensive areas of urban and industrial land use along the waterway.

4.2.2 Effects Determination – May affect, not likely to adversely affect

As described in Section 5.1, General Conservation Measures, under all construction contracts, all personnel will attend training sessions prior to the initiation of, or their participation in, project work activities to include recognition of listed species and each species' habitat as well as signs of presence. The training also includes the procedures to be implemented if a listed species was encountered during construction. The USACE has determined that implementing the proposed widening *may affect, not likely to adversely affect* the rufa red knot because the temporary adverse impacts are anticipated to be insignificant and discountable and conservation measures will be implemented as noted in Section 5.

In Texas, the nearest area of proposed critical habitat is more than 35 miles to the west of the Action Area (88 FR 22530, April 13, 2023) and none is proposed for designation within the Action Area. If the ongoing proposal for the designation of critical habitat results in formal designation as proposed in 2023, none would be designated within the Action Area. Therefore, even if the area of proposed critical habitat were to be designated, there would be *no effect* on rufa red knot critical habitat from implementing the proposed widening in the Action Area.

4.3 Eastern Black Rail

4.3.1 Construction and Dredge Material Management

Dredging activities to widen the channel would occur within, and along, the edges of the left descending bank of the lower Neches River and Sabine-Neches Canal as described in Section 1.3 and shown in Figures 1-1 through 1-4. Construction would include the permanent transition of shoreline and terrestrial (i.e., upland) habitat to open water in the areas depicted in Figure 1-2. The areas to be excavated and their habitat are described in Section 3.1.5 and the proximity to high marsh designated E2EM1N are shown in Figures 2-1 and 2-2. Marshes designated as E2EM1N are greater than 5,000 feet from the areas to be constructed. All other areas of proposed dredging to widen the channel (as shown in Figure 1-1) would be constructed below the existing water line and have no changes to the adjacent terrestrial habitat.

The areas to be constructed are also typically < 1,000 feet from the extensive industrial and municipal land use (and the associated noise, lights, and vibrations) along the right descending bank of the waterway. The navigation channel and areas to be constructed are also in constant use by navigation vessels transiting this waterway and consistently less than 500 feet from the shorelines of the left descending bank. While there could be individual birds that utilize nearby habitat, the areas that will have active construction and dredged material placement experience nearly constant human activity and noise. As such, the ambient conditions in the areas to be widened are not preferred habitat conditions for the secretive, noise-sensitive, Eastern black rail.

Constructing the proposed widening also requires placement of dredged materials through temporary pipelines to the PAs or BU site. Because the proposed widening will occur shortly after the ongoing waterway deepening is completed, the interiors of the PAs will have received dredged material as described in Section 1.3.3.

Because of the lack of high marsh (E2EM1N) habitat in the Action Area; existing light, noise, and human activity along the navigation channel; and the substantial areas of preferred habitat in nearby marsh areas, the effects of constructing the widening and placing the dredged material are discountable. The species-specific conservation measures (Section 5.3.1), where the construction will avoid clearing the terrestrial habitat on the left descending bank of the Neches River during the breeding season (March – September), will further avoid any negative effects to the Eastern black rail. If clearing the terrestrial habitat during the breeding season is unavoidable, acoustic surveys and biological monitors will be used to ensure no birds are harmed or killed during their flightless stage of life. Conservation measures specific to the placement of dredged materials at the BU site (Section 5.2) will also avoid negative effects to the Eastern black rail.

4.3.2 Effects Determination – May affect, not likely to adversely affect

Within the areas directly affected by the widening construction, high marsh habitat used by the Eastern black rail (E2MM1N) is not present. The beneficial use of dredge material to accelerate ongoing restoration of intermediate marsh in the BU site (as described in Section 1.3.4) would contribute to providing the dense vegetation, moist soils, and the

shallow flood depth preferred by the Eastern black rail. The USACE has determined that because of the temporary adverse impacts during construction are anticipated to be discountable and implementation of the conservation measures in Section 5, constructing the proposed widening *may affect, not likely to adversely affect* the Eastern black rail.

Because the USFWS determined that designation of critical habitat for the eastern black rail is not prudent because doing so would more widely announce the exact locations of this species, there is no critical habitat designated in the Action Area (85 FR 63764); as such, there could be *no effect* on Eastern black rail critical habitat from implementing the proposed widening.

4.4 Whooping Crane

4.4.1 Construction and Dredge Material Management

The most likely occurrence of whooping crane in the Action Area would result from individual birds that are part of the non-essential experimental population (NEP) (see Section 3.4) established in Vermilion Parish, LA (LDWF, 2022), approximately 75 miles east of the Action Area. These whooping cranes have been documented using typical marsh habitat along with rice and crawfish fields year-round in Orange County and a nesting pair has been documented in Jefferson and Chambers County (USACE, 2022). In addition, the primary migration route for the whooping crane is to the west of the Action Area, but whooping cranes may pass through the Action Area on the way to and from their principal winter habitat in and around the Aransas National Wildlife Refuge in the Texas coastal bend region (USACE, 2022). Therefore, the use of adjacent, intact marsh in proximity to the Action Area by whooping crane is likely.

However, the terrestrial and shoreline habitat that would be affected during construction (Section 3.1.5) is surrounded by extensive urban and industrial development and ongoing dredge material management activities. The coastal marsh habitat these large birds prefer is not present in the Action Area and their continued presence within the Action Area would be unlikely. Potential effects upon whooping cranes that occasioned into the Action Area during construction would include noise disturbance while construction equipment is operating. These potential temporary adverse impacts of construction are anticipated to be insignificant and discountable, particularly because most activities are proposed to occur outside of preferred habitat, and activity within preferred habitat will be localized. Should whooping crane be present in adjacent areas during dredging, they may be temporarily displaced to nearby areas due to nuisance noise from equipment and personnel.

Direct effects to the species would be expected to be limited to the disturbance of individual birds stopping through the construction areas during migration or foraging or resting while enroute to higher quality areas. The beneficial use of dredge material could be beneficial to the whooping crane by having quality foraging habitat available sooner as described in Section 1.3.4. Conservation measures would be implemented to further avoid potential negative effects to whooping cranes, as noted in Section 5.

4.4.2 Effects Determination – May affect, not likely to adversely affect

Whooping Cranes could occur adjacent to the Action Area in higher quality habitat. The USACE has determined that implementing the proposed widening *may affect, not likely to adversely affect* the whooping crane because the temporary adverse impacts are anticipated to be insignificant and discountable, especially since conservation measures will be incorporated into the plan, as noted in Section 5.

The USFWS has designated critical habitat in Aransas, Calhoun, and Refugio counties in Texas (Aransas National Wildlife Refuge) and there is no critical habitat designated or proposed to be designated in Orange or Jefferson Counties, Texas. As such, there will be *no effect* on whopping crane critical habitat because there is no critical habitat designated within the Action Area, including all areas for dredged material placement or beneficial use of dredged material.

4.5 West Indian Manatee

4.5.1 Construction and Dredge Material Management

As described in Section 2.5.1, West Indian manatee is an extreme rarity in the Action Area; as such, the presence of an individual animal is highly unlikely. However, with records of individual animals observed near the Action Area, it cannot be ruled out with certainty of occurring. If a manatee were to be observed in the Action Area, it would likely be a lone individual when water temperatures were seasonally warm (late spring to early fall). In the rare occurrence that a manatee is present in the Action Area, individuals may be disturbed by active dredging and channel widening construction. The most extreme effect would be a vessel collision, although it is unlikely as operating cutterhead dredges move slowly, and manatees are rare within the Action Area.

Short-term, temporary effects on this species could include disturbance to adjacent areas outside of the areas being dredged from construction and human activities. Should manatees be present in adjacent areas during dredging, they may be temporarily displaced to nearby areas due to nuisance noises from equipment operation and personnel.

Conservation measures would be incorporated to prevent harassment and take of manatees. As described in Section 5, under all contracts, all personnel will attend training sessions prior to the initiation work activities to include recognition of listed species and each species' habitat as well as signs of presence. The training also includes the procedures to be implemented if a manatee species was encountered during construction.

4.5.2 Effects Determination – May affect, not likely to adversely affect

Manatees are rare in the Action Area and conservation measures would be implemented; however, because manatees do occur in the region the USACE has determined that implementing the widening *may affect, not likely to adversely affect* the West Indian manatee.

In addition, there is no critical habitat designated for West Indian manatee in Texas, so implementing the proposed widening would have *no effect* on West Indian manatee critical habitat.

4.6 Tricolored Bat

4.6.1 Construction and Dredge Material Management

As stated in Section 2.4.6, within the Action Area, tricolored bats do not hibernate. The areas of terrestrial effects within the Action Area do not have the important habitat characteristics (e.g., forest area, forest aggregation, and tree corridor habitat) tricolored bats need. The Action Area also does not have the road-associated culverts or bridges used as roosting habitat. In addition, the right descending bank of the Sabine Neches Waterway within the Action Area is dominated by urban areas (including extensive residential and industrial areas) of the Cities of Port Arthur and Port Neches.

The potentially affected shorelines and adjacent land within the Action Area have been highly modified and the right descending bank opposite the areas of proposed widening is densely developed in urbanized and industrialized land use. As such, the abundance of tricolored bat would be expected to be low. Due to their mobility, tricolored bats have the chance to occur within the Action Area, but there are no known hibernacula within the Action Area or areas of preferred roosting. Conservation measures to reduce the potential for effects of the proposed widening on tricolored bat, would be implemented as detailed in Section 5.

4.6.2 Effects Determination – Not likely to jeopardize the continued existence

While candidate species have no legal protection under ESA, the USFWS encourages their consideration in environmental planning. Because the tricolored bat is listed as a proposed endangered species, the effect determination is based on whether the proposed channel widening is expected to *appreciably reduce the reproduction, numbers, or distribution of the species*. The proposed widening would not appreciably reduce the reproduction, numbers, or distribution of the tricolored bat because the potentially affected habitat does not include forested areas with forest aggregation and tree corridors; lacks road-associated culverts, or bridges; and is near urban/industrial areas. The USACE has determined that implementing the proposed widening *is not likely to jeopardize the continued existence of* the tricolored bat. Because there is no critical habitat proposed for tricolored bat, implementing the proposed widening would have *no effect* on proposed critical habitat.

If the species is listed prior to completion of the proposed widening, the effects of the proposed widening *may affect, but is not likely to adversely affect* the tricolored bat.

4.7 Alligator Snapping Turtle

4.7.1 Construction and Dredge Material Management

Alligator snapping turtles most often select habitat with tree root masses, stumps, submerged trees (i.e., structure) than open water and select sites with a high percentage of canopy cover. However, the affected shorelines of the proposed widening are entirely

disturbed, without the characteristic habitat features preferred by alligator snapping turtles (e.g., woody structure, tree root masses, canopy cover). Because this species prefers aquatic habitats that have submerged structures (USACE, 2025), the relative lack of such structures within the action area may make this area unattractive to this species.

Because the aquatic environment of the Action Area is completely altered for the creation and maintenance of the federal navigation channels (e.g. dredging, channelization, removing of submerged snags and woody debris, removal of riparian cover), is tidally influenced (i.e., brackish), and is not surrounded by forested habitat, presence of alligator snapping turtle in the Action Area is possible, but unlikely.

4.7.2 Effects Determination – Not likely to jeopardize the continued existence

Because the alligator snapping turtle is listed as a proposed threatened species, the effect determination is based on whether the action is expected to appreciably reduce the reproduction, numbers, or distribution of the species. Since the action is expected to have a low potential for encountering alligator snapping turtles and conservation measures are in place (Section 5), the action would have no measurable impact on the reproduction, numbers, or distribution of the species and therefore is *not likely to jeopardize the continued existence of the* alligator snapping turtle*.*

In the event that the alligator snapping turtle is formally listed prior to project completion, the proposed action *may affect, but is not likely to adversely affect* the alligator snapping turtle.

4.8 Monarch Butterfly

4.8.1 Construction and Dredge Material Management

Dredging activities to widen the channel would occur within, and along, the edges of the left descending bank of the lower Neches River and Sabine-Neches Canal as described in Section 1.3 and shown in Figures 1-1 through 1-4. Construction would include the permanent transition of shoreline and terrestrial (i.e., upland) habitat to open water submergent habitat in the areas depicted in Figure 1-2. All other areas of proposed dredging to widen the channel (as shown in Figure 1-1) would be constructed below the existing water line and have no changes to the adjacent shoreline or terrestrial habitat.

These affected shorelines and adjacent land within the Action Area have been highly modified by the placement and repeated placement of dredged material. In 2021, field sampling of the areas of terrestrial effects from the proposed widening did not identify a single milkweed plant (*Asclepias spp*.) (Wiley, 2021). Although the monarch may occur very briefly in the Action Area during migrations, they will not be affected by the implementation of the proposed action due to the lack of the appropriate habitat for milkweed.

4.8.2 Effects Determination – Not likely to jeopardize the continued existence

Because the monarch butterfly is listed as a proposed threatened species, the effect determination is based on whether the action is expected to appreciably reduce the reproduction, numbers, or distribution of the species. Since the action is expected to have

a low potential for encountering monarch butterfly and conservation measures are in place (Section 5), the action would have no measurable impact on the reproduction, numbers, or distribution of the species and therefore is *not likely to jeopardize the continued existence* of the monarch butterfly.

In the event that the monarch butterfly is formally listed prior to project completion, the proposed action *may affect, but is not likely to adversely affect* the monarch butterfly.

4.9 Louisiana Pigtoe

4.9.1 Construction and Dredge Material Management

As described in Section 2.4.9, the downstream-most population of the Louisiana pigtoe in the Sabine River system is within Bayou Anacoco, more than 70 river miles upstream of the Sabine River's confluence with Lake Sabine (USFWS, 2022b). The areas within the Sabine River basin proposed for designation as critical habitat are also more than 70 river miles upstream of the Action Areas for the proposed widening construction.

Within the Neches River Basin, the downstream-most population in the Lower Neches River is below B.A. Steinhagen Reservoir (below Town Bluff Dam) in Tyler and Jasper counties, Texas (USFWS, 2022b) and abruptly ends at the Neches River Saltwater Barrier on the northern edge of Beaumont, Texas. The Saltwater Barrier effectively isolates the tidally influenced sections of the Neches River (i.e., downstream from the Saltwater Barrier to Sabine Lake) from the upstream, freshwater areas, in which the Louisiana pigtoe is found (NPS, 2012) and critical habitat is proposed (USFWS, 2022b). The Texas Commission on Environmental Quality has designated the Neches River downstream of the Saltwater Barrier as the *Neches River Tidal,* 0601 (TCEQ, 2022) because the segment is subject to tidal flows and has the associated salinity naturally occurring.

Because the Neches River downstream of the saltwater barrier is tidal, it is not freshwater habitat necessary for the Louisiana pigtoe as defined in the USFWS' SSA (USFWS, 2022b). Lastly, the USFWS has proposed a designation of critical habitat depicted as the areas of green in Figure 2-4 and the area proposed for designation as critical habitat terminates at the Saltwater Barrier upstream of the Action Area for the proposed widening on the Neches River (USFWS, 2023b).

4.9.2 Effects Determination – Not likely to jeopardize the continued existence

Within both the Sabine and Neches River systems, construction of the proposed widening in the Action Area are downriver of Louisiana pigtoe habitat and areas proposed for designation as critical habitat (USFWS, 2022b).

Because the Louisiana pigtoe is listed as a proposed threatened species, the effects determination is based on whether the action is expected to appreciably reduce the reproduction, numbers, or distribution of the species. Because the proposed widening would be constructed within areas that are not suitable habitat, implementing the proposed widening would have no measurable effect on the reproduction, numbers, or distribution of the species and therefore is *not likely to jeopardize the continued existence*

of the Louisiana pigtoe. The proposed widening would also have *no effect* on areas that are proposed for designation as critical habitat for the (USFWS, 2022b).

In the event that the Louisiana pigtoe is formally listed prior to project completion, the proposed action would have *no effect* on the Louisiana pigtoe.

4.10 Texas Heelsplitter

4.10.1 Construction and Dredge Material Management

As described in Section 3.9.3 and shown in Figure 3-2, the Texas heelsplitter population in the Sabine River occurs within an approximately 245 river mile segment well upriver from the Action Area (USFWS, 2022b).

The two Texas heelsplitter populations in the Neches River Basin are a greater than 240 mile segment of the Neches River/B.A. Steinhagen Reservoir and within the Lower Neches River (USFWS, 2022b). The Lower Neches River population extends approximately 74 river miles downstream from Lake B.A. Steinhagen Reservoir's Town Bluff Dam to approximately 4.5 river miles downstream from the Neches River-Village Creek confluence (USFWS, 2022b), at approximately the Neches River Saltwater Barrier. As with the Louisiana pigtoe evaluation in Section 4.9.2, the Neches the Saltwater Barrier effectively isolates the tidally influenced sections of the Neches River from the upstream freshwater areas in which the Texas heelsplitter is found. Because the Neches River downstream of the saltwater barrier is tidal, it is not freshwater habitat essential for the Texas heelsplitter as defined in the USFWS' SSA (USFWS, 2022b).

4.10.2 Effects Determination – Not likely to jeopardize the continued existence

Within both the Sabine and Neches River systems, construction of the proposed widening, and the Action Area, are downriver of Texas heelsplitter habitat and areas proposed for designation as critical habitat (USFWS, 2022b). Because the Texas heelsplitter is proposed for listing as a threatened species, the effects determination is based on whether the action is expected to appreciably reduce the reproduction, numbers, or distribution of the species.

The proposed widening would be constructed within areas that are not suitable habitat for the Texas heelsplitter. Therefore, implementing the proposed widening would have no measurable effect on the reproduction, numbers, or distribution of the species and therefore is *not likely to jeopardize the continued existence* of the Texas heelsplitter. The proposed widening would also have *no effect* on areas that are proposed for designation as critical habitat for the Texas heelsplitter (USFWS, 2022b).

In the event that the Texas heelsplitter is formally listed prior to project completion, the proposed action would have *no effect* on the Texas heelsplitter.

4.11 Cumulative Effects

Cumulative effects are those effects of future state or private activities, not involving current or future federal activities, that are reasonably certain to occur within the Action Area of the federal action subject to consultation (50 CFR §402.02). Future federal

actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the Endangered Species Act.

As a working river, the Sabine Neches Waterway has continuous deep draft vessel navigation and barge traffic on the Gulf Coast Intercoastal Waterway (GIWW) resulting in 24-7 vessel traffic within the Action Area. This includes more than 50,000 barge transits per year on the Sabine Neches Canal and approximately 5,000 deep draft vessels transit the waterway. These vessel transits lead to disturbance to subtidal, shoreline, and adjacent upland habitat from vessel lights, noise, vibration, diesel emissions, and bow and stern wave propagation. The routine dredging of commercial terminals along the right descending bank (across the river from the areas to be widened) would also cause temporary noise, vibration, diesel emissions as well as localized and temporary deterioration in water quality from turbidity during dredging.

The construction activities to implement the proposed widening would be relatively short term, localized, and common to pipeline/cutterhead dredging within the waterway. Planned measures to reduce the construction-related effects upon listed species with the potential to occur within the Action Area are provided in Section 5, Voluntary Conservation Measures and Monitoring.

5 Voluntary Conservation Measures and Monitoring

5.1 General Conservation Measures

The following conservation measures are incorporated into dredging contract specifications for the protection of all listed species:

- All personnel (contractors, workers, etc.) will attend training sessions prior to the initiation of, or their participation in, project work activities. Training will include: 1) recognition of piping plovers, rufa red knot, whooping cranes, Eastern black rail, West Indian manatee, and sea turtles, each of the species' habitat, and signs of presence; 2) impact avoidance measures; 3) reporting criteria; 4) contact information for rescue agencies in the area; and 5) penalties of violating the ESA;
- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area to the maximum extent practicable;
- Because dredging would occur 24 hours a day, designated monitor(s) (i.e., personnel) will be identified who will act as a single point of contact responsible for communicating and reporting any endangered species issues throughout the construction period.

5.2 Conservation Measures at the Beneficial Use Site

There is a risk that birds may take up residence and be disturbed during the latter stages of material placement in the BU site. This is because constructed habitat may attract shorebirds and other types of birds. The following measures are planned with the intent to avoid or otherwise minimize impacts to birds to the extent possible:

- Project equipment and vehicles transiting between the dredging area and the BU site will be minimized to the extent practicable, including but not limited to using designated routes and confining vehicle access to the immediate needs of the project;
- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area to the maximum extent practicable. This will help reduce confusion to night-flying or crepuscular bird species and prevent collisions with equipment due to excessive lighting;
- Construction crews should avoid working in important shorebird habitats when winter winds above 20 miles per hour co-occur with temperatures below 40 degrees Fahrenheit. These conditions can cause the birds to roost for energy conservation, often in available ruts. If placement is not able to be avoided during nesting season, all efforts will be made to avoid placement of material within emergent shell hash areas along the shoreline to the best extent practicable; and
- Material should be placed from the back of the marsh area first, working towards open water, to allow for birds and other species to seek refuge or vacate the area prior to dredged material placement within the open-water area.

5.3 Species-Specific Conservation Measures

5.3.1 Eastern Black Rail

The following conservation measures would be implemented, as applicable, to minimize the potential for adverse effects during construction to Eastern black rail:

- If possible, avoid clearing the terrestrial habitat on the left descending bank of the Neches River during the breeding season (March – September). If clearing the terrestrial habitat during the breeding season is unavoidable, acoustic surveys and biological monitors will be used to ensure no birds are harmed or killed during their flightless stage of life;
- No marsh construction activities (i.e., the placement of dredged material into the beneficial use site will occur from March 1st through September 30th (during the annual breeding, nesting, chick rearing, and molting season). If this timing restriction cannot be achieved, then the following will take place:
    - On-site vegetative field surveys will be conducted before work begins to identify Eastern black rail habitat types within the project area;
    - If temporary access routes, pipeline routes, or staging areas occur within identified black rail habitat, the contractor must minimize traffic in these areas therefore minimizing the construction footprint (i.e., limited paths);
    - In addition to minimizing access routes, areas of high marsh habitat should be left intact to provide refugia for the black rail to ensure escape access routes. The USACE will work with the Service to identify refugia areas once site specific planning begins;
    - Biological monitors are required to assist construction crews with avoidance and minimization of black rail habitats once work begins;

- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area;
- Efforts will be made to mitigate noise and vibration within and adjacent to Eastern black rail habitat to include planning and performing work outside of peak breeding call times (i.e., one hour before and after dawn and one hour before and after dusk) for Eastern black rail;
- Clearing of Eastern black rail habitat must be done in a way that allows for the escape of the birds toward refugia areas remaining adjacent to the project area. The project should avoid clearing in a way that creates isolated pockets of suitable Eastern black rail habitat. This is achieved by linear clearing in the direction of refugia and avoiding clearing via decreasing concentric circles;
- Clearing should be done at a slow speed. The Service has not identified a specific speed because construction equipment may not be calibrated, and operator efficiency may differ;
- Understanding that slow is a relative term, avoiding bird mortality from being run over by equipment must be the goal that dictates speed. Thus, speed must be maintained at a slow enough level that Eastern black rail and other wildlife can escape approaching equipment;
- A biological monitor may be required to maintain a sufficiently slow pace of equipment moving through potential habitat, which allows for the escape of the birds ahead. Biological monitors should be aware that the species will run to escape oncoming disturbance and are highly unlikely to fly during daylight;
- Additionally, the biological monitor will have authority to stop work immediately if Eastern black rail chicks or eggs are observed within the project area and the Texas Coastal Ecological Services Field Office should be contacted immediately at (281)286-8282. The need for a biological monitor will depend on the results of the surveys and time of year that work is completed in Eastern black rail habitat and must be coordinated with the Service;
- In the rare instance that equipment is left idle within Eastern black rail habitat (*e.g.,* mechanical failure, temporary stoppage), a complete inspection of the equipment surroundings should take place prior to moving it to ensure that no birds have settled around the equipment; and
- Upon discovery of any injured Eastern black rail, the Texas Coastal Ecological Services Field Office will be notified at (281)286-8282, and the individual will be kept comfortable and safe until a USFWS biologist can arrive and transport the bird to a veterinary facility for appropriate care.

5.3.2 Monarch Butterfly

The use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area to the maximum extent practicable. This will help reduce confusion to migrating monarch butterflies and prevent collisions with equipment due to excessive lighting. This considers

the use of ultraviolet polarized light (among other cues) that monarchs use as a compass for navigating during migrations (USACE, 2025).

5.3.3 West Indian Manatee

The following conservation measures would be implemented, as applicable, to minimize the potential for adverse effects during construction to West Indian manatees:

- Qualified biologists trained to identify manatees (has completed training requirements previously identified), with stop work authority, will monitor for the presence of manatee during phases which involve open water work. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s) and notifying the biological monitor if identified in the project area;
- Before activities occur in open water areas, a 50-foot radius of the work area should be delineated. If a manatee(s) is observed within the 50-foot radius, the biological monitor shall halt all in-water operations, including vessels. Activities shall not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes' elapses if the manatee(s) has not reappeared within 50 feet of the operation;
- Animals must not be herded away or harassed into leaving;
- If a manatee is sighted within 100 yards of the active work zone, vessels will operate at no wake/idle speeds. All personnel associated with the project shall be instructed about the presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees.
- All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible;
- Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project;
- Temporary signs that have already been approved for this use by the USFWS must be used. One sign which reads "Caution: Boaters" must be posted. A second sign measuring at least 8.5" by 11" explaining the requirements for "Idle Speed/No Wake" and the shutdown of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities;
- If siltation or turbidity barriers are used, they will be made of material in which manatees cannot become entangled, should be properly secured, and regularly monitored to avoid entrapment or entanglement. Barrier should not impede manatee movement;
- Any manatee sightings will be immediately reported to the U.S. Fish and Wildlife Service Texas Coastal Ecological Services Office. Any collision with or injury to a manatee shall be reported immediately to the Texas Marine Mammal Stranding Network Hotline at 888-9-MAMMAL and the Texas Coastal Ecological Services Field Office at 281-286-8282, extension 26504.

5.3.4 Tricolored Bat

Minimum conservation measures for the tricolored bats have been described in the Northern Long-eared Bat and Tricolored Bat Voluntary Environmental Review Process for Development Projects (USFWS, 2024a) and are reproduced below for SNND consideration in project planning. The Action Area is within a portion of Texas where tricolored bats are active year round (Year-round Active Range, Zone 2) and therefore, do not hibernate as tricolored bats do in more northern portions of their range (USFWS, 2024a). The minimum conservation measures are included here below as presented in the cited reference for completeness.

- Avoid activities resulting in the disruption or disturbance of tricolored bat (TCB) in their hibernacula during hibernation;
- Avoid activities resulting in the physical or other alteration of NLEB and/or TCB hibernacula entrance(s) or internal environments (e.g., adverse alterations to airflow, microclimate, and hydrology) at any time of year;
- Avoid removing suitable roost trees within 0.25-mile of a known TCB hibernaculum entrance(s) during spring staging and fall swarming. In addition, avoid removing suitable roost trees within 0.25-mile of a known TCB hibernaculum when flightless young are present (i.e., pup season). Avoid removing known roost trees and suitable roost trees within 0.25-mile of a known TCB maternity roost during the pup season. When feasible, avoid removing known roost trees (regardless of the season);
- Avoid removing known roost trees and suitable roost trees within 0.25-mile of a known TCB maternity roost during the pup season;
- Avoid removing suitable roost trees within 1.5-miles of a TCB capture or acoustic record during the pup season;
- If the project area is located outside of known buffered locations but within an area where TCB may be present (see Consultation Range), conduct a voluntary presence/absence survey following the Service's Guidelines or assume presence and avoid removing suitable roost trees during the pup season;
- Avoid removing known and suitable roost trees within 0.25-mile of a known TCB roost between December 15 and February 15 within Year-Round Active Zone 1.
- Avoid removing suitable roost trees within 1.5-miles of a TCB capture or acoustic record between December 15 and February 15 within Year-Round Active Zone 1;
- If the project area is located outside of known buffered locations but within an area where NLEB and/or TCB may be present (see Consultation Range), conduct a voluntary presence/absence survey following the Service's Guidelines or assume presence and avoid removing suitable roost trees between December 15 and February 15 within Year-Round Active Zone 1; and
- Offset any remaining impacts of incidental take that were not avoided. For example, offsetting measures could include (but are not limited to) restoring or protecting known habitat for the affected species, locating and protecting new colonies, and treating TCB for white-nose syndrome if treatments are available.

5.3.5 Alligator Snapping Turtle

To avoid effects to the alligator snapping turtle, the following conservation measures will be followed:

- Ensure biological monitors, crew, and contractors are qualified and trained to identify the alligator snapping turtle and nests and be trained on the protocols should an alligator snapping turtle be encountered;
- Avoid and/or minimize grading banks to the extent practical;
- Ensure the qualified biological monitors are onsite prior to landside activities to identify the presence or absence of the alligator snapping turtles during construction;
- Direct the biological monitor to have stop-work authority should an alligator snapping turtle be observed within construction areas;
- Contact with the USACE environmental POC and USFWS shall be immediately made by the biological monitor upon the finding an alligator snapping turtle and follow the response protocols as directed by the USFWS and USACE;
- Care for any alligator snapping turtle incidentally captured shall be kept in individual containers with at least 3 inches of water at all times, not be kept in direct sun or in vehicle traffic, or temperatures over 80 degrees or less than 60 degrees Fahrenheit. Turtles should only be transported under the direction and guidance of USFWS.

5.3.6 Whooping Crane

The following conservation measures would be implemented, as applicable, to minimize the potential for adverse effect to whooping crane:

a. Seasonal timing restriction between January 15th and June 15th in which construction should be avoided is ideal. Because the seasonal timing restriction cannot be avoided, the following conservation measures would be implemented:
    - A biological monitor qualified in identifying whooping cranes and with stop work authority will be on site when any work is being done in suitable wetland habitat if the work is performed during the breeding/nesting season (January through June) or the wintering season (October 1 through April 15).
    - Prior to the start of work each day, the project area will be surveyed for the presence of whooping cranes within 1,000 feet (805 m) of the project area. If whooping cranes are observed, no work will be performed until the birds have moved away from the project area. If birds move into the project area during project construction implementation, all mechanized equipment actions will cease until the birds vacate the project area.
    - If construction equipment is over 15 feet tall, the equipment must be marked with visual flagging as bird avoidance measures when equipment is in use and laid horizontally on the ground when not in use; and contractors are to ensure that the equipment is placed horizontally on the ground when not in use to the maximum extent practicable, during fog or inclement weather, and at dusk and overnight to avoid whooping crane strikes during low visibility conditions.

- Workers, temporary or permanent, should be educated on the importance and protections allocated to this species, including but not limited to no collection of features or eggs and do not touch or harass birds.
- All whooping crane sightings should be immediately reported to the Texas Coastal Ecological Services Field Office at 281-286-8282, Wade Harrel (Service Species Lead) at Wade_Harrell@fws.gov and Trey Barron (TPWD) at Trey.Barron@tpwd.texas.gov.

6 Summary

6.1 Summary of the Proposed Widening

The proposed widening evaluated in this BA consists of actions to widen approximately 19.4 miles of the inshore portions of the Sabine Neches Waterway in Jefferson and Orange Counties, Texas. The proposed widening would use a cutterhead (i.e., pipeline) dredge to widen three discontinuous lengths from the current channel width of 400 feet to 500 feet (i.e., +100 feet) along the left descending bank.

The total area to be added to the federal navigation channel for the widened segments shown in Figure 1-1 would be approximately 231.8 acres and would be entirely under the existing water line. Dredging would remove nearly 11.7 million cubic yards of new-work dredged material and would take approximately 30 months to construct. Ongoing dredging to maintain the widened areas would be expected to require approximately 20 additional maintenance dredging days per year and generate slightly over half a million cubic yards of material per year. Staging areas for equipment and materials would use existing industrial waterfront facilities within the adjacent Port Arthur and Port Neches.

Existing dredge material placement areas have sufficient placement capacity available for all new-work as well as future increased maintenance volumes from implementing the proposed widening and are immediately adjacent to the areas proposed for widening. Up to 500,000 cubic yards of dredged material would also be made available for placement in the beneficial use site being designed and constructed as part of the ongoing deepening that is already under construction.

Within the 19.4 miles of widened channel shown in Figure 1-1, 16.8 miles of the channel widening (> 86 %) would occur completely underwater resulting in no changes to the adjacent shoreline or land. Locations where the proposed widening would result in changes from land to open water on the left descending bank of the lower Neches River and the Sabine-Neches Canal (North) (i.e., from Pleasure Island) are shown as red polygons in Figure 1-2.

Within the Sabine-Neches Canal (North) segment (blue line in Figure 1-1), 1.3 miles of shoreline and a total of 10.9 acres of uplands would be converted to open water. Widening along the Sabine Neches Canal (North) segment would require removal of the non-engineered shoreline protection (i.e., concrete rubble) along the shoreline using a barge-based crane.

Within the Neches River Channel segment, 1.2 miles of shoreline and a total of 6.2 acres of uplands would be converted to open water. Dredging the widened segments in the Sabine-Neches Canal (North) and the Neches River Channel would affect a cumulative total of 2.5 miles of shoreline and 17.2 acres of upland habitat as summarized in Table 1-1.

Of the total of 17.2 acres of land affected, 10.9 acres are from an abandoned golf course on Pleasure Island (adjacent to the Sabine-Neches Canal) and the remaining 6.2 acres are thin strips of disturbed habitat between the Neches River Channel and the confinement dikes of the adjacent dredged material placement areas along the lower Neches River.

Where widening would result in uplands dredged to open water, there would be clearing and grubbing of surface vegetation prior to dredging and the cleared vegetation would be removed from the site using barge-based equipment. Equipment for the clearing of vegetation would be presumed to utilize a bulldozer and bobcat-type equipment with brush hog or similar attachments.

6.2 Summary of the Effects to Listed Species

Based upon the findings of this BA, the USACE has made the following effects determinations for species that were identified as occurring or potentially occurring in the Action Area as summarized in Table 6-1.

For the piping plover, rufa red knot, Eastern black rail, whooping crane, West Indian manatee, the USACE has determined that implementing the proposed widening *may affect, not likely to adversely affect* all these species.

The consideration of the potential effects to sea turtles in this BO is limited to the USFWS' consideration of activities affecting sea turtles and their habitat in the *terrestrial* environment (i.e., nesting habitat). For the green sea turtle, Kemps' ridley sea turtle, loggerhead sea turtle, hawksbill sea turtle, and leatherback sea turtle the USACE has also determined that implementing the proposed widening would have *no effect*.

The USACE has also determined that implementing the proposed widening would have *no effect* on any critical habitat designated, or proposed, for any of these species.

For the tricolored bat, alligator snapping turtle, monarch butterfly, Louisiana pigtoe, and the Texas heelsplitter, the USACE implementing the proposed widening would have no measurable effect on the status of the species and therefore is *not likely to jeopardize the continued existence.*

Table 6-1.
Summary of Effects Determinations

Common Name	Scientific Name	Jurisdiction	Effects Determination
piping plover	*Charadrius melodus*	USFWS	MA, NLAA
rufa red knot	*Calidris canutus rufa*	USFWS	MA, NLAA
Eastern black rail	*Laterallus jamaicensis jamaicensis*	USFWS	MA, NLAA
whooping crane	*Grus americana*	USFWS	MA, NLAA
West Indian manatee	*Trichechus manatus*	USFWS	MA, NLAA
tricolored bat	*Perimyotis subflavus*	USFWS	NLJCE
alligator snapping turtle	*Macrochelys temminckii*	USFWS	NLJCE
green sea turtle	*Chelonia mydas*	USFWS	NE
Kemps' ridley sea turtle	*Eretmochelys imbricata*	USFWS	NE
loggerhead sea turtle	*Lepidochelys kempii*	USFWS	NE
hawksbill sea turtle	*Dermochelys coriacea*	USFWS	NE
leatherback sea turtle	*Caretta caretta*	USFWS	NE
monarch butterfly	*Danaus plexippus*	USFWS	NLJCE
Louisiana pigtoe	*Pleurobema riddellii*	USFWS	NLJCE
Texas heelsplitter	*Potamilus amphichaenus*	USFWS	NLJCE

MA, NLAA – may affect, not likely to adversely affect
NLJCE - Not likely to jeopardize the continued existence (for species proposed for listing)
NE – no effect

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8 List of Acronyms

AC – acre
ATON – aids to navigation
BA – Biological Assessment
BU – beneficial use
CFR – Code of Federal Regulations
CH – critical habitat
CY – cubic yards
DBH – diameter at breast height
DO – dissolved oxygen
DPS – distinct population segment
EPP – Environmental Protection Plan
ESA – Endangered Species Act
FFR/FEIS – Final Feasibility Report/Final Environmental Impact Statement
FEIS – Final Environmental Impact Statement
FR – Federal Register
GLO – [Texas] General Land Office
GPS – global positioning system
GRBO – Gulf Regional Biological Opinion
IPaC – USFWS' Information for Planning and Consultation
LA – Louisiana
LDWF – Louisiana Department of Wildlife and Fisheries
MA, NLAA – may affect, not likely to adversely affect
MBTA – Migratory Bird Treaty Act
MI – miles
MLLW – mean low lower water
MOU – memorandum of understanding
NE – no effect
NEP – Non-Essential Population
NLJCE – Not likely to jeopardize the continued existence
NMFS – National Marine Fisheries Service
NWR – National Wildlife Refuge
PA – [Dredged Material] Placement Areas
PCEs – primary constituent elements
PED – Pre-Construction, Engineering, and Design
SAV – submerged aquatic vegetation
SNND – Sabine Neches Navigation District
SNWW – Sabine Neches Waterway
SSA – species status assessment
SWPPP – Stormwater Pollution Prevention Plan
TCB – tricolored bat
TCEQ – Texas Commission on Environmental Quality
TPWD – Texas Parks and Wildlife Department
TSS – total suspended solids
TX – Texas
USACE – U.S. Army Corps of Engineers
USCG – U.S. Coast Guard
WNS – white nose syndrome
USEPA – U.S. Environmental Protection Agency
USFWS – U.S. Fish and Wildlife Service

9 Attachments

Attachment A: Information for Planning and Consultation (IPaC) Database Report

Attachment B: Proposed Widening Mapbook

Attachment C: Assessment-Vegetation Habitat Affected by Sabine-Neches Federal Channel Widening Measures (2021)

Attachment D: NMFS Email from Anthony Sogluizzo to Blake Westmoreland, USACE

Attachment E: USFWS Planning Aid Letter to USACE, dated 17 September 2024

Attachment A: Information for Planning and Consultation (IPaC) Database Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal & Central Plains Esfo
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Houston, TX 77058-3051
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In Reply Refer To: 05/05/2025 21:22:09 UTC
Project Code: 2024-0081207
Project Name: Sabine Neches Navigation Improvement Project - Section 203 Feasibility Study

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Corpus Christi, Fort Worth, and Alamo, Texas, have combined administratively to form the Texas Coastal Ecological Services Field Office. All project related correspondence should be sent to the field office address listed below responsible for the county in which your project occurs:

Project Leader; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058
Angelina, *Austin*, *Brazoria*, *Brazos*, *Chambers, Colorado, Fayette, Fort Bend, Freestone, Galveston, Grimes, Hardin, Harris, Houston, Jasper, Jefferson, Leon, Liberty, Limestone, Madison, Matagorda, Montgomery, Newton, Orange, Polk, Robertson, Sabine, San Augustine, San Jacinto, Trinity, Tyler, Walker, Waller, and Wharton.*

Assistant Field Supervisor, U.S. Fish and Wildlife Service; 4444 Corona Drive, Ste 215; Corpus Christi, Texas 78411
Aransas, Atascosa, Bee, Brooks, Calhoun, De Witt, Dimmit, Duval, Frio, Goliad, Gonzales, Hidalgo, Jackson, Jim Hogg, Jim Wells, Karnes, Kenedy, Kleberg, La Salle, Lavaca, Live Oak, Maverick, McMullen, Nueces, Refugio, San Patricio, Victoria, and Wilson.

U.S. Fish and Wildlife Service; Santa Ana National Wildlife Refuge; Attn: Texas Ecological Services Sub-Office; 3325 Green Jay Road, Alamo, Texas 78516
Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata.

For questions or coordination for projects occurring in counties not listed above, please contact arles@fws.gov.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your

proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/media/endangered-species-consultation-handbook.

Non-Federal entities may consult under Sections 9 and 10 of the Act. Section 9 and Federal regulations prohibit the take of endangered and threatened species, respectively, without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is further defined (50 CFR § 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. “Harass” is defined (50 CFR § 17.3) as intentional or negligent actions that create the likelihood of

injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Should the proposed project have the potential to take listed species, the Service recommends that the applicant develop a Habitat Conservation Plan and obtain a section 10(a)(1)(B) permit. The Habitat Conservation Planning Handbook is available at: https://www.fws.gov/library/collections/habitat-conservation-planning-handbook.

Migratory Birds:
In addition to responsibilities to protect threatened and endangered species under the Act, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts visit: https://www.fws.gov/program/migratory-birds.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable National Environmental Policy Act (NEPA) documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Bald & Golden Eagles
- Migratory Birds
- Marine Mammals
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal & Central Plains Esfo
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
(281) 286-8282

PROJECT SUMMARY

Project Code: 2024-0081207

Project Name: Sabine Neches Navigation Improvement Project - Section 203 Feasibility Study

Project Type: Navigation Channel Improvement

Project Description: This is a Feasibility Study under Section 203 authority of WRDA 1986. The non-federal interest for the Study is the Sabine Neches Navigation District (SNND). The Study is for a navigation improvement project along the Sabine-Neches Waterway that aims to widen 3 channel/canal sections by 100 feet. The 3 widened sections would match adjacent channel depth of -48 feet MLLW. Dredged material will be used beneficially to restore marsh habitat. All project activities are contained solely within Texas.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@29.9440757,-93.86572887567362,14z

Counties: Jefferson and Orange counties, Texas

ENDANGERED SPECIES ACT SPECIES

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

BIRDS

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

REPTILES

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	Endangered

NAME	STATUS
Species profile: https://ecos.fws.gov/ecp/species/3656	
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered

CLAMS

NAME	STATUS
Louisiana Pigtoe *Pleurobema riddellii* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/10233	Proposed Threatened
Texas Heelsplitter *Potamilus amphichaenus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/299	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

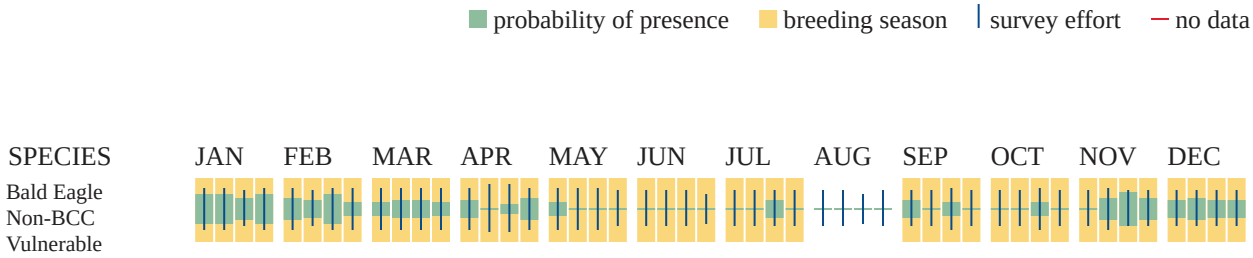
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Black Scoter *Melanitta nigra* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10413	Breeds elsewhere
Black Skimmer *Rynchops niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15
Brown Pelican *Pelecanus occidentalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034	Breeds Jan 15 to Sep 30
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Common Loon *gavia immer* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4464	Breeds Apr 15 to Oct 31
Dickcissel *Spiza americana* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9453	Breeds May 5 to Aug 31

NAME	BREEDING SEASON
Double-crested Cormorant *phalacrocorax auritus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/3478	Breeds Apr 20 to Aug 31
Forster's Tern *Sterna forsteri* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11953	Breeds Mar 1 to Aug 15
Gull-billed Tern *Gelochelidon nilotica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9501	Breeds May 1 to Jul 31
Hudsonian Godwit *Limosa haemastica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9482	Breeds elsewhere
King Rail *Rallus elegans* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Le Conte's Sparrow *Ammospiza leconteii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9469	Breeds elsewhere
Least Tern *Sternula antillarum antillarum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11919	Breeds Apr 25 to Sep 5
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-billed Curlew *Numenius americanus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5511	Breeds elsewhere
Long-tailed Duck *Clangula hyemalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/7238	Breeds elsewhere

NAME	BREEDING SEASON
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Painted Bunting *Passerina ciris* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9511	Breeds Apr 25 to Aug 15
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Prairie Loggerhead Shrike *Lanius ludovicianus excubitorides* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8833	Breeds Feb 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31
Red Knot *Calidris canutus roselaari* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8880	Breeds elsewhere
Red-breasted Merganser *Mergus serrator* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10693	Breeds elsewhere
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Red-necked Phalarope *Phalaropus lobatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10467	Breeds elsewhere
Reddish Egret *Egretta rufescens* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7617	Breeds Mar 1 to Sep 15

NAME	BREEDING SEASON
Ring-billed Gull *Larus delawarensis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10468	Breeds elsewhere
Royal Tern *Thalasseus maximus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10471	Breeds Apr 15 to Aug 31
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Sandwich Tern *Thalasseus sandvicensis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9731	Breeds Apr 25 to Aug 31
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Surf Scoter *Melanitta perspicillata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10463	Breeds elsewhere
Swallow-tailed Kite *Elanoides forficatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8938	Breeds Mar 10 to Jun 30
Whimbrel *Numenius phaeopus hudsonicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11991	Breeds elsewhere
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10669	Breeds Apr 20 to Aug 5

NAME	BREEDING SEASON
Wilson's Plover *Charadrius wilsonia* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9722	Breeds Apr 1 to Aug 20

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

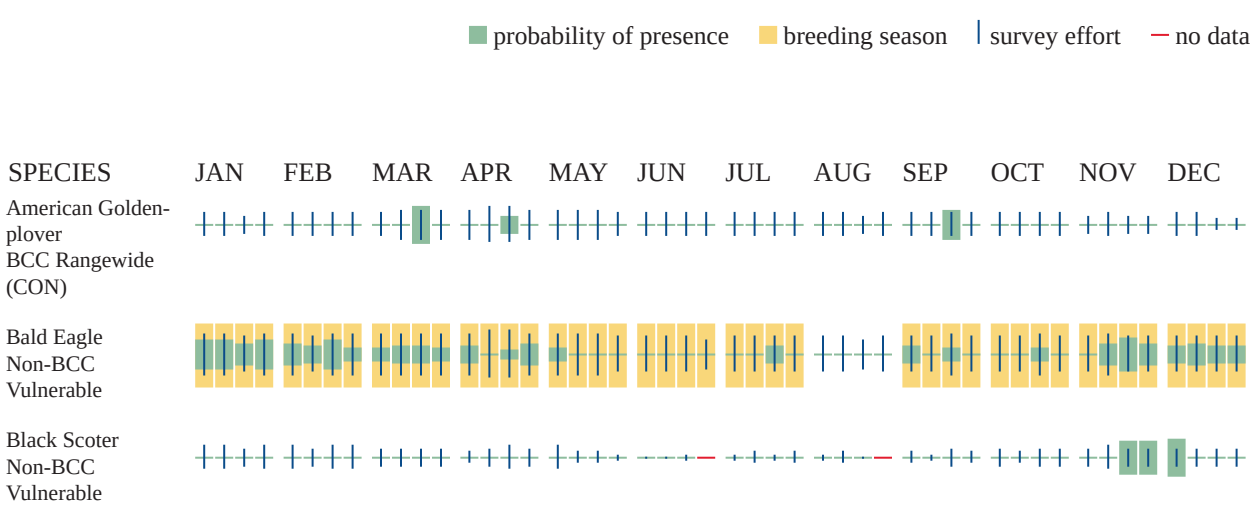
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

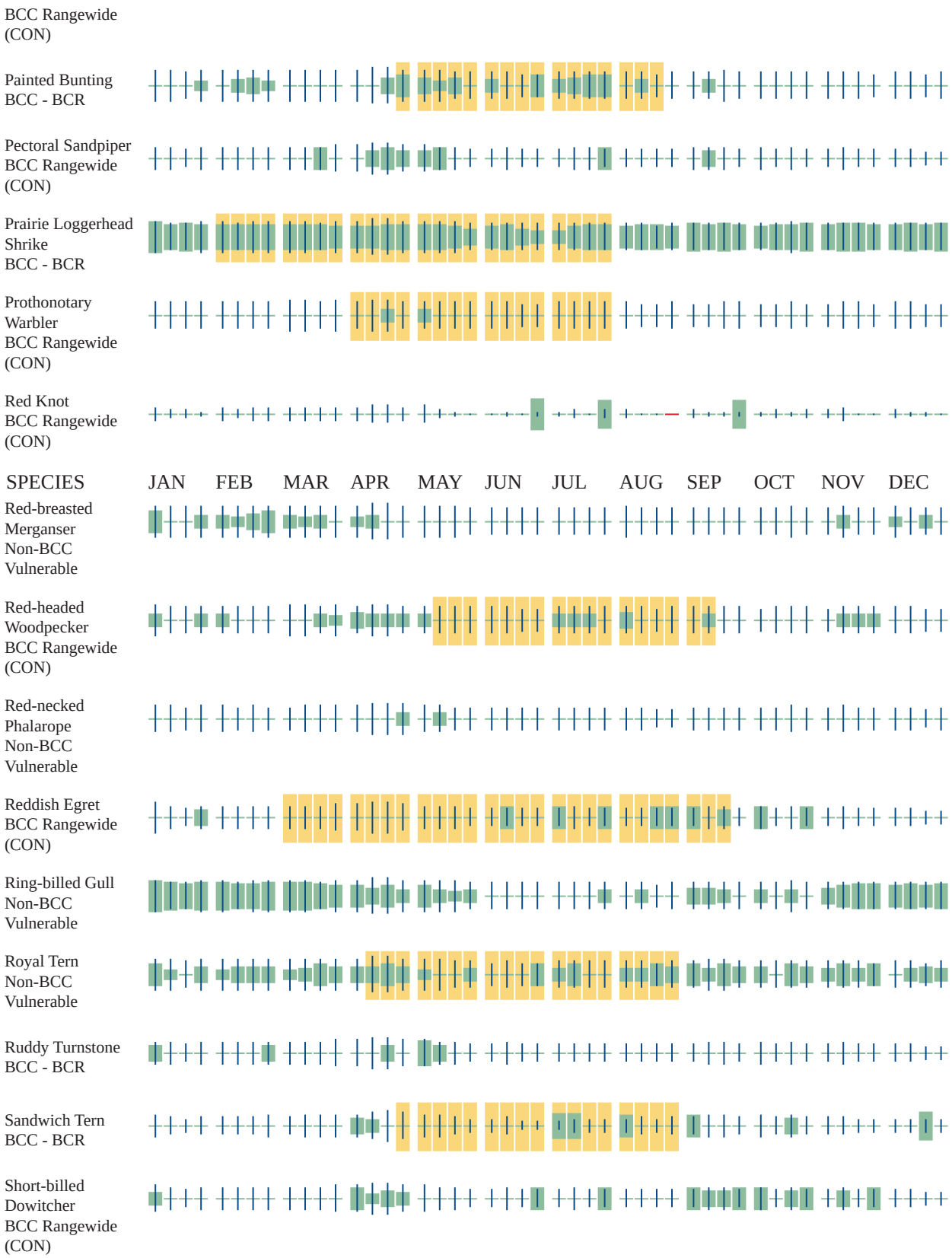
Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

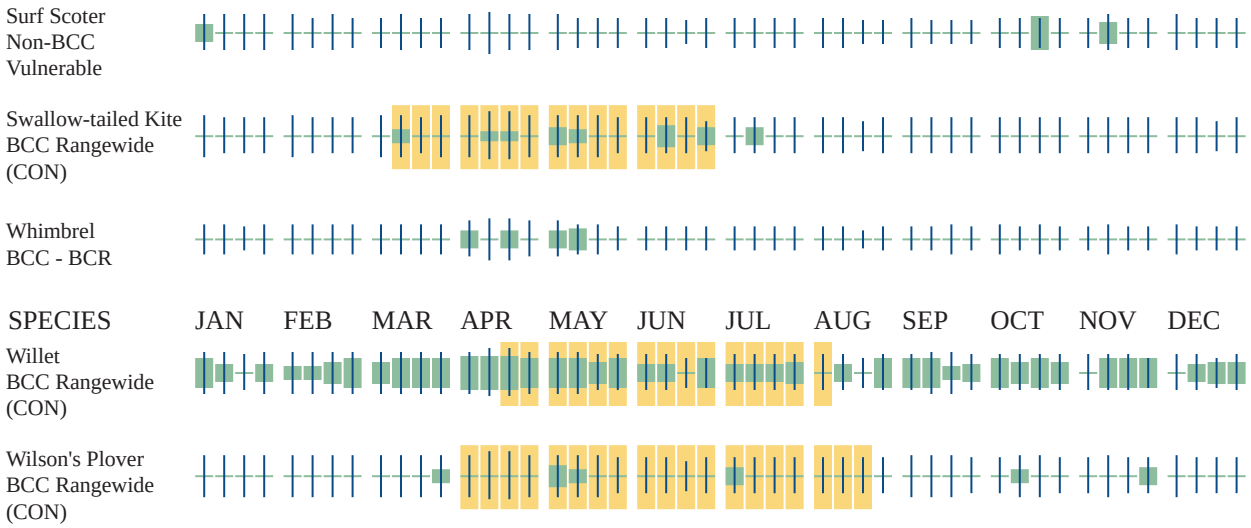
Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.




Black Skimmer BCC Rangewide (CON)
Brown Pelican Non-BCC Vulnerable
Chimney Swift BCC Rangewide (CON)
Common Loon Non-BCC Vulnerable
Dickcissel BCC - BCR
Double-crested Cormorant Non-BCC Vulnerable
Forster's Tern BCC - BCR
Gull-billed Tern BCC Rangewide (CON)
Hudsonian Godwit BCC Rangewide (CON)
SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
King Rail BCC Rangewide (CON)
Le Conte's Sparrow BCC Rangewide (CON)
Least Tern BCC Rangewide (CON)
Lesser Yellowlegs BCC Rangewide (CON)
Long-billed Curlew BCC - BCR
Long-tailed Duck Non-BCC Vulnerable
Marbled Godwit


BCC Rangewide (CON)
Painted Bunting BCC - BCR
Pectoral Sandpiper BCC Rangewide (CON)
Prairie Loggerhead Shrike BCC - BCR
Prothonotary Warbler BCC Rangewide (CON)
Red Knot BCC Rangewide (CON)
SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Red-breasted Merganser Non-BCC Vulnerable
Red-headed Woodpecker BCC Rangewide (CON)
Red-necked Phalarope Non-BCC Vulnerable
Reddish Egret BCC Rangewide (CON)
Ring-billed Gull Non-BCC Vulnerable
Royal Tern Non-BCC Vulnerable
Ruddy Turnstone BCC - BCR
Sandwich Tern BCC - BCR
Short-billed Dowitcher BCC Rangewide (CON)



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MARINE MAMMALS

Marine mammals are protected under the Marine Mammal Protection Act. Some are also protected under the Endangered Species Act[1] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora[2].

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries[3] [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the Marine Mammals page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

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1. The Endangered Species Act (ESA) of 1973.

2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NAME

West Indian Manatee *Trichechus manatus*
Species profile: https://ecos.fws.gov/ecp/species/4469

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

LAKE

- L2UBFx
- L2ABHx
- L1UBH
- L1UBHh
- L1UBHx

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1/2C
- PSS1/4A
- PSS1/2F
- PSS1/EM1F
- PSS2/EM1F
- PSS1/EM1C
- PFO1/4C
- PSS1/2Fx
- PFO1/2C
- PFO1Cd

- PFO1/EM1C
- PSS2Fx
- PSS2F
- PFO2C
- PFO1/4Ax
- PSS2C
- PFO1Ch
- PSS1Ch
- PSS1A
- PFO1C
- PSS1F
- PSS1Cx
- PFO1/4A
- PSS1C
- PFO2F
- PFO1Cx
- PFO1A

FRESHWATER EMERGENT WETLAND

- PEM5C
- PEM1/5Fx
- PEM5Ch
- PEM1/5C
- PEM1Ax
- PEM2Fx
- PEM1Cx
- PEM1F
- PEM1A
- PEM1Ch
- PEM1Fx
- PEM1Fh
- PEM1C

ESTUARINE AND MARINE WETLAND

- E2EM5P
- E2FO1P
- E2EM1/5P
- E2USM

- E2USN
- E2EM1N
- E2EM1P
- E2USPs
- E2USP

ESTUARINE AND MARINE DEEPWATER

- E1UBLh
- E1UBL
- E1UBLx

FRESHWATER POND

- PABHh
- PABHx
- PABH
- PUSC
- PUBF
- PUBFx
- PUBHx
- PUBKx
- PUBHh
- PUBFh
- PUBH

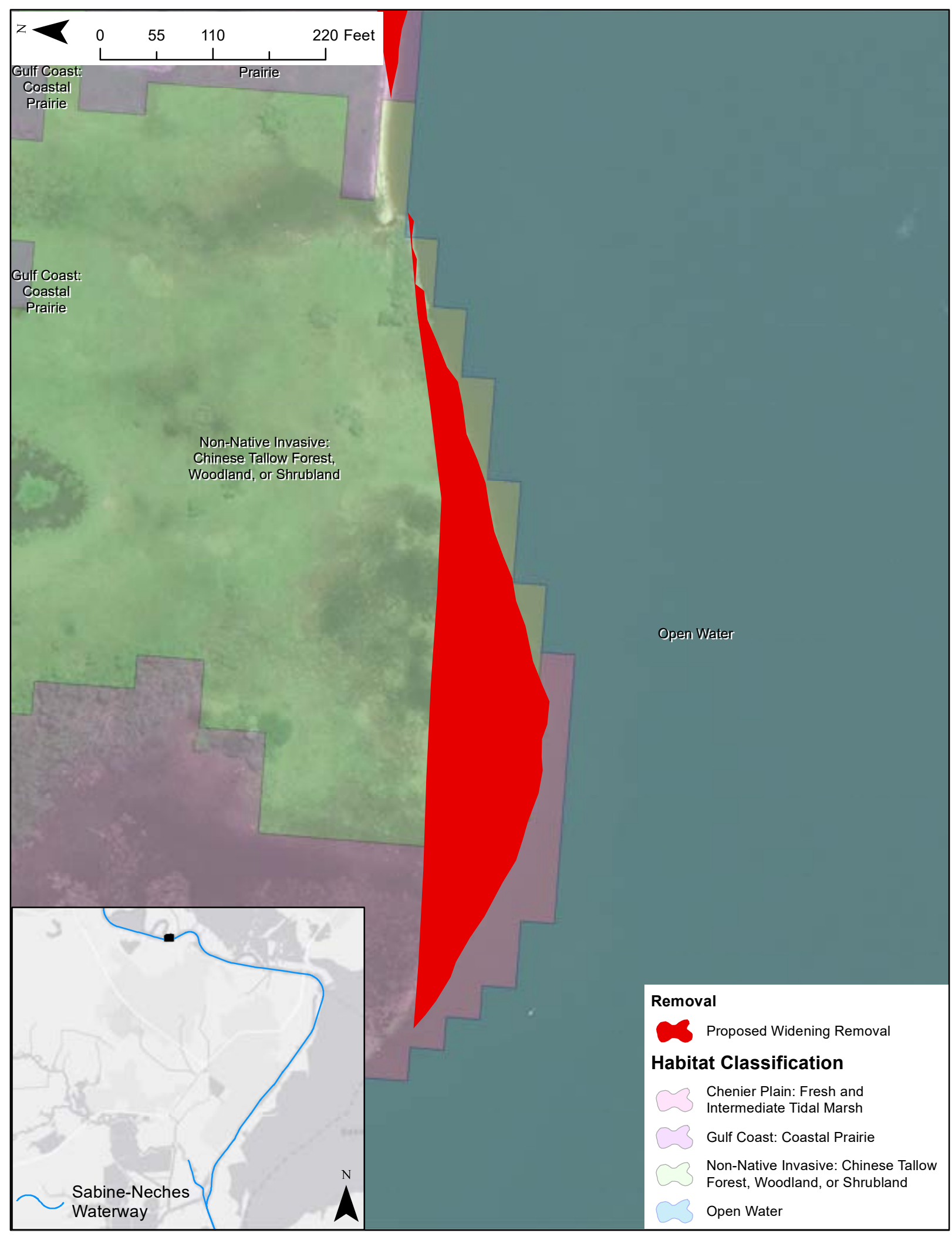
RIVERINE

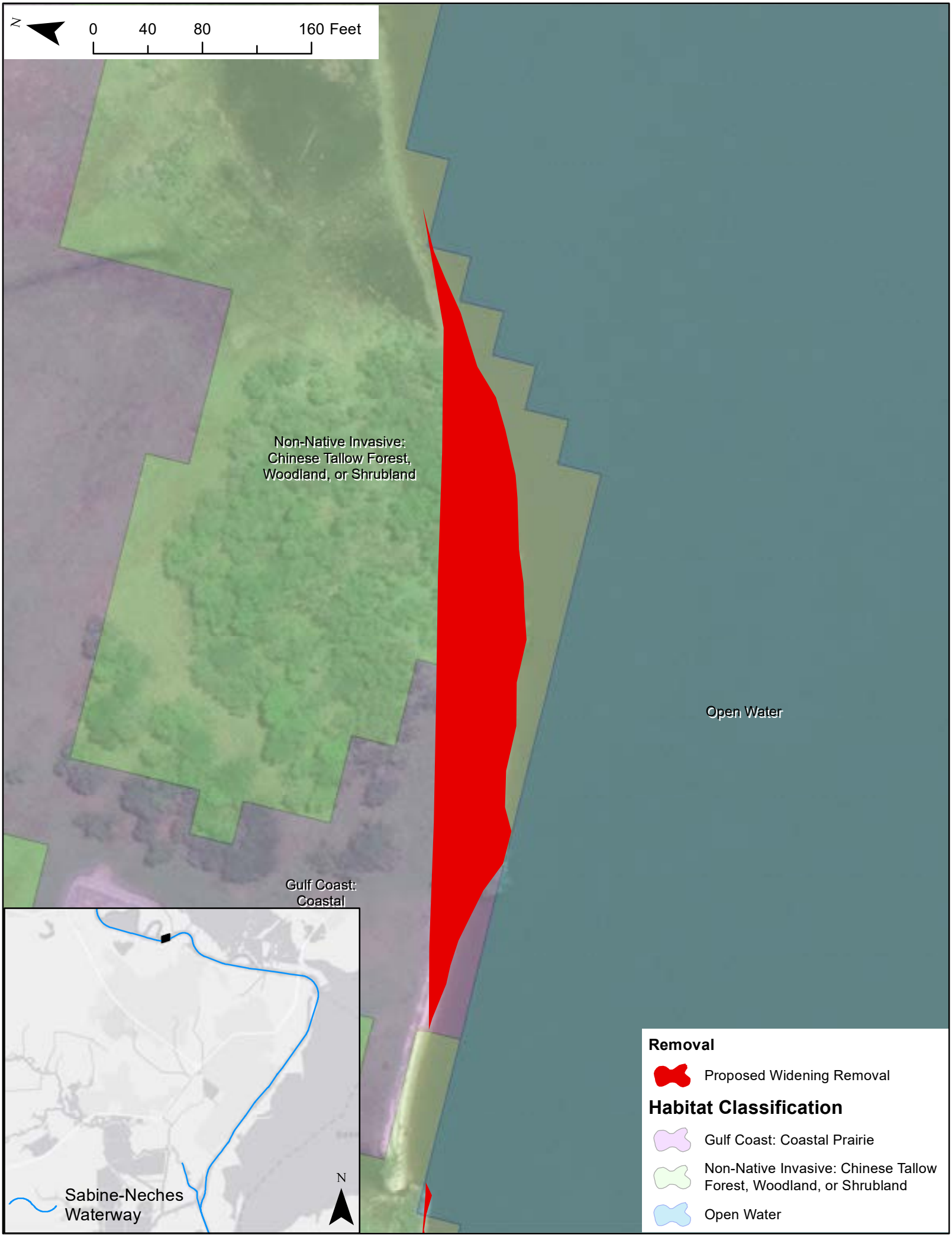
- R2UBFx
- R1UBV
- R4SBCx
- R2UBHx
- R2UBH
- R1UBVx

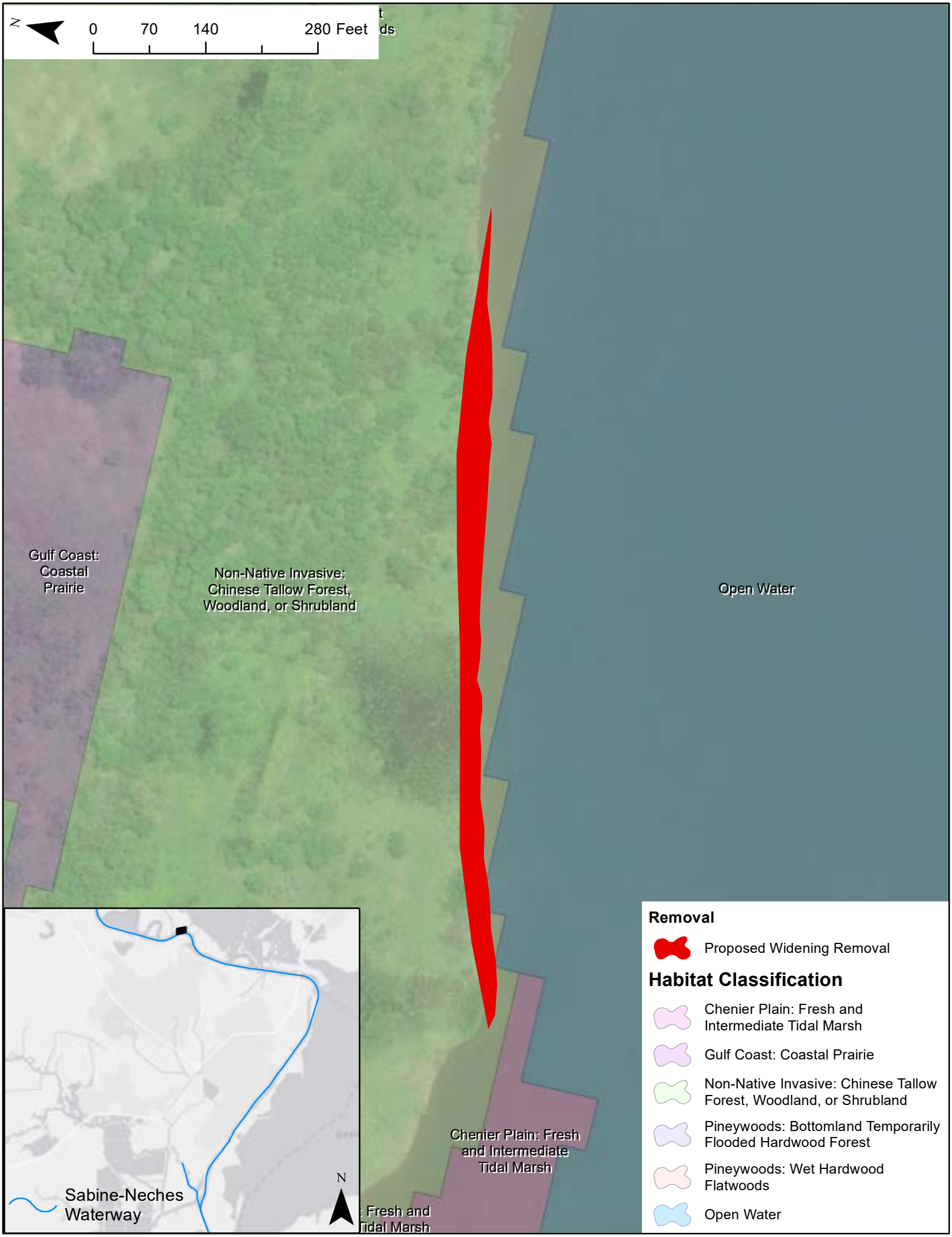
IPAC USER CONTACT INFORMATION

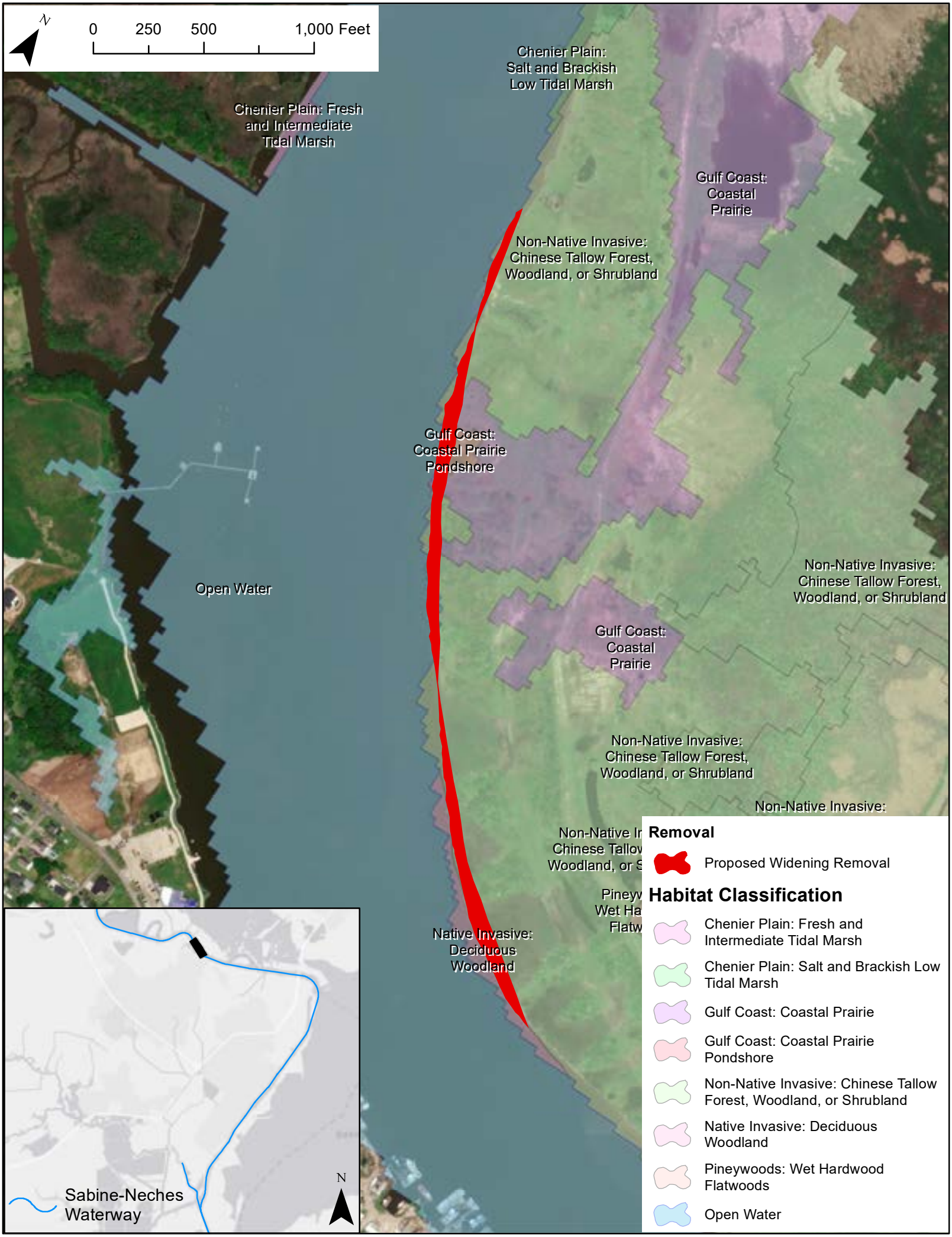
Agency: Army Corps of Engineers
Name: blake westmoreland
Address: 2000 Fort Point Road
City: Galveston
State: TX
Zip: 77550
Email blake.e.westmoreland@usace.army.mil
Phone: 4097663927

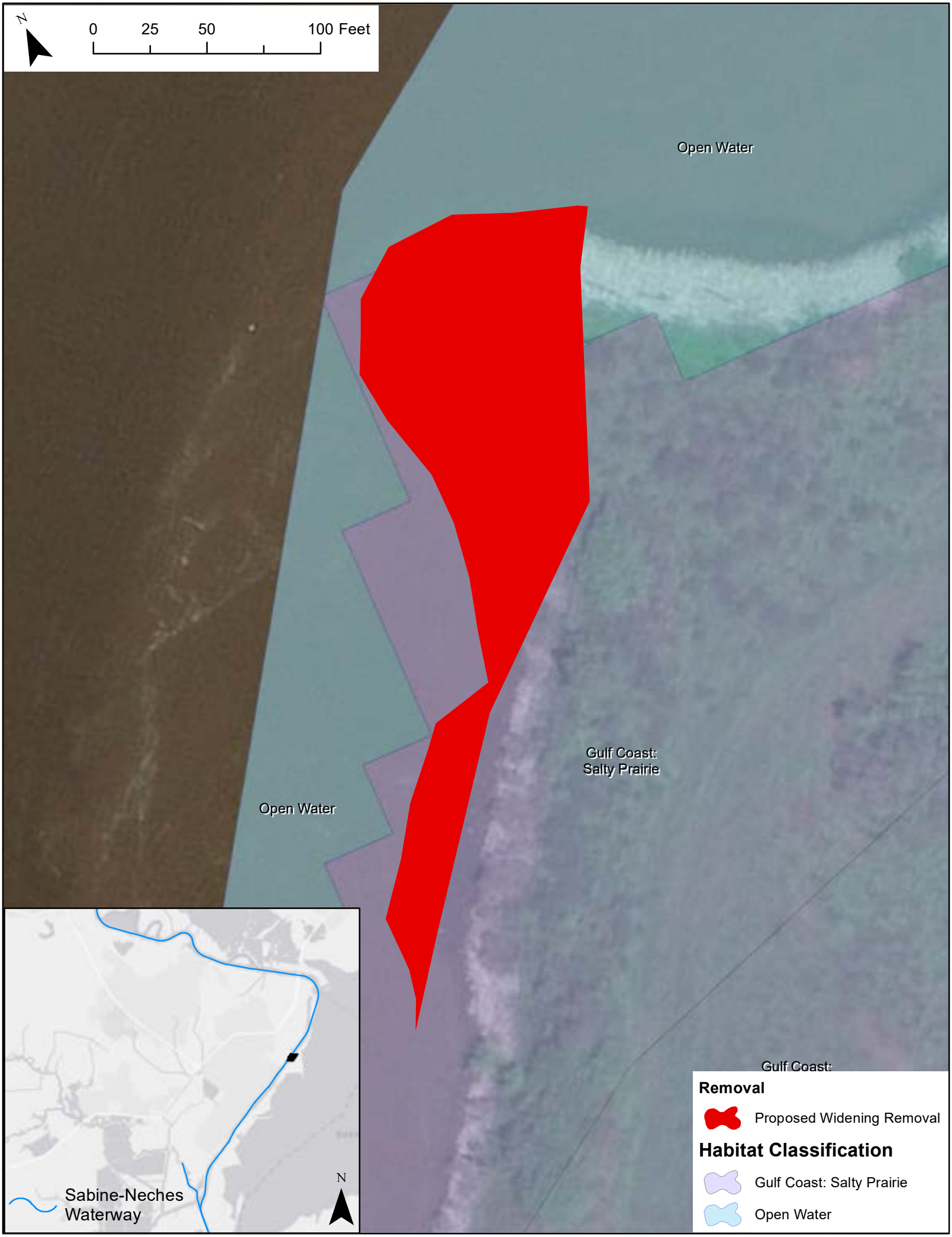
Attachment B: Proposed Widening Mapbook


N
0
55
110
220 Feet
Gulf Coast: Coastal Prairie
Prairie
Gulf Coast: Coastal Prairie
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Open Water
Sabine-Neches Waterway
N
Removal
Proposed Widening Removal
Habitat Classification
Chenier Plain: Fresh and Intermediate Tidal Marsh
Gulf Coast: Coastal Prairie
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Open Water

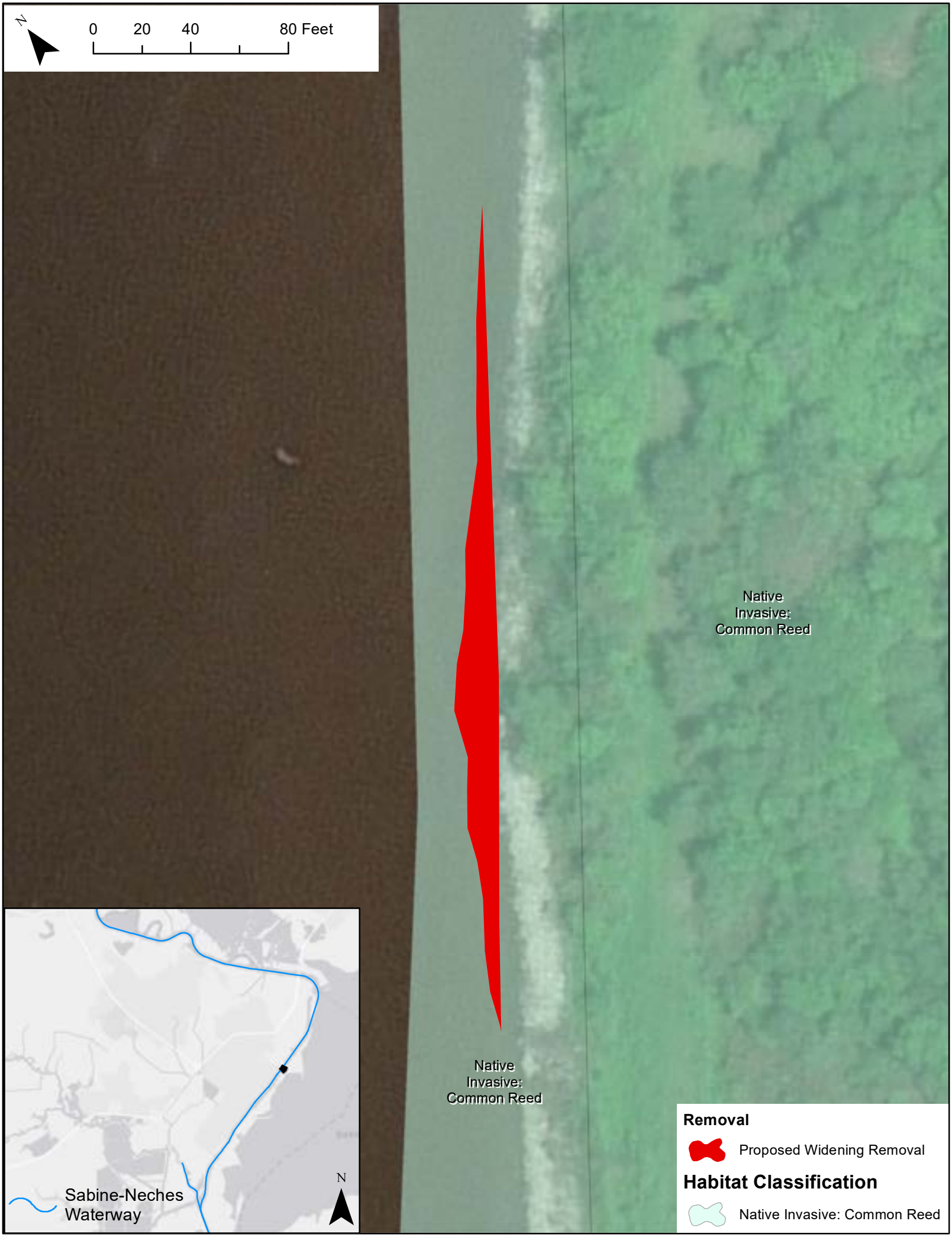

N
0
40
80
160 Feet
Non-Native Invasive:
Chinese Tallow Forest,
Woodland, or Shrubland
Open Water
Gulf Coast:
Coastal
Sabine-Neches
Waterway
N
Removal
Proposed Widening Removal
Habitat Classification
Gulf Coast: Coastal Prairie
Non-Native Invasive: Chinese Tallow
Forest, Woodland, or Shrubland
Open Water

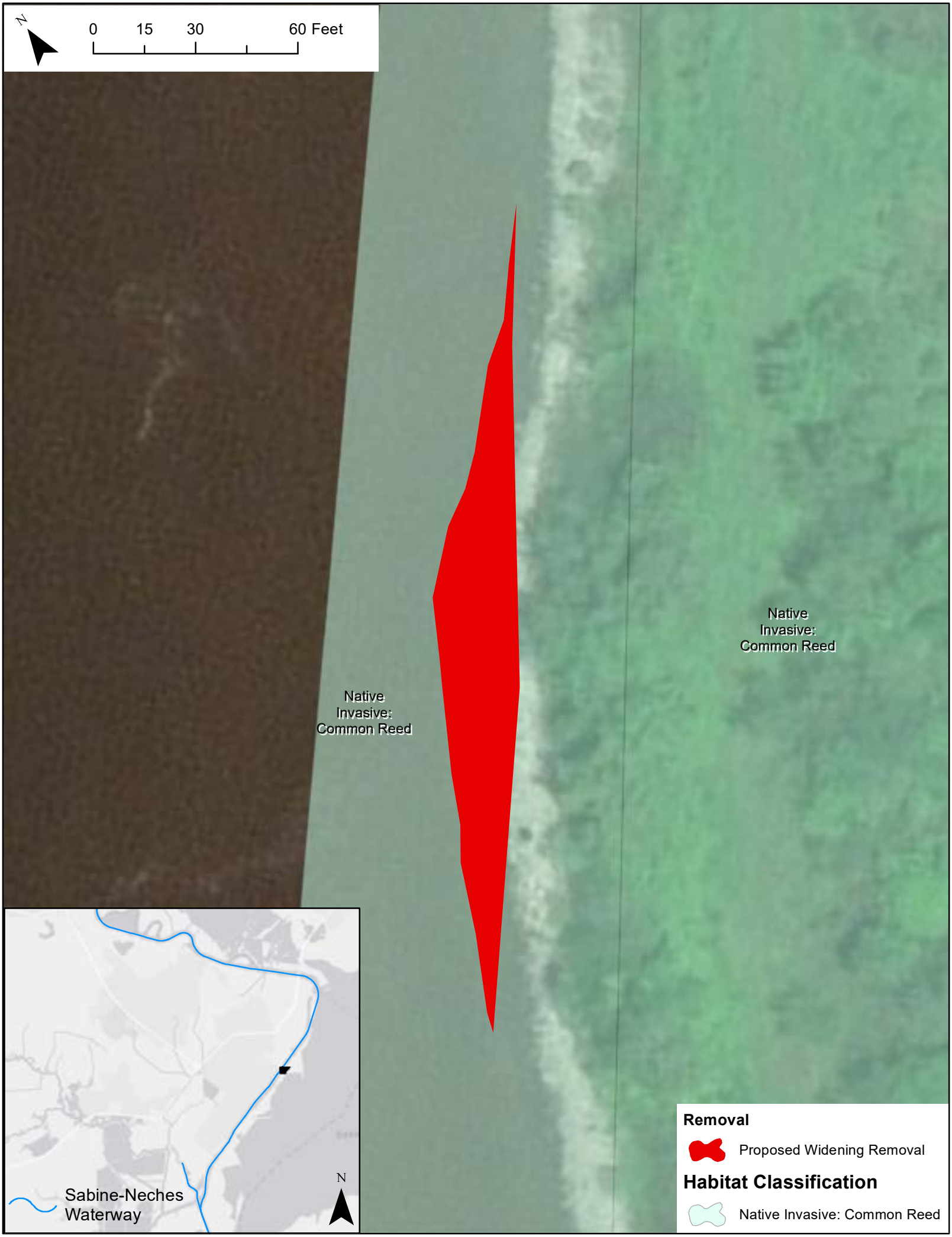

N
0
70
140
280 Feet
Gulf Coast: Coastal Prairie
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Open Water
Chenier Plain: Fresh and Intermediate Tidal Marsh
Sabine-Neches Waterway
N
Removal
Proposed Widening Removal
Habitat Classification
Chenier Plain: Fresh and Intermediate Tidal Marsh
Gulf Coast: Coastal Prairie
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Pineywoods: Bottomland Temporarily Flooded Hardwood Forest
Pineywoods: Wet Hardwood Flatwoods
Open Water

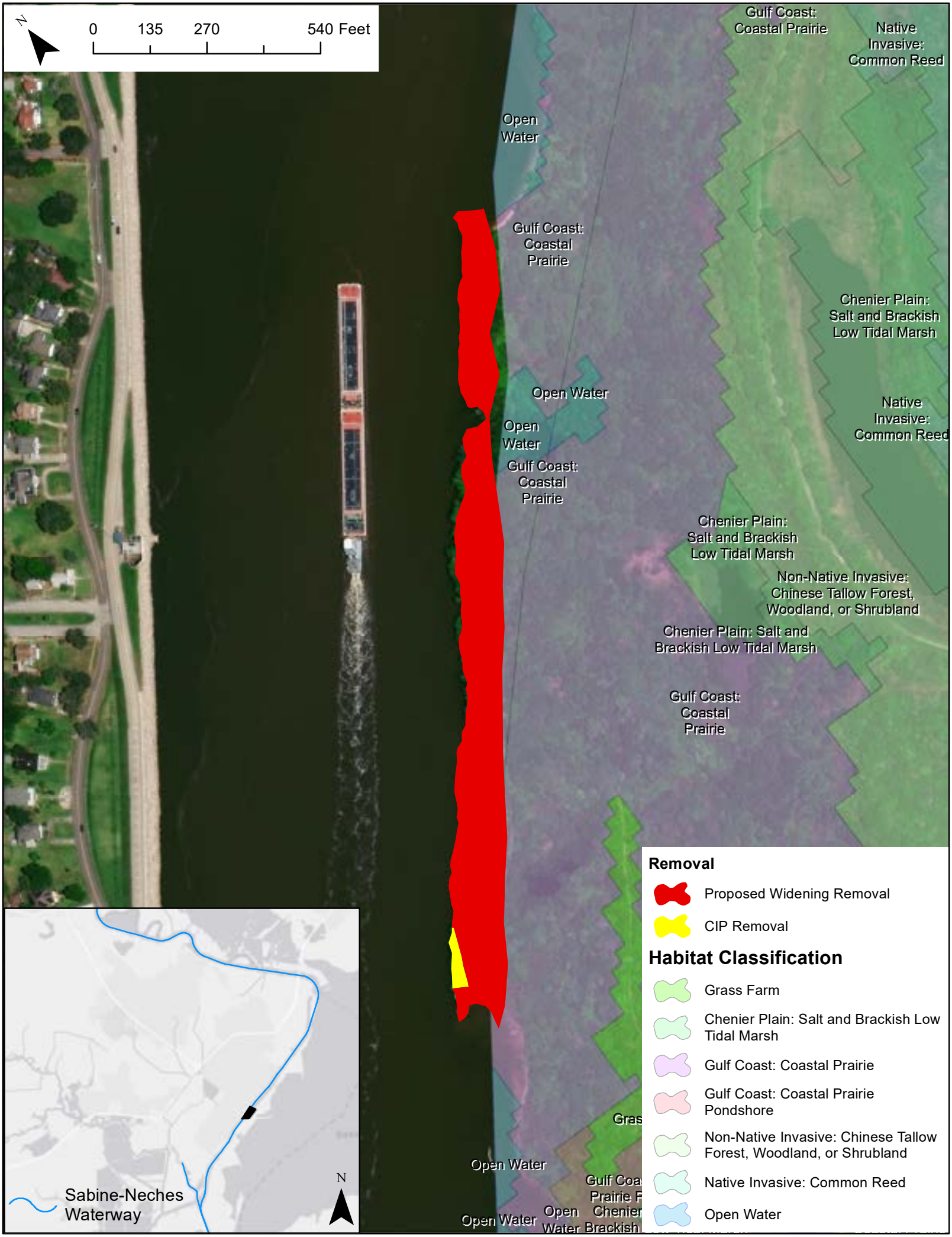

N
0
250
500
1,000 Feet
Chenier Plain: Salt and Brackish Low Tidal Marsh
Chenier Plain: Fresh and Intermediate Tidal Marsh
Gulf Coast: Coastal Prairie
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Gulf Coast: Coastal Prairie Pondshore
Open Water
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Gulf Coast: Coastal Prairie
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Non-Native Invasive:
Native Invasive: Deciduous Woodland
Sabine-Neches Waterway
N
Removal
Proposed Widening Removal
Habitat Classification
Chenier Plain: Fresh and Intermediate Tidal Marsh
Chenier Plain: Salt and Brackish Low Tidal Marsh
Gulf Coast: Coastal Prairie
Gulf Coast: Coastal Prairie Pondshore
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Native Invasive: Deciduous Woodland
Pineywoods: Wet Hardwood Flatwoods
Open Water


N
0
25
50
100 Feet
Open Water
Gulf Coast:
Salty Prairie
Open Water
Gulf Coast:
Sabine-Neches
Waterway
N
Removal
Proposed Widening Removal
Habitat Classification
Gulf Coast: Salty Prairie
Open Water

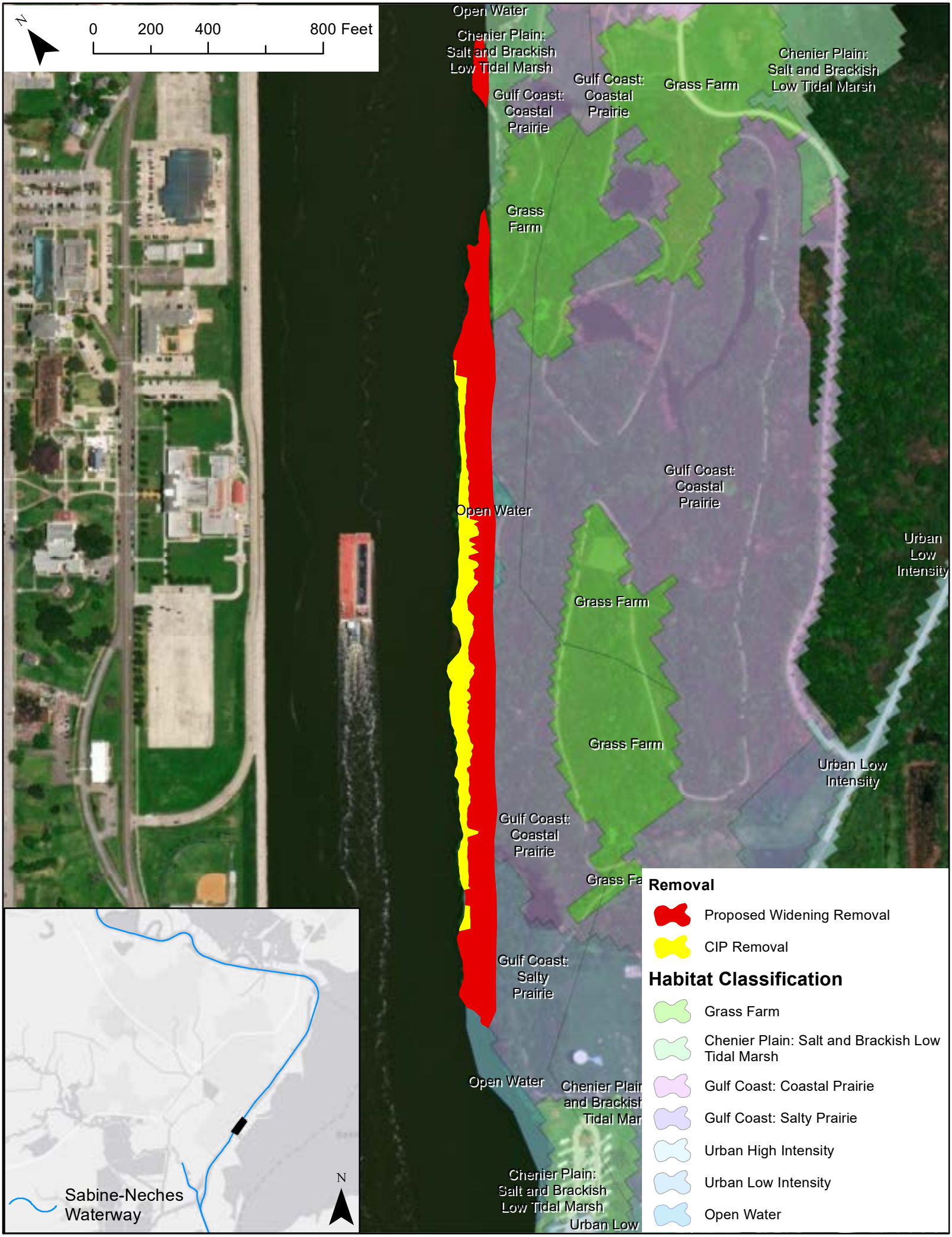

N
0
20
40
80 Feet
Open Water
Gulf Coast:
Salty Prairie
Gulf Coast:
Salty Prairie
Native
Invasive:
Common Reed
Sabine-Neches
Waterway
N
Removal
Proposed Widening Removal
Habitat Classification
Gulf Coast: Salty Prairie
Native Invasive: Common Reed
Open Water


N
0 20 40 80 Feet
Native
Invasive:
Common Reed
Native
Invasive:
Common Reed
Sabine-Neches
Waterway
N
Removal
Proposed Widening Removal
Habitat Classification
Native Invasive: Common Reed


N
0 15 30 60 Feet
Native
Invasive:
Common Reed
Native
Invasive:
Common Reed
Sabine-Neches
Waterway
N
Removal
Proposed Widening Removal
Habitat Classification
Native Invasive: Common Reed


N
0
135
270
540 Feet
Gulf Coast: Coastal Prairie
Native Invasive: Common Reed
Open Water
Gulf Coast: Coastal Prairie
Chenier Plain: Salt and Brackish Low Tidal Marsh
Open Water
Native Invasive: Common Reed
Open Water
Gulf Coast: Coastal Prairie
Chenier Plain: Salt and Brackish Low Tidal Marsh
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Chenier Plain: Salt and Brackish Low Tidal Marsh
Gulf Coast: Coastal Prairie
Open Water
Open Water
Open Water
Open Water
Sabine-Neches Waterway
N
Removal
Proposed Widening Removal
CIP Removal
Habitat Classification
Grass Farm
Chenier Plain: Salt and Brackish Low Tidal Marsh
Gulf Coast: Coastal Prairie
Gulf Coast: Coastal Prairie Pondshore
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Native Invasive: Common Reed
Open Water


N
0 15 30 60 Feet
Chenier Plain:
Salt and Brackish
Low Tidal Marsh
Gulf Coast:
Coastal
Prairie
Removal
Proposed Widening Removal
Habitat Classification
Grass Farm
Chenier Plain: Salt and Brackish Low Tidal Marsh
Gulf Coast: Coastal Prairie
Sabine-Neches
Waterway
N


N
0
200
400
800 Feet
Open Water
Chenier Plain: Salt and Brackish Low Tidal Marsh
Gulf Coast: Coastal Prairie
Grass Farm
Chenier Plain: Salt and Brackish Low Tidal Marsh
Gulf Coast: Coastal Prairie
Grass Farm
Gulf Coast: Coastal Prairie
Open Water
Urban Low Intensity
Grass Farm
Grass Farm
Urban Low Intensity
Gulf Coast: Coastal Prairie
Grass Fa
Gulf Coast: Salty Prairie
Open Water
Chenier Plain and Brackish Tidal Mar
Chenier Plain: Salt and Brackish Low Tidal Marsh
Urban Low
Removal
Proposed Widening Removal
CIP Removal
Habitat Classification
Grass Farm
Chenier Plain: Salt and Brackish Low Tidal Marsh
Gulf Coast: Coastal Prairie
Gulf Coast: Salty Prairie
Urban High Intensity
Urban Low Intensity
Open Water
Sabine-Neches Waterway
N

Attachment C: Assessment-Vegetation Habitat Affected by Sabine-Neches Federal Channel Widening Measures (2021)

An Assessment of The Vegetation Habitat That May Be Affected by The Sabine-Neches Federal Channel Widening Measures

Prepared by

Robert L. Wiley, AFS, BS, MLA, SPWS

August 18, 2021

1 Overview

The Sabine Neches Navigation District's (SNND) has initiated a feasibility study of improvements to the federal channel at the Sabine Neches Waterway, Texas and Louisiana, under the authority of Section 203 of the Water Resources Development Act, 1986 (WRDA), as amended by Section 161 of WRDA 2020. For the feasibility study, the SNND will propose modifications to the federal channel at the SNWW to improve navigation by reducing congestion, increasing vessel traffic flow, and providing net positive local, state, and national economic benefit, while protecting and enhancing our nation's environment. Widening alternatives are being examined that would result in the physical alteration and re-stabilization of some portions of the left descending bank (eastern) adjacent to the federal navigation channel.

Designs for channel widening and engineering assumptions regarding the expected channel slopes after widening are not completed. As such, the area of potential effect from implementing channel widening (i.e., the extent to which widening could change adjacent shorelines or require conversion of adjacent dry land to wet areas) has not been clearly defined at this point in the study. To characterize the area that could be affected by the widening alternatives, vegetation habitat surveys were conducted landward of the existing shoreline in locations being evaluated for channel widening. Depending on the extent of the widening alternatives selected, existing terrestrial vegetation habitat would become either submerged or would be graded to tapering slopes connecting to existing uplands.

A field assessment and characterization of the existing vegetation was conducted June 5 through June 8, 2021 to establish the existing terrestrial vegetation habitat that could be affected by the different widening alternatives being evaluated.

As shown in Figures 1 and 2, the widening alternatives being evaluated in the feasibility study could result in changes to adjacent shorelines along the northern portion of Pleasure Island and along the shoreline of the left descending bank of the Neches River. The extent of the potential influence on adjacent habitat would be a function of the existing river bottom bathymetry, the proximity of dry land, and the assumed geometry of the post-construction slopes. All of these shoreline areas have been highly modified by more than a century of historical use as dredge material placement areas adjacent to the maintained deep draft navigation channel.

2 Channel Widening Assumptions and Potential Area of Effects

If channel widening measures are implemented resulting in channel widening of 100 feet from the current channel toe and side slopes of the widened channel are at a 3:1 slope, then there could be up to 32 areas where change to habitat could occur. Based on these assumptions, a spatial offset was developed in GIS to identify where the widening measure would be expected to “daylight” (i.e., where the slope of the modified channel would intersect the existing ground surface, even if that surface was under water). In

addition to the "daylight" line, and additional buffer of 100 feet was added in a landward direction to identify a potential additional area of disturbance for land-side activities during construction. The detailed methods of channel widening construction have not been established, so this approach conservatively identified an area of potential effects within which there was a need to characterize the existing vegetation and habitat.

These areas are listed in Table 1 including a localized naming convention (Land Mass Name), the areal extent of the area that could be disturbed (Area), and the linear length of potentially affected shoreline parallel to the proposed channel widening. "Area" in acres has been derived using a geographic information system (ArcGIS) spatial geometry tool on buffers created with a buffer tool starting from the designed channel widening measure edge depth. "Length" is the approximate shoreline distance in feet along which disturbance could be predicted under the analytical assumptions.

Sites in Table 1 are ordered from downstream to upstream. Given the existing ground surface elevation and bathymetry of the adjacent waterbody, areas designated as "wet" are assumed to be fully inundated because of the proposed channel widening and subsequent slope equilibration. Areas designated "dry" are assumed to remain uplands after adjacent channel widening and slope equilibration. Importantly, areas designated as "dry" are assumed to only be disturbed if land-side construction was necessary to implement channel widening measures. Within the elevation transition from inundated to dry, the lower one to three feet of elevation within the transition to the "dry" zone would likely be saturated due to tidal fluctuation (approximately 1 foot), wind-driven changes to the water surface elevation, and capillary rise in medium textured soils. Because of these wetting factors, areas would be routinely saturated and would be expected to revegetate to marsh vegetation fringe along the transition.

TABLE 1 Areas Potentially Disturbed by the Sabine-Neches Channel Improvement Project

SITE	ZONE	LAND MASS NAME	AREA (acres)	LENGTH (ft)
1	Wet	GC South	7.458	2,851
2	Wet	GC South	0.226	223
3	Dry	GC South	7.925	3,597
4	Wet	GC North	0.094	165
5	Dry	GC North	5.516	2,546
6	Wet	GC North	0.022	116
7	Wet	GC North	4.212	2,065
8	Dry	GC North	0.464	297
9	Wet	PA-11 South	0.055	200
10	Wet	PA-11 South	0.046	297
11	Dry	PA-11 South	5.470	3,087
12	Wet	PA-11 South	0.004	110
13	Wet	PA-11 South	0.022	100
14	Wet	PA-11 North	0.048	263
15	Wet	PA-11 North	0.356	356

TABLE 1 Areas Potentially Disturbed by the Sabine-Neches Channel Improvement Project

SITE	ZONE	LAND MASS NAME	AREA (acres)	LENGTH (ft)
16	Dry	PA-11 North	2.085	1,016
17	Wet	PA-11 North	0.002	32
18	Dry	Upper FINA	1.237	800
19	Dry	PA-18 Downstream	0.284	445
20	Dry	PA-18 Downstream	0.064	204
21	Wet	PA-18 Upstream	3.926	3,835
22	Dry	PA-18 Upstream	11.426	5,332
23	Wet	Bessie Heights Canal Downstream	0.039	170
24	Dry	Bessie Heights Canal Downstream	3.000	1,946
25	Wet	Bessie Heights Canal Upstream	0.023	241
26	Wet	Bessie Heights Canal Upstream	0.679	1,036
27	Dry	Bessie Heights Canal Upstream	3.414	1,626
28	Wet	PA-21	0.005	60
29	Wet	PA-21	0.581	635
30	Dry	PA-21	4.337	2,087
31	Wet	PA-21	1.084	820
32	Dry	Sun Upper-Lower Island	0.812	1,017
		TOTALS	**64.9**	**37,575**

The land mass name is a local site designation based on an island name or proximate geographic feature. Assuming a 100 foot channel widening in the areas to be widened and a 3:1 slope of the subsurface waterbody bottom, there would be approximately 64.9 acres within the total disturbance footprint. Of the 64.9 acres, there would be approximately 20.5 acres that are currently dry land that would become inundated and 44.4 acres that would remain uplands that could be temporarily disturbed during land-side construction actions or a small fringe that would transition from upland to marsh vegetation because of proximity to the new water line. The total length of potentially all affected shoreline areas would be approximately 37,575 feet. The approximate length of shoreline disturbance along the total length of the altered channel would be approximately 14,592 feet (2.76 miles). The total length of the upland areas that could be disturbed if land-based actions occurred would be approximately 22,983 feet (4.35 miles).

Nineteen of these areas could become permanent shallow water and thirteen would be graded to shallow slopes connecting to the adjacent remaining undisturbed mass. If such transitions were to occur, the upland areas would return rapidly to vegetated conditions due to the ubiquity of plant propagules and the humid subtropical climate. The recovery of vegetation through natural successional processes may be assumed as a virtual certainty. The present vegetation composition of these made-land islands has occurred and reoccurred without external assistance over the time period from original placement, through frequent re-disturbance for continued dredge material disposal or other land uses and subsequent abandonment.

The actual distance of site disturbance perpendicular to the shoreline would vary with the elevation and topographic form of the existing made-land. Higher elevations would result in a longer final slopes, assuming that the slope from the bottom of the channel widening is constant. Based on historic USGS topographic maps the elevation range is approximately 1 foot below sea level (as low marsh), to greater than 20 feet at the highest points along the potentially disturbed areas on Pleasure Island. As result of this topographic variation, the site assessment and sampling were conducted farther inland in some elevated locations than depicted by a uniform buffer line from the near edge of the proposed channel improvement depth.


FIGURE 1
Pleasure Island
Assessment Sites
PA-11 North
PA-11 South
PA-11 South
PORT ARTHUR
GC North
GC North
GC South
GC South
Legend
Zones
Dry
Wet
Channel Toe
Port Arthur
Yacht Club
3,600 1,800 0 3,600 Feet
N
W
E
S
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

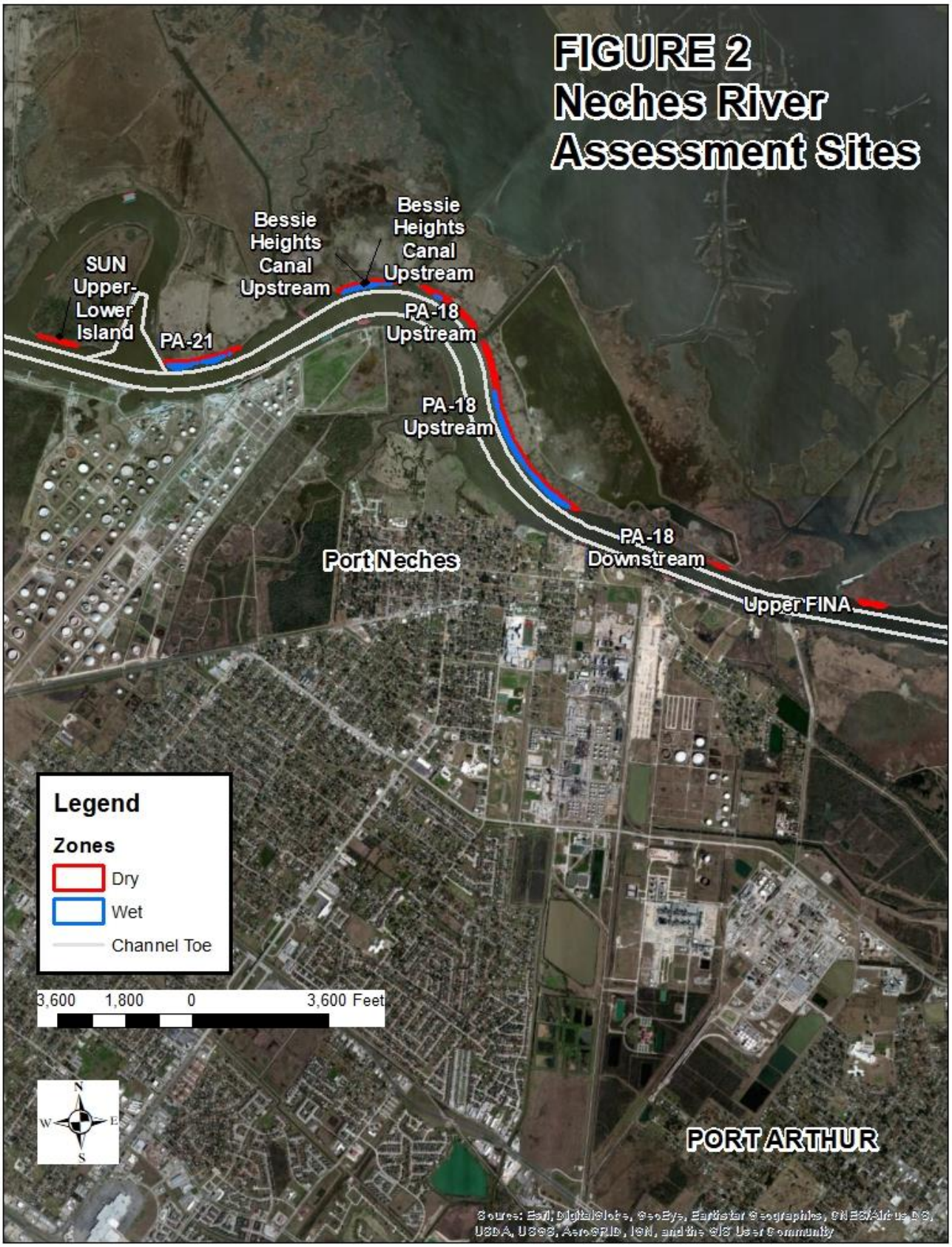


FIGURE 2
Neches River
Assessment Sites
Bessie
Heights
Canal
Upstream
Bessie
Heights
Canal
Upstream
SUN
Upper-
Lower
Island
PA-21
PA-18
Upstream
PA-18
Upstream
PA-18
Downstream
Port Neches
Upper FINA
Legend
Zones
Dry
Wet
Channel Toe
3,600 1,800 0 3,600 Feet
N
W
E
S
PORT ARTHUR
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

3 Field Assessment and Sampling

The potentially affected sites were accessed on foot and from air boats on June 5 through June 8, 2021. There were 30 sample locations for which plant species composition and relative magnitude of occupation were observed. Sample locations were initially pre-selected from aerial imagery. Maps created from aerial imagery were printed and carried in the field as guides. Other sample locations were chosen along the travel route between samples, as appropriate. Final sample locations were collected as points using a Trimble GeoXH hand-held data collector and post processed to an average position accuracy of less than three feet. The assessment travel route began at the southern end of the GC South sites, at the terminus of Rodeo Lane near the golf-ball water tower. Samples were numbered sequentially from 1 to 17 until reaching the northern end of Pleasure Island at PA-11 north, as shown on Figure 1. Sampling along the Neches River began at Upper FINA and proceeded upstream to SUN Upper-Lower Island and included samples 18 through 30, as shown on Figure 2.

Sample locations were estimated 30 foot diameter circular plots wherein all observed species were listed and assigned a value corresponding to their estimated proportion of the presence of each. Each species was rated with a number from 1 to 100 to approximate its presence or dominance within a sample plot. For example, a single species occurrence or a small cluster in a stand dominated by other species was assigned a value of "1". A stand comprised of a single species would have that species assigned a value of "100" at that sample. Sample sites were inspected for 15 to 30 minutes to observe and record the data, depending on the diversity and vegetation density. Additional species not observed in sample plots, but along travel routes between samples, were also recorded to develop a master list.

Each species was assigned an "importance value" (IV) to express its overall presence within the sampled area. The IV for each species is a summary of dominance values assigned for all plots and the percentage of the total number of plots in which the species occurred; converting the decimal percentage to whole number (% x 100).

A total of 92 species representing 39 plant families were observed and recorded as presented in Table 2. Species are rated by nativity, their presence on lists of noxious weeds, invasive propagation, and whether they are a species introduced for various human purposes. Classifications by nativity and as noxious, invasive and introduced status is based on the USDA PLANTS database (https://plants.usda.gov/home).

The Table 2 list was compared to federal and state lists of rare, threatened or endangered plant species. No such listed species were observed. The full sampling summary data for all sample sites is attached as a master list appendix.

TABLE 2 Vascular Plant Species Observed in Areas Potentially Disturbed by the Sabine-Neches Federal Channel Improvement Project in Early June, 2021

Species	Common Name	FAMILY	Nativity	Noxious	Invasive	Introduced
Acer negundo	Boxelder	Aceraceae	Native	No	No	No
Albizia julibrissin	Silk tree	Fabaceae	Alien	Yes	Yes	Yes
Alternanthera philoxeroides	Alligator weed	Amaranthaceae	Alien	yes	Yes	Yes
Ambrosia artemisiifolia	Common ragweed	Asteraceae	Native	No	Yes	No
Ambrosia trifida	Giant ragweed	Asteraceae	Native	No	Yes	No

TABLE 2 Vascular Plant Species Observed in Areas Potentially Disturbed by the Sabine-Neches Federal Channel Improvement Project in Early June, 2021						
Species	**Common Name**	**FAMILY**	**Nativity**	**Noxious**	**Invasive**	**Introduced**
Anagallis arvensis	Pimpernel	Primulaceae	Alien	No	No	Yes
Andropogon glomeratus	Bushy bluestem	Poaceae	Native	No	No	No
Apios americana	Climbing wild bean	Fabaceae	Native	No	No	No
Avicennia germinans	Black mangraove	Verbanaceae	Native	No	No	No
Baccharis halimifolia	Groundsel tree	Asteraceae	Native	No	No	No
Bromus inermis	Smooth bromegrass	Poaceae	Alien	No	Yes	Yes
Broussonetia papyrifera	Paper mulberry	Moraceae	Alien	No	Yes	No
Calyptocarpus vialis	Straggler daisy	Asteraceae	Alien	No	No	Yes
Carex scoparia	Broom sedge	Cyperaceae	Native	No	No	No
Celtis laevigata	Sugarberry	Cannabaceae	Native	No	Yes	No
Convolvulus equitans	Texas bindweed	Convolvulaceae	Native	No	No	No
Cornus drummondii	Rough-leaf dogwood	Cornaceae	Native	No	No	No
Crataegus crus-galli	Cockspur hawthorn	Rosaceae	Native	No	Yes	No
Croton alabamensis	Croton	Euphorbiaceae	Native	No	No	No
Cynanchum angustifolium	Gulf coast swallow-wort	Apocyanaceae	Native	No	No	No
Cyperus entrerianus	Deep-rooted sedge	Cyperaceae	Alien	Yes	Yes	No
Desmanthus illinoensis	Illinois bundleflower	Fabaceae	Native	No	No	No
Eleocharis acicularis	Least spikerush	Cyperaceae	Native	No	No	No
Eleusine indica	Indian goosegrass	Poaceae	Alien	No	No	No
Elymus canadensis	Canada wildye	Poaceae	Native	No	No	No
Elymus canadensis	Canada wildrye	Poaceae	Native	No	No	No
Eremochloa ophiuroides	Centipedegrass	Poaceae	Alien	No	Yes	Yes
Eupatorium capillifolium	Dog fennel	Asteraceae	Native	No	No	No
Fraxinus caroliniana	Carolina ash	Oleaceae	Native	No	No	No
Gaillardia pulchella	Indian blanket	Asteraceae	Native	No	No	No
Hydrocotyle bonariensis	Large-leaf pennywort	Araliaceae	Native	No	No	No
Ilex vomitoria	Youpon holly	Aquifoliaceae	Native	No	No	No
Ipomoea purpurea	Tall morning glory	Convolvulaceae	Alien	No	No	Yes
Iva frutescens	Marsh elder	Asteraceae	Native	No	No	No
Juncus effusus	Soft rush	Cyperaceae	Native	No	No	No
Juncus roemerianus	Black needle rush	Cyperaceae	Native	No	No	No
Krigia caespitosa	Dwarf dandelion	Asteraceae	Native	No	No	No
Lactuca canadensis	Wild lettuce	Asteraceae	Native	No	No	No
Lantana camara	Lantana	Verbanaceae	Alien	Yes	Yes	Yes
Lepidium densiflorum	Common peppergrass	Brassicaceae	Alien	No	No	No
Ligustrum lucidum	Tree privet	Oleaceae	Alien	No	Yes	Yes
Ligustrum sinense	Chinese privet	Oleaceae	Alien	No	Yes	Yes
Lonicera japonica	Japanese honeysuckle	Caprifoliaceae	Alien	Yes	Yes	No
Ludwigia palustris	Marsh seedbox	Onagraceae	Alien	No	Yes	Yes
Malvastrum coromandelianum	Threelobe false mallow	Malvaceae	Alien	No	No	No
Mimosa strigillosa	Sunshine mimosa	Fabaceae	Native	No	No	Yes

TABLE 2 Vascular Plant Species Observed in Areas Potentially Disturbed by the Sabine-Neches Federal Channel Improvement Project in Early June, 2021						
Species	**Common Name**	**FAMILY**	**Nativity**	**Noxious**	**Invasive**	**Introduced**
Morella cerifera	Wax myrtle	Myricaceae	Native	No	No	No
Muhlenbergia capillaris	Hairawn muhly	Poaceae	Native	No	No	No
Nekemias arborea	Peppervine	Vitaceae	Native	No	Yes	No
Neptunia pubescens	Tropical puff	Fabaceae	Native	No	No	No
Oenothera speciosa	Evening primrose	Onagraceae	Native	No	No	Yes
Oxalis stricta	Yellow wood sorrel	Oxalidaceae	Native	No	Yes	No
Parkinsonia texana	Texas paloverde	Fabaceae	Planted	No	No	Yes
Paspalum monostachyum	Gulf paspallum	Poaceae	Native	No	No	No
Paspalum notatum var. notatum	Bahiagrass	Poaceae	Native	No	No	No
Passiflora foetida	Fetid passionflower	Passifloraceae	Native	No	Yes	No
Phragmites sp.	Common reedgrass	Poaceae	Alien	Yes	Yes	Yes
Phyla nodiflora	Frog fruit	Verbanaceae	Native	No	Yes	No
Quercu alba	White oak	Fagaceae	Native	No	No	No
Quercus nigra	Water oak	Fagaceae	Native	No	No	No
Querdus alba	White oak	Fagaceae	Native	No	No	No
Quescus virginiana	Live oak	Fagaceae	Native	No	No	No
Rhynchosia minima	Least snout bean	Fabaceae	Native	No	No	No
Rhynchospors corniculata	Bristly sedge	Cyperaceae	Native	No	No	No
Rubus argutus	Sawtooth blackberry	Rosaceae	Native	No	No	No
Rubus trivialis	Southern dewberry	Rosaceae	Native	No	Yes	No
Rumex maritimus	Golden dock	Polygonaceae	Native	No	No	No
Sabal palmetto	Cabbage palmetto	Palmae	Planted	No	No	No
Sagittaria lancifolia	Bulltounge arrowhead	Alistimataceae	Native	No	No	No
Salix nigra	Black willow	Saliaceae	Native	No	No	No
Schoenoplectus acutus	Hardstem bulrush	Cyperaceae	Native	No	No	No
Schoenoplectus americanus	Chairmakers rush	Cyperaceae	Native	No	No	No
Sesbania punicea	Rattlebox	Fabaceae	Native	No	No	No
Setaria pumila	Yellow bristlegrass	Poaceae	Native	No	No	No
Sisyrinchium angustifolium	Blue-eyed grass	Iridaceae	Native	No	No	No
Smilax bona-nox	Saw greenbrier	Liliaceae	Native	No	No	No
Solidago rugosa	Wrinkleleaf goldenrod	Poaceae	Native	No	Yes	No
Sorghastrum nutans	Indiangrass	Poaceae	Native	No	No	No
Spartina patens	Salt hay	Poaceae	Native	No	No	No
Tamarix gallica	French tamarix	Tamaricaceae	Alien	Yes	Yes	No
Taxodium distichum	Bald cypress	Cupressaceae	Native	No	No	No
Teucrium chamaedrys	Germander	Lamiaceae	Alien	No	Yes	No
Tortilis arvensis	Spreading hedge parsley	Apiaceae	Alien	No	Yes	No
Toxicodendron rydbergii	Western poison ivy	Anacardiaceae	Native	No	No	No
Tradescantia ohiensis	Bluejacket	Commelianaceae	Native	No	No	No
Triadica sebifera	Tallow tree	Euphorbiaceae	Alien	yes	Yes	No
Typha domingensis	Southern cattail	Typhaceae	Native	No	No	No

TABLE 2 Vascular Plant Species Observed in Areas Potentially Disturbed by the Sabine-Neches Federal Channel Improvement Project in Early June, 2021						
Species	**Common Name**	**FAMILY**	**Nativity**	**Noxious**	**Invasive**	**Introduced**
Ulmus parvifolia	Chinese elm	Ulmaceae	Alien	No	No	No
Vachellia farnesiana	Sweet acacia	Fabaceae	Native	No	No	No
Verbena halei	Texas vervain	Verbanaceae	Native	No	No	No
Vitis mustangensis	Mustang grape	Vitaceae	Native	No	No	No
Zanthoxylum clava-herculis	Toothache tree	Rutaceae	Native	No	No	No

Nativity is ranked as either "native" or "alien". Native species are those presumed by historical records and early botanical manuals to have evolved in and occupied a region since ancient times. Alien species have "invaded" and occupied the land, either intentionally or inadvertently, through the actions of humanity.

Noxious species, generally rated as such by public health and agricultural organizations, are those that aggressively invade natural biotic communities and crop lands because they are considered to be injurious to people and livestock, are disease vectors, are parasites or otherwise negatively impact desired crops and ecosystems. Both the federal government and state governments promulgate lists of such species and also provide some programmatic funding for their control and eradication. Noxious species are often also considered as "invasive".

Invasive species are those not listed as noxious that are often also alien to a region and can quickly occupy an area (particularly a disturbed area) to the detriment of native species and natural communities. Native species can be considered as invasive if they form monocultures and out compete desired species compositions. Early successional species occupying recently disturbed land such as plowed fields and fill material disposal areas due to their reproductive methods and their ability to endure harsh conditions for growth, may also be considered temporarily as invasives. Native invasives can occupy and area to the exclusion of other more desired species for either brief or long periods. Natives species occurring in near monocultural occupations such as goldenrod and ragweed for short periods, and common reed for long periods are ranked in this description as invasives. Early successional plant species often yield in time to native species, which because of their ancient occupation of a region, have evolved to better endure the extremes of the local environment and to take best advantage native propagators and propagation opportunities predominant in the area. A greater presence of early successional and invasive species suggests a shorter time period since the most recent perturbation.

Introduced species are those non-native species that have been intentionally established and planted for their presumed human benefit. They often escape cultivation and may become noxious or invasive, such as Kudzu, Chinese privet, wisteria, and many others. The presence of centipede grass on Pleasure Island from golf course plantings is an example of a resilient introduced species. Introduced plant species often are less valuable for support of native animal populations.

The relative dominance of plants within the assessment area listed within each of these ranking categories provides a method of valuation for the plant communities that will be disturbed by the navigation improvement project. The categories of "alien", "noxious" and "invasive" cast a negative or undesired

connotation to the structure and composition of the present plant community. Introduced species need not be replaced or accounted as a loss of valuable habitat. Table 3 is a summary of the relative importance as a percentage of the present composition of each ranking category within all of the sample sites.

All sample data are included as an attached pdf document.

Table 3 Weighted Species Categories for Sampled Stands

Category	Species Count	Relative Importance Value for All Samples	Average Percent of Dominance in All Samples
Alien Species	23	1068	22%
Native Species	67	3845	78%
Noxious Species	8	693	14%
Invasive Species	26	2352	48%
Introduced species	15	528	11%

Ranking the species by importance value (Table 4) reveals that only 9 species comprise more than 50 percent of the plant community at all sites. Three of these are alien species. Two species are considered noxious. Six of these are invasive species, in terms of their ability to rapidly occupy newly disturbed ground. The single most dominant herbaceous species on well-drained sites is wrinkleleaf goldenrod. The invasive alien Tallow tree is the most common woody species on dry sites; closely followed by the native sugarberry. On wet to moist sites common reed and deep-rooted sedge, are the most common. Both of these are invasive aliens. Common reed is listed as noxious.

Table 4 Dominant Species in all Sample Plots

Species	Common Name	Nativity	Noxious	Invasive	Introduced	% Tot IV	Running
Solidago rugosa	Wrinkleleaf goldenrod	Native	No	Yes	No	14%	14%
Triadica sebifera	Tallow tree	Alien	yes	Yes	No	8%	22%
Celtis laevigata	Sugarberry	Native	No	No	No	6%	29%
Baccharis halimifolia	Groundsel tree	Native	No	No	No	5%	34%
Nekemias arborea	Peppervine	Native	No	Yes	No	5%	39%
Ambrosia trifida	Giant ragweed	Native	No	Yes	No	4%	43%
Phragmites sp.	Common reedgrass	Alien	Yes	Yes	Yes	3%	46%
Verbena halei	Texas vervain	Native	No	No	No	3%	49%
Cyperus entrerianus	Deep-rooted sedge	Alien	No	Yes	No	3%	51%

4 Site Descriptions

4.1 Pleasure Island Sites

The Pleasure Island shoreline along the federal navigation channel is the area that could have the most extensive alterations (GC 1, GC 2, and PA-11 in Table 1). However, all of Pleasure Island is made land created by the placement of dredged material from constructing and maintaining the Sabine-Neches Waterway. This pattern of material placement, begun in the 1840's, has continued to the present day. The creation and maintenance of confinement levees to receive this dredged material had material placement areas presently extending nearly a mile into Sabine Lake.

The central portion of Pleasure Island includes municipal greenspace/parks, recreational vehicle parks, a yacht club/marina, permanent residences, and an abandoned 18-hole golf course. Review of historical aerial imagery on Google Earth reveals that the golf course was operating in 2005 but suffered extensive flooding damage from flooding associated with Hurricane Ike (visible in Google Earth's September 2008 imagery). The last evidence of mowing visible in Google Earth images is March 2010. The golf course has been undergoing natural succession for at least 11 years.

Portions of the GC and PA-11 sites are the highest elevation of the areas investigated, ranging to more than 20 feet above sea level. This reach of the channel is mesohaline, with salinity ranging from 5 to 12 parts per thousand depending on the volume of flow in the Neches River (Winemiller et al, 2013). There is also significant evidence that a large wild hog population occupies this area.

4.1.1 GC Sites

Labeled GC north and GC south, these areas are the channel-side fringe of the abandoned golf course, now separated by several hundred foot gaps of eroded shoreline as shown on Figure 3. They are nearly identical in terms of elevation above water, nature of recent perturbation and the time since human disturbance ended. The Wet zone units often have a waterside rip-rap toe below a steep, eroded former confinement levee slope. The slope and rip-rap areas, if vegetated, are dominated by common reed due to that species' ability to tolerate moderate salinity in the adjacent Sabine Neches Channel. Areas above the channel slope were previously modified into golf course features. Parallel to the water course, there is a paved asphalt cart path meandering through both the Wet and Dry zones. The majority of the more elevated GC area is dominated by tall herbaceous vegetation; primarily goldenrod and giant ragweed. A few larger trees remain that were maintained as part of the golf course landscaping. Tallow tree and sugarberry are the most common successional trees. Groundsel-tree is the most common successional shrub. There are a few small ponds, also formerly part of the golf course landscaping. These ponds are generally dominated by two alien wetland species along the shoreline; alligator weed and deep-rooted sedge. Figure 4 presents four figures (4A, 4B, 4C, 4D) that depict the typical vegetation observed within the GC sites.


FIGURE 3
Pleasure Island Sites
GC South and GC North
PORT ARTHUR
GC North
GC North
GC South
1
2
3
4
5
6
7
8
9
10
11
12
Legend
Zones
Dry
Wet
Channel Toe
Sabine Samples
800 400 0 800 Feet
N
W
E
S
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

FIGURE 4. Images of GC Dry zone

4A. Former cart path in GC Dry zone south. Common reed along shoreline. Tallow tree flanks path.

4B. Successional goldenrod and ragweed near shoreline fringe of groundsel tree and sugarberry.

4C. Dominant groundcover in GC Dry zone: goldenrod and Texas vervain.

4D. Former golf course water hazard pond covered by duckweed and surrounded by cattail, alligator weed and deep-rooted sedge. Tallow tree, black willow and groundsel tree in background.


FIGURE 5
Pleasure Island Sites
PA-11 South and PA-11 North
PORT ARTHUR
13
14
15
16
PA-11 North
17
PA-11 South
PA-11 South
Legend
Zones
Dry
Wet
Channel Toe
Sabine Samples
800 400 0 800 Feet
1 inch = 667 feet
N
W
E
S
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

4.1.2 PA-11 Sites

Further upstream, the PA-11 sites are similarly separated by bank erosion gaps as depicted in Figure 5. They are virtually identical in configuration; water side levee faces, vegetated with successional trees and shrubs. The majority of each of these sites is in the Dry zone. These are confinement-levee top access roads and the waterward steep slopes to the river channel. There is a 20-30 foot wide band of rip-rap at the toe of each, separated from herbaceous and shrubby vegetation on the slope, by a fringe of salt-tolerant common reed. Dominant vegetation is the tall early successional herbs giant ragweed and goldenrod mixed with tallow tree and French tamarisk. Figure 6 shows the typical vegetation observed in the PA-11 sites.

FIGURE 6. Images of PA-11 Dry zone

Figure 6A: Goldenrod, ragweed, groundsel tree and tallow tree on waterside levee slope near sample 17.

Figure 6B: French tamarisk, tallow tree surrounded by goldenrod and ragweed along the levee top road near sample 16.

The widening and reconstruction of the levee-top access road was underway at the time of the field survey. The new access road has impinged upon the already narrow strip of vegetated levee waterside slope face, reducing its width to 20 to 30 feet.

4.2 Neches River Sites

As shown in Figure 2, the potential footprint of disturbance from widening measures within the Neches River portion of the navigation channel involves the southern tips of a series of island shorelines. These shorelines appear to have been created by excavation of a straight channel through the western side of the flood plain to cut off former river bends, or were formed by the placement of dredged materials during navigation channel maintenance or improvement actions.

These sites tend to range in elevation from mean sea level to approximately +4 feet elevation. The more northern sites may range to +5 or +6 feet elevation on the landward side, as dredge material has been historically placed adjacent to the river bank. These more elevated sites have not been recently disturbed and support small trees and large shrubs. Many are freshwater wetlands that range from low marsh to high marsh. At some locations, the adjacent uplands are dredge material placement area containment dike faces and there is evidence that many of these sites are used for grazing by cattle.

In total, the areas defined within the wet zone (i.e., blue polygons) sum to approximately 6.34 acres and the areas within the dry zone (i.e., red polygons) sum to approximately 24.6 acres.

4.2.1 Upper FINA Site

The Upper FINA site, as shown in Figure 7, is a 1.237 acre area that is entirely within the estimated dry zone (i.e., there would be no predicted change to the area of dry land currently depicted and the red-polygon of Figure 7 depicts an area that would only be disturbed by upland activities during widening). It is also entirely within a tidal low marsh. A field sample was not collected in this site; however, it was observed from the boat and it clearly presents a low marsh textural signature in all available imagery.

It is dominated by common reed on the water side and cattail toward the landward side. This site appears to experience low salinity, as salinity intolerant species, such as southern cattail and bulltounge, have become dominant. .

4.2.2 PA-18 Sites

The PA-18 sites, as shown by Figure 8, have been characterized by samples 26 through 30. The downstream PA-18 sites total 0.348 acres (0.284 + 0.064) and are within the dry zone, but like Upper FINA, are entirely low tidal marsh dominated by southern cattail. The 3.962 acre wet zone of Upstream PA-18 site is split between low marsh and high marsh. The low marsh is dominated by southern cattail, cane-maker's rush, and bulltounge arrowhead. Upper marsh vegetation, approximately one-foot higher in elevation, is composed of deep-rooted sedge, frogfruit and groundsel tree saplings. One to two feet higher in elevation, the plant community becomes a dense tangle of southern dewberry, peppervine, and shrub-

sized tallow tree and sugarberry. The dry zone of the PA-18 site is approximately 11.426 acres with the upstream-most 300 feet of this unit nearly +5 feet in elevation. This higher elevation area supports older trees; however, the dominant species are also tallow tree and sugarberry. Figure 9 (9A, 9B) show the typical vegetation found at these sites.

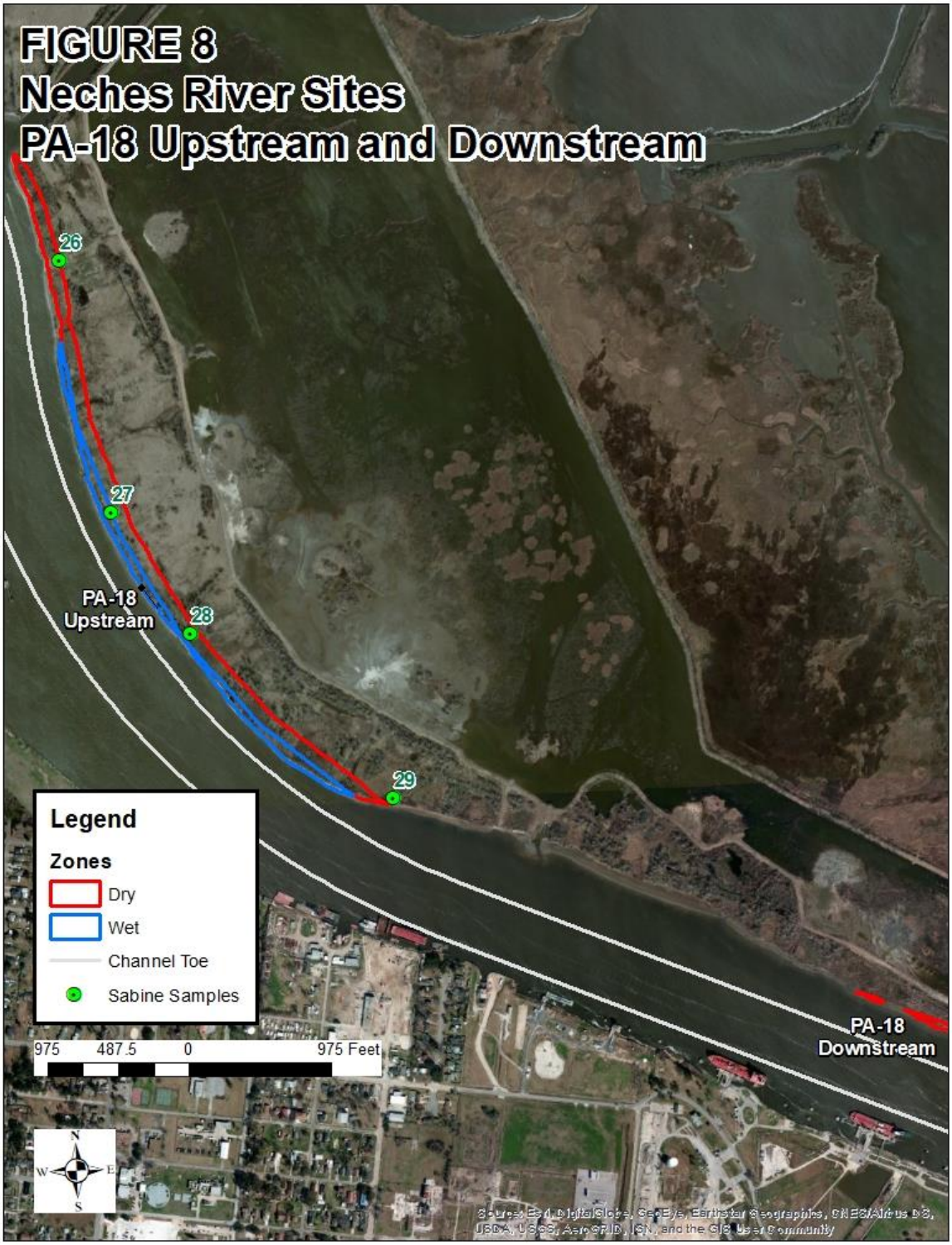
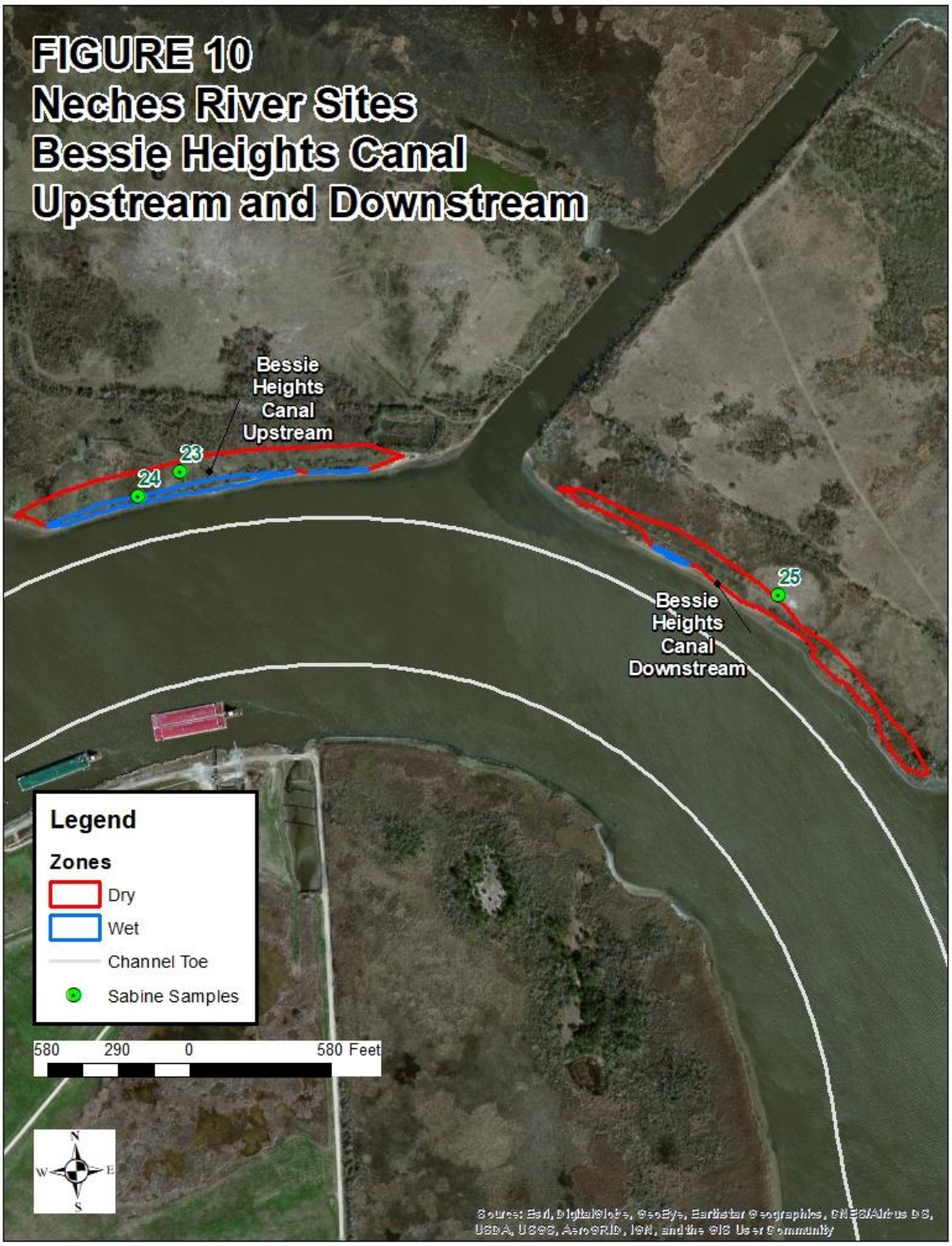


FIGURE 9. Images of PA-18

Figure 9A: PA18 Downstream low marsh dominated by southern cattail. Tallow trees and sugar berry trees are growing on a low levee face in the background.

Figure 9B: PA-18 low marsh, high marsh and shrub-sapling covered levee face in background.

4.2.3 Bessie Heights Canal Sites



The Bessie Heights Canal sites, as shown on Figure 10 are a series of dredge material mounds and swales reflecting incident decisions on the placement of dredge material. In the Bessie Heights Canal Downstream area, approximately 0.039 acres are within the wet zone and 3.0 acres are within the dry (red polygon) zone that could be affected by the widening. Within the Bessie Heights Canal Upstream area,

approximately 0.702 acres (0.023+0.679) are within the wet zone and 3.414 acres are within the dry (red polygon) zone that could be affected by the widening.

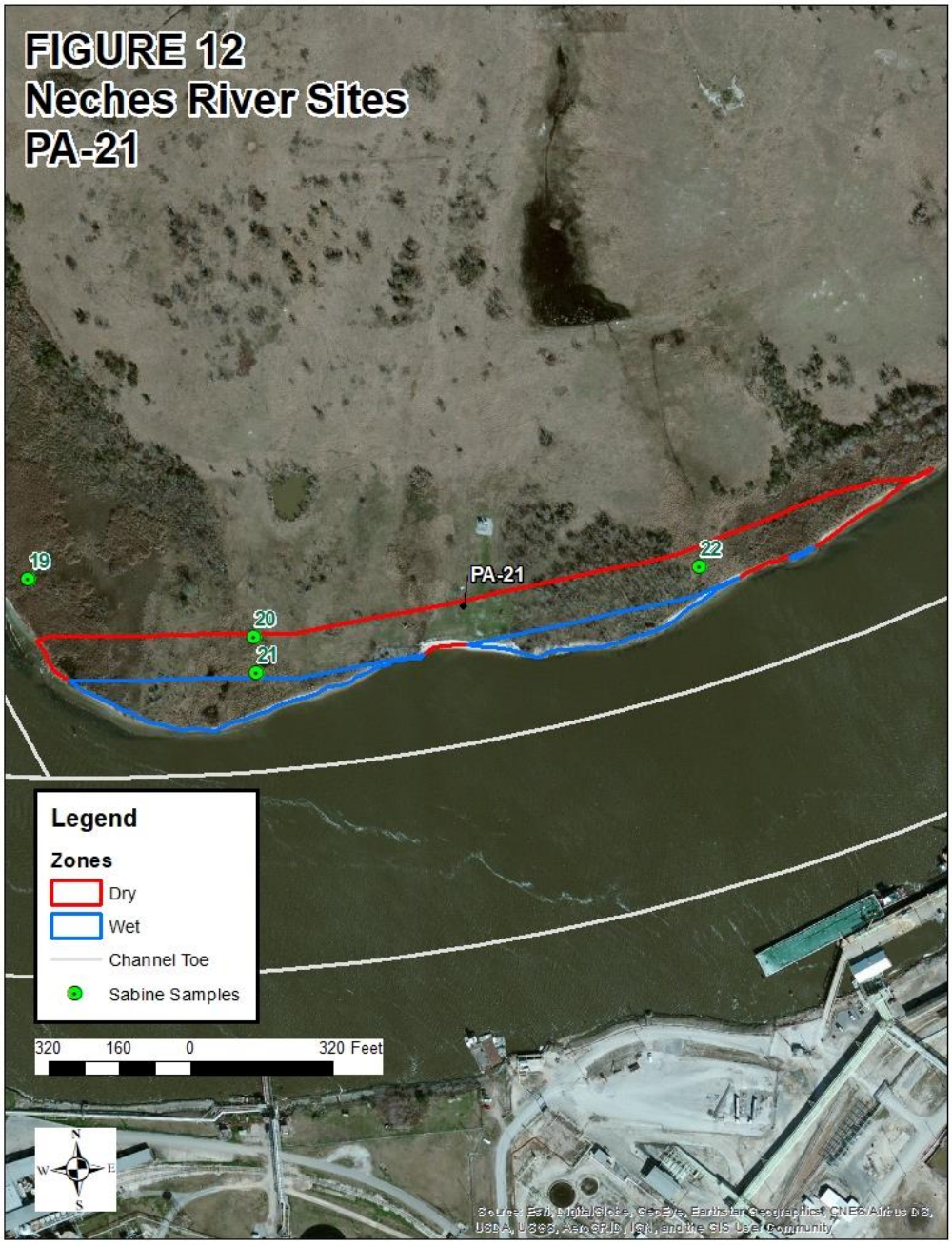
Samples 23, 24 and 25 were logged in these sites. Within the area of potential influence from widening measures, the mounds are elevated to +5-feet or more above the water. The more elevated locations support stands of tall shrubs of tallow tree, sugar berry, wax myrtle. A few small, scattered bald cypress are noteworthy near the shoreline. Lower areas support low diversity high marsh occupied by deep-rooted sedge, southern dewberry and Texas vervain. Low marsh vegetation is composed of cattail, frog fruit and bulltounge.

FIGURE 11. Images of Bessie Heights Canal Upstream and Downstream

Figure 11A. Low marsh in swale followed by a dredge material mound at the Bessie Heights Canal site

Figure 11B. Old levee end surrounded by high marsh near sample 22 within the Bessie Heights Canal site

Figure 11C. Successional goldenrod, peppervine and southern dewberry within Bessie Heights Canal Dry



PA-21 Site

PA-21, as shown by Figure 12, is similar to the Bessie Heights Canal upstream and downstream sites, with approximately one-quarter of the area in shrub-dominated, elevated mounds. In the PA-21 site, approximately 1.67 acres (0.01+0.58+1.08) are within the wet zone (blue polygon) and 4.34 acres are within the dry (red polygon) zone that could be affected by the widening. Samples 19 through 22 characterize the vegetation found in these sites. Major vegetation continues to be sugarberry, tallow tree and groundsel tree. The remainder is low marsh strongly dominated by southern cattail.

4.2.4 Sun Upper-Lower Island Site

The Sun Upper-Lower Island site, as shown in Figure 12, is a 0.81 acre area that is entirely within the estimated dry zone (i.e., there would be no predicted change to the area of dry land currently depicted and the red-polygon of Figure 13 depicts an area that would only be disturbed by upland activities during widening). The Sun Upper-Lower Island Site appears to be mostly a recently disturbed older levee face. It is dominated by early successional colonizers such as giant ragweed, common reedgrass, and Peppervine. Some areas near the eastern end support low marsh (Figure 14).

FIGURE 14. Sun Upper Lower Island Sites

Figure 11D. Low cattail marsh that comprised the Wet zone of Sun Lower Island.

SUMMARY

If channel widening measures are implemented in the areas identified and surveyed, terrestrial vegetation and its use as habitat would be eliminated in the newly submerged areas. Depending on final depth and water clarity, some portion of the disturbed areas would be expected to revegetate as submergent to emergent wetlands. The new graded slope above the new wet zone would likely revegetate through natural successional processes to the habitat character and composition found there now.

All sites are low in species diversity. There were no listed rare, threatened or endangered species observed. A significant portion of most non wetland stands are presently composed of alien species, some of which are listed as noxious weeds. Most low marsh areas in the southern navigation channel project area are almost entirely composed of common Reedgrass; a noxious alien weed. The foregoing characteristics define ecological compositions classifiable as early successional colonizers. This type of community occurs in instances of recent and frequent disturbance. The presence of these types of plant communities suggests that there is a nearby propagule pool to facilitate rapid natural revegetation of the potentially affected sites.

It is uncertain as to whether the marshes along the Neches River portion of the area investigated would be directly affected by the channel improvement project, since the slope from the wet zone excavation would daylight at the existing elevation, which is at or below ordinary water elevation in many low marsh areas. This is an assumption that should be further evaluated by the channel design engineers.

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Attachment D: NMFS Email from Anthony Sogluizzo to Blake Westmoreland, USACE

Gmail

Michael McGarry <mmcgarry@dma-us.com>

FW: [Non-DoD Source] Sabine Neches Waterway Navigation Improvement Feasibility Study Cooperating Agency Response Letter

1 message

Westmoreland, Blake E CIV USARMY CESWF (USA) <Blake.E.Westmoreland@usace.army.mil> Wed, May 22, 2024 at 9:00 AM

To: Michael McGarry <mmcgarry@dma-us.com>
Cc: "Nealy, Franchelle E CIV USARMY CESWG (USA)" <Franchelle.E.Nealy@usace.army.mil>

Mike,

See Mr. Sogluizzo's email.

Blake Westmoreland (he/him) | Biologist & Master Planning Program Manager

USACE, Regional Planning and Environmental Center

Office: 409-766-3927

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Webex: https://usace1.webex.com/meet/blake.e.westmoreland

Webex Teleconference Line: 1-844-800-2712

Access Code: 199 725 0967

From: Anthony Sogluizzo - NOAA Affiliate <anthony.sogluizzo@noaa.gov>
Sent: Tuesday, May 21, 2024 12:39 PM
To: Westmoreland, Blake E CIV USARMY CESWF (USA) <Blake.E.Westmoreland@usace.army.mil>
Subject: [Non-DoD Source] Sabine Neches Waterway Navigation Improvement Feasibility Study Cooperating Agency Response Letter

Mr. Westmoreland,

NMFS appreciates and accepts your invitation to act as a cooperating agency for the Sabine Neches Waterway Improvement Feasibility Study. Attached is the signed response letter.

It is important to note that the Sabine Waterway has recently undergone a section 7 consultation for the channel deepening. It is the opinion of NMFS Protected Resources Division, who oversees compliance with the Endangered Species Act, that the Biological Opinion for the Sabine deepening will directly apply to the current project to widen the channel. Therefore, when issues arise regarding the ESA, please refer to the completed Section 7 consultation. If there is

continued confusion you can email Ms. Sarah Garvin (sarah.garvin@noaa.gov - also listed in the attached letter) who completed the original Section 7.

Cheers,

Anthony Sogluizzo, M.Sc.

ESA Fisheries Policy Analyst
Contractor with SFI in support of
NOAA Fisheries Directorate Office | U.S. Department of Commerce
Office: (727) 460-8805
www.fisheries.noaa.gov

CA Request Response Sabine Neches Waterway Navigation Improvement Feas. Study.pdf
190K

Attachment E: USFWS Planning Aid Letter to USACE, dated 17 September 2024

United States Department of the Interior

FISH AND WILDLIFE SERVICE
200 Dulles Drive
Lafayette, Louisiana 70506

September 17, 2024

Mr. Brandon Wadlington
Chief, NEPA and Natural Resources Section
Regional Planning and Environmental Center
U.S. Army Corps of Engineers, Galveston District
P.O. Box 1229
Galveston, Texas 77553-1229

Dear Mr. Wadlington:

Please reference your April 10, 2024, letter to Mr. Chuck Ardizzone, Project Leader for the Texas Coastal and Central Plains Ecological Services Offices, U.S. Fish and Wildlife Service (Service). In that letter, the U.S. Army Corps of Engineers (USACE), Galveston District, in cooperation with the Sabine Neches Navigation District (SNND) asked for the Service's participation in the coordinated environmental review process for the feasibility study of proposed improvements to a portion of the Sabine Neches Waterway (SNWW) in Texas under the authority of Section 203 of the Water Resources Development Act (WRDA). The draft Feasibility Report and integrated Environmental Assessment (FR/EA) would be prepared by the SNND and submitted to the USACE. The Service accepts your invitation to participate as a cooperating agency for this effort. The Louisiana Ecological Services Office (LESO) will be the lead point of contact with assistance from the Texas Coastal and Central Plains Ecological Services Office (TCCPESFO).

The SNND has prepared a Sabine Neches Improvement Project Integrated Section 203 Feasibility Report and Environmental Assessment Project Summary for Agency Coordination (Summary) that provides early planning information for the proposed widening of some portions of the Sabine Neches Waterway. A 2022 SNND study found that at the existing channel width, vessels spent many thousands of hours waiting to access the channel due to increased traffic in 2019. Some parts of the Sabine Neches Waterway are currently being deepened to between -40 to -48 feet (ft) mean lower low water (MLLW) as part of the Sabine-Neches Waterway Channel Improvement Project (USACE 2011). But according to the Summary, since 2011 the number of deep draft vessels using the waterway has increased and navigational efficiency could be improved. The proposed project under study and review would widen approximately 20 miles of inshore channels in three discontinuous lengths by 100 ft (from 400 to 500 ft) on the left descending bank of the Sabine Neches Waterway (Figure 1) to allow more vessels to pass each other with less delays.

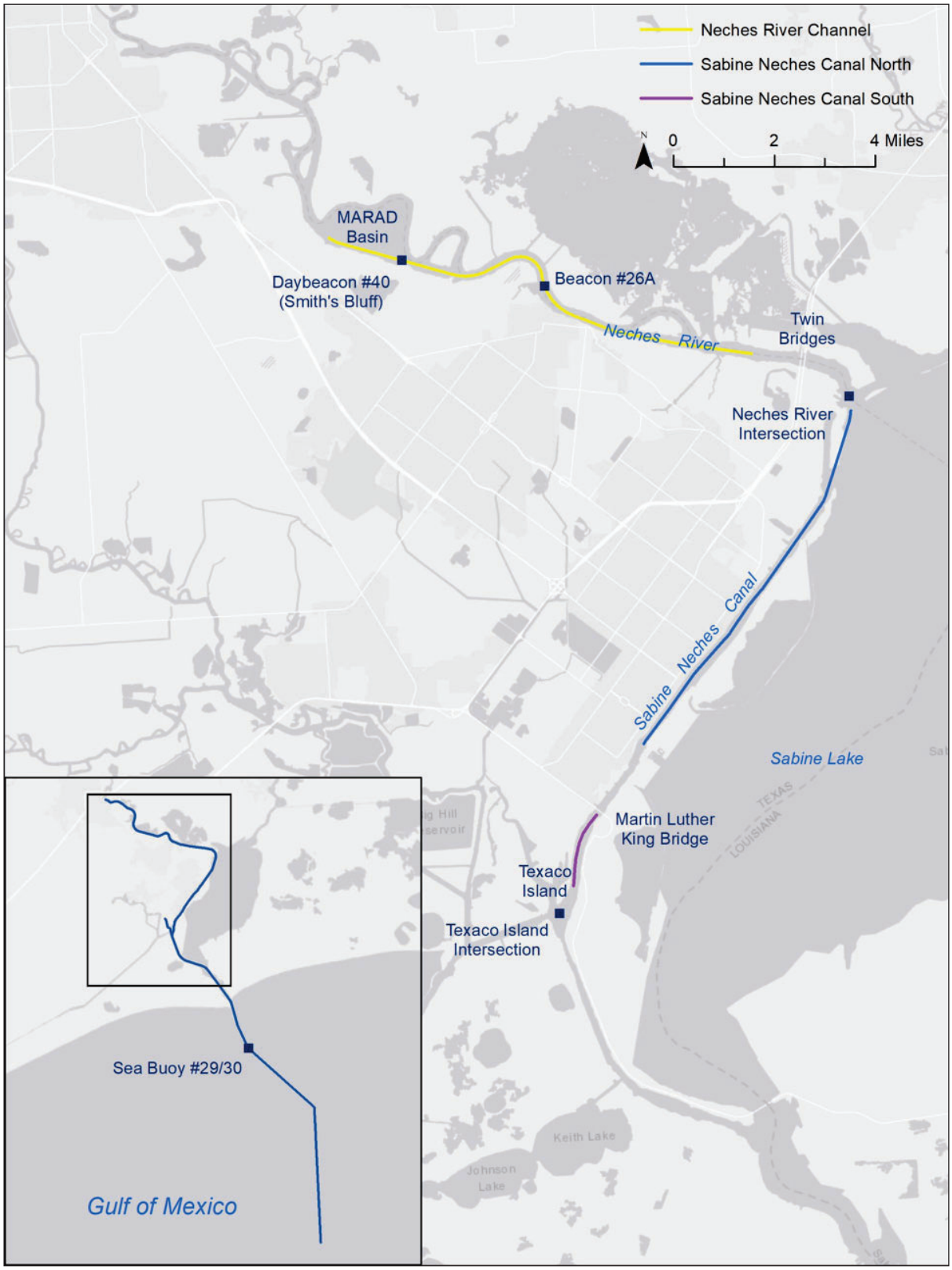

Figure 1. Map of study area showing areas to be widened (from Summary)

The following comments are provided as an early planning aid in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act of 1969 (83 Stat. 852, as amended; 42 U.S.C. 4321 et seq.), and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 661 et seq.).

Significant Fish and Wildlife Resources to Be Considered

Threatened and Endangered Species and Other Species of Concern

The proposed study is in an area where federal trust resources such as threatened and endangered species, at-risk species, nesting wading birds, and bald eagles occur. According to the Summary, the USACE's Galveston District will be responsible for a determination of project impacts to each of those species, any designated critical habitat, and the supporting rationale for those determinations. They will obtain a list of threatened and endangered species that may occur in the proposed project location from our Information for Planning and Consultation (IPaC) online tool, and use that tool to make determinations regarding potential impacts to species.

Section 7(a)(1) opportunities

Section 7(a)(1) of the ESA is a conservation mandate that states, "All... Federal agencies shall ... utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species." It is a proactive authority with a goal to recover listed species. The Service recommends throughout the study process that consideration be given to the recovery of listed and proposed species. For examples and ideas of conservation measures refer to the USACE's 2014 Conservation Plan for the Interior Least Tern, Pallid Sturgeon, and Fat Pocketbook Mussel in the Lower Mississippi River which was developed to help comply with Sect 7(a)(1) for those species.

At-Risk Species Opportunities

The Service's Southeast Region has defined "at-risk species" as those that are: 1) proposed for listing under the ESA by the Service; 2) candidates for listing under the ESA, which means the species has a "warranted but precluded 12-month finding"; or 3) petitioned for listing under the ESA, which means a citizen or group has requested that the Service add them to the list of protected species. Petitioned species include those for which the Service has made a substantial 90-day finding as well as those that are under review for a 90-day finding. As the Service develops proactive conservation strategies with partners for at-risk species, the states' Species of Greatest Conservation Need (defined as species with low or declining populations) will also be considered. Opportunities to consider for reducing the likelihood of additional species listings would be actions that benefit at-risk species. Please see At Risk Species or contact the LESO and/or the TCCPESFO for further information on each species.

Opportunities for Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the Service to identify species, subspecies, and populations (hereafter taxa) of all migratory nongame birds that without additional conservation action are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973. The Birds of Conservation Concern 2021 (BCC 2021) is the most recent effort to carry out this mandate. The Service's goal is to work with private and public entities on proactive conservation to conserve these species, thereby precluding the need to federally list as

many at-risk species as possible. Please use the link above to find several Birds of Conservation Concern known to occur within the study area.

Significant Habitats

Coastal marshes, swamp, bottomland hardwood forest (wet and dry), riparian zone, stream water bottoms, and other habitats are considered by the Service to be resources of national importance due to their increasing scarcity and high habitat value for fish and wildlife within Federal trusteeship (i.e., migratory waterfowl, wading birds, other migratory birds, threatened and endangered species, at-risk species, and interjurisdictional fisheries).

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved.

> Resource Category 1 - Habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section. The mitigation goal for this Resource Category is that there should be no loss of existing habitat value.
>
> Resource Category 2 - Habitat to be impacted is of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the ecoregion section. The mitigation goal for habitat placed in this category is that there should be no net loss of in-kind habitat value.
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> Resource Category 3 - Habitat to be impacted is of high to medium value for evaluation species and is relatively abundant on a national basis. FWS's mitigation goal here is that there be no net loss of habitat value while minimizing loss of in-kind habitat value.
>
> Resource Category 4 - Habitat to be impacted is of medium to low value for evaluation species. The mitigation goal is to minimize loss of habitat value.

The Service recommends the SNND investigate alternatives which avoid and minimize impacts to these habitats and where possible to enhance or restore them. If the below habitats cannot be avoided, mitigation will be recommended. Considering the high value of these wetlands for fish and wildlife and the relative scarcity of that habitat type, those habitat types are designated as Resource Category 2, the mitigation goal for which is no net loss of in-kind habitat value.

Coastal Marshes

Marsh types in the study area include fresh, intermediate, and brackish (Enwright, N.M. et al. 2014). Coastal marshes exhibit an increasing salinity gradient beginning with freshwater wetlands in the uppermost basins which transition into intermediate marsh, followed by brackish habitats, and then saline marshes towards the Gulf of Mexico. The marshes and waters of coastal Louisiana are high in biological productivity (Day et al. 1982). Coastal marshes in Louisiana and Texas serve as vital nursery areas for fish and shellfish (Van Sickle et al. 1976; Zimmerman et al. 1990) as well as wildlife habitat (Lowery 1974a, 1974b; Haukos 2010). Those wetlands provide plant detritus to adjacent coastal waters and thereby contribute to the production of commercially and recreationally important fishes and shellfishes. Wetlands also provide valuable water quality functions such as

reduction of excessive dissolved nutrient levels, filtering of waterborne contaminants, and removal of suspended sediment. In addition, coastal wetlands buffer storm surges and reduce their damaging effect to man-made infrastructure within the coastal area.

Forested Wetlands (Swamp and Bottomland Hardwood Forest)

Forested wetlands (bottomland hardwoods [BLH] and swamps) are found along the natural levees of rivers and their distributary ridges. Swamp habitat in the study area typically consists of cypress, tupelo, and red maple. The BLH habitat typically consists of species such as oaks, hickories, American elm, green ash, sweetgum, sugarberry, boxelder, persimmon, honey locust, red mulberry, eastern cottonwood, and American sycamore. Swamp and BLH are valuable plant communities that provide a variety of significant benefits to wildlife including food, nesting areas, shelter, and water.

Restoration Opportunities

Land subsidence, salinity intrusion from original SNWW construction, small channel (largely oil field access) construction, and levees have all contributed to the conversion of wetlands in the lower Neches River Basin into open water areas. Once converted, these areas are difficult to revegetate and return to their original productivity without raising lost elevations using massive amounts of dredged (or otherwise imported) material. Therefore, the SNND should consider using channel-dredged material from the proposed project and subsequent maintenance material to restore degraded wetlands near the project area. Proposed sites are discussed below.

Bessie Heights Marsh and Old River Cove Marsh

The most extensive losses of interior coastal wetlands in Texas have occurred in the lower Neches River Delta. Most of the marshes formerly in the Bessie Heights Marsh area have been lost to open water (White et al. 1987, Sutherlin 1996). Primary causes of wetland loss in both these areas were land subsidence and salinity intrusion. The Service recommends the SNND consider marsh creation at these sites. In addition to marsh creation, shallow water area (< 1 ft deep) habitat would be increased, and existing (currently stressed) marsh would be nourished by spillover from the marsh creation area. Both sites are located north of the Neches River Channel portion of the project within about 1 to 3 miles.

Rose City Marsh and Swamp

This freshwater system was historically composed of primarily cypress-tupelo swamp and freshwater marsh prior to the early 1900's. The Service recommends the SNND pursue plans for restoration of some cypress-tupelo forest vegetation on suitable, higher-elevation ridges within the restored marsh area. This is the predominant former vegetation type at this location, and cypress-tupelo swamp forest has been shown to support high native wildlife populations in this region.

National Wildlife Refuges

The Service administers three National Wildlife Refuges located within 6 to 8 miles of the study area. While not adjacent to the study area, all are hydrologically connected to the Sabine Neches Canal. The Service recommends the SNND consider potential direct or indirect impacts to National Wildlife Refuges in their planning of the proposed project (Table 3).

Table 1. National Wildlife Refuges found near the study area.

National Wildlife Refuge (NWR)	Location
Sabine NWR	Adjacent to Sabine Lake, LA
McFaddin NWR	South of study area, along GIWW, TX
Texas Point NWR	South of study area, along Sabine Pass, TX

The USACE and the Service have formally committed to work together to conserve, protect, and restore fish and wildlife resources while ensuring environmental sustainability of our Nation's water resources under the January 22, 2003, Partnership Agreement for Water Resources and Fish and Wildlife. Accordingly, the Service looks forward to our continued work on the Sabine Neches Navigation Improvement Project Integrated Section 203 Feasibility Report and Environmental Assessment. We appreciate the cooperation of your staff on that report and environmental assessment. Comments and responses to this early planning aid letter can be directed to the LESO as the lead office on this project. Should your staff have any questions regarding this letter, please have them contact Mr. David Castellanos (337-291-3112) of this office.

Sincerely,

Brigette D Firmin

BRIGETTE FIRMIN Digitally signed by BRIGETTE FIRMIN
Date: 2024.09.17 16:31:30 -05'00'

Brigette D. Firmin
Field Supervisor
Louisiana Ecological Services Office

cc:

FWS, Texas Coastal and Central Plains Ecological Services Office, TX
NOAA NMFS, Southeast Regional Office, FL
EPA, Region 6 Wetlands Program, TX
USDA NRCS, TX
Texas Parks and Wildlife Department, TX
Louisiana Dept. of Wildlife and Fisheries, LA
Sabine Neches Navigation District, TX

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